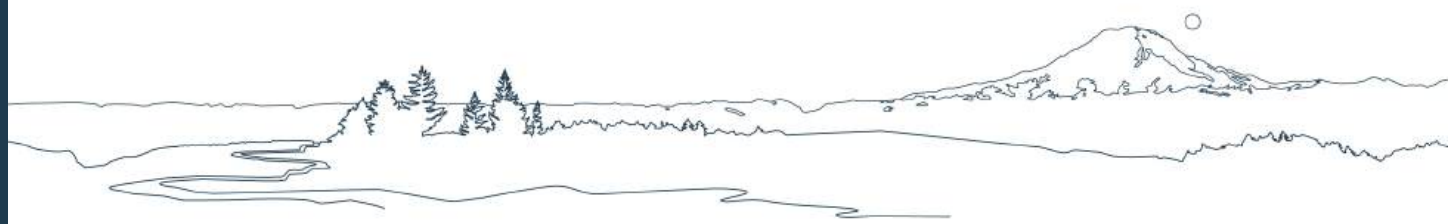
Engineering Design Report

Smith-Kem Site

Prepared for
Smith-Kem Ellensburg, Inc.

October 2024



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LIMITATIONS

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The interpretations and conclusions contained in this report are based in part on site characterization data collected by others. Floyd|Snider cannot assure the accuracy of this information.

Engineering Design Report

This document was prepared for
Smith-Kem Ellensburg, Inc.
under the supervision of:



Name: Emily Jones, PE, Floyd|Snider
Date: 10/18/2024



Name: Sean Hanrahan, PE, PBS Engineering and Environmental Inc.
Date: 10/18/2024
Sections 5.4 and 6.8
Appendices E, F, and H

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List of Abbreviations

Abbreviation	Definition
2,4-D	2,4-Dichlorophenoxyacetic acid
ALS	ALS Environmental
AO	Agreed Order
AOC	Area of concern
APS	Applied Professional Services
ARAR	Applicable or relevant and appropriate requirement
ARL	Analytical Resources, LLC
AST	Aboveground storage tank
bgs	Below ground surface
BHC	Benzene hexachloride
BMP	Best management practice
BNSF	BNSF Railway Company
CAP	Cleanup Action Plan
CCMP	Construction Compliance Monitoring Plan
CD	Consent Decree
City Gas Division	City of Ellensburg Gas Division

Abbreviation	Definition
cm	Centimeters
COC	Chemical of concern
CPOC	Conditional point of compliance
CSBC	Crushed surfacing base course
CSGP	Construction Stormwater General Permit
CSM	Conceptual site model
CUL	Cleanup level
CY	Cubic yards
DDT	Dichlorodiphenyltrichloroethane
Ecology	Washington State Department of Ecology
EDR	Engineering Design Report
Engineer	Engineer of Record or their designee
FBI	Friedman & Bruya, Inc.
FS	Feasibility Study
GCL	Geosynthetic clay liner
GMP	Groundwater Monitoring Plan
GSR	Green and sustainable remediation
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
IC	Institutional control
LTCMP	Long-Term Compliance Monitoring Plan
McGregor	McGregor Company
MCPA	2-Methyl-4-chlorophenoxyacetic acid
µg/L	Micrograms per liter
mg/kg	Milligrams per kilogram
MNA	Monitored natural attenuation
MTCA	Model Toxics Control Act
NAPL	Non-aqueous phase liquid
ng/kg	Nanograms per kilogram
OSHA	Occupational Safety and Health Act

Abbreviation	Definition
Patriot	Patriot Environmental Services, Inc.
PBS	PBS Engineering and Environmental Inc.
PDI	Pre-remedial design investigation
PFM	Passive flux meter
PID	Photoionization detector
PLP	Potentially liable person
POC	Point of compliance
RACR	Remedial Action Completion Report
RAO	Remedial Action Objective
REL	Remediation level
RI	Remedial Investigation
SAP/QAPP	Sampling and Analysis Plan/Quality Assurance Project Plan
SF	Square feet
Shell	Shell Oil Products US
Site	Smith-Kem Ellensburg, Inc. site
Smith-Kem	Smith-Kem Ellensburg, Inc.
Smiths	James R. and Jean Smith
SMP	Soil Management Plan
TESC	Temporary Erosion and Sediment Control
TPH	Total petroleum hydrocarbons
UPRR	Union Pacific Railroad
VOC	Volatile organic compound
WAC	Washington Administrative Code
WISHA	Washington Industrial Safety and Health Act
WSDOT	Washington State Department of Transportation

1.0 Introduction

This Engineering Design Report (EDR) was prepared per the requirements of Washington Administrative Code (WAC) 173-340-400(4)(a) and describes the engineering concepts and design criteria for the cleanup action selected by the Washington State Department of Ecology (Ecology) for the Smith-Kem Ellensburg, Inc. (Smith-Kem) site (Site), as detailed in the Cleanup Action Plan (CAP; Ecology 2023). The Site is generally located at 200 S. Railroad Avenue in Ellensburg, Washington, and the Site boundary includes a small portion of adjacent properties, as defined in the CAP. The Site is included on Ecology's Confirmed and Suspected Contaminated Sites List under Facility Site ID 12832256 and Cleanup Site ID 4257.

1.1 SITE DESCRIPTION AND REGULATORY OVERVIEW

The Smith-Kem property is zoned as "heavy industrial" and located in Kittitas County (parcel no. 226833) on approximately 2 acres with a surface covered with compacted imported gravel. The Site is bounded to the north by vacant properties and to the south by various light-industrial and other commercial businesses. To the east is the BNSF Railway Company (BNSF) rail yard and a rail spur that comes onto the eastern portion of the property. To the west is S. Railroad Avenue followed by a rural residential property. The surrounding City of Ellensburg, as well as most of Kittitas County, is agricultural land. The Smith-Kem property location is shown on Figure 1.1, and key features of the property and surrounding area are shown on Figure 1.2.

Starting in the mid-1920s, Shell Oil Products US (Shell) operated a bulk fuel facility on the property and continued operations until the early 1970s. In 1948, Shell leased a portion of the property to Smith-Kem, a vendor of agricultural products. Shell sold the property to James R. and Jean Smith (Smiths) of Ellensburg, Washington, in 1972, and Smith-Kem continued to conduct operations on the property until March 31, 2015, when the McGregor Company (McGregor) acquired the business and assumed control of the property as an operator. The Smiths sold the property to Ad Gro, LLC, on August 5, 1996, but McGregor has had effective control of the day-to-day operations since April 1, 2015.

An environmental investigation in 2007 identified total petroleum hydrocarbons (TPH) in soil and groundwater, which led to subsequent investigations of soil and groundwater that documented elevated levels of pesticides, chlorinated herbicides, and ammonia. Based on those results, Shell and Smith-Kem were named potentially liable persons (PLPs) and entered into an Agreed Order (AO; AO DE 12908) with Ecology on February 29, 2016 (Ecology 2016). Remedial Investigation (RI) field activities were conducted per the AO and an Ecology-approved RI Work Plan (Floyd|Snider 2016) starting in 2016 and were completed in early 2020. After the RI field work, an RI/Feasibility Study (FS) report was prepared and submitted to Ecology in 2021 (Floyd|Snider 2021) and subsequently approved by Ecology in January 2022. In May 2023, Ecology issued the CAP, which described the preferred cleanup action for the Site.

In August 2023, Smith-Kem, Ad Gro, and Shell executed a Consent Decree (CD; CD 23-2-00247-19) with Ecology to implement remedial actions at the Site as specified in the CAP, which is Exhibit B of the CD. Ecology's selected cleanup action includes the following components:

- Excavation and off-site disposal of soil in areas of concern (AOCs) with chemical of concern (COC) concentrations greater than remediation levels (RELs) or cleanup levels (CULs)
- Installation of a geosynthetic clay liner (GCL) and drainage in the eastern portion of the Site for protection of groundwater
- In situ groundwater treatment by injecting liquid activated carbon along the downgradient edge of AOC 5 to immobilize COCs (pesticides and TPH) in groundwater
- Capping contaminated soil with COC concentrations greater than the RELs to protect workers from direct contact exposure
- Institutional controls (ICs) to prohibit use of Site groundwater as drinking water or for domestic use, irrigation, or industrial use and to maintain the cap
- Monitored natural attenuation (MNA) for groundwater recovery

1.2 PURPOSE AND OBJECTIVES

The purpose of the EDR is to provide the engineering design and planning information for cleanup action implementation described in the CAP, as well as to provide sufficient detail to implement the post-construction activities.

The primary objectives of this EDR include the following:

- Summarize the pre-remedial design investigation (PDI) results.
- Refine the lateral and vertical extents of contaminated soil excavations based on the results of the PDI soil data collection.
- Provide injection spacing and reagent quantities for the in situ groundwater treatment based on the results of the PDI data collection.
- Provide design details for GCL and drainage components.
- Provide design details and assumptions that will serve as direction to the contractor(s) and subcontractors to implement all components of the cleanup action in a protective and safe manner in accordance with the CAP.
- Comply with applicable sections of the WAC; the Model Toxics Control Act (MTCA; Chapter 70.105D RCW); and applicable state, federal, and local requirements.

This EDR meets the WAC 173-340-400(4)(a) requirements.

1.3 ROLES AND RESPONSIBILITIES

This section defines roles and responsibilities for implementation of the cleanup, consistent with WAC 173-340-400(4)(a)(iii). The PLPs, Smith-Kem and Shell, are responsible for performing the work described in this EDR as required under the CD. The Site owner, Ad Gro, will be responsible for facilitating Site access and coordination. Smith-Kem is the primary contracting party and is ultimately responsible for the performance of the work. Smith-Kem, its consultants, the selected contractor(s), and Ecology will be involved in the implementation of the project.

Ecology will provide regulatory review and approval of this EDR and applicable post-construction operation, maintenance, and monitoring plans. Ecology may additionally conduct Site inspections during implementation of the cleanup action.

Floyd|Snider is the primary consultant to Smith-Kem and is responsible for overall project management to ensure that implementation of the EDR complies with the CAP and the CD. The Engineer of Record, a professional engineer registered in the state of Washington, is responsible for the preparation and stamping of this EDR. The Engineer of Record or their designee (Engineer), on behalf of Smith-Kem, will provide quality control oversight during cleanup action implementation. Any other approving engineer responsible for oversight and documentation of the cleanup action will also be a professional engineer registered in the state of Washington and will be identified to Ecology prior to commencing field work.

PBS Engineering and Environmental Inc. (PBS) is a subconsultant to Floyd|Snider providing engineering design for the GCL and associated stormwater features described in Sections 5.4 and 6.8.

2.0 Site Background and Environmental Conditions

The following sections provide an overview of the Site background and environmental conditions, with additional detail provided in Section 2.0 of the RI/FS (Floyd|Snider 2021).

2.1 SITE BACKGROUND

Shell operated on the property as a bulk fuel distributor from approximately 1923 to 1972. According to historical property records, general operations consisted of receiving, storing, and distributing bulk fuel products, although exact details concerning unloading, storage, and operational activities are not known. From 1948 until 1972, Shell leased a portion of the property to the Smiths to conduct their agricultural products business. The Smiths operated under the Shell Chemical Company brand during that time and provided fertilizers, pesticides, and herbicides. Shell's operations ceased in the early 1970s, and Smith-Kem repurposed some of the Shell aboveground storage tanks (ASTs) for the storage of fertilizer products. In the late 1980s, all remaining steel ASTs were replaced with ASTs made of fiberglass.

The fertilizer operation expanded in the late 1970s to early 1980s, and a 70-foot by 90-foot concrete secondary containment was constructed around the fertilizer tank farm located north of the current bulk fertilizer building (the AST containment area). In 1988, the fertilizer business shifted from mostly "wet" application (i.e., anhydrous ammonia) to more "dry" application (i.e., pelletized/granular products). To accommodate the storage and mixing of fertilizers, a 5,000-square-foot building (bulk fertilizer building) was built in 1988 south of the AST containment area. The Smiths sold the property to Ad Gro in August 1996 but continued operations on the property. McGregor acquired the Smith-Kem business in March 2015 and has had effective control of Site operations since April 2015.

In 2008, Ecology identified the Site as a MTCA site based on an 2007 investigation that identified elevated levels of TPH in soil and groundwater. Several investigations were conducted between 2007 and 2020 and documented the presence of TPH, pesticides, chlorinated herbicides, nitrate, and ammonia in soil and groundwater. Additional details regarding these investigations can be found in Section 3.0 of the RI/FS.

2.2 CURRENT CONDITIONS AND FUTURE USE

The Site property is located at 200 S. Railroad Avenue in Ellensburg, Washington, in Kittitas County. The property is zoned Heavy Industrial and land uses are industrial or commercial in nature. Most of the property is currently used as a fertilizer-blending and pesticide-storage operation. Adjacent properties include a vacant lot to the north, a BNSF rail yard to the east and a rail spur that comes onto the eastern portion of the property, the roadway S. Railroad Avenue and a rural residential property to the west, and a Habitat for Humanity store to the south, as shown on Figure 1.2. The surrounding City of Ellensburg, as well as most of Kittitas County, is prime agricultural land.

There are currently three buildings on the property, including a machine shop, an office and storage building, and a bulk fertilizer building. Three ASTs, which are used to store diesel fuel and

agricultural products sold by McGregor, are located within an AST containment area. The containment area includes a concrete pad with an encompassing low concrete wall and is surrounded by a fence to restrict access. The majority of the property's surface is covered by buildings, concrete, or compacted gravel.

McGregor, a distributor and manufacturer of bulk crop nutrition and protection products, currently leases the property from Ad Gro to conduct its agricultural product distribution business. McGregor blends pre-purchased products for commercial use and reports that its operations include handling bulk liquid and dry fertilizer products, as well as handling a full range of crop protection products (which include a broad range of pesticides and herbicides). Additionally, operations consist of filling agricultural equipment for direct application to crops throughout the Ellensburg area. The property has long supported agriculture through fertilizer-blending and pesticide-storage operations, and those operations are anticipated to continue in the future after completion of the cleanup action.

2.3 GEOLOGIC AND HYDROGEOLOGIC SETTING

The approximate 2-acre property's ground surface is covered with compacted imported gravel and is relatively flat with an approximate elevation of 1,500 feet above mean sea level. The general topography of the area slopes slightly toward the south.

Shallow soils on the property consist of unconsolidated gravel and cobbles with varying amounts of sand and silt. Silt content generally increases on the northern half of the property with layers of dark brown silt and some organic matter in shallow soils (i.e., between 0 and 5 feet below ground surface [bgs]), which is consistent with this area being part of a floodway or wetland prior to development. This silt unit is not continuous across the property; however, varying amounts of silt in sandy and gravelly soils were observed in the top 5 feet of soils. All Site soils are considered to have been deposited as recent alluvium in the floodplain of the Yakima River.

Seasonal groundwater fluctuations across the Site were evaluated as part of the RI/FS. A shallow unconfined aquifer is typically encountered on the property at depths ranging from 3 to 6 feet bgs. The annual average groundwater table is at 3.5 feet bgs, with greater depths to water (ranging between 4 and 5 feet bgs) in the BNSF rail yard near the rail spur. This is consistent with the higher surface elevation of the BNSF rail yard, which is approximately 1 to 1.5 feet higher than the property. The groundwater table has a shallow horizontal gradient of about 0.002 feet per foot and fluctuates throughout the year, with highs observed during early spring (March) and lows observed during late summer (August) and winter (January). Groundwater at the Site is considered potable per WAC 173-340-720(2).

The nearest surface water bodies include Mercer Creek, approximately 225 feet west of the Site, and Wilson Creek, approximately 125 feet east of the Site. These surface water bodies eventually discharge into the Yakima River, which is about 0.9 miles southwest of the Site. Regional groundwater flow direction is generally to the south-southwest toward the Yakima River. The groundwater flow direction at the Site is also generally to the south-southwest.

2.4 CONCEPTUAL SITE MODEL

Current and former Site uses, including pesticide and fertilizer handling and storage, and the historical transfer and storage of bulk petroleum fuels, resulted in subsurface contamination at the Site. Potential sources or transport mechanisms of contamination include the following:

- Direct releases from equipment washing operations
- Generation of by-products during burning operations
- Direct releases from material storage, use, and handling
- Leaks and spills from equipment, tanks, and machinery
- Leaks and spills during fueling and fuel transfer operations at the rail spur or between ASTs and trucks
- Grading of the ground surface to maintain gravel surfaces
- Infiltration of precipitation and overland flow through contaminated soil, causing leaching into groundwater

These surficial release mechanisms and transport mechanisms have caused contamination to migrate downward from the surface through the soil to groundwater. As a result of these releases, COCs were identified in soil and groundwater as part of the RI. Most contaminated soil is close to the surface, typically between 0 and 5 feet bgs, with limited areas of contamination observed down to 10 feet bgs. COCs have spread laterally in groundwater and the groundwater plumes have been largely defined. Additionally, nitrate contamination is widespread in groundwater across the property. The Site boundary encompasses all areas where contamination greater than the CULs originating from historical and current Site activities has come to lie. A conceptual site model (CSM) of contaminant sources and migration pathways at the Site was developed as part of the RI and is included as Figure 7.1 of the RI.

2.4.1 Chemicals of Concern

Site COCs comprise the chemicals that pose the greatest overall threat to human health and the environment due to toxicity, spatial distribution, and/or concentrations present. Soil and groundwater are the two media of concern at the Site. The Site COCs were determined in the CAP and include the following:

- **Soil:** Seven legacy pesticides (aldrin, dieldrin, chlordane, alpha-chlordane, total dichlorodiphenyltrichloroethane [DDT], beta-benzene hexachloride [BHC], and toxaphene); two active-use pesticides (atrazine and simazine); total diesel- and oil-range TPH; dioxins/furans; and lead
- **Groundwater:** Nitrate, nitrite, pesticides and herbicides (2,4-dichlorophenoxyacetic acid [2,4-D], aldrin, atrazine, dieldrin, chlordane, beta-BHC, 2-methyl-4-chlorophenoxyacetic acid [MCPA], and toxaphene); and total diesel- and oil-range TPH

2.4.2 Areas of Concern and Localized Contamination

Due to the variability in the nature, extent, and media affected by the identified contamination, the cleanup action has been broken into six AOCs to be addressed by multiple remediation technologies. The AOCs are areas historically or currently used for trash burning, loading/offloading, storage, and refueling; and a low spot area that experiences seasonal ponding. AOCs are briefly described as follows:

- AOC 1: Culvert Source Area
- AOC 2: Rail Spur Loading Area
- AOC 3: Trash Burning Area
- AOC 4: Downgradient Low Spot
- AOC 5: Office and Storage Area
- AOC 6: Machine Shop

The location FS-01 north of AOC 1 was identified as an isolated area of diesel-range TPH contamination. The only known source of contamination near FS-01 is incidental leaks or spills from vehicle equipment.

A PDI was conducted in two phases during 2023 in accordance with a PDI Work Plan (Floyd|Snider 2023) to refine the boundaries of the AOCs, as described in Section 4.0. Specific details for each of the AOCs, including specific COCs and any adjustments to their lateral or vertical extents based on the PDI data, are included in Section 5.2.

3.0 Description of Cleanup Action

The cleanup action is being conducted to remediate contaminated soil and groundwater at the Site to the maximum extent practicable to meet the cleanup standards established for the Site. The cleanup action selected by Ecology for the Site was described in the CAP and includes a combination of remedial technologies to address soil and groundwater contamination and meet the Remedial Action Objectives (RAOs). This section describes the RAOs, cleanup standards, and cleanup action components to address the Site-specific COCs for soil and groundwater.

3.1 REMEDIAL ACTION OBJECTIVES

RAOs for the Site were developed in the FS and documented in the CAP to specifically identify goals that should be accomplished to meet the minimum requirements of the MTCA cleanup regulations (WAC 173-340). RAOs define the objectives that must also be met by the cleanup action to ensure substantive compliance with applicable or relevant and appropriate requirements (ARARs). RAOs for the Site include the following:

- Remediate soil and groundwater to protect human and ecological receptors from exposure to Site contamination that exceeds applicable CULs.
- Remove unacceptable human health risk resulting from direct contact with contaminated soil or groundwater.
- Remove unacceptable potential human health risk from consumption of drinking water.
- Remove unacceptable future potential human health risk from indoor vapor intrusion of TPH contamination.
- Comply with local, state, and federal laws (ARARs; WAC 173-340-710) and Site-specific cleanup standards.
- Provide compliance monitoring to evaluate the effectiveness of the cleanup action and to determine that the cleanup standards are met.
- Remediate contaminants in a method that does not interfere with or restrict proposed future use of the Site as an industrial parcel.

3.2 CLEANUP STANDARDS

Cleanup standards are defined under MTCA as a CUL combined with a point of compliance (POC) where the CUL applies. Proposed CULs were developed in the RI/FS for each chemical that was identified as a COC, and cleanup standards were established for the Site in Section 3.2 of the CAP.

3.2.1 Groundwater Cleanup Standards

A conditional POC (CPOC) was established for this Site because of widespread pesticide and nitrate/nitrite contamination; multiple COCs in groundwater exceed their respective CULs by an

order of magnitude. Consistent with WAC 173-340-720(8)(c), the CPOC for groundwater will be as close as practicable to the source of contamination, along the western edge of the property as shown on Figure 8 of Ecology's CAP. A CPOC was established for groundwater at the downgradient property line because the planned cleanup action will not result in groundwater meeting CULs within a reasonable restoration timeline at the standard POC. Groundwater CULs and areas where the COC is present with respect to each AOC are shown in Table 3.1.

Table 3.1
Groundwater Chemicals of Concern, Cleanup Levels, and AOCs

Chemical	CUL (µg/L)	AOCs Where Contamination Is Present
Miscellaneous Substances		
Nitrate	10,000	Site-wide
Nitrite	1,000	AOC 1, AOC 5
Legacy Pesticides		
Aldrin	0.0026	AOC 1
beta-BHC	0.049	AOC 1, AOC 5
Chlordane	2.0	AOC 1
Dieldrin	0.0055	Site-wide
Toxaphene	0.80	AOC 1, AOC 5
Active Use Pesticides and Herbicides		
2,4-D	70	AOC 1
Atrazine	3.0	Site-wide
MCPA	8.0	AOC 1, AOC 5
Total Petroleum Hydrocarbons		
Diesel- and oil-range TPH	500 (1)	AOC 1, AOC 5

Note:
1 Ecology has required that diesel-range and oil-range TPH results in groundwater be summed and compared to a CUL of 500 µg/L for any future assessments of TPH in groundwater. In the CAP, the nature and extent of TPH contamination is described separately for diesel-range and oil-range TPH across the Site.

Abbreviation:
µg/L Micrograms per liter

3.2.2 Soil Cleanup Standards

Soil cleanup standards were developed to be protective of both the highest beneficial use of groundwater (as drinking water) and of human and ecological receptor exposure via the direct contact pathway. The CUL protective of the leaching pathway is referred to as the "leaching CUL." The standard POC for the leaching pathway is 0 feet bgs to the maximum depth where contamination is present. The CUL protective of the direct contact pathway is referred to as the

"direct contact CUL." For protection of human health, the standard MTCA POC for the direct contact pathway of 0 to 15 feet bgs is applied across the Site. For protection of ecological receptors, a Site-specific POC of 0 to 6 feet bgs for the direct contact pathway is applied across the Site. The CUL for each chemical considers each of these pathways along with the location and depth of contamination present at the Site, such that CULs are protective of all pathways for each chemical. Soil CULs and where the COC is present with respect to each AOC are shown in Table 3.2.

Table 3.2
Soil Chemicals of Concern, Cleanup Levels, POCs, and AOCs

Chemical	CUL (mg/kg)	Pathway/Basis of CUL	AOCs Where Contamination Is Present
Metals			
Lead	250	Direct Contact/MTCA Method A	AOC 4
Legacy Pesticides			
Aldrin	0.0067	Leaching/WAC Eq. 747-1	AOC 2, AOC 5
	0.059	Direct Contact/MTCA Method B	AOC 1
beta-BHC	0.0067	Leaching/WAC Eq. 747-1	AOC 1, AOC 2
Chlordane	1.1	Leaching/WAC Eq. 747-1	AOC 2
	2.9	Direct Contact/MTCA Method B	AOC 1, AOC 4
alpha-Chlordane	2.9	Direct Contact/MTCA Method B	AOC 1
Dieldrin	0.0067	Leaching/WAC Eq. 747-1	AOC 1, AOC 2, AOC 3, AOC 4, AOC 5, AOC 6
	0.063	Direct Contact/MTCA Method B	
Total DDT	2.9	Direct Contact/MTCA Method B	AOC 3
Toxaphene	0.84	Leaching/WAC Eq. 747-1	AOC 1, AOC 2, AOC 5
	0.91	Direct Contact/MTCA Method B	AOC 3, AOC 4
Active-Use Pesticides			
Atrazine	4.3	Direct Contact/MTCA Method B	AOC 2
Simazine	8.3	Direct Contact/MTCA Method B	AOC 2
Total Petroleum Hydrocarbons [(1)]			
Total diesel-and oil-range TPH	460	Direct Contact/TEE	AOC 2, AOC 4, AOC 5, FS-01
	2,000	MTCA Method A	AOC 4, AOC 5
Dioxins/Furans			
Dioxins/furans	0.000013	Direct Contact/MTCA Method B	AOC 3

Note:

1 The CUL for TPH is based on total diesel- and oil-range TPH (calculated as a sum of both fractions) and is protective of the direct contact and leaching pathways. The POC for the direct contact criterion protective of ecological receptors (460 mg/kg) is 0 to 6 feet bgs. The POC for the MTCA Method A criterion (2,000 mg/kg) is 0 to 15 feet bgs.

Abbreviations:

mg/kg Milligrams per kilogram
TEE Terrestrial Ecological Evaluation

3.3 REMEDIATION LEVELS

In accordance with WAC 173-340-200, a REL is "a concentration of a hazardous substance in soil, air, water, or sediment above which a particular cleanup action component will be required as part of a cleanup action at a site." RELs are, by definition, concentrations that exceed cleanup standards and are used when a combination of cleanup action components are necessary to achieve RAOs or where soil containment (i.e., under a cap) is part of the cleanup action. The cleanup action for the Site meets both of these criteria, as shown by the RAOs described in Section 3.1. A cleanup action that uses RELs must also comply with cleanup standards, which in this case means that groundwater will meet the CULs for groundwater at the CPOC. Soil RELs for select Site COCs are presented in Table 3.3.

Table 3.3
Soil Chemicals of Concern and Remediation Levels

Chemical	Leaching REL (mg/kg)	Direct Contact REL (mg/kg)
Legacy Pesticides		
Aldrin	0.13	0.43
beta-BHC	0.13	--
Chlordane	22	21
alpha-Chlordane	--	21
Dieldrin	0.13	0.46
Total DDT	--	22
Toxaphene	17	6.7
Active-Use Pesticides		
Atrazine	--	32
Simazine	--	61
Total Petroleum Hydrocarbons (1)		
Diesel-range TPH	3,800	--
Oil-range TPH	8,700	--
Dioxins/Furans		
Dioxins/furans	--	0.000094

Notes:
-- Not applicable.
1 The RELs developed for diesel- and oil- range TPH are specific to the individual chemicals (i.e., not the summed total).

The RELs, in combination with ICs, will achieve the long-term goal of compliance with the groundwater CULs at the CPOC.

3.4 CLEANUP ACTION COMPONENTS

The cleanup action components presented in the CAP[1] that will be applied to AOCs at the Site are shown on Figure 8 of the CAP and described as follows:

- Excavation and off-Site disposal of soil in AOCs 1 through 5 with COC concentrations greater than the following:
  - Leaching-based RELs for pesticides in AOCs 1, 2, and 4
  - Direct contact-based RELs for pesticides in AOCs 3 and 5
  - Leaching-based REL for TPH in AOCs 2 and 4
  - Direct contact-based REL for dioxins/furans in AOC 3 on-property
  - Direct contact-based CUL for dioxins/furans in AOC 3 off-property
  - CULs for lead in AOC 4
- Excavation and off-Site disposal of shallow pesticide contamination in soil in AOC 6 and shallow TPH contaminated soil in the area around FS-01 to CULs.
- Installation of a GCL and drainage in the area of AOC 1 and AOC 2 for protection of groundwater where contaminated soil remains in place with pesticide concentrations greater than the leaching RELs and groundwater contains exceedances of pesticide CULs.
- In situ groundwater treatment of the downgradient plume using a liquid activated carbon matrix. The groundwater treatment is designed to immobilize and treat organic contaminants in groundwater migrating from beneath the office and storage building.
- Capping contaminated soil with COC concentrations greater than the RELs to protect worker direct contact exposure, including pesticide and TPH contamination beneath the office and storage building in AOC 5 and deeper TPH contamination beneath the gravel surface in AOC 4.
- ICs that prohibit use of Site groundwater as drinking water or for domestic use, irrigation, or industrial use and include provisions for maintaining the cap.
- MNA for groundwater recovery and implementation of a Groundwater Monitoring Plan (GMP) after cleanup action completion.

[1] Excavation limits presented in the CAP were refined and adjusted as described in subsequent sections in this EDR.

4.0 Summary of Pre-Remedial Design Investigation

The first deliverable required under the CD was a PDI Work Plan. A draft PDI Work Plan was submitted to Ecology on May 2, 2023, and was revised to address Ecology comments and finalized on June 29, 2023 (Floyd|Snider 2023). Ecology subsequently approved the PDI Work Plan on July 6, 2023. This section provides a summary of the PDI fieldwork and results.

Two PDI phases (Phase 1 and Phase 2) were completed to collect information and data necessary to support design of the remedial components of the cleanup action. Details of the proposed Phase 1 PDI were described in the PDI Work Plan and Phase 1 field activities were completed in August/September 2023. Phase 1 PDI results and details of the proposed Phase 2 PDI were verbally discussed with Ecology on November 30, 2023, and additional details regarding Phase 2 PDI activities were transmitted to Ecology via email on December 4, 2023. Ecology approved the proposed Phase 2 PDI in an email on December 6, 2023. Phase 2 field activities were completed on December 14, 2023. PDI investigation locations and monitoring wells are shown on Figure 4.1 relative to AOC boundaries and the location of soil borings included in the RI.

4.1 PRE-REMEDIAL DESIGN INVESTIGATION DATA COLLECTION OVERVIEW

Phase 1 of the PDI included the following activities:

- A private utility locate of underground utilities for all utilities that fall within or potentially within the anticipated excavation areas.
- Passive flux meters (PFMs) were deployed near the proposed in situ groundwater treatment (i.e., PlumeStop) area to measure the vertical profile of groundwater flow and support the in situ groundwater treatment design.
- Groundwater samples were collected on August 15 and 16, 2023, to support the in situ groundwater treatment design. Results of this sampling are reported in Table 4.1; the analytical schedule is summarized as follows:
    - Samples collected from monitoring wells MW-1, MW-2, and MW-10 were analyzed for conventional characteristics (including hardness, aluminum, calcium, and magnesium; alkalinity; and total organic carbon), volatile organic compounds (VOCs), and gasoline-range TPH to understand groundwater quality and total organic mass.
    - Samples were collected from monitoring wells MW-1 and MW-6 based on previous groundwater data in the area and were analyzed for targeted COCs including pesticides (aldrin, chlordane, dieldrin, toxaphene, and atrazine) and diesel- and oil-range TPH.
- Between September 5 and 7, 2023, a total of 41 soil borings were advanced in AOCs 1, 2, 3, 4, and 5 to maximum depths between 3 and 15 feet bgs. Samples at 39 of these locations were analyzed, as reported in Table 4.2. Soil samples were collected for

COCs that exceeded CULs or RELs within each AOC to supplement existing data and refine excavation extents and to support excavation design.

- One soil sample for grain-size analysis was also collected from AOC 5 for design verification of the in situ groundwater treatment barrier.

Based on the results of the Phase 1 PDI event, the Phase 2 PDI included the following activities completed between November and December 2023:

- Nine additional soil borings were advanced in AOC 2, and samples at eight of these locations were analyzed to further delineate lateral and vertical excavation extents, as follows:
  - Two step-out soil borings (AOC2-09 and AOC2-10) were advanced 5 feet apart northwest of AOC 2 to delineate pesticide REL exceedances detected at 2 feet bgs at AOC2-08.
  - An additional seven borings (AOC2-11 through AOC2-17) were advanced along the eastern boundary of AOC 2 along the rail spur and property line to delineate TPH exceeding RELs at AOC2-03 and AOC2-04.
  - One grain size analysis sample was collected from AOC2-11, along the eastern boundary of AOC 2, to provide geotechnical information to support the GCL design.
- One additional soil boring (AOC4-09) was advanced in AOC 4 along the northeast boundary near the containment area to delineate oil-range TPH.
- PBS completed a site topographical survey as part of the GCL and stormwater conveyance structure design.

Soil samples collected during the PDI were submitted to ALS Environmental (ALS) in Kelso, Washington, for laboratory analysis of legacy pesticides and atrazine; Pacific Agricultural Laboratory for analysis of simazine; Friedman & Bruya, Inc. (FBI) for analysis of diesel- and oil-range TPH, lead, and grain size; and Analytical Resources, LLC (ARL) for analysis of dioxins/furans. Groundwater samples were submitted to ALS for analysis of atrazine; ARL for analysis of other pesticides; and FBI for analysis of TPH, VOCs, metals, and conventional characteristics. PFM samples were analyzed by EnviroFlux, LLC, in Gainesville, Florida. The grain size sample collected from AOC 2 for the GCL design was submitted to PBS for analysis at their geotechnical laboratory. Analytical laboratory reports for these samples are included in Appendix A, Attachment A.1; data validation reports are included in Appendix A, Attachment A.2; and soil boring logs are included in Appendix B.

4.1.1 Deviations from the PDI Work Plan

The following deviations from the PDI Work Plan occurred due to conditions encountered in the field and laboratory restrictions:

- The laboratory performing pesticide analysis by USEPA Method 8081 groundwater changed from ALS to ARL due to laboratory equipment availability.
- Poor soil recovery occurred at location AOC4-02 and the base sample was subsequently collected at 4.5 feet bgs instead of 5 feet bgs.
- Location AOC1-04 in AOC 1 was moved 4 feet west due to drill rig access limitations between ecology blocks and the wooden retaining wall.
- Location AOC1-07 in AOC 1 was moved 9 feet east due to safety concerns of maintaining adequate distance from the overhead power line.
- Sample location H4H-05 in AOC 3 shifted 6 feet northeast due to obstruction by a Habitat for Humanity roll-off dumpster.

4.2 PRE-REMEDIAL DESIGN INVESTIGATION SUMMARY AND RESULTS

The following sections summarize the field investigation and results of the two PDI field events.

4.2.1 Utility Survey

A utility survey was completed to support design and planning of cleanup action excavations. An initial desktop review of the Site utilities was completed by Floyd|Snider using City of Ellensburg public utility records, available Site records, and communications with McGregor about private Site utilities. Overhead power lines are present over the AOC 1 excavation area, and underground utilities (gas, water, sewer, electric, and/or communications) are present in AOC 4 and AOC 6 excavation areas. Based on communication with Darin Yusi, Gas Engineer at the City of Ellensburg Gas Division (City Gas Division), any work within 10 feet of the gas lines at the Site must be coordinated directly with the City Gas Division to determine work and oversight requirements. In addition, any work between 2 and 10 feet of a gas line must be completed in a protective manner in close coordination with the City Gas Division to ensure the utility is not damaged. Utility pothole locations were determined based on this initial desktop review.

A Site utility survey was conducted on August 15, 2023, to confirm utility locations, depths, and materials in proposed excavation areas. Conductible utilities were first magnetically located by Applied Professional Services (APS) and then potholed by APS using air knifing. After each utility was exposed, the depth (inches bgs) to top of pipe, diameter, and material were recorded, and the utility location was surveyed using a hand-held GPS and measured off existing Site features for additional reference.

The private water and sewer lines running between the main office building and machine shop could not be located using aboveground tracing and there were no cleanouts or other aboveground indicators to determine the pipes' locations. Therefore, these pipes will need to be located by the contractor during the excavation of AOC 1, as further described in Section 6.4.

Utility details, locations, and depth at each pothole point, as well as the 10-foot gas line buffers, are shown on Figure 4.2.

4.2.2 Passive Flux Meter Data

PFMs were installed by Floyd|Snider in monitoring wells MW-2 and MW-10 near the proposed in situ groundwater treatment area to measure the vertical profile of groundwater flow and support design. PFMs are constructed from a long outer mesh liner filled with a mixture of sorbent and tracer material that are placed into the groundwater column in existing monitoring wells and later retrieved for analysis after a set amount of time. The tracer chemicals are then leached away at a steady rate based on the groundwater flow. After the PFM is retrieved and tested for the concentration of tracer chemical remaining, the Darcy velocity of groundwater through the vertical profile of the groundwater table can be calculated.[2]

Two 5-foot PFMs were installed in each monitoring well to fully cover the 10-foot well screen interval (3 to 13 feet bgs at MW-2 and 5 to 15 feet bgs at MW-10). The PFMs were deployed by Floyd|Snider on August 16, 2023, and retrieved on August 29, 2023. Once retrieved, each PFM was sampled at 1.5-foot intervals. The PFM data were analyzed by Enviroflux and provided to Regenesis (the manufacturer of PlumeStop in situ treatment barrier) to support design, including injection spacing and reagent selection and quantities. The average measured Darcy velocities for MW-2 and MW-10 are 5.4 and 17.1 centimeters (cm) per day, respectively. Based on these results, the average groundwater velocities in these wells ranged from 65 feet per year at MW-2 to 205 feet per year at MW-10. The PFM results are shown in Appendix D.

4.2.3 Grain Size Data

Grain size data (included in Appendix A, Attachment A.1) were collected as requested by Regenesis and PBS to support remedial design. Grain size analysis was performed in AOC 5 to support Regenesis' in situ groundwater treatment design. This analysis found that the major soil type at that location was gravel with sand and limited silt, and this soil profile was generally consistent between 5 and 15 feet bgs. The percentage of soil meeting the standard for gravel (i.e., retained on #4 sieve) decreased with depth from 77% at 5 to 6 feet bgs to 54% at 14 to 15 feet bgs. Conversely, the percentage of sand increased with depth from 22% at 5 to 6 feet bgs to 44% at 14 to 15 feet bgs. These results support the high groundwater velocities measured by the PFMs.

A grain size sample was also collected from location AOC2-11 from 1.5 to 3 feet bgs, as requested by PBS, to provide additional geotechnical data to support GCL and drainage system design. This sample was specifically targeted in shallow, siltier soil representative of the underlying foundation of the GCL layer. The soil type at this location was majority sand (62%) with silt (30%) and gravel (8%). The grain size report is included in PBS's Geotechnical Engineering Letter Report in Appendix E.

[2] Measurement of contaminants absorbed to the PFMs were not necessary for designing the PlumeStop due to low concentrations of contaminants in groundwater.

4.2.4 Groundwater Sample Collection and Analyses

Groundwater samples were collected from selected monitoring wells in the vicinity of AOC 5 to support in situ groundwater treatment design. Groundwater samples were collected using low-flow procedures using a peristaltic pump and new dedicated tubing. The monitoring wells were purged prior to sampling at a maximum rate of 0.5 liters per minute. During purging, field parameters (i.e., temperature, pH, specific conductivity, oxidation–reduction potential, dissolved oxygen, and turbidity) were recorded at 5-minute intervals using a multiparameter water quality meter. Groundwater samples were collected once the field measurements for water quality parameters were stable.

MW-1, MW-2, MW-6, and MW-10 were sampled as described in Section 4.1 to provide current data for total organic mass and COC concentrations in the vicinity of the in situ treatment area, and to characterize groundwater parameters that could affect in situ groundwater treatment design. The PDI groundwater results are presented on Table 4.1 with comparison to the relevant groundwater CULs. Pesticide results at MW-1 and MW-6 exceeded the CUL of 0.0055 µg/L for dieldrin (0.14 µg/L and 0.30 µg/L, respectively) and the CUL of 0.8 µg/L for toxaphene (1.2 µg/L and 4.0 µg/L, respectively). These results were within the range of previous dieldrin and toxaphene data from MW-1 and MW-6 presented in the RI. Results for TPH, aldrin, and chlordane were all less than the respective groundwater CULs. VOCs and hardness characteristic results are presented in Table 4.1 but do not have relevant groundwater CULs for comparison because they are not Site COCs.

4.2.5 Soil Sample Collection and Chemical Analyses

AOCs were initially defined in the RI based on CUL exceedances. Soil borings collected during the PDI were advanced to collect data that could be used to refine excavation extents in each AOC based on REL exceedances, as further described in this section. Soil borings during Phase 1 were advanced by Anderson Environmental Contracting, LLC, and borings during Phase 2 were advanced by Cascade Environmental. Sonic core drilling technology was used for both phases. Floyd|Snider personnel completed the soil profiling and collected soil samples for targeted COCs to further define the vertical and horizontal limits of excavation in AOCs 1 through 5. Field screening was performed with a photoionization detector (PID) in areas with TPH contamination.

During Phase 1, a two-tiered approach was used for collection and analysis of PDI soil samples to minimize the number of mobilizations. The first-tier soil samples were collected at the mid-point and/or base of the AOCs as needed to delineate the horizontal and vertical extents of the excavation. Second-tier soil samples were strategically collected at select locations from deeper intervals and archived at the laboratory for subsequent analysis as needed if the respective first-tier soil sample at the same location had REL exceedances of one or more COCs.

The PDI soil results along with previous investigation results compared to the applicable RELs and CULs in each AOC are presented on Table 4.2. Figures 4.3 through 4.7 summarize exceedance information for soil sampling results collected within and near AOCs 1 through 5. Additionally, Figures 4.8 and 4.9 show the same features and data for AOC 6 and FS-01; however, no additional

samples were collected in these areas during the PDI. These data summary figures show the revised extents of excavation which were modified from the CAP based on the PDI data described in this section and additional design considerations described in Section 5.0. A summary of the PDI data collected in AOCs 1 through 5 is described as follows.

AOC 1: PDI samples in AOC 1 were analyzed for legacy pesticides based on unbounded REL exceedances in RI sample results and are compared to leaching RELs based on collocated groundwater exceedances for legacy pesticides. Pesticide COC results met leaching RELs except at location AOC1-03, where dieldrin exceeded the leaching REL of 0.13 mg/kg at 2 and 4 feet bgs. Toxaphene also exceeded the direct contact REL of 6.7 mg/kg at 2 feet bgs at this location. The maximum dieldrin and toxaphene results at AOC1-03 were 0.37 and 6.8 mg/kg, respectively. Toxaphene at AOC1-03 was less than the direct contact REL at 4 feet bgs. AOC1-03 is directly adjacent to the BNSF property boundary, and therefore, an additional step-out sample to delineate the REL exceedances was not collected due to BNSF property access constraints and limitations on excavation near the rail spur. The other Phase 1 samples all had pesticide concentrations less than applicable RELs. No additional samples were collected in AOC 1 during Phase 2.

AOC 2: PDI samples in AOC 2 were analyzed for legacy pesticides, active use pesticides, and/or TPH based on unbounded REL exceedances in RI sample results. Pesticide results are compared to leaching RELs based on collocated groundwater exceedances for dieldrin. Concentrations of dieldrin (4.7 mg/kg) and toxaphene (100 mg/kg) exceeded applicable direct contact RELs at one location on the northwest boundary of AOC 2 (AOC2-08 at 2 feet bgs). The deeper sample (4 feet bgs) at the same location did not exceed any pesticide RELs or CULs. A step-out location (AOC2-09) was sampled during the Phase 2 PDI and had no CUL exceedances at 2 and 4 feet bgs.

Samples from AOC2-3 and AOC2-4, Phase 1 locations along the eastern boundary of AOC 2, exceeded the diesel-range TPH REL at 6.5 feet bgs (8,300 mg/kg) and 6 feet bgs (19,000 mg/kg), respectively. These sample intervals were selected for analysis based on elevated PID measurements (refer to boring logs in Appendix B). Both boring locations had diesel-range TPH concentrations less than the CUL at 8.5 feet bgs, consistent with a lack of PID response in the deeper interval. Additional borings along the rail spur and eastern property boundary were advanced during Phase 2 to delineate the eastern extent of TPH impacts. One location west of the rail spur (AOC2-13) exceeded the diesel-range TPH REL at 6.5 feet bgs (13,000 mg/kg). This sample was also analyzed for TPH using silica gel cleanup, with numerically equivalent results of 13,000 mg/kg for diesel-range TPH. A sample collected from 7.5 feet bgs at AOC2-13 was less than the REL and bounds the vertical extent of contamination. Results from the surrounding PDI locations east of the rail spur along the property line (AOC2-12, AOC2-14, and AOC2-17) were less than the diesel-range TPH REL, indicating the extent of TPH impacts greater than RELs is fully bounded within the Smith-Kem property. These bounding locations also include AOC2-16, which was sampled for TPH and archived. The sample for AOC2-16 was later analyzed and diesel-range TPH was reported as not detected, but the analysis was completed outside of the allowable holding time; therefore, the result is not reported (refer to the data validation report in Appendix A for more details). Field PID screening at AOC2-16 showed no indications of TPH

contamination. Field observations during the drilling in this area of AOC 2 indicated that TPH was limited to thin lenses (i.e., lenses less than 1 foot thick) with evident staining that correlated with elevated PID readings.

AOC 3: PDI samples in AOC 3 were analyzed for legacy pesticides and dioxins/furans based on unbounded REL exceedances in RI sample results. AOC 3 pesticide results are compared to the direct contact REL based on no collocated groundwater exceedances. All pesticide and dioxin/furan results on-property within AOC 3 were less than applicable direct contact RELs. Dioxin/furan results on the Habitat for Humanity property (i.e., off-property) were compared to the CUL of 13 nanograms per kilogram (ng/kg). In total, one of the five locations analyzed (H4H-01) exceeded the CUL with a result of 38.0 ng/kg. Additional step-out data to delineate the extent of the off-property dioxin/furan CUL exceedance were not collected due to the concern of unassociated operations and/or ambient contributions potentially impacting concentrations.

AOC 4: PDI samples in AOC 4 were analyzed for legacy pesticides and/or TPH based on unbounded REL exceedances in RI sample results. Pesticide results are compared to leaching RELs based on collocated groundwater exceedances for dieldrin. All pesticide results in AOC 4 were less than applicable leaching RELs. Samples from AOC4-2 and AOC4-3, Phase 1 locations along the eastern boundary of AOC 4 near the containment area, had exceedances of the oil-range TPH REL at 8.5 feet bgs (17,000 mg/kg) and 6.5 feet bgs (9,600 mg/kg), respectively. Both of these locations had deeper samples with oil-range TPH less than the CUL (9.5 feet bgs at AOC4-2 and 7 feet bgs at AOC4-3). Similar to the TPH observed in AOC 2, the deeper TPH was limited to a thin (less than 1 foot) layer and was evident in the field based on visual observations of staining and elevated PID measurements. One additional boring (AOC4-09) was advanced during Phase 2 north of the TPH exceedances and did not exceed the TPH RELs.

AOC 5: PDI samples in AOC 5 were analyzed for legacy pesticides based on unbounded REL exceedances in RI sample results and are compared to the direct contact REL based on no collocated groundwater exceedances. All pesticide results in AOC 5 were less than applicable direct contact RELs and CULs. PDI data were used to refine the excavation extent within AOC 5.

4.2.6 Site Topography Survey

PBS completed a topography survey of the Site, which extended across the full property and documented survey points for Site features including buildings, fence lines, and the below grade conveyor belt structure south of AOC 4. The property topography surveyed features are shown on the GCL and stormwater features plan set drawings in Appendix F.

4.3 INVESTIGATION-DERIVED WASTE MANAGEMENT AND DISPOSAL

Soil and groundwater investigation-derived waste (IDW) generated during PDI activities were stored in DOT-approved drums on-site and disposed of at the end of the PDI Phase 2 event to appropriately licensed disposal facilities. Groundwater was treated and disposed of at Patriot Environmental Services, Inc. (Patriot) in Portland, Oregon. Soil was first transported to Patriot, then was transported and disposed of at a Subtitle D landfill, Coffin Butte Landfill, under a bulk waste

profile. All contaminated media disposed of off-site was characterized based on representative data collected during the PDI. The waste manifest for IDW generated during both phases of the PDI and transported to Patriot is included in Appendix C. Patriot re-manifested the bulk solid waste from multiple generators under their own profile maintained by Patriot, so a manifest for soils transported to Coffin Butte is not included in Appendix C.

4.4 AREAS OF CONCERN DATA SUMMARY

A summary of the COCs in soil and groundwater and the depth of contamination for each AOC is presented in this section. Excavation extents and depths were refined in AOCs 1 through 5 based on analytical data collected during the PDI as discussed as follows. Additional constructability design considerations and the final excavation extents are described in Section 5.0.

AOC 1 contains multiple pesticides, TPH, and dioxins/furans in soil at concentrations greater than CULs to a maximum depth of 8 feet bgs for pesticides and a maximum depth of 3.5 feet bgs for TPH and dioxins/furans. Legacy pesticides aldrin, chlordane, dieldrin, and toxaphene are in soil at concentrations greater than RELs to a known depth of 6 feet bgs. Multiple pesticides, TPH, and nitrate/nitrite are in groundwater within AOC 1 at concentrations greater than CULs. Groundwater exceedances extend onto the BNSF property, as indicated by concentrations of dieldrin, toxaphene, and nitrate greater than the CULs in groundwater at monitoring well MW-16. The northeastern excavation boundary was expanded north relative to the boundary presented in the CAP based on a leaching REL exceedance for dieldrin and a direct contact REL exceedance for toxaphene at location AOC1-03. The western boundary of excavation was shifted east based on pesticide concentrations less than RELs and CULs at locations AOC1-01, AOC1-07, and AOC1-08. No remediation is planned to be conducted on the BNSF property due to offset requirements for excavation adjacent to the rail spur (refer to Section 5.2).

AOC 2 contains multiple pesticides and TPH in soil at concentrations greater than CULs to a maximum known depth of 7 feet bgs for pesticides and 10 feet bgs for TPH. Dieldrin, toxaphene, atrazine, simazine, and diesel-range TPH are present at concentrations greater than RELs to a known depth of 5 feet for pesticides and 6.5 feet for TPH. Dieldrin and nitrate are also in groundwater at concentrations greater than CULs. AOC 2 is also along the eastern property edge and extends onto the BNSF property due to concentrations of dieldrin and toxaphene greater than the CULs in soil at monitoring well MW-17. No remediation is planned to be conducted on the BNSF property due to offset requirements for excavation adjacent to the rail spur (refer to Section 5.2). The northwestern boundary of excavation in AOC 2 was extended west based on pesticide REL exceedances at AOC2-08, and the southeastern extent of excavation was extended east and deepened to 8.5 feet bgs based on diesel-range TPH REL exceedances at AOC2-03, AOC2-04, and AOC2-13.

AOC 3 contains multiple pesticides and dioxins/furans in soil at concentrations greater than CULs to a maximum known depth of 2 feet bgs, and dieldrin and toxaphene are present in soil at concentrations greater than RELs to a maximum known depth of 1 foot bgs. There are no groundwater impacts in AOC 3. Dioxin/furan concentrations greater than the CUL extend onto

the Habitat for Humanity property southwest of AOC 3. A 1-foot-deep excavation area was extended south from AOC 3 to remove detected off-property CUL exceedances.

AOC 4 contains multiple pesticides and TPH in soil at concentrations greater than CULs to a maximum known depth of 5 feet bgs for pesticides and 9 feet bgs for TPH. Dieldrin, toxaphene, and diesel- and oil-range TPH are in soil at concentrations greater than RELs to a known depth of 4 feet bgs for pesticides and 8.5 feet bgs for TPH. Dieldrin and nitrate/nitrite are present in groundwater at concentrations greater than CULs in AOC 4. The eastern excavation extent of AOC 4 was extended east to the AST containment area based on oil-range TPH REL exceedances at AOC4-02 and AOC4-03. This area of excavation was also deepened to 7 feet bgs around AOC4-03 and 9.5 feet bgs around AOC4-02. The excavation depth in the southern portion of AOC 4 was refined to 1 foot bgs based on the only REL exceedance in this area at FS-30 at 0.5 to 1 foot bgs.

AOC 5 contains multiple pesticides and TPH in soil at concentrations greater than CULs to a maximum known depth of 7 feet bgs for pesticides and TPH. These deeper REL exceedances will remain capped beneath the office and storage building. Outside of the office and storage building, dieldrin is in soil at concentrations greater than RELs to a known depth of 4 feet bgs. In groundwater, multiple pesticides, TPH, and nitrates/nitrites are present at concentrations greater than their respective CULs. The AOC 5 excavation extent was shallowed around the perimeter to 2.5 feet bgs based on all PDI soil concentrations being less than CULs.

AOC 6 is characterized by shallow dieldrin and toxaphene in soil at concentrations greater than the CULs to a maximum depth of 2.5 feet bgs adjacent to and underneath the machine shop. Groundwater contamination is not present in this AOC.

FS-01 is characterized by a shallow soil exceedance of the diesel- and oil-range TPH CUL at a depth range of 0.5 to 1 foot bgs. Groundwater contamination is not present near FS-01.

5.0 Engineering Design

In accordance with WAC 173-340-400, this section includes the design criteria and engineering justification for design of the cleanup action to ensure compliance with ARARs and other requirements consistent with MTCA. The cleanup action components were designed to comply with the CAP and to achieve the RAOs described in Section 3.1. An overview of the cleanup action components finalized as part of this design is shown on Figure 5.1.

5.1 ENGINEERING JUSTIFICATION AND DESIGN CRITERIA

The cleanup action components were selected because they are implementable and efficient in removing or destroying contaminants to achieve Site cleanup standards and RELs. The Site data presented in the RI and the additional PDI data described in Section 4.0 provide the basis of design for the cleanup action. The expected efficiencies and effectiveness of the cleanup action components, and expectations of how these technologies will allow for achieving the cleanup standards, are described in the following sections.

5.1.1 Expected Efficiencies and Degree of Effectiveness

The remedial technologies for the cleanup action include soil excavation, capping with a GCL, and in situ groundwater treatment. The effectiveness and remediation time frame for each of these technologies is described in the following sections.

5.1.1.1 Excavation Effectiveness

Excavation is a proven and effective method of removing contaminants from the subsurface. A contractor experienced with excavation and contaminated material handling will be selected to ensure the project is completed per design. The excavation design is intended to remove soil with COC concentrations greater than the relevant RELs or CULs for off-property exceedances and will immediately achieve compliance with soil cleanup criteria across the Site. Removal of soil that exceeds leaching RELs that acts as a source of contamination to groundwater will improve groundwater quality over time.

5.1.1.2 Geosynthetic Clay Liner Effectiveness

The GCL and associated stormwater conveyance system have been designed by a professional engineer with experience installing similar systems. The GCL will consist of a manufactured sodium bentonite material with a certified hydraulic conductivity of less than $5x10^{-10}$ cm per second to limit surface water infiltration through the soil column as described in the plan set drawings in Appendix E. The GCL will be installed in areas where COC groundwater concentrations exceed the CULs and where residual soil contamination greater than soil leaching CULs will remain in place. Blocking the soil to groundwater leaching pathway will improve groundwater conditions over time. The estimated restoration time frame for groundwater to meet CULs at the CPOC is 10 years.

5.1.1.3 In Situ Groundwater Remediation Effectiveness

In situ groundwater treatment using liquid activated carbon is a proven and effective method of reducing concentrations of organic contaminants (e.g., dieldrin and toxaphene) in groundwater. In situ activated carbon products are colloidal compounds designed to disperse minimally through the saturated zone to form a stationary treatment area that relies on passive groundwater flow through the barrier. Organic contaminants are adsorbed to the porous activated carbon media due to its extremely high surface area. In situ groundwater treatment using activated carbon products is a proven technology that has been effectively used at other sites to treat organic compounds. The estimated restoration time frame for groundwater to meet CULs at the CPOC is 10 years.

5.1.2 Compliance with Cleanup Requirements

The requirements for cleanup actions are specified in MTCA. These include both the general requirements described in WAC 173-340-360(3)(a) and additional requirements described in WAC 173-340-360(3)(b-d). The threshold requirements are to protect human health and the environment, comply with cleanup standards, comply with applicable state and federal laws, and provide for compliance monitoring. The additional requirements are to use permanent solutions to the maximum extent practicable, provide for a reasonable restoration time frame, and consider public concerns.

The cleanup action is designed to achieve compliance with RELs in soil and cleanup standards in groundwater Site-wide. The cleanup standards are protective of exposures to all human and environmental receptors per the requirements of state and federal law. Compliance with RELs in soil will be met immediately after excavation, installation of the GCL, and the implementation of ICs. The cleanup standards for groundwater will be met within an approximate restoration time frame of 10 years, as described in the CAP. Compliance with additional applicable laws related to worker safety, environmental media management and disposal, and in situ injection is ensured by the provisions of this EDR. Proposed compliance monitoring, which is a key component to assess progress toward cleanup standards, is additionally described in this EDR in Section 7.0.

5.2 CONTAMINATED SOIL EXCAVATION DESIGN

Excavation of contaminated soil with concentrations greater than the applicable RELs will be completed in AOCs 1 through 5 and excavation of contaminated soil with concentrations greater than CULs will be completed in the area around FS-01 and in the portion of AOC 3 that extends off-property, as shown on Figure 5.1. Figure 5.2 summarizes the excavation footprints and depths for each excavation area and provides contractor notes guiding excavation. Excavation areas, depths, design elements, and notes for AOCs 1 through 5 and FS-01 are shown individually on Figures 5.3 through 5.8.

Soil data for the COCs presented in the RI and PDI soil data collected in 2023 (and summarized in Section 4.0) were used to verify current conditions and establish the final excavation extents for construction (refer to Figures 5.3 through 5.8). A primary goal of the PDI soil sampling was to

collect samples that confirm the lateral and vertical extents of the excavations to minimize sample collection during excavation. Additional confirmation sampling to be completed during construction and the current confirmation sample dataset are further described in Section 7.1.3.

An overview of the excavation areas and construction contractor notes for the work are provided on Figure 5.2. Individual construction detail figures for each AOC and the FS-01 area are shown on Figures 5.3 through 5.8.

Excavation will be completed using standard excavation means and methods as described in Section 6.7. A summary of each excavation area and its respective design considerations, including groundwater conditions, required shoring areas, and relevant infrastructure (e.g., utilities and monitoring wells) is provided as follows.

AOC 1: The excavation extent within AOC 1 and construction details are shown on Figure 5.3. The western portion of AOC 1 will be excavated to 5 feet bgs, the central portion to 8 feet bgs, and the eastern portion to 4 feet bgs. The total estimated volume of soil to be removed from AOC 1 is 680 cubic yards (CY). Pesticides, TPH, and dioxins/furans in soil within AOC 1 have been fully delineated within the property boundary and will not require additional sampling during excavation.[3] Additional excavation considerations are described as follows:

- The following structures in AOC 1 will require additional protection including required offsets and sidewall shoring:
  - A 2-foot offset will be maintained from the concrete pad to the north and the office and storage building to the south.
  - A 5-foot offset will be maintained from the on-property rail spur.
  - A 15-foot offset will be maintained from the off-property rail spur in accordance with the Union Pacific Railroad (UPRR) and BNSF Guidelines for Temporary Shoring (UPRR and BNSF 2021) for excavations requiring shoring (i.e., not including the shallow GCL installation).
- The following utilities are present in or near AOC 1 and were considered as part of design:
  - A subgrade gas line approximately 17 inches bgs is located near the western boundary of AOC 1 and must be protected in place. The western excavation extent of AOC 1 was modified to eliminate subgrade work within 10 feet of this gas line based on guidance provided by the City Gas Division.
  - Two private lines (water and sewer) run between the office building and machine shop and will require protection or temporary disconnection during excavation. These utilities could not be located during design due to the lack of access points and, therefore, will require additional care to expose and protect during excavation. If they cannot be protected during excavation, the contractor will

[3] REL exceedances at AOC1-03 near the BNSF property boundary were not further delineated due to access requirements with BNSF and the limitation of excavation near the rail spur.

coordinate with McGregor and the Engineer to temporarily disconnect or reroute these utilities.

- Private overhead power lines are present over AOC 1 and may require coordination with McGregor to disconnect and supply temporary external power to the office building during excavation. There is also an overhead power line along the eastern boundary of AOC 1 that should not interfere with construction.

- The culvert running below the rail spur at the eastern boundary of AOC 1 will be permanently plugged by the contractor prior to backfilling to eliminate this preferential pathway.
- The wooden retaining wall adjacent to the rail spur is within the 5-foot offset from the rail spur and, therefore, will remain in place. The top of the retaining wall will be removed as need to install the GCL and necessary foundation material.
- Portions of the AOC 1 excavation will be below the groundwater table and require management of wet soils or dewatering (refer to Sections 6.7.2 and 6.11.3).
- Monitoring well MW-4 will be decommissioned prior to excavation. Decommissioning will follow the requirements of WAC 173-160-460.

AOC 2: The excavation extent within AOC 2 and construction details are shown on Figure 5.4. The northwestern portion of AOC 2 will be excavated to 4 feet bgs and the southwestern portion will be excavated to 8.5 feet bgs to address localized deeper diesel-range TPH near the rail spur. The total estimated volume of soil to be removed from AOC 2 is 640 CY. Pesticides and TPH in soil within AOC 2 have been fully delineated; however, some soil with diesel-range TPH concentrations greater than the REL will remain in place beneath the rail spur near location AOC2-13. It is important to note that the TPH REL is based on residual saturation to ensure no accumulation of non-aqueous phase liquid (NAPL) and to prevent leaching into groundwater. NAPL has not been observed in soil or groundwater in this area, and groundwater collected from well MW-5 located within the deeper portion of the excavation area does not contain dissolved TPH. Additional confirmation sampling is proposed along a portion of the southeastern AOC 2 boundary based on field indications of TPH impacts as described in Section 7.1.3. Additional excavation considerations are described as follows:

- The following structures in AOC 2 will require additional protection including required offsets and sidewall shoring:
  - A 2-foot offset will be maintained from the concrete pad to the south.
  - A 5-foot offset will be maintained from the on-property rail spur.
- Portions of the AOC 2 excavation will be below the groundwater table and will require dewatering or management of wet soils (refer to Sections 6.7.2 and 6.11.3).
- Monitoring well MW-5, which is located within the limits of excavation, will be decommissioned prior to excavation. Decommissioning will follow the requirements of WAC 173-160-460.

AOC 3: The excavation extent within AOC 3 and construction details are shown on Figure 5.5. The AOC 3 excavation area within the property boundary will be excavated to 2 feet bgs. Off-property CUL exceedances of dioxins/furans on the adjacent Habitat for Humanity property will be excavated to 1 foot bgs and backfilled with gravel. The total estimated volume of soil to be removed from AOC 3 is 230 CY. Pesticides and dioxins/furans in soil within AOC 3 exceeding RELs have been fully delineated within the property boundary, and dioxins/furans in soil exceeding CULs off-property have been delineated around all but one sample location.[4] Additional excavation considerations are described as follows:

- A 5-foot offset will be maintained from the rail spur east of AOC 3.
- The southern portion of AOC 3 extends across the property boundary onto the property operated by Habitat for Humanity. Refer to Section 6.1 for details about Site access for off-property excavation.
- Groundwater dewatering or wet soil management will not be required in AOC 3.
- MW-13, which is located within the excavation limits and outside the area of groundwater contamination, will be decommissioned prior to excavation. Decommissioning will follow the requirements of WAC 173-160-460.

AOC 4: The excavation extent within AOC 4 and construction details are shown on Figure 5.6. The northern portion of AOC 4 will be excavated to 5 feet bgs and the southern portion of AOC 4 will be excavated to 1 foot bgs. A localized area associated with a thin (less than 1 foot) lens of deeper TPH-contaminated soil is located along the eastern edge of AOC 4 near the AST containment area and will be excavated in two subareas to 7 and 9.5 feet bgs. The total estimated volume of soil to be removed from AOC 4 is 670 CY. Pesticides in soil within AOC 4 have been fully delineated; however, the extent of TPH in soil south of the containment area has not been fully delineated. Additional confirmation sampling is proposed along a portion of the southeastern AOC 4 boundary based on field indications of TPH impacts as described in Section 7.1.3. Additional excavation considerations are described as follows:

- The AST containment area borders the northeast boundary of AOC 4 and will require additional shoring. A 2-foot offset must be maintained between the excavation boundary and the AST containment area.
- The following utilities are present in or near AOC 4 and were considered as part of design:
    - A gas line (approximately 35 to 42 inches bgs), city water line (approximately 37 inches bgs), and water vault are within AOC 4 and must be protected. The excavation extent in AOC 4 was modified to not impact these utilities by maintaining a 2-foot offset. Shoring will be required adjacent to these utilities along the southern boundary of the deeper (5 to 7 feet bgs) excavation.

[4] Additional step-out data to delineate the extent of off-property dioxin/furan CUL exceedances were not collected due to the concern of unassociated operations and/or ambient contributions potentially impacting concentrations.

  - A subgrade communication line (approximately 17 to 27 inches bgs) is present along the eastern extent of AOC 4 and must be protected in place to the extent practicable. If the contractor cannot adequately protect this line during excavation, then the contractor will coordinate with the tenant and appropriate utility services to temporarily disconnect or reroute the obstructing utility.
- The base of AOC 4 will be below the groundwater table and will require dewatering or management of wet soils (refer to Sections 6.7.2 and 6.11.3).
- Monitoring well MW-12 will be decommissioned prior to excavation. Decommissioning will follow the requirements of WAC 173-160-460.

AOC 5: The excavation extent within AOC 5 and construction details are shown on Figure 5.7. This area will be excavated to a maximum depth of 5 feet bgs. The total estimated volume of soil to be removed is 40 CY. Based on the results of the PDI sampling, the depth of excavation will slope up from the center from 5 feet to a depth of 2.5 feet bgs along the perimeter of the excavation. Pesticides in soil have been fully delineated in AOC 5. The base of AOC 5 may be below the groundwater table and may require dewatering or management of wet soils (refer to Sections 6.7.2 and 6.11.3).

AOC 6: The utility survey completed as part of the PDI identified a gas line at approximately 22 inches bgs within AOC 6 that must be protected in place. As shown in Figure 4.8, this gas line and associated 10-foot buffer covers the majority of the proposed AOC 6 excavation area identified in the CAP and would significantly impede the excavation work. The soil pesticide exceedances within AOC 6 do not exceed the RELs and AOC 6 is outside of the area with exceedances of pesticide CULs in groundwater. Therefore, the AOC 6 excavation was removed as part of design.

FS-01: The localized surficial hot spot area around boring location FS-01 is shown on Figure 5.8 and will be excavated to 1 foot bgs removing approximately 10 CY of soil. Diesel-range TPH in soil greater than the CUL has not been fully delineated around FS-01 and additional confirmation sampling around this area is described in Section 7.1.3. Additional excavation considerations are described as follows:

- A 2-foot offset must be maintained between the excavation boundary and the machine shop.
- Groundwater dewatering or wet soil management will not be required in FS-01.

The final volume of contaminated soil to be removed from each excavation area is summarized in Table 5.1.

Table 5.1
Excavation Area Details

Area	Depth (feet bgs)	Area (SF)	Volume of Contaminated Soil Removed (CY)
AOC 1 Subareas	4	190	30
	5	920	170
	8	1,620	480
AOC 1 Total		**2,730**	**680**
AOC 2 Subareas	4	2,790	410
	8.5	710	230
AOC 2 Total		**3,500**	**640**
AOC 3 Subareas	1	370	20
	2	2,830	210
AOC 3 Total		**3,200**	**230**
AOC 4 Subareas	1	930	40
	5	2,280	420
	7	370	100
	9.5	320	110
AOC 4 Total		**3,900**	**670**
AOC 5 Subareas	2.5	160	10
	5	140	30
AOC 5 Total		**300**	**40**
FS-01	1	100	10
FS-01 Total		**100**	**10**

Abbreviation:
SF Square feet

5.3 IN SITU GROUNDWATER TREATMENT DESIGN

In situ groundwater treatment will be conducted southwest of the office and storage building and containment area to address organic pesticides in groundwater migrating from beneath these structures. Additional PDI data were collected as described in Section 4.2 to support the Site-specific design of the in situ treatment barriers. PDI data included grain size data, PFM groundwater velocity data, groundwater hardness characteristics, groundwater quality

measurements, and groundwater COC concentrations. These data, in combination with existing soil and groundwater data and Site-specific geology and hydrogeology, were reviewed by Regenesis to support selection of appropriate reagents, reagent quantities, and injection spacing. The treatment design was completed by Regenesis in collaboration with the Floyd|Snider engineering team and will include two parallel in situ treatment barriers as shown on Figure 5.9. The barriers' placement and orientation were designed to intercept chemical concentrations in groundwater greater than CULs migrating from beneath the office and storage building and AST containment area.

The northern barrier will be installed using injection of the Regenesis product PlumeStop. The southern barrier will be installed by mixing the Regenesis product PetroFix into a portion of the AOC 4 excavation area, followed by injection of PlumeStop along the northwestern portion of the southern barrier, outside of the AOC 4 excavation area. PlumeStop and PetroFix are both proprietary liquid activated carbon products that work by binding to the surrounding soil to create a passive treatment barrier that then adsorbs and breaks down organic contaminants. PetroFix was selected to be better suited for the soil mixing applications based on its higher concentration of carbon and soil adsorptive properties. Implementation details for the injection and mixing barriers are included in Section 6.9.

The northern barrier will be approximately 40 feet long and include injection of PlumeStop at borings spaced 5 feet apart along the barrier line with a targeted injection interval of 4 to 15 feet bgs. PlumeStop will be injected under low pressure through a series of direct-push borings that will create an evenly distributed passive treatment zone. The reagent will coat soil particles to increase the adsorption of groundwater contaminants and act as a passive treatment zone to immobilize contaminants and passively treat groundwater as it flows downgradient.

The southern barrier is approximately 60 feet long and will be installed within the AOC 4 excavation area by the contractor mixing PetroFix into a 5-foot-wide area along the excavation boundary as shown on Figure 5.9. PetroFix will be mixed into the 5-foot-wide trench to a depth of 12 feet bgs and applied at a rate of 32.7 pounds of product per CY of backfill material. Two PlumeStop injection points will also be completed at the southern barrier's western end to extend the barrier to the estimated extent of pesticide impacts in groundwater based on groundwater interpolations completed in the RI.

The injection intervals and product dosage rates were determined by Regenesis based on soil and groundwater characterization data collected by Floyd|Snider. Additional details for the PlumeStop and PetroFix applications are described in Regenesis' design memorandum included in Appendix G.

5.4 GEOSYNTHETIC CLAY LINER CAP DESIGN

After completion of excavation and backfill of AOC 1 and 2, a GCL cap and associated stormwater conveyance features will be installed over and surrounding AOC 1 and AOC 2 (up to 17,000 SF), as shown on Figure 5.1. The GCL cap will provide additional protection of groundwater in this area where contaminated soil remains in place with pesticide concentrations greater than the leaching CULs and where pesticide concentrations in groundwater exceed CULs. The intent of the

GCL cap is to minimize stormwater infiltration through residual contaminated soil and into groundwater, which would control plume migration and provide an added degree of source control in areas with high traffic and/or ongoing bulk fertilizer operations.

Data collected during the PDI and described in Section 4.2 were evaluated by PBS during design and included the survey topography data, grain size data, and boring logs. As part of the Site data evaluation and design, PBS prepared the following deliverables:

- The geotechnical analysis including recommendations related to grading, slope protection, backfill, and subgrade preparation are described in PBS's Geotechnical Engineering Letter Report in Appendix E.
- GCL and stormwater plan set drawings providing the details and specifications for the design are included in Appendix F.
- Stormwater hydrologic and hydraulic calculations for the stormwater drainage system are included in Appendix H.

5.4.1 Geosynthetic Clay Liner Design Details

The GCL cap consists of a laminated GCL, which includes a layer of sodium bentonite between a polypropylene woven geotextile, and a polypropylene nonwoven geotextile needle-punched together and laminated to a polyethylene geofilm. The laminated GCL will be extended beyond the area of known contamination as an added protective measure. The gravel surface will be excavated in areas where the laminated GCL would be placed outside contaminated soil excavation footprints to an approximate depth of 1 foot bgs. Up to 400 CY of surface soil will be removed in addition to the contaminated soil excavation quantities described in Section 5.2 and summarized in Table 5.1. The laminated GCL will be installed with multiple layers of gravel and additional geosynthetic material to provide structure and security against accidental breaches.

Prior to installing the laminated GCL, the subgrade will be compacted as described in Section 6.8 and nonwoven geotextile will be placed to provide a protective cushion between the laminated GCL cap and the underlying subgrade. The laminated GCL will be installed with the geofilm side up to prevent overdrying during the summer and will be protected with an additional overlying layer of nonwoven geotextile. The laminated GCL and additional protective geotextile fabric will be covered with 4 inches of crushed surfacing base course (CSBC), a biaxial geogrid, and another 4 inches of CSBC to provide structural integrity to the laminated GCL cap. A high-visibility (orange colored) high-density polyethylene grid indicator layer would be placed over the CSBC and is intended as a visual cue to warn operators who may be performing future excavation activities before more critical underlying geosynthetics are damaged. The final and top layer will consist of a minimum of 4 inches of CSBC to restore the surface grade elevation. In total, up to 400 CY of CSBC would be placed as part of the laminated GCL cap construction.

The laminated GCL will be sloped to convey stormwater toward a perforated collection pipe along the eastern boundary of the property and away from existing building structures. This pipe will convey the collected stormwater to a new catch basin inlet structure connected to the existing culvert at the southeast corner of the Site.

5.4.2 Stormwater Conveyance Design Details

The GCL will be constructed with a gentle slope to direct stormwater to a drainage trench installed along the eastern property boundary (for a total of approximately 390 feet of trenching). The trench depth will extend approximately 2.5 feet bgs and will have a 12-inch-diameter perforated underdrain pipe within the GCL footprint that will be wrapped with geotextile and bedded in a 2-inch surrounding layer of clean coarse sand. The underdrain pipe will be covered with washed drain rock to convey surface runoff and shallow subsurface flow from above the GCL. The drainage rock trench will be 1.5 feet wide and wrapped with nonwoven geotextile for protection.

Downstream of the GCL footprint, solid conveyance pipes will be used instead of perforated pipe to prevent exfiltration of collected surface water to other areas of the Site. Collected stormwater will be conveyed to a single collection structure (catch basin) in the southeastern corner of the facility. The catch basin will have a sump to encourage sedimentation. The catch basin will provide access to the upstream and downstream conveyances for maintenance. Additionally, maintenance will entail periodic removal of sediment accumulated in the catch basin sump. Stormwater will leave the new catch basin structure through an existing 36-inch-diameter culvert that flows off the property to the south.

The drainage trench and pipe were sized for the peak flow from a 25-year, 24-hour storm event (refer to Appendix H for stormwater calculations). The following assumptions and criteria were used in the stormwater system design:

- Storms: Type II distribution with 24-hour duration
- 25-year Design Storm: 1.70 inches
- Contributing Area: 32,533 SF
- Curve Number: 98 (impervious liner, compacted gravel, building roof)
- Manning's roughness coefficient for open-channel conveyance pipe flow: 0.011
- Stormwater conveyance system: Assumed empty at the beginning of each event
- Longitudinal slope: 0.0024 to 0.0025 feet per foot

Analysis was performed using the Soil Conservation Service TR-20 Method in the HydroCAD software program. Conveyance analysis was performed using the Manning's Equation for open-channel flow. The analysis yielded the following results that have been incorporated into the design:

- Design storm peak flow: 1.77 cubic feet per second
- Minimum pipe diameter: 12 inches
- Pipe percent full during peak flow: 84% to 87%

5.5 GREEN AND SUSTAINABLE REMEDIATION COMPONENTS

Green and sustainable cleanup considerations are increasingly being integrated into cleanup programs, including under MTCA in Washington. *Sustainable Remediation: Climate Change*

Resiliency and Green Remediation (Ecology 2023) is a Washington-specific resource to incorporate resiliency into the selected cleanup remedy. In accordance with green and sustainable remediation (GSR) principles, best management practices (BMPs) related to the five core elements of energy, air, water, land/ecosystems, and materials/waste should be considered to reduce the project's net environmental footprint in ways that are consistent with applicable statutes and regulations. Common GSR BMPs that may be incorporated into design of a cleanup action include the reduction of waste generation, optimization of material use or reuse, minimization of impacts to resources, minimization of air pollutants, and positive economic impact to the local community.

Environmental remediation is intrinsically a beneficial process to the environment as the risk to the community and human health is reduced or diminished. The environmental "footprint" associated with Site remediation has been reduced by incorporating the following GSR elements into the design:

- Collecting key samples to delineate excavations during predesign, which minimizes potentially unnecessary mobilization of extra equipment for activities such as shoring and dewatering
- Using in situ groundwater treatment, which relies on the natural flow of groundwater through an in situ treatment barrier rather than energy-intensive ex situ treatment technologies
- Designing the GCL using improved, impermeable materials to eliminate the import of sand as a foundation layer to the GCL
- Scheduling construction during the dry season and allowing wet soils to drain within the excavation footprint to minimize water management, treatment, and potential off-Site transport
- Implementing additional measures during construction to minimize environmental and community impacts, including the following:
    - A no-idling policy will be implemented for all construction equipment and support vehicles when not in use.
    - To the fullest extent possible, trucking mileage for disposal and import of materials will be minimized by identifying backfill sources proximal to disposal facilities and allowing stockpiling of backfill on-Site, to facilitate round-trip rather than one-way truck trips.
    - Local remediation contractors and vendors will be used when available.
    - The truck haul route will be limited to arterial streets where practical to minimize traffic, noise, and economic impacts to neighborhoods.

Finally, during post-construction monitoring, field sample collection activities will be performed in accordance with Floyd|Snider's GSR practices, which include minimizing vehicle trips and using dedicated sampling equipment, where practical.

6.0 Cleanup Action Construction Planning and Implementation

The PLPs are responsible for performing the work described in this EDR as required under the CD, including constructing the cleanup action. Specific details regarding the planning and management for cleanup action implementation are included in this section.

6.1 SITE ACCESS

The property is currently owned by Ad Gro and has been leased to McGregor since 2015. McGregor uses the property to conduct its agricultural product distribution business and they are responsible for all current operations at the facility. Cleanup action implementation will be closely coordinated with McGregor (or with the current tenant, if McGregor terminates their lease prior to construction) to minimize disruption to its operations.

A portion of AOC 3 (Figure 5.5) extends onto the south-adjoining property that is operated by Habitat for Humanity and owned by Ryan Wales. The property access agreement will be updated with Ryan Wales prior to construction beginning on this property, and construction activities will be coordinated with Habitat for Humanity to ensure the area is cleared for excavation and to minimize disruption to operations.

There is a rail spur located along the eastern property boundary. The rail spur is active and is used intermittently by McGregor to transport goods. An industrial agreement between BNSF and McGregor dated December 8, 2016, establishes that McGregor controls and maintains the rail spur on the Smith-Kem property and BNSF controls and maintains the rail spur on the BNSF rail yard. The current property access agreement with BNSF will be updated if needed prior to the remediation to allow the contractor access onto the BNSF property to implement the remedial design along the eastern property boundary. Excavation performed near the rail spur on the BNSF right-of-way property (near AOC 1) will need to follow the UPRR and BNSF Guidelines for Temporary Shoring (UPRR and BNSF 2021). As part of this requirement, a 15-foot offset will be maintained from the BNSF-owned rail spur centerline to any subsurface excavation work (i.e., excavation work not including the shallow GCL installation).

The rail spur on the Smith-Kem property will be temporarily deactivated by contacting the BNSF rail master prior to any work near the spur to ensure train cars will not travel on the spur adjacent to open excavations when temporary shoring is in place. A notice of temporary deactivation will be provided to the contractor prior to the start of excavation.

6.2 PERMITS AND EXEMPT PERMITS

The cleanup action must comply with MTCA cleanup regulations, federal laws, and substantive requirements of applicable local and state laws. Because the cleanup action will be performed under a CD, it is exempt from the procedural requirements of certain laws and all local permits (WAC 173-340-710(9)(b)) but must comply with the substantive requirements of these laws and permits. This remedial action will meet the substantive requirements for applicable regulations

and standards and will comply with all action-, chemical-, and location-specific ARARs as identified in the RI/FS.

Location-specific ARARs will be met through compliance with all applicable state and federal regulations based on the physical location of the Site. Action-specific ARARs will be met through implementation of construction activities in compliance with all applicable construction-related requirements such as disposal for excavated soil. Chemical-specific ARARs will be met through compliance with CULs and RELs. The relevant ARARs and a description of how the cleanup action meets the substantive requirements of each ARAR is included in Table 6.1.

6.3 SITE PREPARATION AND SITE CONTROLS

Floyd|Snider will select a contractor to complete the excavation, GCL, and stormwater system installation work after Ecology's approval of the final EDR. Before subgrade work begins, the contractor will use the following site controls and BMPs to ensure that environmental quality of the Site and surrounding area are maintained during construction. Additionally, subgrade work will be completed in accordance with the Inadvertent Discovery Plan prepared for the work (Appendix J).

6.3.1 Site Security

Temporary fencing will be used to prevent public access to the work areas during construction. Because the Site will continue to be used by tenants during construction, temporary fencing will be required around active excavation areas to ensure worker safety and may be adjusted as excavations are completed. Temporary fencing around open excavations must be secured at the end of each workday.

6.3.2 Vehicle Access and Traffic Controls

To minimize track-out of soil during construction, designated construction access driveways will be established by the contractor and may be stabilized with quarry spalls to remove excess soil from vehicle tires. The contractor will be responsible for laying out the truck access and soil loading and unloading zones to minimize soil track-out during construction.

6.3.3 Stormwater Controls

Currently, stormwater at the Site infiltrates in unpaved areas or surface flows to the existing culvert at the southeast corner of the Site (shown on Figure 5.2).

Stormwater and erosion-control measures will be installed by the contractor around the construction perimeter prior to initiation of ground-disturbing activities to reduce or control construction stormwater runoff and minimize run-on. The perimeter controls may be composed of compost socks, compost berms, silt fence, straw bales, straw wattles, or a combination of these elements. Stockpiles will be bermed using a straw bale, ecology block, or other approved containment berm to control runoff, and stockpiles will be covered at the end of each working day. Preliminary Temporary Erosion and Sediment Control (TESC) details are shown in the GCL

and stormwater features plan set drawings to provide a general layout of TESC BMPs that may be used. Specific TESC measures will be determined by the contractor, and a project-specific TESC Plan detailing the stormwater BMPs will be prepared by the contractor. The BMPs outlined in the TESC Plan will be implemented by the contractor to reduce or control stormwater runoff during construction.

6.3.4 Spill Control

Construction equipment will be kept in good working condition and inspected regularly for fuel leaks. Equipment fueling will be completed in a dedicated refueling area, with an accessible spill kit within 25 feet and containment measures such as absorbent cloths deployed as necessary to prevent the release of dripping or spilled fuel to the ground surface. Basic spill containment materials, including absorbent cloths and booms, will be kept at the refueling area and restocked as needed. Any releases of fuel or other chemicals on the Site as part of construction will be reported as follows:

Spills into Waters of the State (including ponds, ditches, seasonally dry streams, and wetlands)
Immediately call all of the following: **National Response Center at 1-800-424-8802** **Washington Military Department, Emergency Management Division at 1-800-258-5990** **Ecology Central Regional Office at 1-509-575-2490**
Spills to Soil
Report immediately if threatening to health or environment (i.e., explosive, flammable, toxic vapors, shallow groundwater, nearby creek), otherwise within 90 days. **Ecology Central Regional Office at 1-509-575-2490** Notify public utilities department if spill enters sanitary sewer, stormwater system, streets, ditches, streams, or wetlands. **Ellensburg Public Utilities at 1-509-962-7201**

6.4 UTILITIES

Active utilities within the Site, except for the private water and sewer lines, were located using air knifing methods on August 15, 2023, as described in Section 4.2.1. Potholed utility location and depth to top of utility are shown on Figure 4.2. Private water and sewer lines running north–south between the office and storage building and machine shop could not be located during the survey event, as described in Section 4.2.1. Figure 4.2 shows the approximate/ assumed locations of these lines.

All active utilities within and outside the limits of construction will be located and protected in place by the contractor to the extent practicable. The contractor will be required to coordinate with local utility companies to accurately locate, and temporarily disconnect (if necessary), any

active utilities that may interfere with excavation activities. The contractor must employ excavation methods such as hand digging or use of a designated spotter when working in the vicinity of active utilities. Work within the 10-foot buffer of any gas line must be proactively coordinated with the City Gas Division, and work will not occur within 2 feet of the gas lines based on guidance from the City Gas Division. Gas lines are present near excavation areas at AOC 1 and AOC 4.[5] The 2-foot gas line buffer is shown on Figure 4.2 and the respective construction detail figures (Figures 5.3 and 5.6).

Overhead power lines are located between the office and storage building and machine shop (above AOC 1) as well as along the eastern property boundary near AOCs 1, 2, and 3. The contractor will be required to ensure there is adequate clearance when working around overhead lines or coordinate with the current tenant and the local utility companies to temporarily shield or disconnect and route temporary service, if necessary.

6.5 ENGINEERING OVERSIGHT

Consistent with WAC 173-340-400(6)(b)(i), implementation of the cleanup action will be performed under the oversight of a professional engineer registered in Washington, who will be the Engineer, or a qualified technician under the direct supervision of the Engineer. The Engineer or qualified technician will document the completion of the cleanup action components during implementation, which will be summarized in a Remedial Action Completion Report (RACR).

6.6 HEALTH AND SAFETY

The cleanup action construction work described herein will comply with the health and safety standards prescribed by the Occupational Safety and Health Act (OSHA) and the Washington Industrial Safety and Health Act (WISHA). A Site-specific Health and Safety Plan (HASP) will be developed by the contractor and provided to the Engineer prior to beginning work. A Site-specific HASP will also be developed by Floyd|Snider for oversight of the work. All work will be performed by remediation contractors or subcontractors with active Hazardous Waste Operations and Emergency Response (HAZWOPER) certifications, First Aid/cardiopulmonary resuscitation certifications, and all applicable task training for the work required.

All Site personnel who have the potential to contact hazardous waste or contaminated media must also comply with the OSHA and WISHA health and safety training and medical monitoring requirements, including HAZWOPER training and certification. All certifications must be kept up to date according to the requirements set by the Occupational Safety and Health Administration and the Washington State Department of Labor and Industries Division of Occupational Safety and Health for OSHA and WISHA, respectively.

[5] A gas line is also present within AOC 6 (shown on Figure 4.8) and impedes excavation in this AOC.

6.7 CONTAMINATED SOIL EXCAVATION MEANS AND METHODS

Contaminated soil excavation will be performed in AOCs 1 through 5 and FS-01, as shown on Figures 5.3 through 5.8. Excavation will be performed using standard construction equipment. Excavation means and methods that meet the requirements of the EDR will be determined by the contractor and must be approved by the Engineer prior to the start of the work. Requirements for completion of the excavations are presented in the following sections.

6.7.1 Soil Handling and Disposal

Soil loading will occur either directly from excavations or in a designated loading area. Soil off-loading will also be performed in a designated stockpiling area. When loading contaminated soil for off-Site disposal, the ground surface of the loading area will be covered, and any spilled soil picked up and placed into the appropriate container to prevent the spread of contamination. Loads will be securely covered prior to transport. If contaminated soils are stockpiled, they will be managed as described in Section 6.7.1.1.

Proper disposal of contaminated soil, whether at a Subtitle C or Subtitle D licensed facility, will depend on waste profiling, consistent with the requirements under WAC 173-303. Based on available Site data, it is expected that contaminated soil can be disposed of at a Subtitle D licensed facility as nonhazardous waste. The contractor will be responsible for obtaining a waste profile from their selected facility using (1) soil characterization data presented in Table 4.2 and the laboratory data reports in Appendix A and (2) any additional waste characterization data that may be collected or required by the waste disposal facility prior to disposal. The contractor will submit the approved waste disposal profile to the Engineer for approval prior to the start of excavation.

6.7.1.1 Stockpile Management

All stockpiles will be managed in accordance with the Stormwater Management Manual for Eastern Washington (Ecology 2019), including surrounding stockpiles with appropriate berms to prevent stormwater run-on and run-off. Stockpiles will be covered and stabilized to prevent erosion when not actively being worked and at the end of each workday.

Contaminated soil stockpiles shall be placed next to an AOC being actively excavated or at a designated location within the limits of the active construction area. If the contractor chooses to stockpile contaminated material it must be kept segregated from any stockpiles of clean import material. If accidental mixing occurs, the mixed soil will be considered contaminated. A clean import stockpile area may be established by the contractor within the construction area so clean material does not contact contaminated material.

Temporary stockpiles of contaminated material placed outside the limits of an AOC or the FS-01 excavation area shall be placed upon either 10-millimeter-thick polyethylene sheeting or woven waterproof tarps provided by the contractor, with a straw bale, ecology block, or other approved containment berm secured beneath the sheet or tarp to prevent erosion. Water draining from

contaminated soil stockpiles must be diverted back to the AOC where the soil was excavated from to infiltrate or be collected, treated, and properly disposed of off-Site (refer to Section 6.11.3). Alternately, if the volume of contaminated soil to be stockpiled is expected to be small, a lined roll-off container may be used to store excess soil, which eliminates the need to reload stockpiled soil onto trucks.

6.7.2 Groundwater Management

The water table at the Site typically ranges in depths from 3 to 6 feet bgs with an annual average groundwater table of 3.5 feet bgs. The seasonal high typically occurs in early spring, and the seasonal low typically occurs in late summer to early winter. To the extent practical, excavation will be scheduled to target the seasonal low water table to minimize groundwater management needs during construction. The depth of excavation in AOC 1 through AOC 5 ranges between 1 to 9.5 feet bgs. Dewatering may be necessary to remove contaminated soil in excavations below the water table. The need for dewatering and the means and methods of dewatering will be determined by the contractor. The method of dewatering proposed by the contractor shall conform to the requirements of all applicable regulations. To minimize the need for dewatering and ensure that soils are dry for loading and disposal, deeper contaminated soil excavation will be scheduled for days when precipitation is not forecasted whenever possible.

Soil excavated below the water table that is free draining may be stockpiled within the excavation boundaries if feasible to drain prior to direct loading into trucks or stockpiling. Contaminated soil stockpiled outside the excavation boundary, including side-slope areas outside the excavation, must be managed in accordance with Section 6.7.1.1. Contaminated groundwater will not be allowed to infiltrate outside of the excavation areas shown on Figure 5.1 or within any excavation area that has been backfilled.

If the contractor removes groundwater from an excavation area via pumping (dewatering) to facilitate excavation, the groundwater will be required to pass through a water treatment system approved by the Engineer prior to discharge or be transported off-Site for proper disposal. If necessary, drying agents (e.g., sawdust) may be used to allow materials to be transported to the receiving landfill without free liquid accumulation. Refer to Section 6.11.3 for details about managing wastewater.

6.7.3 Existing Structure Protection and Shoring

The contractor will be required to stabilize excavation sidewalls through means of sloping, shoring, or other stabilization methods chosen by the contractor and approved by the Engineer. Information about the subsurface conditions at the Site and recommendations for shoring design are included in Sections 4.0 and 5.0, as well as in the Geotechnical Engineering Letter Report in Appendix E. The presence of existing structures such as buildings, concrete pads, and the rail spur, as well as protected utilities, will require shoring within AOC 1, AOC 2, and AOC 4 and surrounding FS-01 to prevent undermining or settlement of existing structures and utilities.

The excavations in AOC 1 and AOC 2 are adjacent to the rail spur and will require temporary shoring to prevent potential undermining and damage to the rail. Excavation work in AOC 2 and the southeast portion of AOC 1 adjacent to the rail spur maintained by McGregor (i.e., on-property rail spur) will maintain a 5-foot offset from the rail spur. Excavation work in the northeast portion of AOC 1 adjacent to the rail spur on BNSF property will maintain a 15-foot offset from the rail spur. Excavation in AOC 3 is also adjacent to the rail spur but is shallow and, therefore, will not require temporary shoring. A 2-foot offset will be maintained between existing structures (including the AST containment area) and the extent of excavation, including side slopes.

Required structure offsets and shoring protection boundaries are shown on Figures 5.3 through 5.8.

6.7.4 Monitoring Well Protection

During construction, all monitoring wells that are located outside excavation areas and are not identified for decommissioning will be protected to the extent practicable. The monitoring wells that will be protected include MW-2, MW-3, MW-6, MW-10, and MW-14. Monitoring wells fully within excavation limits and shoring areas will be decommissioned in accordance with WAC 173-160-460. Monitoring wells that will be decommissioned prior to construction include MW-4, MW-5, MW-7, MW-8, MW-11, MW-12, and MW-13, as shown on Figure 6.1.

Select monitoring wells may be replaced as part of future groundwater compliance monitoring, as described in Section 7.2 and 8.1, and in consultation with Ecology.

6.7.5 Survey

Prior to excavation, the remediation contractor will be required to pre-mark the excavation control points, shown on Figures 5.3 through 5.8, to the nearest 0.1 horizontal feet. Excavation control points may be adjusted in the field prior to excavation by the Engineer based on existing site features to ensure the required offsets from structures are maintained.

The final excavation depth will be verified by the contractor using surveying equipment accurate to within 0.1 feet. Additionally, the contractor will survey and provide final coordinates for any sidewalls that are extended to remove TPH soil contamination beyond the specified control points.

6.7.6 Backfilling and Site Restoration

Prior to backfill, some excavation sidewalls will need to be sampled by the Engineer once the sidewall is exposed to confirm COC concentrations meet the applicable RELs. This includes select sidewalls in AOC 2 and AOC 4, shown on Figures 5.4 and 5.6. The FS-01 excavation extents will also need to be confirmed. These areas will not be backfilled until the Engineer confirms that the applicable RELs have been met at the excavation extents. Based on the location and depth of AOC 2 and AOC 4, confirmation samples collected at these sidewalls will be analyzed on an

expediated turn-around time to limit delays to backfilling. Additional details about confirmation sampling are included in Section 7.1.3.

Once each AOC excavation is complete and the Engineer approves the final excavation limits, the contractor will backfill the excavation with clean import soil meeting Washington State Department of Transportation (WSDOT) standard specifications for Select Borrow (specification 9.03.14(2)) to match the existing grade surface or the base of the GCL section (refer to Section 6.8). Quarry spalls may be placed at the base of the excavation below the groundwater table, if necessary, to stabilize the excavation base. The final 6 inches of backfill material (outside of GCL footprint) will be CSBC meeting WSDOT standard specification 9-03.9(3). The contractor will restore the final surface elevation to match the surrounding grade.

Backfill will be placed in 8-inch loose lifts and compacted to at least 95% of maximum dry density per ASTM D1557 for import materials. In place density tests will be the responsibility of the contractor.

6.8 INSTALLATION OF GCL AND STORMWATER CONTROLS

Installation directions for the GCL and stormwater controls are included in the Geotechnical Engineering Letter Report and plan set drawings in Appendices E and F, respectively. The GCL will be installed by the contractor after excavation and backfill in AOC 1 and 2. The GCL subgrade within the AOC 1 and 2 backfill areas will be placed by the contractor in lifts no greater than 8 inches and compacted by the contractor to at least 95% of maximum dry density per ASTM D1557. Soil outside of AOC 1 and 2 will be excavated to 1 foot bgs to install the GCL, and soil will be managed and disposed of as contaminated soil in accordance with Section 6.7.1. Native subgrade will be field verified by the Engineer using either a proof rolling or probe method to determine structural suitability. Unsuitable areas identified during the field evaluation will be compacted to a firm condition or removed and replaced with structural fill. The Bentomat 600 CL GCL will be rolled out by the contractor as shown and in accordance with the directions in the plan set drawings.

The stormwater conveyance system, including associated cleanout and catch basin features, will be installed per the plan set drawings. Existing stormwater solids buildup at the culvert entrance will be removed by the contractor and rock will be placed around the new inlet to protect against erosion. Solids within the culvert pipe and at the culvert egress will need to be removed by the contractor. Built-up solids within and around the culvert must be removed and properly disposed of, consistent with waste profiling performed to determine disposal at an appropriate landfill based on the material's waste designation. Solids will not be allowed to be flushed downstream.

6.9 IN SITU GROUNDWATER TREATMENT INJECTION

The following sections describe the alignment, injection, and mixing details for installation of in situ groundwater treatment. In situ groundwater treatment will be conducted southwest of the office and storage building and AST containment area to address pesticides in groundwater migrating from beneath these structures. The in situ treatment zone will include two parallel barriers as shown on Figure 5.9.

6.9.1 PlumeStop Injection Methodology

Regenesis will field-mark the injection point locations corresponding to injection points within each barrier shown on Figure 5.9 prior to drilling. The PlumeStop product will be batch-mixed on-Site in aqueous solution to achieve the manufacturer-recommended dosage concentration prior to injecting. The PlumeStop mixture will then be injected into the subsurface under low pressure (less than 80 pounds per square inch) using a direct-push drill rig to create an evenly distributed permeable barrier of treatment media within the target treatment zone of 4 to 15 feet bgs. PlumeStop will be injected at a rate of 75 gallons of aqueous solution (65 pounds of product) per vertical foot at each injection point.

The method of injection (i.e., using either a top-down or bottom-up approach) will be determined in the field by Regenesis based on the observed injection conditions and may be adjusted as needed to meet the design objectives. Any injection points modified due to the presence of utilities or other obstructions will be documented by Regenesis.

6.9.2 PetroFix Mixing Methodology

PetroFix will be mixed into a 5-foot-wide trench along the northern boundary of AOC 4 as shown on Figure 5.9 using the in situ soil mixing technique described in Regenesis' *Excavation Application Guidance for PetroFix™,* included in Appendix G. The contractor will mix PetroFix into the subsurface to create an 8-foot-deep barrier (i.e., extending from 4 feet bgs to 12 feet bgs) by spraying the product directly into the excavation at a dosage rate of 32.7 pounds of product per CY of backfill and then mixing into the area with an excavator. The PetroFix application area will be below the water table from 4 feet bgs to a maximum depth of 12 feet bgs. The application depth range accounts for the anticipated product movement downward and depth of contamination observed in this area. Product mixing will be completed in 2-foot lifts to achieve the design product dosage and even mixing. The area of mixing may be adjusted by the Engineer based on the field conditions. The water level of the excavation area will be managed such that the product is mixed below the water table to ensure an even distribution throughout the soil and backfill. The groundwater level in AOC 4 ranges seasonally from approximately 3 to 4 feet bgs. If necessary, potable water may also be added to the excavation for mixing to ensure the material is distributed evenly.

6.10 DECONTAMINATION

Decontamination procedures will be strictly followed to prevent the spread of contamination. All construction and drilling equipment will be decontaminated before it leaves the Site. Decontamination procedures will additionally be implemented for equipment when moving between handling contaminated and uncontaminated media (such as using an excavator bucket to remove contaminated soil, then using the bucket to place backfill).

Equipment and vehicle decontamination will consist of dry sweeping to achieve a visually debris-free surface. If dry sweeping is not sufficient to remove visual evidence of debris, equipment will be decontaminated by pressure washing with detergent solution followed by a potable water

rinse. Direct-push drill rods will be decontaminated using the above procedure or by steam cleaning.

Equipment decontamination wash water will be captured and not allowed to run onto the ground surface. Wash water generated during decontamination will be managed according to the procedures for wastewater management as described in Section 6.11.3.

6.11 WASTE HANDLING AND MANAGEMENT

Environmental media, including excavated soil and other solids and waste waters, will be managed in accordance with the following sections.

6.11.1 Soil Waste Management

BMPs will be implemented during contaminated soil handling to prevent the spread of contamination. BMPs for excavation include the following:

- Contaminated soil will be directly loaded to trucks or lined roll-off containers when feasible. Temporary stockpiles for contaminated soil will be kept in designated areas and managed to prevent the migration of contaminated material as described in Section 6.7.1.1.
- Loading will be performed only where ground surface protection is installed. Ground surface protection will be regularly cleaned or replaced and secured at the end of each workday. Any soil spills in the stockpile loading area will be cleaned up immediately and placed in appropriate containers or a dump truck for disposal.
- Construction trucks will be required to use the established haul route and cover loads before exiting the property onto nearby roadways.

Contaminated soil that is excavated will either be directly loaded into trucks, placed in roll-offs for temporary staging, or placed in managed stockpiles prior to transport off-Site to an approved Subtitle C or Subtitle D landfill for disposal under an approved waste disposal profile. If necessary, drying agents may be used to allow materials to be transported to the receiving landfill without free liquid accumulation.

Trucks transporting contaminated soil from the Site will comply with all applicable regulations, including standards per WAC 173-350-300, and local ordinances.

6.11.2 Solid Waste Management

The top of the wooden retaining wall in AOC 1 will be demolished and removed by the contractor to 6 inches below the bottom elevation of the GCL. Wood debris may be disposed of at an approved recycling facility if it is not creosote-treated, as determined by the Engineer; otherwise, it must be disposed of at a licensed Subtitle D solid waste landfill.

All miscellaneous solid waste, such as personal protective equipment, disposable sampling equipment, and general construction waste will be containerized or bagged in heavy-duty plastic bags and disposed of as municipal solid waste.

6.11.3 Wastewater Management

Wastewater that may be generated during construction of the cleanup action includes groundwater from excavation dewatering (if the contractor chooses to dewater) and decontamination wash water. Wastewater has the potential to contain elevated concentrations of Site COCs and, therefore, may be discharged from the Site under an Ecology Construction Stormwater General Permit (CSGP) obtained by the contractor. Treated water meeting applicable discharge criteria may be discharged to the existing stormwater culvert near the southeast corner of the Site. If acquired, a copy of the approved CSGP will be provided to Ecology's Toxics Cleanup Program. If water cannot be treated to meet applicable discharge criteria, as specified in the CSGP, then it must be transported off-Site or discharged to the sewer under an approved City of Ellensburg sewer discharge permit. Wastewater stored on-site for treatment or disposal will be stored in tanks equipped with secondary containment capable of containing 10% of the total enclosed tank volume or 110% of the volume contained in the largest tank, whichever is greater, or in double-walled tanks.

6.12 PROPOSED CONSTRUCTION SEQUENCING AND SCHEDULE

Construction will proceed in two phases. An excavation contractor will complete the excavation first to remove the contaminated soil source material. After excavation in AOC 1 and AOC 2 is complete, then surface soil excavation and installation of the GCL and associated drainage system can occur. The PetroFix portion of the in situ groundwater remedy will be completed concurrently with the excavation work in AOC 4. After Site restoration, the in situ treatment barrier injection of PlumeStop will be completed.

A general schedule for implementation of the cleanup action was provided in the CAP (Ecology 2022). A contractor will be selected for the excavation portion of the work after Ecology approval of the final EDR. Construction is anticipated to begin in summer 2025 and to be completed by the end of 2025. Injection of the PlumeStop barrier walls will be completed by Regenesis and will occur at the end of 2025 or in early 2026. The construction schedule is not anticipated to be affected by the City of Ellensburg's sewer extension project; however, coordination with the City will continue. The City anticipates their sewer extension project to occur in the South Railroad Avenue right-of-way in early 2025. Due to the anticipated dewatering during the City of Ellensburg's work, their work adjacent to the Site needs to be completed prior to installation of the in situ groundwater treatment barriers.

Ecology will be kept up to date regarding the construction schedule and progress in monthly progress reports.

7.0 Compliance Monitoring

Compliance monitoring to ensure the protectiveness of the cleanup action will be implemented in accordance with WAC 173-340-410. These regulations call out three types of compliance monitoring: protection, performance, and confirmation. Each will be implemented at the Site during cleanup action implementation to ensure protectiveness of the cleanup.

The objectives of compliance monitoring, as stated in WAC 173-340-410, are as follows:

- **Protection Monitoring** is used to evaluate whether human health and the environment are adequately protected during construction of the cleanup action and post-construction monitoring. Protection monitoring requirements will be described in Site-specific HASPs that address worker activities during cleanup action construction, performance monitoring, and post-construction monitoring.
- **Performance Monitoring** is used to confirm that the cleanup action has attained cleanup standards, including RELs and other construction-related performance standards. Performance monitoring will be conducted throughout each phase of construction to document that cleanup goals are being achieved. For example, post-construction surveys will be used to document excavation goals have been met, and selected monitoring wells located in source areas (e.g., MW-4) will be replaced after remedy implementation to evaluate remedy performance.
- **Confirmation Monitoring** is used to confirm the long-term effectiveness of the cleanup action. Confirmation monitoring will include long-term groundwater monitoring to document that CULs are met at the CPOC.

The required protection, performance, and confirmation monitoring for the Site will include several compliance monitoring elements specified in the Construction Compliance Monitoring Plan (CCMP), included as Section 7.1, and the Long-Term Compliance Monitoring Plan (LTCMP), which will be prepared after construction is complete, as summarized in Section 7.2.

7.1 CONSTRUCTION COMPLIANCE MONITORING PLAN

The section presents the CCMP to be implemented during construction and consists of protection monitoring for health and safety, performance monitoring to verify RELs and ensure quality control during implementation of the cleanup action, and confirmation monitoring to ensure cleanup standards are met. The CCMP includes provisions for Site-specific HASPs prepared by the contractor and Floyd|Snider and a Sampling and Analysis Plan/Quality Assurance Project Plan (SAP/QAPP; Appendix I) for monitoring and sample collection during cleanup action implementation.

7.1.1 Protection Monitoring

Protection monitoring will be conducted during remedy construction to confirm the protection of human health and the environment during cleanup action implementation activities (refer to

Section 6.6). Site activities completed by Floyd|Snider personnel will follow a HASP, which will be updated prior to construction. A Site-specific HASP will be prepared by the contractor to address worker safety requirements during construction. All contractors and subcontractors will be required to use workers trained for hazardous waste work and to comply with the HASP. The contractor will provide a copy of its HASP to the Engineer prior to mobilization.

7.1.2 Performance Monitoring

Performance monitoring during construction will include testing, measuring, and documentation to ensure that the implementation of the remedial technologies and actions were effectively applied.

Prior to construction and decommissioning of monitoring wells, groundwater will be gauged and then sampled for the Site groundwater COCs from monitoring wells within and downgradient of the remediation work areas. These data will provide a baseline of pre-remediation aquifer conditions to evaluate post-remediation groundwater performance. Monitoring wells to be sampled include MW-1 through MW-8, MW-10 through MW-14, and MW-20.

During excavation, performance monitoring will include completing surveys to verify that the minimum horizontal and vertical limits of contaminated soil exceeding RELs have been removed. Once confirmation monitoring via soil sampling (refer to Section 7.1.3) has verified that the applicable RELs are met, the excavation areas will be backfilled and compacted. During backfilling, the remediation contractor will perform compaction testing to ensure that the final backfilled area meets the compaction requirements described in Section 6.7.6.

During in situ treatment barrier injection, both the weights/volumes of each component when batch-mixing the aqueous injection solution and the volume of solution injected in each interval of the treatment zone will be recorded. Periodic verification testing of soil within the injection zone will also be performed as directed by Regenesis or the Engineer. One to two soil verification tests will be performed by advancing a direct-push boring within the barrier after completion of the injection. Adequate dispersion of treatment barrier in soil and groundwater in the target treatment zone is visually assessed by noting color change to dark gray/black caused by liquid activated carbon. The injection spacing may be field adjusted to be more closely or widely spaced if indicated appropriate by the findings of visual assessment, with corresponding adjustment made to the quantities of treatment components injected per depth interval at each point, to ensure consistent and even application of the specified quantities of treatment components required for the PlumeStop barrier.

The PetroFix barrier application area will be visually assessed during mixing by noting heterogeneous color change to dark gray/black to ensure full mixing of the barrier prior to backfill. Groundwater geochemical indicators (such as dissolved oxygen, conductivity, and oxidation–reduction potential) will be monitored as one line of evidence for successful in situ treatment barrier injection. Changes in these indicator parameters may not be immediately apparent during injection or mixing but will be monitored as field parameters for changes relative

to historical averages during subsequent groundwater performance monitoring after injection, as described in Section 8.1.

7.1.3 Confirmation Monitoring

Confirmation monitoring during construction will consist of collection of soil samples for chemical analysis to ensure that the RELs are met within each excavation.

The extent of COC-contaminated soil was fully delineated for most of the AOCs during the PDI events described in Sections 4.1 and 4.2.5. The PDI samples that meet the applicable soil cleanup criteria represent the base (vertical) and sidewall (lateral) extents of excavations and will be used as confirmation samples. Contractor surveying and Engineer verification will be completed prior to backfilling each excavation to ensure the excavation extents have met the design based on the PDI confirmation samples and additional confirmation samples described as follows. Compliance monitoring locations for each excavation area are shown on Figures 7.1 through 7.6.

Additional confirmation monitoring and sampling will be required for excavation extents that have not been fully delineated in AOC 2, AOC 4, and FS-01. Confirmation samples in these respective areas will be collected and analyzed in accordance with the procedures presented in the SAP/QAPP provided as Appendix I. Confirmation sampling and analytical requirements are described as follows:

- **AOC 2 and AOC 4:** Diesel-range TPH and oil-range TPH concentrations greater than RELs have not been fully delineated laterally in the southeast corners of AOC 2 and AOC 4, shown on Figures 7.2 and 7.4, respectively. Field screening will be completed by the Engineer during these excavations using visual/olfactory indicators and PID measurements to determine the extent of excavation and the location of additional confirmation samples. These confirmation samples will be collected in the respective sidewall locations at the interval of the highest observed PID measurements. Confirmation samples in AOC 2 and AOC 4 will be analyzed for diesel- and oil-range TPH.
- **FS-01:** Total diesel- and oil-range TPH concentrations (summed) greater than the CUL have not been laterally delineated around FS-01. Confirmation samples will be collected at the locations shown in Figure 7.6 and analyzed for diesel- and oil-range TPH. One sample will be collected at the base of the excavation, and two samples will be collected from the midpoint of the southern and eastern sidewalls. An additional sidewall sample adjacent to the machine shop may be collected if indications of contamination are measured with a PID near the building foundation.

7.2 LONG-TERM COMPLIANCE MONITORING PLAN

A post-cleanup LTCMP will be prepared after implementation of the cleanup action and will describe required long-term operations, maintenance, and monitoring to ensure the long-term protectiveness of the cleanup action. The LTCMP will include a GMP, Soil Management Plan (SMP), and an updated SAP/QAPP.

The GMP will document groundwater monitoring locations, sampling frequency, analytes, and data analysis procedures. The GMP will describe long-term post-construction groundwater monitoring and adaptive management to ensure the long-term protectiveness of the cleanup action, as described in Section 8.1

The SMP will define specific source areas and depths where soil contamination that remains in place at concentrations greater than CULs would limit land use. Any activities that would be proposed within these restricted areas would require compliance with the SMP, which would outline health and safety protocols along with soil handling and management procedures and notification requirements. The SMP will also provide details for routine inspection and maintenance of remedial elements (such as the cap, the drainage system, and monitoring wells). These procedures will be applicable to any future development or maintenance that involves ground-disturbing activities. The SMP will also outline procedures if existing structures are removed in the future that may have potential subsurface contamination at concentrations greater than CULs (refer to Section 8.3 for potential contingency actions).

8.0 Post-Construction Activities

This section provides a summary of the activities and reporting that will occur after implementation of the cleanup action.

8.1 GROUNDWATER MONITORING

MNA for groundwater will be required after other cleanup activities are complete. A groundwater monitoring program that includes both performance and confirmation monitoring will be implemented as part of the LTCMP to assess the effectiveness of source soil removal and performance of the in situ groundwater treatment barrier. The GMP, which will be an attachment or section in the LTCMP, will describe long-term groundwater monitoring and adaptive management to ensure the long-term protectiveness of the cleanup action, and the GMP will detail the process for the MNA evaluation.

In addition, a monitoring well network will be established as part of the GMP that would include locations for performance monitoring for the components of the cleanup action (e.g., excavation, in situ groundwater treatment, and MNA). Selected monitoring wells located in source areas or proximate to cleanup activities (e.g., MW-4, MW-12) will be replaced after the cleanup action to evaluate cleanup action performance. Additional wells may be installed for performance monitoring, as warranted, based on post-cleanup conditions and in consultation with Ecology.

Groundwater compliance will be determined based on a comparison of groundwater data to CULs at the CPOC, along the western edge of the property (refer to Figure 6.1). Compliance at the CPOC would be measured by direct sampling of groundwater in monitoring wells that are along this boundary. Monitoring wells MW-2, MW-3, MW-10, MW-12, and MW-14 will provide the baseline for monitoring at the CPOC. Additional monitoring wells may be added to the monitoring well network, as needed and in consultation with Ecology, to demonstrate compliance. The post-cleanup action monitoring well network and frequency of sampling will be defined in the GMP, which will be prepared as part of the LTCMP.

8.2 REMEDIAL ELEMENT INSPECTIONS AND MONITORING

The SMP would include measures for routine inspection, operations, and maintenance of cleanup elements including the GCL and indicator layer, gravel surface, drainage and conveyance system, and monitoring wells. This will include inspection requirements of the gravel surface covering the GCL to ensure the indicator layer is not exposed potentially leading to future damage of the GCL. The SMP will be a part of the LTCMP and will be prepared after implementation of the remedial action.

These procedures would be applicable to any future development or maintenance that involves ground-disturbing activities. The SMP would also outline procedures if existing structures, which may overlie potential subsurface contamination at concentrations greater than CULs, are removed in the future.

The LTCMP will include procedures for sampling stormwater at the installed manhole to evaluate if current operations are contributing to nitrate/nitrite loading in stormwater greater than groundwater CULs. Maintenance of the stormwater conveyance system, including inspection and cleanout frequency, will also be included in the LTCMP.

8.3 CONTINGENCY ACTIONS

Contingency actions may be required if additional risk reduction measures are needed after cleanup action implementation, as described in the CAP. Specific details regarding contingency actions and contingency action triggers will be updated, as needed, after cleanup action implementation in the LTCMP. The contingency measures for the Site are anticipated to include the following:

- Source control efforts are in place to control potential ongoing nitrate and nitrite contributions to groundwater associated with current fertilizer handling operations. There are no data that quantify the ongoing contribution from current operations; therefore, it will be important to assess the potential for ongoing contributions after the cleanup. After installation of the GCL, surface water that infiltrates to the GCL will be conveyed to a collection catch basin at the southeastern property line. The collection system was designed so that water that is conveyed to this catch basin can be sampled to determine if an ongoing nitrate/nitrite source exists. If it is determined that fertilizer handling on-Site is an ongoing source of nitrate/nitrite in groundwater and post-cleanup groundwater concentrations of nitrate/nitrite are not adequately improving, as measured at the CPOC, then a contingency source control evaluation will be done to propose additional BMPs for the Site. Details regarding water sample collection from the catch basin and contingency source control evaluation will be described further in the LTCMP.
- Pesticide and TPH contamination greater than RELs are present in soil beneath the office and storage building. If future property development includes removal of this building, then excavation may be necessary to remove contaminated soil beneath this structure. Specific procedures regarding this contingency will be included in the SMP.
- TPH contamination greater than RELs is present beneath the AST containment area. If future property development includes removal of the AST containment area, then additional investigation may be necessary to determine if contamination is present beneath this structure, which could warrant excavation. Investigation and evaluation details regarding this contingency will be included in the SMP.

8.4 INSTITUTIONAL CONTROLS

ICs are a necessary component of the cleanup action design and are necessary to protect the long-term safety of humans and the environment where hazardous substances will remain in place after implementation of the cleanup action. ICs, in the form of an environmental covenant, will be required for the Site, and a deed restriction will be needed to restrict future uses of the

Site. Ecology would prepare the environmental covenant in consultation with Ad Gro (or the current property owner at that time), consistent with WAC 173-340-440 and Chapter 64.70 RCW.

ICs would prohibit the use of groundwater as drinking water at the Site and would also prohibit the use of groundwater for domestic use, irrigation, or industrial use. ICs would require provisions for maintaining the GCL as an engineered barrier to subsurface soil contamination, including the implementation of an Ecology-approved SMP specifying routine inspection and maintenance of remedial elements and soil management procedures for future subsurface work in areas where soil contamination is present described in Section 7.2.

8.5 REPORTING

Per the CAP and CD, the following are reporting requirements after the completion of all cleanup action components.

- Submit draft RACR and draft LTCMP to Ecology no more than 180 days after remedial action completion.
- Submit final RACR and LTCMP to Ecology no more than 45 days after receipt of Ecology's final comments on the draft documents.

Per Section VI(7) of the CD, monthly progress reports will be submitted to Ecology by the 10th day of the month to summarize activities conducted during the previous month. This monitoring frequency may be reduced in coordination with Ecology, likely concurrent with Ecology approval of the LTCMP.

Routine groundwater monitoring reports will be prepared and submitted to Ecology after implementation of the groundwater compliance monitoring program.[6] The specific details regarding schedule and frequency of the groundwater sampling events and reporting will be included as part of the LTCMP approved by Ecology.

[6] Per the CAP, the final LTCMP shall be implemented no later than 1 year after cleanup action construction completion.

9.0 References

Floyd|Snider. 2016. *Smith-Kem Site Remedial Investigation Work Plan.* Prepared for Foster Pepper PLLC and Shell Oil Products US. July.

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Engineering Design Report

Smith-Kem Site

Tables

Table 4.1
Pre-Remedial Design Investigation Groundwater Analytical Results

		Location Name	MW-1	MW-6	MW-2	MW-10
		Sample Name	MW-1-081523	MW-6-081623	MW-2-081523	MW-10-081523
		Sample Date	8/15/2023	8/16/2023	8/15/2023	8/15/2023
Chemical	**Unit**	**CUL [1]**				
Organochlorine Pesticides						
Aldrin	µg/L	0.0026	*0.0031 UJ*	*0.0031 UJ*		
Total Chlordanes (U=0) [2]	µg/L	2	0.19 J	0.28 J		
Dieldrin	µg/L	0.0055	**0.14 J**	**0.3 J**		
Toxaphene	µg/L	0.8	**1.2 J**	**4 J**		
Other Chlorinated/Halogenated Pesticides						
Atrazine	µg/L	3	0.31	0.22		
Total Petroleum Hydrocarbons						
Gasoline-range TPH	µg/L	--	100 U	100 U		
Diesel-range TPH	µg/L	500	100 [3]	160 [3]		
Oil-range TPH	µg/L	500	250 U	250 U		
Total diesel- and oil-range TPH	µg/L	500 [4]	100 [3]	160 [3]		
Volatile Organic Compounds [5]						
1,1,1,2-Tetrachloroethane	µg/L	--	1 U	1 U		
1,1,1-Trichloroethane	µg/L	--	1 U	1 U		
1,1,2,2-Tetrachloroethane	µg/L	--	0.2 U	0.2 U		
1,1,2-Trichloroethane	µg/L	--	0.5 U	0.5 U		
1,1-Dichloroethane	µg/L	--	1 U	1 U		
1,1-Dichloroethene	µg/L	--	1 U	1 U		
1,1-Dichloropropene	µg/L	--	1 U	1 U		
1,2,3-Trichlorobenzene	µg/L	--	1 U	1 U		
1,2,3-Trichloropropane	µg/L	--	1 U	1 U		
1,2,4-Trichlorobenzene	µg/L	--	1 U	1 U		
1,2,4-Trimethylbenzene	µg/L	--	1 U	1 U		
1,2-Dibromo-3-chloropropane	µg/L	--	10 U	10 U		
1,2-Dibromoethane	µg/L	--	0.01 U	0.01 U		
1,2-Dichlorobenzene	µg/L	--	1 U	1 U		
1,2-Dichloroethane	µg/L	--	0.2 U	0.2 U		
1,2-Dichloropropane	µg/L	--	1 U	1 U		
1,3,5-Trimethylbenzene	µg/L	--	1 U	1 U		
1,3-Dichlorobenzene	µg/L	--	1 U	1 U		
1,3-Dichloropropane	µg/L	--	1 U	1 U		
1,4-Dichlorobenzene	µg/L	--	1 U	1 U		
2,2-Dichloropropane	µg/L	--	1 U	1 U		
2-Chlorotoluene	µg/L	--	1 U	1 U		
2-Hexanone	µg/L	--	10 U	10 U		
4-Chlorotoluene	µg/L	--	1 U	1 U		
Acetone	µg/L	--	50 UJ	50 UJ		
Benzene	µg/L	--	0.35 U	0.35 U		
Bromobenzene	µg/L	--	1 U	1 U		
Bromodichloromethane	µg/L	--	0.5 U	0.5 U		
Bromoform	µg/L	--	5 U	5 U		
Bromomethane	µg/L	--	5 U	5 U		
Carbon tetrachloride	µg/L	--	0.5 U	0.5 U		
Chlorobenzene	µg/L	--	1 U	1 U		
Chloroethane	µg/L	--	1 U	1 U		
Chloroform	µg/L	--	1 U	1 U		
Chloromethane	µg/L	--	10 U	10 U		
cis-1,2-Dichloroethene	µg/L	--	1 U	1 U		
cis-1,3-Dichloropropene	µg/L	--	0.4 U	0.4 U		
Cymene	µg/L	--	1 U	1 U		

Table 4.1
Pre-Remedial Design Investigation Groundwater Analytical Results

		Location Name	MW-1	MW-6	MW-2	MW-10
		Sample Name	MW-1-081523	MW-6-081623	MW-2-081523	MW-10-081523
		Sample Date	8/15/2023	8/16/2023	8/15/2023	8/15/2023
Chemical	**Unit**	**CUL [1]**				
Volatile Organic Compounds [5] (cont.)						
Dibromochloromethane	µg/L	--	0.5 U	0.5 U		
Dibromomethane	µg/L	--	1 U	1 U		
Dichlorodifluoromethane	µg/L	--	1 U	1 U		
Ethylbenzene	µg/L	--	1 U	1 U		
Hexachlorobutadiene	µg/L	--	0.5 U	0.5 U		
Isopropylbenzene	µg/L	--	1 U	1 U		
Methyl ethyl ketone	µg/L	--	20 UJ	20 UJ		
Methyl isobutyl ketone	µg/L	--	10 U	10 U		
Methylene chloride	µg/L	--	5 U	5 U		
Methyl-tert-butyl ether	µg/L	--	1 U	1 U		
Naphthalene	µg/L	--	1 U	1 U		
n-Hexane	µg/L	--	5 U	5 U		
n-Propylbenzene	µg/L	--	1 U	1 U		
sec-Butylbenzene	µg/L	--	1 U	1 U		
Styrene	µg/L	--	1 U	1 U		
tert-Butylbenzene	µg/L	--	1 U	1 U		
Tetrachloroethene	µg/L	--	1 U	1 U		
Toluene	µg/L	--	1 U	1 U		
trans-1,2-Dichloroethene	µg/L	--	1 U	1 U		
trans-1,3-Dichloropropene	µg/L	--	0.4 U	0.4 U		
Trichloroethene	µg/L	--	0.5 U	0.5 U		
Trichlorofluoromethane	µg/L	--	1 U	1 U		
Vinyl chloride	µg/L	--	0.02 U	0.02 U		
Xylene (meta & para)	µg/L	--	2 U	2 U		
Xylene (ortho)	µg/L	--	1 U	1 U		
Xylene (total)	µg/L	--	2 U	2 U		
Hardness Characteristics [5]						
Aluminum	µg/L	--	130		67	73
Calcium	µg/L	--	60,000		29,000	19,000
Magnesium	µg/L	--	20,000		14,000	9,200
Alkalinity (as $CaCO_3$)	mg/L	--	110		160	190
Hardness (as $CaCO_3$)	mg/L	--	230		130	85
Total Organic Carbon	mg/L	--	4.9		2.2	2.5

Notes:

Italic Nondetect result exceeds CUL.

RED/BOLD Detected exceedance of CUL.

1 Proposed CULs were developed for each chemical retained as a COC in the RI and are presented in Table 3.1 of the EDR.

2 The total chlordanes result is the sum of detected cis-chlordane, trans-chlordane, cis-nonachlor, trans-nonachlor, and oxychlordane concentrations. If all component analytes were non-detect, the highest reporting limit is used to represent the sum.

3 The laboratory noted that the sample chromatographic pattern does not resemble the fuel standard used for quantitation.

4 Ecology has required that diesel-range and oil-range TPH results be summed and compared to a CUL of 500 µg/L for assessments of TPH in groundwater.

5 VOCs and hardness characteristic compounds were analyzed for the purpose of designing the in situ groundwater treatment and do not have developed CULs, because these chemicals are not COCs.

Abbreviations:

COC Chemical of concern
CUL Cleanup level
DRO Diesel-range organics
Ecology Washington State Department of Ecology
EDR Engineering Design Report
µg/L Micrograms per liter
mg/L Milligrams per liter
ORO Oil-range organics
RI Remediation Investigation
TPH Total petroleum hydrocarbons
VOC Volatile organic compound

Qualifiers:

J Chemical was detected; concentration is an estimate.
U Chemical was not detected at the associated reporting limit.
UJ Chemical was not detected at the associated reporting limit, which is an estimate.

Table 4.2
Soil Analytical Results

				Chemical Group	Metals	Legacy Pesticides							
				Chemical [1]	Lead	Aldrin	HCH-beta (b-BHC)	Total Chlordanes [2]	Chlordane [3]	Chlordane-alpha	Dieldrin	4,4'-DDT/Sum DDT [4]	Toxaphene
				CAS No.	7439-92-1	309-00-2	319-85-7	T_Clrdn (U=0)	57-74-9	5103-71-9	60-57-1	T_DDT (U=0)	8001-35-2
				Direct Contact REL	--	0.43	--	21	21	21	0.46	22	6.7
				Leaching REL	--	0.13	0.13	22	22	--	0.13	--	17
				Direct Contact CUL	250	0.059	--	2.9	2.9	2.9	0.063	2.9	0.91
				Leaching CUL [7]	--	0.0067	0.0067	1.1	1.1	--	0.0067	--	0.84
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Location Name	Sample Name	Sample Date	Depth (feet bgs)	Status After Excavation									
AOC 1 (Compared to Leaching RELs)													
AOC1-01	AOC1-01-2.0	9/5/2023	2	In Situ		0.0020 U	0.0010 U	0.0020 U		0.0010 U	0.0010 U	0.012 U	0.10 U
AOC1-01	AOC1-01-5.0	9/5/2023	5	In Situ		0.0020 U	0.0010 U	0.0023		0.0011	0.0015	0.0020 U	0.10 U
AOC1-02	AOC1-02-2.5	9/5/2023	2.5	In Situ		**0.030**	0.0012 U	0.0024		0.0012 U	**0.035**	0.0058	0.12 U
AOC1-02	AOC1-02-5.0	9/5/2023	5	In Situ		0.0020 U	0.00031 J	0.021		0.0054	0.0031	0.0020 U	0.10 U
AOC1-03	AOC1-03-2.0	9/6/2023	2	In Situ		0.0020 U	0.0010 U	0.74		0.24	**0.37**	0.48	**6.8** [8]
AOC1-03	AOC1-03-4.0	9/6/2023	4	In Situ							**0.14 J**		**4.1 J**
AOC1-04	AOC1-04-2.0	9/6/2023	2	In Situ		0.0021 U	0.0011 J	0.23		0.075	**0.11**	0.074	**1.9**
AOC1-04	AOC1-04-4.0	9/6/2023	4	In Situ		0.0021 U	0.0011 U	0.053 J		0.013	**0.013**	0.0013 J	0.11 U
AOC1-05	AOC1-05-2.0	9/5/2023	2	In Situ		0.0025 U	0.0013 U	0.068		0.025	**0.089**	0.052	**1.5**
AOC1-06	AOC1-06-4.0	9/5/2023	4	In Situ		0.0020 U	0.0010 U	0.012		0.0039	**0.014**	0.0023	0.10 U
AOC1-07	AOC1-07-2.5	9/5/2023	2.5	In Situ		0.0020 U	0.0010 U	0.015		0.0048	**0.0072**	0.00074 J	0.34
AOC1-07	AOC1-07-5.0	9/5/2023	5	In Situ		0.0020 U	0.0010 U	0.0093		0.0028	0.0041	0.0020 U	0.10 U
AOC1-08	AOC1-08-2.5	9/5/2023	2.5	In Situ		0.0020 U	0.0010 U	0.046		0.017	0.0062	0.00066 J	0.10 U
AOC1-09	AOC1-09-5.0	9/5/2023	5	In Situ		0.0020 U	0.0010 U	0.0083		0.0025	0.0032	0.0012 J	0.10 U
AOC1-09	AOC1-09-8.0	9/5/2023	8	In Situ		0.0022 UJ	0.0011 UJ	0.0015 J		0.00063 J	0.0011 UJ	0.0022 UJ	0.11 UJ
Culvert	Culvert-1	8/5/2016	0–0.25	Removed	23	*0.34 UJ*	*0.34 UJ*		1.6 UJ	0.34 UJ	**0.72 J**		*17 UJ*
FS-05	FS-05-0.5-1	8/3/2016	0.5–1	Removed	73	**8.3 J**	0.13 UJ		**38 J**	**5.6 J**	**31 J**		**18 J**
FS-05	FS-05-3-4	8/3/2016	3–4	Removed	2.5	0.066 UJ	0.066 UJ		0.32 UJ	0.066 UJ	0.066 UJ		3.3 UJ
FS-05	FS-05-5-6	8/3/2016	5–6	Removed	4.7	**0.14 J**	0.067 UJ		0.61 J	0.11 J	**0.44 J**		3.4 UJ
FS-06	FS-06-0-0.5	8/3/2016	0–0.5	Removed	35	**20 J**	*0.34 UJ*		**84 J**	**9.9 J**	**46 J**		**120 J**
FS-06	FS-06D-0-0.5	8/3/2016	0–0.5	Removed	36	**17 J**	*0.34 UJ*		**67 J**	**8.0 J**	**42 J**		**100 J**
FS-06	FS-06-2-3	8/3/2016	2–3	Removed	11	**0.24 J**	0.13 UJ		**3.1 J**	0.42 J	**1.3 J**		6.6 UJ
FS-06	FS-06-5-6	8/3/2016	5–6	Removed	4.2	*0.34 UJ*	*0.34 UJ*		**2.6 J**	0.46 J	**1.6 J**		*17 UJ*
FS-07	FS-07-0.5-1	8/3/2016	0.5–1	Removed	6.6	*0.33 UJ*	*0.33 UJ*		1.6 UJ	0.33 UJ	*0.33 UJ*		*17 UJ*
FS-07	FS-07-3-4	8/3/2016	3–4	Removed	3.0	*0.33 UJ*	*0.33 UJ*		1.6 UJ	0.33 UJ	*0.33 UJ*		*17 UJ*
FS-07	FS-07-4-5	8/3/2016	4–5	In Situ	1.7	0.13 UJ	0.13 UJ		0.66 UJ	0.13 UJ	0.13 UJ		*6.8 UJ*
FS-18	FS-18-0.5-1	6/7/2017	0.5–1	In Situ		0.0067 U	0.0067 U		0.042		**0.044**		0.39
FS-18	FS-18-2-3	6/7/2017	2–3	In Situ		0.0067 U	0.0067 U		0.033 U		0.0067 U		0.33 U
FS-18	FS-2X-2-3	6/7/2017	2–3	In Situ		0.0067 U	0.0067 U		0.032 U		0.0067 U		0.32 U
FS-18	FS-18-4-5	6/7/2017	4–5	In Situ		0.0067 U	0.0067 U		0.033 U		**0.017**		0.33 U
FS-18	FS-18-6-7	6/7/2017	6–7	In Situ		0.0067 U	0.0067 U		0.033 U		0.0067 U		0.33 U
FS-19	FS-19-0.5-1	6/6/2017	0.5–1	Removed		**0.013**	**0.012**		**2.6**		**1.6**		**22**
FS-19	FS-19-2.5-3.5	6/6/2017	2.5–3.5	Removed		**0.0098**	**0.0084**		**2.1**		**1.4**		**13**
FS-19	FS-19-4.5-5.5	6/6/2017	4.5–5.5	In Situ		0.0067 U	0.0067 U		0.033 U		**0.024**		0.33 U
FS-19	FS-19-6-7	6/6/2017	6–7	In Situ		0.0067 U	0.0067 U		0.033 U		0.0067 U		0.33 U
FS-20	FS-20-0.5-1	6/6/2017	0.5–1	In Situ		0.0067 U	0.0067 U		0.20		**0.095**		0.52
FS-20	FS-20-3-4	6/6/2017	3–4	In Situ		0.0067 U	0.0067 U		0.033 U		**0.0075**		0.33 U
FS-20	FS-X1-3-4	6/6/2017	3–4	In Situ		0.0067 U	0.0067 U		0.033 U		**0.011**		0.33 U
FS-20	FS-20-4-5	6/6/2017	4–5	In Situ		0.0067 U	0.0067 U		0.033 U		0.0067 U		0.33 U
FS-20	FS-20-5.5-6.5	6/6/2017	5.5–6.5	In Situ		0.0067 U	0.0067 U		0.040		0.0067 U		0.33 U
FS-22	FS-22-0.5-1	6/6/2017	0.5–1	Removed		0.0067 U	**0.011**		**2.6**		**0.35**		**13**
FS-22	FS-22-3-4	6/6/2017	3–4	In Situ		0.0067 U	0.0067 U		0.033 U		0.0067		0.33 U
FS-22	FS-22-4-5	6/6/2017	4–5	In Situ		0.0067 U	0.0067 U		0.061		**0.031**		**2.0**

Table 4.2
Soil Analytical Results

				Chemical Group	Metals	Legacy Pesticides							
				Chemical [1]	Lead	Aldrin	HCH-beta (b-BHC)	Total Chlordanes [2]	Chlordane [3]	Chlordane-alpha	Dieldrin	4,4'-DDT/Sum DDT [4]	Toxaphene
				CAS No.	7439-92-1	309-00-2	319-85-7	T_Clrdn (U=0)	57-74-9	5103-71-9	60-57-1	T_DDT (U=0)	8001-35-2
				Direct Contact REL	--	0.43	--	21	21	21	0.46	22	6.7
				Leaching REL	--	0.13	0.13	22	22	--	0.13	--	17
				Direct Contact CUL	250	0.059	--	2.9	2.9	2.9	0.063	2.9	0.91
				Leaching CUL [7]	--	0.0067	0.0067	1.1	1.1	--	0.0067	--	0.84
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Location Name	Sample Name	Sample Date	Depth (feet bgs)	Status After Excavation									
AOC 1 (Compared to Leaching RELs) (cont.)													
FS-22	FS-22-4.5-5	6/6/2017	4.5–5	In Situ		0.0067 U	0.0067 U		0.056		**0.0095**		0.36
FS-22	FS-22-7-8	6/6/2017	7–8	In Situ		0.0067 U	0.0067 U		0.033 U		**0.0078**		0.33 U
MW-16	MW-16-0.5-1	6/20/2018	0.5–1	In Situ		0.0067 U	0.0067 U		0.033	0.016	**0.049**		0.33 U
MW-16	MW-16-3-4	6/20/2018	3–4	In Situ		0.0067 U	0.0067 U		0.033 U	0.0067 U	0.0067 U		0.33 U
MW-16	MW-16-5.5-6	6/20/2018	5.5–6	In Situ		0.0067 U	0.0067 U		0.033 U	0.0067 U	0.0067 U		0.33 U
SB-8	SO-062027-061113-SB-8-3.5	6/11/2013	3.5	In Situ									
AOC 2 (Compared to Leaching RELs)													
AOC2-01	AOC2-01-2.0	9/6/2023	2	In Situ		0.0023 U	0.0012 U	0.0023 U		0.0012 U	0.0012 U	0.0023 U	0.12 U
AOC2-01	AOC2-01-4.0	9/6/2023	4	In Situ		0.0020 U	0.0010 U	0.0067		0.0021	0.0023	0.0012 J	0.10 U
AOC2-02	AOC2-02-2.0	9/6/2023	2	In Situ		0.0023 U	0.0012 U	0.0023 U		0.0012 U	0.0012 U	0.0013 J	0.12 U
AOC2-03	AOC2-03-2.0	9/6/2023	2	Removed		0.0022 U	0.0011 U	0.0022 U		0.0011 U	0.0011 U	0.0022 U	0.11 U
AOC2-03	AOC2-03-4.0	9/6/2023	4	Removed		0.0021 U	0.0011 U	0.0021 U		0.0011 U	0.0011 U	0.00071 J	0.11 U
AOC2-03	AOC2-03-6.5	9/6/2023	6.5	Removed									
AOC2-03	AOC2-03-8.5	9/6/2023	8.5	Removed									
AOC2-04	AOC2-04-3.0	9/6/2023	3	Removed		0.0025 U	0.0012 U	0.0025 U		0.0012 U	0.0012 U	0.0025 U	0.12 U
AOC2-04	AOC2-04-6.0	9/6/2023	6	Removed									
AOC2-04	AOC2-04-8.5	9/6/2023	8.5	In Situ									
AOC2-05	AOC2-05-3.0	9/6/2023	3	In Situ		0.0020 U	0.0010 U	0.0020 U		0.0010 U	0.00097 U	0.0020 U	0.10 U
AOC2-05	AOC2-105-3.0	9/6/2023	3	In Situ		0.0021 U	0.0010 U	0.0021 U		0.0010 U	0.0010 U	0.0021 U	0.10 U
AOC2-05	AOC2-05-6.0	9/6/2023	6	In Situ		0.0020 U	0.0010 U	0.0020 U		0.0010 U	0.0010 U	0.0020 U	0.10 U
AOC2-06	AOC2-06-2.0	9/6/2023	2	In Situ		0.0020 U	0.0010 U	0.032		0.0096	**0.039**	0.017	0.53
AOC2-07	AOC2-07-2.0	9/6/2023	2	Removed		0.0020 U	0.0010 U	0.0096		0.0036	0.0053	0.0020 U	0.10 U
AOC2-08	AOC2-08-2.0	9/6/2023	2	Removed		0.0021 UJ	**0.11**	**5.4**		1.9	**4.7**	2.2	**100**
AOC2-08	AOC2-08-4.0	9/6/2023	4	In Situ		0.0020 U	0.0010 U	0.045		0.0093	0.0037	0.0018 J	0.15
AOC2-09	AOC2-09-2.0	12/14/2023	2	Removed							**0.025**		0.79
AOC2-09	AOC2-09-4.0	12/14/2023	4	In Situ							0.00037 J		0.10 U
AOC2-11	AOC2-11-6.0-6.5	12/14/2023	6–6.5	In Situ									
AOC2-11	AOC2-11-7.5	12/14/2023	7.5	In Situ									
AOC2-12	AOC2-12-6.5	12/14/2023	6.5	In Situ									
AOC2-12	AOC2-12-8.5-9.5	12/14/2023	8.5–9.5	In Situ									
AOC2-12	AOC2-12-10.0	12/14/2023	10	In Situ									
AOC2-13	AOC2-13-6.5	12/14/2023	6.5	In Situ									
AOC2-13	AOC2-13-7.5	12/14/2023	7.5	In Situ									
AOC2-14	AOC2-14-6.0-6.5	12/14/2023	6–6.5	In Situ									
AOC2-14	AOC2-14-8.5	12/14/2023	8.5	In Situ									
AOC2-14	AOC2-14-9.0	12/14/2023	9	In Situ									
AOC2-15	AOC2-15-6.0-6.5	12/14/2023	6–6.5	In Situ									
AOC2-15	AOC2-15-7.5	12/14/2023	7.5	In Situ									
AOC2-16	AOC2-16-6.5	12/14/2023	6.5	In Situ									
AOC2-17	AOC2-17-6.5	12/14/2023	6.5	In Situ									
FS-02	FS-02-0.5-1	8/2/2016	0.5–1	Removed	16	*0.34 UJ*	*0.34 UJ*		1.6 UJ	0.34 UJ	*0.34 UJ*		*17 UJ*
FS-02	FS-02-2.5-3.5	8/2/2016	2.5–3.5	Removed	12	*0.34 UJ*	*0.34 UJ*		**6.6 J**	0.67 J	**2.7 J**		**12 J**
FS-02	FS-02-4-5	8/2/2016	4–5	In Situ	2.2	0.13 UJ	0.13 UJ		0.64 UJ	0.13 UJ	0.13 UJ		6.6 UJ

Table 4.2
Soil Analytical Results

				Chemical Group	Metals	Legacy Pesticides							
				Chemical [1]	Lead	Aldrin	HCH-beta (b-BHC)	Total Chlordanes [2]	Chlordane [3]	Chlordane-alpha	Dieldrin	4,4'-DDT/Sum DDT [4]	Toxaphene
				CAS No.	7439-92-1	309-00-2	319-85-7	T_Clrdn (U=0)	57-74-9	5103-71-9	60-57-1	T_DDT (U=0)	8001-35-2
				Direct Contact REL	--	0.43	--	21	21	21	0.46	22	6.7
				Leaching REL	--	0.13	0.13	22	22	--	0.13	--	17
				Direct Contact CUL	250	0.059	--	2.9	2.9	2.9	0.063	2.9	0.91
				Leaching CUL [7]	--	0.0067	0.0067	1.1	1.1	--	0.0067	--	0.84
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Location Name	Sample Name	Sample Date	Depth (feet bgs)	Status After Excavation									
AOC 2 (Compared to Leaching RELs) (cont.)													
FS-08	FS-08-0.5-1	8/3/2016	0.5–1	Removed	**350**	*0.34 UJ*	*0.34 UJ*		1.6 UJ	0.34 UJ	*0.34 UJ*		*17 UJ*
FS-08	FS-08-3-4	8/3/2016	3–4	In Situ	7.2	0.13 UJ	0.13 UJ		0.64 UJ	0.13 UJ	0.13 UJ		6.6 UJ
FS-08	FS-08-4-5	8/3/2016	4–5	In Situ	2.7	0.13 UJ	0.13 UJ		0.66 UJ	0.13 UJ	0.13 UJ		*6.8 UJ*
FS-09	FS-09-0.5-1	8/3/2016	0.5–1	Removed	50	*1.3 UJ*	*1.3 UJ*		**7.6 J**	1.3 UJ	**1.7 J**		*68 UJ*
FS-09	FS-09-3-4	8/3/2016	3–4	In Situ	24	*0.33 UJ*	*0.33 UJ*		**14 J**	1.4 J	**1.8 J**		**68 J**
FS-09	FS-09-4-5	8/3/2016	4–5	In Situ	3.7	0.13 UJ	0.13 UJ		0.66 UJ	0.13 UJ	0.13 UJ		*6.8 UJ*
FS-10	FS-10-0.5-1	8/4/2016	0.5–1	Removed	41	*0.33 UJ*	*0.33 UJ*		1.6 UJ	0.33 UJ	**0.35 J**		*17 UJ*
FS-10	FS-10-2-3	8/4/2016	2–3	Removed	5.5	0.13 UJ	0.13 UJ		0.66 UJ	0.13 UJ	0.13 UJ		*6.8 UJ*
FS-10	FS-10-9-10	8/4/2016	9–10	In Situ	4.0	*0.34 UJ*	*0.34 UJ*		1.6 UJ	0.34 UJ	*0.34 UJ*		*17 UJ*
FS-11	FS-11-0.5-1	8/4/2016	0.5–1	Removed	35	*1.3 UJ*	*1.3 UJ*		6.6 UJ	1.3 UJ	*1.3 UJ*		*68 UJ*
FS-11	FS-11-3-4	8/4/2016	3–4	Removed	18	*0.34 UJ*	*0.34 UJ*		1.6 UJ	0.34 UJ	*0.34 UJ*		*17 UJ*
FS-11	FS-11D-3-4	8/4/2016	3–4	Removed	21	*0.34 UJ*	*0.34 UJ*		1.6 UJ	0.34 UJ	*0.34 UJ*		*17 UJ*
FS-11	FS-11-11.5-12.5	8/4/2016	11.5–12.5	In Situ	1.7								
FS-11	FS-11-15-16	8/4/2016	15–16	In Situ	1.6								
FS-11	FS-11-19-20	8/4/2016	19–20	In Situ	5.9								
FS-25	FS-25-0.5-1	6/8/2017	0.5–1	Removed		**0.0087**	0.0067 U		0.43		**0.22**		**2.5**
FS-25	FS-25-1.5-2	6/8/2017	1.5–2	In Situ		0.0067 U	0.0067 U		0.033 U		0.0067 U		0.33 U
FS-25	FS-25-4.5-5.5	6/8/2017	4.5–5.5	In Situ		0.0067 U	0.0067 U		0.067		0.0067 U		0.33 U
FS-25	FS-25-6-7	6/8/2017	6–7	In Situ		0.0067 U	0.0067 U		0.033 U		**0.0080**		0.33 U
FS-26	FS-26-0.5-1	6/20/2018	0.05–1	In Situ		0.0067 U	0.0067 U		0.032 U	0.0067 U	0.0067 U		0.32 U
FS-26	FS-26-2.5-3.5	6/21/2018	2.5–3.5	In Situ		0.0067 U	0.0067 U		0.033 U	0.0067 U	0.0067 U		0.33 U
FS-26	FS-XX-2.5-3.5	6/21/2018	2.5–3.5	In Situ		0.0067 U	0.0067 U		0.033 U	0.0067 U	0.0067 U		0.33 U
FS-26	FS-26-5-6	6/21/2018	5–6	In Situ		0.0067 U	0.0067 U		0.040	0.013	**0.048**		0.45
FS-27	FS-27-0.5-1	6/6/2017	0.5–1	Removed		**0.0093**	**0.0080**		**2.1**		**1.1**		**11**
FS-27	FS-27-3-4	6/6/2017	3–4	Removed		**0.029**	**0.052**		**13**		**6.2**		**70**
FS-27	FS-27-4-5	6/6/2017	4–5	Removed		0.0067 U	0.0067 U		0.20		**0.20**		**1.4**
FS-27	FS-27-7.5-8	6/6/2017	7.5–8	In Situ									
FS-27	FS-27-9.5-10	6/6/2017	9.5–10	In Situ									
FS-28	FS-28-0.5-1	6/6/2017	0.5–1	Removed		**0.022**	0.0067 U		0.37		**0.23**		**1.1**
FS-28	FS-28-3-4	6/6/2017	3–4	Removed		0.0067 U	**0.0068**		**11**		**0.21**		**52**
FS-28	FS-28-5-5.5	6/6/2017	5–5.5	In Situ		0.0067 U	0.0067 U		0.033 U		0.0067 U		0.33 U
FS-28	FS-28-7-8	6/6/2017	7–8	In Situ									
FS-42	FS-42-3.0-4.0	6/20/2018	3–4	In Situ		0.0067 U	**0.017**			0.048	**0.11**		
MW-5	SO-062027-093013-MW-5-2	9/30/2013	2	Removed									
MW-5	SO-062027-100313-MW-5-5	10/3/2013	5	Removed	1.7								
MW-5	SO-062027-100313-MW-5-10	10/3/2013	10	In Situ									
MW-7	SO-062027-100113-MW-7-2	10/1/2013	2	In Situ	9.3								
MW-7	SO-062027-100313-MW-7-5	10/3/2013	5	In Situ									
MW-7	SO-062027-100313-MW-7-10	10/3/2013	10	In Situ									
MW-8	SO-062027-100113-MW-8-2	10/1/2013	2	In Situ									
MW-8	SO-062027-100313-MW-8-5	10/3/2013	5	In Situ	32								
MW-8	SO-062027-100313-MW-8-10	10/3/2013	10	In Situ									
MW-11	MW-11-0-0.5	8/2/2016	0–0.5	In Situ	59	*0.34 UJ*	*0.34 UJ*		1.6 UJ	0.34 UJ	*0.34 UJ*		*17 UJ*

Table 4.2
Soil Analytical Results

				Chemical Group	Metals	Legacy Pesticides							
				Chemical [1]	Lead	Aldrin	HCH-beta (b-BHC)	Total Chlordanes [2]	Chlordane [3]	Chlordane-alpha	Dieldrin	4,4'-DDT/Sum DDT [4]	Toxaphene
				CAS No.	7439-92-1	309-00-2	319-85-7	T_Clrdn (U=0)	57-74-9	5103-71-9	60-57-1	T_DDT (U=0)	8001-35-2
				Direct Contact REL	--	0.43	--	21	21	21	0.46	22	6.7
				Leaching REL	--	0.13	0.13	22	22	--	0.13	--	17
				Direct Contact CUL	250	0.059	--	2.9	2.9	2.9	0.063	2.9	0.91
				Leaching CUL [7]	--	0.0067	0.0067	1.1	1.1	--	0.0067	--	0.84
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Location Name	Sample Name	Sample Date	Depth (feet bgs)	Status After Excavation									
AOC 2 (Compared to Leaching RELs) (cont.)													
MW-11	MW-11-1.5-2	8/2/2016	1.5–2	In Situ	41	0.13 UJ	0.13 UJ		0.66 UJ	0.13 UJ	0.13 UJ		*6.8 UJ*
MW-11	MW-11-7.5-8	8/2/2016	7.5–8	In Situ	1.6	*0.34 UJ*	*0.34 UJ*		1.6 UJ	0.34 UJ	*0.34 UJ*		*17 UJ*
MW-11	MW-11-9-10	8/2/2016	9–10	In Situ									
MW-17	MW-17-0.5-1	6/20/2018	0.5–1	In Situ		0.0067 U	0.0067 U		0.033 U	0.0067 U	**0.013**		0.33 U
MW-17	MW-17-3.5-4	6/20/2018	3.5–4	In Situ		0.0067 U	0.0067 U		0.19	0.046	**0.065**		**1.1**
MW-17	MW-17-5-5.5	6/20/2018	5–5.5	In Situ		0.0067 U	0.0067 U		0.032 U	0.0067 U	**0.011**		0.32 U
SB-5	SO-062027-061313-SB-5-11	6/13/2013	11	In Situ									
SB-5	SO-062027-061013-SB-5-3	6/10/2013	3	In Situ									
SB-5	SO-062027-061313-SB-5-7	6/13/2013	7	In Situ									
SB-6	SO-062027-061013-SB-6-3	6/10/2013	3	Removed									
SB-6	SO-062027-061313-SB-6-7	6/13/2013	7	In Situ									
SB-6	SO-062027-061313-SB-6-11	6/13/2013	11	In Situ									
SB-6	SO-062027-061313-SB-6-15	6/13/2013	15	In Situ									
AOC 3 (Compared to Direct Contact RELs)													
AOC3-01	AOC3-01-2.0	9/7/2023	2	In Situ		0.0021 U	0.0011 U	0.0070 J		0.0032	0.018 J	0.022	0.54
AOC3-02	AOC3-02-2.0	9/7/2023	2	In Situ		0.0020 U	0.0010 U	0.0014 J		0.00083 J	0.00098 U	0.0071	0.10 U
AOC3-03	AOC3-03-0.5-1.0	9/7/2023	0.5–1	In Situ									
AOC3-03	AOC3-103-0.5-1.0	9/7/2023	0.5–1	In Situ									
AOC3-03	AOC3-03-2.0	9/7/2023	2	In Situ		0.0022 U	0.0011 U	0.0022 U		0.0011 U	0.0047	0.0014 J	0.11 U
AOC3-04	AOC3-04-0.5-1.0	9/7/2023	0.5–1	Removed									
AOC3-04	AOC3-04-2.0	9/7/2023	2	In Situ		0.0022 U	0.0011 U	0.0022 U		0.0011 U	0.0094	0.00086 J	0.11 U
AOC3-05	AOC3-05-0.5-1.0	9/7/2023	0.5–1	Removed									
AOC3-05	AOC3-05-2.0	9/7/2023	2	In Situ		0.0023 U	0.0011 U	0.00056 J		0.00056 J	0.020	0.00096 J	0.11 U
FS-32	FS-32-0.5-1	6/9/2017	0.5–1	Removed		0.0067 U	**0.012**		1.4		**1.6**		**11**
FS-32	FS-32-2-3	6/9/2017	2–3	In Situ		0.0067 U	0.0067 U		0.033 U		0.022		0.33 U
FS-32	FS-X5-2-3	6/9/2017	2–3	In Situ		0.0067 U	0.0067 U		0.032 U		0.018		0.32 U
FS-32	FS-32-4-5	6/9/2017	4–5	In Situ		0.0067 U	0.0067 U		0.097		**0.098**		0.63
FS-33	FS-33-0.5-1	6/9/2017	0.5–1	Removed		0.0067 U	0.0067 U		0.44		**0.31**		**2.5**
FS-33	FS-33-2-3	6/9/2017	2–3	In Situ		0.0067 U	0.0067 U		0.15		0.023		1.3 U
FS-33	FS-33-4-5	6/9/2017	4–5	In Situ		0.0067 U	0.0067 U		0.033 U		0.0067 U		0.33 U
FS-34	FS-34-0.5-1	6/21/2018	0.5–1	In Situ		0.0067 U	0.0067 U		0.033 U	0.0067 U	0.0067 U		0.33 U
FS-34	FS-34-2-3	6/21/2018	2–3	In Situ		0.0067 U	0.0067 U		0.033 U	0.0067 U	0.0067 U		0.33 U
FS-34	FS-34-3-4	6/21/2018	3–4	In Situ		0.0067 U	0.0067 U		0.033 U	0.0067 U	0.0067 U		0.33 U
FS-35	FS-35-0.5-1	6/9/2017	0.5–1	Removed		0.0067 U	0.0067 U		0.38		**0.18**		**2.1**
FS-35	FS-X4-0.5-1	6/9/2017	0.5–1	Removed		0.0067 U	0.0067 U		0.28		0.12		**2.0**
FS-35	FS-35-2-3	6/9/2017	2–3	In Situ		0.0067 U	0.0067 U		0.032 U		0.0067 U		0.32 U
FS-43	FS-43-1-2	6/21/2018	1–2	Removed									
FS-44	FS-44-0.5-1	6/21/2018	0.5–1	Removed									
FS-45	FS-45-0.5-1	6/21/2018	0.5–1	In Situ									
MW-13	MW-13-0-0.5	8/1/2016	0–0.5	Removed	30	0.13 UJ	0.13 UJ		0.66 UJ	0.13 UJ	**0.16 J**		*6.8 UJ*
MW-13	MW-13-1-2	8/1/2016	1–2	Removed	32	0.13 UJ	0.13 UJ		0.50 J	0.067 UJ	**0.28 J**		*6.8 UJ*
MW-13	MW-13-3.5-4.5	8/1/2016	3.5–4.5	In Situ	1.7	0.13 UJ	0.13 UJ		0.64 UJ	0.13 UJ	0.13 UJ		6.6 UJ

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Soil Analytical Results

				Chemical Group	Metals	Legacy Pesticides							
				Chemical [1]	Lead	Aldrin	HCH-beta (b-BHC)	Total Chlordanes [2]	Chlordane [3]	Chlordane-alpha	Dieldrin	4,4'-DDT/Sum DDT [4]	Toxaphene
				CAS No.	7439-92-1	309-00-2	319-85-7	T_Clrdn (U=0)	57-74-9	5103-71-9	60-57-1	T_DDT (U=0)	8001-35-2
				Direct Contact REL	--	0.43	--	21	21	21	0.46	22	6.7
				Leaching REL	--	0.13	0.13	22	22	--	0.13	--	17
				Direct Contact CUL	250	0.059	--	2.9	2.9	2.9	0.063	2.9	0.91
				Leaching CUL [7]	--	0.0067	0.0067	1.1	1.1	--	0.0067	--	0.84
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Location Name	Sample Name	Sample Date	Depth (feet bgs)	Status After Excavation									
AOC 3 (Off Property, Compared to CULs)													
H4H-01	H4H-01-0.5-1.0	9/7/2023	0.5–1	Removed									
H4H-02	H4H-02-0.5-1.0	9/7/2023	0.5–1	In Situ									
H4H-03	H4H-03-0.5-1.0	9/7/2023	0.5–1	Removed									
H4H-04	H4H-04-0.5-1.0	9/7/2023	0.5–1	Removed									
H4H-05	H4H-05-0.5-1.0	9/7/2023	0.5–1	In Situ									
AOC 4 (Compared to Leaching RELs)													
AOC4-01	AOC4-01-2.5	9/5/2023	2.5	In Situ		0.0020 U	0.0010 U	0.0020 U		0.0010 U	0.00023 J	0.0020 U	0.10 U
AOC4-02	AOC4-02-2.5	9/6/2023	2.5	Removed	15	0.0020 U	0.0010 U	0.041		0.014	0.0022	0.0020 U	0.10 U
AOC4-02	AOC4-02-4.5	9/6/2023	4.5	Removed		0.0020 U	0.0010 U	0.019		0.0064	**0.011**	0.0020 U	0.10 U
AOC4-02	AOC4-02-8.5	9/6/2023	8.5	Removed									
AOC4-02	AOC4-02-9.5	9/6/2023	9.5	In Situ									
AOC4-03	AOC4-03-2.0	9/5/2023	2	In Situ	150 J	0.0020 U	0.0010 U	0.0037 U		0.0037 U	0.0010 U	0.0020 U	0.10 U
AOC4-03	AOC4-103-2.0	9/5/2023	2	In Situ	63 J	0.0021 U	0.0011 U	0.0021 U		0.0011 U	0.0011 U	0.0021 U	0.11 U
AOC4-03	AOC4-03-6.5	9/5/2023	6.5	In Situ									
AOC4-03	AOC4-03-7.0	9/5/2023	7	In Situ									
AOC4-04	AOC4-04-2.5	9/5/2023	2.5	In Situ	3.3	0.0021 U	0.0010 U	0.0021 U		0.0010 U	0.0010 U	0.0021 U	0.10 U
AOC4-05	AOC4-05-2.5	9/5/2023	2.5	In Situ		0.0021 U	0.00032 J	0.0021 U		0.0010 U	0.0010 U	0.0021 U	0.10 U
AOC4-06	AOC4-06-2.5	9/5/2023	2.5	In Situ		0.0020 U	0.0010 U	0.0020 U		0.0010 U	0.00098 U	0.0020 U	0.10 U
AOC4-06	AOC4-06-5.0	9/5/2023	5	In Situ		0.0020 U	0.0010 U	0.0020 U		0.0010 U	0.00091 U	0.00074 J	0.10 U
AOC4-07	AOC4-07-2.5	9/5/2023	2.5	In Situ		0.0020 U	0.0010 U	0.0020 U		0.0010 U	0.00064 J	0.00063 J	0.10 U
AOC4-07	AOC4-107-2.5	9/5/2023	2.5	In Situ		0.0020 U	0.0010 U	0.0020 U		0.0010 U	0.00087 J	0.00065 J	0.10 U
AOC4-07	AOC4-07-5.0	9/5/2023	5	In Situ		0.0020 U	0.0010 U	0.0020 U		0.0010 U	0.00084 J	0.0010 J	0.10 U
AOC4-08	AOC4-08-2.5	9/5/2023	2.5	In Situ		0.0020 U	0.0010 U	0.0020 U		0.0010 U	0.00093 U	0.00072 J	0.10 U
AOC4-09	AOC4-09-5.5-6.0	12/14/2023	5.5–6	In Situ									
AOC4-09	AOC4-09-7.0	12/14/2023	7	In Situ									
FS-12	FS-12-0.5-1	8/4/2016	0.5–1	In Situ	76	*0.33 UJ*	*0.33 UJ*		**4.7 J**	1.1 J	**1.5 J**		**15 J**
FS-12	FS-12-3-4	8/4/2016	3–4	In Situ	12	0.13 UJ	0.13 UJ		**4.6 J**	0.74 J	**1.2 J**		**14 J**
FS-12	FS-12-4-5	8/4/2016	4–5	In Situ		0.065 UJ	0.065 UJ		0.32 UJ	0.065 UJ	0.065 UJ		3.3 UJ
FS-15	FS-15-0.5-1	8/4/2016	0.5–1	Removed	20	0.13 UJ	0.13 UJ		0.66 UJ	0.13 UJ	**0.16 J**		*6.8 UJ*
FS-15	FS-15-3-4	8/4/2016	3–4	Removed	8.7	0.067 UJ	0.067 UJ		0.33 UJ	0.067 UJ	**0.31 J**		3.4 UJ
FS-15	FS-15D-3-4	8/4/2016	3–4	Removed	12	0.067 UJ	0.067 UJ		0.33 UJ	0.067 UJ	0.067 UJ		3.4 UJ
FS-15	FS-15-4-5	8/4/2016	4–5	Removed	7.9	0.067 UJ	0.067 UJ		0.33 UJ	0.067 UJ	0.067 UJ		3.4 UJ
FS-29	FS-29-0.5-1	6/8/2017	0.5–1	Removed		**0.0070**	**0.012**		**6.3**		**1.2**		**53**
FS-29	FS-29-1-2	6/8/2017	1–2	Removed		0.0067 U	0.0067 U		0.057		**0.031**		0.67
FS-29	FS-29-4-4.5	6/8/2017	4–4.5	Removed		0.0067 U	0.0067 U		0.033 U		0.0067 U		0.33 U
FS-30	FS-30-0.5-1	6/8/2017	0.5–1	Removed		0.0067 U	0.0067 U		0.089		**0.40**		0.57
FS-30	FS-30-2-3	6/8/2017	2–3	In Situ		0.0067 U	0.0067 U		0.033 U		0.0067 U		0.33 U
FS-30	FS-30-3-4	6/8/2017	3–4	In Situ		0.0067 U	0.0067 U		0.033 U		**0.0090**		0.33 U
FS-31	FS-31-0.5-1	6/8/2017	0.5–1	In Situ		0.0067 U	0.0067 U		0.39		**0.21**		**1.8**
FS-31	FS-31-2-3	6/8/2017	2–3	In Situ		0.0067 U	0.0067 U		0.033 U		0.0067 U		0.33 U
FS-31	FS-X3-2-3	6/8/2017	2–3	In Situ		0.0067 U	0.0067 U		0.033 U		0.0067 U		0.33 U
FS-31	FS-31-3-5	6/8/2017	3–5	In Situ									
FS-31	FS-31-4-5	6/8/2017	4–5	In Situ		0.0067 U	0.0067 U		0.033 U		**0.0099**		0.33 U

Table 4.2
Soil Analytical Results

				Chemical Group	Metals	Legacy Pesticides							
				Chemical [1]	Lead	Aldrin	HCH-beta (b-BHC)	Total Chlordanes [2]	Chlordane [3]	Chlordane-alpha	Dieldrin	4,4'-DDT/Sum DDT [4]	Toxaphene
				CAS No.	7439-92-1	309-00-2	319-85-7	T_Clrdn (U=0)	57-74-9	5103-71-9	60-57-1	T_DDT (U=0)	8001-35-2
				Direct Contact REL	--	0.43	--	21	21	21	0.46	22	6.7
				Leaching REL	--	0.13	0.13	22	22	--	0.13	--	17
				Direct Contact CUL	250	0.059	--	2.9	2.9	2.9	0.063	2.9	0.91
				Leaching CUL [7]	--	0.0067	0.0067	1.1	1.1	--	0.0067	--	0.84
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Location Name	Sample Name	Sample Date	Depth (feet bgs)	Status After Excavation									
AOC 4 (Compared to Leaching RELs) (cont.)													
FS-31	FS-31-8-9	6/8/2017	8–9	In Situ									
FS-31	FS-31-9-10	6/8/2017	9–10	In Situ									
MW-12	MW-12-0-0.5	8/1/2016	0–0.5	Removed	110	*0.34 UJ*	*0.34 UJ*		1.6 UJ	0.34 UJ	*0.34 UJ*		*17 UJ*
MW-12	MW-12-1.5-2	8/1/2016	1.5–2	Removed	**990**	*0.34 UJ*	*0.34 UJ*		1.6 UJ	0.34 UJ	*0.34 UJ*		*17 UJ*
MW-12	MW-12-5-6	8/1/2016	5–6	Removed	4.1	*0.34 UJ*	*0.34 UJ*		1.6 UJ	0.34 UJ	*0.34 UJ*		*17 UJ*
MW-12	MW-12-7-8	8/1/2016	7–8	In Situ									
MW-14	MW-14-0-0.5	8/1/2016	0–0.5	In Situ	30	0.13 UJ	0.13 UJ		0.66 UJ	0.13 UJ	0.13 UJ		*6.8 UJ*
MW-14	MW-14-2-3	8/1/2016	2–3	In Situ	2.6	0.13 UJ	0.13 UJ		0.64 UJ	0.13 UJ	0.13 UJ		6.6 UJ
MW-14	MW-14-4-5	8/1/2016	4–5	In Situ	1.7	0.13 UJ	0.13 UJ		0.66 UJ	0.13 UJ	0.13 UJ		*6.8 UJ*
Test Pit #1	BSE-0107-S1	6/11/2007	3	Removed									
Test Pit #1	BSE-0107-S2	6/11/2007	5	Removed									
Test Pit #3	BSC-0407-S8	7/2/2007	4.7	In Situ									
Test Pit #6	BSC-0407-S17	7/2/2007	5	In Situ									
SB-1	SO-062027-061213-SB-1-11	6/12/2013	11	In Situ									
SB-1	SO-062027-061213-SB-1-7	6/12/2013	7	In Situ									
SB-2	SO-062027-061213-SB-2-7	6/12/2013	7	In Situ	3.5								
SB-2	SO-062027-061213-SB-2-11	6/12/2013	11	In Situ									
SB-3	SO-062027-061013-SB-3-3	6/10/2013	3	In Situ									
SB-3	SO-062027-061213-SB-3-7	6/12/2013	7	In Situ									
SB-3	SO-062027-061213-SB-3-15	6/12/2013	15	In Situ									
AOC 5 (Compared to Direct Contact RELs)													
AOC5-01	AOC5-01-2.5	9/5/2023	2.5	In Situ		0.0021 U	0.0011 U	0.0012 J		0.00047 J	0.00041 J	0.0021 U	0.11 U
AOC5-01	AOC5-01-5.0	9/5/2023	5	In Situ		0.0020 U	0.0010 U	0.0020 U		0.0010 U	0.0026	0.0020 U	0.10 U
AOC5-01	AOC5-101-5.0	9/5/2023	5	In Situ		0.0020 U	0.0010 U	0.0020 U		0.0010 U	0.0024	0.0020 U	0.10 U
AOC5-01	AOC5-01-6.0-6.5	9/5/2023	6–6.5	In Situ									
AOC5-02	AOC5-02-2.5	9/5/2023	2.5	In Situ		0.0020 U	0.0010 U	0.0020 U		0.0010 U	0.00090 U	0.0020 U	0.10 U
AOC5-02	AOC5-02-5.0	9/5/2023	5	In Situ		0.0020 U	0.0010 U	0.00050 J		0.00050 J	0.0015	0.0020 U	0.10 U
AOC5-03	AOC5-03-2.5	9/5/2023	2.5	In Situ		0.0020 U	0.0010 U	0.0020 U		0.0010 U	0.00087 U	0.0020 U	0.10 U
AOC5-04	AOC5-04-2.5	9/5/2023	2.5	In Situ		0.0022 U	0.0011 U	0.0022 U		0.0011 U	0.0011 U	0.0022 U	0.11 U
AOC5-04	AOC5-04-5.0	9/5/2023	5	In Situ		0.0020 U	0.0010 U	0.0020 U		0.0010 U	0.00096 U	0.0020 U	0.10 U
FS-13	FS-13-0.5-1	8/4/2016	0.5–1	In Situ	80	0.13 UJ	0.13 UJ		0.82 J	0.21 J	**0.23 J**		6.6 UJ
FS-13	FS-13-13-14	8/4/2016	13–14	In Situ	3.2								
FS-13	FS-13-3-4	8/4/2016	3–4	In Situ	5.7	0.067 UJ	0.067 UJ		0.33 UJ	0.067 UJ	0.067 UJ		3.4 UJ
FS-13	FS-13-4-5	8/4/2016	4–5	In Situ									
FS-13	FS-13-6-7	8/4/2016	6–7	In Situ	2.6	0.13 UJ	0.13 UJ		0.66 UJ	0.13 UJ	0.13 UJ		*6.8 UJ*
FS-14	FS-14-0.5-1	8/4/2016	0.5–1	In Situ	22	0.13 UJ	0.13 UJ		0.66 UJ	0.13 UJ	0.13 UJ		*6.8 UJ*
FS-14	FS-14-4-5	8/4/2016	4–5	In Situ	1.7	0.13 UJ	0.13 UJ		0.64 UJ	0.13 UJ	0.13 UJ		6.6 UJ
FS-14	FS-14-5-6	8/4/2016	5–6	In Situ	4.9	0.067 UJ	0.067 UJ		0.33 UJ	0.067 UJ	0.067 UJ		3.4 UJ
FS-16	FS-16-0.5-1	8/4/2016	0.5–1	Removed	47	0.065 UJ	0.065 UJ		0.99 J	0.18 J	**0.44 J**		3.3 UJ
FS-16	FS-16-3-4	8/4/2016	3–4	Removed	58	0.13 UJ	0.13 UJ		0.97 J	0.16 J	**0.55 J**		6.7 UJ
FS-16	FS-16-5-6	8/4/2016	5–6	In Situ	3.0	*1.3 UJ*	1.3 UJ		6.6 UJ	1.3 UJ	*1.3 UJ*		*68 UJ*
FS-16	FS-16-9-10	8/4/2016	9–10	In Situ	2.2								
FS-23	FS-23-0.5-1	6/6/2017	0.5–1	In Situ		**0.023**	0.0067 U		0.33 U		**0.067**		**17**

Table 4.2
Soil Analytical Results

				Chemical Group	Metals	Legacy Pesticides							
				Chemical [1]	Lead	Aldrin	HCH-beta (b-BHC)	Total Chlordanes [2]	Chlordane [3]	Chlordane-alpha	Dieldrin	4,4'-DDT/Sum DDT [4]	Toxaphene
				CAS No.	7439-92-1	309-00-2	319-85-7	T_Clrdn (U=0)	57-74-9	5103-71-9	60-57-1	T_DDT (U=0)	8001-35-2
				Direct Contact REL	--	0.43	--	21	21	21	0.46	22	6.7
				Leaching REL	--	0.13	0.13	22	22	--	0.13	--	17
				Direct Contact CUL	250	0.059	--	2.9	2.9	2.9	0.063	2.9	0.91
				Leaching CUL [7]	--	0.0067	0.0067	1.1	1.1	--	0.0067	--	0.84
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Location Name	Sample Name	Sample Date	Depth (feet bgs)	Status After Excavation									
AOC 5 (Compared to Direct Contact RELs) (cont.)													
FS-23	FS-23-4-5	6/6/2017	4–5	In Situ		0.0067 U	0.0067 U		0.033 U		0.0067 U		0.45
FS-23	FS-23-5-6	6/6/2017	5–6	In Situ		0.0067 U	0.0067 U		0.032 U		**0.99**		0.32 U
FS-23	FS-23-6-7	6/6/2017	6–7	In Situ									
FS-23	FS-23-8-9	6/6/2017	8–9	In Situ									
FS-24	FS-24-0.5-1	6/8/2017	0.5–1	In Situ		0.0067 U	0.0067 U		0.033 U		**0.0092**		0.33 U
FS-24	FS-24-2-3	6/8/2017	2–3	In Situ		0.0067 U	0.0067 U		0.046		**0.014**		0.37
FS-24	FS-24-4-5	6/8/2017	4–5	In Situ		0.0067 U	0.0067 U		0.033 U		0.0067 U		0.33 U
MW-1	SO-062027-100113-MW-1-2	10/1/2013	2	In Situ	31								
MW-1	SO-062027-100313-MW-1-5	10/4/2013	5	In Situ	78								
AOC 6 (Compared to CULs)													
FS-03	FS-03-0.5-1	8/3/2016	0.5–1	In Situ	18	*0.13 UJ*	*0.13 UJ*		0.66 UJ	0.13 UJ	**0.35 J**		*6.8 UJ*
FS-03	FS-03-2.5-3.5	8/3/2016	2.5–3.5	In Situ	34	*0.13 UJ*	*0.13 UJ*		0.66 UJ	0.13 UJ	*0.13 UJ*		*6.8 UJ*
FS-03	FS-03-5.5-6.5	8/3/2016	5.5–6.5	In Situ	3.2	*0.067 UJ*	*0.067 UJ*		0.33 UJ	0.067 UJ	*0.067 UJ*		*3.4 UJ*
FS-17	FS-17-0.5-1	6/7/2017	0.5–1	In Situ		0.0067 U	0.0067 U		0.22		**0.12**		**1.3**
FS-17	FS-17-2.5-3.5	6/7/2017	2.5–3.5	In Situ		0.0067 U	0.0067 U		0.033 U		0.0067 U		0.33 U
FS-17	FS-17-4-5	6/7/2017	4–5	In Situ		0.0067 U	0.0067 U		0.033 U		0.0067 U		0.33 U
None (Compared to CULs)													
FS-01	FS-01-0.5-1	8/2/2016	0.5–1	Removed	110	*0.34 UJ*	*0.34 UJ*		*1.6 UJ*	0.34 UJ	*0.34 UJ*		*17 UJ*
FS-01	FS-01-2-3	8/2/2016	2–3	In Situ	78	*0.34 UJ*	*0.34 UJ*		*1.6 UJ*	0.34 UJ	*0.34 UJ*		*17 UJ*
FS-01	FS-01-7-8	8/2/2016	7–8	In Situ	1.8	*0.13 UJ*	*0.13 UJ*		0.66 UJ	0.13 UJ	*0.13 UJ*		*6.8 UJ*
FS-04	FS-04-0.5-1	8/3/2016	0.5–1	In Situ	4.2	0.066 UJ	0.066 UJ		0.32 UJ	0.066 UJ	0.066 UJ		3.3 UJ
FS-04	FS-04-3-4	8/3/2016	3–4	In Situ	21	0.067 UJ	0.067 UJ		0.33 UJ	0.067 UJ	0.067 UJ		3.4 UJ
FS-04	FS-04-7-8	8/3/2016	7–8	In Situ	5.0	0.067 UJ	0.067 UJ		0.33 UJ	0.067 UJ	0.067 UJ		3.4 UJ
FS-21	FS-21-0.5-1	6/7/2017	0.5–1	In Situ		0.0067 U	0.0067 U		0.033 U		**0.011**		0.33 U
FS-21	FS-21-2-3	6/7/2017	2–3	In Situ		0.0067 U	0.0067 U		0.033 U		0.0067 U		0.33 U
FS-21	FS-21-4.5-5	6/7/2017	4.5–5	In Situ		0.0067 U	0.0067 U		0.033 U		0.0067 U		0.33 U
MW-15	MW-15-0.5-1	6/20/2018	0.5–1	In Situ		0.0067 U	0.0067 U		0.033 U	0.015	**0.0078**		0.33 U
MW-15	MW-15-3-4	6/20/2018	3–4	In Situ		0.0067 U	0.0067 U		0.033 U	0.0067 U	0.0067 U		0.33 U
MW-15	MW-15-5-5.5	6/20/2018	5–5.5	In Situ		0.0067 U	0.0067 U		0.033 U	0.0067 U	0.0067 U		0.33 U
MW-9	MW-9-0.5-1	8/2/2016	0.5–1	In Situ	16	0.13 UJ	0.13 UJ		0.64 UJ	0.13 UJ	0.13 UJ		6.6 UJ
MW-9	MW-9-4-5	8/2/2016	4–5	In Situ	42	0.13 UJ	0.13 UJ		0.66 UJ	0.13 UJ	0.13 UJ		*6.8 UJ*
MW-9	MW-9-7-8	8/2/2016	7–8	In Situ	4.9	*0.34 UJ*	*0.34 UJ*		1.6 UJ	0.34 UJ	*0.34 UJ*		*17 UJ*
MW-9	MW-D1-7-8	8/2/2016	7–8	In Situ	6.6	*0.34 UJ*	*0.34 UJ*		1.6 UJ	0.34 UJ	*0.34 UJ*		*17 UJ*
MW-10	MW-10-0-0.5	8/2/2016	0–0.5	In Situ	23	0.13 UJ	0.13 UJ		0.66 UJ	0.13 UJ	0.13 UJ		*6.8 UJ*
MW-10	MW-10-1.5-2.5	8/2/2016	1.5–2.5	In Situ	12	0.13 UJ	0.13 UJ		0.66 UJ	0.13 UJ	0.13 UJ		*6.8 UJ*
MW-10	MW-10-4-5	8/2/2016	4–5	In Situ	2.9	0.13 UJ	0.13 UJ		0.66 UJ	0.13 UJ	0.13 UJ		*6.8 UJ*
SB-4	SO-062027-061013-SB-4-3	6/10/2013	3	In Situ									
SB-4	SO-062027-061213-SB-4-7	6/12/2013	7	In Situ									
SB-4	SO-062027-061213-SB-4-11	6/12/2013	11	In Situ									
SB-5	SO-062027-061313-SB-5-11	6/13/2013	11	In Situ									
SB-5	SO-062027-061013-SB-5-3	6/10/2013	3	In Situ									
SB-5	SO-062027-061313-SB-5-7	6/13/2013	7	In Situ									
SB-7	SO-062027-061013-SB-7-3	6/10/2013	3	In Situ									

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				Chemical Group	Metals	Legacy Pesticides							
				Chemical [1]	Lead	Aldrin	HCH-beta (b-BHC)	Total Chlordanes [2]	Chlordane [3]	Chlordane-alpha	Dieldrin	4,4'-DDT/Sum DDT [4]	Toxaphene
				CAS No.	7439-92-1	309-00-2	319-85-7	T_Clrdn (U=0)	57-74-9	5103-71-9	60-57-1	T_DDT (U=0)	8001-35-2
				Direct Contact REL	--	0.43	--	21	21	21	0.46	22	6.7
				Leaching REL	--	0.13	0.13	22	22	--	0.13	--	17
				Direct Contact CUL	250	0.059	--	2.9	2.9	2.9	0.063	2.9	0.91
				Leaching CUL [7]	--	0.0067	0.0067	1.1	1.1	--	0.0067	--	0.84
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Location Name	Sample Name	Sample Date	Depth (feet bgs)	Status After Excavation									
None (Compared to CULs) (cont.)													
SB-7	SO-062027-061313-SB-7-7	6/13/2013	7	In Situ									
SB-9	SO-062027-061113-SB-9-3	6/11/2013	3	In Situ									
SB-10	SO-062027-061113-SB-10-3	6/11/2013	3	In Situ	3.8								
SB-11	SO-062027-061113-SB-11-0.5	6/11/2013	0.5	In Situ	250								
SB-11	SO-062027-061113-SB-11-1	6/11/2013	1	In Situ									
SB-12	SO-062027-100313-SB-12-5	10/3/2013	5	In Situ									
SB-12	SO-062027-100313-SB-12-10	10/3/2013	10	In Situ									
SB-13	SO-062027-100113-SB-13-2	10/1/2013	2	Removed									
SB-13	SO-062027-100313-SB-13-5	10/3/2013	5	In Situ									
SB-13	SO-062027-100313-SB-13-10	10/3/2013	10	In Situ									
Surface-1	Surface-1-0.5-1	6/9/2017	0.5–1	In Situ	34	0.0067 U	0.0067 U		0.17		**0.094**		**0.86**
Test Pit #4	BSC-0407-S11	7/2/2007	4.7	In Situ									
Test Pit #5	BSC-0407-S14	7/2/2007	5	In Situ									
Test Pit #7	BSC-0407-S20	7/2/2007	4.5	In Situ									
Test Pit #11	BSC-0407-S28	7/2/2007	4.7	In Situ									
Test Pit #13	BSC-0407-S32	7/2/2007	4.7	In Situ									
Test Pit #14	BSC-0407-S34	7/2/2007	4.7	In Situ									
TP-1	TP-1-3.5-062018	6/20/2018	3.5	In Situ		0.0067 U	0.0067 U		0.032 U	0.0067 U	0.0067 U		0.32 U
TP-2	TP2-4.5-5.0-062018	6/20/2018	4.5–5	In Situ		0.0067 U	0.0067 U		0.033 U	0.0067 U	0.0067 U		0.33 U

Notes:

Dioxin/furan results are rounded to three significant figures; all other results are rounded to two significant figures.

-- Not applicable; pathway is not active or proposed CUL listed in this table is protective of other pathways.

Italics Nondetect result exceeds soil REL for either the direct contact or leaching pathway.

BOLD Detected result exceeds soil CUL for either the direct contact or leaching pathway.

RED/BOLD Detected result exceeds applicable soil REL. The applicable soil REL is specific to the AOC as determined in the FS. AOCs 1, 2, and 4 are compared to the leaching RELs and AOCs 3 and 5 are compared to the direct contact RELs. AOC 6, off-property exceedances in AOC 3, and locations not associated with an AOC are compared only to CULs.

1 Only chemicals identified as soil COCs in the RI and presented in Table 3.2 of the EDR are included in this table.

2 The total chlordanes result is the sum of detected alpha-chlordane, gamma-chlordane, nonachlor (cis), nonachlor (trans), and oxychlordane concentrations. If all component analytes were non-detect, the highest reporting limit is used to represent the sum.

3 The laboratory reported generic chlordane as an individual chemical.

4 Samples were not analyzed for the 2,4' isomer of DDT-family compounds. The result for the 4,4' isomer is compared to relevant criteria developed for total DDT.

5 The dioxin/furan result is equivalent to the total dioxin/furan TEQ summed using toxic equivalent factor values in WAC Table 708-1 and 1/2 of the reported result for nondetect results in each sample.

6 The TPH CUL is applied to the sum of diesel- and oil-range TPH. The direct contact-based CUL of 460 mg/kg is protective of ecological receptors and has a point of compliance from 0 to 6 feet bgs. For protection of human health, TPH data are evaluated relative to the MTCA Method A-based CUL of 2,000 mg/kg, which has a point of compliance from 0 to 15 feet bgs.

7 The leaching pathway is not complete in AOC 3.

8 The result for toxaphene at AOC1-03 exceeds the direct contact REL but not the leaching REL. Although results in AOC 1 are compared to the leaching REL, this exceedance is noted based on the proximity of this location to the property boundary.

9 The laboratory noted that the sample chromatographic pattern does not resemble the fuel standard used for quantitation.

10 Result was not detected, but was rejected in validation. Refer to data validation report.

Abbreviations:

AOC Area of concern
bgs Below ground surface
BHC Benzene hexachloride
CAS Chemical Abstracts Service
COC Chemical of concern
CUL Cleanup level
DDT Dichlorodiphenyltrichloroethane
HCH Hexachlorocyclohexane
mg/kg Milligrams per kilogram
MTCA Model Toxics Control Act
ng/kg Nanograms per kilogram
REL Remediation Level
RI Remedial Investigation
TEQ Toxic equivalent
TPH Total petroleum hydrocarbons

Qualifiers:

J Chemical was detected, concentration is considered to be an estimate.
JM Chemical was detected, concentration is considered to be an estimate due to poor match to chromatographic standard.
U Chemical was not detected at the given reporting limit.
UJ Chemical was not detected at the given reporting limit, which is considered to be an estimate.

Table 4.2
Soil Analytical Results

				Chemical Group	Active-Use Pesticides		Total Petroleum Hydrocarbons		Dioxin-Furans
				Chemical [1]	Atrazine	Simazine	Diesel-Range TPH	Oil-Range TPH	Dioxins/Furans [5]
				CAS No.	1912-24-9	122-34-9	DRO	ORO	T_DF_TEQ (U=1/2)
				Direct Contact REL	32	61	--	--	94.0
				Leaching REL	--	--	3,800	8,700	--
				Direct Contact CUL	4.3	8.3	460/2,000 [6]	460/2,000 [6]	13.0
				Leaching CUL [7]	--	--	--	--	--
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	ng/kg
Location Name	Sample Name	Sample Date	Depth (feet bgs)	Status Post Excavation					
AOC 1 (Compared to Leaching RELs)									
AOC1-01	AOC1-01-2.0	9/5/2023	2	In Situ					
AOC1-01	AOC1-01-5.0	9/5/2023	5	In Situ					
AOC1-02	AOC1-02-2.5	9/5/2023	2.5	In Situ					
AOC1-02	AOC1-02-5.0	9/5/2023	5	In Situ					
AOC1-03	AOC1-03-2.0	9/6/2023	2	In Situ					
AOC1-03	AOC1-03-4.0	9/6/2023	4	In Situ					
AOC1-04	AOC1-04-2.0	9/6/2023	2	In Situ					
AOC1-04	AOC1-04-4.0	9/6/2023	4	In Situ					
AOC1-05	AOC1-05-2.0	9/5/2023	2	In Situ					
AOC1-06	AOC1-06-4.0	9/5/2023	4	In Situ					
AOC1-07	AOC1-07-2.5	9/5/2023	2.5	In Situ					
AOC1-07	AOC1-07-5.0	9/5/2023	5	In Situ					
AOC1-08	AOC1-08-2.5	9/5/2023	2.5	In Situ					
AOC1-09	AOC1-09-5.0	9/5/2023	5	In Situ					
AOC1-09	AOC1-09-8.0	9/5/2023	8	In Situ					
Culvert	Culvert-1	8/5/2016	0–0.25	Removed	0.11 J	0.020 J	**280 JM**	**1,700**	
FS-05	FS-05-0.5-1	8/3/2016	0.5–1	Removed	0.24 J	0.14 J	**150 JM**	**420**	
FS-05	FS-05-3-4	8/3/2016	3–4	Removed	0.0067 U	0.0067 U	50 U	250 U	
FS-05	FS-05-5-6	8/3/2016	5–6	Removed	0.0073	0.0067 U	50 U	250 U	
FS-06	FS-06-0-0.5	8/3/2016	0–0.5	Removed	0.13 J	0.030 J	**210 JM**	**360**	
FS-06	FS-06D-0-0.5	8/3/2016	0–0.5	Removed	0.12 J	0.023 J	**240 JM**	**350**	
FS-06	FS-06-2-3	8/3/2016	2–3	Removed	0.0084	0.0067 U	50 U	250 U	
FS-06	FS-06-5-6	8/3/2016	5–6	Removed	0.017	0.0067 U	50 U	250 U	
FS-07	FS-07-0.5-1	8/3/2016	0.5–1	Removed	0.036 J	0.0067 U	50 U	250 U	
FS-07	FS-07-3-4	8/3/2016	3–4	Removed	0.032 J	0.0067 U	50 U	250 U	
FS-07	FS-07-4-5	8/3/2016	4–5	In Situ	0.020	0.0067 U	50 U	250 U	
FS-18	FS-18-0.5-1	6/7/2017	0.5–1	In Situ	0.0067 U	0.0067 U			
FS-18	FS-18-2-3	6/7/2017	2–3	In Situ	0.0067 U	0.0067 U			
FS-18	FS-2X-2-3	6/7/2017	2–3	In Situ	0.0067 U	0.0067 U			
FS-18	FS-18-4-5	6/7/2017	4–5	In Situ	0.0067 U	0.0067 U			
FS-18	FS-18-6-7	6/7/2017	6–7	In Situ	0.0067 U	0.0067 U			
FS-19	FS-19-0.5-1	6/6/2017	0.5–1	Removed	0.029	0.0067 U			
FS-19	FS-19-2.5-3.5	6/6/2017	2.5–3.5	Removed	0.012	0.0067 U			**18.3**
FS-19	FS-19-4.5-5.5	6/6/2017	4.5–5.5	In Situ	0.0067 U	0.0067 U			
FS-19	FS-19-6-7	6/6/2017	6–7	In Situ	0.0067 U	0.0067 U			
FS-20	FS-20-0.5-1	6/6/2017	0.5–1	In Situ	0.0067 U	0.0067 U			
FS-20	FS-20-3-4	6/6/2017	3–4	In Situ	0.013	0.0067 U			
FS-20	FS-X1-3-4	6/6/2017	3–4	In Situ	0.015	0.0067 U			
FS-20	FS-20-4-5	6/6/2017	4–5	In Situ	0.0077	0.0067 U			
FS-20	FS-20-5.5-6.5	6/6/2017	5.5–6.5	In Situ	0.0067 U	0.0067 U			
FS-22	FS-22-0.5-1	6/6/2017	0.5–1	Removed	0.0067 U	0.0067 U			
FS-22	FS-22-3-4	6/6/2017	3–4	In Situ	0.0089	0.018			
FS-22	FS-22-4-5	6/6/2017	4–5	In Situ	0.013	0.012			

Table 4.2
Soil Analytical Results

				Chemical Group	Active-Use Pesticides		Total Petroleum Hydrocarbons		Dioxin-Furans
				Chemical [1]	Atrazine	Simazine	Diesel-Range TPH	Oil-Range TPH	Dioxins/Furans [5]
				CAS No.	1912-24-9	122-34-9	DRO	ORO	T_DF_TEQ (U=1/2)
				Direct Contact REL	32	61	--	--	94.0
				Leaching REL	--	--	3,800	8,700	--
				Direct Contact CUL	4.3	8.3	460/2,000 [6]	460/2,000 [6]	13.0
				Leaching CUL [7]	--	--	--	--	--
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	ng/kg
Location Name	Sample Name	Sample Date	Depth (feet bgs)	Status Post Excavation					
AOC 1 (Compared to Leaching RELs) (cont.)									
FS-22	FS-22-4.5-5	6/6/2017	4.5–5	In Situ	0.014	0.012			
FS-22	FS-22-7-8	6/6/2017	7–8	In Situ	0.0067 U	0.0067 U			
MW-16	MW-16-0.5-1	6/20/2018	0.5–1	In Situ	0.026	0.0067 U			
MW-16	MW-16-3-4	6/20/2018	3–4	In Situ	0.0067 U	0.0067 U			
MW-16	MW-16-5.5-6	6/20/2018	5.5–6	In Situ	0.0091	0.0067 U			
SB-8	SO-062027-061113-SB-8-3.5	6/11/2013	3.5	In Situ			4.9 U	4.9 U	
AOC 2 (Compared to Leaching RELs)									
AOC2-01	AOC2-01-2.0	9/6/2023	2	In Situ					
AOC2-01	AOC2-01-4.0	9/6/2023	4	In Situ					
AOC2-02	AOC2-02-2.0	9/6/2023	2	In Situ					
AOC2-03	AOC2-03-2.0	9/6/2023	2	Removed					
AOC2-03	AOC2-03-4.0	9/6/2023	4	Removed					
AOC2-03	AOC2-03-6.5	9/6/2023	6.5	Removed			**8,300**	250 U	
AOC2-03	AOC2-03-8.5	9/6/2023	8.5	Removed			50 U	250 U	
AOC2-04	AOC2-04-3.0	9/6/2023	3	Removed	0.0013 U	0.0067 U			
AOC2-04	AOC2-04-6.0	9/6/2023	6	Removed			**19,000**	**490** [9]	
AOC2-04	AOC2-04-8.5	9/6/2023	8.5	In Situ			600	250 U	
AOC2-05	AOC2-05-3.0	9/6/2023	3	In Situ	0.0010 U	0.0067 U			
AOC2-05	AOC2-105-3.0	9/6/2023	3	In Situ	0.0011 U	0.0067 U			
AOC2-05	AOC2-05-6.0	9/6/2023	6	In Situ	0.0010 U	0.0067 U			
AOC2-06	AOC2-06-2.0	9/6/2023	2	In Situ	0.0044	0.058			
AOC2-07	AOC2-07-2.0	9/6/2023	2	Removed					
AOC2-08	AOC2-08-2.0	9/6/2023	2	Removed					
AOC2-08	AOC2-08-4.0	9/6/2023	4	In Situ					
AOC2-09	AOC2-09-2.0	12/14/2023	2	Removed					
AOC2-09	AOC2-09-4.0	12/15/2023	4	In Situ					
AOC2-11	AOC2-11-6.0-6.5	12/14/2023	6–6.5	In Situ			1,700	250 U	
AOC2-11	AOC2-11-7.5	12/14/2023	7.5	In Situ			220	250 U	
AOC2-12	AOC2-12-6.5	12/14/2023	6.5	In Situ			670	250 U	
AOC2-12	AOC2-12-8.5-9.5	12/14/2023	8.5–9.5	In Situ			390	250 U	
AOC2-12	AOC2-12-10.0	12/14/2023	10	In Situ			260	250 U	
AOC2-13	AOC2-13-6.5	12/14/2023	6.5	In Situ			**13,000**	250 U	
AOC2-13	AOC2-13-7.5	12/14/2023	7.5	In Situ			1,200	250 U	
AOC2-14	AOC2-14-6.0-6.5	12/14/2023	6–6.5	In Situ			1,700	250 U	
AOC2-14	AOC2-14-8.5	12/14/2023	8.5	In Situ			1,100	250 U	
AOC2-14	AOC2-14-9.0	12/14/2023	9	In Situ			220	250 U	
AOC2-15	AOC2-15-6.0-6.5	12/14/2023	6–6.5	In Situ			**2,900**	250 U	
AOC2-15	AOC2-15-7.5	12/14/2023	7.5	In Situ			50 U	250 U	
AOC2-16	AOC2-16-6.5	12/14/2023	6.5	In Situ			(10)	(10)	
AOC2-17	AOC2-17-6.5	12/14/2023	6.5	In Situ			50 UJ	250 UJ	
FS-02	FS-02-0.5-1	8/2/2016	0.5–1	Removed	0.070 J	0.0067 UJ	81 JM	250 U	
FS-02	FS-02-2.5-3.5	8/2/2016	2.5–3.5	Removed	0.012 J	0.020 UJ	50 U	250 U	
FS-02	FS-02-4-5	8/2/2016	4–5	In Situ	0.0067 UJ	0.0067 UJ	50 U	250 U	

Table 4.2
Soil Analytical Results

				Chemical Group	Active-Use Pesticides		Total Petroleum Hydrocarbons		Dioxin-Furans
				Chemical [1]	Atrazine	Simazine	Diesel-Range TPH	Oil-Range TPH	Dioxins/Furans [5]
				CAS No.	1912-24-9	122-34-9	DRO	ORO	T_DF_TEQ (U=1/2)
				Direct Contact REL	32	61	--	--	94.0
				Leaching REL	--	--	3,800	8,700	--
				Direct Contact CUL	4.3	8.3	460/2,000 [6]	460/2,000 [6]	13.0
				Leaching CUL [7]	--	--	--	--	--
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	ng/kg
Location Name	Sample Name	Sample Date	Depth (feet bgs)	Status Post Excavation					
AOC 2 (Compared to Leaching RELs) (cont.)									
FS-08	FS-08-0.5-1	8/3/2016	0.5–1	Removed	0.054 J	0.0067 U	300 JM	410	
FS-08	FS-08-3-4	8/3/2016	3–4	In Situ	0.0067 U	0.0067 U	50 U	250 U	
FS-08	FS-08-4-5	8/3/2016	4–5	In Situ	0.0067 U	0.0067 U	50 U	250 U	
FS-09	FS-09-0.5-1	8/3/2016	0.5–1	Removed	0.046 J	0.072 J	**150 JM**	**400**	
FS-09	FS-09-3-4	8/3/2016	3–4	In Situ	0.088 J	0.014 J	50 U	250 U	
FS-09	FS-09-4-5	8/3/2016	4–5	In Situ	0.0078	0.0067 U	50 U	250 U	
FS-10	FS-10-0.5-1	8/4/2016	0.5–1	Removed	0.034 J	0.022 J	400	250 U	
FS-10	FS-10-2-3	8/4/2016	2–3	Removed	0.0067 U	0.0067 U	50 U	250 U	
FS-10	FS-10-9-10	8/4/2016	9–10	In Situ	0.0067 U	0.0067 U	**3,300**	250 U	
FS-11	FS-11-0.5-1	8/4/2016	0.5–1	Removed	0.024 J	0.0067 U	120 JM	250 U	
FS-11	FS-11-3-4	8/4/2016	3–4	Removed	0.018 J	0.0067 U	50 U	250 U	
FS-11	FS-11D-3-4	8/4/2016	3–4	Removed	0.0067 U	0.0067 U	50 U	250 U	
FS-11	FS-11-11.5-12.5	8/4/2016	11.5–12.5	In Situ			50 U	250 U	
FS-11	FS-11-15-16	8/4/2016	15–16	In Situ			50 U	250 U	
FS-11	FS-11-19-20	8/4/2016	19–20	In Situ			50 U	250 U	
FS-25	FS-25-0.5-1	6/8/2017	0.5–1	Removed	0.13	0.13			
FS-25	FS-25-1.5-2	6/8/2017	1.5–2	In Situ	0.0093	0.054			
FS-25	FS-25-4.5-5.5	6/8/2017	4.5–5.5	In Situ	0.0067 U	0.0067 U			
FS-25	FS-25-6-7	6/8/2017	6–7	In Situ	0.0067 U	0.0067 U			
FS-26	FS-26-0.5-1	6/20/2018	0.05–1	In Situ	0.011	0.0067 U			
FS-26	FS-26-2.5-3.5	6/21/2018	2.5–3.5	In Situ	0.0067 U	0.0067 U			
FS-26	FS-XX-2.5-3.5	6/21/2018	2.5–3.5	In Situ	0.0067 U	0.0067 U			
FS-26	FS-26-5-6	6/21/2018	5–6	In Situ	0.031	0.0067 U			
FS-27	FS-27-0.5-1	6/6/2017	0.5–1	Removed	0.0082	0.0068	**150 JM**	**350**	
FS-27	FS-27-3-4	6/6/2017	3–4	Removed	0.012	0.012	110 JM	250 U	
FS-27	FS-27-4-5	6/6/2017	4–5	Removed	0.0067 U	0.0067 U	50 U	250 U	
FS-27	FS-27-7.5-8	6/6/2017	7.5–8	In Situ			1,000	250 U	
FS-27	FS-27-9.5-10	6/6/2017	9.5–10	In Situ			50 U	250 U	
FS-28	FS-28-0.5-1	6/6/2017	0.5–1	Removed	1.6	0.29	**410 JM**	**460**	
FS-28	FS-28-3-4	6/6/2017	3–4	Removed	**710**	**110**	**480 JM**	**320**	
FS-28	FS-28-5-5.5	6/6/2017	5–5.5	In Situ	0.46	0.11	**69 JM**	**460**	
FS-28	FS-28-7-8	6/6/2017	7–8	In Situ			50 U	250 U	
FS-42	FS-42-3.0-4.0	6/20/2018	3–4	In Situ	0.17	0.20			
MW-5	SO-062027-093013-MW-5-2	9/30/2013	2	Removed			16	6.8	
MW-5	SO-062027-100313-MW-5-5	10/3/2013	5	Removed			4.8 U	4.8 U	
MW-5	SO-062027-100313-MW-5-10	10/3/2013	10	In Situ			950	23	
MW-7	SO-062027-100113-MW-7-2	10/1/2013	2	In Situ			5.0 U	5.0 U	
MW-7	SO-062027-100313-MW-7-5	10/3/2013	5	In Situ			4.9 U	4.9 U	
MW-7	SO-062027-100313-MW-7-10	10/3/2013	10	In Situ			4.8 U	4.8 U	
MW-8	SO-062027-100113-MW-8-2	10/1/2013	2	In Situ			6.8	11	
MW-8	SO-062027-100313-MW-8-5	10/3/2013	5	In Situ			5.8	10	
MW-8	SO-062027-100313-MW-8-10	10/3/2013	10	In Situ			5.0 U	5.0 U	
MW-11	MW-11-0-0.5	8/2/2016	0–0.5	In Situ	0.040 J	0.36 J	91 JM	250 U	

Table 4.2
Soil Analytical Results

				Chemical Group	Active-Use Pesticides		Total Petroleum Hydrocarbons		Dioxin-Furans
				Chemical [1]	Atrazine	Simazine	Diesel-Range TPH	Oil-Range TPH	Dioxins/Furans [5]
				CAS No.	1912-24-9	122-34-9	DRO	ORO	T_DF_TEQ (U=1/2)
				Direct Contact REL	32	61	--	--	94.0
				Leaching REL	--	--	3,800	8,700	--
				Direct Contact CUL	4.3	8.3	460/2,000 [6]	460/2,000 [6]	13.0
				Leaching CUL [7]	--	--	--	--	--
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	ng/kg
Location Name	Sample Name	Sample Date	Depth (feet bgs)	Status Post Excavation					
AOC 2 (Compared to Leaching RELs) (cont.)									
MW-11	MW-11-1.5-2	8/2/2016	1.5–2	In Situ	0.014 J	4.1 J	50 U	250 U	
MW-11	MW-11-7.5-8	8/2/2016	7.5–8	In Situ	0.0067 UJ	0.0067 UJ	740	250 U	
MW-11	MW-11-9-10	8/2/2016	9–10	In Situ			50 U	250 U	
MW-17	MW-17-0.5-1	6/20/2018	0.5–1	In Situ	0.0067 U	0.0067 U			
MW-17	MW-17-3.5-4	6/20/2018	3.5–4	In Situ	0.0085	0.0067 U			
MW-17	MW-17-5-5.5	6/20/2018	5–5.5	In Situ	0.0067 U	0.0067 U			
SB-5	SO-062027-061313-SB-5-11	6/13/2013	11	In Situ			4.9 U	4.9 U	
SB-5	SO-062027-061013-SB-5-3	6/10/2013	3	In Situ			19	7.1	
SB-5	SO-062027-061313-SB-5-7	6/13/2013	7	In Situ			5.0 U	5.0 U	
SB-6	SO-062027-061013-SB-6-3	6/10/2013	3	Removed			4.9 U	4.9 U	
SB-6	SO-062027-061313-SB-6-7	6/13/2013	7	In Situ			35	5.0 U	
SB-6	SO-062027-061313-SB-6-11	6/13/2013	11	In Situ			8.4	5.0 U	
SB-6	SO-062027-061313-SB-6-15	6/13/2013	15	In Situ			5.0 U	5.0 U	
AOC 3 (Compared to Direct Contact RELs)									
AOC3-01	AOC3-01-2.0	9/7/2023	2	In Situ					
AOC3-02	AOC3-02-2.0	9/7/2023	2	In Situ					
AOC3-03	AOC3-03-0.5-1.0	9/7/2023	0.5–1	In Situ					**69.1 J**
AOC3-03	AOC3-103-0.5-1.0	9/7/2023	0.5–1	In Situ					**39.2 J**
AOC3-03	AOC3-03-2.0	9/7/2023	2	In Situ					
AOC3-04	AOC3-04-0.5-1.0	9/7/2023	0.5–1	Removed					**40.0 J**
AOC3-04	AOC3-04-2.0	9/7/2023	2	In Situ					
AOC3-05	AOC3-05-0.5-1.0	9/7/2023	0.5–1	Removed					**85.0 J**
AOC3-05	AOC3-05-2.0	9/7/2023	2	In Situ					
FS-32	FS-32-0.5-1	6/9/2017	0.5–1	Removed	0.027	0.019			**23.1 J**
FS-32	FS-32-2-3	6/9/2017	2–3	In Situ	0.0067 U	0.0067 U			
FS-32	FS-X5-2-3	6/9/2017	2–3	In Situ	0.0067 U	0.0067 U			
FS-32	FS-32-4-5	6/9/2017	4–5	In Situ	0.0078	0.0067 U			
FS-33	FS-33-0.5-1	6/9/2017	0.5–1	Removed	0.12	0.23			**53.4**
FS-33	FS-33-2-3	6/9/2017	2–3	In Situ	0.0067 U	0.0081			1.05 J
FS-33	FS-33-4-5	6/9/2017	4–5	In Situ	0.0067 U	0.0067 U			
FS-34	FS-34-0.5-1	6/21/2018	0.5–1	In Situ	0.0067 U	0.0067 U			0.141 J
FS-34	FS-34-2-3	6/21/2018	2–3	In Situ	0.0067 U	0.0067 U			
FS-34	FS-34-3-4	6/21/2018	3–4	In Situ	0.0067 U	0.0067 U			
FS-35	FS-35-0.5-1	6/9/2017	0.5–1	Removed	0.0079	0.0071			3.38 J
FS-35	FS-X4-0.5-1	6/9/2017	0.5–1	Removed	0.0067 U	0.0067 U			
FS-35	FS-35-2-3	6/9/2017	2–3	In Situ	0.0067 U	0.0067 U			
FS-43	FS-43-1-2	6/21/2018	1–2	Removed					**30.6**
FS-44	FS-44-0.5-1	6/21/2018	0.5–1	Removed					**92.4**
FS-45	FS-45-0.5-1	6/21/2018	0.5–1	In Situ					8.28
MW-13	MW-13-0-0.5	8/1/2016	0–0.5	Removed	0.013 J	0.031 J	50 U	250 U	
MW-13	MW-13-1-2	8/1/2016	1–2	Removed	0.030 J	0.033 J	50 U	250 U	
MW-13	MW-13-3.5-4.5	8/1/2016	3.5–4.5	In Situ	0.0067 UJ	0.0067 UJ	50 U	250 U	

Table 4.2
Soil Analytical Results

				Chemical Group	Active-Use Pesticides		Total Petroleum Hydrocarbons		Dioxin-Furans
				Chemical [1]	Atrazine	Simazine	Diesel-Range TPH	Oil-Range TPH	Dioxins/Furans [5]
				CAS No.	1912-24-9	122-34-9	DRO	ORO	T_DF_TEQ (U=1/2)
				Direct Contact REL	32	61	--	--	94.0
				Leaching REL	--	--	3,800	8,700	--
				Direct Contact CUL	4.3	8.3	460/2,000 [6]	460/2,000 [6]	13.0
				Leaching CUL [7]	--	--	--	--	--
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	ng/kg
Location Name	Sample Name	Sample Date	Depth (feet bgs)	Status Post Excavation					
AOC 3 (Off Property, Compared to CULs)									
H4H-01	H4H-01-0.5-1.0	9/7/2023	0.5–1	Removed					**38.0 J**
H4H-02	H4H-02-0.5-1.0	9/7/2023	0.5–1	In Situ					8.01 J
H4H-03	H4H-03-0.5-1.0	9/7/2023	0.5–1	Removed					12.1 J
H4H-04	H4H-04-0.5-1.0	9/7/2023	0.5–1	Removed					12.8 J
H4H-05	H4H-05-0.5-1.0	9/7/2023	0.5–1	In Situ					12.0 J
AOC 4 (Compared to Leaching RELs)									
AOC4-01	AOC4-01-2.5	9/5/2023	2.5	In Situ					
AOC4-02	AOC4-02-2.5	9/6/2023	2.5	Removed					
AOC4-02	AOC4-02-4.5	9/6/2023	4.5	Removed					
AOC4-02	AOC4-02-8.5	9/6/2023	8.5	Removed			**1,500** [9]	**17,000**	
AOC4-02	AOC4-02-9.5	9/6/2023	9.5	In Situ			50 U	520	
AOC4-03	AOC4-03-2.0	9/5/2023	2	In Situ					
AOC4-03	AOC4-103-2.0	9/5/2023	2	In Situ					
AOC4-03	AOC4-03-6.5	9/5/2023	6.5	In Situ			**750** [9]	**9,600**	
AOC4-03	AOC4-03-7.0	9/5/2023	7	In Situ			50 U	250 U	
AOC4-04	AOC4-04-2.5	9/5/2023	2.5	In Situ					
AOC4-05	AOC4-05-2.5	9/5/2023	2.5	In Situ					
AOC4-06	AOC4-06-2.5	9/5/2023	2.5	In Situ					
AOC4-06	AOC4-06-5.0	9/5/2023	5	In Situ					
AOC4-07	AOC4-07-2.5	9/5/2023	2.5	In Situ					
AOC4-07	AOC4-107-2.5	9/5/2023	2.5	In Situ					
AOC4-07	AOC4-07-5.0	9/5/2023	5	In Situ					
AOC4-08	AOC4-08-2.5	9/5/2023	2.5	In Situ					
AOC4-09	AOC4-09-5.5-6.0	12/14/2023	5.5–6	In Situ			**3,800**	250 U	
AOC4-09	AOC4-09-7.0	12/14/2023	7	In Situ			50 U	250 U	
FS-12	FS-12-0.5-1	8/4/2016	0.5–1	In Situ	0.024 J	0.015 J	**230 JM**	**1,000**	
FS-12	FS-12-3-4	8/4/2016	3–4	In Situ	0.024 J	0.016 J	50 U	280	
FS-12	FS-12-4-5	8/4/2016	4–5	In Situ	0.0067 U	0.0067 U			
FS-15	FS-15-0.5-1	8/4/2016	0.5–1	Removed	0.0067 U	0.0067 U	50 U	250 U	
FS-15	FS-15-3-4	8/4/2016	3–4	Removed	0.0067 U	0.0093	50 U	250 U	
FS-15	FS-15D-3-4	8/4/2016	3–4	Removed	0.0067 U	0.0067 U	50 U	250 U	
FS-15	FS-15-4-5	8/4/2016	4–5	Removed	0.0067 U	0.0067 U	50 U	250 U	
FS-29	FS-29-0.5-1	6/8/2017	0.5–1	Removed	0.048	0.013			
FS-29	FS-29-1-2	6/8/2017	1–2	Removed	0.0067 U	0.0067 U			
FS-29	FS-29-4-4.5	6/8/2017	4–4.5	Removed	0.0067 U	0.0067 U			
FS-30	FS-30-0.5-1	6/8/2017	0.5–1	Removed	0.0067 U	0.0067 U			
FS-30	FS-30-2-3	6/8/2017	2–3	In Situ	0.0067 U	0.0067 U			
FS-30	FS-30-3-4	6/8/2017	3–4	In Situ	0.0067 U	0.0067 U			
FS-31	FS-31-0.5-1	6/8/2017	0.5–1	In Situ	0.0067 U	0.012			
FS-31	FS-31-2-3	6/8/2017	2–3	In Situ	0.0067 U	0.0067 U			
FS-31	FS-X3-2-3	6/8/2017	2–3	In Situ	0.0067 U	0.0067 U			
FS-31	FS-31-3-5	6/8/2017	3–5	In Situ			**97 JM**	**980**	
FS-31	FS-31-4-5	6/8/2017	4–5	In Situ	0.0067 U	0.0067 U			

Table 4.2
Soil Analytical Results

				Chemical Group	Active-Use Pesticides		Total Petroleum Hydrocarbons		Dioxin-Furans
				Chemical [1]	Atrazine	Simazine	Diesel-Range TPH	Oil-Range TPH	Dioxins/Furans [5]
				CAS No.	1912-24-9	122-34-9	DRO	ORO	T_DF_TEQ (U=1/2)
				Direct Contact REL	32	61	--	--	94.0
				Leaching REL	--	--	3,800	8,700	--
				Direct Contact CUL	4.3	8.3	460/2,000 [6]	460/2,000 [6]	13.0
				Leaching CUL [7]	--	--	--	--	--
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	ng/kg
Location Name	Sample Name	Sample Date	Depth (feet bgs)	Status Post Excavation					
AOC 4 (Compared to Leaching RELs) (cont.)									
FS-31	FS-31-8-9	6/8/2017	8–9	In Situ			**730 JM**	**6,300**	
FS-31	FS-31-9-10	6/8/2017	9–10	In Situ			50 UJ	250 UJ	
MW-12	MW-12-0-0.5	8/1/2016	0–0.5	Removed	0.0067 UJ	0.0067 UJ	**71 JM**	**430**	
MW-12	MW-12-1.5-2	8/1/2016	1.5–2	Removed	0.0067 UJ	0.0067 UJ	**3,500 JM**	**17,000**	
MW-12	MW-12-5-6	8/1/2016	5–6	Removed	0.0067 UJ	0.0067 UJ	**1,900 JM**	**11,000**	
MW-12	MW-12-7-8	8/1/2016	7–8	In Situ			50 UJ	250 UJ	
MW-14	MW-14-0-0.5	8/1/2016	0–0.5	In Situ	0.0067 UJ	0.013 UJ	50 U	250 U	
MW-14	MW-14-2-3	8/1/2016	2–3	In Situ	0.0067 UJ	0.0067 UJ	50 U	250 U	
MW-14	MW-14-4-5	8/1/2016	4–5	In Situ	0.0067 UJ	0.0067 UJ	50 U	250 U	
Test Pit #1	BSE-0107-S1	6/11/2007	3	Removed			**1,800**		
Test Pit #1	BSE-0107-S2	6/11/2007	5	Removed			**7,400**		
Test Pit #3	BSC-0407-S8	7/2/2007	4.7	In Situ			50 U		
Test Pit #6	BSC-0407-S17	7/2/2007	5	In Situ			50 U		
SB-1	SO-062027-061213-SB-1-11	6/12/2013	11	In Situ			4.9 U	4.9 U	
SB-1	SO-062027-061213-SB-1-7	6/12/2013	7	In Situ			5.0 U	5.0 U	
SB-2	SO-062027-061213-SB-2-7	6/12/2013	7	In Situ			4.9 U	4.9 U	
SB-2	SO-062027-061213-SB-2-11	6/12/2013	11	In Situ			4.9 U	4.9 U	
SB-3	SO-062027-061013-SB-3-3	6/10/2013	3	In Situ			5.0 U	5.4	
SB-3	SO-062027-061213-SB-3-7	6/12/2013	7	In Situ			5.0 U	5.0 U	
SB-3	SO-062027-061213-SB-3-15	6/12/2013	15	In Situ			5.0 U	5.0 U	
AOC 5 (Compared to Direct Contact RELs)									
AOC5-01	AOC5-01-2.5	9/5/2023	2.5	In Situ					
AOC5-01	AOC5-01-5.0	9/5/2023	5	In Situ					
AOC5-01	AOC5-101-5.0	9/5/2023	5	In Situ					
AOC5-01	AOC5-01-6.0-6.5	9/5/2023	6–6.5	In Situ			760	250 U	
AOC5-02	AOC5-02-2.5	9/5/2023	2.5	In Situ					
AOC5-02	AOC5-02-5.0	9/5/2023	5	In Situ					
AOC5-03	AOC5-03-2.5	9/5/2023	2.5	In Situ					
AOC5-04	AOC5-04-2.5	9/5/2023	2.5	In Situ					
AOC5-04	AOC5-04-5.0	9/5/2023	5	In Situ					
FS-13	FS-13-0.5-1	8/4/2016	0.5–1	In Situ	0.053 J	0.022 J	50 U	250 U	
FS-13	FS-13-13-14	8/4/2016	13–14	In Situ			50 U	250 U	
FS-13	FS-13-3-4	8/4/2016	3–4	In Situ	0.0067 U	0.0067 U	230	250 U	
FS-13	FS-13-4-5	8/4/2016	4–5	In Situ			50 U	250 U	
FS-13	FS-13-6-7	8/4/2016	6–7	In Situ	0.0067 U	0.0067 U	**4,700**	250 U	
FS-14	FS-14-0.5-1	8/4/2016	0.5–1	In Situ	0.0067 U	0.0067 U	50 U	250 U	
FS-14	FS-14-4-5	8/4/2016	4–5	In Situ	0.0067 U	0.0067 U	50 U	250 U	
FS-14	FS-14-5-6	8/4/2016	5–6	In Situ	0.0067 U	0.014	50 U	250 U	
FS-16	FS-16-0.5-1	8/4/2016	0.5–1	Removed	0.014 J	0.010 J	**77 JM**	**450**	
FS-16	FS-16-3-4	8/4/2016	3–4	Removed	0.017 J	0.014 J	59 JM	340	
FS-16	FS-16-5-6	8/4/2016	5–6	In Situ	0.12 J	0.025 J	50 U	250 U	
FS-16	FS-16-9-10	8/4/2016	9–10	In Situ			63 JM	250 U	
FS-23	FS-23-0.5-1	6/6/2017	0.5–1	In Situ	0.012	0.0067 U	**4,300**	**550**	

Table 4.2
Soil Analytical Results

				Chemical Group	Active-Use Pesticides		Total Petroleum Hydrocarbons		Dioxin-Furans
				Chemical [1]	Atrazine	Simazine	Diesel-Range TPH	Oil-Range TPH	Dioxins/Furans [5]
				CAS No.	1912-24-9	122-34-9	DRO	ORO	T_DF_TEQ (U=1/2)
				Direct Contact REL	32	61	--	--	94.0
				Leaching REL	--	--	3,800	8,700	--
				Direct Contact CUL	4.3	8.3	460/2,000 [6]	460/2,000 [6]	13.0
				Leaching CUL [7]	--	--	--	--	--
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	ng/kg
Location Name	Sample Name	Sample Date	Depth (feet bgs)	Status Post Excavation					
AOC 5 (Compared to Direct Contact RELs) (cont.)									
FS-23	FS-23-4-5	6/6/2017	4–5	In Situ	0.0067 U	0.0067 U	**2,100**	250 U	
FS-23	FS-23-5-6	6/6/2017	5–6	In Situ	0.0067 U	0.0067 U	460	250 U	
FS-23	FS-23-6-7	6/6/2017	6–7	In Situ			4,600	250 U	
FS-23	FS-23-8-9	6/6/2017	8–9	In Situ			50 U	250 U	
FS-24	FS-24-0.5-1	6/8/2017	0.5–1	In Situ	0.0067 U	0.0067 U			
FS-24	FS-24-2-3	6/8/2017	2–3	In Situ	0.0067 U	0.0067 U			
FS-24	FS-24-4-5	6/8/2017	4–5	In Situ	0.0067 U	0.0067 U			
MW-1	SO-062027-100113-MW-1-2	10/1/2013	2	In Situ			4.9 U	13	
MW-1	SO-062027-100313-MW-1-5	10/4/2013	5	In Situ			4.9 U	4.9 U	
AOC 6 (Compared to CULs)									
FS-03	FS-03-0.5-1	8/3/2016	0.5–1	In Situ	0.0090 J	0.0067 U	50 U	250 U	
FS-03	FS-03-2.5-3.5	8/3/2016	2.5–3.5	In Situ	0.0067 U	0.0067 U	50 U	250 U	
FS-03	FS-03-5.5-6.5	8/3/2016	5.5–6.5	In Situ	0.0067 U	0.0067 U	50 U	250 U	
FS-17	FS-17-0.5-1	6/7/2017	0.5–1	In Situ	0.025	0.030			
FS-17	FS-17-2.5-3.5	6/7/2017	2.5–3.5	In Situ	0.0067 U	0.0067 U			
FS-17	FS-17-4-5	6/7/2017	4–5	In Situ	0.0067 U	0.0067 U			
None (Compared to CULs)									
FS-01	FS-01-0.5-1	8/2/2016	0.5–1	Removed	0.025 J	0.048 J	160 JM	**1,100**	
FS-01	FS-01-2-3	8/2/2016	2–3	In Situ	0.0067 UJ	0.0067 UJ	50 U	250 U	
FS-01	FS-01-7-8	8/2/2016	7–8	In Situ	0.0067 UJ	0.0067 UJ	50 U	250 U	
FS-04	FS-04-0.5-1	8/3/2016	0.5–1	In Situ	0.0067 U	0.0067 U	50 U	250 U	
FS-04	FS-04-3-4	8/3/2016	3–4	In Situ	0.011	0.0067 U	50 U	250 U	
FS-04	FS-04-7-8	8/3/2016	7–8	In Situ	0.0067 U	0.0067 U	50 U	250 U	
FS-21	FS-21-0.5-1	6/7/2017	0.5–1	In Situ	0.0067 U	0.0067 U			
FS-21	FS-21-2-3	6/7/2017	2–3	In Situ	0.0067 U	0.0067 U			
FS-21	FS-21-4.5-5	6/7/2017	4.5–5	In Situ	0.0067 U	0.0067 U			
MW-15	MW-15-0.5-1	6/20/2018	0.5–1	In Situ	0.0067 U	0.0067 U			
MW-15	MW-15-3-4	6/20/2018	3–4	In Situ	0.0067 U	0.0067 U			
MW-15	MW-15-5-5.5	6/20/2018	5–5.5	In Situ	0.0067 U	0.0067 U			
MW-9	MW-9-0.5-1	8/2/2016	0.5–1	In Situ	0.0067 UJ	0.0067 UJ	50 U	250 U	
MW-9	MW-9-4-5	8/2/2016	4–5	In Situ	0.014 J	0.0081 J	50 U	250 U	
MW-9	MW-9-7-8	8/2/2016	7–8	In Situ	0.0067 UJ	0.0067 UJ	50 U	250 U	
MW-9	MW-D1-7-8	8/2/2016	7–8	In Situ	0.0067 UJ	0.0067 UJ	50 U	250 U	
MW-10	MW-10-0-0.5	8/2/2016	0–0.5	In Situ	0.0067 UJ	0.0067 UJ	50 U	250 U	
MW-10	MW-10-1.5-2.5	8/2/2016	1.5–2.5	In Situ	0.0067 UJ	0.0067 UJ	50 U	250 U	
MW-10	MW-10-4-5	8/2/2016	4–5	In Situ	0.0067 UJ	0.0067 UJ	50 U	250 U	
SB-4	SO-062027-061013-SB-4-3	6/10/2013	3	In Situ			49	140	
SB-4	SO-062027-061213-SB-4-7	6/12/2013	7	In Situ			5.0 U	5.0 U	
SB-4	SO-062027-061213-SB-4-11	6/12/2013	11	In Situ			5.0 U	5.0 U	
SB-5	SO-062027-061313-SB-5-11	6/13/2013	11	In Situ			4.9 U	4.9 U	
SB-5	SO-062027-061013-SB-5-3	6/10/2013	3	In Situ			19	7.1	
SB-5	SO-062027-061313-SB-5-7	6/13/2013	7	In Situ			5.0 U	5.0 U	
SB-7	SO-062027-061013-SB-7-3	6/10/2013	3	In Situ			13	51	

Table 4.2
Soil Analytical Results

				Chemical Group	Active-Use Pesticides		Total Petroleum Hydrocarbons		Dioxin-Furans
				Chemical [1]	Atrazine	Simazine	Diesel-Range TPH	Oil-Range TPH	Dioxins/Furans [5]
				CAS No.	1912-24-9	122-34-9	DRO	ORO	T_DF_TEQ (U=1/2)
				Direct Contact REL	32	61	--	--	94.0
				Leaching REL	--	--	3,800	8,700	--
				Direct Contact CUL	4.3	8.3	460/2,000 [6]	460/2,000 [6]	13.0
				Leaching CUL [7]	--	--	--	--	--
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	ng/kg
Location Name	Sample Name	Sample Date	Depth (feet bgs)	Status Post Excavation					
None (Compared to CULs) (cont.)									
SB-7	SO-062027-061313-SB-7-7	6/13/2013	7	In Situ			5.0 U	5.0 U	
SB-9	SO-062027-061113-SB-9-3	6/11/2013	3	In Situ			25	190	
SB-10	SO-062027-061113-SB-10-3	6/11/2013	3	In Situ			**280**	**1,400**	
SB-11	SO-062027-061113-SB-11-0.5	6/11/2013	0.5	In Situ			25	92	
SB-11	SO-062027-061113-SB-11-1	6/11/2013	1	In Situ			29	110	
SB-12	SO-062027-100313-SB-12-5	10/3/2013	5	In Situ			5.0 U	5.0 U	
SB-12	SO-062027-100313-SB-12-10	10/3/2013	10	In Situ			5.0 U	5.0 U	
SB-13	SO-062027-100113-SB-13-2	10/1/2013	2	Removed			5.0 U	5.0 U	
SB-13	SO-062027-100313-SB-13-5	10/3/2013	5	In Situ			4.9 U	4.9 U	
SB-13	SO-062027-100313-SB-13-10	10/3/2013	10	In Situ			5.0 U	5.0 U	
Surface-1	Surface-1-0.5-1	6/9/2017	0.5–1	In Situ	0.14	0.0090	50 U	250 U	
Test Pit #4	BSC-0407-S11	7/2/2007	4.7	In Situ			50 U		
Test Pit #5	BSC-0407-S14	7/2/2007	5	In Situ			50 U		
Test Pit #7	BSC-0407-S20	7/2/2007	4.5	In Situ			50 U		
Test Pit #11	BSC-0407-S28	7/2/2007	4.7	In Situ			50 U		
Test Pit #13	BSC-0407-S32	7/2/2007	4.7	In Situ			50 U		
Test Pit #14	BSC-0407-S34	7/2/2007	4.7	In Situ			50 U		
TP-1	TP-1-3.5-062018	6/20/2018	3.5	In Situ	0.0067 U	0.0067 U			
TP-2	TP2-4.5-5.0-062018	6/20/2018	4.5–5	In Situ	0.0067 U	0.0067 U			

Notes:

Dioxin/furan results are rounded to three significant figures; all other results are rounded to two significant figures.

-- Not applicable; pathway is not active or proposed CUL listed in this table is protective of other pathways.

Italics Nondetect result exceeds soil REL for either the direct contact or leaching pathway.

BOLD Detected result exceeds soil CUL for either the direct contact or leaching pathway.

RED/BOLD Detected result exceeds applicable soil REL. The applicable soil REL is specific to the AOC as determined in the FS. AOCs 1, 2, and 4 are compared to the leaching RELs and AOCs 3 and 5 are compared to the direct contact RELs. AOC 6, off-property exceedances in AOC 3, and locations not associated with an AOC are compared only to CULs.

1 Only chemicals identified as soil COCs in the RI and presented in Table 3.2 of the EDR are included in this table.

2 The total chlordanes result is the sum of detected alpha-chlordane, gamma-chlordane, nonachlor (cis), nonachlor (trans), and oxychlordane concentrations. If all component analytes were non-detect, the highest reporting limit is used to represent the sum.

3 The laboratory reported generic chlordane as an individual chemical.

4 Samples were not analyzed for the 2,4' isomer of DDT-family compounds. The result for the 4,4' isomer is compared to relevant criteria developed for total DDT.

5 The dioxin/furan result is equivalent to the total dioxin/furan TEQ summed using toxic equivalent factor values in WAC Table 708-1 and 1/2 of the reported result for nondetect results in each sample.

6 The TPH CUL is applied to the sum of diesel- and oil-range TPH. The direct contact-based CUL of 460 mg/kg is protective of ecological receptors and has a point of compliance from 0 to 6 feet bgs. For protection of human health, TPH data are evaluated relative to the MTCA Method A-based CUL of 2,000 mg/kg, which has a point of compliance from 0 to 15 feet bgs.

7 Consistant with the RI tables, all data shown are compared to the leaching and direct contact CULs. The leaching pathway is not complete in AOC 3.

8 The result for toxaphene at AOC1-03 exceeds the direct contact REL but not the leaching REL. Although results in AOC 1 are compared to the leaching REL, this exceedance is noted based on the proximity of this location to the property boundary.

9 The laboratory noted that the sample chromatographic pattern does not resemble the fuel standard used for quantitation.

10 Result was rejected in validation. Refer to data validation report.

Abbreviations:

AOC Area of concern
bgs Below ground surface
BHC Benzene hexachloride
CAS Chemical Abstracts Service
COC Chemical of concern
CUL Cleanup level
DDT Dichlorodiphenyltrichloroethane
HCH Hexachlorocyclohexane
mg/kg Milligrams per kilogram
MTCA Model Toxics Control Act
ng/kg Nanograms per kilogram
REL Remediation Level
RI Remedial Investigation
TEQ Toxic equivalent
TPH Total petroleum hydrocarbons

Qualifiers:

J Chemical was detected, concentration is considered to be an estimate.
JM Chemical was detected, concentration is considered to be an estimate due to poor match to chromatographic standard.
U Chemical was not detected at the given reporting limit.
UJ Chemical was not detected at the given reporting limit, which is considered to be an estimate.

Table 6.1
Applicable or Relevant and Appropriate Requirements and Substantive Compliance Actions

Standard, Requirement, or Limitation [1]	Description	Substantive Compliance
Location-Specific ARARs [2]		
City of Ellensburg Critical Areas Regulations (EMC Chapter 15.620 [Wetlands] and EMC Chapter 15.650 [Fish and Wildlife Habitat Conservation Areas])	These chapters establish regulations pertaining to development within or adjacent to designated critical areas. The subject property is located approximately 125 feet west of Wilson Creek, 220 feet east of Mercer Creek, and 125 feet north of a freshwater forested/shrub wetland. The City of Ellensburg regulates all development activities within 300 feet of stream and wetland resources.	The cleanup action will protect all nearby critical areas using site controls and best management practices described in Section 6.3, which include establishing vehicle haul routes, stormwater BMPs, and spill prevention and control measures.
Native American Graves Protection and Repatriation Act (25 USC 3001 through 3013; 43 CFR 10) Washington's Indian Graves and Records Law (RCW 27.44)	These statutes prohibit the destruction or removal of Native American cultural items and require written notification of inadvertent discovery to the appropriate agencies and Native American tribe.	Subgrade work will be completed in accordance with an Inadvertent Discovery Plan to be completed prior to construction (Appendix J). If an inadvertent discovery of Native American or other culturally significant item is found, the work activities will cease in the area of discovery. Notice will be provided to the relevant parties and a reasonable effort will be made to protect the items discovered. Continued work in the area of discovery may occur after coordination and approval with relevant parties and may include the oversight of a licensed archaeologist.
Archaeological Resources Protection Act (16 USC 470aa et seq.; 43 CFR 7)	This program sets forth requirements that are triggered when archaeological resources are discovered. These requirements only apply if archaeological items are discovered during implementation of the selected remedy.	
National Historic Preservation Act (16 USC 470 et seq.; 36 CFR parts 60, 63, and 800)	This program sets forth a national policy of historic preservation and provides a process that must be followed to ensure that impacts of actions on archaeological, historic, and other cultural resources are protected.	
Action-Specific ARARs [3]		
State Environmental Policy Act (RCW 43.21C, WAC 197-11)	Establishes the state's policy for protection and preservation of the natural environment. Applies to cleanup actions conducted under MTCA; Ecology will be the lead agency for this effort.	Ecology, as the lead agency, issued a SEPA DNS on March 8, 2023, for implementation of the cleanup action.
Resource Conservation and Recovery Act (42 USC 6921-6949a; 40 CFR Part 268, Subtitles C and D)	Establishes requirements for the identification, handling, and disposal of hazardous and non-hazardous waste.	All contaminated soil at the site is considered a non-hazardous and non-dangerous waste per state and federal regulations. Contaminated soil will be transported off-site under an approved waste profile to a licensed subtitle D landfill facility for disposal. Waste certificates of disposal will be retained and included in the Construction Completion Report.
Dangerous Waste Regulations (RCW 70.105; WAC 173-303)	Establishes regulations that are the state equivalent of RCRA requirements for determining whether a solid waste is a state dangerous waste. This regulation also provides requirements for the management of dangerous wastes.	
Solid Waste Disposal Act (42 USC Sec. 6901-6992; 40 CFR 257-258) Federal Land Disposal Requirements (40 CFR 268)	Protects health and the environment and promotes conservation of valuable material and energy resources. The Solid Waste Disposal Act establishes a framework for regulation of solid waste disposal. Federal land disposal requirements promulgated under the authority of the Solid Waste Disposal Act set minimum safety requirements for landfills including limitations on storage and land disposal for hazardous substances.	
Department of Transportation Hazardous Materials Regulations (49 CFR 172)	Regulates the safe and secure transportation of hazardous materials, including documentation and handling requirements for shipping.	
Washington Minimum Functional Standards for Solid Waste Handling (WAC 173-304)	Sets minimum functional standards for the proper handling of all solid waste materials originating from residences, commercial, agricultural, and industrial operations, as well as other sources.	
Washington Solid Waste Handling Standards (RCW 70.95 and WAC 173-350)	Establishes minimum standards for handling and disposal of solid waste. Solid waste includes wastes that are likely to be generated as a result of site remediation, including contaminated soils, construction and demolition wastes, and garbage.	
Washington Water Pollution Control Law (RCW 90.48; WAC 173-216, WAC 173-220) National Pollution Discharge Elimination System (CWA Part 402)	Washington has been delegated authority to issue NPDES permits. CWA Section 301, 302, and 303 require states to adopt water quality standards and implement a NPDES permitting process. The Washington Water Pollution Control Law and regulations address this requirement.	Stormwater will be managed on-site in accordance with the substantive requirements of Ecology's Construction Stormwater General Permit (Section 6.11.3).

Table 6.1
Applicable or Relevant and Appropriate Requirements and Substantive Compliance Actions

Standard, Requirement, or Limitation [1]	Description	Substantive Compliance
Action-Specific ARARs (cont.) [3]		
City of Ellensburg Noise Ordinance (EMC Chapter 5.60)	Establishes the definition of excessive noise and exceptions, including requirements for construction activity.	Project construction shall comply with the noise limitations set forth in City of Ellensburg's noise ordinance. Specifically, noise generated from construction activity will be limited to between 6:00 a.m. and 10:00 p.m.
Noise Control Act of 1974 (RCW 70.107, WAC 173-60)	Establishes maximum noise levels on a state level; the local noise ordinance regulations prevail given that they are more restrictive than the regulations set forth for the state.	
Washington State Underground Injection Control Program (WAC 173-218)	Washington is authorized under CWA Sections 144 through 147 to administer a statewide UIC program to protect groundwater by regulating the discharge of fluid from injection wells including temporary injection points.	The temporary injection wells associated with PlumeStop injections will be registered with Ecology as Class V UIC wells for cleanup sites prior to injection. Discharged water from each injection point must meet the non-endangerment standard as defined in WAC 173-218-030.
City of Ellensburg Site Development Permit (EMC 15.250.020)	City of Ellensburg Site Development Permits authorize the following activities: paving, grading, clearing, filling, tree removal, on-site utility installation, and stormwater facility installation.	All excavation, paving, and utility and stormwater facility installation work will require substantive compliance with the Site Development Permit requirements and any supporting technical memoranda (e.g., City of Ellensburg Storm Standards for design and installation of stormwater facilities).
Federal, State, and Local Air Quality Protection Programs State Implementation of Ambient Air Quality Standards NWAPA Ambient and Emission Standards Regional Standards for Fugitive Dust Emissions Toxic Air Pollutants	Regulations promulgated under the federal Clean Air Act (42 USC 7401) and the Washington State Clean Air Act (RCW 70.94) govern the release of airborne contaminants from point and non-point sources. State and local air pollution control authorities such as the Ecology Central Regional Office and City of Ellensburg have also set forth regulations for implementing these air quality requirements.	Fugitive dust emissions will be managed by the contractor during construction using standard dust control means and methods in accordance with the Stormwater Management Manual for Eastern Washington.
Chemical-Specific ARARs [4]		
Model Toxics Control Act (WAC 173-340)	Establishes Washington administrative processes and standards to identify, investigate, and clean up facilities where hazardous substances are located.	The selected cleanup action was designed to meet the minimum requirements of MTCA cleanup regulations.
Drinking Water Standards—State MCLs (WAC 246-290-310)	Establishes standards for contaminant levels in drinking water for water system purveyors.	CULs and RELs for contaminants of concern were developed in the RI/FS to meet the requirements of MTCA drinking water and groundwater quality standards. Implementation of the cleanup action will cause groundwater to meet CULs within a reasonable restoration time frame.
Water Quality Standards for Groundwaters of the State of Washington (WAC 173-200)	Implements the Water Pollution Control Act and the Water Resources Act of 1971 (90.54 RCW).	

Notes:

1 Projects conducted under an Agreed Order are exempt from the procedural requirements of most state and local permits (RCW 70.105D.090); however, the remedial actions must still comply with the substantive requirements of the exempt permits.
2 Location-specific ARARs are requirements that are applicable to the specific area where the site is located and can restrict the performance of activities, including cleanup actions, solely because they occur in specific locations.
3 Action-specific ARARs are requirements that are applicable to certain types of activities that occur or technologies that are used during the implementation of cleanup actions.
4 Chemical-specific ARARs are applicable to the types of contaminants present at the Site. The cleanup of contaminated media at the site must meet the applicable CULs or RELs developed under MTCA; these criteria are considered chemical-specific ARARs.

Abbreviations:

ARAR	Applicable or relevant and appropriate requirement
BMP	Best management practice
CFR	Code of Federal Regulations
CUL	Cleanup level
CWA	Clean Water Act
DNS	Determination of Non-Significance
Ecology	Washington State Department of Ecology
EMC	Ellensburg Municipal Code
MCL	Maximum Contaminant Level
MTCA	Model Toxics Control Act
NPDES	National Pollutant Discharge Elimination System
NWAPA	Northwest Air Pollution Authority
RCRA	Resource Conservation and Recovery Act
RCW	Revised Code of Washington
REL	Remediation level
RI/FS	Remedial Investigation/Feasibility Study
SEPA	State Environmental Policy Act
UIC	Underground Injection Control
USC	U.S. Code
WAC	Washington Administrative Code

Engineering Design Report

Smith-Kem Site

Figures



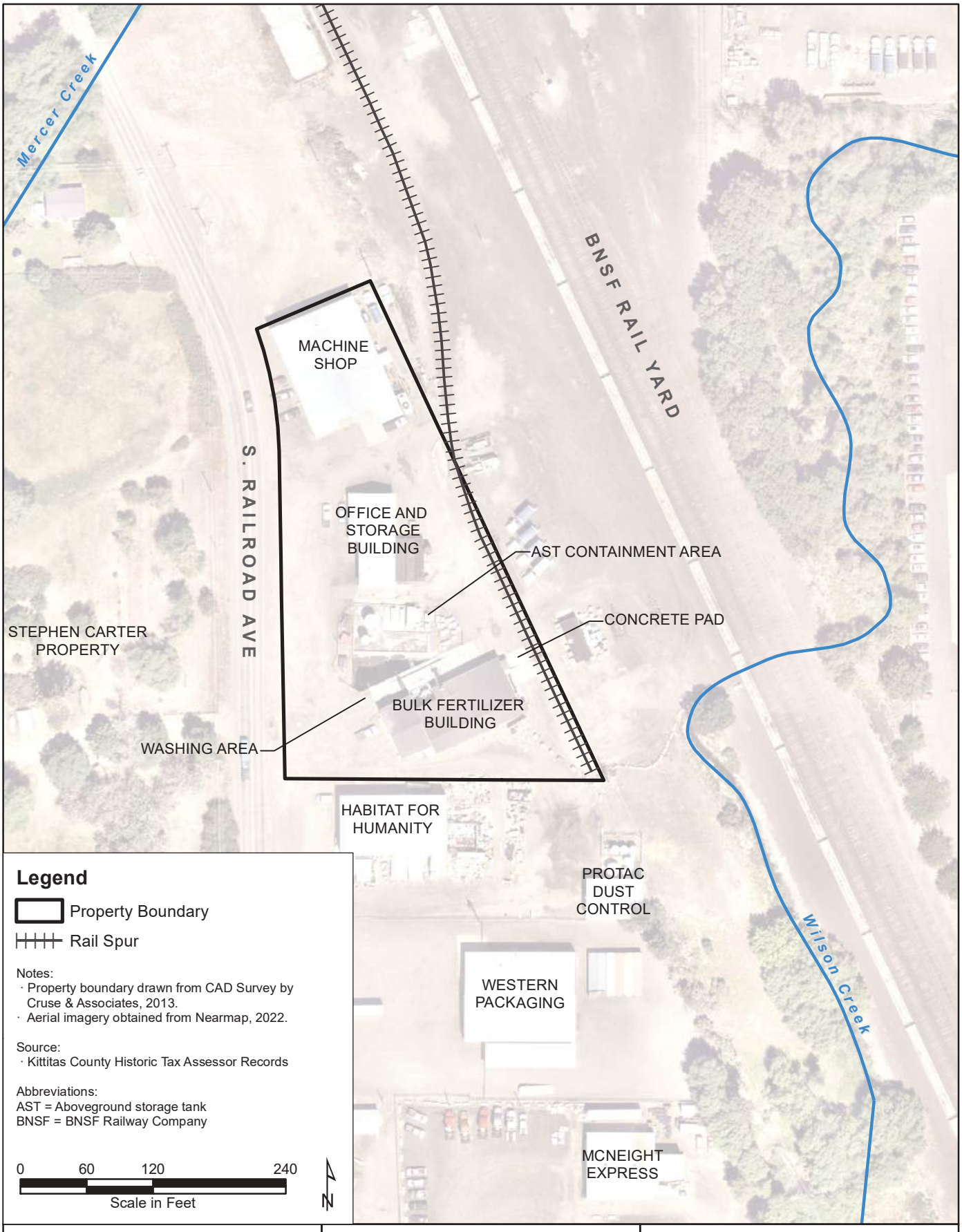
Notes:
· Property boundary drawn from CAD Survey by Cruse & Associates, 2013.
· Aerial imagery obtained from ESRI, accessed 2023.

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Smith-Kem Site
Ellensburg, Washington

Figure 1.1
Vicinity Map

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9/19/2024

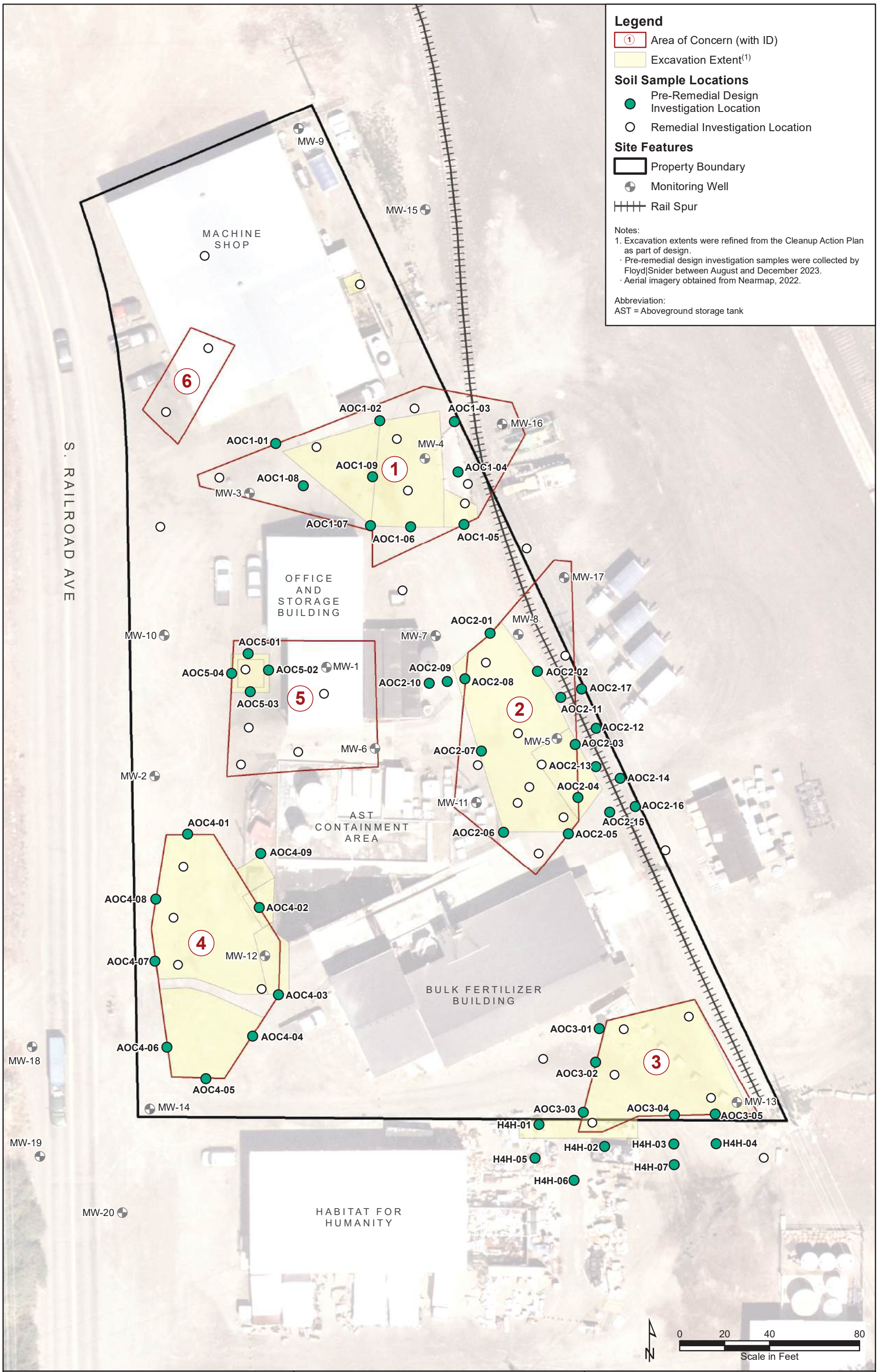


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Smith-Kem Site
Ellensburg, Washington

Figure 1.2
Key Features of the Smith-Kem Property and Surrounding Area

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Figure 4.1
Remedial Investigation and
Pre-Remedial Design Investigation
Soil Boring Locations

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9/19/2024

Utility Locate Information

Locate ID	Type	Material	Size (inches)	Depth (inches) [2]
Pothole-1	Gas	PE	1.5	27
Pothole-2			1	22
Pothole-3			1	17
Pothole-4	Gas	PE	1	42
Pothole-5				35
Pothole-6	Communication	Tape-wrapped wire	2.5	17
Pothole-7			3	27
Pothole-8	Water	Steel	2	37

Legend

Excavation Extent[1]

Utilities

- Gas Line
- Gas Line (Approximate, Not Verified)
- Abandoned Gas Line
- Overhead Power Line
- Underground Power Line
- Underground Communication Line
- Potable Water Line
- Sewer Line
- Gas Line 10-foot Buffer
- Pole
- Manhole
- Water Utility Vault

Site Features

- Property Boundary
- Monitoring Well
- Rail Spur

Notes:
1. Excavation extents were refined from the Cleanup Action Plan as part of design.
2. Depth to top of utility, measure from ground surface.
- All utilities shown are approximate. Utilities exterior to the site were provided by the City of Ellensburg. Utilities interior to the site are based on aboveground utility locates and pothole information. The contractor shall field located all buried utilities with a private locate services and field verify location and depth during excavation.
- Aerial imagery obtained from Nearmap, 2022.

Abbreviations:
AOC = Area of concern
AST = Aboveground storage tank
BNSF = BNSF Railway Company
PE = Polyethylene

MACHINE SHOP
OFFICE AND STORAGE BUILDING
AST CONTAINMENT AREA
BULK FERTILIZER BUILDING
HABITAT FOR HUMANITY WALES PROPERTY
S. RAILROAD AVE
BNSF RAIL YARD
Pothole-1
Pothole-2
Pothole-3
Pothole-4
Pothole-5
Pothole-6
Pothole-7
Pothole-8
Water Utility Vault
Culvert

N

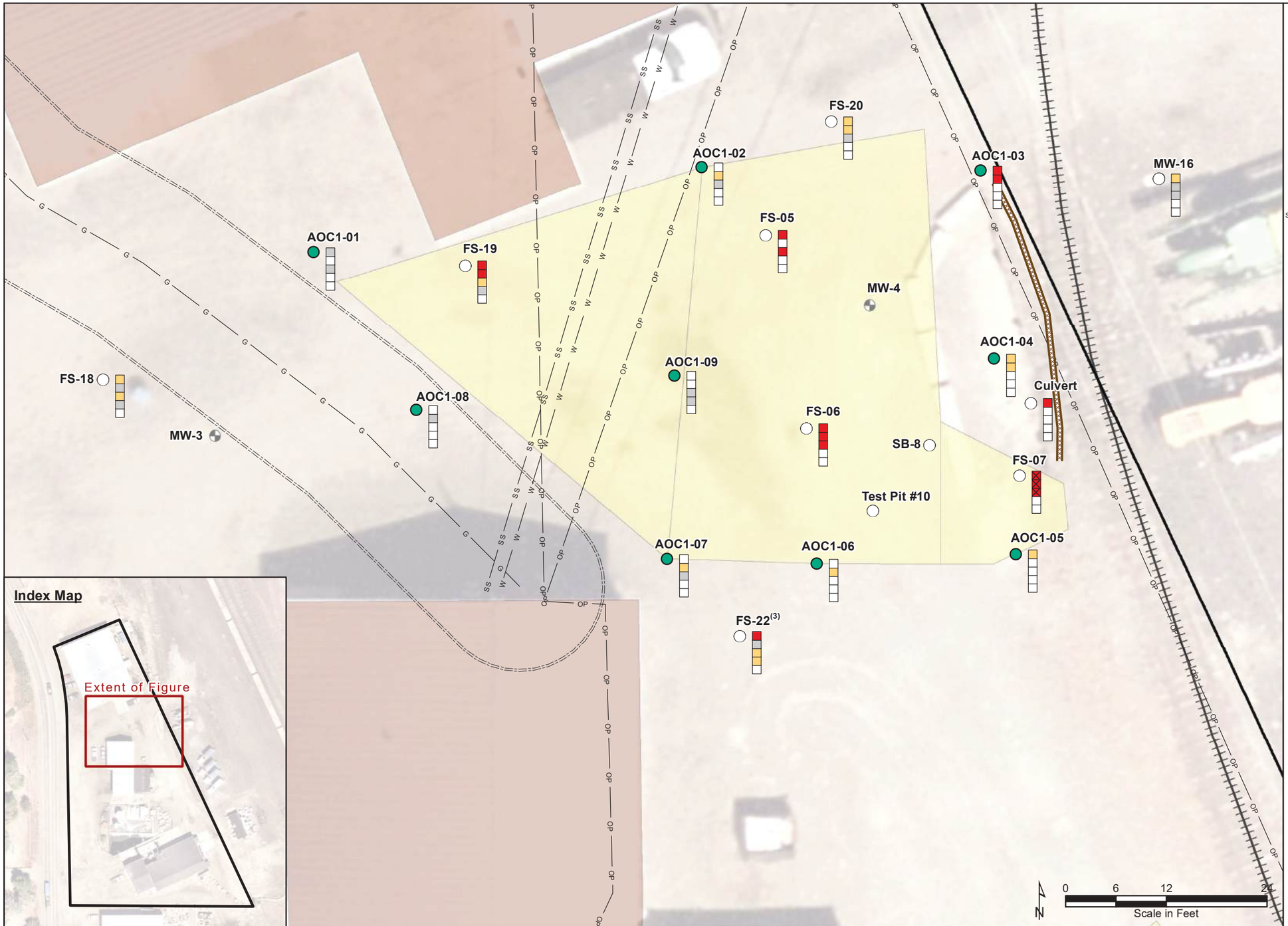
0 25 50 100
Scale in Feet

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Ellensburg, Washington

Figure 4.2
Utility Map

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Legend

- Pre-Remedial Design Investigation Location
- Remedial Investigation Location
- Excavation Extent(1)

Utilities

- G — Gas Line
- OP — Overhead Power Line
- W — Potable Water Line
- SS — Sewer Line
- Gas Line 10-ft Buffer

Site Features

- Property Boundary
- Building or Concrete to Be Protected
- Wooden Retaining Wall
- Monitoring Well
- Rail Spur

Soil Labels

Location ID → AOC2-01 ← Sample Depth Interval

Sample Location →

- 0–2 ft bgs
- 2–4 ft bgs
- 4–6 ft bgs
- 6–8 ft bgs
- 8+ ft bgs

Pesticide Results

Compliance Information(2)

- One or More Results Greater Than REL
- One or More Results Greater Than CUL
- Meets CUL
- Nondetect Exceedance of REL
- Not Analyzed

Notes:
1. Excavation extents were refined from the Cleanup Action Plan as part of design.
2. Results are compared to CULs and leaching RELs, when available. Results for chemicals without a leaching REL are compared to CULs and direct contact RELs. CULs and RELs are listed in Tables 3.2 and 3.3, respectively.
3. Surficial soils will be removed at this location for installation of the geosynthetic clay liner.

· Aerial imagery obtained from Nearmap, 2022.

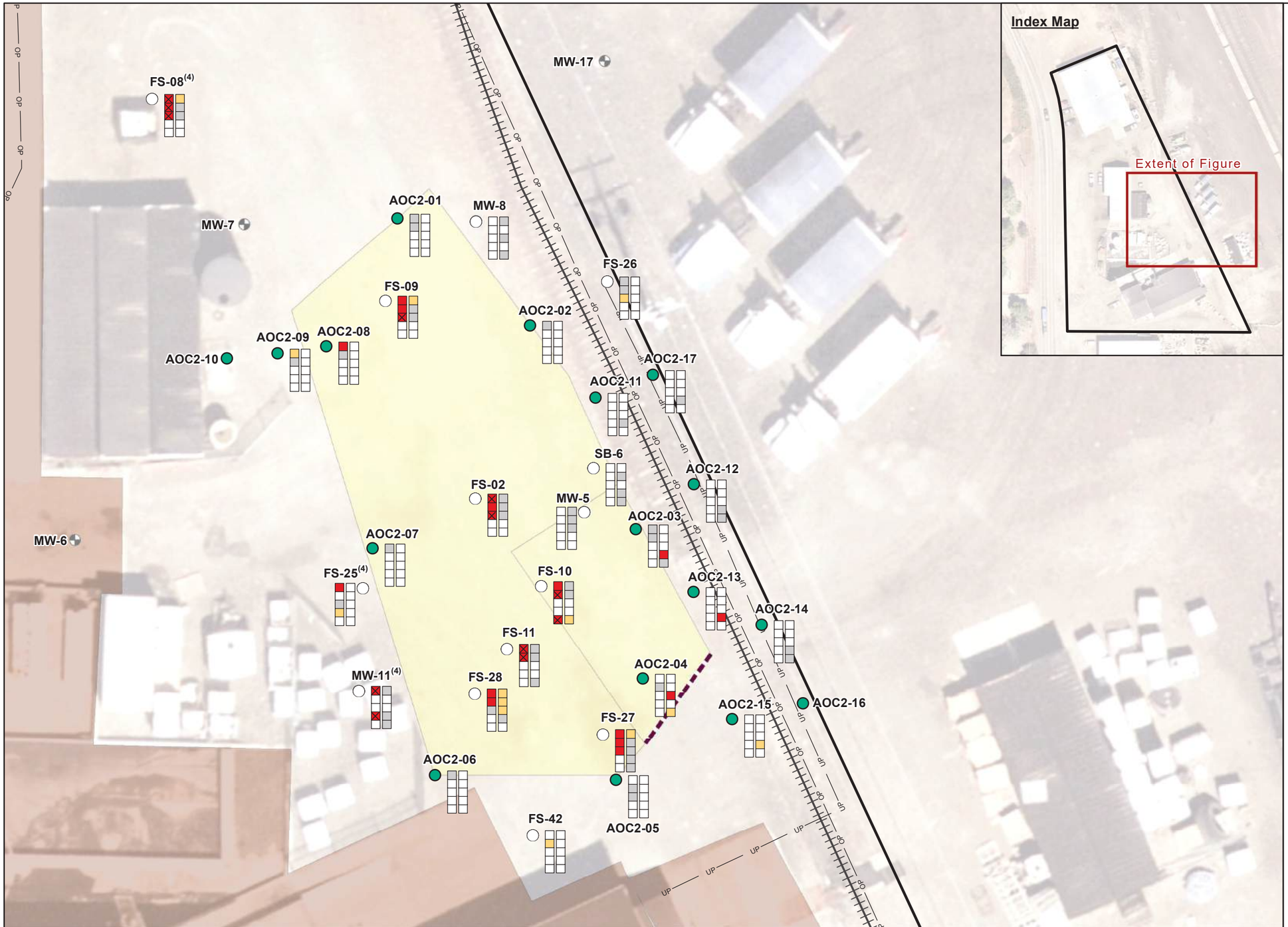
Abbreviations:
AOC = Area of concern
bgs = Below ground surface
CUL = Cleanup level
ft = Feet
REL = Remediation level

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Figure 4.3
Soil Pesticide Results—AOC 1

I:\GIS\Projects\PKG-SmithKem\MXD\15-Engineering Design Report\Figure 4.3 Soil Pesticide Results AOC 1.mxd
9/19/2024



Legend

- Pre-Remedial Design Investigation Location
- Remedial Investigation Location
- Excavation Extent(1)
- Unconfirmed Excavation Extent(2)

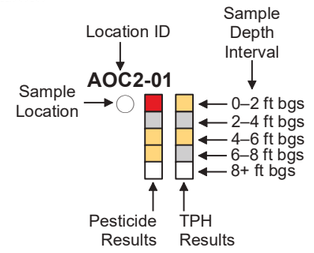
Utilities

- OP — Overhead Power Line
- UP — Underground Power Line

Site Features

- Property Boundary
- Building or Concrete to Be Protected
- Monitoring Well
- Rail Spur

Soil Labels



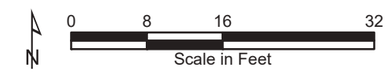
Compliance Information(3)

- One or More Results Greater Than REL
- One or More Results Greater Than CUL
- Meets CUL
- Nondetect Exceedance of REL
- Not Analyzed

Notes:
1. Excavation extents were refined from the Cleanup Action Plan as part of design.
2. Extent of TPH impacts will be evaluated during excavation and confirmed with performance sampling.
3. Results are compared to CULs and leaching RELs, when available. Results for chemicals without a leaching REL are compared to CULs and direct contact RELs. CULs and RELs are listed in Tables 3.2 and 3.3, respectively.
4. Surficial soils will be removed at this location for installation of the geosynthetic clay liner.

· Aerial imagery obtained from Nearmap, 2022.

Abbreviations:
AOC = Area of concern
bgs = Below ground surface
CUL = Cleanup level
ft = Feet
REL = Remediation level
TPH = Total petroleum hydrocarbons

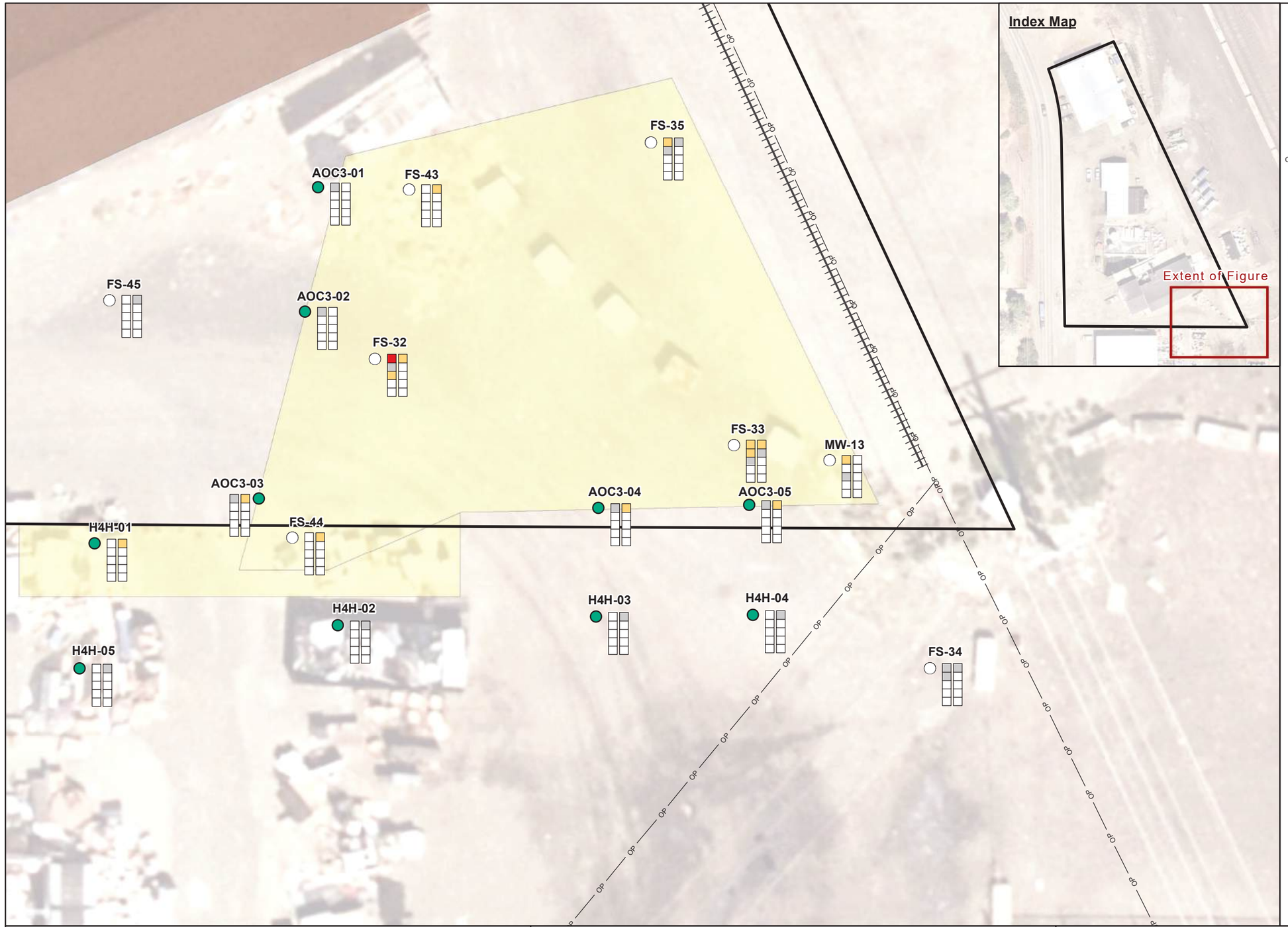


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Figure 4.4
Soil Pesticide and TPH Results—AOC 2

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Legend

- Pre-Remedial Design Investigation Location
- Remedial Investigation Location
- Excavation Extent(1)

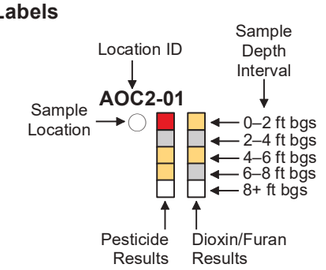
Utilities

- OP — Overhead Power Line

Site Features

- Property Boundary
- Building or Concrete to Be Protected
- Rail Spur

Soil Labels



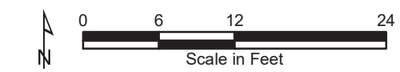
Compliance Information(2)

- One or More Results Greater Than REL
- One or More Results Greater Than CUL
- Meets CUL
- Nondetect Exceedance of REL
- Not Analyzed

Notes:
1. Excavation extents were refined from the Cleanup Action Plan as part of design.
2. Results are compared to CULs and direct contact RELs, when available. Results for chemicals without a direct contact REL are compared to CULs and leaching RELs. CULs and RELs are listed in Tables 3.2 and 3.3, respectively.

· Aerial imagery obtained from Nearmap, 2022.

Abbreviations:
AOC = Area of concern
bgs = Below ground surface
CUL = Cleanup level
ft = Feet
REL = Remediation level

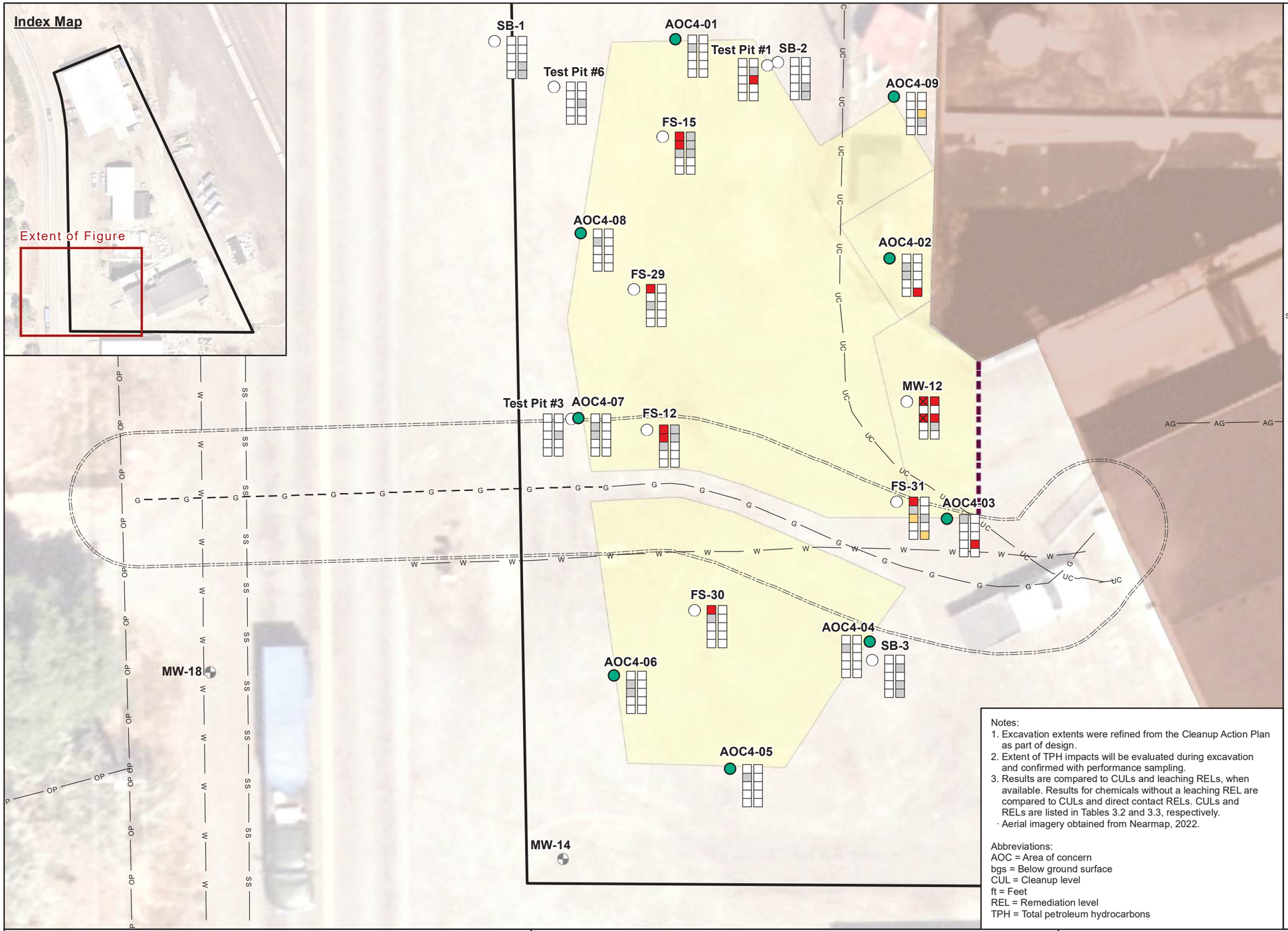


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Figure 4.5
Soil Pesticide and Dioxin/Furan Results—AOC 3

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9/19/2024



Legend

- Pre-Remedial Design Investigation Location
- Remedial Investigation Location
- Excavation Extent[1]
- Unconfirmed Excavation Extent[2]

Utilities

- G — Gas Line
- G - - - Gas Line (Approximate, Not Verified)
- AG — Abandoned Gas Line
- OP — Overhead Power Line
- UC — Underground Communication Line
- W — Potable Water Line
- SS — Sewer Line
- Gas Line 10-ft Buffer

Site Features

- Property Boundary
- Building or Concrete to Be Protected
- Monitoring Well

Soil Labels

Compliance Information[3]

- One or More Results Greater Than REL
- One or More Results Greater Than CUL
- Meets CUL
- Nondetect Exceedance of REL
- Not Analyzed

Notes:
1. Excavation extents were refined from the Cleanup Action Plan as part of design.
2. Extent of TPH impacts will be evaluated during excavation and confirmed with performance sampling.
3. Results are compared to CULs and leaching RELs, when available. Results for chemicals without a leaching REL are compared to CULs and direct contact RELs. CULs and RELs are listed in Tables 3.2 and 3.3, respectively.

· Aerial imagery obtained from Nearmap, 2022.

Abbreviations:
AOC = Area of concern
bgs = Below ground surface
CUL = Cleanup level
ft = Feet
REL = Remediation level
TPH = Total petroleum hydrocarbons

N

0 7.5 15 30

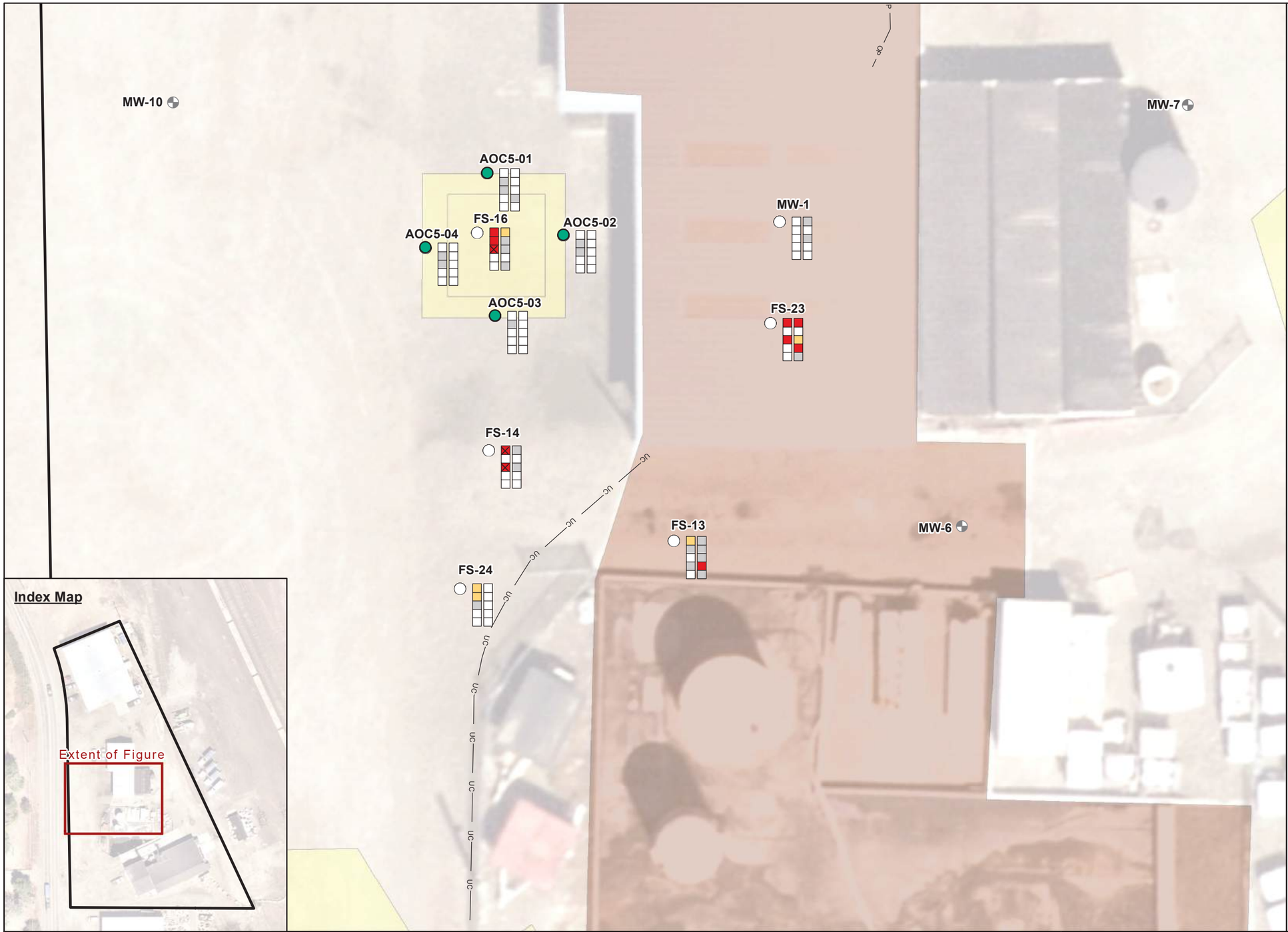
Scale in Feet

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Ellensburg, Washington

Figure 4.6
Soil Pesticide and TPH Results—AOC 4

I:\GIS\Projects\PKG-SmithKem\MXD\15-Engineering Design Report\Figure 4.6 Soil Pesticide and TPH Results AOC 4.mxd
9/19/2024



Legend

- Pre-Remedial Design Investigation Location
- Remedial Investigation Location
- Excavation Extent(1)

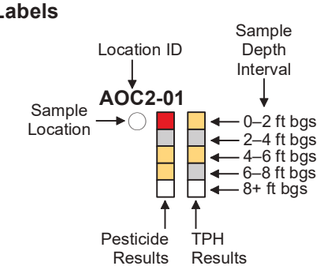
Utilities

- OP — Overhead Power Line
- UC — Underground Communication Line

Site Features

- Property Boundary
- Building or Concrete to Be Protected
- Monitoring Well

Soil Labels



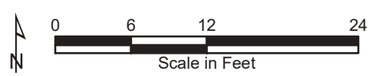
Compliance Information(2)

- One or More Results Greater Than REL
- One or More Results Greater Than CUL
- Meets CUL
- Nondetect Exceedance of REL
- Not Analyzed

Notes:
1. Excavation extents were refined from the Cleanup Action Plan as part of design.
2. Results are compared to CULs and direct contact RELs, when available. Results for chemicals without a direct contact REL are compared to CULs and leaching RELs. CULs and RELs are listed in Tables 3.2 and 3.3, respectively.

· Aerial imagery obtained from Nearmap, 2022.

Abbreviations:
AOC = Area of concern
bgs = Below ground surface
CUL = Cleanup level
ft = Feet
REL = Remediation level
TPH = Total petroleum hydrocarbons

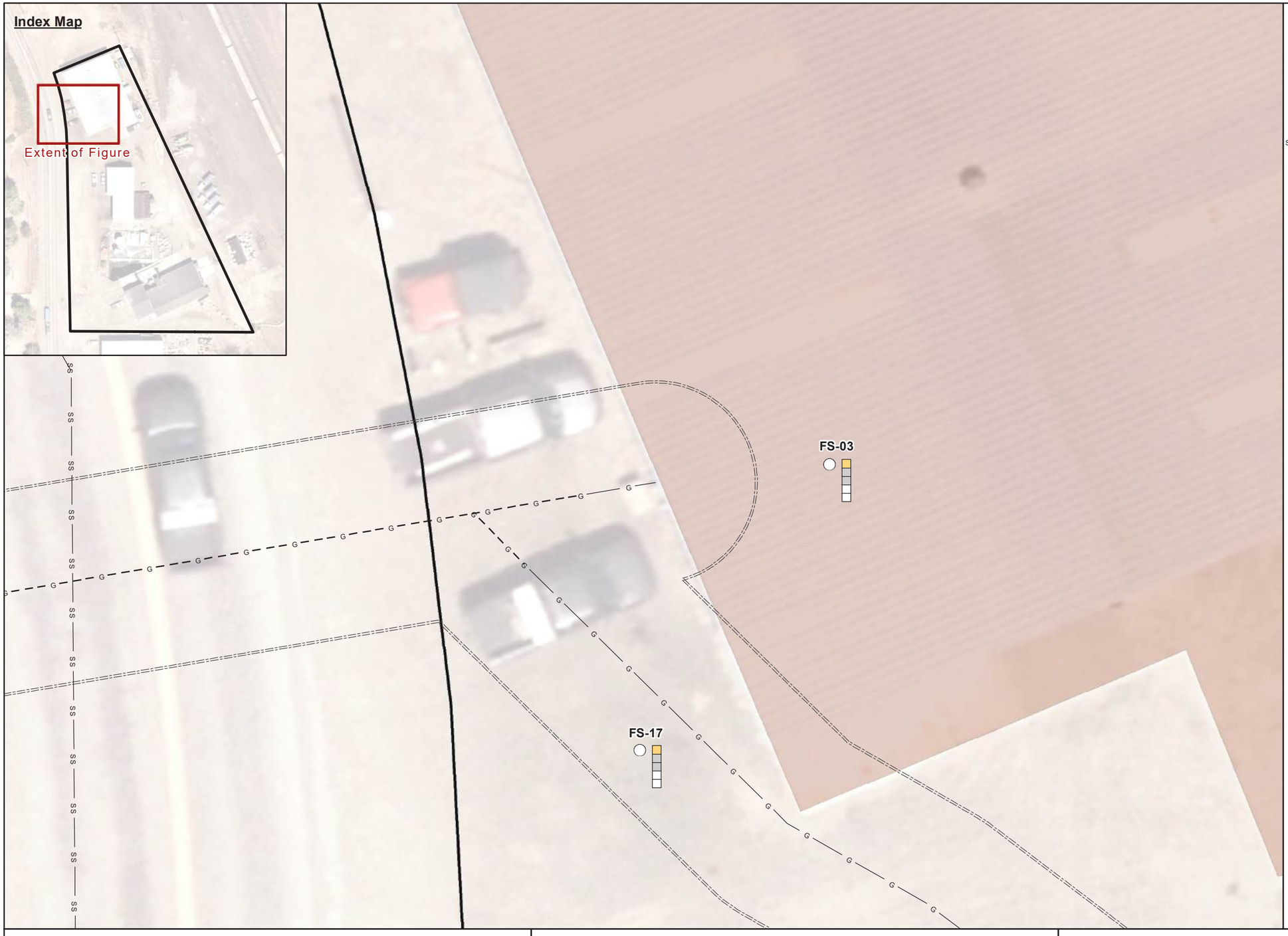


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Figure 4.7
Soil Pesticide and TPH Results—AOC 5

I:\GIS\Projects\PKG-SmithKem\MXD\15-Engineering Design Report\Figure 4.7 Soil Pesticide and TPH Results AOC 5.mxd
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Legend

- Remedial Investigation Location

Utilities

- Gas Line
- Gas Line (Approximate, Not Verified)
- Sewer Line
- Gas Line 10-ft Buffer

Site Features

- Property Boundary
- Building or Concrete to Be Protected

Soil Labels

Location ID: AOC2-01
Sample Location
Sample Depth Interval
- 0–2 ft bgs
- 2–4 ft bgs
- 4–6 ft bgs
- 6–8 ft bgs
- 8+ ft bgs

Pesticide Results

Compliance Information[1]

- One or More Results Greater Than REL
- One or More Results Greater Than CUL
- Meets CUL
- Nondetect Exceedance of REL
- Not Analyzed

Notes:
1. Results are compared to CULs and leaching RELs, when available. Results for chemicals without a leaching REL are compared to CULs and direct contact RELs. CULs and RELs are listed in Tables 3.2 and 3.3, respectively.

· Aerial imagery obtained from Nearmap, 2022.

Abbreviations:
AOC = Area of concern
bgs = Below ground surface
CUL = Cleanup level
ft = Feet
REL = Remediation level

N

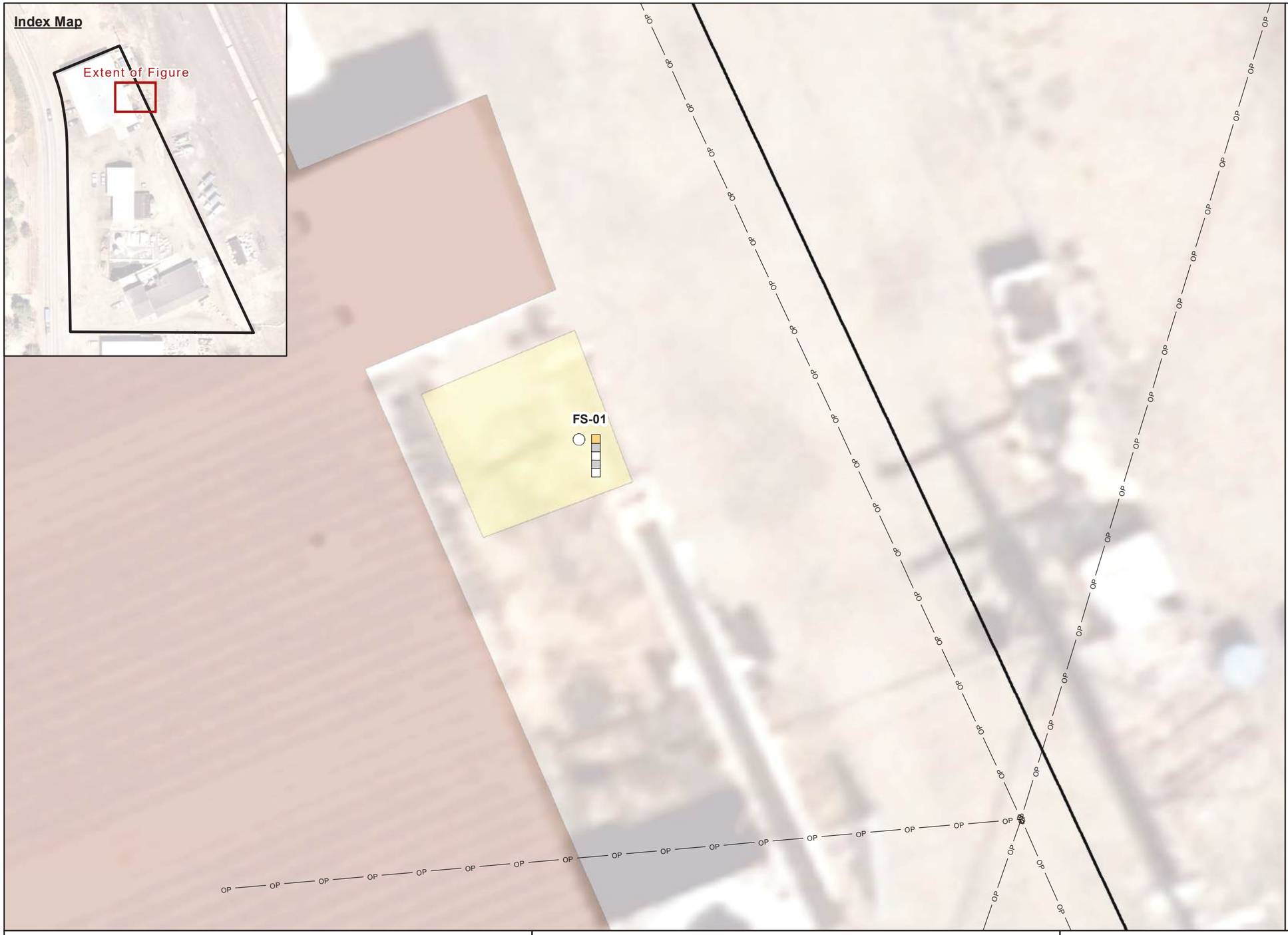
0 5 10 20
Scale in Feet

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Figure 4.8
Soil Pesticide Results—AOC 6

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9/19/2024



Legend

- Remedial Investigation Location
- Excavation Extent(1)

Utilities

- OP — Overhead Power Line

Site Features

- Property Boundary
- Building or Concrete to Be Protected

Soil Labels

Location ID: AOC2-01
Sample Location
Sample Depth Interval:
- 0–2 ft bgs
- 2–4 ft bgs
- 4–6 ft bgs
- 6–8 ft bgs
- 8+ ft bgs

TPH Results

Compliance Information(1)

- One or More Results Greater Than REL
- One or More Results Greater Than CUL
- Meets CUL
- Nondetect Exceedance of REL
- Not Analyzed

Notes:
1. Excavation extents were refined from the Cleanup Action Plan as part of design.
2. Results are compared to CULs and leaching RELs, when available. Results for chemicals without a leaching REL are compared to CULs and direct contact RELs. CULs and RELs are listed in Tables 3.2 and 3.3, respectively.

· Aerial imagery obtained from Nearmap, 2022.

Abbreviations:
AOC = Area of concern
bgs = Below ground surface
CUL = Cleanup level
ft = Feet
REL = Remediation level
TPH = Total petroleum hydrocarbons

N

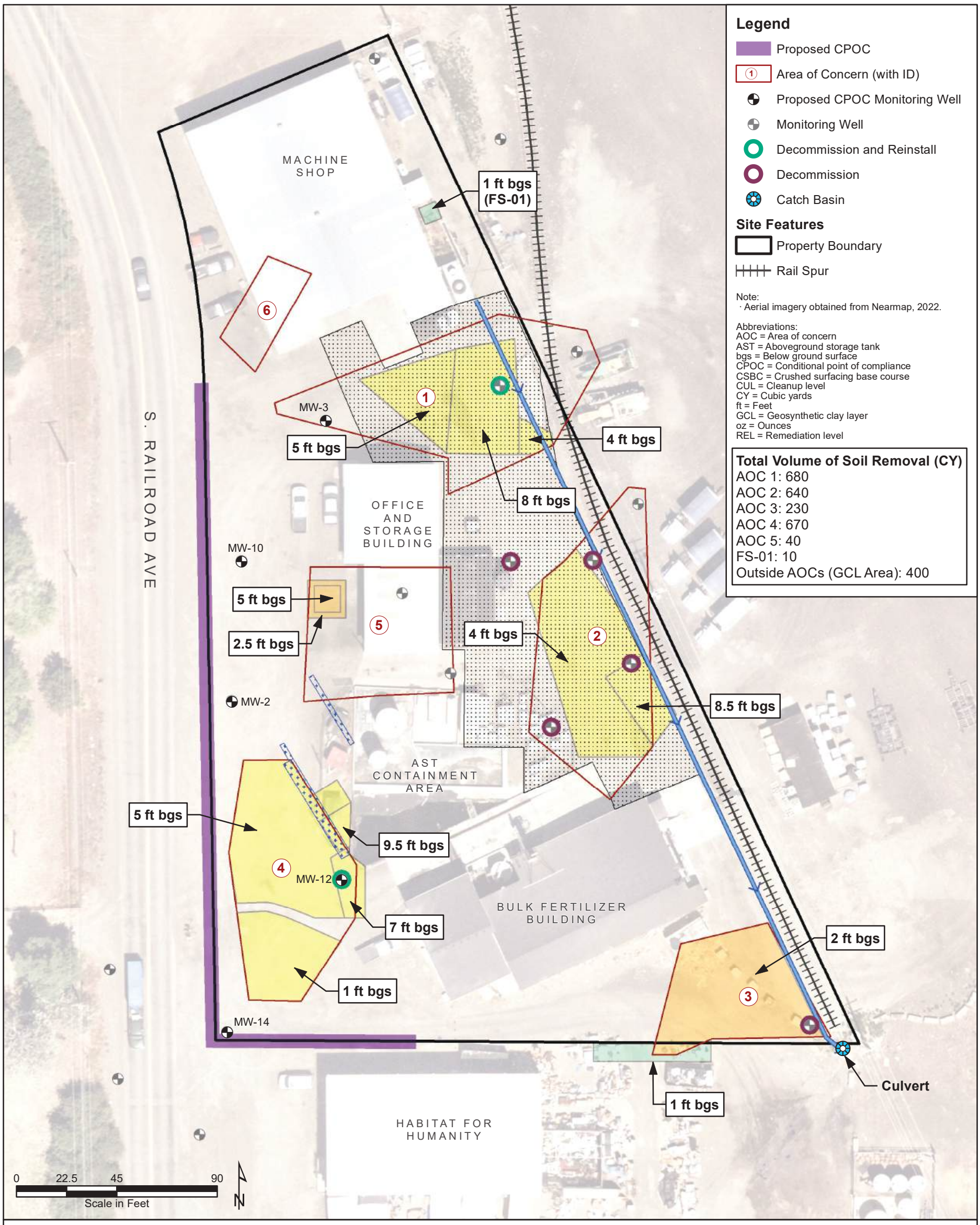
0 2.5 5 10
Scale in Feet

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Figure 4.9
Soil TPH Results—FS-01

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9/19/2024



Legend

- Proposed CPOC
- Area of Concern (with ID)
- Proposed CPOC Monitoring Well
- Monitoring Well
- Decommission and Reinstall
- Decommission
- Catch Basin

Site Features

- Property Boundary
- Rail Spur

Note:
· Aerial imagery obtained from Nearmap, 2022.

Abbreviations:
AOC = Area of concern
AST = Aboveground storage tank
bgs = Below ground surface
CPOC = Conditional point of compliance
CSBC = Crushed surfacing base course
CUL = Cleanup level
CY = Cubic yards
ft = Feet
GCL = Geosynthetic clay layer
oz = Ounces
REL = Remediation level

Total Volume of Soil Removal (CY)
AOC 1: 680
AOC 2: 640
AOC 3: 230
AOC 4: 670
AOC 5: 40
FS-01: 10
Outside AOCs (GCL Area): 400

Selected Cleanup Action

Excavate to CULs

Excavate and dispose of soil at off-site landfill. Backfill with clean fill and gravel surface.

· AOC 3 (Off-Property)
· FS-01

Excavate to Direct Contact RELs

Excavate and dispose of soil at off-site landfill. Backfill with clean fill and gravel surface.

· AOC 3 · AOC 5

Excavate to Leaching RELs

Excavate and dispose of soil at off-site landfill. Backfill with clean fill and gravel surface.

· AOC 1 · AOC 2 · AOC 4

In Situ Groundwater Treatment

Inject trademarked colloidal activated carbon matrix (PlumeStop™ or PetroFix™) to create a passive treatment zone.

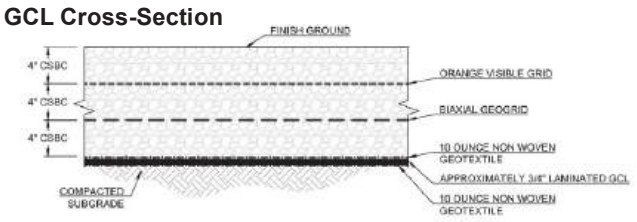
Geosynthetic Clay Liner

Install GCL as barrier for protection of groundwater from residual soil contamination.

Drainage System

Collect infiltrated precipitation drainage from the GCL and convey to a collection catch basin at the southeast corner of the property. Drainage system design details are included in Appendix F.

GCL Cross-Section



Not to Scale.

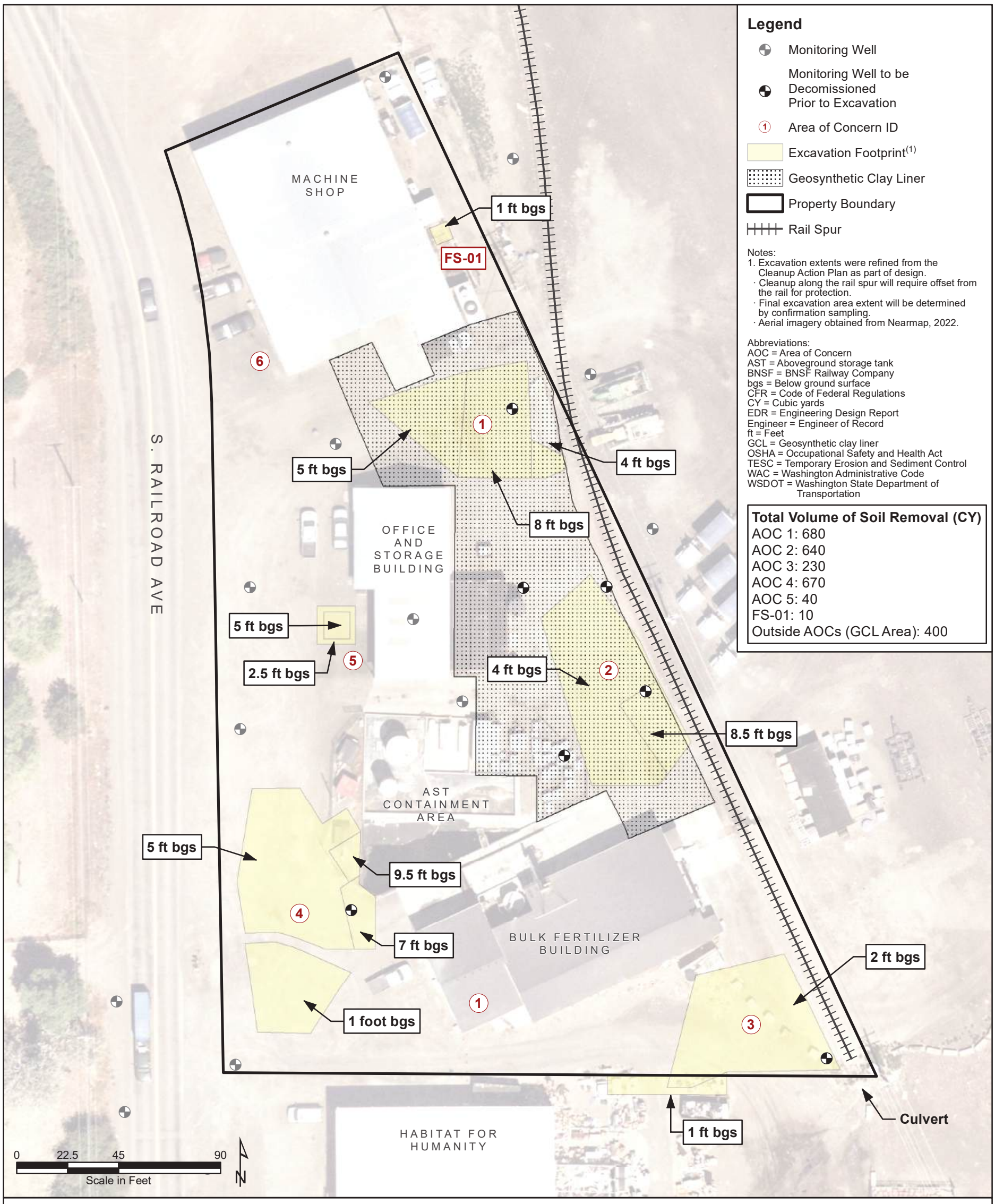
Note: GCL cross-section provided by PBS Engineering and Environmental Inc.

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Figure 5.1
Cleanup Action Summary

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9/19/2024



Legend

- Monitoring Well
- Monitoring Well to be Decomissioned Prior to Excavation
- Area of Concern ID
- Excavation Footprint(1)
- Geosynthetic Clay Liner
- Property Boundary
- Rail Spur

Notes:
1. Excavation extents were refined from the Cleanup Action Plan as part of design.
   - Cleanup along the rail spur will require offset from the rail for protection.
   - Final excavation area extent will be determined by confirmation sampling.
   - Aerial imagery obtained from Nearmap, 2022.

Abbreviations:
AOC = Area of Concern
AST = Aboveground storage tank
BNSF = BNSF Railway Company
bgs = Below ground surface
CFR = Code of Federal Regulations
CY = Cubic yards
EDR = Engineering Design Report
Engineer = Engineer of Record
ft = Feet
GCL = Geosynthetic clay liner
OSHA = Occupational Safety and Health Act
TESC = Temporary Erosion and Sediment Control
WAC = Washington Administrative Code
WSDOT = Washington State Department of Transportation

Total Volume of Soil Removal (CY)
AOC 1: 680
AOC 2: 640
AOC 3: 230
AOC 4: 670
AOC 5: 40
FS-01: 10
Outside AOCs (GCL Area): 400

Contractor Notes:

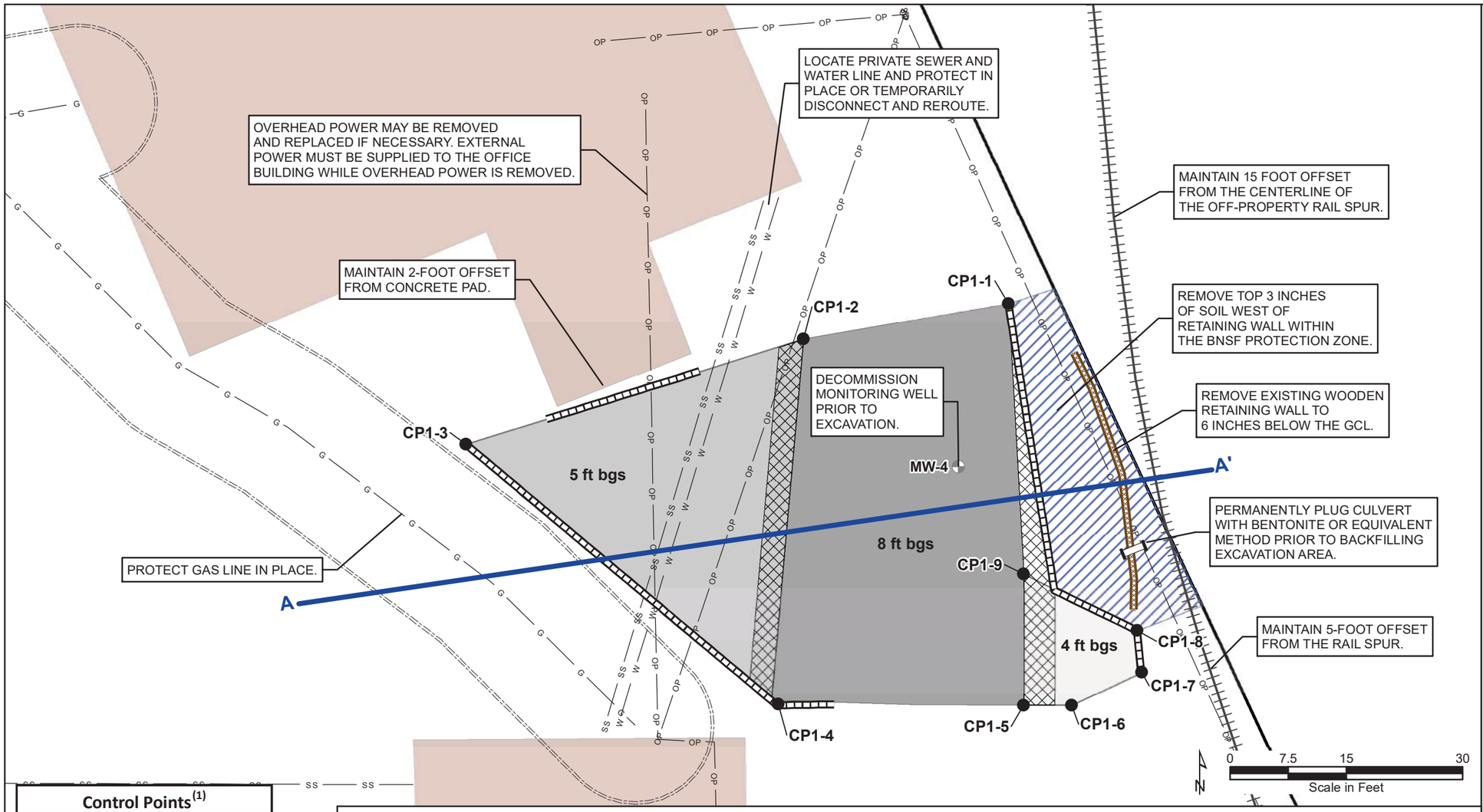
1. Excavation work shall be completed in accordance with OSHA's Excavation Standards (29 CFR 1926, Subpart P).
2. The contractor is responsible for submitting a TESC plan for Engineer approval prior to the start of work and implementing the plan consistent with Section 6.3.3 of the EDR.
2. Excavation depths are presented in feet below surrounding grade. The contractor shall verify total depth of excavations below the surrounding grade using surveying equipment accurate to within ± 0.1 feet.
4. Excavated material shall be disposed of at a licensed Subtitle C or Subtitle D disposal facility, consistent with soil profiling.
5. Excavated areas shall be backfilled and compacted with clean import material. Excavation areas within the GCL footprint area shall be backfilled to the bottom elevation of the GCL foundation layer (refer to the GCL and stormwater feature design drawings in Appendix F). Imported backfill must be granular material meeting WSDOT standard specifications for Select Borrow (Specification 9.03.14(2)). All final surfaces shall be restored to match the surrounding grade. The top 6 inches of surface material shall be crushed surfacing base (Specification 9-03.9(3)).
6. Shoring is required, at a minimum, adjacent to existing structures where stable side slopes cannot be established. Undermining or settlement of existing structures as well as side slopes onto the adjacent property are not allowed. The contractor is responsible for determining the appropriate shoring methods based on the work and soil type. Site boring logs are included in Appendix C. Any damage to existing structures or the rail spur as a result of the work execution shall be repaired at the contractor's expense.
7. Groundwater table elevation fluctuates seasonally between approximately 3 to 5 ft bgs. Excavations below the groundwater table will require dewatering or management of wet soils. Refer to Section 5.2 of the EDR for more details. Additional shoring may be needed for groundwater management in deeper excavation areas.
8. Monitoring wells to be decommissioned shall be decommissioned by a licensed driller in accordance with WAC-173-160-460. Monitoring wells not called out for decommissioning shall be protected in place.

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Figure 5.2
Excavation Overview and Contractor Notes

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9/19/2024



Control Points[1]

Point ID	Northing	Easting
CP1-1	604,663	1,626,838
CP1-2	604,658	1,626,811
CP1-3	604,645	1,626,768
CP1-4	604,611	1,626,808
CP1-5	604,611	1,626,840
CP1-6	604,611	1,626,846
CP1-7	604,615	1,626,855
CP1-8	604,621	1,626,854
CP1-9	604,628	1,626,840

Legend

- Property Boundary

Excavation and Design Features

- Excavation Detail Cross Section Transect
- Excavate to 4 ft bgs
- Excavate to 5 ft bgs
- Excavate to 8 ft bgs
- Excavation Depth Transition Area
- Excavation Control Point
- Required Shoring Protection
- BNSF Protection Zone

Utilities

- G — Gas Line
- OP — Overhead Power Line
- W — Potable Water Line
- SS — Sewer Line
- Gas Line 10-ft Buffer

Existing Infrastructure

- Monitoring Well
- Culvert
- Wooden Retaining Wall
- Rail Spur

Note:
1. Control point coordinates are presented Washington State Plane South, NAD 83 (US Feet). Control points may be adjusted in the field by the Engineer based on existing structures.
· Changes to utilities that cannot be protected in place must be coordinated with the Engineer and McGregor.

Abbreviations:
AOC = Area of concern
bgs = Below ground surface
BNSF = BNSF Railway Company
Engineer = Engineer of Record
ft = Feet
GCL = Geosynthetic clay liner
MSL = Mean Sea Level
NAD 83 = North American Datum of 1983

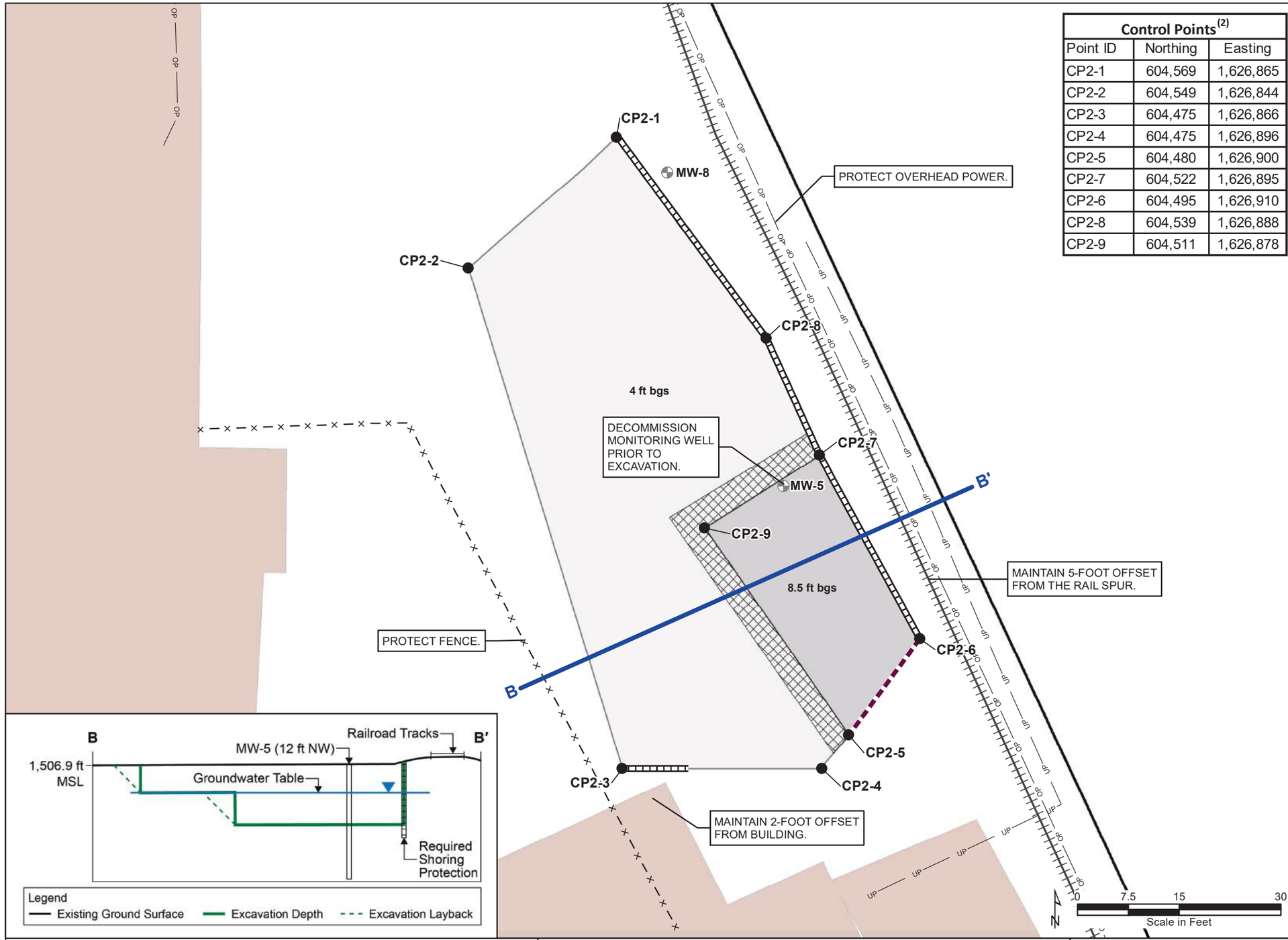
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Figure 5.3
Excavation Detail—AOC 1

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9/19/2024

Control Points[2]		
Point ID	Northing	Easting
CP2-1	604,569	1,626,865
CP2-2	604,549	1,626,844
CP2-3	604,475	1,626,866
CP2-4	604,475	1,626,896
CP2-5	604,480	1,626,900
CP2-7	604,522	1,626,895
CP2-6	604,495	1,626,910
CP2-8	604,539	1,626,888
CP2-9	604,511	1,626,878



Legend

- Property Boundary

Excavation and Design Features

- Excavation Detail Cross Section Transect
- Excavate to 4 ft bgs
- Excavate to 8.5 ft bgs
- Excavation Depth Transition Area
- Unconfirmed Excavation Extent
- Excavation Control Point
- Required Shoring Protection

Utilities

- OP — Overhead Power Line
- UP — Underground Power Line

Existing Infrastructure

- Monitoring Well
- Fence
- Building or Concrete to Be Protected
- Rail Spur

Notes:
1. Extent of TPH impacts will be evaluated during excavation and confirmed with performance sampling.
2. Control point coordinates are presented in Washington State Plane South, NAD 83 (US Feet). Control points may be adjusted in the field by the Engineer based on existing structures and to maintain required offsets.

Abbreviations:
AOC = Area of concern
bgs = Below ground surface
Engineer = Engineer of Record
ft = Feet
GCL = Geosynthetic clay liner
MSL = Mean Sea Level
NAD 83 = North American Datum of 1983
TPH = Total petroleum hydrocarbons

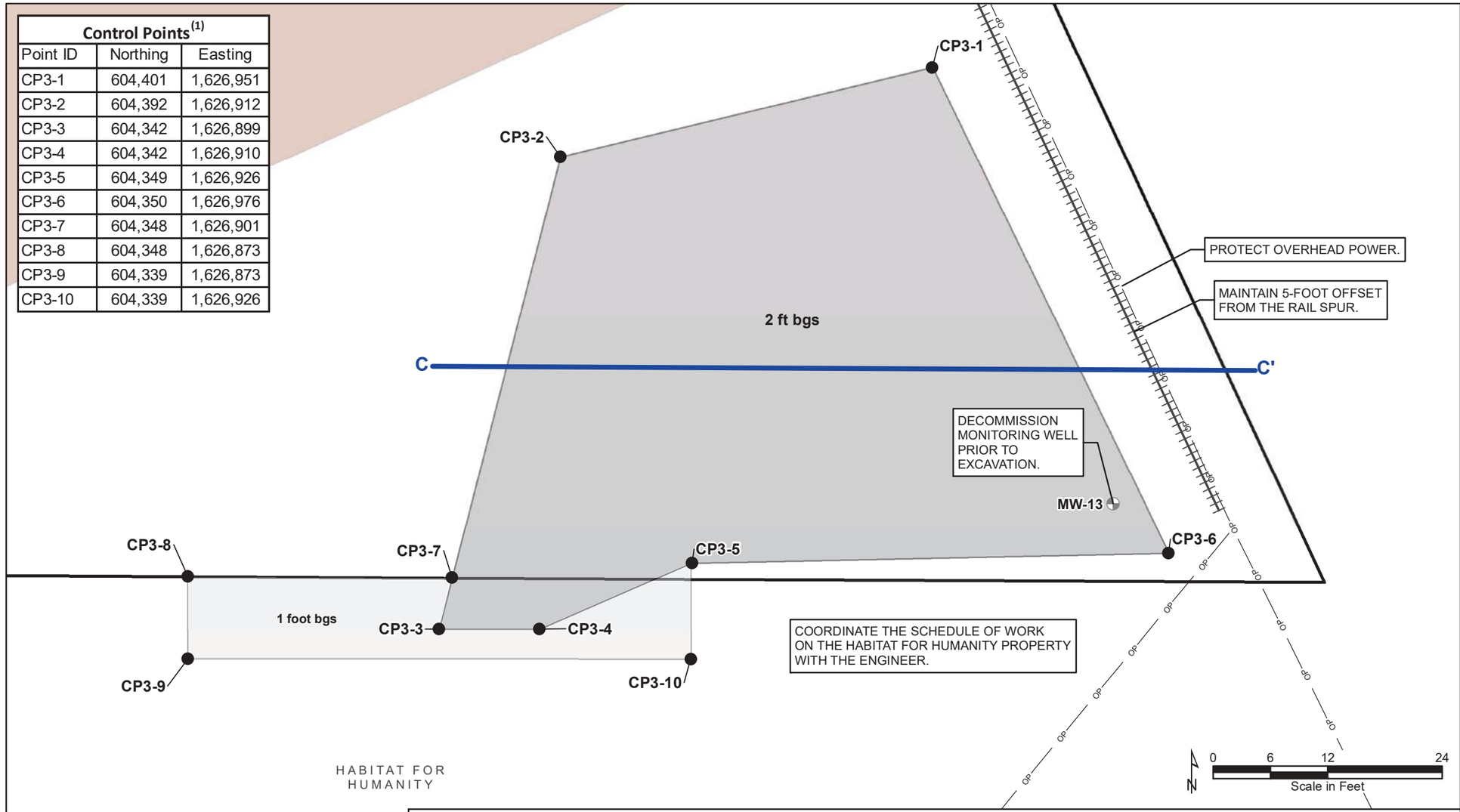
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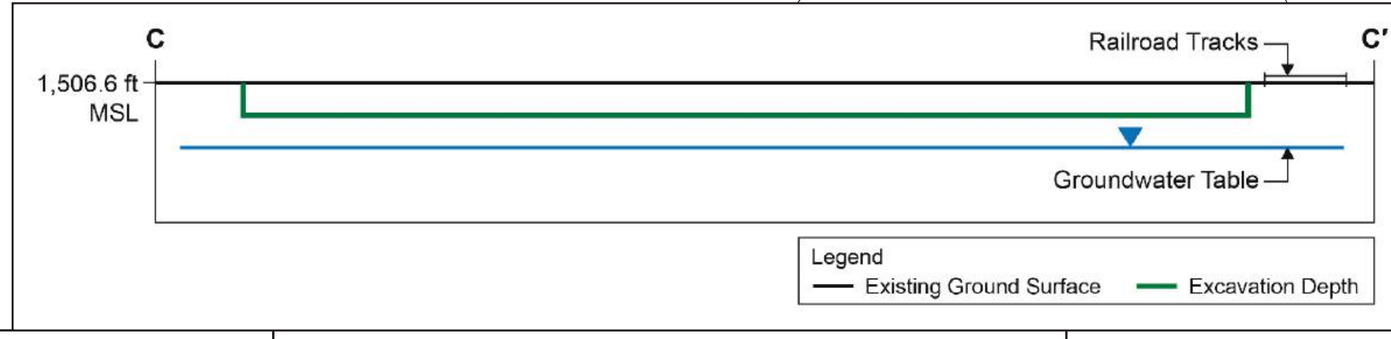
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Figure 5.4
Excavation Detail—AOC 2

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9/19/2024

Control Points[1]		
Point ID	Northing	Easting
CP3-1	604,401	1,626,951
CP3-2	604,392	1,626,912
CP3-3	604,342	1,626,899
CP3-4	604,342	1,626,910
CP3-5	604,349	1,626,926
CP3-6	604,350	1,626,976
CP3-7	604,348	1,626,901
CP3-8	604,348	1,626,873
CP3-9	604,339	1,626,873
CP3-10	604,339	1,626,926





Legend

- Property Boundary

Excavation and Design Features

- Excavation Detail Cross Section Transect
- Excavate to 1 ft bgs
- Excavate to 2 ft bgs
- Excavation Control Point

Utilities

- OP — Overhead Power Line

Existing Infrastructure

- Monitoring Well
- Building or Concrete to Be Protected
- Rail Spur

Note:
1. Control point coordinates are presented in Washington State Plane South, NAD 83 (US Feet). Control points may be adjusted in the field by the Engineer based on existing structures and to maintain required offsets.

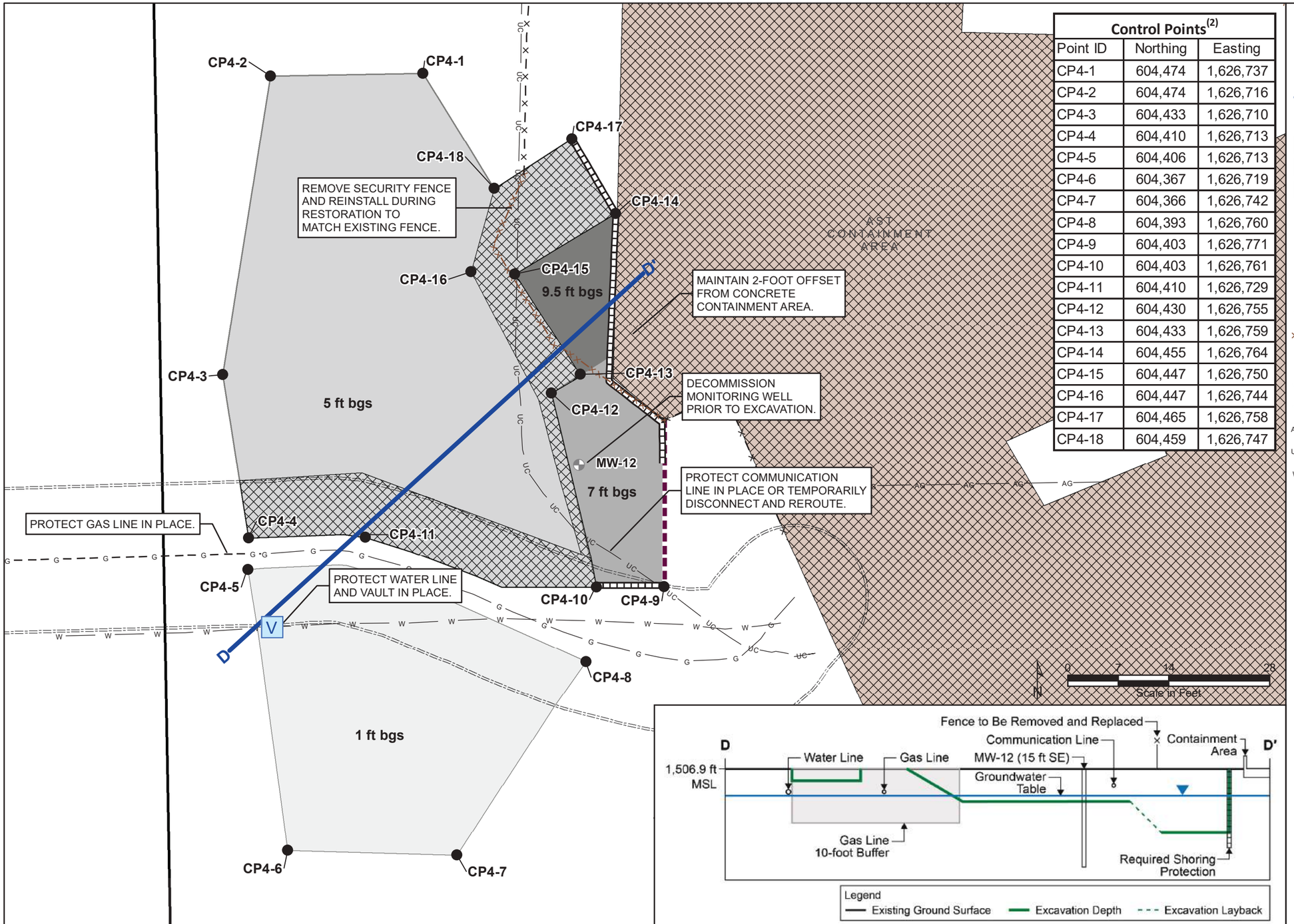
Abbreviations:
AOC = Area of concern
bgs = Below ground surface
Engineer = Engineer of Record
ft = Feet
GCL = Geosynthetic clay liner
MSL = Mean Sea Level
NAD 83 = North American Datum of 1983

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Figure 5.5
Excavation Detail—AOC 3

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Control Points[2]		
Point ID	Northing	Easting
CP4-1	604,474	1,626,737
CP4-2	604,474	1,626,716
CP4-3	604,433	1,626,710
CP4-4	604,410	1,626,713
CP4-5	604,406	1,626,713
CP4-6	604,367	1,626,719
CP4-7	604,366	1,626,742
CP4-8	604,393	1,626,760
CP4-9	604,403	1,626,771
CP4-10	604,403	1,626,761
CP4-11	604,410	1,626,729
CP4-12	604,430	1,626,755
CP4-13	604,433	1,626,759
CP4-14	604,455	1,626,764
CP4-15	604,447	1,626,750
CP4-16	604,447	1,626,744
CP4-17	604,465	1,626,758
CP4-18	604,459	1,626,747

Legend

- Property Boundary

Excavation and Design Features

- Excavation Detail Cross Section Transect
- Excavate to 1 ft bgs
- Excavate to 5 ft bgs
- Excavate to 7 ft bgs
- Excavate to 9.5 ft bgs
- Excavation Depth Transition
- Unconfirmed Excavation Extent[1]
- Excavation Control Point
- Required Shoring Protection
- Fence
- Fence to Be Removed and Replaced

Utilities

- Gas Line
- Gas Line (Approximate, Not Verified)
- Abandoned Gas Line
- Underground Communication Line
- Potable Water Line
- Gas Line 10-ft Buffer[3]
- Water Utility Vault

Existing Infrastructure

- Monitoring Well
- Building or Concrete to Be Protected

Notes:
1. Extent of TPH impacts will be evaluated during excavation and confirmed with performance sampling.
2. Control point coordinates are presented in Washington State Plane South, NAD 83 (US Feet). Control points may be adjusted in the field by the Engineer based on existing structures and to maintain required offsets.
3. All excavation work within 10 feet of the gas line must be coordinated with the City Gas Devision. No excavation is allowed within 2 feet of the gas line.
   · Changes to utilities that cannot be protected in place must be coordinated with the Engineer and McGregor.

Abbreviations:
AOC = Area of concern
AST = Aboveground storage tank
bgs = Below ground surface
Engineer = Engineer of Record
ft = Feet
GCL = Geosynthetic clay liner
MSL = Mean Sea Level
NAD 83 = North American Datum of 1983
TPH = Total petroleum hydrocarbons

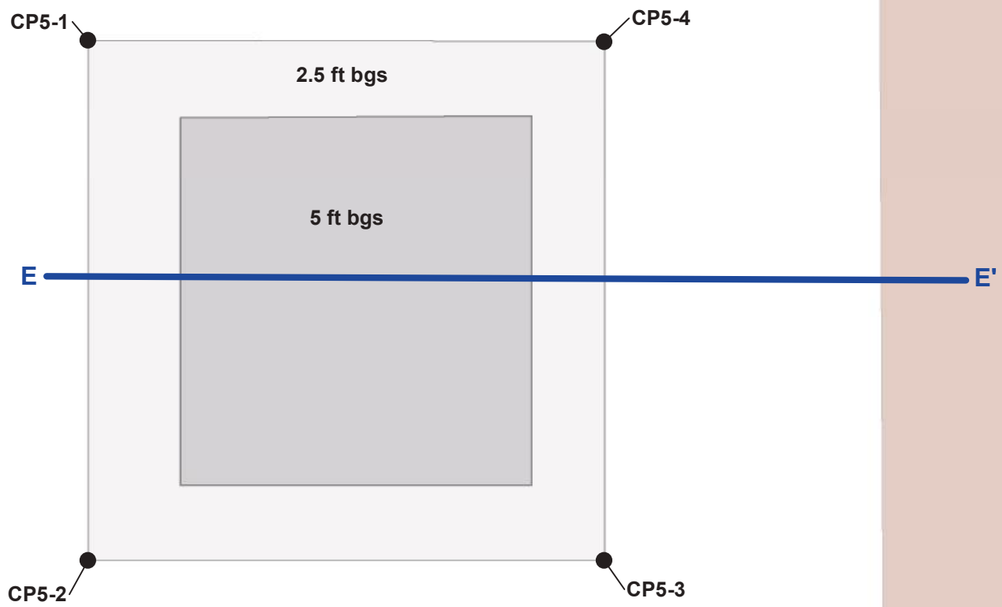
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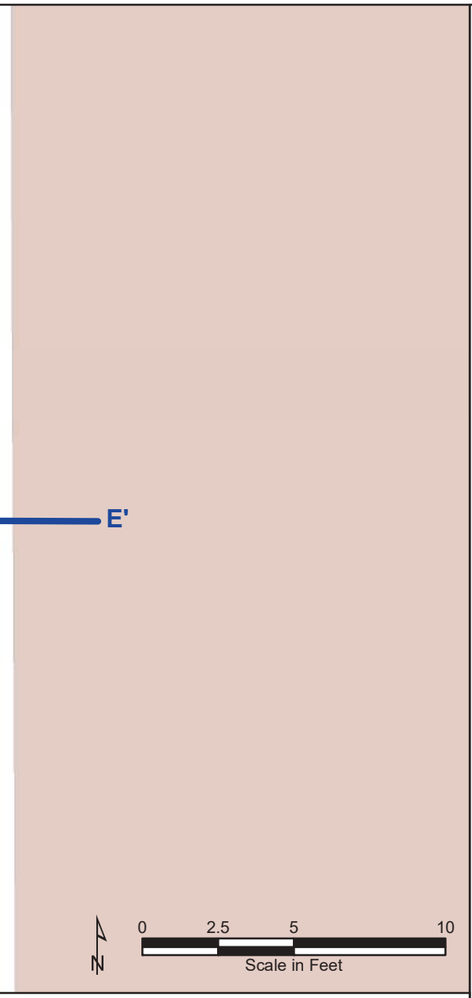
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Figure 5.6
Excavation Detail—AOC 4

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Control Points[1]		
Point ID	Northing	Easting
CP5-1	604,555	1,626,745
CP5-2	604,538	1,626,745
CP5-3	604,538	1,626,762
CP5-4	604,555	1,626,762





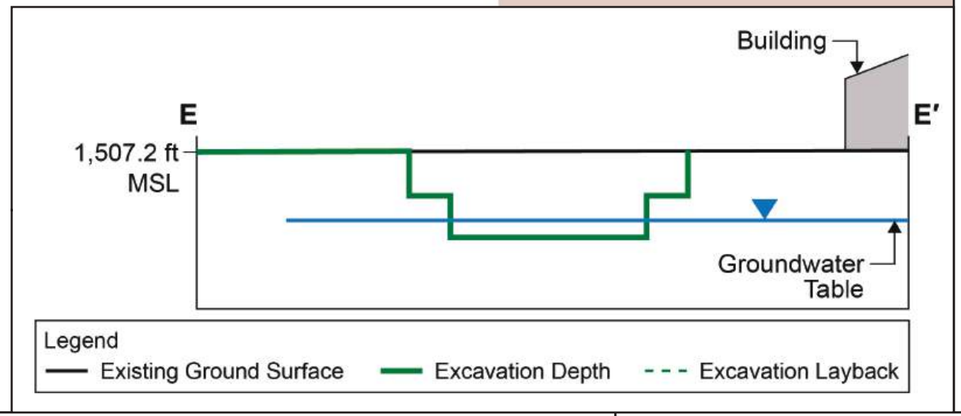
Legend

Excavation and Design Features

- Excavation Detail Cross Section Transect
- Excavate to 2.5 ft bgs
- Excavate to 5 ft bgs
- Excavation Control Point

Existing Infrastructure

- Building or Concrete to Be Protected



Note:
1. Control point coordinates are presented in Washington State Plane South, NAD 83 (US Feet). Control points may be adjusted in the field by the Engineer based on existing structures and to maintain required offsets.

Abbreviations:
AOC = Area of concern
bgs = Below ground surface
Engineer = Engineer of Record
ft = Feet
GCL = Geosynthetic clay liner
MSL = Mean Sea Level
NAD 83 = North American Datum of 1983

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Figure 5.7
Excavation Detail—AOC 5

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Control Points[1]		
Point ID	Northing	Easting
CPFS01-1	604,721	1,626,795
CPFS01-2	604,714	1,626,798
CPFS01-3	604,717	1,626,805
CPFS01-4	604,724	1,626,802

Legend

- Property Boundary

Excavation and Design Features

- Excavate to 1 foot bgs
- Excavation Control Point

Utilities

- OP — Overhead Power Line

Existing Infrastructure

- Building or Concrete to Be Protected

CPFS01-4

CPFS01-1

1 foot bgs

MAINTAIN 2-FOOT OFFSET FROM BUILDING.

CPFS01-3

CPFS01-2

OP

0 2.5 5 10

Scale in Feet

N

Note:
1. Control point coordinates are presented in Washington State Plane South, NAD 83 (US Feet). Control points may be adjusted in the field by the Engineer based on existing structures and to maintain required offsets.

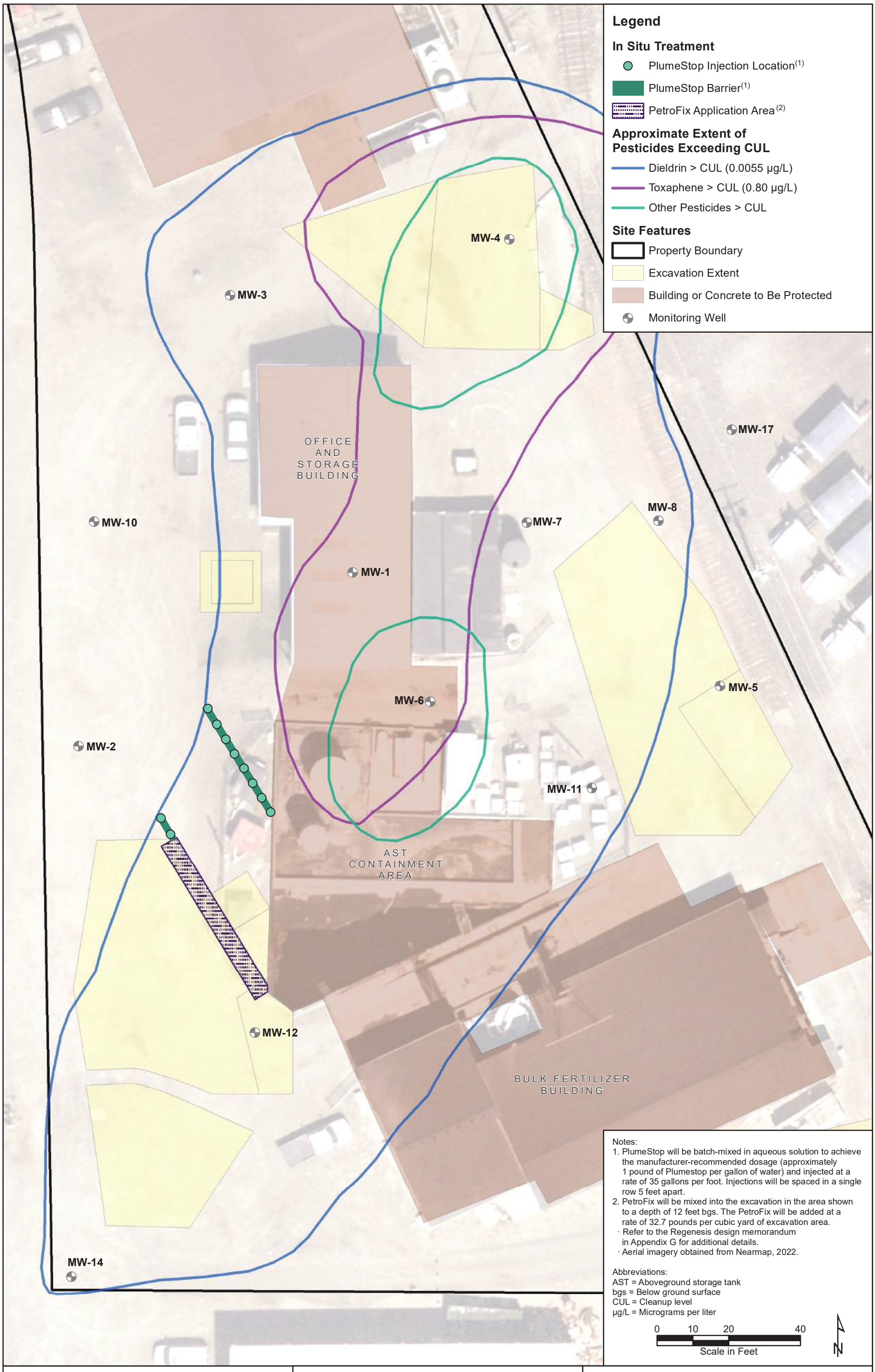
Abbreviations:
AOC = Area of concern
bgs = Below ground surface
Engineer = Engineer of Record
GCL = Geosynthetic clay liner
MSL = Mean Sea Level
NAD 83 = North American Datum of 1983

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Smith-Kem Site
Ellensburg, Washington

Figure 5.8
Excavation Detail—FS-01

I:\GIS\Projects\PKG-SmithKem\MXD\15-Engineering Design Report\Figure 5.8 Excavation Detail FS-01.mxd
9/19/2024

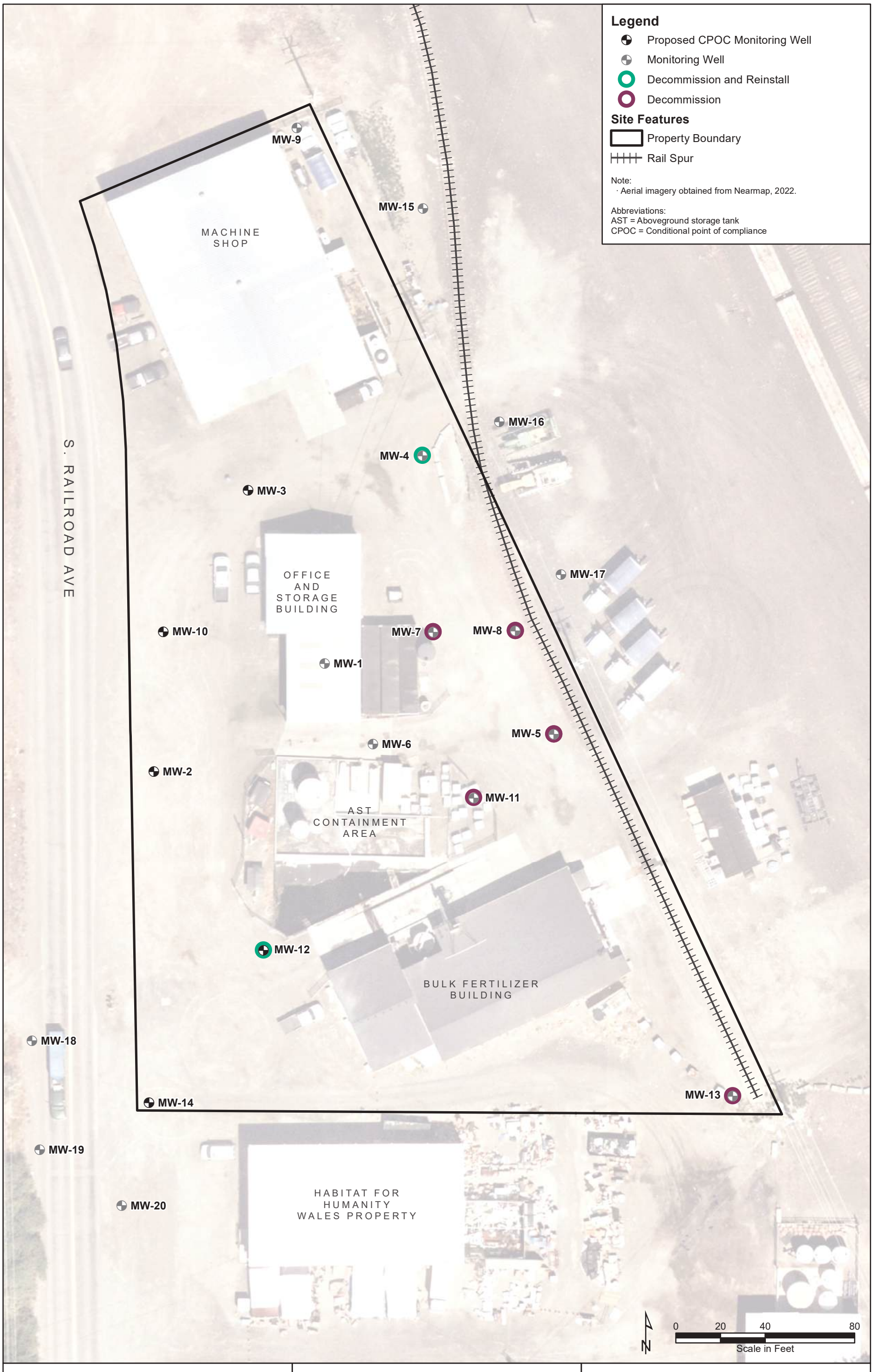


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Engineering Design Report
Smith-Kem Site
Ellensburg, Washington

Figure 5.9
In Situ Injection Layout

I:\GIS\Projects\PKG-SmithKem\MXD\15-Engineering Design Report\Figure 5.9 In Situ Injection Layout.mxd
9/19/2024

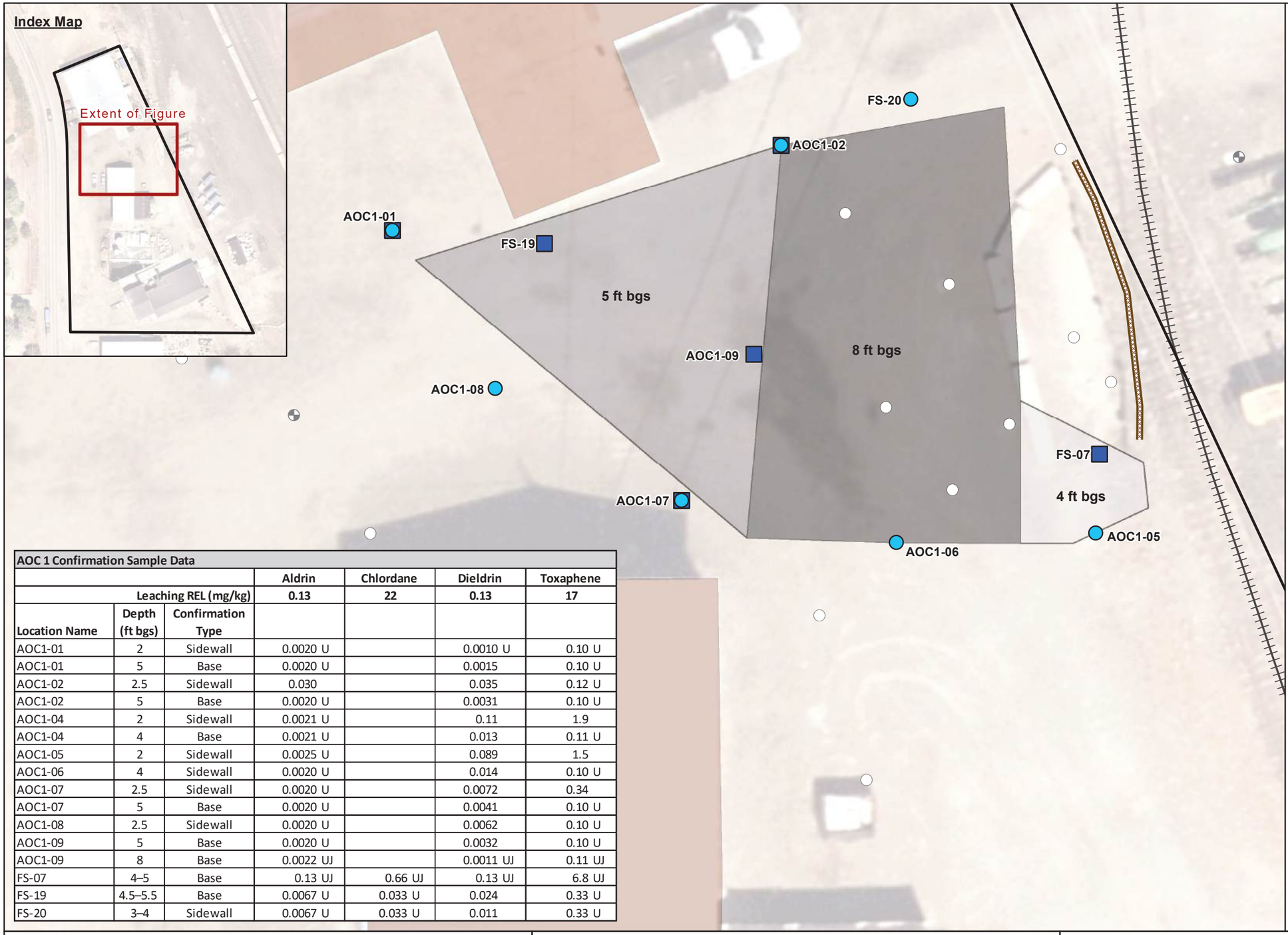


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Smith-Kem Site
Ellensburg, Washington

Figure 6.1
Monitoring Well Decommissioning Plan

I:\GIS\Projects\PKG-SmithKem\MXD\15-Engineering Design Report\Figure 6.1 Monitoring Well Decommission Plan.mxd
9/19/2024



AOC 1 Confirmation Sample Data

Location Name	Depth (ft bgs)	Confirmation Type	Aldrin	Chlordane	Dieldrin	Toxaphene
Leaching REL (mg/kg)			0.13	22	0.13	17
AOC1-01	2	Sidewall	0.0020 U		0.0010 U	0.10 U
AOC1-01	5	Base	0.0020 U		0.0015	0.10 U
AOC1-02	2.5	Sidewall	0.030		0.035	0.12 U
AOC1-02	5	Base	0.0020 U		0.0031	0.10 U
AOC1-04	2	Sidewall	0.0021 U		0.11	1.9
AOC1-04	4	Base	0.0021 U		0.013	0.11 U
AOC1-05	2	Sidewall	0.0025 U		0.089	1.5
AOC1-06	4	Sidewall	0.0020 U		0.014	0.10 U
AOC1-07	2.5	Sidewall	0.0020 U		0.0072	0.34
AOC1-07	5	Base	0.0020 U		0.0041	0.10 U
AOC1-08	2.5	Sidewall	0.0020 U		0.0062	0.10 U
AOC1-09	5	Base	0.0020 U		0.0032	0.10 U
AOC1-09	8	Base	0.0022 UJ		0.0011 UJ	0.11 UJ
FS-07	4–5	Base	0.13 UJ	0.66 UJ	0.13 UJ	6.8 UJ
FS-19	4.5–5.5	Base	0.0067 U	0.033 U	0.024	0.33 U
FS-20	3–4	Sidewall	0.0067 U	0.033 U	0.011	0.33 U

Legend

Property Boundary

Compliance Sample Location

Sidewall Soil Sample

Base Soil Sample

Excavation Features and Existing Infrastructure

Excavate to 4 ft bgs

Excavate to 5 ft bgs

Excavate to 8 ft bgs

Building or Concrete to Be Protected

Wooden Retaining Wall

Monitoring Well

Non-Confirmation Soil Sample Location

Rail Spur

Notes:
- Table lists results in mg/kg compared to applicable soil REL.
- Table lists locations that delineate contamination at concentrations less than RELs. Only chemicals with at least one REL exceedance among soil results collected in this AOC are shown in the table; refer to Table 4.2 for all soil results from the 2023 pre-remedial design investigation sampling.
- Aerial imagery obtained from Nearmap, 2022.

Abbreviations:
AOC = Area of concern
bgs = Below ground surface
ft = Feet
mg/kg = Milligrams per kilogram
REL = Remediation level

Qualifiers:
J Chemical was detected, concentration is considered to be an estimate.
U Chemical was not detected at the given reporting limit.
UJ Chemical was not detected at the given reporting limit, which is considered to be an estimate.

N

0 6 12 24

Scale in Feet

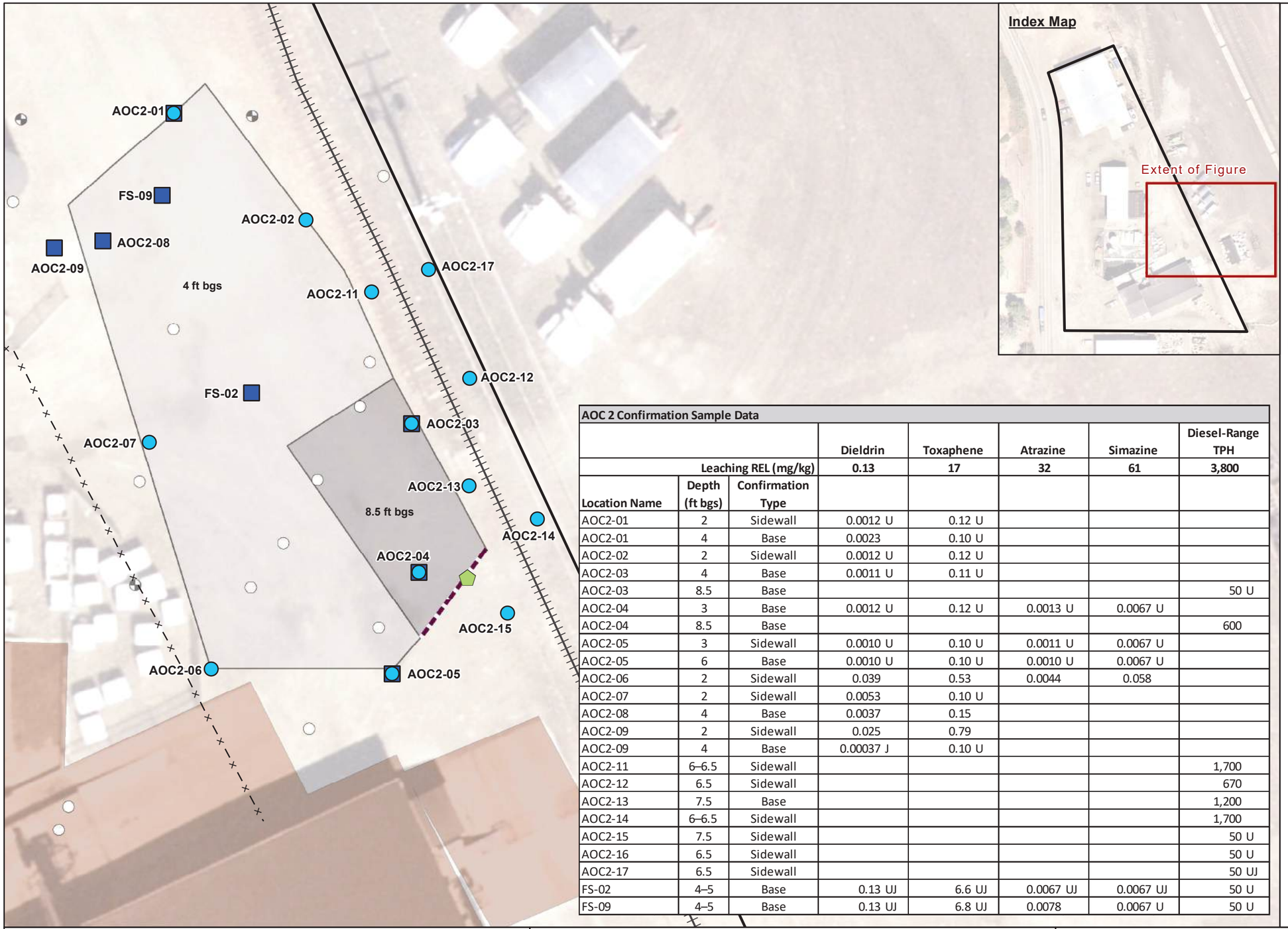
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Engineering Design Report
Smith-Kem Site
Ellensburg, Washington

Figure 7.1
Compliance Monitoring Data and Locations—AOC 1

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9/19/2024



Legend

- Property Boundary

Compliance Sample Location

- Sidewall Soil Sample
- Base Soil Sample
- Proposed Confirmation Sample

Excavation Information

- Excavate to 4 ft bgs
- Excavate to 8.5 ft bgs
- Unconfirmed Excavation Extent(1)
- Building or Concrete to Be Protected
- Fence
- Monitoring Well
- Non-Confirmation Soil Sample Location
- Rail Spur

AOC 2 Confirmation Sample Data

			Dieldrin	Toxaphene	Atrazine	Simazine	Diesel-Range TPH
Leaching REL (mg/kg)			0.13	17	32	61	3,800
Location Name	Depth (ft bgs)	Confirmation Type					
AOC2-01	2	Sidewall	0.0012 U	0.12 U			
AOC2-01	4	Base	0.0023	0.10 U			
AOC2-02	2	Sidewall	0.0012 U	0.12 U			
AOC2-03	4	Base	0.0011 U	0.11 U			
AOC2-03	8.5	Base					50 U
AOC2-04	3	Base	0.0012 U	0.12 U	0.0013 U	0.0067 U	
AOC2-04	8.5	Base					600
AOC2-05	3	Sidewall	0.0010 U	0.10 U	0.0011 U	0.0067 U	
AOC2-05	6	Base	0.0010 U	0.10 U	0.0010 U	0.0067 U	
AOC2-06	2	Sidewall	0.039	0.53	0.0044	0.058	
AOC2-07	2	Sidewall	0.0053	0.10 U			
AOC2-08	4	Base	0.0037	0.15			
AOC2-09	2	Sidewall	0.025	0.79			
AOC2-09	4	Base	0.00037 J	0.10 U			
AOC2-11	6–6.5	Sidewall					1,700
AOC2-12	6.5	Sidewall					670
AOC2-13	7.5	Base					1,200
AOC2-14	6–6.5	Sidewall					1,700
AOC2-15	7.5	Sidewall					50 U
AOC2-16	6.5	Sidewall					50 U
AOC2-17	6.5	Sidewall					50 UJ
FS-02	4–5	Base	0.13 UJ	6.6 UJ	0.0067 UJ	0.0067 UJ	50 U
FS-09	4–5	Base	0.13 UJ	6.8 UJ	0.0078	0.0067 U	50 U

Notes:
1. Extent of TPH impacts will be evaluated during excavation and confirmed with performance sampling.
   · Table lists results in mg/kg compared to applicable soil REL.
   · Table lists locations that delineate contamination at concentrations less than RELs. Only chemicals with at least one REL exceedance among soil results collected in this AOC are shown in the table; refer to Table 4.2 for all soil results from the 2023 pre-remedial design investigation sampling.
   · Aerial imagery obtained from Nearmap, 2022.

Abbreviations:
AOC = Area of concern
bgs = Below ground surface
ft = Feet
mg/kg = Milligrams per kilogram
REL = Remediation level
TPH = Total petroleum hydrocarbons

Qualifiers:
J Chemical was detected, concentration is considered to be an estimate.
U Chemical was not detected at the given reporting limit.
UJ Chemical was not detected at the given reporting limit, which is considered to be an estimate.

N
0 8 16 32
Scale in Feet

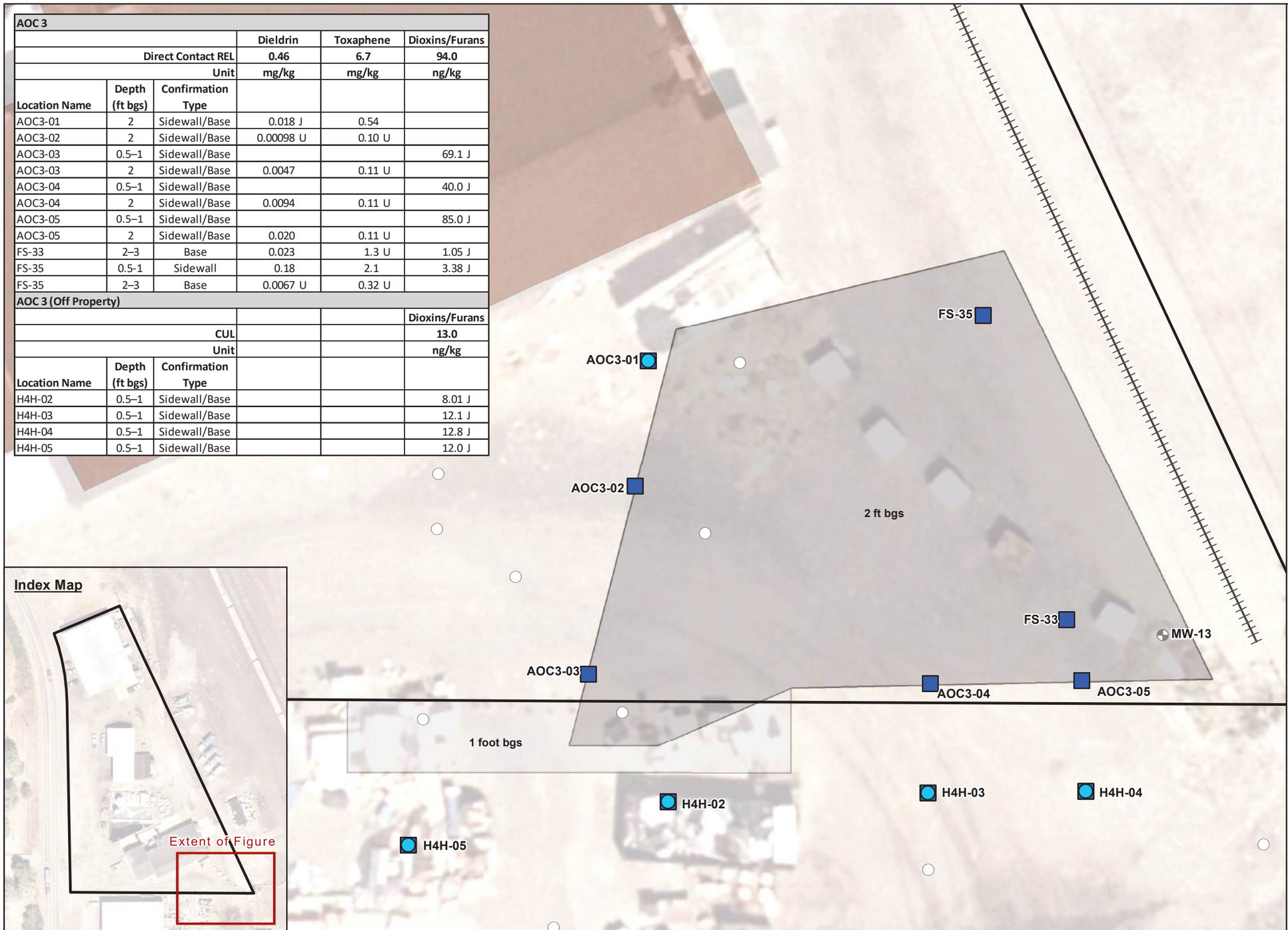
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Smith-Kem Site
Ellensburg, Washington

Figure 7.2
Compliance Monitoring Data and Locations—AOC 2

I:\GIS\Projects\PKG-SmithKem\MXD\15-Engineering Design Report\Figure 7.2 Compliance Monitoring Data and Locations AOC 2.mxd
9/19/2024

AOC 3					
			Dieldrin	Toxaphene	Dioxins/Furans
		Direct Contact REL	0.46	6.7	94.0
		Unit	mg/kg	mg/kg	ng/kg
Location Name	Depth (ft bgs)	Confirmation Type			
AOC3-01	2	Sidewall/Base	0.018 J	0.54	
AOC3-02	2	Sidewall/Base	0.00098 U	0.10 U	
AOC3-03	0.5–1	Sidewall/Base			69.1 J
AOC3-03	2	Sidewall/Base	0.0047	0.11 U	
AOC3-04	0.5–1	Sidewall/Base			40.0 J
AOC3-04	2	Sidewall/Base	0.0094	0.11 U	
AOC3-05	0.5–1	Sidewall/Base			85.0 J
AOC3-05	2	Sidewall/Base	0.020	0.11 U	
FS-33	2–3	Base	0.023	1.3 U	1.05 J
FS-35	0.5-1	Sidewall	0.18	2.1	3.38 J
FS-35	2–3	Base	0.0067 U	0.32 U	
AOC 3 (Off Property)					
					Dioxins/Furans
		CUL			13.0
		Unit			ng/kg
Location Name	Depth (ft bgs)	Confirmation Type			
H4H-02	0.5–1	Sidewall/Base			8.01 J
H4H-03	0.5–1	Sidewall/Base			12.1 J
H4H-04	0.5–1	Sidewall/Base			12.8 J
H4H-05	0.5–1	Sidewall/Base			12.0 J



Legend

- Property Boundary

Compliance Sample Location

- Sidewall Soil Sample
- Base Soil Sample

Excavation Features and Existing Infrastructure

- Excavate to 1 ft bgs
- Excavate to 2 ft bgs
- Building or Concrete to Be Protected
- Monitoring Well
- Non-Confirmation Soil Sample Location
- Rail Spur

Notes:
- Table lists results in mg/kg for pesticides and ng/kg for dioxin/furans compared to applicable soil RELs.
- Table lists locations that delineate contamination at concentrations less than RELs. Only chemicals with at least one REL exceedance among soil results collected in this AOC are shown in the table; refer to Table 4.2 for all soil results from the 2023 pre-remedial design investigation sampling.
- Aerial imagery obtained from Nearmap, 2022.

Abbreviations:
AOC = Area of concern
bgs = Below ground surface
CUL = Cleanup level
ft = Feet
mg/kg = Milligrams per kilogram
ng/kg = Nanogram per kilogram
REL = Remediation level

Qualifiers:
J Chemical was detected, concentration is considered to be an estimate.
U Chemical was not detected at the given reporting limit.

N

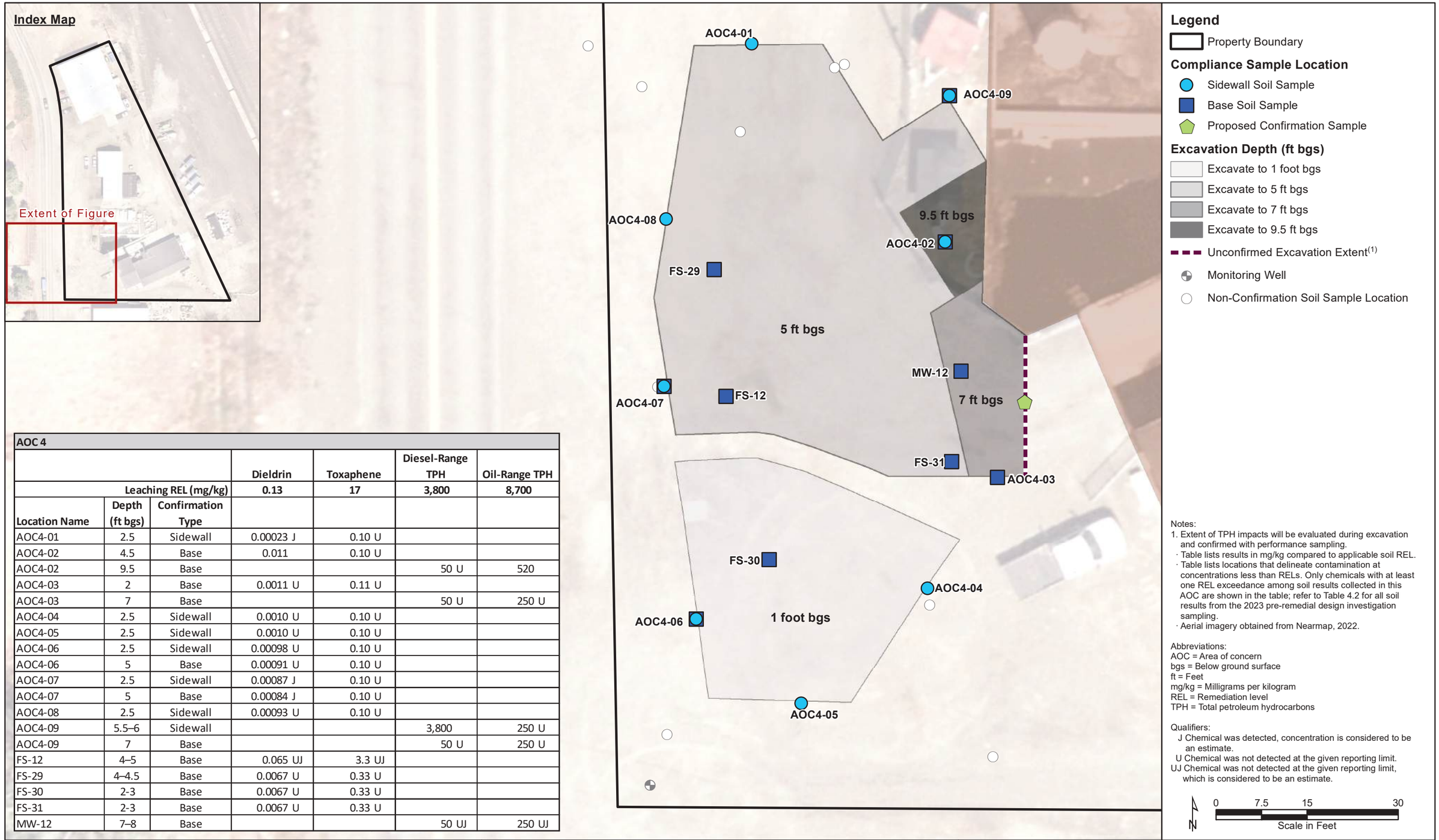
0 6 12 24
Scale in Feet

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Figure 7.3
Compliance Monitoring Data and Locations—AOC 3

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10/3/2024



AOC 4

Location Name	Depth (ft bgs)	Confirmation Type	Dieldrin	Toxaphene	Diesel-Range TPH	Oil-Range TPH
Leaching REL (mg/kg)			0.13	17	3,800	8,700
AOC4-01	2.5	Sidewall	0.00023 J	0.10 U		
AOC4-02	4.5	Base	0.011	0.10 U		
AOC4-02	9.5	Base			50 U	520
AOC4-03	2	Base	0.0011 U	0.11 U		
AOC4-03	7	Base			50 U	250 U
AOC4-04	2.5	Sidewall	0.0010 U	0.10 U		
AOC4-05	2.5	Sidewall	0.0010 U	0.10 U		
AOC4-06	2.5	Sidewall	0.00098 U	0.10 U		
AOC4-06	5	Base	0.00091 U	0.10 U		
AOC4-07	2.5	Sidewall	0.00087 J	0.10 U		
AOC4-07	5	Base	0.00084 J	0.10 U		
AOC4-08	2.5	Sidewall	0.00093 U	0.10 U		
AOC4-09	5.5–6	Sidewall			3,800	250 U
AOC4-09	7	Base			50 U	250 U
FS-12	4–5	Base	0.065 UJ	3.3 UJ		
FS-29	4–4.5	Base	0.0067 U	0.33 U		
FS-30	2-3	Base	0.0067 U	0.33 U		
FS-31	2-3	Base	0.0067 U	0.33 U		
MW-12	7–8	Base			50 UJ	250 UJ

Notes:
1. Extent of TPH impacts will be evaluated during excavation and confirmed with performance sampling.
· Table lists results in mg/kg compared to applicable soil REL.
· Table lists locations that delineate contamination at concentrations less than RELs. Only chemicals with at least one REL exceedance among soil results collected in this AOC are shown in the table; refer to Table 4.2 for all soil results from the 2023 pre-remedial design investigation sampling.
· Aerial imagery obtained from Nearmap, 2022.

Abbreviations:
AOC = Area of concern
bgs = Below ground surface
ft = Feet
mg/kg = Milligrams per kilogram
REL = Remediation level
TPH = Total petroleum hydrocarbons

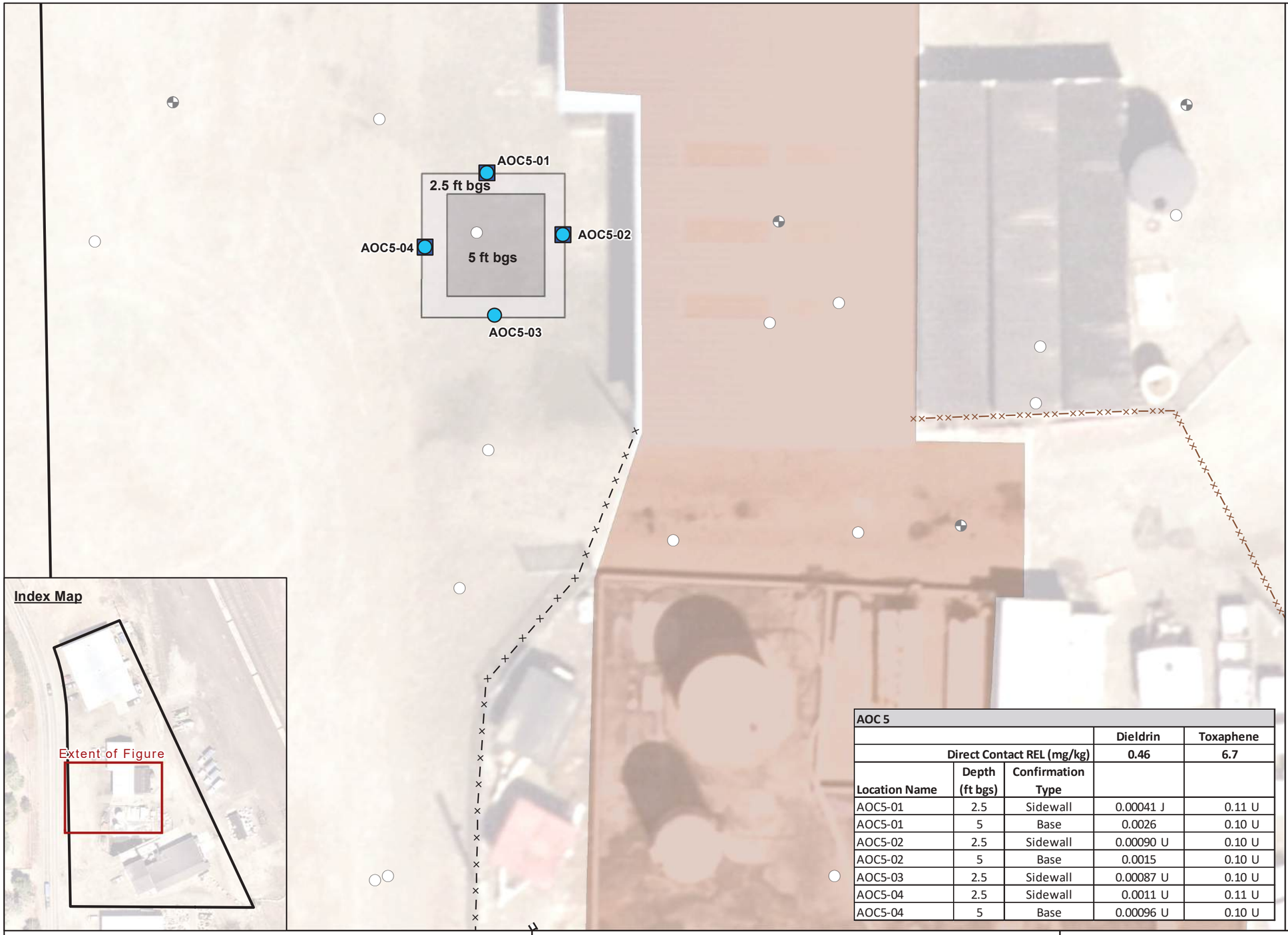
Qualifiers:
J Chemical was detected, concentration is considered to be an estimate.
U Chemical was not detected at the given reporting limit.
UJ Chemical was not detected at the given reporting limit, which is considered to be an estimate.

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Figure 7.4
Compliance Monitoring Data and Locations—AOC 4

I:\GIS\Projects\PKG-SmithKem\MXD\15-Engineering Design Report\Figure 7.4 Compliance Monitoring Data and Locations AOC 4.mxd
9/19/2024



Legend

Property Boundary

Compliance Sample Location

Sidewall Soil Sample

Base Soil Sample

Excavation Features and Existing Infrastructure

Excavate to 2.5 bgs

Excavate to 5 ft bgs

Building or Concrete to Be Protected

Required Shoring Protection(1)

Fence

Fence to be Removed and Replaced

Monitoring Well

Non-Confirmation Soil Sample Location

AOC 5				
			Dieldrin	Toxaphene
		Direct Contact REL (mg/kg)	0.46	6.7
Location Name	Depth (ft bgs)	Confirmation Type		
AOC5-01	2.5	Sidewall	0.00041 J	0.11 U
AOC5-01	5	Base	0.0026	0.10 U
AOC5-02	2.5	Sidewall	0.00090 U	0.10 U
AOC5-02	5	Base	0.0015	0.10 U
AOC5-03	2.5	Sidewall	0.00087 U	0.10 U
AOC5-04	2.5	Sidewall	0.0011 U	0.11 U
AOC5-04	5	Base	0.00096 U	0.10 U

Notes:
- Table lists results in mg/kg compared to applicable soil REL.
- Table lists locations that delineate contamination at concentrations less than RELs. Only chemicals with at least one REL exceedance among soil results collected in this AOC are shown in the table; refer to Table 4.2 for all soil results from the 2023 pre-remedial design investigation sampling.
- Aerial imagery obtained from Nearmap, 2022.

Abbreviations:
AOC = Area of concern
bgs = Below ground surface
ft = Feet
mg/kg = Milligrams per kilogram
REL = Remediation level

Qualifiers:
J Chemical was detected, concentration is considered to be an estimate.
U Chemical was not detected at the given reporting limit.

N

0 6 12 24

Scale in Feet

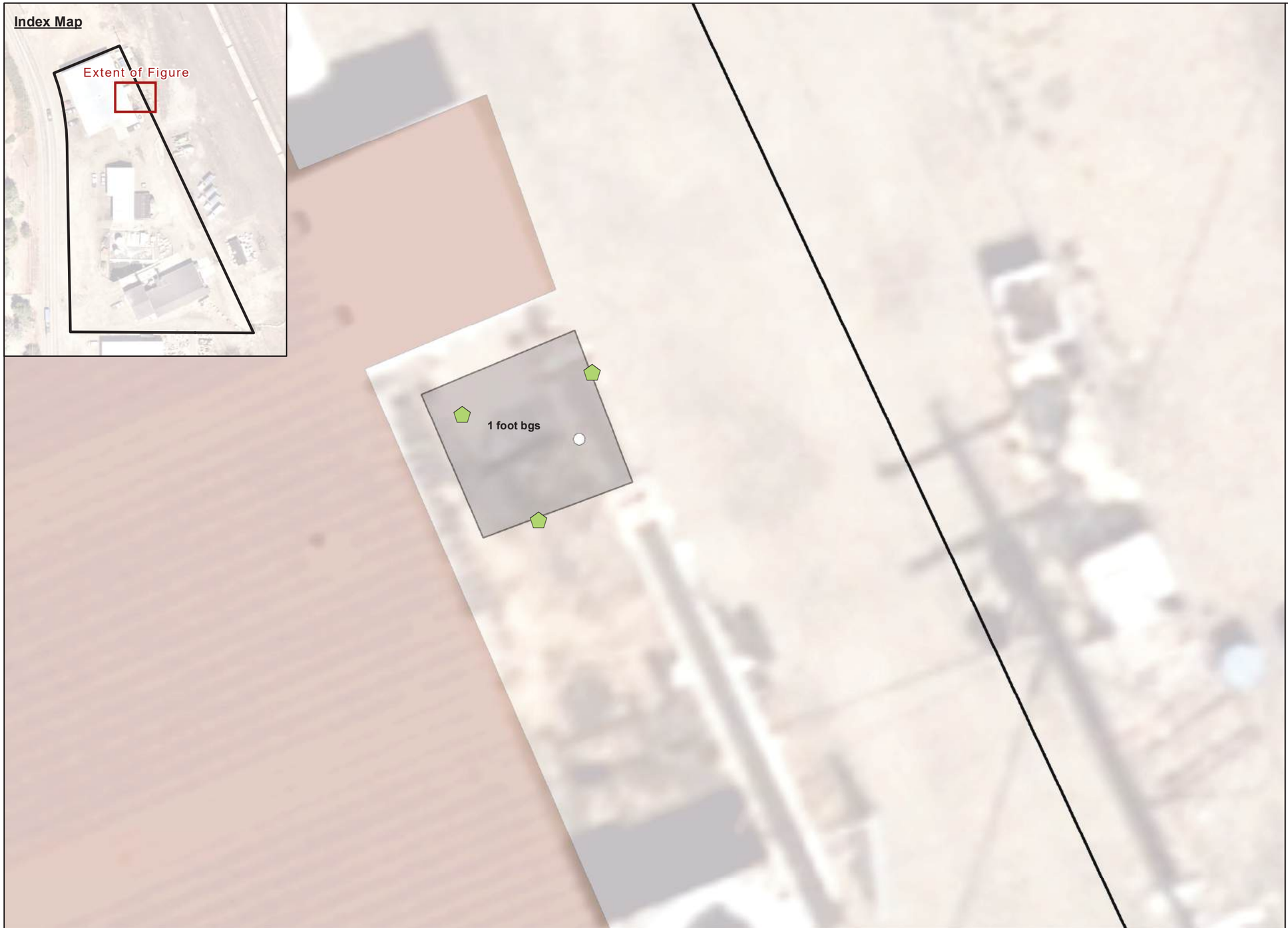
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Engineering Design Report
Smith-Kem Site
Ellensburg, Washington

Figure 7.5
Compliance Monitoring Data and Locations—AOC 5

I:\GIS\Projects\PKG-SmithKem\MXD\15-Engineering Design Report\Figure 7.5 Compliance Monitoring Data and Locations AOC 5.mxd
9/19/2024



Legend

Property Boundary

Compliance Sample Location

Proposed Confirmation Sample

Excavation Features and Existing Infrastructure

Excavate to 1 foot bgs

Building or Concrete to Be Protected

Non-Confirmation Soil Sample Location

Note:
· Aerial imagery obtained from Nearmap, 2022.

Abbreviations:
AOC = Area of concern
bgs = Below ground surface

N

0 2.5 5 10

Scale in Feet

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Engineering Design Report
Smith-Kem Site
Ellensburg, Washington

Figure 7.6
Compliance Monitoring Locations—FS-01

I:\GIS\Projects\PKG-SmithKem\MXD\15-Engineering Design Report\Figure 7.6 Compliance Monitoring Locations FS-01.mxd
9/19/2024

Engineering Design Report

Smith-Kem Site

Appendix A
Pre-Remedial Design Investigation Laboratory and Data Validation Reports

Attachment A.1
Pre-Remedial Design Investigation Laboratory Reports

Analytical Resources, LLC
Analytical Chemists and Consultants

07 March 2024

Pamela Osterhout
Floyd - Snider
601 Union Street Two Union Square, Suite 600
Seattle, WA 98101-2341

RE: Smith-Kem ([none])

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
23I0156	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclosed Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC

Kelly Bottem, Client Services Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Cert# 100006-012

AR, LLC

23I0156

SAMPLE CHAIN OF CUSTODY

Report To Pamela Osterhout

Company Floyd Snider

Address 601 Union St Ste 6600

City, State, ZIP Seattle, WA 98101

Phone _____ Email _____

SAMPLERS (*signature*)	
PROJECT NAME: Smith Kem	PO #
REMARKS: Level 4 DV Package Project specific RLs? - Yes / No	INVOICE TO

TURNAROUND TIME
- [x] Standard turnaround
- [ ] RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
- [x] Archive samples
- [ ] Other
Default: Dispose after 30 days

	Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Dioxins/furans isopa 1613b			Archive	Notes
9	ADC3-01-0.5-1.0		9/7/23	08:05	Soil	1											✓	
2	ADC3-01-2.0			08:10		1											✓	
4	ADC3-02-0.5-1.0			08:25		1											✓	
1	ADC3-02-2.0			08:30		1											✓	
8	ADC3-03-0.5-1.0			08:45		1											✓	
10	ADC3-103-0.5-1.0			08:47		1											✓	
5	ADC3-03-2.0			08:50		1											✓	
6	ADC3-04-0.5-1.0			09:00		1											✓	
3	ADC3-04-2.0			09:05		1											✓	
7	ADC3-05-0.5-1.0			09:15		1											✓	

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		P. Osterhout	Floyd Snider	9/8/23	11:58
Received by:		Jacob Leathe	AR, LLC	09/08/23	1158
Relinquished by:					
Received by:					

~~Friedman & Bruya, Inc.~~
~~Ph. (206) 285-8282~~

AR1

23I0156

SAMPLE CHAIN OF CUSTODY

Report To Pamela Osterhout
Company Floyd Snider
Address
City, State, ZIP see page 1
Phone Email

SAMPLERS (*signature*)
PROJECT NAME: Smith Kem
PO #
REMARKS
Project specific RLs? - Yes / No
INVOICE TO

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Dioxins/Furans 1613			Archive	Notes
ADC3-05-2.0		9/7/23	09:20	Soil	1											✓	
H4H-01-0.5-2.0			09:40		1											✓	
H4H-01-2.5			09:45		1											✓	
H4H-02-0.5-1.0			10:00		1											✓	
H4H-02-2.0			10:05		1											✓	
H4H-03-0.5-1.0			10:10		1											✓	
H4H-03-2.0			10:15		1											✓	
H4H-04-0.5-1.0			10:20		1											✓	
H4H-04-2.0			10:25		1											✓	
H4H-05-0.5-1.0			10:35		1											✓	

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	P Osterhout	FIS	9/8/23	11:58
Received by:	Jacob Leather	ARLL	09/08/23	1158
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

23I0156

SAMPLE CHAIN OF CUSTODY

Report To Pamela Osterhout
Company Floyd Snider
Address
City, State, ZIP (see page 1)
Phone Email

SAMPLERS (*signature*)
PROJECT NAME: Smith Kem
PO #
REMARKS
Project specific RLs? - Yes / No
INVOICE TO

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Dioxins/furans 1613B			Archive	Notes
H4H-05-2.0		9/7/23	10:40	Soil	1											✓	
H4H-06-0.5-1.0			10:50		1											✓	
H4H-06-2.0			10:55		1											✓	
H4H-07-0.5-1.0			11:05		1											✓	
H4H-07-2.0			11:10		1											✓	

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	P. Osterhout	F/S	9/8/23	1159
Received by:	Jacee Shaffer	ARI, LLC	9/8/23	11:58
Relinquished by:				
Received by:				

~~Friedman & Bruya, Inc.~~
~~Ph. (206) 285-8282~~
ARI

AR, LLC

23I0156

SAMPLE CHAIN OF CUSTODY

Report To Pamela Osterhout
Company Floyd Snider
Address 601 Union St Ste 6000
City, State, ZIP Seattle, WA 98101
Phone _____ Email _____

SAMPLERS (*signature*) Pam Osterhout
PROJECT NAME: Smith Kem
PO #:
REMARKS: Level 4 DV Package
Project specific RLs? - Yes / No
INVOICE TO:

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Archive samples
☐ Other
Default: Dispose after 30 days

Four analyses requested by P. Osterhout on 10/20/2023

	Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Dioxins/Furans isopa 1613b			Archive	Notes
1	ADC3-01-0.5-1.0		9/7/23	08:05	Soil	1											✓	
2	ADC3-01-2.0			08:10		1											✓	
3	ADC3-02-0.5-1.0			08:25		1											✓	
4	ADC3-02-2.0			08:30		1											✓	
5	ADC3-03-0.5-1.0			08:45		1								X			✓	
6	ADC3-103-0.5-1.0			08:47		1								X			✓	
7	ADC3-03-2.0			08:50		1											✓	
8	ADC3-04-0.5-1.0			09:00		1								X			✓	
9	ADC3-04-2.0			09:05		1											✓	
10	ADC3-05-0.5-1.0			09:15		1								X			✓	

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Pam Osterhout	P. Osterhout	Floyd Snider	9/8/23	11:58
Received by:		Jacob Leathe	AR, LLC	09/08/23	1158
Relinquished by:					
Received by:					

Friedman & Bruya, Inc.
Ph. (206) 285-8282

AR1

23I0156

SAMPLE CHAIN OF CUSTODY

Report To Pamela Osterhout
Company Floyd Snider
Address
City, State, ZIP see page 1
Phone Email

SAMPLERS (*signature*)
PROJECT NAME: Smith Kem
PO #
REMARKS
Project specific RLs? - Yes / No
INVOICE TO

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Dioxins/Furans 1613B			Archive	Notes
ADC3-05-2.0		9/7/23	09:20	Soil	1											✓	
H4H-01-0.5-2.0			09:40		1											✓	
H4H-01-2.5			09:45		1											✓	
H4H-02-0.5-1.0			10:00		1											✓	
H4H-02-2.0			10:05		1											✓	
H4H-03-0.5-1.0			10:10		1											✓	
H4H-03-2.0			10:15		1											✓	
H4H-04-0.5-1.0			10:20		1											✓	
H4H-04-2.0			10:25		1											✓	
H4H-05-0.5-1.0			10:35		1											✓	

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	P Osterhout	FIS	9/8/23	11:58
Received by:	Jacob Leathe	ARLL	09/08/23	1158
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

23I0156

SAMPLE CHAIN OF CUSTODY

Report To Pamela Osterhout
Company Floyd Snider
Address
City, State, ZIP (see page 1)
Phone Email

SAMPLERS (*signature*)
PROJECT NAME: Smith Kem
PO #
REMARKS
Project specific RLs? - Yes / No
INVOICE TO

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Dioxin/furan 1613B			Archive	Notes
H4H-05-2.0		9/7/23	10:40	Soil	1											✓	
H4H-06-0.5-1.0			10:50		1											✓	
H4H-06-2.0			10:55		1											✓	
H4H-07-0.5-1.0			11:05		1											✓	
H4H-07-2.0			11:10		1											✓	

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	P. Osterhout	F/S	9/8/23	1159
Received by:	Jacob Shafer	ARI LLC	09/08/23	1158
Relinquished by:				
Received by:				

~~Friedman & Bruya, Inc.~~
~~Ph. (206) 285-8282~~
ARI

AR, LLC

23I0156

SAMPLE CHAIN OF CUSTODY

Report To Pamela Osterhout
Company Floyd Snider
Address 601 Union St Ste 6000
City, State, ZIP Seattle, WA 98101
Phone _____ Email _____

SAMPLERS (*signature*) Pam Osterhout
PROJECT NAME: Smith Kem
PO #:
REMARKS: Level 4 DV Package
Project specific RLs? - Yes / No
INVOICE TO:

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Archive samples
☐ Other
Default: Dispose after 30 days

Four analyses requested by P. Osterhout on 10/20/2023

	Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Dioxins/Furans isopa 1613b			Archive	Notes
1	ADC3-01-0.5-1.0		9/7/23	08:05	Soil	1											✓	
2	ADC3-01-2.0			08:10		1											✓	
3	ADC3-02-0.5-1.0			08:25		1											✓	
4	ADC3-02-2.0			08:30		1											✓	
5	ADC3-03-0.5-1.0			08:45		1								X			✓	
6	ADC3-103-0.5-1.0			08:47		1								X			✓	
7	ADC3-03-2.0			08:50		1											✓	
8	ADC3-04-0.5-1.0			09:00		1								X			✓	
9	ADC3-04-2.0			09:05		1											✓	
10	ADC3-05-0.5-1.0			09:15		1								X			✓	

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Pam Osterhout	P. Osterhout	Floyd Snider	9/8/23	11:58
Received by:		Jacob Leathe	AR, LLC	09/08/23	1158
Relinquished by:					
Received by:					

Friedman & Bruya, Inc.
Ph. (206) 285-8282

AR1

23I0156

SAMPLE CHAIN OF CUSTODY

Report To Pamela Osterhout
Company Floyd Snider
Address
City, State, ZIP see page 1
Phone Email

SAMPLERS (*signature*)
PROJECT NAME: Smith Kem
PO #
REMARKS
Project specific RLs? - Yes / No
INVOICE TO

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Archive samples
☐ Other
Default: Dispose after 30 days

4 Additional analyses requested by P. Osterhout on 12/20/23
1 additional analysis requested by PO on \ 1/19/2024

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Dioxins/Furans 1613B			Archive	Notes
ADC3-05-2.0		9/7/23	09:20	Soil	1											✓	
H4H-01-0.5-2.0			09:40		1								X			✓	
H4H-01-2.5			09:45		1											✓	
H4H-02-0.5-1.0			10:00		1								X			✓	
H4H-02-2.0			10:05		1											✓	
H4H-03-0.5-1.0			10:10		1								X			✓	
H4H-03-2.0			10:15		1											✓	
H4H-04-0.5-1.0			10:20		1								X			✓	
H4H-04-2.0			10:25		1											✓	
H4H-05-0.5-1.0			10:35		1								X			✓	

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	P Osterhout	FIS	9/8/23	11:58
Received by:	Jacob Haffner	ARLL	09/08/23	1158
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

23I0156

SAMPLE CHAIN OF CUSTODY

Report To Pamela Osterhout
Company Floyd Snider
Address
City, State, ZIP (see page 1)
Phone Email

SAMPLERS (*signature*)
PROJECT NAME: Smith Kem
PO #
REMARKS
Project specific RLs? - Yes / No
INVOICE TO

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Dioxin/furan 1613B			Archive	Notes
H4H-05-2.0		9/7/23	10:40	Soil	1											✓	
H4H-06-0.5-1.0			10:50		1											✓	
H4H-06-2.0			10:55		1											✓	
H4H-07-0.5-1.0			11:05		1											✓	
H4H-07-2.0			11:10		1											✓	

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	P. Osterhout	F/S	9/8/23	1159
Received by:	Jacob Shafer	ARI LLC	09/08/23	1158
Relinquished by:				
Received by:				

~~Friedman & Bruya, Inc.~~
~~Ph. (206) 285-8282~~
ARI

Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Floyd - Snide Project Name: Smith Ken

COC No(s): ____ (NA) Delivered by: Fed-Ex UPS Courier Hand Delivered Other: ____

Assigned ARI Job No: 23I0196 Tracking No: ____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1158 5.7

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: IR00708

Cooler Accepted by: JR Date: 09/08/23 Time: 1158

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
How were bottles sealed in plastic bags?	Individually	Grouped	(Not) PZB 09/11/23
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		YES	(NO)
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	(NA)	YES	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		

Were the sample(s) split by ARI? (NA) YES Date/Time: ____ Equipment: ____ Split by: ____

Samples Logged by: PZB Date: 09/11/23 Time: 9:21 Labels checked by: PZB

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC
H44-01-0.5-1.0	H44-01-0.5-2.0		

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Analytical Resources, LLC
Analytical Chemists and Consultants

Floyd - Snider	Project:	Smith-Kem	
601 Union Street Two Union Square, Suite 600	Project Number:	[none]	**Reported:**
Seattle, WA 98101-2341	Project Manager:	Pamela Osterhout	03/07/2024 15:51

ANALYTICAL REPORT FOR SAMPLES

Laboratory ID	Sample ID	Matrix	Date Sampled	Date Received
23I0156-01	AOC3-01-0.5-1.0	Solid	09/07/23 08:05	09/08/23 11:58
23I0156-02	AOC3-01-2.0	Solid	09/07/23 08:10	09/08/23 11:58
23I0156-03	AOC3-02-0.5-1.0	Solid	09/07/23 08:25	09/08/23 11:58
23I0156-04	AOC3-02-2.0	Solid	09/07/23 08:30	09/08/23 11:58
23I0156-05	AOC3-03-0.5-1.0	Solid	09/07/23 08:45	09/08/23 11:58
23I0156-06	AOC3-103-0.5-1.0	Solid	09/07/23 08:47	09/08/23 11:58
23I0156-07	AOC3-03-2.0	Solid	09/07/23 08:50	09/08/23 11:58
23I0156-08	AOC3-04-0.5-1.0	Solid	09/07/23 09:00	09/08/23 11:58
23I0156-09	AOC3-04-2.0	Solid	09/07/23 09:05	09/08/23 11:58
23I0156-10	AOC3-05-0.5-1.0	Solid	09/07/23 09:15	09/08/23 11:58
23I0156-11	AOC3-05-2.0	Solid	09/07/23 09:20	09/08/23 11:58
23I0156-12	H4H-01-0.5-1.0	Solid	09/07/23 09:40	09/08/23 11:58
23I0156-13	H4H-01-2.5	Solid	09/07/23 09:45	09/08/23 11:58
23I0156-14	H4H-02-0.5-1.0	Solid	09/07/23 10:00	09/08/23 11:58
23I0156-15	H4H-02-2.0	Solid	09/07/23 10:05	09/08/23 11:58
23I0156-16	H4H-03-0.5-1.0	Solid	09/07/23 10:10	09/08/23 11:58
23I0156-17	H4H-03-2.0	Solid	09/07/23 10:15	09/08/23 11:58
23I0156-18	H4H-04-0.5-1.0	Solid	09/07/23 10:20	09/08/23 11:58
23I0156-19	H4H-04-2.0	Solid	09/07/23 10:25	09/08/23 11:58
23I0156-20	H4H-05-0.5-1.0	Solid	09/07/23 10:35	09/08/23 11:58
23I0156-21	H4H-05-2.0	Solid	09/07/23 10:40	09/08/23 11:58
23I0156-22	H4H-06-0.5-1.0	Solid	09/07/23 10:50	09/08/23 11:58
23I0156-23	H4H-06-2.0	Solid	09/07/23 10:55	09/08/23 11:58
23I0156-24	H4H-07-0.5-1.0	Solid	09/07/23 11:05	09/08/23 11:58
23I0156-25	H4H-07-2.0	Solid	09/07/23 11:10	09/08/23 11:58

Floyd - Snider	Project: Smith-Kem	
601 Union Street Two Union Square, Suite 600	Project Number: [none]	**Reported:**
Seattle WA, 98101-2341	Project Manager: Pamela Osterhout	07-Mar-2024 15:51

Case Narrative

Dioxin/Furans - EPA Method 1613

The sample(s) were extracted and analyzed within the recommended holding times for frozen samples. Analysis was performed using an application specific column developed by Restek. The RTX-Dioxin2 column has unique isomer separation for the 2378-TCDF, eliminating the need for confirmation analysis.

Initial and continuing calibrations were within method requirements.

Labeled internal standard areas were within limits.

The cleanup surrogate percent recoveries were within control limits.

The method blank(s) contained positive results. Samples that contain analyte have been flagged with a "B" qualifer.

The OPR (Ongoing Precision and Recovery) standard percent recoveries were within control limits.

The duplicate (DUP) relative percent difference (RPD) were within advisory control limits with the exception of analytes flagged on the associated forms.

QUALIFIERS AND NOTES

Qualifier	Definition
X	Indicates possible CDPE interference.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
J	Estimated concentration value detected below the reporting limit.
EMPC	Estimated Maximum Possible Concentration qualifier for HRGCMS Dioxin
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
B	This analyte was detected in the method blank.
*	Flagged value is not within established control limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Analytical Resources, LLC
Analytical Chemists and Consultants

H4H-05-0.5-1.0

Form 1
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23I0156
Client:	Floyd - Snider				
Project:	Smith-Kem				
Matrix:	Soil	Laboratory ID:	23I0156-20 A	File ID:	24030449
Sampled:	09/07/23 10:35	Prepared:	01/30/24 13:37	Analyzed:	03/06/24 02:10
% Solids:	81.24	Preparation:	EPA 1613	Initial/Final:	12.31 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SMC0054	Calibration:	HB00095
Batch:	BMA0737	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.734	0.655-0.886	0.252	1.00	6.43	ng/kg	X
1746-01-6	2,3,7,8-TCDD	1	0.571	0.655-0.886	0.100	1.00	0.386	ng/kg	EMPC, J
57117-41-6	1,2,3,7,8-PeCDF	1	1.071	1.318-1.783	0.406	1.00	1.54	ng/kg	EMPC
57117-31-4	2,3,4,7,8-PeCDF	1	1.579	1.318-1.783	0.391	1.00	10.5	ng/kg	
40321-76-4	1,2,3,7,8-PeCDD	1	1.379	1.318-1.783	0.408	1.00	1.92	ng/kg	
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.277	1.054-1.426	0.164	1.00	4.19	ng/kg	
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.308	1.054-1.426	0.159	1.00	11.0	ng/kg	
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.246	1.054-1.426	0.167	1.00	30.3	ng/kg	
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.199	1.054-1.426	0.199	1.00	3.87	ng/kg	
39227-28-6	1,2,3,4,7,8-HxCDD	1	0.918	1.054-1.426	0.154	1.00	0.776	ng/kg	EMPC, J
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.238	1.054-1.426	0.152	1.00	3.18	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.287	1.054-1.426	0.166	1.00	1.71	ng/kg	
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.030	0.893-1.208	0.143	1.00	16.6	ng/kg	
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	1.078	0.893-1.208	0.187	1.00	1.32	ng/kg	
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.073	0.893-1.208	0.220	2.50	18.0	ng/kg	
39001-02-0	OCDF	1	0.928	0.757-1.024	0.347	2.50	23.3	ng/kg	
3268-87-9	OCDD	1	0.883	0.757-1.024	0.321	10.0	91.9	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			1.00	302	ng/kg
41903-57-5	Total TCDD	1	0.000			1.00	5.34	ng/kg
30402-15-4	Total PeCDF	1	0.000			1.00	741	ng/kg
36088-22-9	Total PeCDD	1	0.000			1.00	16.1	ng/kg
55684-94-1	Total HxCDF	1	0.000			1.00	358	ng/kg
34465-46-8	Total HxCDD	1	0.000			1.00	25.0	ng/kg
38998-75-3	Total HpCDF	1	0.000			1.00	44.8	ng/kg
37871-00-4	Total HpCDD	1	0.000			1.00	31.9	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 12.04

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 12.04

Analytical Resources, Incorporated
Analytical Chemists and Consultants

H4H-05-0.5-1.0

Form 2

ORGANIC ANALYSIS DATA SHEET

EPA 1613B

Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23I0156
Client:	Floyd - Snider			Project:	Smith-Kem
Matrix:	Soil	Laboratory ID:	23I0156-20	File ID:	24030449
Sampled:	09/07/23 10:35	Prepared:	01/30/24 13:37	Analyzed:	03/06/24 02:10
Solids Wt%:	81.24	Preparation:	EPA 1613	Initial/Final:	12.31 g / 20 uL
Result Basis:	Dry	Sequence:	SMC0054	Calibration:	HB00095
Batch:	BMA0737	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.689	0.655-0.886	0.106	81.1	24 - 169 %	
13C12-2,3,7,8-TCDD		0.777	0.655-0.886	0.161	93.4	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.607	1.318-1.783	0.220	96.8	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.623	1.318-1.783	0.235	99.1	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.661	1.318-1.783	0.203	84.4	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.526	0.434-0.587	0.247	99.5	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.535	0.434-0.587	0.216	94.9	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.531	0.434-0.587	0.250	98.1	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.543	0.434-0.587	0.289	105	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.244	1.054-1.426	0.259	99.2	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.255	1.054-1.426	0.222	90.3	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.449	0.374-0.506	0.351	100	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.441	0.374-0.506	0.479	117	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.078	0.893-1.208	0.334	108	23 - 140 %	
13C12-OCDD		0.893	0.757-1.024	0.477	108	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.054	91.9	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\240304IH1.qld
Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
Printed: Wednesday, March 06, 2024 10:51:20 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240306.mdb 06 Mar 2024 10:17:07
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

ID: 23I0156-20, Name: 24030449, Date: 06-Mar-2024, Time: 02:10:45, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.068	1.001	9.186e3	1.251e4	0.980	0.734	0.770	2233	2079	1.44e5	1.97e5	64.4	94.9	NO	bb	bb	3.216
12378-PeCDF	29.216	1.001	2.474e3	2.309e3	1.047	1.071	1.550	3426	2983	3.92e4	3.37e4	11.4	11.3	YES	bb	bb	0.770
23478-PeCDF	30.553	1.000	2.108e4	1.335e4	1.156	1.579	1.550	3426	2983	2.89e5	2.03e5	84.3	68.1	NO	db	db	5.245
123478-HxCDF	34.230	1.000	5.899e3	4.619e3	1.224	1.277	1.240	1027	1084	8.68e4	7.53e4	84.5	69.5	NO	bd	bd	2.095
234678-HxCDF	35.222	0.999	4.150e4	3.331e4	1.235	1.246	1.240	1027	1084	3.87e5	3.01e5	376.9	277.4	NO	bd	bb	15.157
123678-HxCDF	34.375	1.001	1.658e4	1.267e4	1.193	1.308	1.240	1027	1084	2.46e5	1.96e5	239.7	180.8	NO	db	db	5.476
123789-HxCDF	36.269	0.999	4.290e3	3.579e3	1.100	1.199	1.240	1027	1084	6.79e4	5.43e4	66.1	50.1	NO	bb	bb	1.933
1234678-HpCDF	38.196	1.000	2.050e4	1.990e4	1.392	1.030	1.050	886	1052	3.49e5	3.21e5	394.4	305.6	NO	bb	bb	8.277
1234789-HpCDF	40.357	1.000	1.421e3	1.318e3	1.381	1.078	1.050	886	1052	2.46e4	2.48e4	27.8	23.6	NO	bd	bb	0.662
OCDF	44.457	1.005	1.874e4	2.019e4	1.222	0.928	0.890	1487	914	2.24e5	2.30e5	150.6	251.3	NO	bb	bb	11.651
2378-TCDD	25.704	1.001	4.750e2	8.314e2	1.227	0.571	0.770	992	759	6.96e3	1.23e4	7.0	16.1	YES	bd	bd	0.193
12378-PeCDD	30.821	1.001	1.924e3	1.395e3	0.964	1.379	1.550	1185	2332	2.72e4	1.93e4	23.0	8.3	NO	bd	bd	0.960
123478-HxCDD	35.389	1.000	5.898e2	6.428e2	0.841	0.918	1.240	667	628	1.02e4	1.14e4	15.3	18.1	YES	dd	MM	0.388
123678-HxCDD	35.511	1.001	2.941e3	2.375e3	0.833	1.238	1.240	667	628	4.66e4	3.87e4	69.8	61.7	NO	dd	dd	1.593
123789-HxCDD	35.901	1.012	1.442e3	1.121e3	0.770	1.287	1.240	667	628	2.65e4	1.98e4	39.7	31.6	NO	bd	bb	0.854
1234678-HpCDD	39.656	1.000	1.472e4	1.372e4	0.984	1.073	1.050	739	992	2.22e5	2.12e5	300.0	213.7	NO	bb	bb	9.024
OCDD	44.237	1.000	5.524e4	6.256e4	0.938	0.883	0.890	882	820	6.67e5	7.70e5	756.2	938.9	NO	bd	bb	45.966
13C-2378-TCDF	25.040	1.007	2.809e5	4.076e5	1.655	0.689	0.770	1172	1225	4.28e6	6.32e6	3650.9	5157.7	NO	bb	bb	81.089
13C-12378-PeCDF	29.194	1.175	3.659e5	2.276e5	1.196	1.607	1.550	1732	1851	5.58e6	3.43e6	3219.9	1852.6	NO	bb	bb	96.765
13C-23478-PeCDF	30.542	1.229	3.514e5	2.165e5	1.117	1.623	1.550	1732	1851	5.26e6	3.28e6	3036.9	1773.3	NO	bb	bb	99.112
13C-123478-HxCDF	34.219	0.954	1.414e5	2.689e5	1.028	0.526	0.510	1217	1429	2.17e6	4.11e6	1783.1	2878.8	NO	bd	bd	99.473
13C-123678-HxCDF	34.353	0.957	1.560e5	2.916e5	1.176	0.535	0.510	1217	1429	2.32e6	4.41e6	1908.3	3090.0	NO	db	db	94.893
13C-234678-HxCDF	35.255	0.983	1.387e5	2.610e5	1.016	0.531	0.510	1217	1429	2.13e6	3.94e6	1750.4	2761.3	NO	bb	bb	98.067
13C-123789-HxCDF	36.291	1.011	1.302e5	2.400e5	0.879	0.543	0.510	1217	1429	2.04e6	3.81e6	1675.7	2664.8	NO	bb	bb	104.947
13C-1234678-HpCDF	38.185	1.064	1.086e5	2.419e5	0.870	0.449	0.440	1320	1862	1.81e6	4.04e6	1369.0	2170.4	NO	bb	bb	100.438
13C-1234789-HpCDF	40.346	1.125	9.173e4	2.078e5	0.638	0.441	0.440	1320	1862	1.38e6	3.08e6	1044.0	1654.3	NO	bb	bb	117.089
13C-1234-TCDD	24.856	0.000	2.293e5	2.837e5	1.000	0.808	0.770	1523	1009	3.66e6	4.49e6	2402.0	4454.1	NO	bb	bb	100.000
13C-2378-TCDD	25.676	1.033	2.412e5	3.103e5	1.151	0.777	0.770	1523	1009	3.75e6	4.75e6	2462.9	4711.0	NO	bb	bb	93.410
13C-12378-PeCDD	30.799	1.239	2.238e5	1.348e5	0.828	1.661	1.550	1175	1122	3.34e6	2.00e6	2846.7	1785.7	NO	bb	bb	84.391
13C-123478-HxCDD	35.377	0.986	2.095e5	1.684e5	0.950	1.244	1.240	1103	1465	3.32e6	2.66e6	3006.9	1818.5	NO	bd	bd	99.197
13C-123678-HxCDD	35.489	0.989	2.231e5	1.777e5	1.107	1.255	1.240	1103	1465	3.42e6	2.67e6	3098.2	1824.7	NO	dd	dd	90.271
13C-1234678-HpCDD	39.645	1.105	1.661e5	1.541e5	0.737	1.078	1.050	1181	1385	2.48e6	2.31e6	2101.8	1668.7	NO	bb	bb	108.257
13C-OCDD	44.228	1.233	2.579e5	2.889e5	0.633	0.893	0.890	1630	1518	3.21e6	3.57e6	1967.4	2352.8	NO	bb	bb	215.417
13C-123789-HxCDD	35.879	0.000	2.213e5	1.799e5	1.000	1.230	1.240	1103	1465	3.45e6	2.85e6	3130.2	1946.4	NO	bb	bb	100.000
37CL-2378-TCDD	25.690	1.034	2.475e5		1.312			967		3.75e6		3878.1			bb		36.768

Dataset: T:\Autospec\Processed Data Batch\240304IH1.qld
Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
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ID: 23I0156-20, Name: 24030449, Date: 06-Mar-2024, Time: 02:10:45, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.565	0.861	1.752e3	1.529e3	1.247	1.146	0.770	2233	2079	3.40e4	2.89e4	15.2	13.9	YES	db	db	0.382
1289-TCDF	26.509	1.059	5.072e3	5.852e3	0.916	0.867	0.770	2233	2079	6.71e4	8.13e4	30.1	39.1	NO	bb	bb	1.733
13468-PECDF	26.495	0.908	7.923e5	5.031e5	1.353	1.575	1.550	835	901	1.20e7	7.69e6	14385.5	8536.1	NO	bb	bb	161.277
12389-PECDF	31.489	1.079	5.219e3	2.625e3	0.925	1.988	1.550	3426	2983	7.83e4	4.18e4	22.9	14.0	YES	bd	bd	1.428
123468-HXCDF	32.525	0.951	3.887e4	3.118e4	1.335	1.247	1.240	1027	1084	6.06e5	4.79e5	589.6	442.3	NO	bb	bb	12.782
1368-TCDD	22.836	0.889	1.838e3	2.281e3	1.120	0.806	0.770	992	759	2.81e4	3.77e4	28.4	49.6	NO	bb	bb	0.667
1289-TCDD	26.212	1.021	6.230e2	6.193e2	0.966	1.006	0.770	992	759	8.99e3	7.81e3	9.1	10.3	YES	bb	bb	0.233
12479-PECDD	28.136	0.914	1.008e4	6.717e3	1.859	1.501	1.550	1185	2332	1.08e5	7.44e4	91.3	31.9	NO	db	bb	2.520
12389-PECDD	31.222	1.014	4.926e2	4.208e2	1.154	1.171	1.550	1185	2332	8.51e3	5.98e3	7.2	2.6	YES	bb	bb	0.221
124679-HXCDD	33.327	0.942	7.591e3	5.820e3	1.006	1.304	1.240	667	628	1.19e5	8.79e4	179.0	140.1	NO	bb	bb	3.526
1234679-HPCDD	38.642	0.975	1.303e4	1.317e4	1.184	0.989	1.050	739	992	2.10e5	2.27e5	284.4	228.4	NO	bd	bb	6.911
Total-tetrafurans			4.919e5		1.048			2233		8.00e6							151.130
Total-penta1			7.923e5					835		1.20e7							161.277
Total-pentafurans			7.769e5		1.043			3426		9.88e6							209.291
Total-hexafurans			4.974e5		1.217			1027		7.39e6							178.832
Total-heptafurans			5.428e4		1.387			886		9.12e5							22.394
Total-Furans			2.632e6		1.180			2233		3.84e7							734.575
Total-tetradioxins			7.278e3		1.104			992		1.06e5							2.668
Total-pentadioxins			2.505e4		1.326			1185		3.29e5							8.067
Total-hexadioxins			2.420e4		0.863			667		3.41e5							12.499
Total-heptadioxins			2.775e4		1.084			739		4.32e5							15.936
Total-Dioxins			1.395e5		1.065			992		1.87e6							85.135
Total-TEQ			2.771e6					992		4.03e7							819.710
FUNCTION1 PFK			0.000e0					212661		0.00e0							
FUNCTION2 PFK			0.000e0					209968		0.00e0							
FUNCTION3 PFK			5.008e6					169504		2.23e7							0.000
FUNCTION4 PFK			6.891e6					189194		7.50e7							
FUNCTION5 PFK			0.000e0					119138		0.00e0							
FUNCTION1 HXCD...			2.768e4					653		4.43e5							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			2.689e3					480		4.95e4							0.000
FUNCTION3 OCDPE			2.447e2					425		5.50e3							0.000
FUNCTION4 NCDPE			5.643e3					524		9.49e4							0.000
FUNCTION5 DCDPE			0.000e0					326		0.00e0							

Method: T:\Autospec\Methods\Dioxin240306.mdb 06 Mar 2024 10:17:07
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

ID: 23I0156-20, Name: 24030449, Date: 06-Mar-2024, Time: 02:10:45, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.97	1.008e5	1.197e5	1.048	0.84	0.77	704.8	YES	NO	bb	bb	30.569
2	Total-tetrafurans	23.83	1.750e3	2.041e3	1.048	0.86	0.77	15.4	YES	NO	db	db	0.526
3	Total-tetrafurans	23.05	1.122e5	1.346e5	1.048	0.83	0.77	825.8	YES	NO	bb	bd	34.213
4	Total-tetrafurans	22.81	4.964e4	6.370e4	1.048	0.78	0.77	345.5	YES	NO	db	db	15.713
5	Total-tetrafurans	22.69	7.180e2	8.796e2	1.048	0.82	0.77	5.2	YES	NO	bd	bd	0.221
6	Total-tetrafurans	22.40	1.609e5	1.956e5	1.048	0.82	0.77	1223.9	YES	NO	bb	bb	49.425
7	Total-tetrafurans	21.82	1.804e4	2.053e4	1.048	0.88	0.77	128.7	YES	NO	bb	bb	5.348
8	1289-TCDF	26.51	5.072e3	5.852e3	0.916	0.87	0.77	30.1	YES	NO	bb	bb	1.733
9	Total-tetrafurans	26.07	4.163e3	5.384e3	1.048	0.77	0.77	29.8	YES	NO	bd	bb	1.324
10	Total-tetrafurans	25.42	1.676e4	1.951e4	1.048	0.86	0.77	121.9	YES	NO	db	db	5.029
11	2378-TCDF	25.07	9.186e3	1.251e4	0.980	0.73	0.77	64.4	YES	NO	bb	bb	3.216
12	Total-tetrafurans	24.40	6.524e3	7.753e3	1.048	0.84	0.77	41.2	YES	NO	bb	bb	1.979
13	Total-tetrafurans	24.14	6.105e3	7.129e3	1.048	0.86	0.77	45.7	YES	NO	bb	bb	1.835

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.49	7.923e5	5.031e5	1.353	1.57	1.55	14385.5	YES	NO	bb	bb	161.277

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.15	4.332e5	2.745e5	1.043	1.58	1.55	1389.7	YES	NO	dd	db	116.870
2	Total-pentafurans	27.96	1.981e4	1.133e4	1.043	1.75	1.55	92.8	YES	NO	dd	bd	5.142
3	23478-PeCDF	30.55	2.108e4	1.335e4	1.156	1.58	1.55	84.3	YES	NO	db	db	5.245
4	Total-pentafurans	30.40	1.199e5	7.779e4	1.043	1.54	1.55	498.7	YES	NO	dd	dd	32.639
5	Total-pentafurans	30.30	3.060e3	1.880e3	1.043	1.63	1.55	16.6	YES	NO	bd	bd	0.816
6	Total-pentafurans	30.00	2.373e3	1.692e3	1.043	1.40	1.55	9.2	YES	NO	bb	bb	0.671
7	Total-pentafurans	29.41	4.215e4	2.645e4	1.043	1.59	1.55	188.5	YES	NO	bd	bb	11.328
8	Total-pentafurans	28.86	1.219e5	7.753e4	1.043	1.57	1.55	537.8	YES	NO	db	db	32.927
9	Total-pentafurans	28.75	1.354e4	8.581e3	1.043	1.58	1.55	68.2	YES	NO	bd	bd	3.653

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ID: 23l0156-20, Name: 24030449, Date: 06-Mar-2024, Time: 02:10:45, Conditions: AUTOSPEC01, User: pk

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexafurans	33.59	1.750e5	1.389e5	1.217	1.26	1.24	2715.5	YES	NO	bb	bb	63.347
2	Total-hexafurans	33.28	2.453e3	1.877e3	1.217	1.31	1.24	35.9	YES	NO	bb	bb	0.874
3	Total-hexafurans	32.75	2.120e5	1.687e5	1.217	1.26	1.24	3075.3	YES	NO	bb	bb	76.849
4	123468-HXCDF	32.53	3.887e4	3.118e4	1.335	1.25	1.24	589.6	YES	NO	bb	bb	12.782
5	123789-HxCDF	36.27	4.290e3	3.579e3	1.100	1.20	1.24	66.1	YES	NO	bb	bb	1.933
6	234678-HxCDF	35.22	4.150e4	3.331e4	1.235	1.25	1.24	376.9	YES	NO	bd	bb	15.157
7	Total-hexafurans	34.72	8.289e2	7.504e2	1.217	1.10	1.24	11.4	YES	NO	bb	bb	0.319
8	123678-HxCDF	34.37	1.658e4	1.267e4	1.193	1.31	1.24	239.7	YES	NO	db	db	5.476
9	123478-HxCDF	34.23	5.899e3	4.619e3	1.224	1.28	1.24	84.5	YES	NO	bd	bd	2.095

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.36	1.421e3	1.318e3	1.381	1.08	1.05	27.8	YES	NO	bd	bb	0.662
2	Total-heptafurans	38.83	3.205e4	2.798e4	1.387	1.15	1.05	599.4	YES	NO	bb	MM	13.318
3	Total-heptafurans	38.59	3.011e2	3.153e2	1.387	0.95	1.05	8.2	YES	NO	bb	bb	0.137
4	1234678-HpCDF	38.20	2.050e4	1.990e4	1.392	1.03	1.05	394.4	YES	NO	bb	bb	8.277

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.97	1.008e5	1.197e5	1.048	0.84	0.77	704.8	YES	NO	bb	bb	30.569
2	Total-tetrafurans	23.83	1.750e3	2.041e3	1.048	0.86	0.77	15.4	YES	NO	db	db	0.526
3	Total-tetrafurans	23.05	1.122e5	1.346e5	1.048	0.83	0.77	825.8	YES	NO	bb	bd	34.213
4	Total-tetrafurans	22.81	4.964e4	6.370e4	1.048	0.78	0.77	345.5	YES	NO	db	db	15.713
5	Total-tetrafurans	22.69	7.180e2	8.796e2	1.048	0.82	0.77	5.2	YES	NO	bd	bd	0.221
6	Total-tetrafurans	22.40	1.609e5	1.956e5	1.048	0.82	0.77	1223.9	YES	NO	bb	bb	49.425
7	Total-tetrafurans	21.82	1.804e4	2.053e4	1.048	0.88	0.77	128.7	YES	NO	bb	bb	5.348
8	1289-TCDF	26.51	5.072e3	5.852e3	0.916	0.87	0.77	30.1	YES	NO	bb	bb	1.733
9	Total-tetrafurans	26.07	4.163e3	5.384e3	1.048	0.77	0.77	29.8	YES	NO	bd	bb	1.324
10	Total-tetrafurans	25.42	1.676e4	1.951e4	1.048	0.86	0.77	121.9	YES	NO	db	db	5.029
11	2378-TCDF	25.07	9.186e3	1.251e4	0.980	0.73	0.77	64.4	YES	NO	bb	bb	3.216
12	Total-tetrafurans	24.40	6.524e3	7.753e3	1.048	0.84	0.77	41.2	YES	NO	bb	bb	1.979
13	Total-tetrafurans	24.14	6.105e3	7.129e3	1.048	0.86	0.77	45.7	YES	NO	bb	bb	1.835
14	Total-pentafurans	28.15	4.332e5	2.745e5	1.043	1.58	1.55	1389.7	YES	NO	dd	db	116.870
15	Total-pentafurans	27.96	1.981e4	1.133e4	1.043	1.75	1.55	92.8	YES	NO	dd	bd	5.142
16	23478-PeCDF	30.55	2.108e4	1.335e4	1.156	1.58	1.55	84.3	YES	NO	db	db	5.245
17	Total-pentafurans	30.40	1.199e5	7.779e4	1.043	1.54	1.55	498.7	YES	NO	dd	dd	32.639
18	Total-pentafurans	30.30	3.060e3	1.880e3	1.043	1.63	1.55	16.6	YES	NO	bd	bd	0.816
19	Total-pentafurans	30.00	2.373e3	1.692e3	1.043	1.40	1.55	9.2	YES	NO	bb	bb	0.671
20	Total-pentafurans	29.41	4.215e4	2.645e4	1.043	1.59	1.55	188.5	YES	NO	bd	bb	11.328
21	Total-pentafurans	28.86	1.219e5	7.753e4	1.043	1.57	1.55	537.8	YES	NO	db	db	32.927
22	Total-pentafurans	28.75	1.354e4	8.581e3	1.043	1.58	1.55	68.2	YES	NO	bd	bd	3.653
23	Total-hexafurans	33.59	1.750e5	1.389e5	1.217	1.26	1.24	2715.5	YES	NO	bb	bb	63.347
24	Total-hexafurans	33.28	2.453e3	1.877e3	1.217	1.31	1.24	35.9	YES	NO	bb	bb	0.874
25	Total-hexafurans	32.75	2.120e5	1.687e5	1.217	1.26	1.24	3075.3	YES	NO	bb	bb	76.849
26	123468-HXCDF	32.53	3.887e4	3.118e4	1.335	1.25	1.24	589.6	YES	NO	bb	bb	12.782
27	123789-HxCDF	36.27	4.290e3	3.579e3	1.100	1.20	1.24	66.1	YES	NO	bb	bb	1.933
28	234678-HxCDF	35.22	4.150e4	3.331e4	1.235	1.25	1.24	376.9	YES	NO	bd	bb	15.157
29	Total-hexafurans	34.72	8.289e2	7.504e2	1.217	1.10	1.24	11.4	YES	NO	bb	bb	0.319
30	123678-HxCDF	34.37	1.658e4	1.267e4	1.193	1.31	1.24	239.7	YES	NO	db	db	5.476
31	123478-HxCDF	34.23	5.899e3	4.619e3	1.224	1.28	1.24	84.5	YES	NO	bd	bd	2.095
32	1234789-HpCDF	40.36	1.421e3	1.318e3	1.381	1.08	1.05	27.8	YES	NO	bd	bb	0.662
33	Total-heptafurans	38.83	3.205e4	2.798e4	1.387	1.15	1.05	599.4	YES	NO	bb	MM	13.318
34	Total-heptafurans	38.59	3.011e2	3.153e2	1.387	0.95	1.05	8.2	YES	NO	bb	bb	0.137
35	1234678-HpCDF	38.20	2.050e4	1.990e4	1.392	1.03	1.05	394.4	YES	NO	bb	bb	8.277
36	OCDF	44.46	1.874e4	2.019e4	1.222	0.93	0.89	150.6	YES	NO	bb	bb	11.651
37	13468-PECDF	26.49	7.923e5	5.031e5	1.353	1.57	1.55	14385.5	YES	NO	bb	bb	161.277

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TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.29	6.554e2	8.770e2	1.104	0.75	0.77	7.6	YES	NO	bb	bb	0.252
2	Total-tetradioxins	24.31	1.487e3	1.965e3	1.104	0.76	0.77	24.1	YES	NO	dd	db	0.567
3	Total-tetradioxins	24.12	6.248e2	7.250e2	1.104	0.86	0.77	9.6	YES	NO	dd	dd	0.222
4	Total-tetradioxins	24.02	1.622e3	1.892e3	1.104	0.86	0.77	23.5	YES	NO	bd	bd	0.577
5	Total-tetradioxins	23.10	7.050e2	8.773e2	1.104	0.80	0.77	10.5	YES	NO	bd	bd	0.260
6	1368-TCDD	22.84	1.838e3	2.281e3	1.120	0.81	0.77	28.4	YES	NO	bb	bb	0.667
7	Total-tetradioxins	26.54	3.457e2	4.097e2	1.104	0.84	0.77	3.2	YES	NO	bb	bb	0.124

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	29.76	2.328e3	1.408e3	1.326	1.65	1.55	25.4	YES	NO	db	db	0.786
2	Total-pentadioxins	29.56	2.544e3	1.888e3	1.326	1.35	1.55	24.6	YES	NO	dd	dd	0.932
3	Total-pentadioxins	29.43	2.599e3	1.885e3	1.326	1.38	1.55	37.2	YES	NO	bd	bd	0.943
4	Total-pentadioxins	29.22	5.158e3	3.322e3	1.326	1.55	1.55	69.3	YES	NO	bb	bb	1.784
5	Total-pentadioxins	28.96	4.166e2	2.586e2	1.326	1.61	1.55	6.7	NO	NO	bb	bb	0.142
6	12479-PECDD	28.14	1.008e4	6.717e3	1.859	1.50	1.55	91.3	YES	NO	db	bb	2.520
7	12378-PeCDD	30.82	1.924e3	1.395e3	0.964	1.38	1.55	23.0	YES	NO	bd	bd	0.960

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDD	35.51	2.941e3	2.375e3	0.833	1.24	1.24	69.8	YES	NO	dd	dd	1.593
2	Total-hexadioxins	34.50	1.222e4	9.702e3	0.863	1.26	1.24	222.5	YES	NO	bb	bd	6.527
3	124679-HXCDD	33.33	7.591e3	5.820e3	1.006	1.30	1.24	179.0	YES	NO	bb	bb	3.526
4	123789-HxCDD	35.90	1.442e3	1.121e3	0.770	1.29	1.24	39.7	YES	NO	bd	bb	0.854

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.66	1.472e4	1.372e4	0.984	1.07	1.05	300.0	YES	NO	bb	bb	9.024
2	1234679-HPCDD	38.64	1.303e4	1.317e4	1.184	0.99	1.05	284.4	YES	NO	bd	bb	6.911

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.29	6.554e2	8.770e2	1.104	0.75	0.77	7.6	YES	NO	bb	bb	0.252
2	Total-tetradioxins	24.31	1.487e3	1.965e3	1.104	0.76	0.77	24.1	YES	NO	dd	db	0.567
3	Total-tetradioxins	24.12	6.248e2	7.250e2	1.104	0.86	0.77	9.6	YES	NO	dd	dd	0.222
4	Total-tetradioxins	24.02	1.622e3	1.892e3	1.104	0.86	0.77	23.5	YES	NO	bd	bd	0.577
5	Total-tetradioxins	23.10	7.050e2	8.773e2	1.104	0.80	0.77	10.5	YES	NO	bd	bd	0.260
6	1368-TCDD	22.84	1.838e3	2.281e3	1.120	0.81	0.77	28.4	YES	NO	bb	bb	0.667
7	Total-tetradioxins	26.54	3.457e2	4.097e2	1.104	0.84	0.77	3.2	YES	NO	bb	bb	0.124
8	Total-pentadioxins	29.76	2.328e3	1.408e3	1.326	1.65	1.55	25.4	YES	NO	db	db	0.786
9	Total-pentadioxins	29.56	2.544e3	1.888e3	1.326	1.35	1.55	24.6	YES	NO	dd	dd	0.932
10	Total-pentadioxins	29.43	2.599e3	1.885e3	1.326	1.38	1.55	37.2	YES	NO	bd	bd	0.943
11	Total-pentadioxins	29.22	5.158e3	3.322e3	1.326	1.55	1.55	69.3	YES	NO	bb	bb	1.784
12	Total-pentadioxins	28.96	4.166e2	2.586e2	1.326	1.61	1.55	6.7	NO	NO	bb	bb	0.142
13	12479-PECDD	28.14	1.008e4	6.717e3	1.859	1.50	1.55	91.3	YES	NO	db	bb	2.520
14	12378-PeCDD	30.82	1.924e3	1.395e3	0.964	1.38	1.55	23.0	YES	NO	bd	bd	0.960
15	123678-HxCDD	35.51	2.941e3	2.375e3	0.833	1.24	1.24	69.8	YES	NO	dd	dd	1.593
16	Total-hexadioxins	34.50	1.222e4	9.702e3	0.863	1.26	1.24	222.5	YES	NO	bb	bd	6.527
17	124679-HXCDD	33.33	7.591e3	5.820e3	1.006	1.30	1.24	179.0	YES	NO	bb	bb	3.526
18	123789-HxCDD	35.90	1.442e3	1.121e3	0.770	1.29	1.24	39.7	YES	NO	bd	bb	0.854
19	1234678-HpCDD	39.66	1.472e4	1.372e4	0.984	1.07	1.05	300.0	YES	NO	bb	bb	9.024
20	1234679-HPCDD	38.64	1.303e4	1.317e4	1.184	0.99	1.05	284.4	YES	NO	bd	bb	6.911
21	OCDD	44.24	5.524e4	6.256e4	0.938	0.88	0.89	756.2	YES	NO	bd	bb	45.966

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.97	1.008e5	1.197e5	1.048	0.84	0.77	704.8	YES	NO	bb	bb	30.569
2	Total-tetrafurans	23.83	1.750e3	2.041e3	1.048	0.86	0.77	15.4	YES	NO	db	db	0.526
3	Total-tetrafurans	23.05	1.122e5	1.346e5	1.048	0.83	0.77	825.8	YES	NO	bb	bd	34.213
4	Total-tetrafurans	22.81	4.964e4	6.370e4	1.048	0.78	0.77	345.5	YES	NO	db	db	15.713
5	Total-tetrafurans	22.69	7.180e2	8.796e2	1.048	0.82	0.77	5.2	YES	NO	bd	bd	0.221
6	Total-tetrafurans	22.40	1.609e5	1.956e5	1.048	0.82	0.77	1223.9	YES	NO	bb	bb	49.425
7	Total-tetrafurans	21.82	1.804e4	2.053e4	1.048	0.88	0.77	128.7	YES	NO	bb	bb	5.348
8	1289-TCDF	26.51	5.072e3	5.852e3	0.916	0.87	0.77	30.1	YES	NO	bb	bb	1.733
9	Total-tetrafurans	26.07	4.163e3	5.384e3	1.048	0.77	0.77	29.8	YES	NO	bd	bb	1.324
10	Total-tetrafurans	25.42	1.676e4	1.951e4	1.048	0.86	0.77	121.9	YES	NO	db	db	5.029
11	2378-TCDF	25.07	9.186e3	1.251e4	0.980	0.73	0.77	64.4	YES	NO	bb	bb	3.216
12	Total-tetrafurans	24.40	6.524e3	7.753e3	1.048	0.84	0.77	41.2	YES	NO	bb	bb	1.979
13	Total-tetrafurans	24.14	6.105e3	7.129e3	1.048	0.86	0.77	45.7	YES	NO	bb	bb	1.835
14	Total-pentafurans	28.15	4.332e5	2.745e5	1.043	1.58	1.55	1389.7	YES	NO	dd	db	116.870
15	Total-pentafurans	27.96	1.981e4	1.133e4	1.043	1.75	1.55	92.8	YES	NO	dd	bd	5.142
16	23478-PeCDF	30.55	2.108e4	1.335e4	1.156	1.58	1.55	84.3	YES	NO	db	db	5.245
17	Total-pentafurans	30.40	1.199e5	7.779e4	1.043	1.54	1.55	498.7	YES	NO	dd	dd	32.639
18	Total-pentafurans	30.30	3.060e3	1.880e3	1.043	1.63	1.55	16.6	YES	NO	bd	bd	0.816
19	Total-pentafurans	30.00	2.373e3	1.692e3	1.043	1.40	1.55	9.2	YES	NO	bb	bb	0.671
20	Total-pentafurans	29.41	4.215e4	2.645e4	1.043	1.59	1.55	188.5	YES	NO	bd	bb	11.328
21	Total-pentafurans	28.86	1.219e5	7.753e4	1.043	1.57	1.55	537.8	YES	NO	db	db	32.927
22	Total-pentafurans	28.75	1.354e4	8.581e3	1.043	1.58	1.55	68.2	YES	NO	bd	bd	3.653
23	Total-hexafurans	33.59	1.750e5	1.389e5	1.217	1.26	1.24	2715.5	YES	NO	bb	bb	63.347
24	Total-hexafurans	33.28	2.453e3	1.877e3	1.217	1.31	1.24	35.9	YES	NO	bb	bb	0.874
25	Total-hexafurans	32.75	2.120e5	1.687e5	1.217	1.26	1.24	3075.3	YES	NO	bb	bb	76.849
26	123468-HXCDF	32.53	3.887e4	3.118e4	1.335	1.25	1.24	589.6	YES	NO	bb	bb	12.782
27	123789-HxCDF	36.27	4.290e3	3.579e3	1.100	1.20	1.24	66.1	YES	NO	bb	bb	1.933
28	234678-HxCDF	35.22	4.150e4	3.331e4	1.235	1.25	1.24	376.9	YES	NO	bd	bb	15.157
29	Total-hexafurans	34.72	8.289e2	7.504e2	1.217	1.10	1.24	11.4	YES	NO	bb	bb	0.319
30	123678-HxCDF	34.37	1.658e4	1.267e4	1.193	1.31	1.24	239.7	YES	NO	db	db	5.476
31	123478-HxCDF	34.23	5.899e3	4.619e3	1.224	1.28	1.24	84.5	YES	NO	bd	bd	2.095
32	1234789-HpCDF	40.36	1.421e3	1.318e3	1.381	1.08	1.05	27.8	YES	NO	bd	bb	0.662
33	Total-heptafurans	38.83	3.205e4	2.798e4	1.387	1.15	1.05	599.4	YES	NO	bb	MM	13.318
34	Total-heptafurans	38.59	3.011e2	3.153e2	1.387	0.95	1.05	8.2	YES	NO	bb	bb	0.137
35	1234678-HpCDF	38.20	2.050e4	1.990e4	1.392	1.03	1.05	394.4	YES	NO	bb	bb	8.277
36	OCDF	44.46	1.874e4	2.019e4	1.222	0.93	0.89	150.6	YES	NO	bb	bb	11.651
37	13468-PECDF	26.49	7.923e5	5.031e5	1.353	1.57	1.55	14385.5	YES	NO	bb	bb	161.277

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-tetradioxins	25.29	6.554e2	8.770e2	1.104	0.75	0.77	7.6	YES	NO	bb	bb	0.252
39	Total-tetradioxins	24.31	1.487e3	1.965e3	1.104	0.76	0.77	24.1	YES	NO	dd	db	0.567
40	Total-tetradioxins	24.12	6.248e2	7.250e2	1.104	0.86	0.77	9.6	YES	NO	dd	dd	0.222
41	Total-tetradioxins	24.02	1.622e3	1.892e3	1.104	0.86	0.77	23.5	YES	NO	bd	bd	0.577
42	Total-tetradioxins	23.10	7.050e2	8.773e2	1.104	0.80	0.77	10.5	YES	NO	bd	bd	0.260
43	1368-TCDD	22.84	1.838e3	2.281e3	1.120	0.81	0.77	28.4	YES	NO	bb	bb	0.667
44	Total-tetradioxins	26.54	3.457e2	4.097e2	1.104	0.84	0.77	3.2	YES	NO	bb	bb	0.124
45	Total-pentadioxins	29.76	2.328e3	1.408e3	1.326	1.65	1.55	25.4	YES	NO	db	db	0.786
46	Total-pentadioxins	29.56	2.544e3	1.888e3	1.326	1.35	1.55	24.6	YES	NO	dd	dd	0.932
47	Total-pentadioxins	29.43	2.599e3	1.885e3	1.326	1.38	1.55	37.2	YES	NO	bd	bd	0.943
48	Total-pentadioxins	29.22	5.158e3	3.322e3	1.326	1.55	1.55	69.3	YES	NO	bb	bb	1.784
49	Total-pentadioxins	28.96	4.166e2	2.586e2	1.326	1.61	1.55	6.7	NO	NO	bb	bb	0.142
50	12479-PECDD	28.14	1.008e4	6.717e3	1.859	1.50	1.55	91.3	YES	NO	db	bb	2.520
51	12378-PeCDD	30.82	1.924e3	1.395e3	0.964	1.38	1.55	23.0	YES	NO	bd	bd	0.960
52	123678-HxCDD	35.51	2.941e3	2.375e3	0.833	1.24	1.24	69.8	YES	NO	dd	dd	1.593
53	Total-hexadioxins	34.50	1.222e4	9.702e3	0.863	1.26	1.24	222.5	YES	NO	bb	bd	6.527
54	124679-HXCDD	33.33	7.591e3	5.820e3	1.006	1.30	1.24	179.0	YES	NO	bb	bb	3.526
55	123789-HxCDD	35.90	1.442e3	1.121e3	0.770	1.29	1.24	39.7	YES	NO	bd	bb	0.854
56	1234678-HpCDD	39.66	1.472e4	1.372e4	0.984	1.07	1.05	300.0	YES	NO	bb	bb	9.024
57	1234679-HPCDD	38.64	1.303e4	1.317e4	1.184	0.99	1.05	284.4	YES	NO	bd	bb	6.911
58	OCDD	44.24	5.524e4	6.256e4	0.938	0.88	0.89	756.2	YES	NO	bd	bb	45.966

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	32.24	1.119e4					2.2	NO		bb		0.000
2	FUNCTION3 PFK	37.02	4.041e5					7.5	YES		bb		0.000
3	FUNCTION3 PFK	36.73	1.630e5					15.8	YES		db		0.000
4	FUNCTION3 PFK	36.67	3.317e5					16.5	YES		dd		0.000
5	FUNCTION3 PFK	36.48	7.534e5					18.2	YES		dd		0.000
6	FUNCTION3 PFK	36.29	1.998e5					17.7	YES		bd		0.000
7	FUNCTION3 PFK	35.95	5.899e5					8.6	YES		bb		0.000
8	FUNCTION3 PFK	35.62	4.570e5					2.7	NO		bb		0.000
9	FUNCTION3 PFK	34.98	6.437e5					9.7	YES		bb		0.000
10	FUNCTION3 PFK	34.30	1.962e5					7.2	YES		bb		0.000
11	FUNCTION3 PFK	33.75	5.896e5					11.4	YES		bb		0.000
12	FUNCTION3 PFK	33.46	3.047e5					10.6	YES		bb		0.000
13	FUNCTION3 PFK	32.79	3.636e5					3.6	YES		bb		0.000

Dataset: T:\Autospec\Processed Data Batch\240304IH1.qld
Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
Printed: Wednesday, March 06, 2024 10:51:20 Pacific Standard Time

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.43	3.695e5					44.2	YES		dd		
2	FUNCTION4 PFK	37.39	5.431e5					43.4	YES		dd		
3	FUNCTION4 PFK	37.29	8.892e5					49.0	YES		bd		
4	FUNCTION4 PFK	39.60	4.686e3					0.9	NO		db		
5	FUNCTION4 PFK	39.52	1.666e5					2.8	NO		dd		
6	FUNCTION4 PFK	39.30	7.127e4					6.7	YES		bd		
7	FUNCTION4 PFK	39.19	1.050e5					7.5	YES		db		
8	FUNCTION4 PFK	39.11	4.293e4					5.6	YES		dd		
9	FUNCTION4 PFK	39.07	4.538e4					4.2	YES		bd		
10	FUNCTION4 PFK	38.86	1.436e4					2.3	NO		bb		
11	FUNCTION4 PFK	38.71	8.023e2					0.4	NO		bb		
12	FUNCTION4 PFK	38.40	8.026e4					5.9	YES		db		
13	FUNCTION4 PFK	38.22	3.005e5					13.2	YES		dd		
14	FUNCTION4 PFK	38.13	8.777e5					16.6	YES		dd		
15	FUNCTION4 PFK	37.84	7.199e5					28.4	YES		dd		
16	FUNCTION4 PFK	37.76	3.863e5					31.9	YES		dd		
17	FUNCTION4 PFK	37.68	4.933e5					34.8	YES		dd		
18	FUNCTION4 PFK	37.59	9.485e5					38.0	YES		dd		
19	FUNCTION4 PFK	37.49	7.120e5					42.5	YES		dd		
20	FUNCTION4 PFK	42.33	5.590e3					1.1	NO		bb		
21	FUNCTION4 PFK	41.69	7.853e3					1.1	NO		bb		
22	FUNCTION4 PFK	41.33	3.171e3					0.6	NO		bb		
23	FUNCTION4 PFK	41.08	1.039e4					1.3	NO		bb		
24	FUNCTION4 PFK	40.98	6.013e3					0.9	NO		bb		
25	FUNCTION4 PFK	40.84	2.063e3					0.6	NO		bb		
26	FUNCTION4 PFK	40.78	1.616e4					1.9	NO		bb		
27	FUNCTION4 PFK	40.61	1.591e4					1.2	NO		bb		
28	FUNCTION4 PFK	40.46	5.363e3					1.3	NO		db		
29	FUNCTION4 PFK	40.42	1.344e4					1.8	NO		dd		
30	FUNCTION4 PFK	40.35	1.110e4					1.4	NO		bd		
31	FUNCTION4 PFK	40.18	2.366e3					0.6	NO		bb		
32	FUNCTION4 PFK	40.13	1.359e3					0.6	NO		bb		
33	FUNCTION4 PFK	39.98	2.546e3					0.7	NO		bb		
34	FUNCTION4 PFK	39.87	8.062e3					1.5	NO		bb		
35	FUNCTION4 PFK	39.76	7.960e3					1.3	NO		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.92	1.922e3					45.7	YES		bb		0.000
2	FUNCTION1 HXCD...	26.06	3.094e3					82.4	YES		bb		0.000
3	FUNCTION1 HXCD...	25.90	1.120e2					3.0	NO		bb		0.000
4	FUNCTION1 HXCD...	25.41	1.200e4					288.2	YES		db		0.000
5	FUNCTION1 HXCD...	25.29	1.415e2					4.9	YES		bd		0.000
6	FUNCTION1 HXCD...	25.05	3.058e3					79.0	YES		bb		0.000
7	FUNCTION1 HXCD...	24.83	1.955e2					5.4	YES		bb		0.000
8	FUNCTION1 HXCD...	24.39	2.755e3					68.2	YES		bb		0.000
9	FUNCTION1 HXCD...	23.05	3.492e3					81.9	YES		bb		0.000
10	FUNCTION1 HXCD...	22.53	1.245e2					3.5	YES		bb		0.000
11	FUNCTION1 HXCD...	22.03	5.885e2					13.1	YES		bb		0.000
12	FUNCTION1 HXCD...	21.08	1.920e2					3.9	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	27.91	8.231e1					3.8	YES		bb		0.000
2	FUNCTION2 HPCD...	31.47	7.342e2					28.2	YES		bb		0.000
3	FUNCTION2 HPCD...	30.43	1.394e2					5.0	YES		bb		0.000
4	FUNCTION2 HPCD...	28.36	9.559e1					4.8	YES		bb		0.000
5	FUNCTION2 HPCD...	28.24	1.637e3					61.4	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	32.40	9.478e1					3.9	YES		db		0.000
2	FUNCTION3 OCDPE	32.37	1.500e2					9.0	YES		bd		0.000

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ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	37.80	5.643e3					181.0	YES		bb		0.000

ETHERS6

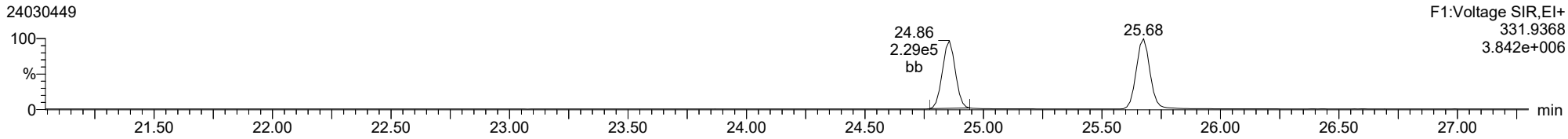
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Dataset: T:\Autospec\Processed Data Batch\240304IH1.qld
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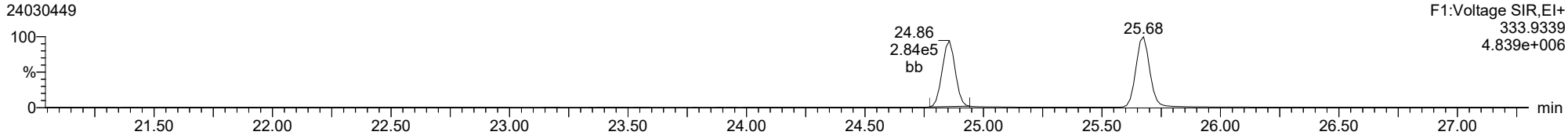
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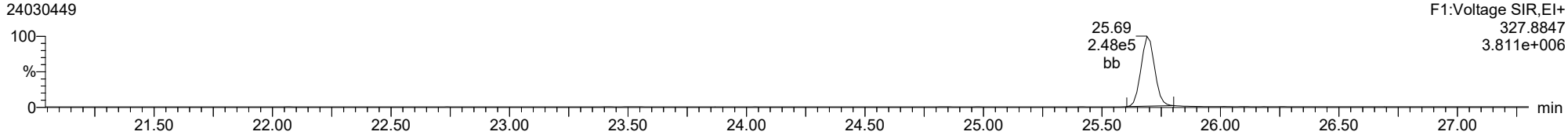
13C-1234-TCDD



13C-1234-TCDD

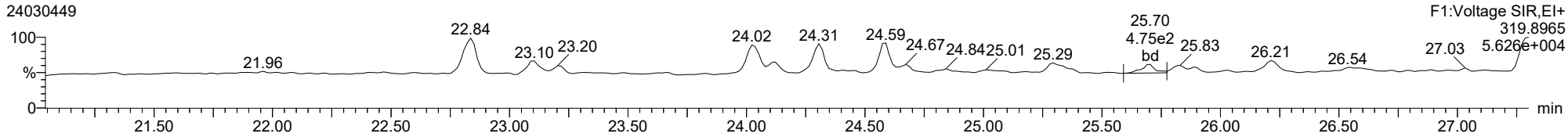


37CL-2378-TCDD

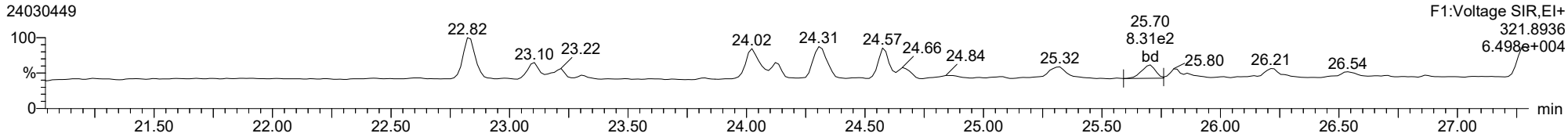


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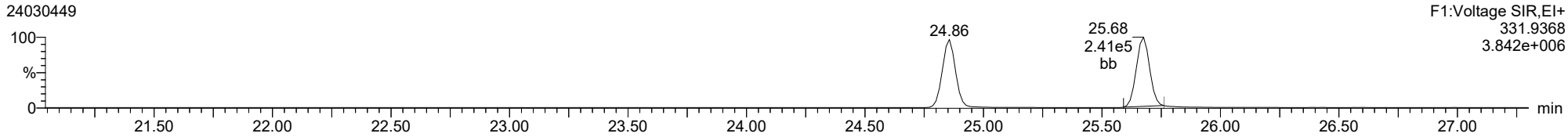
2378-TCDD



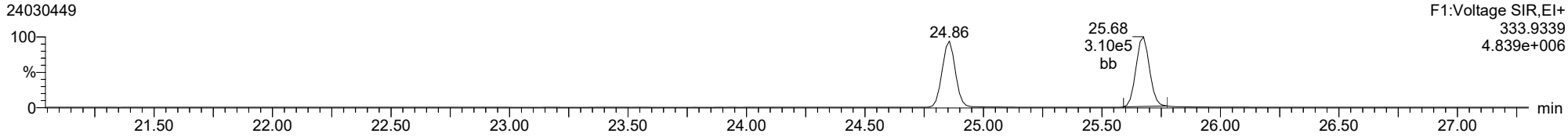
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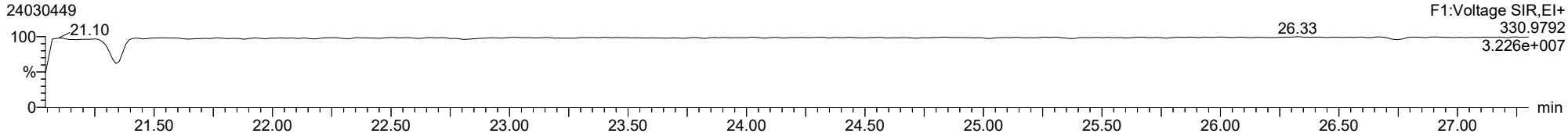
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13C-2378-TCDD

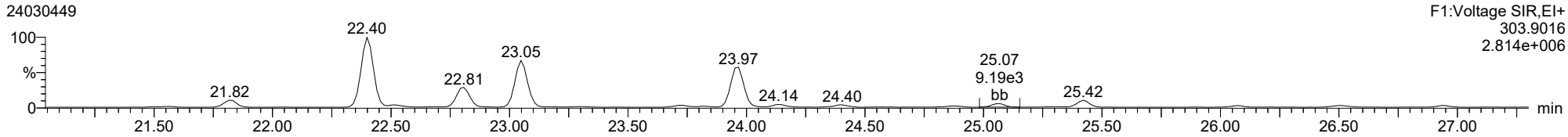


FUNCTION1 PFK

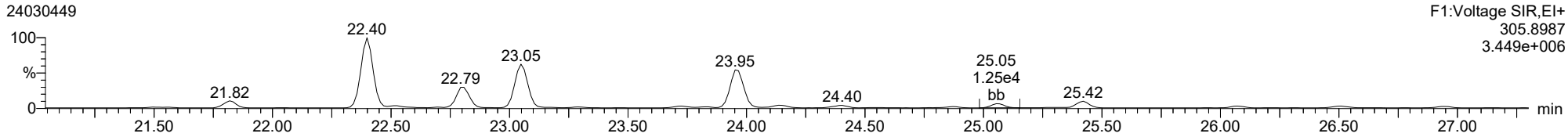


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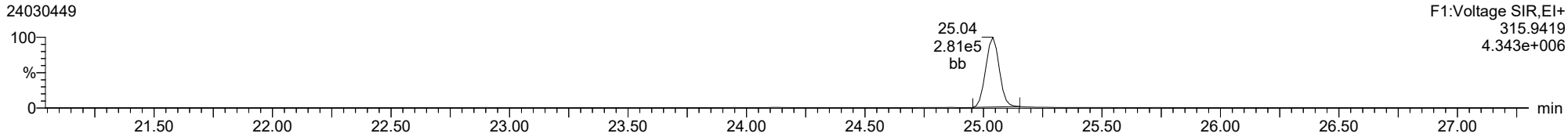
2378-TCDF



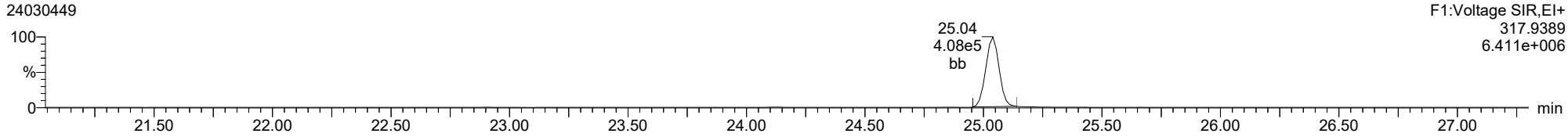
2378-TCDF



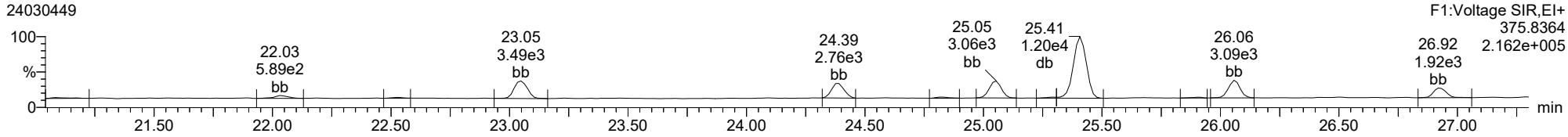
13C-2378-TCDF



13C-2378-TCDF

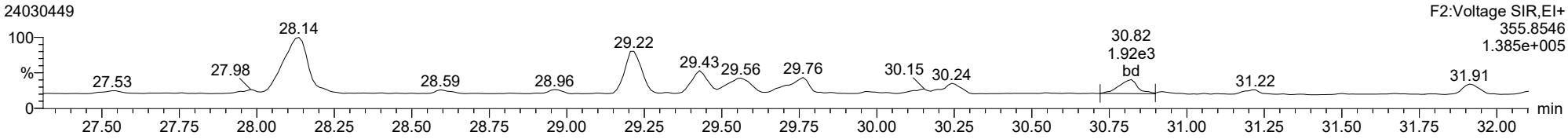


FUNCTION1 HXCDPE

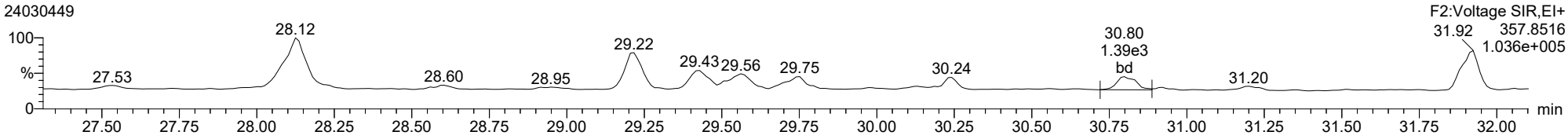


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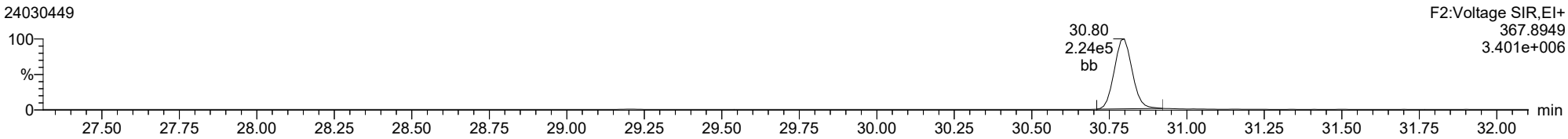
12378-PeCDD



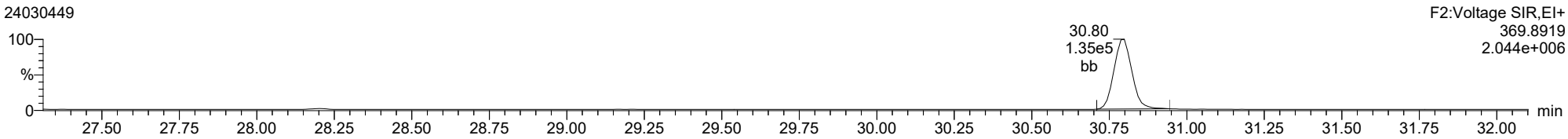
12378-PeCDD



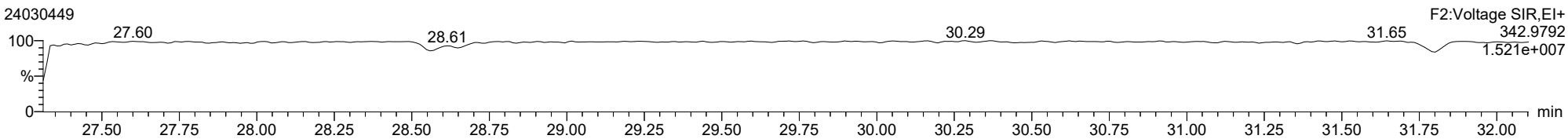
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13C-12378-PeCDD

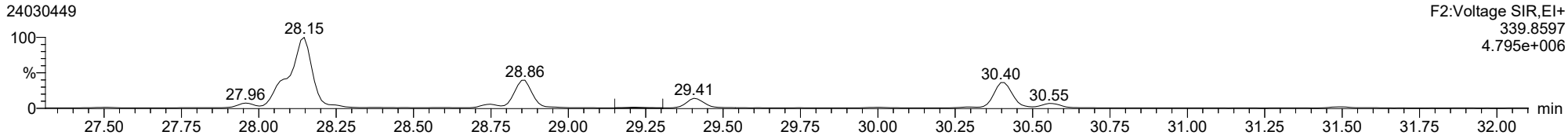


FUNCTION2 PFK

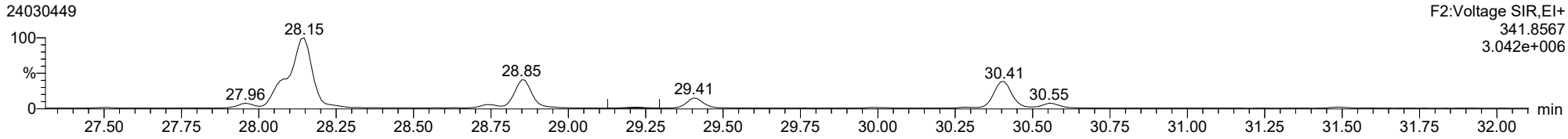


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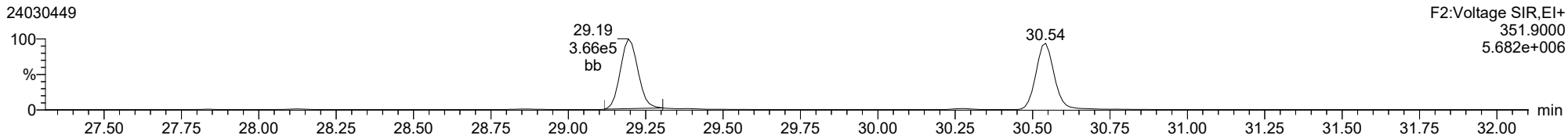
12378-PeCDF



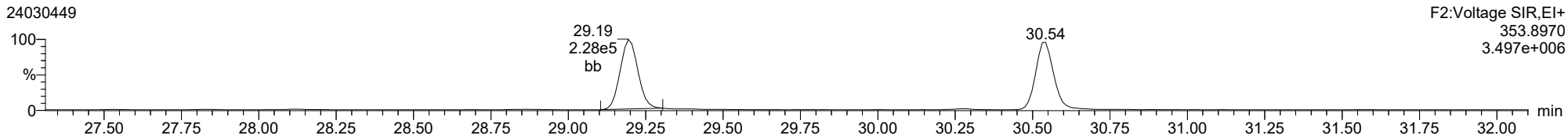
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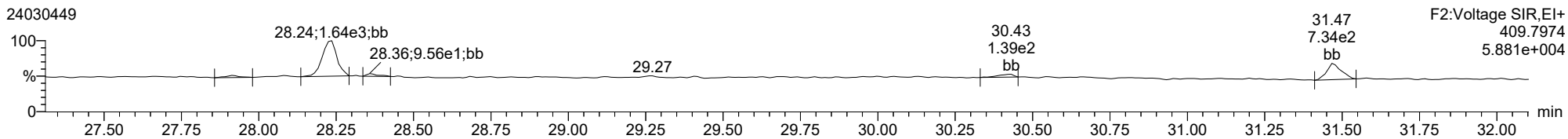
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13C-12378-PeCDF

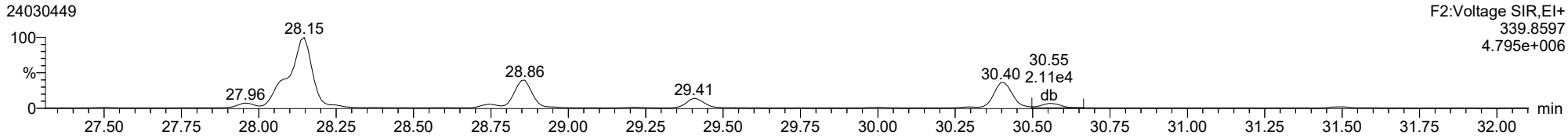


FUNCTION2 HPCDPE

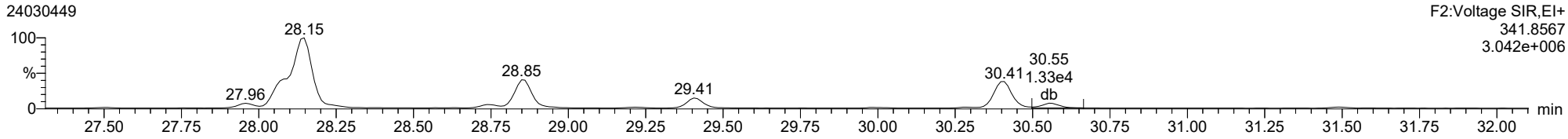


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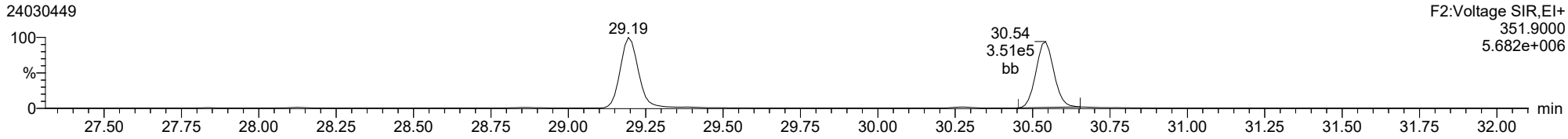
23478-PeCDF



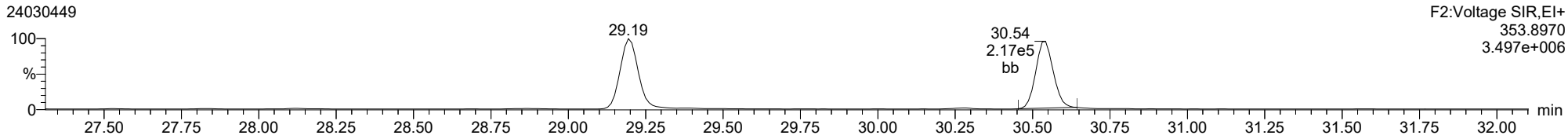
23478-PeCDF



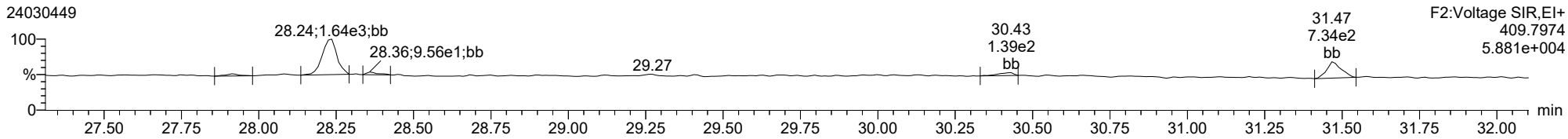
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13C-23478-PeCDF

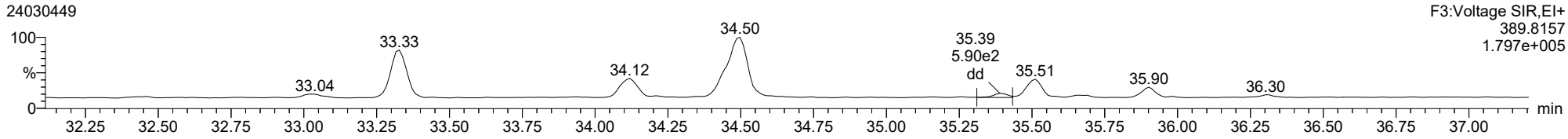


FUNCTION2 HPCDPE

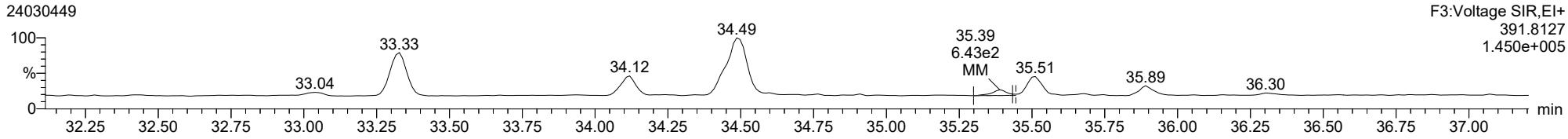


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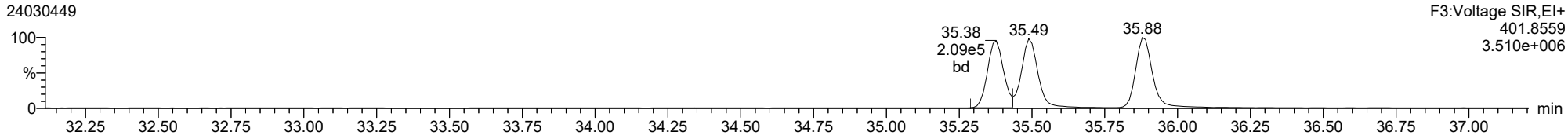
123478-HxCDD



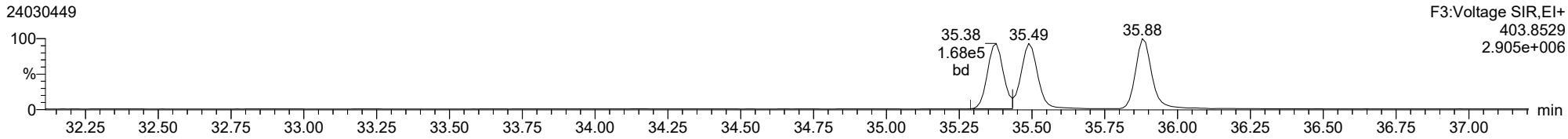
123478-HxCDD



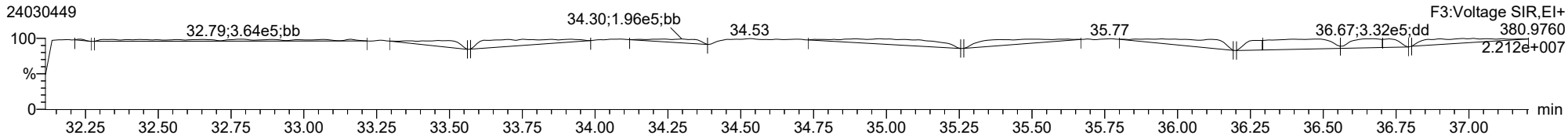
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13C-123478-HxCDD



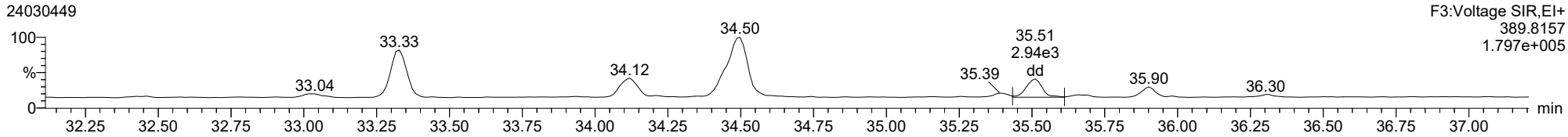
FUNCTION3 PFK



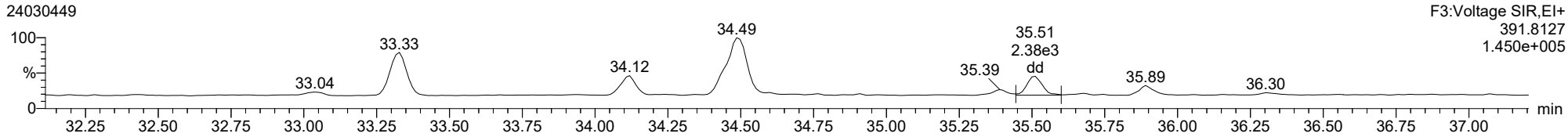
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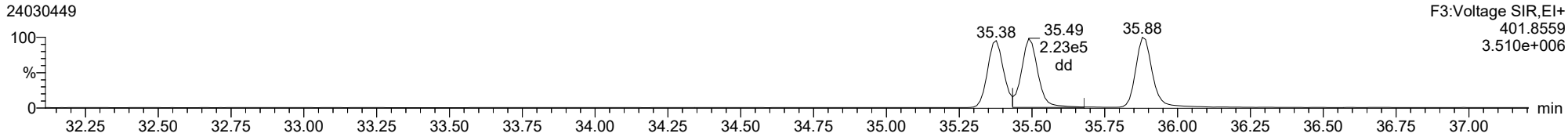
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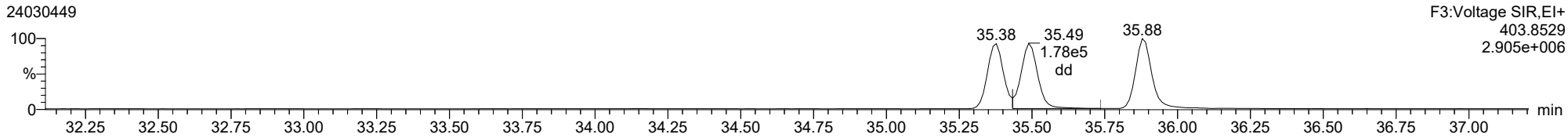
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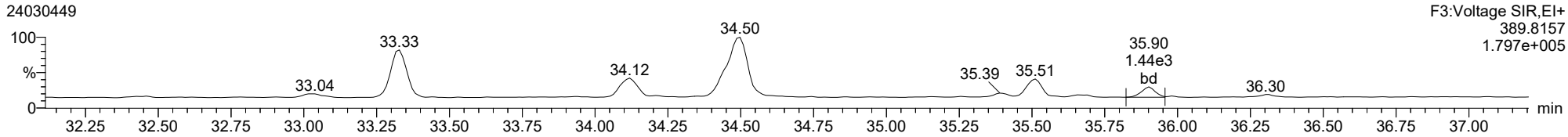
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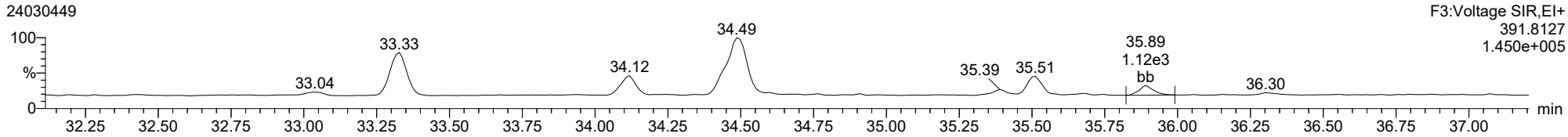
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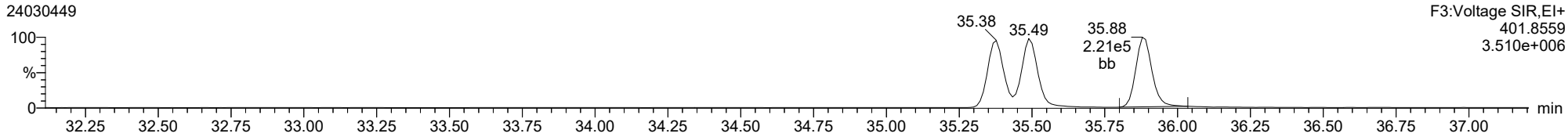
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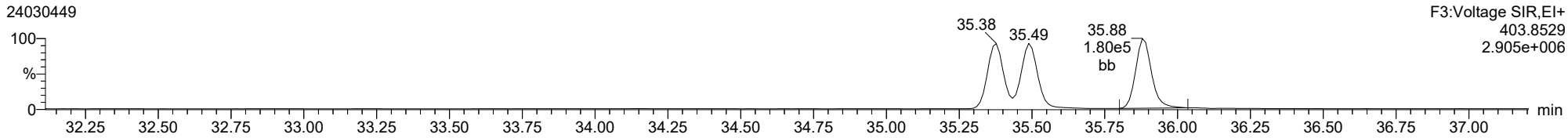
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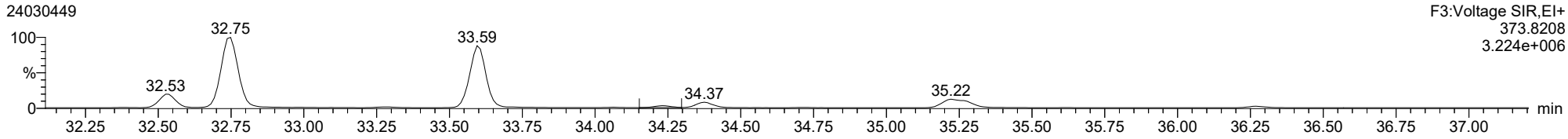


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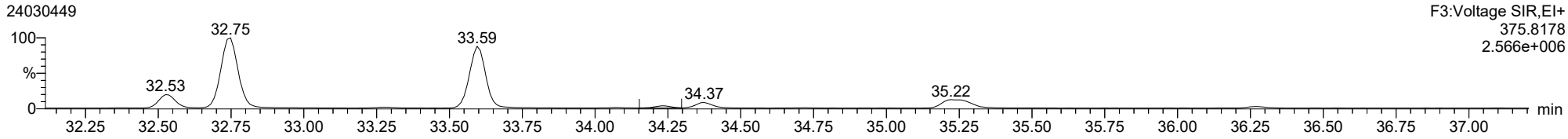


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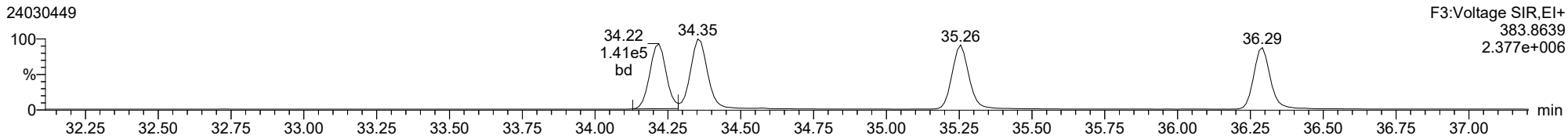
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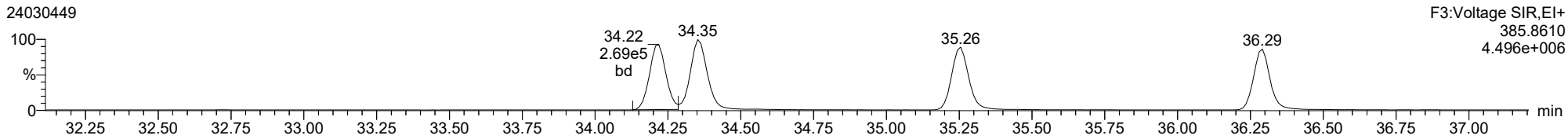
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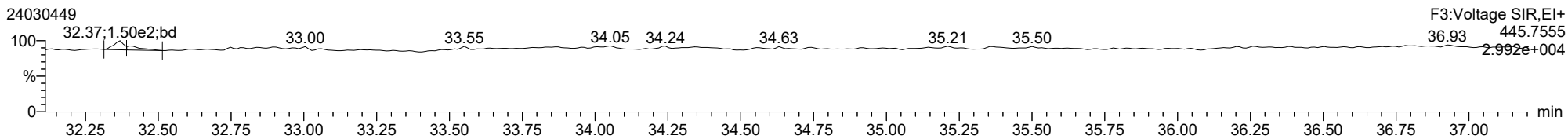
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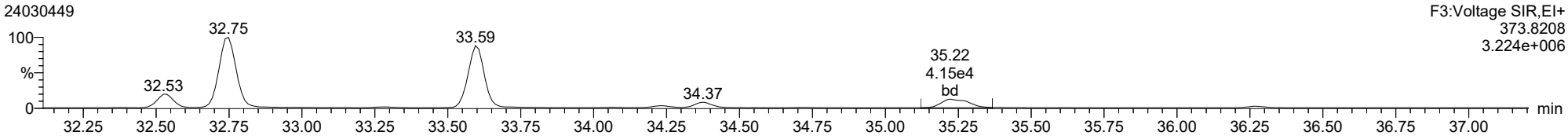


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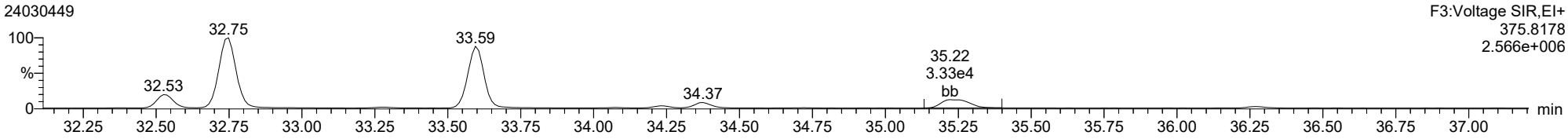


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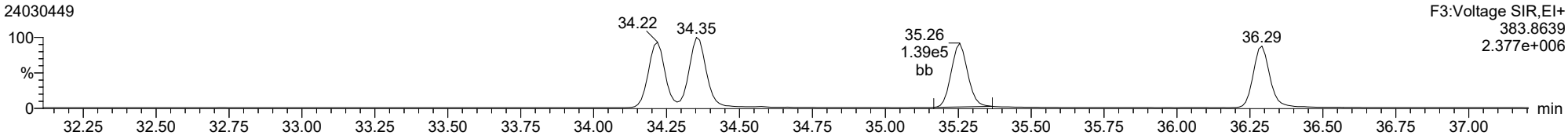
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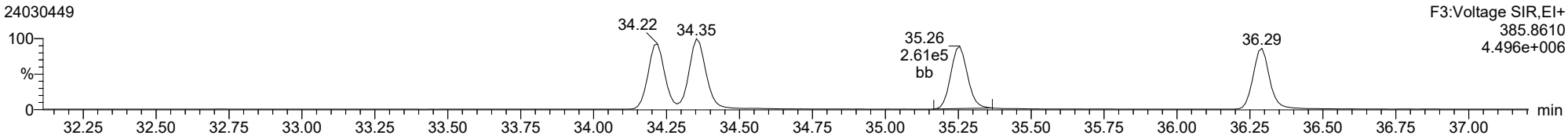
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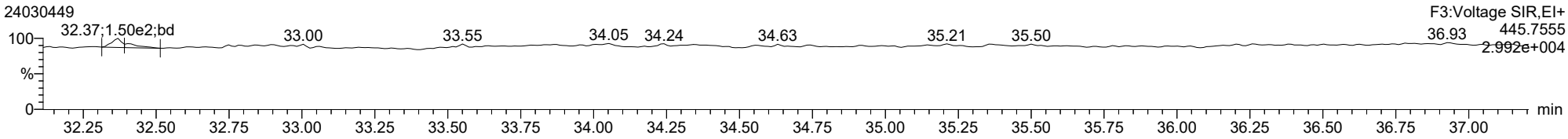
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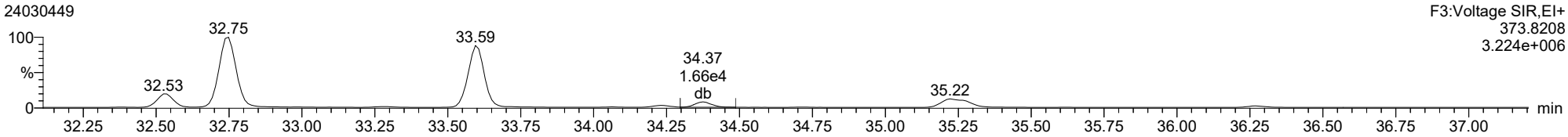


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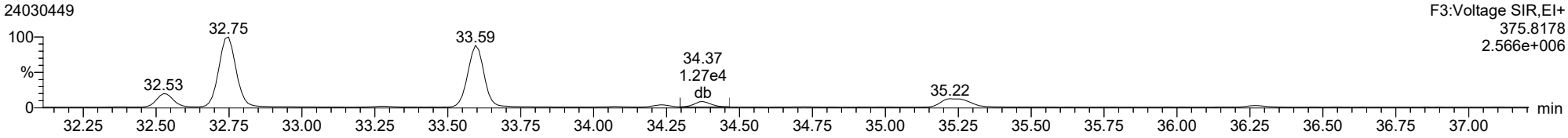


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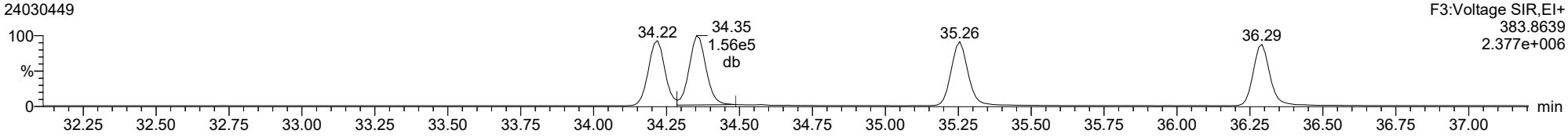
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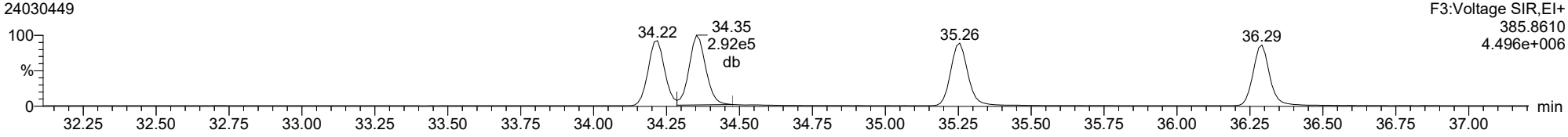
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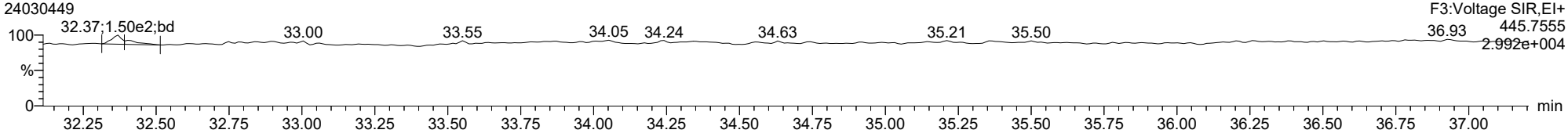
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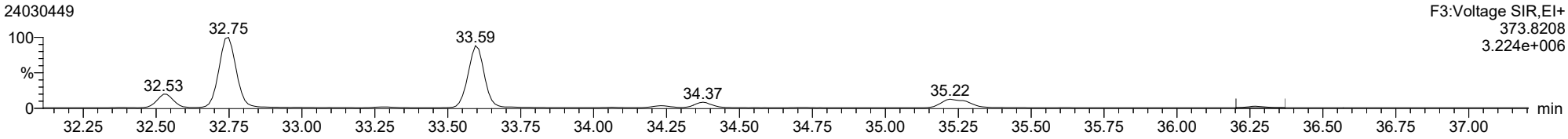


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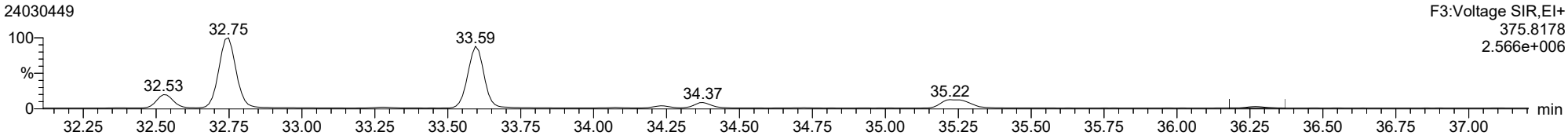


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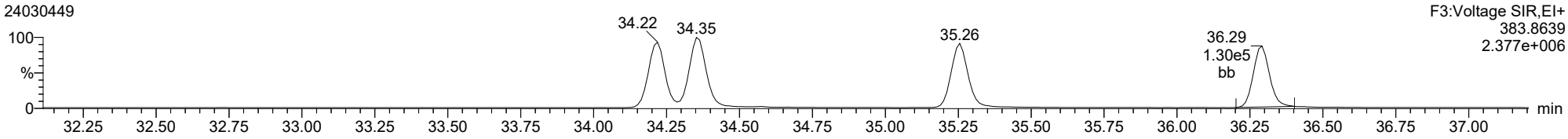
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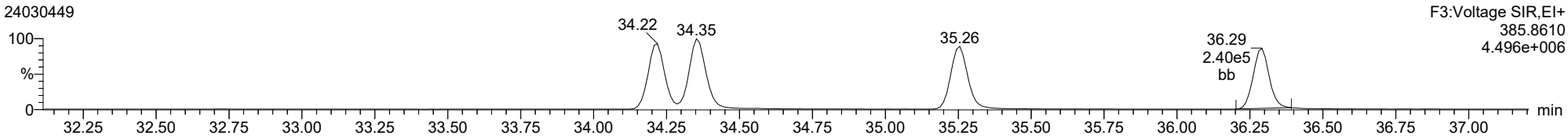
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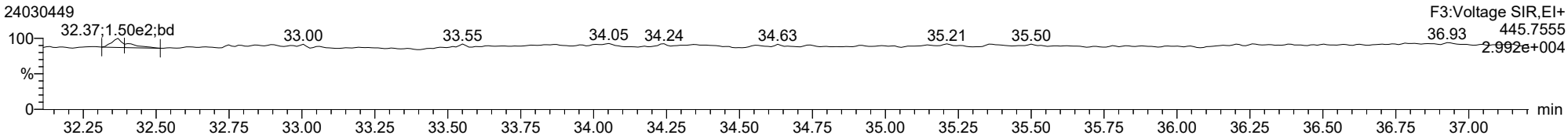
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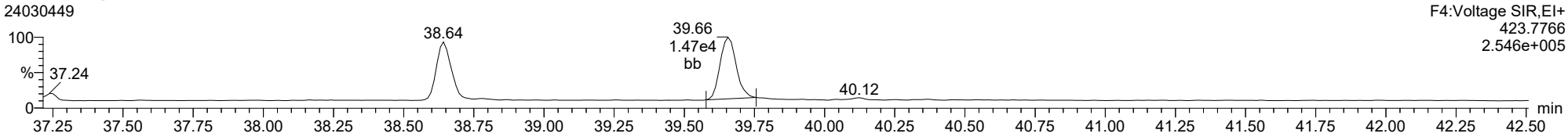


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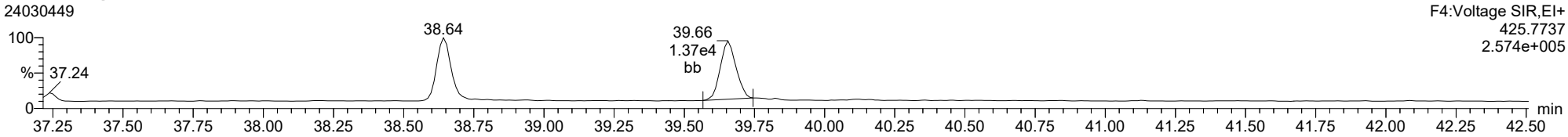


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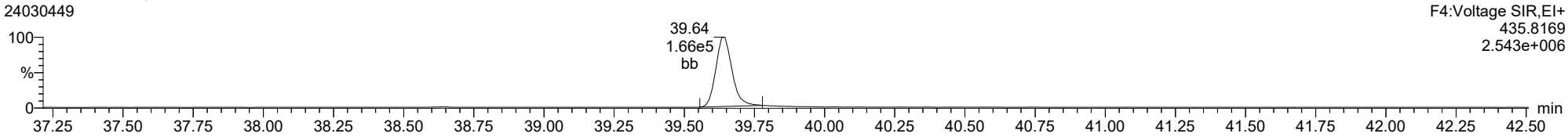
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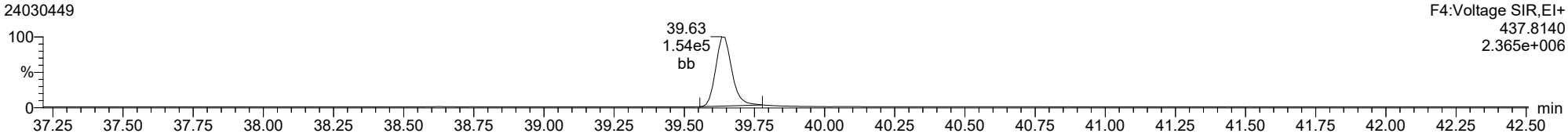
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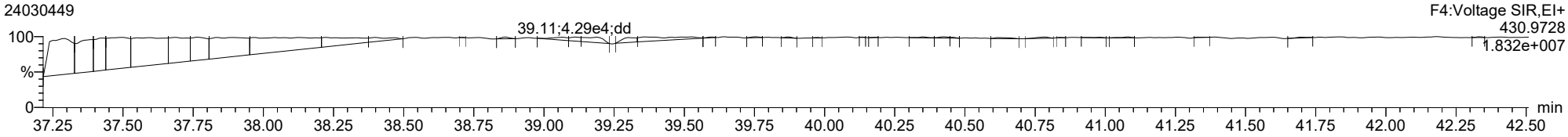
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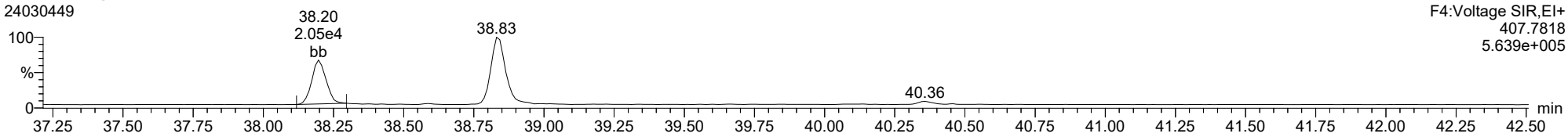


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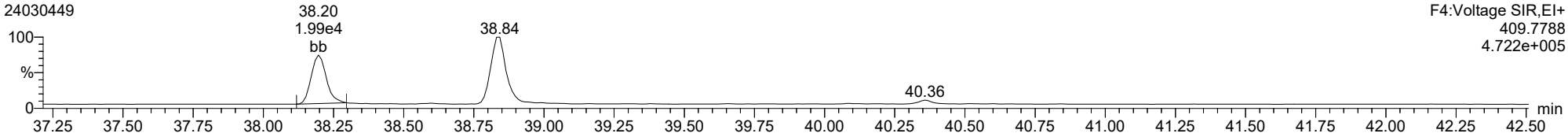


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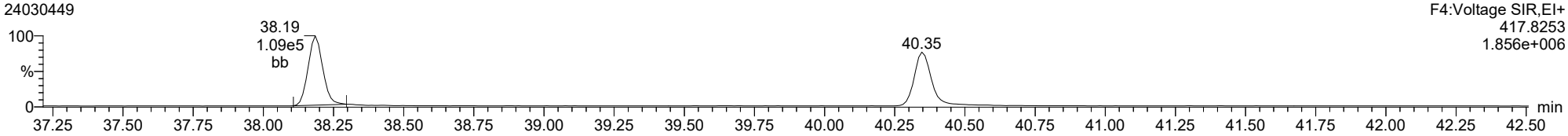
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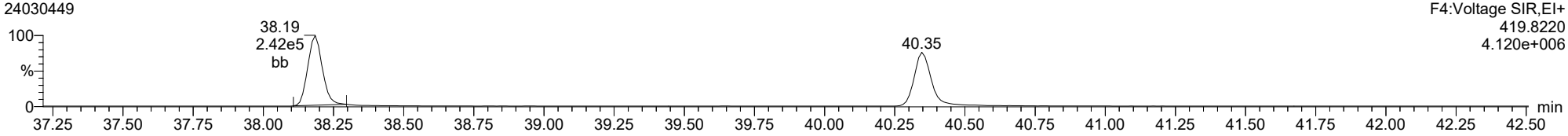
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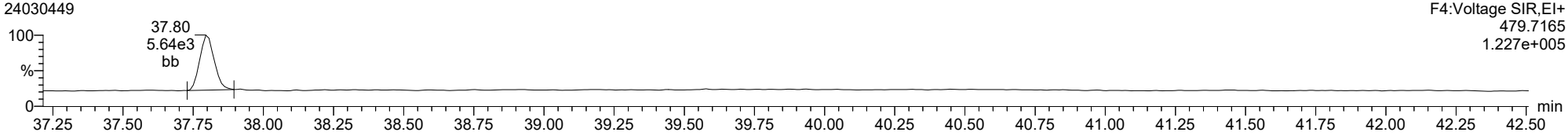
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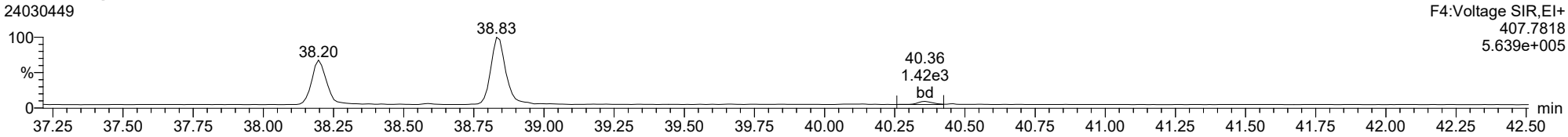


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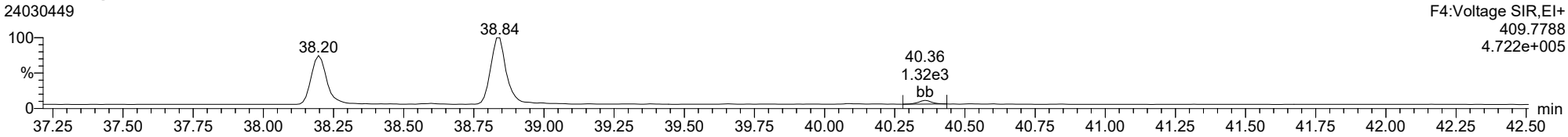


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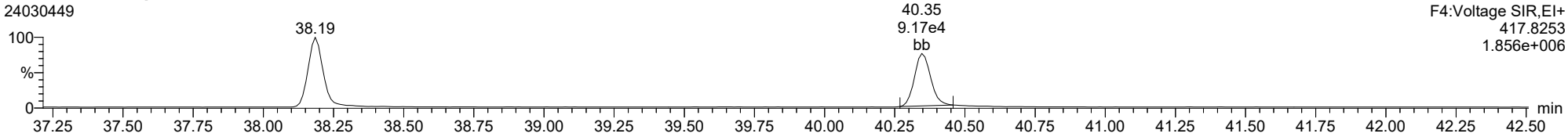
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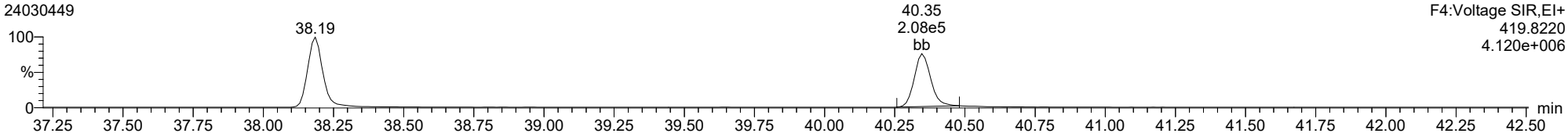
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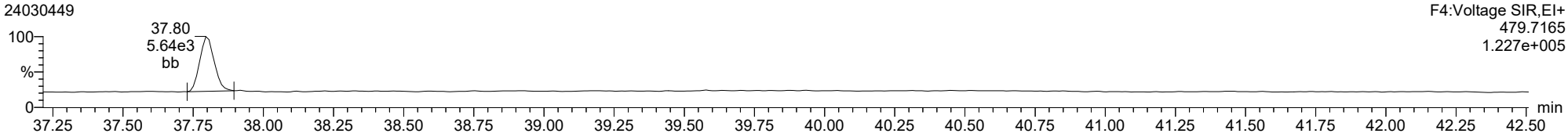
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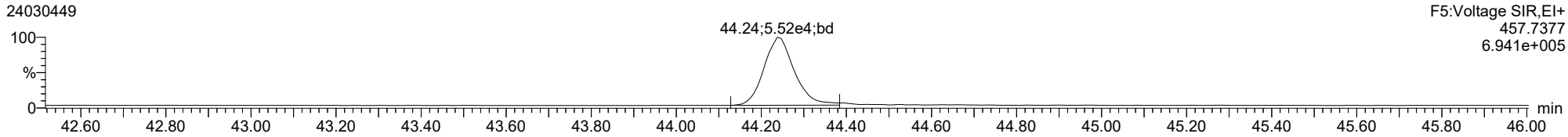


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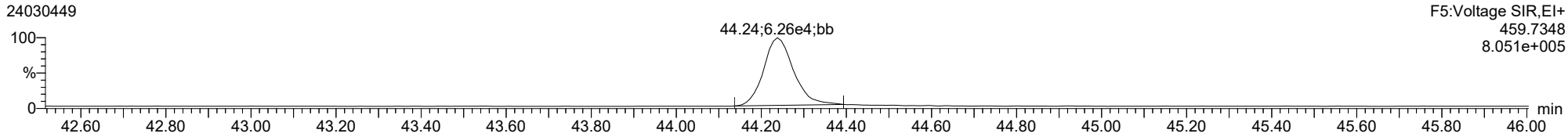


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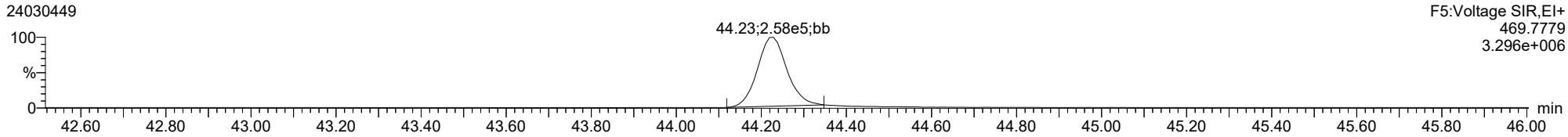
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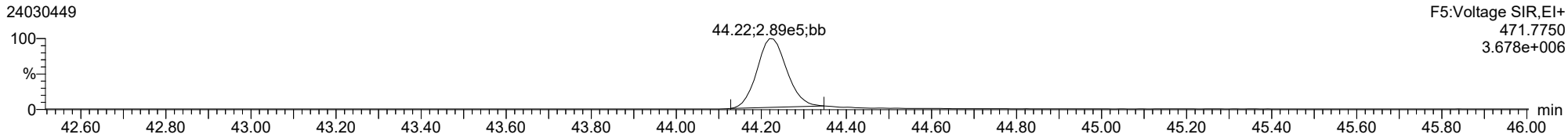
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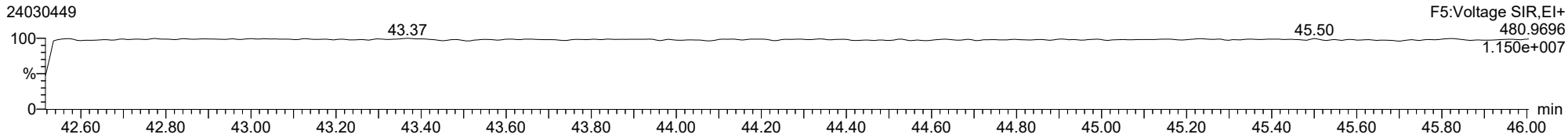
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13C-OCDD



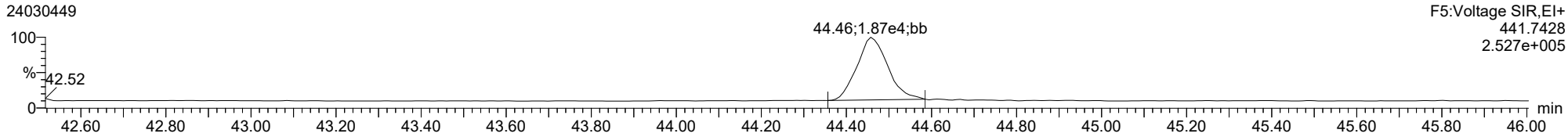
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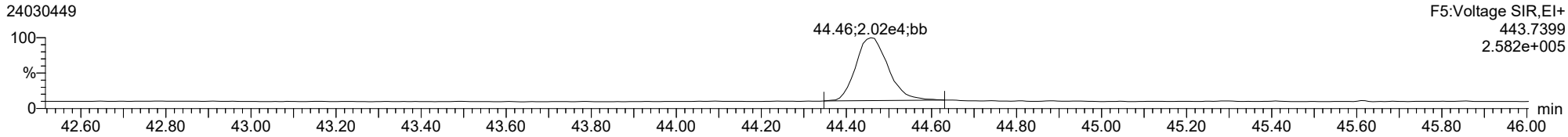
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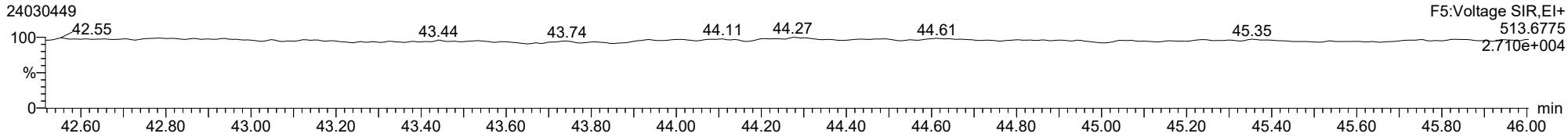
OCDF



OCDF



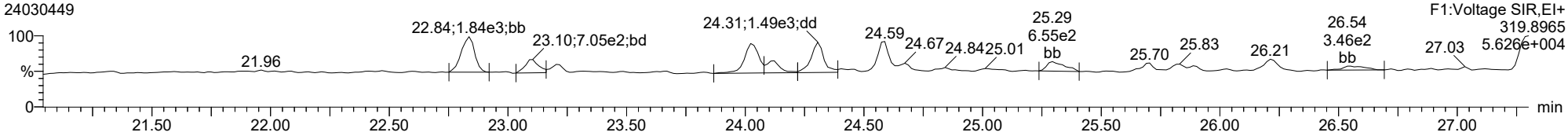
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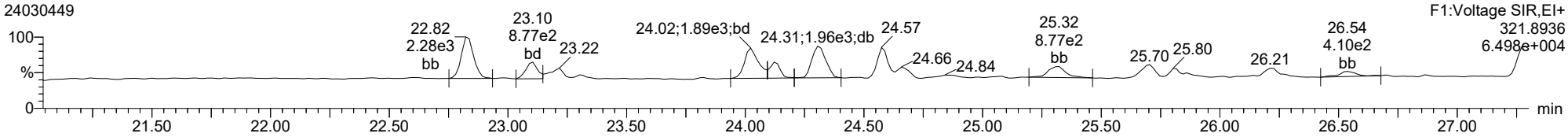
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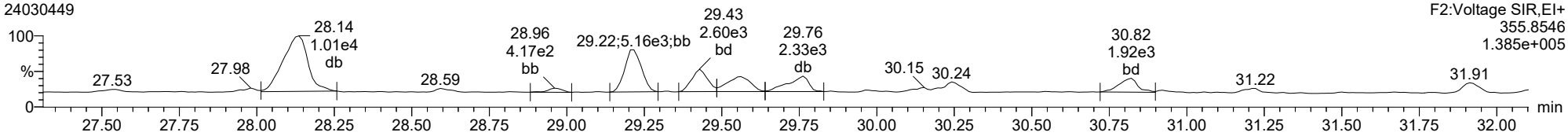
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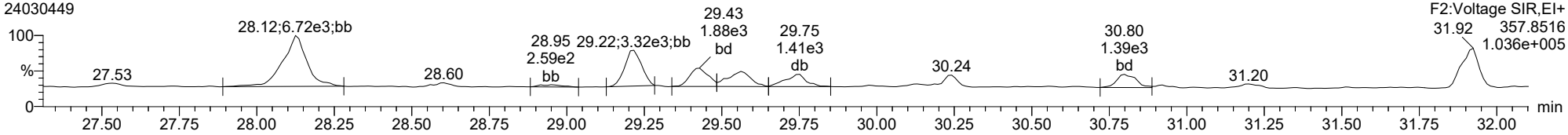
Total-tetradioxins



Total-pentadioxins

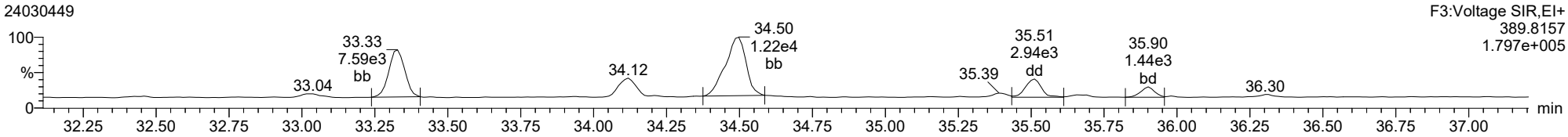


Total-pentadioxins

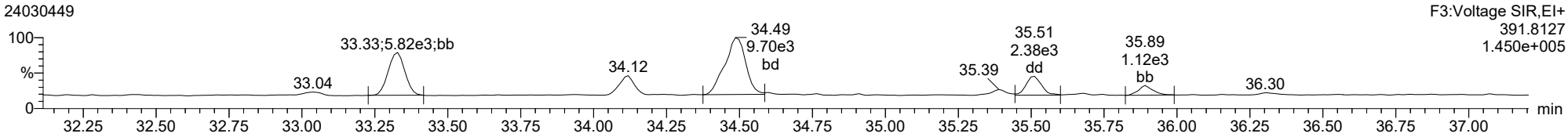


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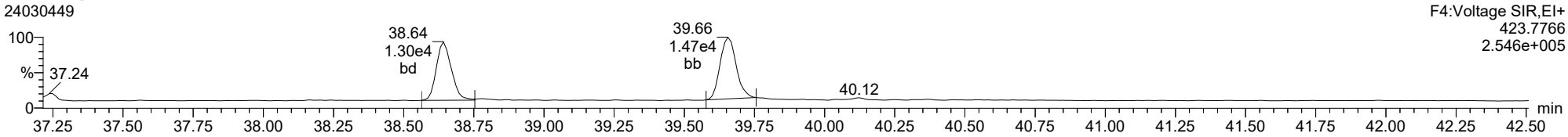
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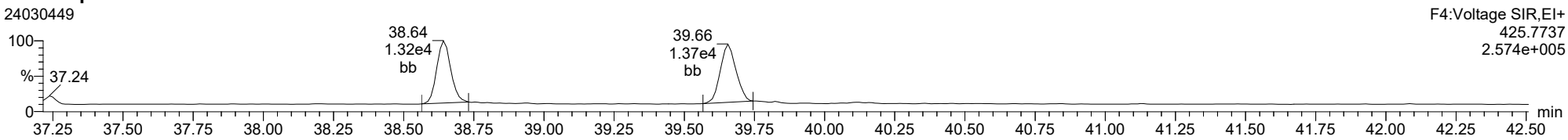
Total-hexadioxins



Total-heptadioxins



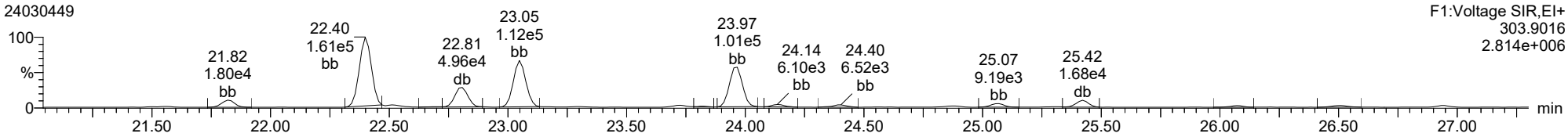
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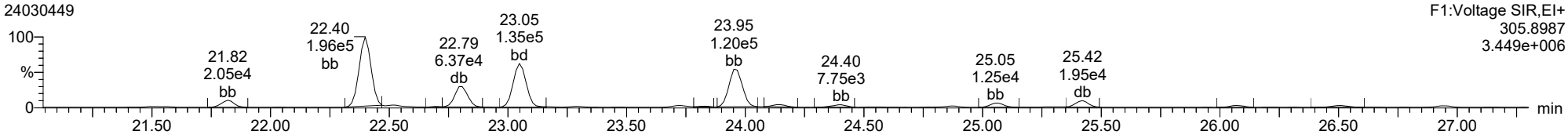
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Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
Printed: Wednesday, March 06, 2024 10:51:20 Pacific Standard Time

ID: 23l0156-20, Name: 24030449, Date: 06-Mar-2024, Time: 02:10:45, Conditions: AUTOSPEC01, User: pk

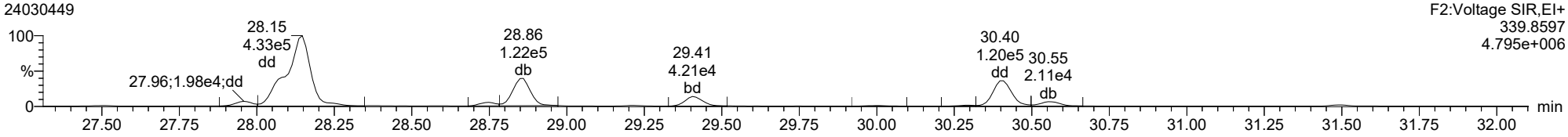
Total-tetrafurans



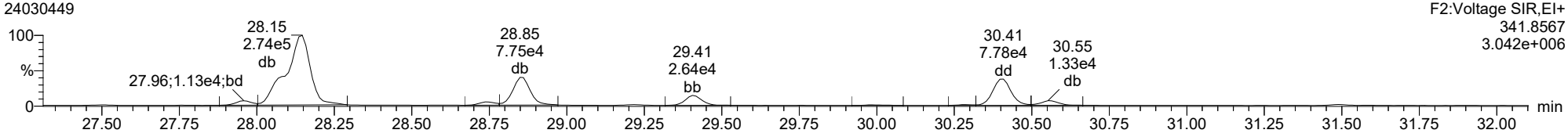
Total-tetrafurans



Total-pentafurans

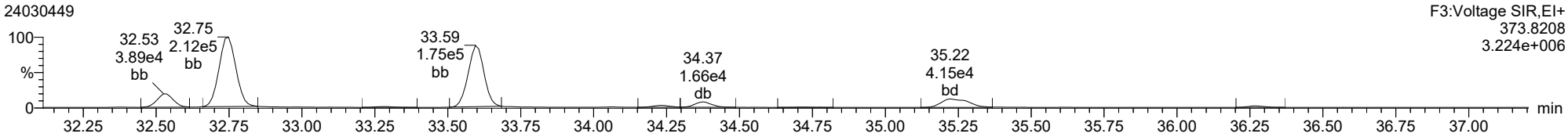


Total-pentafurans

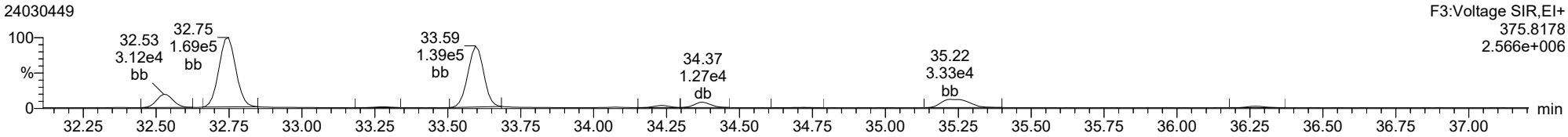


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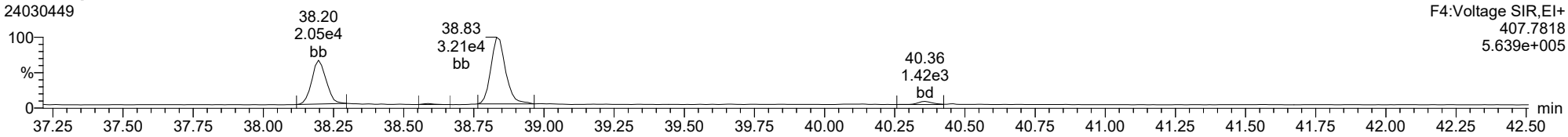
Total-hexafurans



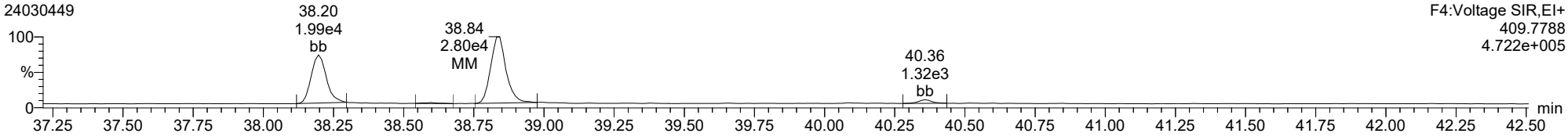
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

PREPARATION BATCH SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC			SDG:	23I0156
Client:	Floyd - Snider			Project:	Smith-Kem
Batch:	BMA0737	Batch Matrix:	Solid	Preparation:	EPA 1613

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
H4H-05-0.5-1.0	23I0156-20	24030449	01/30/24 13:37	
Blank	BMA0737-BLK1	24030446	01/30/24 13:37	
LCS	BMA0737-BS1	24030447	01/30/24 13:37	
H4H-05-0.5-1.0	BMA0737-DUP1	24030448	01/30/24 13:37	

Analytical Resources, LLC
Analytical Chemists and Consultants

HRGCMS Dioxin/Furan Preparation Bench Sheet EPA Methods 8290A or 1613B

Batch: BMA0737

Solid Samples

ARI Work Orders:	23I0156, 24A0305		
Matrix (circle one)	**Soil**	Sediment	Oil Tissue
Extraction Method	Start Date/Time:	End Date/Time:	
Soxhlet SepF Shake out	1/30/24 13:37	1/31/24 0540	

Reagents/Equipment Used	NA	ID / Lot Number	Initials	Date
Glasswool		LO14553	TW	2/1/24
Basic Silica		LO11032	TW	2/1/24
Acid Silica		M000411	TW	2/1/24
Activated Florisil		L004480	TW	2/1/24
Balance		24650344	TW	1/30/24
Toluene		LO11547	TW	1/30/24
Hexane		M000710	M	1/31/24
CH2Cl2		M001005	TW	2/1/24
H2SO4		L210375	M	1/31/24
Na2SO4		M000805	TW	1/30/24 1/31/24
~~Other ( )~~				
0% Silica		LO12486	TW	2/1/24
Nonane		I006476	TW	2/1/24

Lab Number & Container	Sample Name	% Solids	Sample Weight Equal to dry (g) (Target Dry)	Actual	RotoVap 45 °C	Water Trap Vol (mL)	Final Vol. (uL)
23I0156-20 A	H4H-05-0.5-1.0	81.24	(12.31)	12.31	1/2	2.8	20
24A0305-19 C	POBI-SG-205-	30.76	(32.51)	32.57	1/2	22.4	20
24A0305-20 C	POBI-SG-101-	58.9	(16.98)	17.00	1/2	6.4	20
24A0305-21 C	POBI-SG-208-	29.42	(33.99)	33.99	1/2	24.2	20
24A0305-22 C	POBI-SG-207-	26.35	(37.95)	37.95	1/2	23.2	20
24A0305-23 C	POBI-SG-206-	24.68	(40.52)	40.54	1/2	28.4	20
24A0305-24 G	POBI-SG-209-	29.89	(33.46)	33.48	1/2	18.8	20
24A0305-25 C	POBI-SG-209-	30.19	(33.12)	33.16	1/2	21.8	20
24A0305-26 C	POBI-SG-212-	30.35	(32.95)	32.96	1/2	17.6	20
BMA0737-BLK1	Blank	100	()	10.00	1/2	4	20
BMA0737-BS1	LCS	100	()	10.00	1/2	4	20
BMA0737-DUP1	23I0156-20A Duplicate	81.24	(12.31)	12.31	1/2	2.2	20
BMA0737-DUP2	24A0305-21C Duplicate	29.42	(33.99)	33.99	1/2	23.6	20
Prep Analyst / Date:			TW 1/30/24		M 1/31/24	M 1/31/24	

Standards Used	Vol	ID / Lot Number	Concentration	Expiration Date	Analyst	Witness	Date
Recovery Standard	1.0 mL	LO14213	2/4 ng/mL	12/8/24	TW	M	1/30/24
OPR	1.0 mL	LO12362	0.2/1.0/2.0 ng/mL	10/23/24	TW	M	1/30/24
~~QLS Standard~~	~~1.0 mL~~		~~0.1/0.5/1.0 ng/mL~~				
Cleanu-up Standard	1.0 mL	LO14214	0.8 ng/mL	12/8/24	TW	NG	2/1/24

Verify Client ID
Analyst / Date: TW 1/30/24

Acid Clean [Y] N
Analyst / Date: M 1/31/24

Silica-Florisil Clean [Y] N
Analyst / Date: TW 2/1/24

Supervisor Review By 3/4/24 Date

Printed: 1/30/2024 7:07:56AM

TOTAL SOLIDS BENCHSHEET

Method: PSEP 1986

(dry at 103-105 C)

Batch:	BMA0358
Date:	1/23/2024 7:43
Analyst:	NL
Drying Oven:	18
Analytical Balance:	24650344

Instrumentation

Batch drying time

Record times as mm/dd/yy hh:mm

Date/time in oven:	1/22/2024 12:25
Date/time out:	1/23/2024 5:12
Elapsed hrs:	16.8

Oven Temp, C 110

TS (%) calculated as:

Final dry wt (g) = (Dry Wt - Tare Wt)

TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)

Oven Temps, °C	
Start Temp:	110
End Temp:	111

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
24A0305-19C	0.8000	11.0400	3.9500	3.15	30.76%	Yes
24A0305-20C	0.8000	11.1900	6.9200	6.12	58.90%	Yes
24A0305-21 C	0.8100	11.0400	3.8200	3.01	29.42%	Yes
24A0305-22 C	0.8100	11.1700	3.5400	2.73	26.35%	Yes
24A0305-23C	0.8000	11.0900	3.3400	2.54	24.68%	Yes
24A0305-24C	0.8100	11.1800	3.9100	3.10	29.89%	Yes
24A0305-25 C	0.7900	11.6200	4.0600	3.27	30.19%	Yes
24A0305-26C	0.7900	11.5000	4.0400	3.25	30.35%	Yes

Analytical Resources, LLC
Analytical Chemists and Consultants

Organic Extractions Laboratory
Analyst Notes

Extraction Parameter: Dioxin

Element Batch: BMA0737 Work Order(s): 24A0305 (01-20)

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☐ No Anomalies (standard soil/wet sediment/sand/gravel)=	
☒ Standing Water Decanted (Not shared)=01G, 02C-20C	M 1/22/24
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☒ Rocks (%+size)? 01G, 01 ~40% Rocks 1/8-1/2in	M 1/22/24
☒ Organics (Leaves/sticks/grass)=15C	M 1/22/24
☒ Oily, obvious fuel/sulfur odors= 17C, 19C	M 1/22/24
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☒ Other (Details)= Jars broke when thawed out: samples 03C-05C, 09C-10C, 12C, 18C, -10C was bumped @ rotovap ~5%	LN 1/27/24
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☐ Other Notes/Comments= (Note problems, concerns, corrective actions).	
QC Requirements:	
☐ "Browse all Comments" printed and in file	
☐ Requested QC added Y / N; Provide reason for no BSD/MS/MSD below (if applicable):	
☐ Share Samples Y / N	
☐ Multiple Jars Y / N	
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

TOTAL SOLIDS BENCHSHEET	Batch:	BMA0358
Method: PSEP 1986	Date:	
(dry at 103-105 C)	Analyst:	M
Instrumentation	Drying Oven:	db15
	Analytical Balance:	2465d344

Batch drying time			Oven Temp, C	TS (%) calculated as:	Oven Temps, °C	
Record times as mm/dd/yy hh:mm						
Date/time in oven:	01/22/24	1225	110	Final dry wt (g) = (Dry Wt - Tare Wt)	Start Temp:	110
Date/time out:	01/23/24	0512	111	TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)	End Temp:	111
Elapsed hrs:	0.0					

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
24A0305-19	0.80	11.04	3.95			~~No~~ yes
24A0305-20	0.80	11.19	6.92			~~No~~ yes
24A0305-21	0.81	11.04	3.82			~~No~~ yes
24A0305-22	0.81	11.17	3.54			~~No~~ yes
24A0305-23	0.80	11.09	3.34			~~No~~ yes
24A0305-24	0.81	11.18	3.91			~~No~~ yes
24A0305-25	0.79	11.62	4.06			~~No~~ yes
24A0305-26	0.79	11.50	4.04			~~No~~ yes

Analytical Resources, LLC
Analytical Chemists and Consultants

Organic Extractions Laboratory
Analyst Notes

Extraction Parameter: Dioxin

Element Batch: BMA0737 Work Order(s): 24A0385 (21-26)

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☐ No Anomalies (standard soil/wet sediment/sand/gravel)=	
☒ Standing Water Decanted (Not shared)= ~~Ø~~ 21C-23C, 24G, 25C-26C M 1/22/24	M 1/22/24
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☐ Rocks (%+size)?	
☐ Organics (Leaves/sticks/grass)=	
☒ Oily, obvious fuel/sulfur odors= 22C	M 1/22/24
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☒ Other (Details)= Jars broke when thawed out: Samples = 21C, 22C, 23C-24G, 25C-26C	M 1/22/24
- Samples with Sea shells = 05C, 06C, 07C, 10C, 12C, 14C	M 1/22/24
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☐ Other Notes/Comments= (Note problems, concerns, corrective actions).	
QC Requirements:	
☐ "Browse all Comments" printed and in file	
☐ Requested QC added Y / N; Provide reason for no BSD/MS/MSD below (if applicable):	
☐ Share Samples Y / N	
☐ Multiple Jars Y / N	
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

TOTAL SOLIDS BENCHSHEET

Method: PSEP 1986

(dry at 103-105 C)

Batch:	BMA0619
Date:	1/30/2024 5:30
Analyst:	NL
Drying Oven:	18
Analytical Balance:	24650344

Instrumentation

Batch drying time

Record times as mm/dd/yy hh:mm

Date/time in oven:	1/29/2024 12:05	110
Date/time out:	1/30/2024 5:30	111
Elapsed hrs:	17.4	

Oven Temp, C

TS (%) calculated as:

Final dry wt (g) = (Dry Wt - Tare Wt)

TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)

Oven Temps, °C	
Start Temp:	110
End Temp:	111

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23I0156-20	0.8000	11.1400	9.2000	8.40	**81.24%**	No
24A0448-01	0.8100	11.0500	5.2800	4.47	**43.65%**	No
24A0448-19	0.8100	11.6100	6.2500	5.44	**50.37%**	No
24A0448-20	0.8000	11.1500	6.0200	5.22	**50.43%**	No
24A0448-29	0.7900	11.0300	5.4200	4.63	**45.21%**	No
24A0448-31	0.8000	11.6900	9.2500	8.45	**77.59%**	No
24A0448-33	0.8000	11.3900	8.3400	7.54	**71.20%**	No
24A0448-39	0.8000	11.2600	5.6400	4.84	**46.27%**	No
24A0448-49	0.8000	11.0300	6.5000	5.70	**55.72%**	No
24A0492-01	0.8000	11.1900	7.0300	6.23	**59.96%**	No
24A0492-11	0.8000	11.4900	9.1700	8.37	**78.30%**	No
24A0492-15	0.7900	11.6100	5.1100	4.32	**39.93%**	No
24A0492-19	0.8000	11.2100	7.0900	6.29	**60.42%**	No

TOTAL SOLIDS BENCHSHEET

Method: PSEP 1986

(dry at 103-105 C)

Instrumentation

Batch:	BMA0619
Date:	
Analyst:	M
Drying Oven:	#15
Analytical Balance:	246540344

Batch drying time			
Record times as mm/dd/yy hh:mm			Oven Temp, C
Date/time in oven:	1/29/24	1205	110
Date/time out:	1/30/24	0530	111
Elapsed hrs:	0.0		

TS (%) calculated as:

Final dry wt (g) = (Dry Wt - Tare Wt)

TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)

Oven Temps, °C	
Start Temp:	110
End Temp:	111

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23I0156-20A	0.80	11.14	9.20			No
24A0448-01D	0.81	11.05	5.74			No
24A0448-19B	0.81	11.61	6.25			No
24A0448-20B	0.80	11.15	6.42			No
24A0448-29B	0.79	11.03	5.42			No
24A0448-31C	0.80	11.69	9.25			No
24A0448-33C	0.80	11.39	8.34			No
24A0448-39C	0.80	11.26	5.64			No
24A0448-49B	0.80	11.03	6.50			No
24A0492-01C	0.80	11.19	7.03			No
24A0492-11C	0.80	11.49	9.17			No
24A0492-15E	0.79	11.61	5.11			No
24A0492-19C	0.80	11.21	7.09			No

Analytical Resources, LLC
Analytical Chemists and Consultants

Organic Extractions Laboratory
Analyst Notes

Extraction Parameter: PIONV

Element Batch: BMA0737 Work Order(s): 23I0156, 24A0448, 24A0492

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☒ No Anomalies (standard soil/wet sediment/sand/gravel)=24A0448: 2DB, 29B, 31C, 39C, 49B; 24A0492 - 01C, 11C, 15F, 19C	MC 1/29/24
☐ ~~Standing Water Decanted (Not shared)=~~	
☐ Standing Water Homogenized (Shared samples)=	
☒ Clay/Clumps (Difficult to homogenize)=24A0482-01D, 19B, 33C	
☒ Rocks (%+size)? 23I0156-24A=<1% 1/8-1/2in.	
☐ Organics (Leaves/sticks/grass)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☐ Other (Details)=	
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☐ Other Notes/Comments= (Note problems, concerns, corrective actions).	
QC Requirements:	
☐ "Browse all Comments" printed and in file	
☐ Requested QC added Y / N; Provide reason for no BSD/MS/MSD below (if applicable):	
☐ Share Samples Y / N	
☐ Multiple Jars Y / N	
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

Analytical Resources, LLC
Analytical Chemists and Consultants

Dioxin Extraction Laboratory – Glassware Tracking

Batch ID: BMA0737 Work Order: 23I0156, 24A0305 Extraction Parameter: D,Dx,F ARI Analyst JW

ARI Sample ID	300 mL Flat Bottom	Small Soxhlet	Large Soxhlet	250 mL Beaker	Funnel	Column	Florisil Column	Turbo Tube	Sep Funnel	Erlenmeyer Flask	Centrifuge Bottle	Turbo-Vap	Vortex Mixer	Heating Mantle
BMA0737 -BLK1	4	11		220	46	7	61	71				4	4	A1
-BS1	24	31		4	15	9	123	49				4	4	A2
-DUP1	40	116		41	29	198	46	20				4	4	A3
-DUP2	73		66	213	26	12	40	29				4	4	A5
23I0156 -20	6	64		52	79	73	163	69				4	4	A6
24A0305 -19	19		45	62	61	8	71	3				4	4	B1
-20	11	16	70	65	50	28	138	77				4	4	B2
-21	66		32	23	70	168	137	35				4	4	B3
-22	48		68	6	59	19	159	5				4	4	B4
-23	2		65	42	58	103	197	50				4	4	B5
-24	12		58	59	124	45	67	18				4	4	B6
-25	44		2	46	34	201	167	23				4	4	C1
-26	18		61	11	6	51	120	74				4	4	C2
												4	4	
												4	4	
												4	4	
												4	4	
												4	4	
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												4	4	
												4	4	
												4	4	
												4	4	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Cleanup Batch:	CMB0001	Cleanup Type:	Sulfuric Acid
Cleanup Method:	EPA 3665 Sulfuric Acid Cleanup - uL	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
H4H-05-0.5-1.0	23I0156-20	24030449	01/31/2024	
Blank	BMA0737-BLK1	24030446	01/31/2024	
Duplicate	BMA0737-DUP1	24030448	01/31/2024	
LCS	BMA0737-BS1	24030447	01/31/2024	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CMB0001

Matrix: Solid **Cleanup using: HRGCMS - EPA 3665 Sulfuric Acid Cleanup - uL** **Printed: 2/1/2024 12:26:09PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23I0156-20	A	H4H-05-0.5-1.0	A 01	20	20	1613B Dioxin	1/31/2024	NPL	
24A0305-19	C	POBI-SG-205-(0-10)-240111	C 01	20	20	1613B Dioxin	1/31/2024	NPL	
24A0305-20	C	POBI-SG-101-(0-10)-240111	C 01	20	20	1613B Dioxin	1/31/2024	NPL	
24A0305-21	C	POBI-SG-208-(0-10)-240111	C 01	20	20	1613B Dioxin	1/31/2024	NPL	
24A0305-22	C	POBI-SG-207-(0-10)-240111	C 01	20	20	1613B Dioxin	1/31/2024	NPL	
24A0305-23	C	POBI-SG-206-(0-10)-240111	C 01	20	20	1613B Dioxin	1/31/2024	NPL	
24A0305-24	G	POBI-SG-209-(0-10)-240111	G 01	20	20	1613B Dioxin	1/31/2024	NPL	
24A0305-25	C	POBI-SG-209-(0-10)-240111-DUP	C 01	20	20	1613B Dioxin	1/31/2024	NPL	
24A0305-26	C	POBI-SG-212-(0-10)-240111-DUP	C 01	20	20	1613B Dioxin	1/31/2024	NPL	
BMA0737-BLK1	-	Blank	-	20	20	-	1/31/2024	NPL	
BMA0737-BS1	-	LCS	-	20	20	-	1/31/2024	NPL	
BMA0737-DUP1	-	Duplicate	-	20	20	-	1/31/2024	NPL	
BMA0737-DUP2	-	Duplicate	-	20	20	-	1/31/2024	NPL	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Cleanup Batch:	CMB0002	Cleanup Type:	Silica Gel
Cleanup Method:	EPA 3630C Silica Gel Cleanup - uL	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
H4H-05-0.5-1.0	23I0156-20	24030449	02/01/2024	
Blank	BMA0737-BLK1	24030446	02/01/2024	
Duplicate	BMA0737-DUP1	24030448	02/01/2024	
LCS	BMA0737-BS1	24030447	02/01/2024	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CMB0002

Matrix: Solid **Cleanup using: HRGCMS - EPA 3630C Silica Gel Cleanup - uL** **Printed: 2/1/2024 12:26:52PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23I0156-20	A	H4H-05-0.5-1.0	A 01	20	20	1613B Dioxin	2/1/2024	TW	
24A0305-19	C	POBI-SG-205-(0-10)-240111	C 01	20	20	1613B Dioxin	2/1/2024	TW	
24A0305-20	C	POBI-SG-101-(0-10)-240111	C 01	20	20	1613B Dioxin	2/1/2024	TW	
24A0305-21	C	POBI-SG-208-(0-10)-240111	C 01	20	20	1613B Dioxin	2/1/2024	TW	
24A0305-22	C	POBI-SG-207-(0-10)-240111	C 01	20	20	1613B Dioxin	2/1/2024	TW	
24A0305-23	C	POBI-SG-206-(0-10)-240111	C 01	20	20	1613B Dioxin	2/1/2024	TW	
24A0305-24	G	POBI-SG-209-(0-10)-240111	G 01	20	20	1613B Dioxin	2/1/2024	TW	
24A0305-25	C	POBI-SG-209-(0-10)-240111-DUP	C 01	20	20	1613B Dioxin	2/1/2024	TW	
24A0305-26	C	POBI-SG-212-(0-10)-240111-DUP	C 01	20	20	1613B Dioxin	2/1/2024	TW	
BMA0737-BLK1	-	Blank	-	20	20	-	2/1/2024	TW	
BMA0737-BS1	-	LCS	-	20	20	-	2/1/2024	TW	
BMA0737-DUP1	-	Duplicate	-	20	20	-	2/1/2024	TW	
BMA0737-DUP2	-	Duplicate	-	20	20	-	2/1/2024	TW	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Cleanup Batch:	CMB0003	Cleanup Type:	Florisil
Cleanup Method:	EPA 3620B Florisil Cleanup (uL)	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
H4H-05-0.5-1.0	23I0156-20	24030449	02/01/2024	
Blank	BMA0737-BLK1	24030446	02/01/2024	
Duplicate	BMA0737-DUP1	24030448	02/01/2024	
LCS	BMA0737-BS1	24030447	02/01/2024	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CMB0003

Matrix: Solid **Cleanup using: HRGCMS - EPA 3620B Florisil Cleanup (uL)** **Printed: 2/1/2024 12:27:26PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23I0156-20	A	H4H-05-0.5-1.0	A 01	20	20	1613B Dioxin	2/1/2024	TW	
24A0305-19	C	POBI-SG-205-(0-10)-240111	C 01	20	20	1613B Dioxin	2/1/2024	TW	
24A0305-20	C	POBI-SG-101-(0-10)-240111	C 01	20	20	1613B Dioxin	2/1/2024	TW	
24A0305-21	C	POBI-SG-208-(0-10)-240111	C 01	20	20	1613B Dioxin	2/1/2024	TW	
24A0305-22	C	POBI-SG-207-(0-10)-240111	C 01	20	20	1613B Dioxin	2/1/2024	TW	
24A0305-23	C	POBI-SG-206-(0-10)-240111	C 01	20	20	1613B Dioxin	2/1/2024	TW	
24A0305-24	G	POBI-SG-209-(0-10)-240111	G 01	20	20	1613B Dioxin	2/1/2024	TW	
24A0305-25	C	POBI-SG-209-(0-10)-240111-DUP	C 01	20	20	1613B Dioxin	2/1/2024	TW	
24A0305-26	C	POBI-SG-212-(0-10)-240111-DUP	C 01	20	20	1613B Dioxin	2/1/2024	TW	
BMA0737-BLK1	-	Blank	-	20	20	-	2/1/2024	TW	
BMA0737-BS1	-	LCS	-	20	20	-	2/1/2024	TW	
BMA0737-DUP1	-	Duplicate	-	20	20	-	2/1/2024	TW	
BMA0737-DUP2	-	Duplicate	-	20	20	-	2/1/2024	TW	

Analytical Resources, LLC
Analytical Chemists and Consultants

Blank

Form 1
METHOD BLANK DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23I0156
Client:	Floyd - Snider			Project:	Smith-Kem
Matrix:	Solid	Laboratory ID:	BMA0737-BLK1	File ID:	24030446
Sampled:	N/A	Prepared:	01/30/24 13:37	Analyzed:	03/05/24 23:43
Solids Wt%:		Preparation:	EPA 1613	Initial/Final:	10 g / 20 uL
Result Basis:	Dry	Sequence:	SMC0054	Calibration:	HB00095
Batch:	BMA0737	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.000	0.655-0.886	0.137	1.00	ND	ng/kg	U
1746-01-6	2,3,7,8-TCDD	1	0.000	0.655-0.886	0.086	1.00	ND	ng/kg	U
57117-41-6	1,2,3,7,8-PeCDF	1	0.000	1.318-1.783	0.123	1.00	ND	ng/kg	U
57117-31-4	2,3,4,7,8-PeCDF	1	0.000	1.318-1.783	0.126	1.00	ND	ng/kg	U
40321-76-4	1,2,3,7,8-PeCDD	1	0.000	1.318-1.783	0.144	1.00	ND	ng/kg	U
70648-26-9	1,2,3,4,7,8-HxCDF	1	0.000	1.054-1.426	0.093	1.00	ND	ng/kg	U
57117-44-9	1,2,3,6,7,8-HxCDF	1	0.000	1.054-1.426	0.092	1.00	ND	ng/kg	U
60851-34-5	2,3,4,6,7,8-HxCDF	1	0.000	1.054-1.426	0.091	1.00	ND	ng/kg	U
72918-21-9	1,2,3,7,8,9-HxCDF	1	0.000	1.054-1.426	0.134	1.00	ND	ng/kg	U
39227-28-6	1,2,3,4,7,8-HxCDD	1	0.000	1.054-1.426	0.175	1.00	ND	ng/kg	U
57653-85-7	1,2,3,6,7,8-HxCDD	1	0.000	1.054-1.426	0.171	1.00	ND	ng/kg	U
19408-74-3	1,2,3,7,8,9-HxCDD	1	0.000	1.054-1.426	0.188	1.00	ND	ng/kg	U
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	0.000	0.893-1.208	0.114	1.00	ND	ng/kg	U
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	0.000	0.893-1.208	0.166	1.00	ND	ng/kg	U
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	0.000	0.893-1.208	0.185	2.50	ND	ng/kg	U
39001-02-0	OCDF	1	0.000	0.757-1.024	0.219	2.50	ND	ng/kg	U
3268-87-9	OCDD	1	0.699	0.757-1.024	0.306	10.0	1.17	ng/kg	EMPC, J

Homologue Groups

55722-27-5	Total TCDF	1	0.000			1.00	ND	ng/kg
41903-57-5	Total TCDD	1	0.000			1.00	ND	ng/kg
30402-15-4	Total PeCDF	1	0.000			1.00	ND	ng/kg
36088-22-9	Total PeCDD	1	0.000			1.00	ND	ng/kg
55684-94-1	Total HxCDF	1	0.000			1.00	ND	ng/kg
34465-46-8	Total HxCDD	1	0.000			1.00	ND	ng/kg
38998-75-3	Total HpCDF	1	0.000			1.00	ND	ng/kg
37871-00-4	Total HpCDD	1	0.000			1.00	ND	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.000
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.193

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Blank

Form 2
METHOD BLANK DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23I0156
Client:	Floyd - Snider			Project:	Smith-Kem
Matrix:	Solid	Laboratory ID:	BMA0737-BLK1	File ID:	24030446
Sampled:	N/A	Prepared:	01/30/24 13:37	Analyzed:	03/05/24 23:43
Solids Wt%:	0.00	Preparation:	EPA 1613	Initial/Final:	10 g / 20 uL
Result Basis:	Dry	Sequence:	SMC0054	Calibration:	HB00095
Batch:	BMA0737	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF	1	0.714	0.655-0.886	0.13	48.2	24 - 169 %	
13C12-2,3,7,8-TCDD	1	0.794	0.655-0.886	0.26	84.7	25 - 164 %	
13C12-1,2,3,7,8-PeCDF	1	1.593	1.318-1.783	0.32	105	24 - 185 %	
13C12-2,3,4,7,8-PeCDF	1	1.592	1.318-1.783	0.34	96.9	21 - 178 %	
13C12-1,2,3,7,8-PeCDD	1	1.675	1.318-1.783	0.19	85.4	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF	1	0.530	0.434-0.587	0.60	112	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF	1	0.533	0.434-0.587	0.53	109	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF	1	0.533	0.434-0.587	0.61	118	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF	1	0.543	0.434-0.587	0.70	107	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD	1	1.238	1.054-1.426	0.42	111	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD	1	1.230	1.054-1.426	0.36	114	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF	1	0.481	0.374-0.506	0.73	114	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF	1	0.450	0.374-0.506	1.00	125	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD	1	1.084	0.893-1.208	0.63	126	23 - 140 %	
13C12-OCDD	1	0.853	0.757-1.024	1.18	114	17 - 157 %	
37Cl4-2,3,7,8-TCDD	1	328.000		0.05	84.5	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\240304IH1.qld
Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
Printed: Wednesday, March 06, 2024 10:50:39 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240306.mdb 06 Mar 2024 10:17:07
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

ID: BMA0737-BLK1, Name: 24030446, Date: 05-Mar-2024, Time: 23:43:50, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF					0.980		0.770	578	509								
12378-PeCDF					1.047		1.550	652	1045								
23478-PeCDF					1.156		1.550	652	1045								
123478-HxCDF					1.224		1.240	396	511								
234678-HxCDF					1.235		1.240	396	511								
123678-HxCDF					1.193		1.240	396	511								
123789-HxCDF					1.100		1.240	396	511								
1234678-HpCDF					1.392		1.050	670	453								
1234789-HpCDF					1.381		1.050	670	453								
OCDF					1.222		0.890	531	549								
2378-TCDD					1.227		0.770	678	481								
12378-PeCDD					0.964		1.550	513	486								
123478-HxCDD					0.841		1.240	611	521								
123678-HxCDD					0.833		1.240	611	521								
123789-HxCDD					0.770		1.240	611	521								
1234678-HpCDD					0.984		1.050	519	539								
OCDD	44.237	1.000	4.557e2	6.518e2	0.938	0.699	0.890	470	685	6.78e3	9.01e3	14.4	13.1	YES	MM	MM	0.586
13C-2378-TCDF	25.054	1.007	1.435e5	2.011e5	1.655	0.714	0.770	1138	1216	2.02e6	2.81e6	1773.8	2314.8	NO	bb	bb	48.188
13C-12378-PeCDF	29.205	1.174	3.337e5	2.095e5	1.196	1.593	1.550	2155	1990	4.84e6	3.01e6	2245.2	1512.5	NO	bb	bb	105.132
13C-23478-PeCDF	30.542	1.228	2.874e5	1.805e5	1.117	1.592	1.550	2155	1990	4.30e6	2.70e6	1994.5	1357.6	NO	bb	bb	96.932
13C-123478-HxCDF	34.219	0.954	1.115e5	2.105e5	1.028	0.530	0.510	1588	2599	1.66e6	3.11e6	1042.4	1195.6	NO	bd	bd	111.794
13C-123678-HxCDF	34.353	0.957	1.250e5	2.347e5	1.176	0.533	0.510	1588	2599	1.72e6	3.24e6	1085.3	1248.3	NO	db	db	109.186
13C-234678-HxCDF	35.244	0.982	1.164e5	2.184e5	1.016	0.533	0.510	1588	2599	1.69e6	3.16e6	1066.8	1215.8	NO	bb	bb	117.603
13C-123789-HxCDF	36.291	1.011	9.255e4	1.703e5	0.879	0.543	0.510	1588	2599	1.30e6	2.42e6	820.6	929.5	NO	bb	bb	106.720
13C-1234678-HpCDF	38.185	1.064	8.999e4	1.872e5	0.870	0.481	0.440	2331	1980	1.38e6	2.95e6	593.3	1490.5	NO	bd	bb	113.717
13C-1234789-HpCDF	40.346	1.125	6.904e4	1.535e5	0.638	0.450	0.440	2331	1980	9.12e5	2.06e6	391.3	1038.6	NO	bb	bd	124.537
13C-1234-TCDD	24.870	0.000	1.917e5	2.404e5	1.000	0.797	0.770	1986	1237	2.90e6	3.61e6	1457.4	2921.4	NO	bb	bb	100.000
13C-2378-TCDD	25.690	1.033	1.864e5	2.346e5	1.151	0.794	0.770	1986	1237	2.90e6	3.59e6	1462.2	2903.3	NO	bb	bb	84.654
13C-12378-PeCDD	30.798	1.238	1.914e5	1.143e5	0.828	1.675	1.550	949	741	2.70e6	1.61e6	2847.9	2165.4	NO	bb	bd	85.395
13C-123478-HxCDD	35.366	0.986	1.635e5	1.320e5	0.950	1.238	1.240	1808	900	2.56e6	2.02e6	1416.2	2239.1	NO	bd	bd	111.044
13C-123678-HxCDD	35.478	0.989	1.947e5	1.584e5	1.107	1.230	1.240	1808	900	2.63e6	2.18e6	1452.0	2419.3	NO	db	db	113.855
13C-1234678-HpCDD	39.644	1.105	1.355e5	1.251e5	0.737	1.084	1.050	1489	1644	1.82e6	1.62e6	1221.0	987.7	NO	bd	bd	126.190
13C-OCDD	44.228	1.233	1.855e5	2.174e5	0.633	0.853	0.890	2262	2780	2.23e6	2.56e6	984.4	920.0	NO	bb	bb	227.284
13C-123789-HxCDD	35.879	0.000	1.545e5	1.257e5	1.000	1.229	1.240	1808	900	2.24e6	1.79e6	1237.0	1986.2	NO	bb	bb	100.000
37CL-2378-TCDD	25.704	1.034	1.918e5		1.312			687		2.87e6		4184.1			bb		33.813

Dataset: T:\Autospec\Processed Data Batch\240304IH1.qld
Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
Printed: Wednesday, March 06, 2024 10:50:39 Pacific Standard Time

ID: BMA0737-BLK1, Name: 24030446, Date: 05-Mar-2024, Time: 23:43:50, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.247		0.770	578	509								
1289-TCDF					0.916		0.770	578	509								
13468-PECDF					1.353		1.550	550	582								
12389-PECDF					0.925		1.550	652	1045								
123468-HXCDF					1.335		1.240	396	511								
1368-TCDD					1.120		0.770	678	481								
1289-TCDD					0.966		0.770	678	481								
12479-PECDD					1.859		1.550	513	486								
12389-PECDD					1.154		1.550	513	486								
124679-HXCDD					1.006		1.240	611	521								
1234679-HPCDD					1.184		1.050	519	539								
Total-tetrafurans			0.000e0		1.048			578		0.00e0							
Total-penta1			0.000e0					550		0.00e0							
Total-pentafurans			0.000e0		1.043			652		0.00e0							
Total-hexafurans			0.000e0		1.217			396		0.00e0							
Total-heptafurans			0.000e0		1.387			670		0.00e0							
Total-Furans			0.000e0		1.180			578		0.00e0							
Total-tetradioxins			0.000e0		1.104			678		0.00e0							
Total-pentadioxins			0.000e0		1.326			513		0.00e0							
Total-hexadioxins			0.000e0		0.863			611		0.00e0							
Total-heptadioxins			0.000e0		1.084			519		0.00e0							
Total-Dioxins			0.000e0		1.065			678		0.00e0							
Total-TEQ			0.000e0					678		0.00e0							
FUNCTION1 PFK			8.145e7					306779		4.93e8							
FUNCTION2 PFK			2.242e6					208267		1.81e7							0.000
FUNCTION3 PFK			0.000e0					177112		0.00e0							
FUNCTION4 PFK			7.012e6					195509		5.56e7							
FUNCTION5 PFK			9.344e4					142441		3.47e6							
FUNCTION1 HXCD...			4.038e2					521		6.56e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			0.000e0					671		0.00e0							
FUNCTION3 OCDPE			9.716e1					361		1.12e3							0.000
FUNCTION4 NCDPE			7.352e1					417		1.52e3							0.000
FUNCTION5 DCDPE			1.538e2					401		2.04e3							0.000

Method: T:\Autospec\Methods\Dioxin240306.mdb 06 Mar 2024 10:17:07
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

ID: BMA0737-BLK1, Name: 24030446, Date: 05-Mar-2024, Time: 23:43:50, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ID: BMA0737-BLK1, Name: 24030446, Date: 05-Mar-2024, Time: 23:43:50, Conditions: AUTOSPEC01, User: pk

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

Dataset: T:\Autospec\Processed Data Batch\240304IH1.qld
Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
Printed: Wednesday, March 06, 2024 10:50:39 Pacific Standard Time

ID: BMA0737-BLK1, Name: 24030446, Date: 05-Mar-2024, Time: 23:43:50, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.79	3.175e6					56.9	YES		dd		
2	FUNCTION1 PFK	21.58	4.276e6					55.4	YES		dd		
3	FUNCTION1 PFK	21.35	2.194e6					53.5	YES		dd		
4	FUNCTION1 PFK	21.16	2.050e6					48.8	YES		bd		
5	FUNCTION1 PFK	24.43	2.052e6					57.1	YES		dd		
6	FUNCTION1 PFK	24.29	4.001e6					58.1	YES		dd		
7	FUNCTION1 PFK	24.04	2.823e6					57.9	YES		dd		
8	FUNCTION1 PFK	23.88	1.813e6					58.7	YES		dd		
9	FUNCTION1 PFK	23.81	2.082e6					58.6	YES		dd		
10	FUNCTION1 PFK	23.70	5.518e5					38.7	YES		dd		
11	FUNCTION1 PFK	23.54	2.841e6					59.6	YES		dd		
12	FUNCTION1 PFK	23.39	2.015e6					61.5	YES		dd		
13	FUNCTION1 PFK	23.34	1.503e6					60.9	YES		dd		
14	FUNCTION1 PFK	23.20	2.837e6					62.1	YES		dd		
15	FUNCTION1 PFK	23.01	6.102e6					62.8	YES		dd		
16	FUNCTION1 PFK	22.68	2.621e6					62.9	YES		dd		
17	FUNCTION1 PFK	22.60	2.789e6					63.2	YES		bd		
18	FUNCTION1 PFK	22.37	2.223e6					60.7	YES		db		
19	FUNCTION1 PFK	22.06	5.068e6					59.4	YES		dd		
20	FUNCTION1 PFK	22.00	1.944e6					58.7	YES		dd		
21	FUNCTION1 PFK	27.06	1.443e6					16.0	YES		bb		
22	FUNCTION1 PFK	26.81	8.306e5					26.5	YES		bb		
23	FUNCTION1 PFK	26.62	1.171e6					29.9	YES		db		
24	FUNCTION1 PFK	26.48	5.985e5					28.1	YES		dd		
25	FUNCTION1 PFK	26.37	1.605e6					34.6	YES		dd		
26	FUNCTION1 PFK	26.20	6.241e5					28.4	YES		dd		
27	FUNCTION1 PFK	26.13	1.093e6					35.5	YES		dd		
28	FUNCTION1 PFK	25.93	2.489e6					40.8	YES		dd		
29	FUNCTION1 PFK	25.77	1.050e7					43.3	YES		bd		
30	FUNCTION1 PFK	24.84	2.779e6					55.4	YES		db		
31	FUNCTION1 PFK	24.63	2.137e6					56.3	YES		dd		
32	FUNCTION1 PFK	24.59	1.221e6					56.1	YES		dd		

ID: BMA0737-BLK1, Name: 24030446, Date: 05-Mar-2024, Time: 23:43:50, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	27.73	8.323e5					13.9	YES		db		0.000
2	FUNCTION2 PFK	27.51	4.438e5					25.5	YES		dd		0.000
3	FUNCTION2 PFK	27.34	7.494e5					38.8	YES		bd		0.000
4	FUNCTION2 PFK	29.58	1.839e5					4.9	YES		bb		0.000
5	FUNCTION2 PFK	28.92	3.222e4					4.1	YES		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

Dataset: T:\Autospec\Processed Data Batch\240304IH1.qld
Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
Printed: Wednesday, March 06, 2024 10:50:39 Pacific Standard Time

ID: BMA0737-BLK1, Name: 24030446, Date: 05-Mar-2024, Time: 23:43:50, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	39.06	6.844e3					1.4	NO		bd		
2	FUNCTION4 PFK	39.01	1.080e3					0.5	NO		bb		
3	FUNCTION4 PFK	38.72	1.319e4					1.1	NO		bb		
4	FUNCTION4 PFK	38.59	8.599e3					1.0	NO		bb		
5	FUNCTION4 PFK	38.21	4.278e5					13.3	YES		db		
6	FUNCTION4 PFK	38.10	3.556e5					18.5	YES		dd		
7	FUNCTION4 PFK	38.04	2.169e5					21.2	YES		dd		
8	FUNCTION4 PFK	37.82	1.061e6					30.5	YES		dd		
9	FUNCTION4 PFK	37.77	2.736e5					32.2	YES		dd		
10	FUNCTION4 PFK	37.52	2.769e6					43.2	YES		dd		
11	FUNCTION4 PFK	37.37	4.163e5					49.3	YES		dd		
12	FUNCTION4 PFK	37.27	1.332e6					53.2	YES		bd		
13	FUNCTION4 PFK	42.32	8.820e2					0.4	NO		bb		
14	FUNCTION4 PFK	42.17	7.483e2					0.3	NO		bb		
15	FUNCTION4 PFK	41.94	7.758e3					1.3	NO		bb		
16	FUNCTION4 PFK	41.71	1.550e4					1.3	NO		bb		
17	FUNCTION4 PFK	41.42	1.011e4					1.5	NO		bb		
18	FUNCTION4 PFK	41.15	6.235e3					1.3	NO		bb		
19	FUNCTION4 PFK	40.94	9.951e2					0.5	NO		bb		
20	FUNCTION4 PFK	40.83	9.098e3					1.2	NO		bb		
21	FUNCTION4 PFK	40.41	1.338e4					1.3	NO		bb		
22	FUNCTION4 PFK	40.18	6.673e3					0.9	NO		bb		
23	FUNCTION4 PFK	40.01	6.795e3					1.5	NO		bb		
24	FUNCTION4 PFK	39.71	6.897e3					1.3	NO		bb		
25	FUNCTION4 PFK	39.60	1.782e4					1.7	NO		db		
26	FUNCTION4 PFK	39.54	1.229e4					1.7	NO		bd		
27	FUNCTION4 PFK	39.30	7.309e2					0.3	NO		bb		
28	FUNCTION4 PFK	39.11	7.614e3					0.9	NO		db		
29	FUNCTION4 PFK	42.45	6.123e3					1.1	NO		bb		

ID: BMA0737-BLK1, Name: 24030446, Date: 05-Mar-2024, Time: 23:43:50, Conditions: AUTOSPEC01, User: pk

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.14	3.045e3					1.1	NO		bb		
2	FUNCTION5 PFK	44.07	8.863e3					1.6	NO		bb		
3	FUNCTION5 PFK	43.91	7.678e3					1.4	NO		bb		
4	FUNCTION5 PFK	43.78	3.214e3					1.3	NO		bb		
5	FUNCTION5 PFK	43.72	8.309e3					1.3	NO		bb		
6	FUNCTION5 PFK	43.61	4.904e2					0.4	NO		bb		
7	FUNCTION5 PFK	43.57	2.543e3					0.9	NO		bb		
8	FUNCTION5 PFK	43.46	2.848e3					0.9	NO		db		
9	FUNCTION5 PFK	43.43	1.222e3					0.7	NO		bd		
10	FUNCTION5 PFK	43.40	1.585e3					0.8	NO		bb		
11	FUNCTION5 PFK	43.22	2.795e3					1.0	NO		db		
12	FUNCTION5 PFK	43.18	3.506e3					1.1	NO		bd		
13	FUNCTION5 PFK	43.13	7.945e3					1.6	NO		bb		
14	FUNCTION5 PFK	42.71	4.858e3					0.9	NO		bb		
15	FUNCTION5 PFK	45.57	2.606e3					1.1	NO		db		
16	FUNCTION5 PFK	45.55	5.610e3					1.4	NO		bd		
17	FUNCTION5 PFK	44.98	4.508e3					1.3	NO		bb		
18	FUNCTION5 PFK	44.77	5.154e3					1.0	NO		bb		
19	FUNCTION5 PFK	44.58	6.131e3					1.2	NO		bb		
20	FUNCTION5 PFK	44.26	4.806e3					1.6	NO		db		
21	FUNCTION5 PFK	44.24	5.719e3					1.6	NO		bd		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.98	7.107e1					2.7	NO		bb		0.000
2	FUNCTION1 HXCD...	26.81	8.913e1					3.0	NO		bb		0.000
3	FUNCTION1 HXCD...	21.47	9.039e1					2.9	NO		db		0.000
4	FUNCTION1 HXCD...	21.32	8.104e1					2.2	NO		bd		0.000
5	FUNCTION1 HXCD...	21.17	7.218e1					1.8	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ID: BMA0737-BLK1, Name: 24030446, Date: 05-Mar-2024, Time: 23:43:50, Conditions: AUTOSPEC01, User: pk

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	33.42	9.716e1					3.1	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	39.02	7.352e1					3.6	YES		bb		0.000

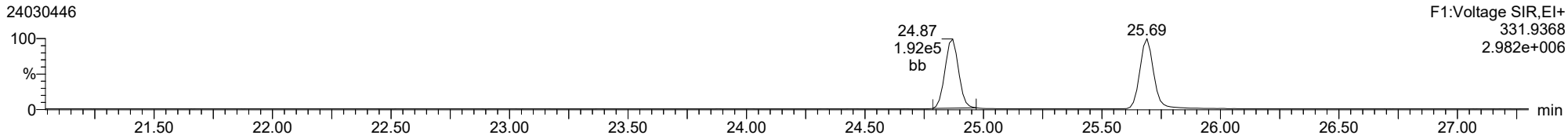
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	45.33	8.018e1					2.6	NO		bb		0.000
2	FUNCTION5 DCDPE	42.61	7.363e1					2.5	NO		bb		0.000

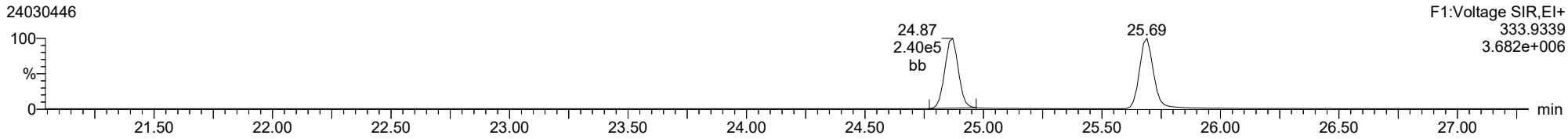
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ID: BMA0737-BLK1, Name: 24030446, Date: 05-Mar-2024, Time: 23:43:50, Conditions: AUTOSPEC01, User: pk

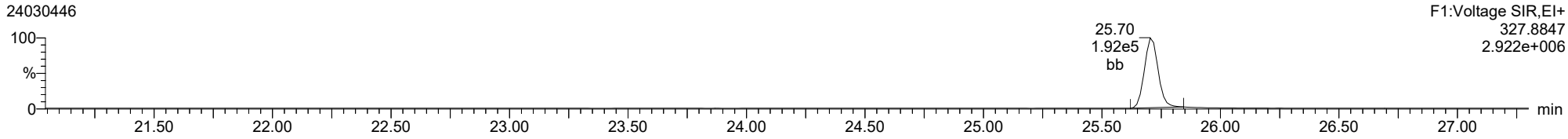
13C-1234-TCDD



13C-1234-TCDD

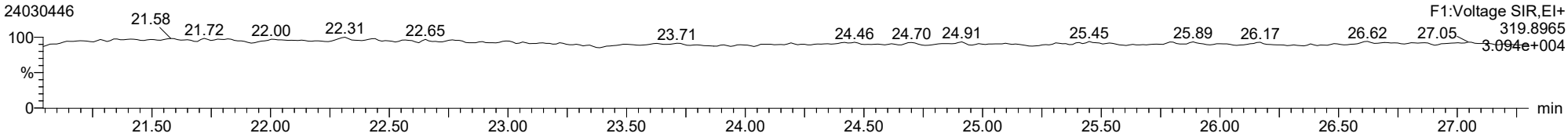


37CL-2378-TCDD

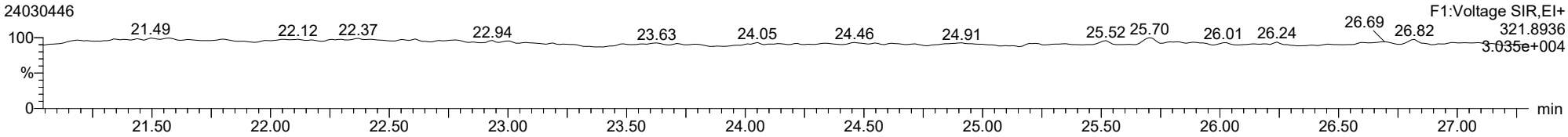


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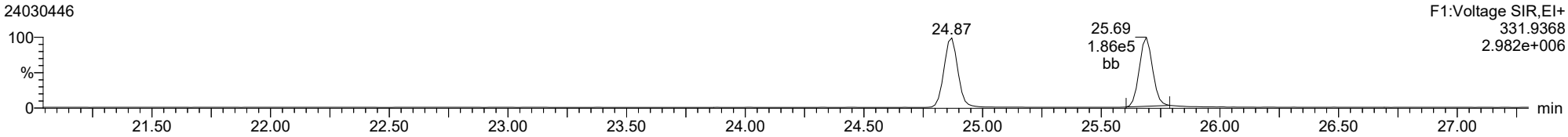
2378-TCDD



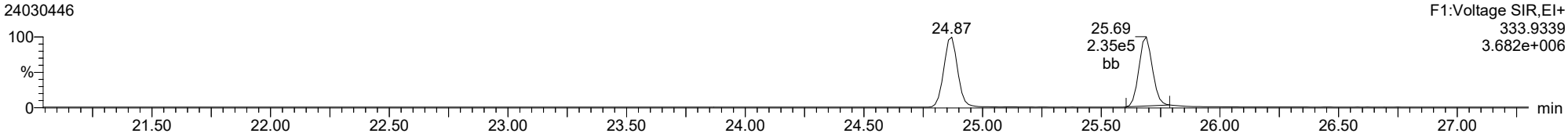
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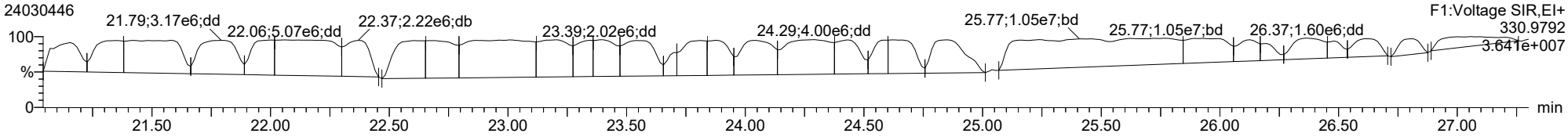
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13C-2378-TCDD

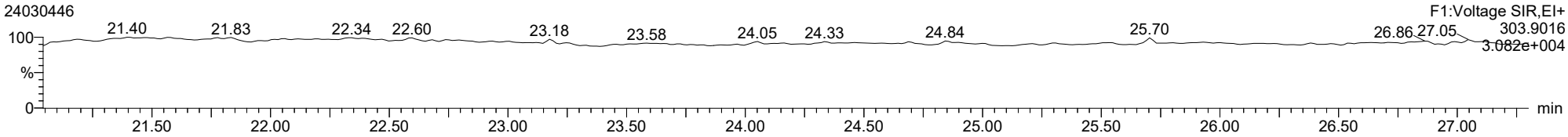


FUNCTION1 PFK

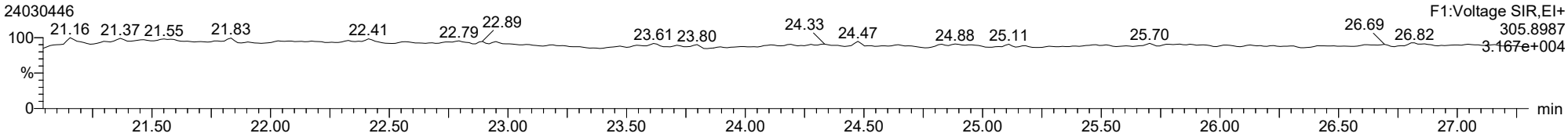


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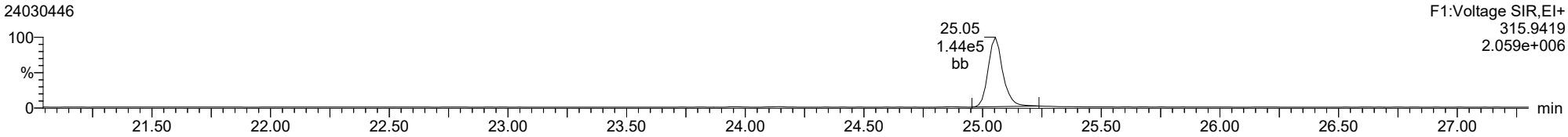
2378-TCDF



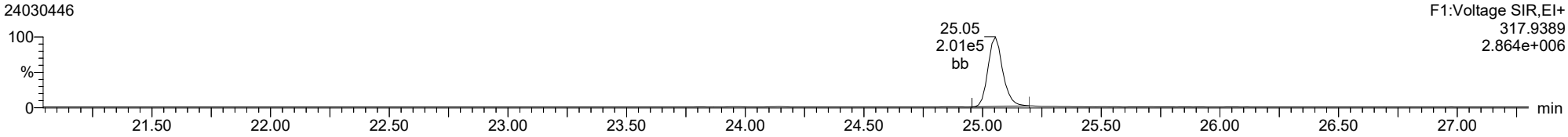
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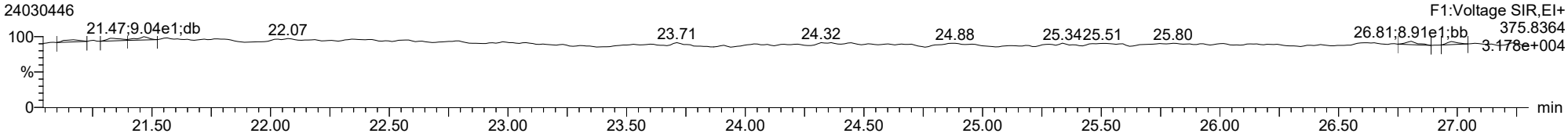
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13C-2378-TCDF

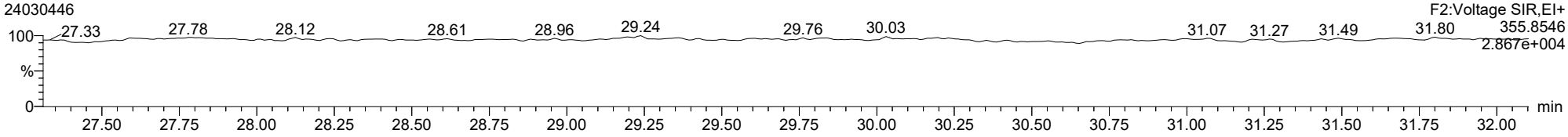


FUNCTION1 HXCDPE

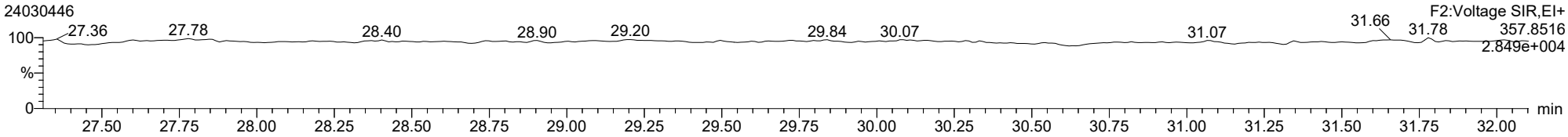


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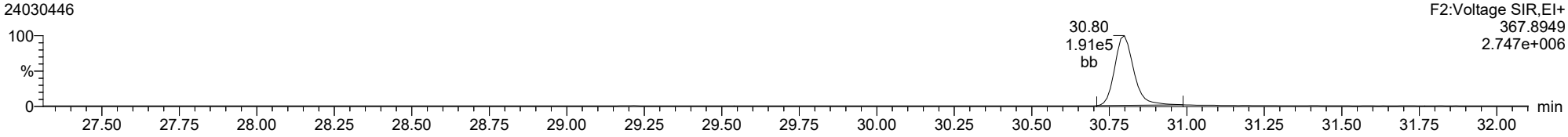
12378-PeCDD



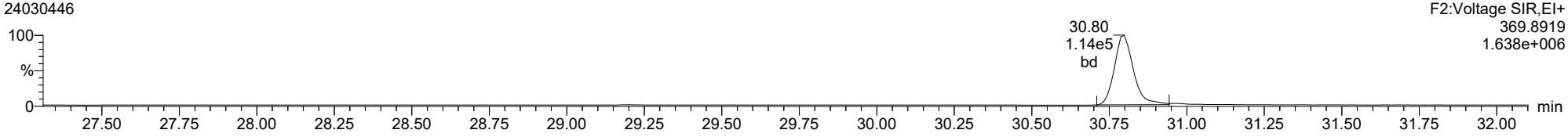
12378-PeCDD



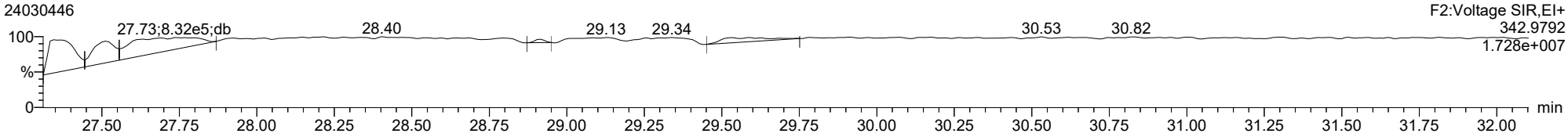
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13C-12378-PeCDD

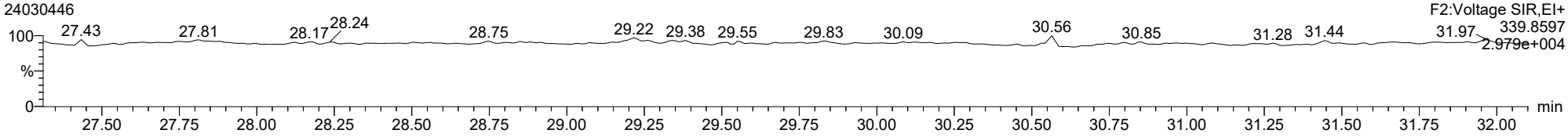


FUNCTION2 PFK

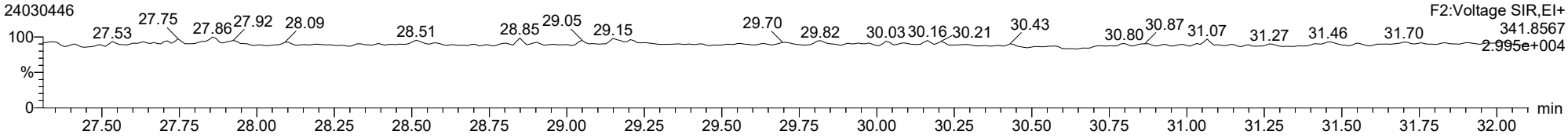


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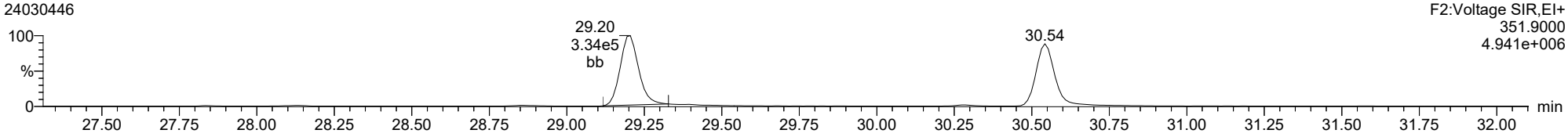
12378-PeCDF



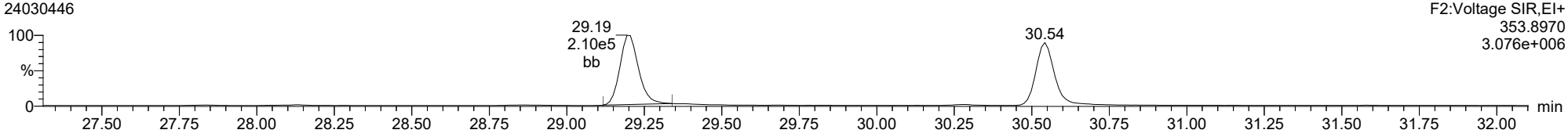
12378-PeCDF



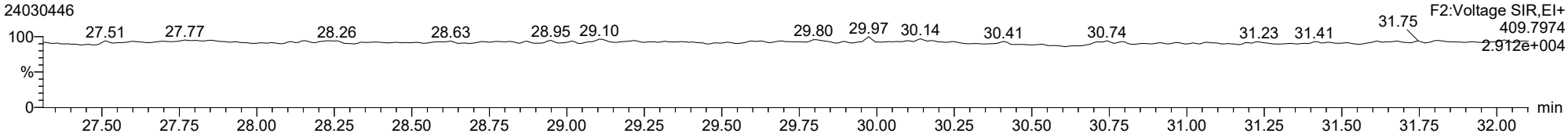
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13C-12378-PeCDF

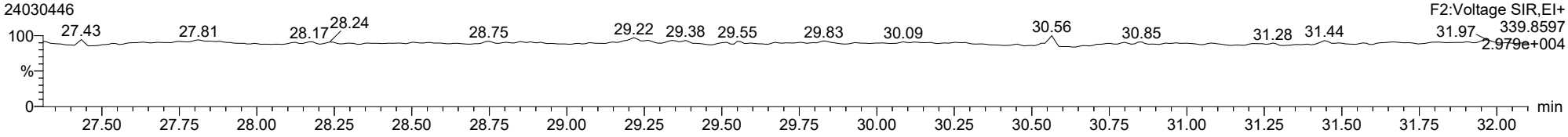


FUNCTION2 HPCDPE

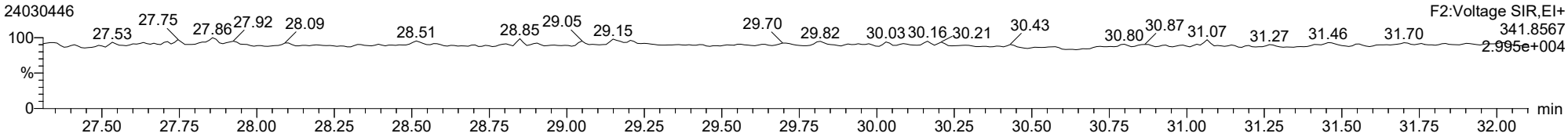


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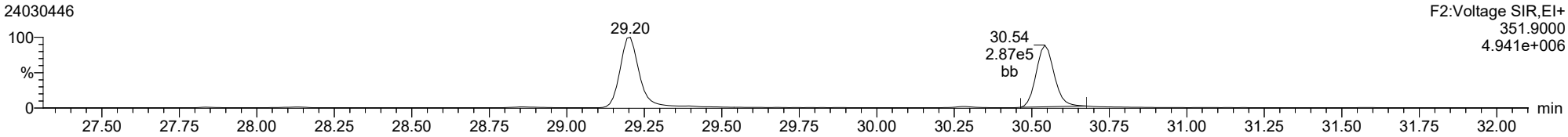
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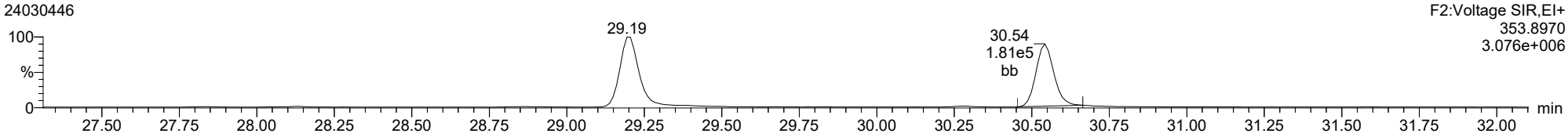
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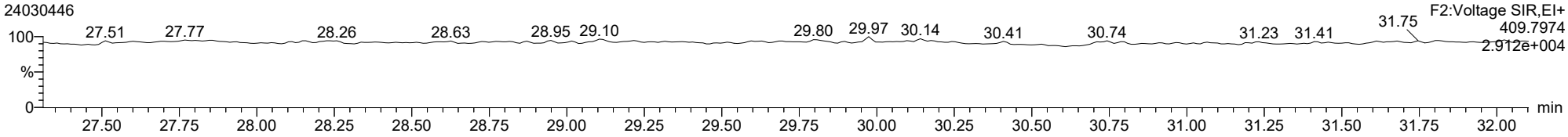
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13C-23478-PeCDF

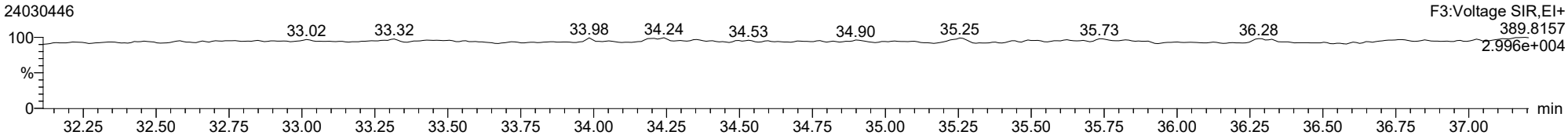


FUNCTION2 HPCDPE

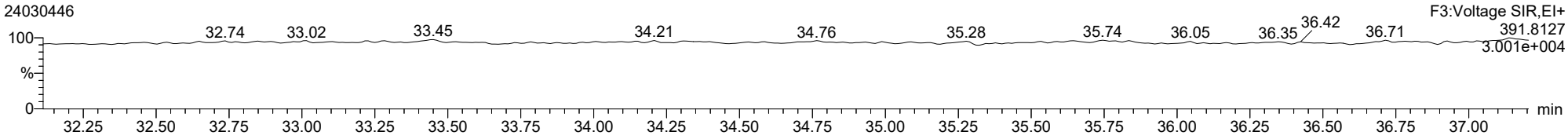


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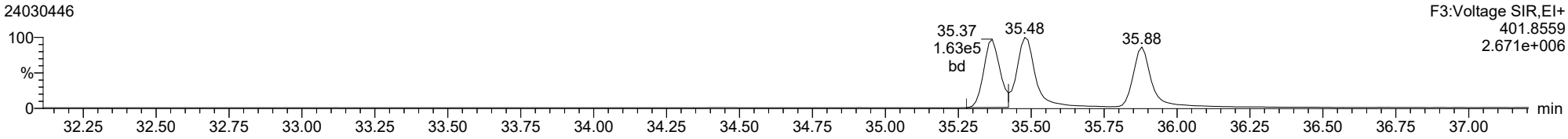
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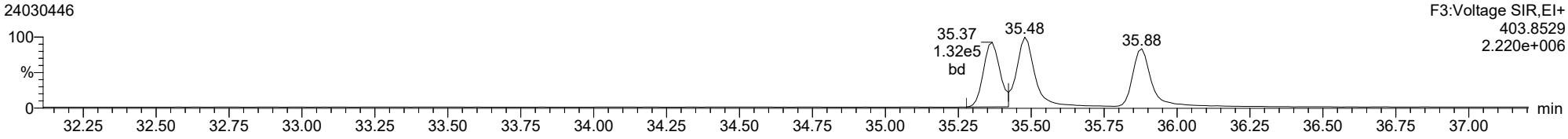
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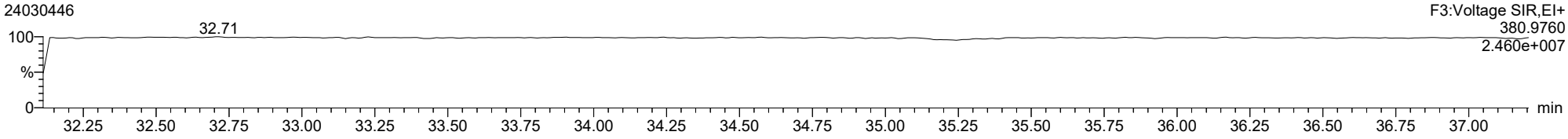
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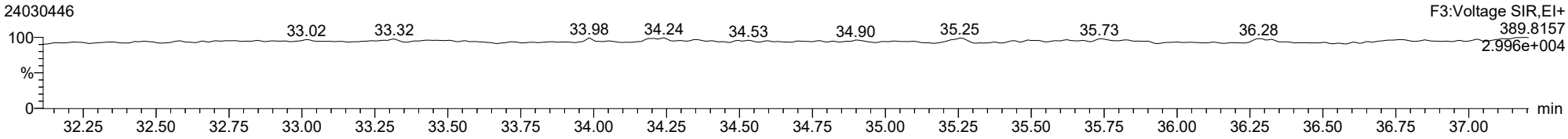
FUNCTION3 PFK



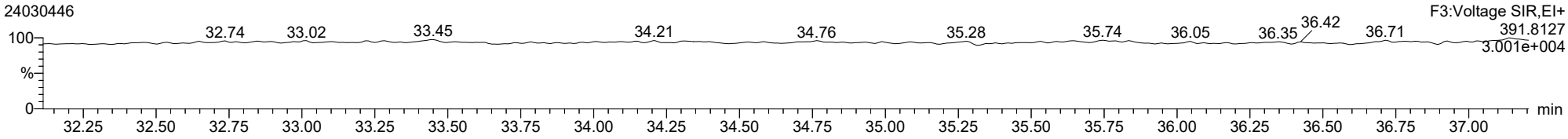
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ID: BMA0737-BLK1, Name: 24030446, Date: 05-Mar-2024, Time: 23:43:50, Conditions: AUTOSPEC01, User: pk

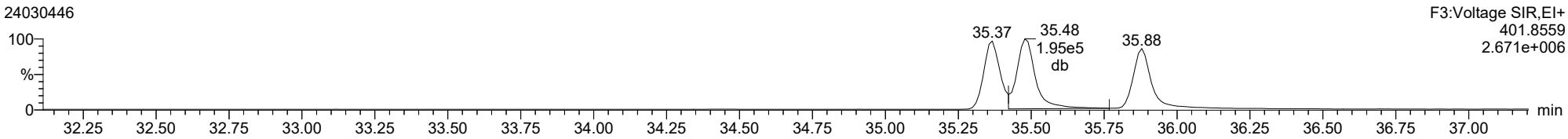
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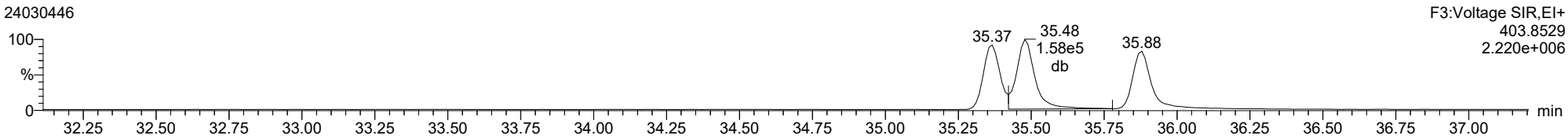
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13C-123678-HxCDD



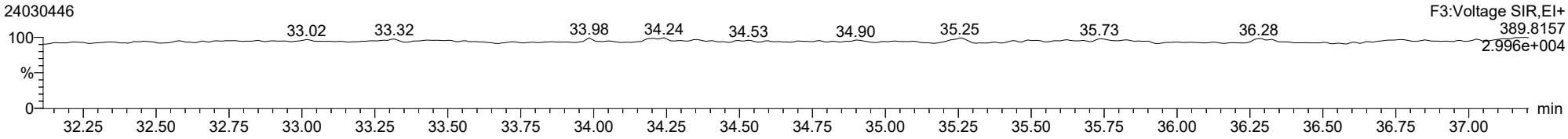
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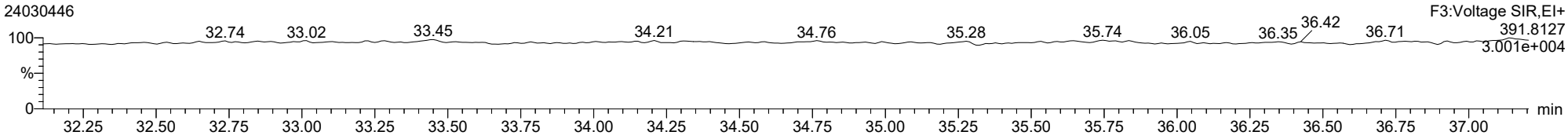
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ID: BMA0737-BLK1, Name: 24030446, Date: 05-Mar-2024, Time: 23:43:50, Conditions: AUTOSPEC01, User: pk

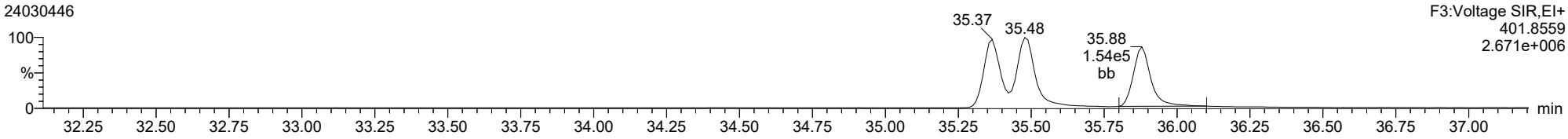
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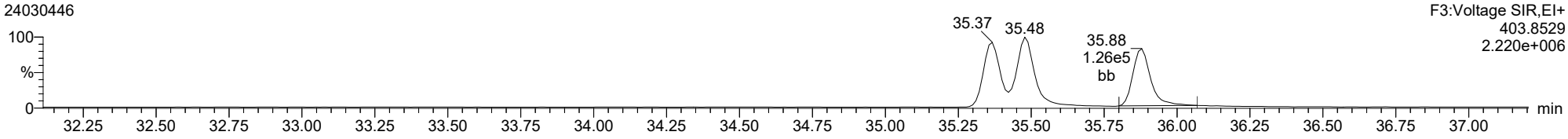
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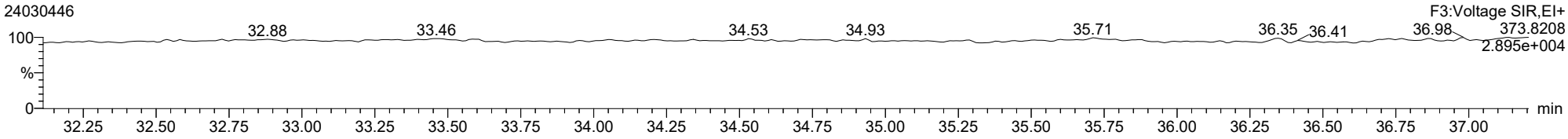


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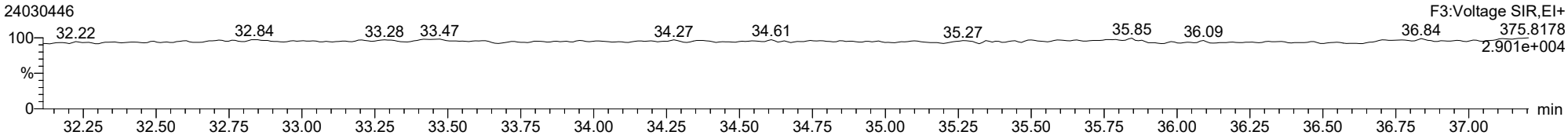


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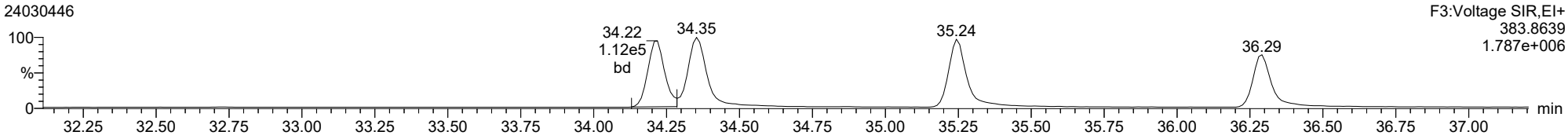
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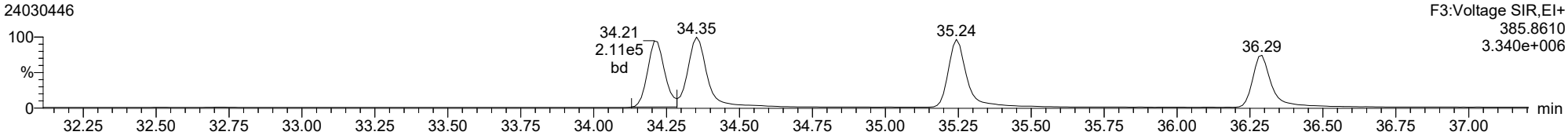
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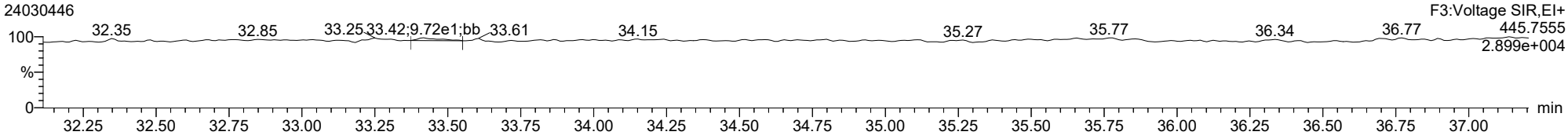
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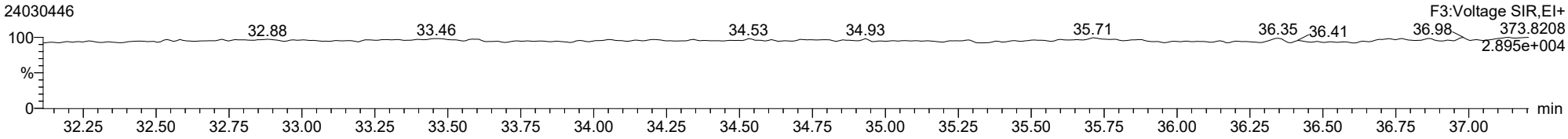


FUNCTION3 OCDPE

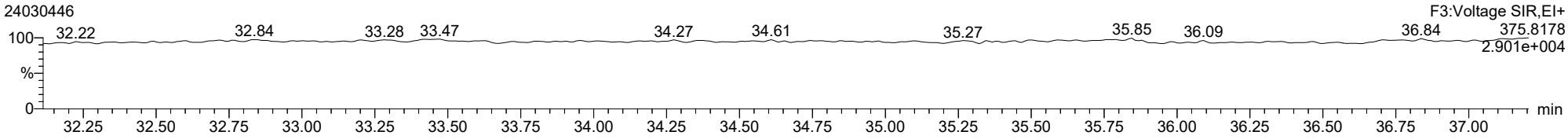


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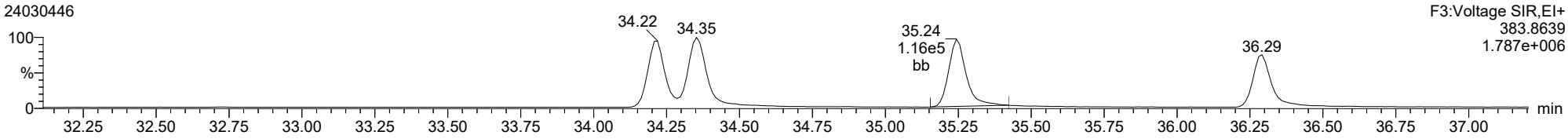
234678-HxCDF



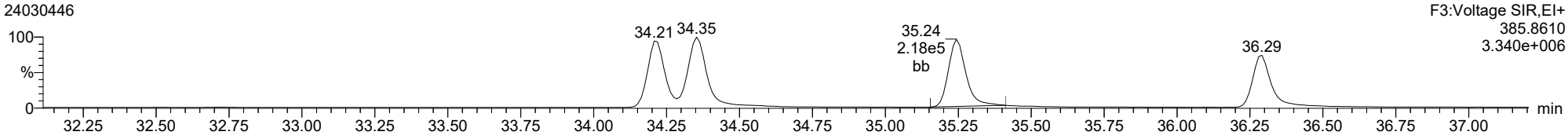
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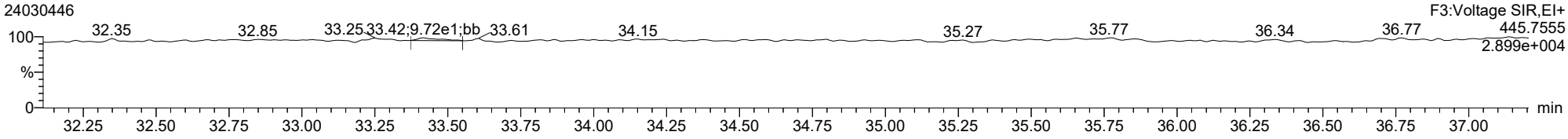
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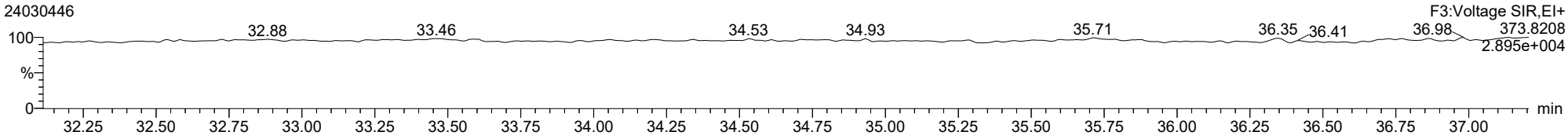


FUNCTION3 OCDPE

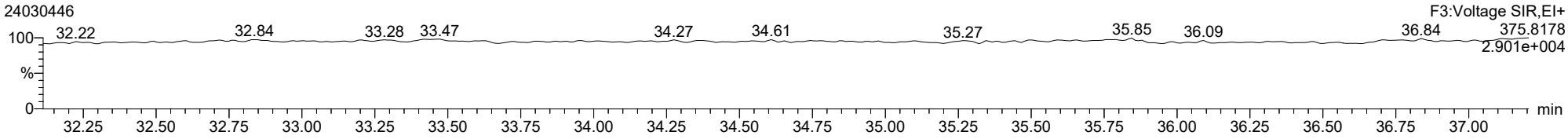


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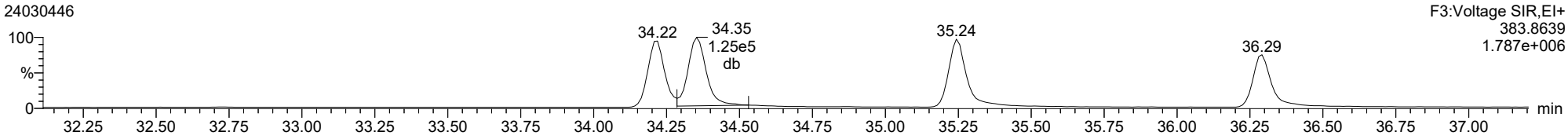
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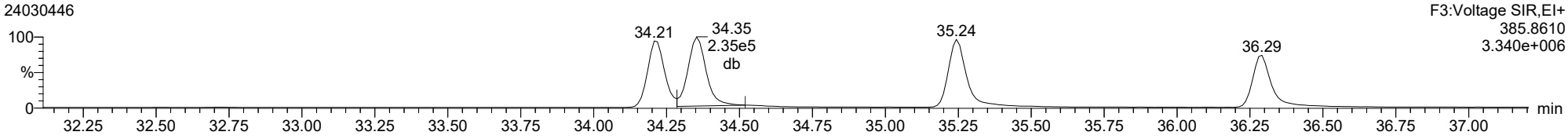
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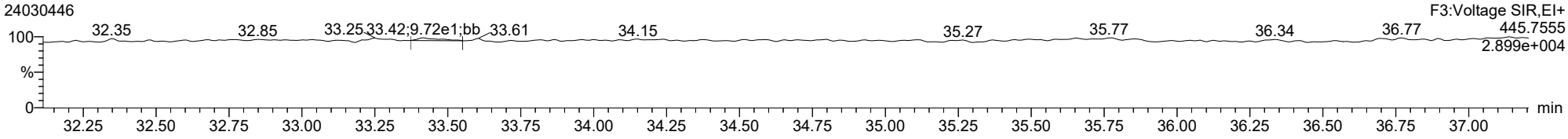
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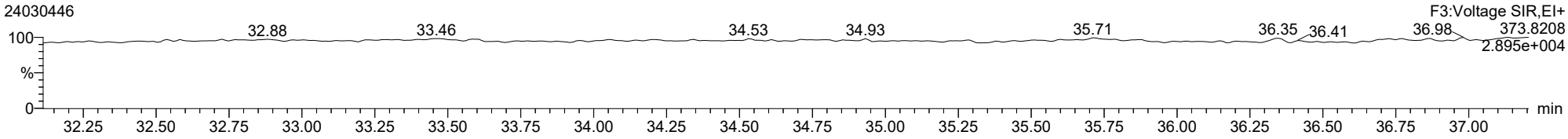


FUNCTION3 OCDPE

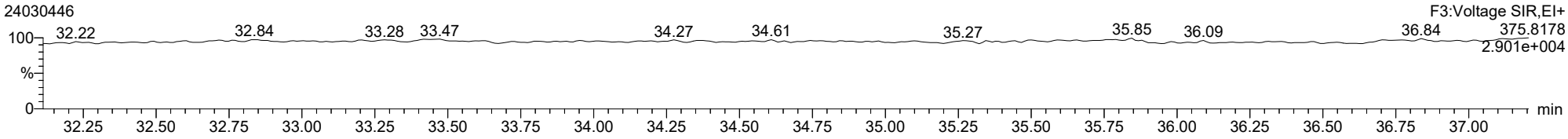


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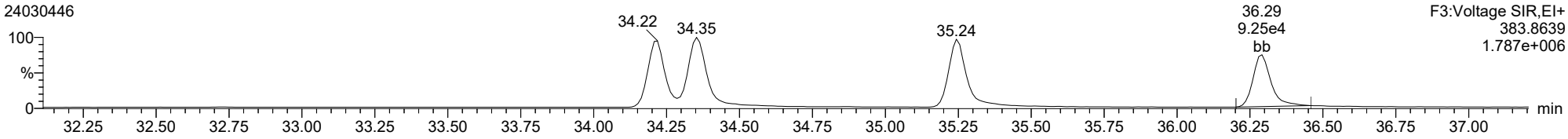
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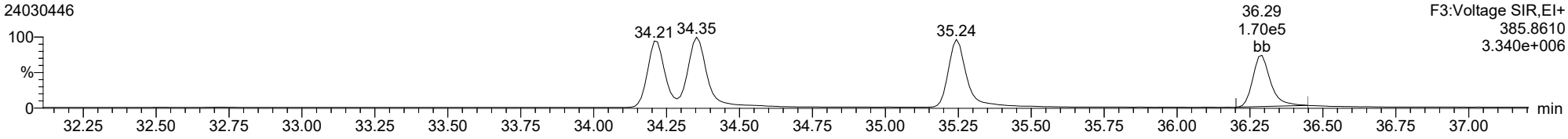
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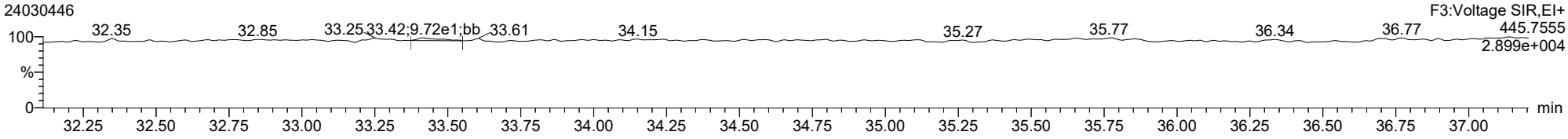
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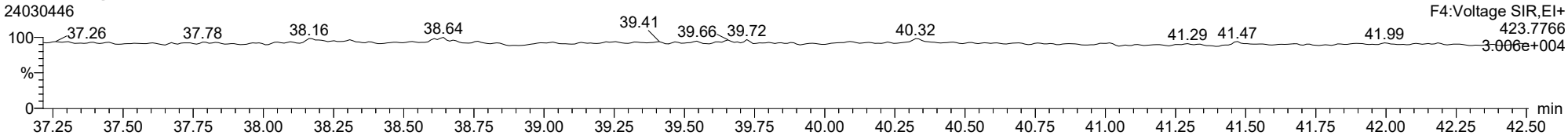


FUNCTION3 OCDPE

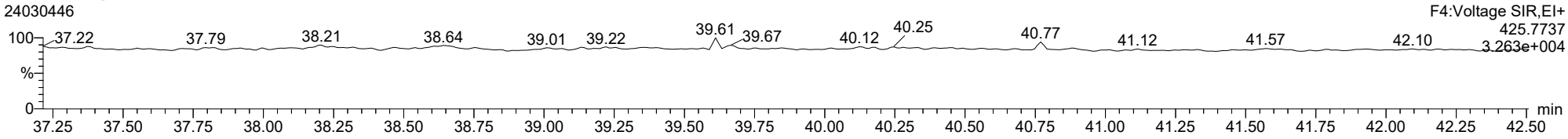


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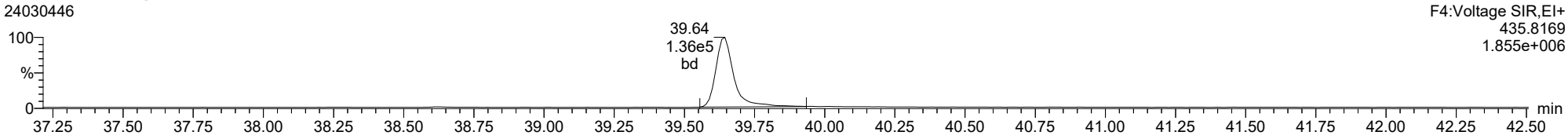
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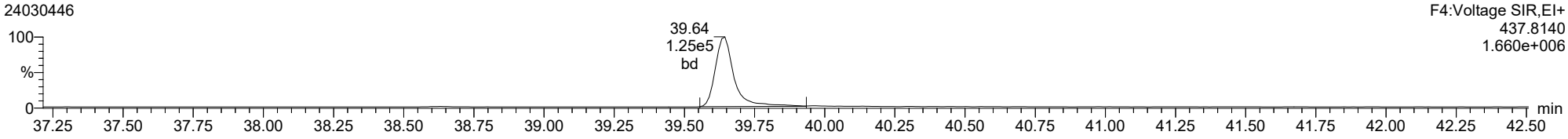
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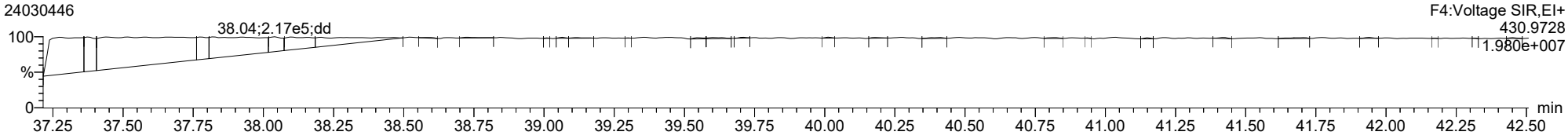
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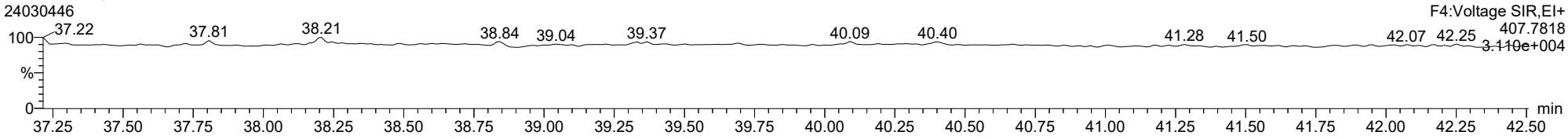


FUNCTION4 PFK

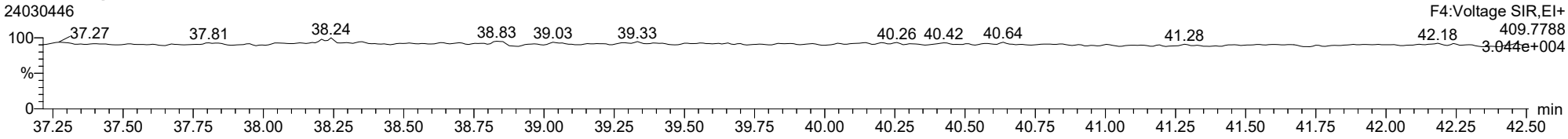


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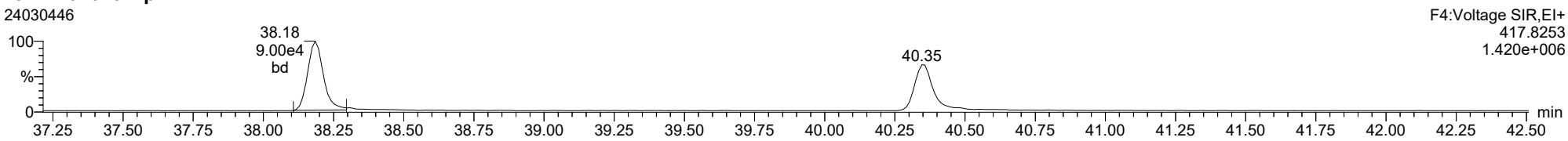
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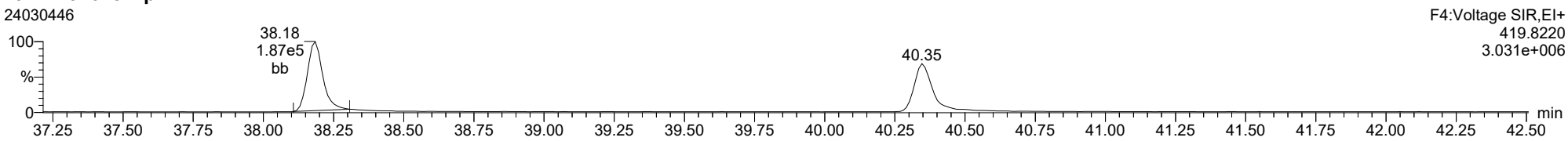
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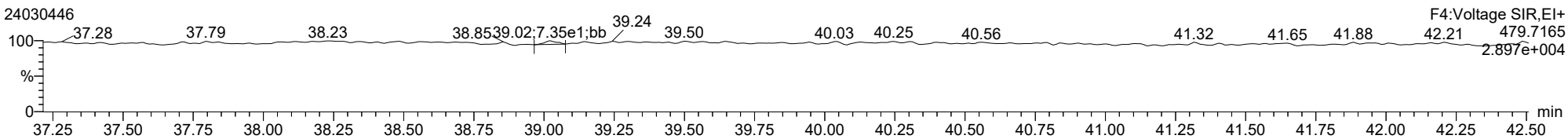
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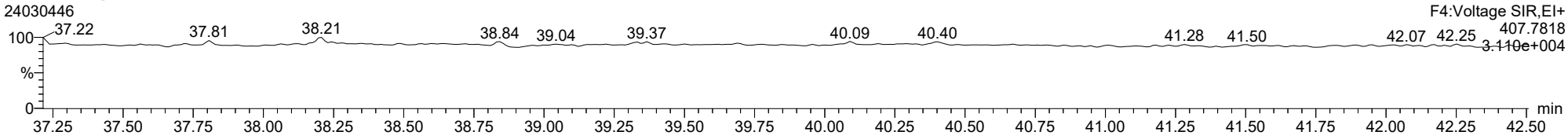


FUNCTION4 NCDPE

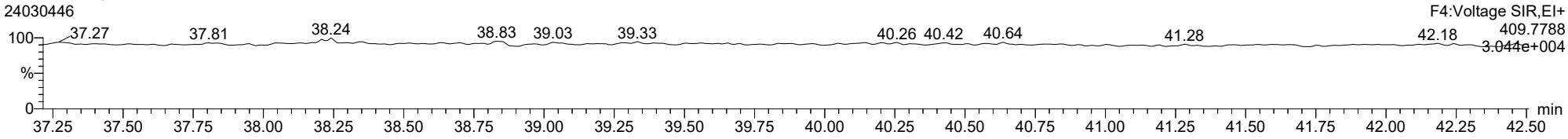


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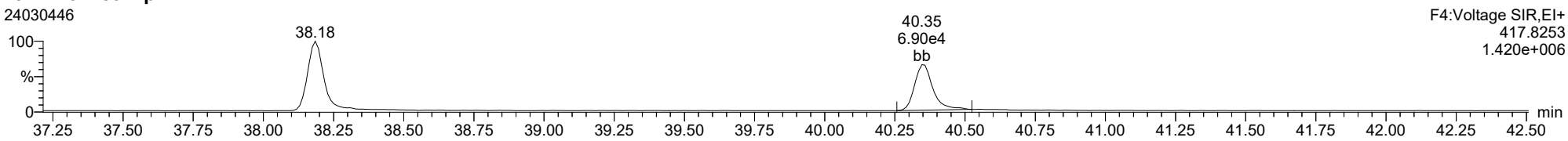
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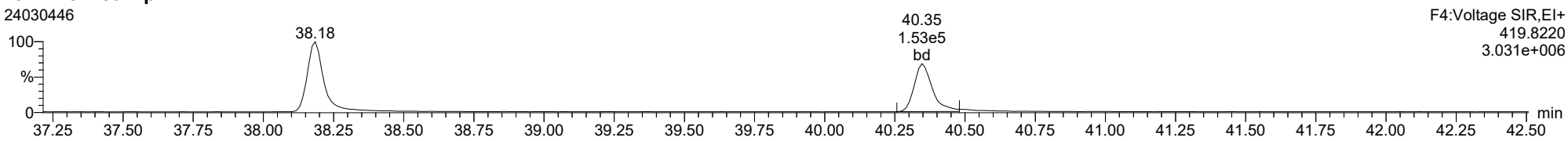
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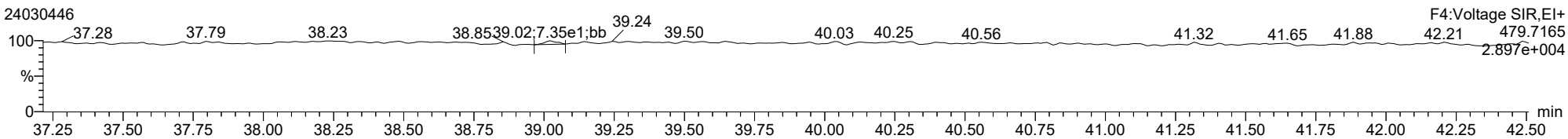
13C-1234789-HpCDF



13C-1234789-HpCDF

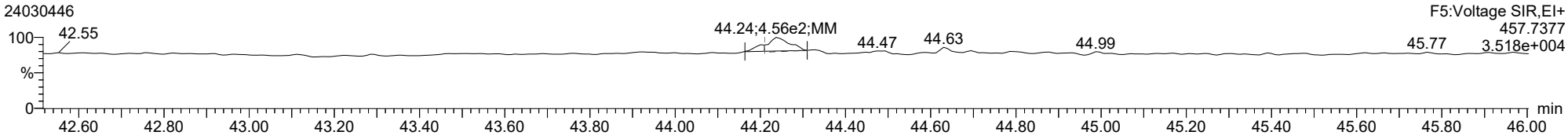


FUNCTION4 NCDPE

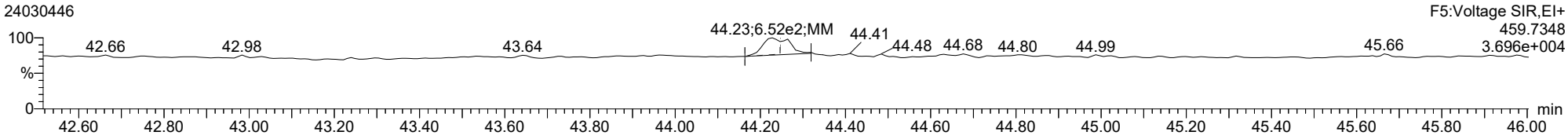


ID: BMA0737-BLK1, Name: 24030446, Date: 05-Mar-2024, Time: 23:43:50, Conditions: AUTOSPEC01, User: pk

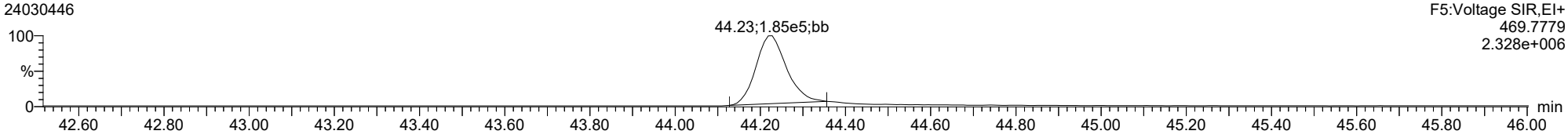
OCDD



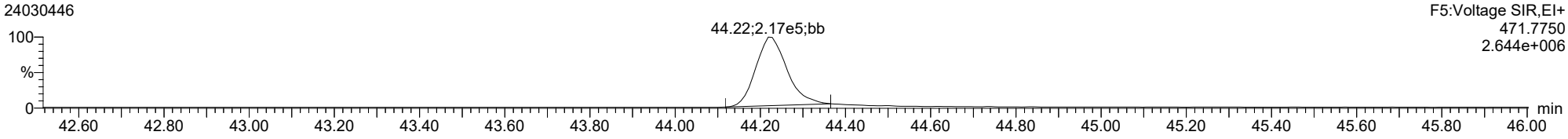
OCDD



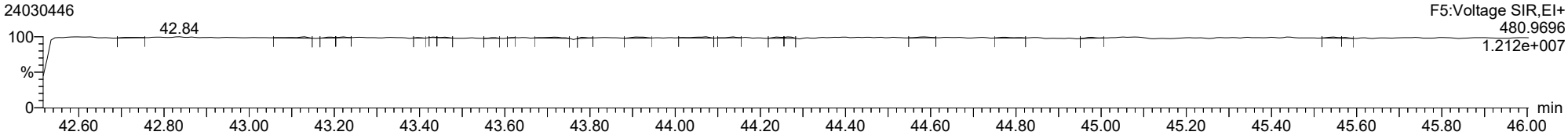
13C-OCDD



13C-OCDD



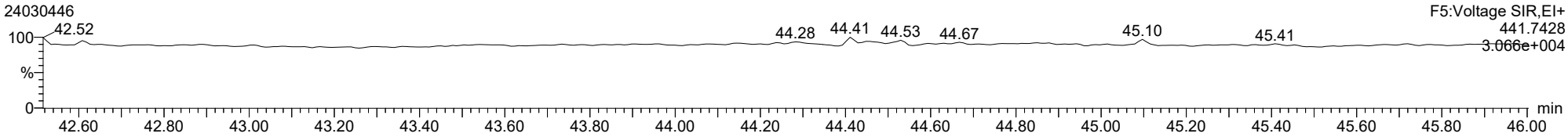
FUNCTION5 PFK



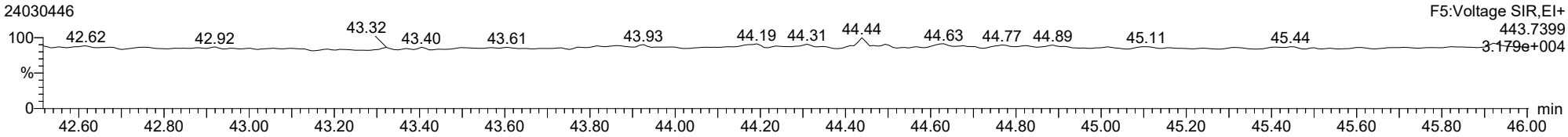
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Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
Printed: Wednesday, March 06, 2024 10:50:39 Pacific Standard Time

ID: BMA0737-BLK1, Name: 24030446, Date: 05-Mar-2024, Time: 23:43:50, Conditions: AUTOSPEC01, User: pk

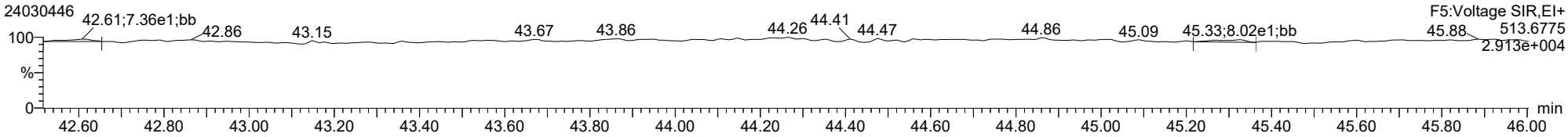
OCDF



OCDF

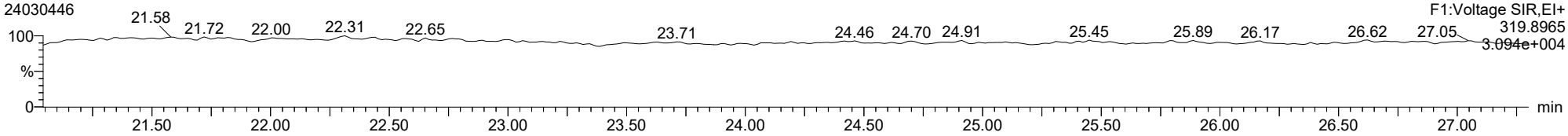


FUNCTION5 DCDPE

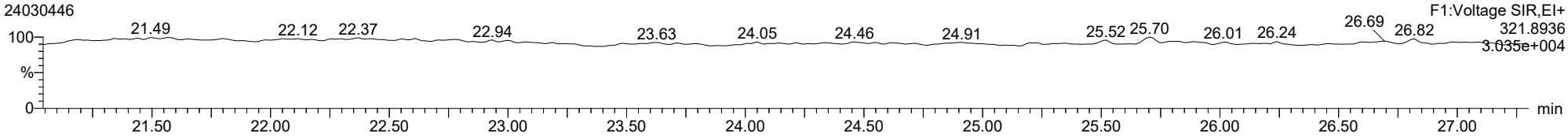


ID: BMA0737-BLK1, Name: 24030446, Date: 05-Mar-2024, Time: 23:43:50, Conditions: AUTOSPEC01, User: pk

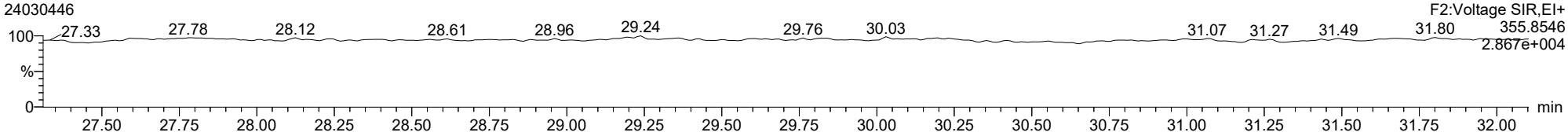
Total-tetradioxins



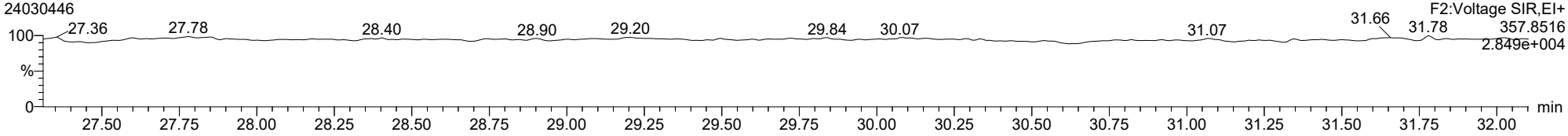
Total-tetradioxins



Total-pentadioxins

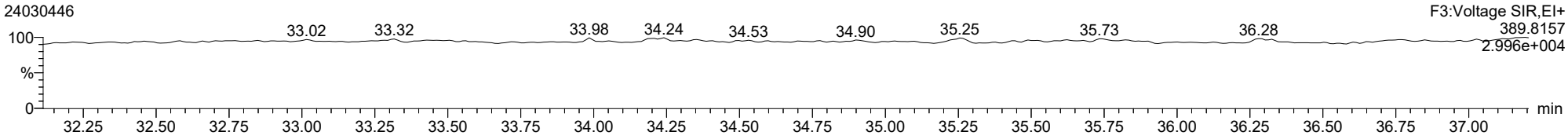


Total-pentadioxins

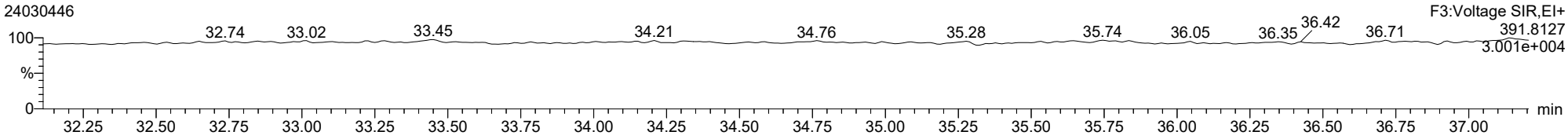


ID: BMA0737-BLK1, Name: 24030446, Date: 05-Mar-2024, Time: 23:43:50, Conditions: AUTOSPEC01, User: pk

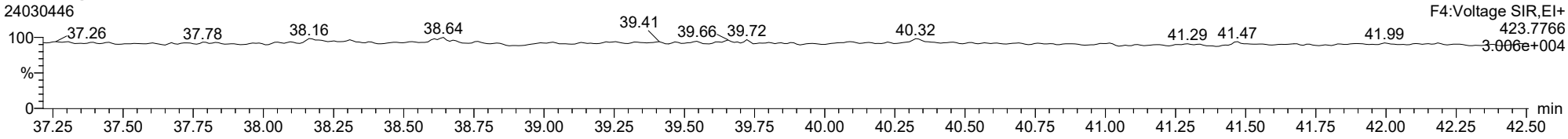
Total-hexadioxins



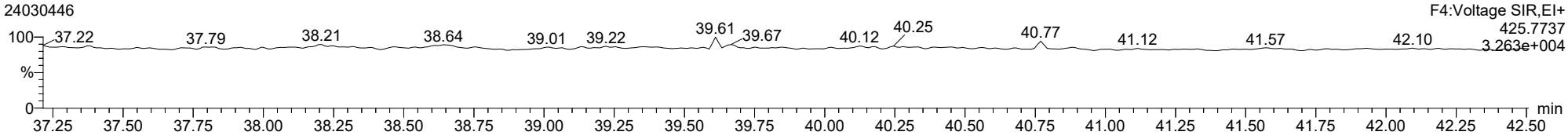
Total-hexadioxins



Total-heptadioxins



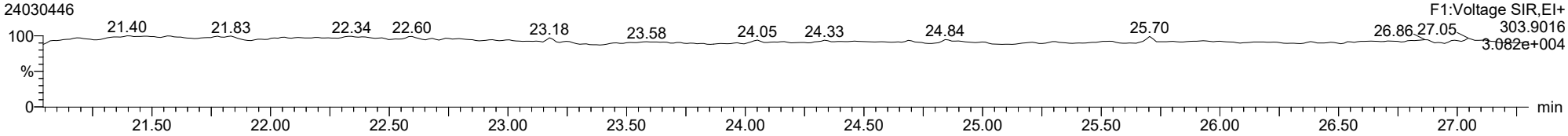
Total-heptadioxins



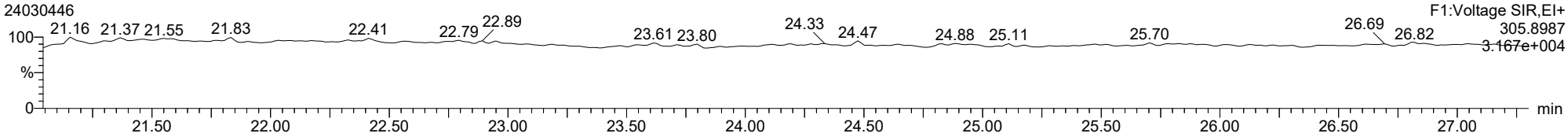
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ID: BMA0737-BLK1, Name: 24030446, Date: 05-Mar-2024, Time: 23:43:50, Conditions: AUTOSPEC01, User: pk

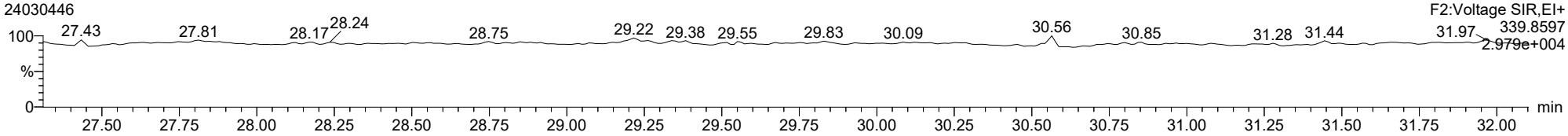
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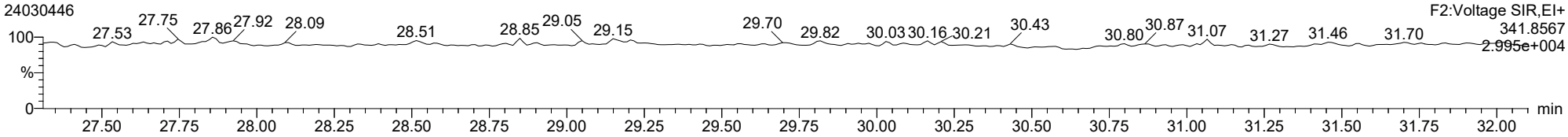
Total-tetrafurans



Total-pentafurans



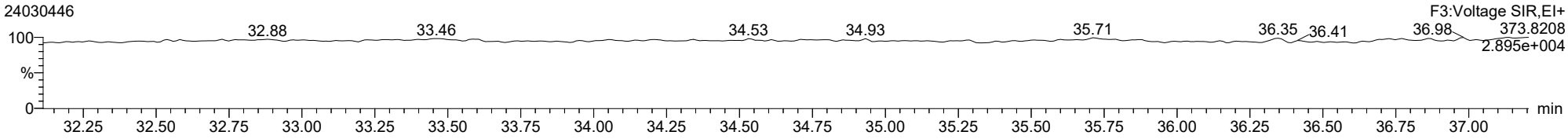
Total-pentafurans



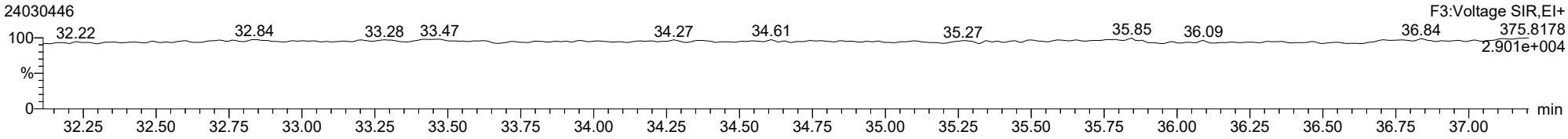
Dataset: T:\Autospec\Processed Data Batch\240304IH1.qld
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ID: BMA0737-BLK1, Name: 24030446, Date: 05-Mar-2024, Time: 23:43:50, Conditions: AUTOSPEC01, User: pk

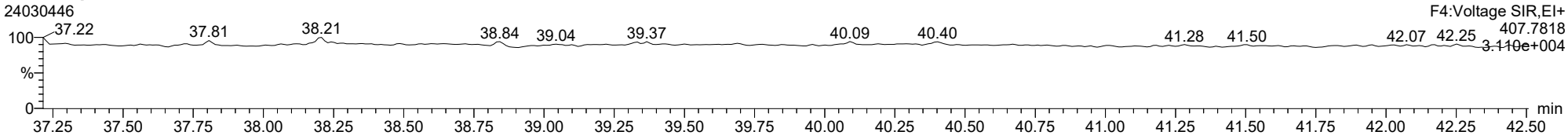
Total-hexafurans



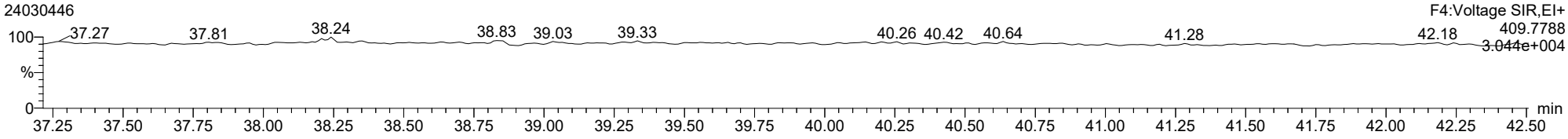
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

LCS RECOVERY
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Matrix:	Solid	Analyzed:	03/06/24 00:32
Batch:	BMA0737	Laboratory ID:	BMA0737-BS1
Preparation:	EPA 1613	Sequence Name:	LCS
Initial/Final:	10 g / 20 uL		

COMPOUND	SPIKE ADDED (ng/kg wet)	LCS CONCENTRATION (ng/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
2,3,7,8-TCDF	20.0	18.2		90.9	75 - 158
2,3,7,8-TCDD	20.0	16.3		81.7	67 - 158
1,2,3,7,8-PeCDF	100	101		101	80 - 134
2,3,4,7,8-PeCDF	100	98.0		98.0	68 - 160
1,2,3,7,8-PeCDD	100	102		102	70 - 142
1,2,3,4,7,8-HxCDF	100	92.0		92.0	72 - 134
1,2,3,6,7,8-HxCDF	100	92.6		92.6	84 - 130
2,3,4,6,7,8-HxCDF	100	93.4		93.4	70 - 156
1,2,3,7,8,9-HxCDF	100	99.6		99.6	78 - 130
1,2,3,4,7,8-HxCDD	100	95.8		95.8	70 - 164
1,2,3,6,7,8-HxCDD	100	92.0		92.0	76 - 134
1,2,3,7,8,9-HxCDD	100	99.8		99.8	64 - 162
1,2,3,4,6,7,8-HpCDF	100	90.8		90.8	82 - 122
1,2,3,4,7,8,9-HpCDF	100	87.8		87.8	78 - 138
1,2,3,4,6,7,8-HpCDD	100	99.2		99.2	70 - 140
OCDF	200	178		89.0	63 - 170
OCDD	200	181	B	90.5	78 - 144

* Indicates values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\240304IH1.qld
Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
Printed: Wednesday, March 06, 2024 10:50:52 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240306.mdb 06 Mar 2024 10:17:07
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

ID: BMA0737-BS1, Name: 24030447, Date: 06-Mar-2024, Time: 00:32:48, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.068	1.001	1.218e4	1.388e4	0.980	0.877	0.770	754	595	1.66e5	1.82e5	219.4	306.1	NO	bd	MM	9.090
12378-PeCDF	29.216	1.001	1.700e5	1.045e5	1.047	1.626	1.550	2056	2373	2.39e6	1.49e6	1163.9	628.6	NO	bd	bb	50.473
23478-PeCDF	30.553	1.000	1.497e5	9.893e4	1.156	1.514	1.550	2056	2373	2.27e6	1.47e6	1104.7	618.1	NO	bb	bb	49.007
123478-HxCDF	34.230	1.001	1.069e5	8.710e4	1.224	1.227	1.240	1845	1355	1.66e6	1.32e6	900.7	971.6	NO	bd	bd	45.975
234678-HxCDF	35.255	1.000	1.178e5	1.015e5	1.235	1.160	1.240	1845	1355	1.72e6	1.40e6	929.9	1035.4	NO	bb	bb	46.718
123678-HxCDF	34.364	1.000	1.177e5	1.003e5	1.193	1.173	1.240	1845	1355	1.67e6	1.37e6	906.4	1014.6	NO	db	dd	46.288
123789-HxCDF	36.302	1.001	8.604e4	6.813e4	1.100	1.263	1.240	1845	1355	1.24e6	1.02e6	673.3	749.8	NO	bb	bb	49.799
1234678-HpCDF	38.196	1.001	1.063e5	8.945e4	1.392	1.188	1.050	2324	3174	1.61e6	1.44e6	693.3	453.0	NO	bb	bb	45.384
1234789-HpCDF	40.358	1.000	7.888e4	8.132e4	1.381	0.970	1.050	2324	3174	1.07e6	1.07e6	458.8	338.0	NO	bb	bd	43.875
OCDF	44.458	1.005	1.222e5	1.357e5	1.222	0.901	0.890	1538	1802	1.35e6	1.50e6	879.4	833.1	NO	bd	bd	89.029
2378-TCDD	25.704	1.001	1.358e4	1.746e4	1.227	0.778	0.770	751	496	2.08e5	2.54e5	276.4	511.4	NO	bb	bb	8.171
12378-PeCDD	30.810	1.001	8.999e4	5.669e4	0.964	1.587	1.550	1064	782	1.37e6	8.93e5	1284.8	1142.2	NO	bb	bb	51.120
123478-HxCDD	35.377	1.001	6.873e4	5.267e4	0.841	1.305	1.240	1356	1144	1.09e6	8.24e5	803.2	720.5	NO	bd	bd	47.916
123678-HxCDD	35.489	1.000	7.535e4	5.975e4	0.833	1.261	1.240	1356	1144	1.11e6	8.90e5	818.4	778.2	NO	db	db	46.002
123789-HxCDD	35.890	1.012	6.956e4	5.609e4	0.770	1.240	1.240	1356	1144	1.04e6	8.32e5	770.7	727.0	NO	bb	bb	49.881
1234678-HpCDD	39.656	1.001	6.759e4	6.868e4	0.984	0.984	1.050	1326	1191	9.56e5	9.37e5	721.3	786.8	NO	bd	bd	49.595
OCDD	44.238	1.000	9.019e4	1.111e5	0.938	0.812	0.890	1276	1598	1.09e6	1.29e6	850.6	806.7	NO	bb	bd	90.550
13C-2378-TCDF	25.040	1.007	1.180e5	1.745e5	1.655	0.677	0.770	1128	1041	1.65e6	2.39e6	1463.0	2297.5	NO	bb	bd	34.085
13C-12378-PeCDF	29.194	1.175	3.181e5	2.013e5	1.196	1.581	1.550	2653	2148	4.66e6	2.96e6	1755.2	1379.6	NO	bb	bb	83.780
13C-23478-PeCDF	30.542	1.229	2.697e5	1.694e5	1.117	1.592	1.550	2653	2148	3.98e6	2.51e6	1502.1	1166.4	NO	bb	bb	75.820
13C-123478-HxCDF	34.208	0.954	1.204e5	2.245e5	1.028	0.536	0.510	2005	2784	1.76e6	3.29e6	875.6	1180.5	NO	bd	bd	109.258
13C-123678-HxCDF	34.353	0.958	1.419e5	2.528e5	1.176	0.561	0.510	2005	2784	1.93e6	3.55e6	964.8	1274.4	NO	dd	db	109.372
13C-234678-HxCDF	35.244	0.983	1.270e5	2.532e5	1.016	0.502	0.510	2005	2784	1.89e6	3.49e6	940.8	1252.1	NO	bb	bd	121.922
13C-123789-HxCDF	36.280	1.011	9.942e4	1.821e5	0.879	0.546	0.510	2005	2784	1.44e6	2.66e6	717.2	954.5	NO	MM	bb	104.313
13C-1234678-HpCDF	38.174	1.064	9.678e4	2.129e5	0.870	0.455	0.440	1623	2584	1.51e6	3.40e6	930.9	1316.4	NO	bb	bb	115.976
13C-1234789-HpCDF	40.347	1.125	7.905e4	1.854e5	0.638	0.426	0.440	1623	2584	1.07e6	2.35e6	660.1	908.2	NO	bb	bd	135.127
13C-1234-TCDD	24.856	0.000	2.308e5	2.876e5	1.000	0.803	0.770	1283	1043	3.50e6	4.33e6	2726.8	4150.4	NO	bb	bb	100.000
13C-2378-TCDD	25.676	1.033	1.384e5	1.711e5	1.151	0.809	0.770	1283	1043	2.15e6	2.61e6	1675.2	2499.2	NO	bb	bb	51.883
13C-12378-PeCDD	30.787	1.239	1.903e5	1.072e5	0.828	1.776	1.550	1164	970	2.68e6	1.50e6	2298.4	1544.7	NO	MM	bb	69.283
13C-123478-HxCDD	35.355	0.986	1.693e5	1.320e5	0.950	1.283	1.240	1479	1898	2.56e6	1.97e6	1731.0	1038.5	NO	bd	bd	103.383
13C-123678-HxCDD	35.478	0.989	1.947e5	1.580e5	1.107	1.232	1.240	1479	1898	2.71e6	2.17e6	1833.0	1142.3	NO	db	db	103.804
13C-1234678-HpCDD	39.634	1.105	1.417e5	1.374e5	0.737	1.031	1.050	1899	1391	2.10e6	2.02e6	1103.3	1454.2	NO	bb	bb	123.380
13C-OCDD	44.229	1.233	2.198e5	2.543e5	0.633	0.864	0.890	2518	1960	2.65e6	3.04e6	1051.8	1552.2	NO	bb	bb	244.194
13C-123789-HxCDD	35.868	0.000	1.662e5	1.407e5	1.000	1.181	1.240	1479	1898	2.40e6	2.01e6	1620.3	1058.0	NO	bb	bb	100.000
37CL-2378-TCDD	25.704	1.034	1.344e5		1.312			907		2.02e6		2224.7			bb		19.748

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ID: BMA0737-BS1, Name: 24030447, Date: 06-Mar-2024, Time: 00:32:48, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.247		0.770	754	595								
1289-TCDF					0.916		0.770	754	595								
13468-PECDF					1.353		1.550	429	649								
12389-PECDF	31.590	1.082	1.353e3	8.866e2	0.925	1.526	1.550	2056	2373	1.99e4	1.26e4	9.7	5.3	NO	bb	bb	0.466
123468-HXCDF					1.335		1.240	1845	1355								
1368-TCDD					1.120		0.770	751	496								
1289-TCDD					0.966		0.770	751	496								
12479-PECDD					1.859		1.550	1064	782								
12389-PECDD					1.154		1.550	1064	782								
124679-HXCDD					1.006		1.240	1356	1144								
1234679-HPCDD	38.642	0.975	6.085e2	5.461e2	1.184	1.114	1.050	1326	1191	1.17e4	9.36e3	8.8	7.9	NO	bb	bb	0.349
Total-tetrafurans			1.237e4		1.048			754		1.70e5							9.239
Total-penta1			0.000e0					429		0.00e0							
Total-pentafurans			3.211e5		1.043			2056		4.68e6							99.946
Total-hexafurans			4.284e5		1.217			1845		6.29e6							188.781
Total-heptafurans			1.851e5		1.387			2324		2.68e6							89.260
Total-Furans			1.069e6		1.180			754		1.52e7							476.254
Total-tetradioxins			1.358e4		1.104			751		2.08e5							8.171
Total-pentadioxins			8.999e4		1.326			1064		1.37e6							51.120
Total-hexadioxins			2.136e5		0.863			1356		3.24e6							143.799
Total-heptadioxins			6.820e4		1.084			1326		9.68e5							49.945
Total-Dioxins			4.756e5		1.065			751		6.87e6							343.584
Total-TEQ			1.545e6					751		2.20e7							819.838
FUNCTION1 PFK			6.398e7					208404		3.75e8							
FUNCTION2 PFK			1.931e5					220631		4.18e6							0.000
FUNCTION3 PFK			0.000e0					177854		0.00e0							
FUNCTION4 PFK			1.749e4					179942		6.86e5							
FUNCTION5 PFK			2.097e6					138347		1.28e7							
FUNCTION1 HXCD...			2.589e2					379		5.04e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			1.723e2					638		3.70e3							0.000
FUNCTION3 OCDPE			1.119e2					448		1.42e3							0.000
FUNCTION4 NCDPE			3.571e2					543		5.20e3							0.000
FUNCTION5 DCDPE			0.000e0					381		0.00e0							

Method: T:\Autospec\Methods\Dioxin240306.mdb 06 Mar 2024 10:17:07
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.07	1.218e4	1.388e4	0.980	0.88	0.77	219.4	YES	NO	bd	MM	9.090
2	Total-tetrafurans	24.12	1.953e2	2.605e2	1.048	0.75	0.77	6.5	YES	NO	bd	bb	0.149

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	31.59	1.353e3	8.866e2	0.925	1.53	1.55	9.7	YES	NO	bb	bb	0.466
2	23478-PeCDF	30.55	1.497e5	9.893e4	1.156	1.51	1.55	1104.7	YES	NO	bb	bb	49.007
3	12378-PeCDF	29.22	1.700e5	1.045e5	1.047	1.63	1.55	1163.9	YES	NO	bd	bb	50.473

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.30	8.604e4	6.813e4	1.100	1.26	1.24	673.3	YES	NO	bb	bb	49.799
2	234678-HxCDF	35.26	1.178e5	1.015e5	1.235	1.16	1.24	929.9	YES	NO	bb	bb	46.718
3	123678-HxCDF	34.36	1.177e5	1.003e5	1.193	1.17	1.24	906.4	YES	NO	db	dd	46.288
4	123478-HxCDF	34.23	1.069e5	8.710e4	1.224	1.23	1.24	900.7	YES	NO	bd	bd	45.975

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.36	7.888e4	8.132e4	1.381	0.97	1.05	458.8	YES	NO	bb	bd	43.875
2	1234678-HpCDF	38.20	1.063e5	8.945e4	1.392	1.19	1.05	693.3	YES	NO	bb	bb	45.384

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.07	1.218e4	1.388e4	0.980	0.88	0.77	219.4	YES	NO	bd	MM	9.090
2	Total-tetrafurans	24.12	1.953e2	2.605e2	1.048	0.75	0.77	6.5	YES	NO	bd	bb	0.149
3	12389-PECDF	31.59	1.353e3	8.866e2	0.925	1.53	1.55	9.7	YES	NO	bb	bb	0.466
4	23478-PeCDF	30.55	1.497e5	9.893e4	1.156	1.51	1.55	1104.7	YES	NO	bb	bb	49.007
5	12378-PeCDF	29.22	1.700e5	1.045e5	1.047	1.63	1.55	1163.9	YES	NO	bd	bb	50.473
6	123789-HxCDF	36.30	8.604e4	6.813e4	1.100	1.26	1.24	673.3	YES	NO	bb	bb	49.799
7	234678-HxCDF	35.26	1.178e5	1.015e5	1.235	1.16	1.24	929.9	YES	NO	bb	bb	46.718
8	123678-HxCDF	34.36	1.177e5	1.003e5	1.193	1.17	1.24	906.4	YES	NO	db	dd	46.288
9	123478-HxCDF	34.23	1.069e5	8.710e4	1.224	1.23	1.24	900.7	YES	NO	bd	bd	45.975
10	1234789-HpCDF	40.36	7.888e4	8.132e4	1.381	0.97	1.05	458.8	YES	NO	bb	bd	43.875
11	1234678-HpCDF	38.20	1.063e5	8.945e4	1.392	1.19	1.05	693.3	YES	NO	bb	bb	45.384
12	OCDF	44.46	1.222e5	1.357e5	1.222	0.90	0.89	879.4	YES	NO	bd	bd	89.029

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.70	1.358e4	1.746e4	1.227	0.78	0.77	276.4	YES	NO	bb	bb	8.171

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.81	8.999e4	5.669e4	0.964	1.59	1.55	1284.8	YES	NO	bb	bb	51.120

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.89	6.956e4	5.609e4	0.770	1.24	1.24	770.7	YES	NO	bb	bb	49.881
2	123678-HxCDD	35.49	7.535e4	5.975e4	0.833	1.26	1.24	818.4	YES	NO	db	db	46.002
3	123478-HxCDD	35.38	6.873e4	5.267e4	0.841	1.31	1.24	803.2	YES	NO	bd	bd	47.916

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.66	6.759e4	6.868e4	0.984	0.98	1.05	721.3	YES	NO	bd	bd	49.595
2	1234679-HPCDD	38.64	6.085e2	5.461e2	1.184	1.11	1.05	8.8	YES	NO	bb	bb	0.349

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.70	1.358e4	1.746e4	1.227	0.78	0.77	276.4	YES	NO	bb	bb	8.171
2	12378-PeCDD	30.81	8.999e4	5.669e4	0.964	1.59	1.55	1284.8	YES	NO	bb	bb	51.120
3	123789-HxCDD	35.89	6.956e4	5.609e4	0.770	1.24	1.24	770.7	YES	NO	bb	bb	49.881
4	123678-HxCDD	35.49	7.535e4	5.975e4	0.833	1.26	1.24	818.4	YES	NO	db	db	46.002
5	123478-HxCDD	35.38	6.873e4	5.267e4	0.841	1.31	1.24	803.2	YES	NO	bd	bd	47.916
6	1234678-HpCDD	39.66	6.759e4	6.868e4	0.984	0.98	1.05	721.3	YES	NO	bd	bd	49.595
7	1234679-HPCDD	38.64	6.085e2	5.461e2	1.184	1.11	1.05	8.8	YES	NO	bb	bb	0.349
8	OCDD	44.24	9.019e4	1.111e5	0.938	0.81	0.89	850.6	YES	NO	bb	bd	90.550

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.07	1.218e4	1.388e4	0.980	0.88	0.77	219.4	YES	NO	bd	MM	9.090
2	Total-tetrafurans	24.12	1.953e2	2.605e2	1.048	0.75	0.77	6.5	YES	NO	bd	bb	0.149
3	12389-PECDF	31.59	1.353e3	8.866e2	0.925	1.53	1.55	9.7	YES	NO	bb	bb	0.466
4	23478-PeCDF	30.55	1.497e5	9.893e4	1.156	1.51	1.55	1104.7	YES	NO	bb	bb	49.007
5	12378-PeCDF	29.22	1.700e5	1.045e5	1.047	1.63	1.55	1163.9	YES	NO	bd	bb	50.473
6	123789-HxCDF	36.30	8.604e4	6.813e4	1.100	1.26	1.24	673.3	YES	NO	bb	bb	49.799
7	234678-HxCDF	35.26	1.178e5	1.015e5	1.235	1.16	1.24	929.9	YES	NO	bb	bb	46.718
8	123678-HxCDF	34.36	1.177e5	1.003e5	1.193	1.17	1.24	906.4	YES	NO	db	dd	46.288
9	123478-HxCDF	34.23	1.069e5	8.710e4	1.224	1.23	1.24	900.7	YES	NO	bd	bd	45.975
10	1234789-HpCDF	40.36	7.888e4	8.132e4	1.381	0.97	1.05	458.8	YES	NO	bb	bd	43.875
11	1234678-HpCDF	38.20	1.063e5	8.945e4	1.392	1.19	1.05	693.3	YES	NO	bb	bb	45.384
12	OCDF	44.46	1.222e5	1.357e5	1.222	0.90	0.89	879.4	YES	NO	bd	bd	89.029
13	2378-TCDD	25.70	1.358e4	1.746e4	1.227	0.78	0.77	276.4	YES	NO	bb	bb	8.171
14	12378-PeCDD	30.81	8.999e4	5.669e4	0.964	1.59	1.55	1284.8	YES	NO	bb	bb	51.120
15	123789-HxCDD	35.89	6.956e4	5.609e4	0.770	1.24	1.24	770.7	YES	NO	bb	bb	49.881
16	123678-HxCDD	35.49	7.535e4	5.975e4	0.833	1.26	1.24	818.4	YES	NO	db	db	46.002
17	123478-HxCDD	35.38	6.873e4	5.267e4	0.841	1.31	1.24	803.2	YES	NO	bd	bd	47.916
18	1234678-HpCDD	39.66	6.759e4	6.868e4	0.984	0.98	1.05	721.3	YES	NO	bd	bd	49.595
19	1234679-HPCDD	38.64	6.085e2	5.461e2	1.184	1.11	1.05	8.8	YES	NO	bb	bb	0.349
20	OCDD	44.24	9.019e4	1.111e5	0.938	0.81	0.89	850.6	YES	NO	bb	bd	90.550

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	22.09	2.537e6					87.1	YES		dd		
2	FUNCTION1 PFK	22.03	2.966e6					85.2	YES		dd		
3	FUNCTION1 PFK	21.79	3.479e6					83.1	YES		dd		
4	FUNCTION1 PFK	21.55	3.616e6					81.7	YES		dd		
5	FUNCTION1 PFK	21.34	3.284e6					80.6	YES		dd		
6	FUNCTION1 PFK	21.14	2.238e6					76.7	YES		bd		
7	FUNCTION1 PFK	24.83	1.733e6					53.1	YES		db		
8	FUNCTION1 PFK	24.60	2.308e6					57.3	YES		dd		
9	FUNCTION1 PFK	24.42	1.335e6					58.1	YES		dd		
10	FUNCTION1 PFK	24.31	2.871e6					60.3	YES		dd		
11	FUNCTION1 PFK	24.04	2.146e6					63.9	YES		dd		
12	FUNCTION1 PFK	23.88	1.170e6					66.0	YES		dd		
13	FUNCTION1 PFK	23.80	2.035e6					67.0	YES		dd		
14	FUNCTION1 PFK	23.68	5.164e5					51.4	YES		dd		
15	FUNCTION1 PFK	23.53	2.362e6					70.6	YES		dd		
16	FUNCTION1 PFK	23.39	1.662e6					72.9	YES		dd		
17	FUNCTION1 PFK	23.32	1.056e6					72.8	YES		dd		
18	FUNCTION1 PFK	22.99	7.529e6					77.9	YES		dd		
19	FUNCTION1 PFK	22.69	3.673e6					80.0	YES		dd		
20	FUNCTION1 PFK	22.55	1.197e6					79.2	YES		bd		
21	FUNCTION1 PFK	22.37	2.161e6					88.3	YES		db		
22	FUNCTION1 PFK	22.23	1.703e6					87.1	YES		dd		
23	FUNCTION1 PFK	27.17	1.792e5					9.3	YES		db		
24	FUNCTION1 PFK	27.09	1.539e5					11.8	YES		dd		
25	FUNCTION1 PFK	27.03	4.628e5					12.4	YES		dd		
26	FUNCTION1 PFK	26.78	3.854e5					18.6	YES		bd		
27	FUNCTION1 PFK	26.62	5.782e5					22.1	YES		db		
28	FUNCTION1 PFK	26.37	1.106e6					26.4	YES		dd		
29	FUNCTION1 PFK	26.11	8.695e5					27.5	YES		dd		
30	FUNCTION1 PFK	25.97	5.379e5					29.8	YES		dd		
31	FUNCTION1 PFK	25.44	6.092e6					36.2	YES		bd		
32	FUNCTION1 PFK	25.03	3.890e4					6.7	YES		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.21	1.102e4					1.4	NO		bb		0.000
2	FUNCTION2 PFK	28.04	1.390e3					0.6	NO		bb		0.000
3	FUNCTION2 PFK	27.58	2.036e3					0.8	NO		bb		0.000
4	FUNCTION2 PFK	27.49	8.575e4					6.3	YES		bb		0.000
5	FUNCTION2 PFK	27.38	1.961e4					2.0	NO		bb		0.000
6	FUNCTION2 PFK	31.28	7.337e3					1.5	NO		bb		0.000
7	FUNCTION2 PFK	29.57	4.474e3					1.1	NO		bb		0.000
8	FUNCTION2 PFK	29.39	5.109e4					3.6	YES		bb		0.000
9	FUNCTION2 PFK	28.90	1.036e4					1.7	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	40.89	8.790e3					1.8	NO		bb		
2	FUNCTION4 PFK	39.25	8.696e3					2.0	NO		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.98	3.901e3					1.3	NO		bb		
2	FUNCTION5 PFK	43.95	2.037e3					0.9	NO		bb		
3	FUNCTION5 PFK	43.66	3.981e3					1.4	NO		bb		
4	FUNCTION5 PFK	43.34	5.767e2					0.5	NO		bb		
5	FUNCTION5 PFK	43.30	4.424e3					1.3	NO		bb		
6	FUNCTION5 PFK	42.69	1.537e6					33.7	YES		db		
7	FUNCTION5 PFK	42.57	5.025e5					41.0	YES		bd		
8	FUNCTION5 PFK	45.57	1.867e3					0.9	NO		bb		
9	FUNCTION5 PFK	45.47	1.278e3					0.7	NO		bb		
10	FUNCTION5 PFK	45.31	5.294e3					1.1	NO		bb		
11	FUNCTION5 PFK	45.12	8.493e3					1.7	NO		bb		
12	FUNCTION5 PFK	45.03	2.523e3					1.0	NO		bb		
13	FUNCTION5 PFK	44.95	2.961e3					1.2	NO		bb		
14	FUNCTION5 PFK	44.83	1.630e3					0.7	NO		db		
15	FUNCTION5 PFK	44.77	4.820e3					1.3	NO		bd		
16	FUNCTION5 PFK	44.41	1.664e3					0.8	NO		bb		
17	FUNCTION5 PFK	44.22	7.378e3					1.7	NO		db		
18	FUNCTION5 PFK	44.17	2.889e3					1.0	NO		bd		
19	FUNCTION5 PFK	44.03	1.476e3					0.7	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	25.14	7.058e1					2.7	NO		bb		0.000
2	FUNCTION1 HXCD...	24.28	1.014e2					7.8	YES		bb		0.000
3	FUNCTION1 HXCD...	23.54	8.697e1					2.8	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	29.84	9.324e1					4.1	YES		db		0.000
2	FUNCTION2 HPCD...	29.77	7.902e1					1.7	NO		bd		0.000

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Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
Printed: Wednesday, March 06, 2024 10:50:52 Pacific Standard Time

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ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.36	1.119e2					3.2	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.53	8.418e1					3.0	YES		bb		0.000
2	FUNCTION4 NCDPE	40.19	7.326e1					1.9	NO		db		0.000
3	FUNCTION4 NCDPE	40.05	8.525e1					1.9	NO		bd		0.000
4	FUNCTION4 NCDPE	38.23	1.144e2					2.7	NO		bb		0.000

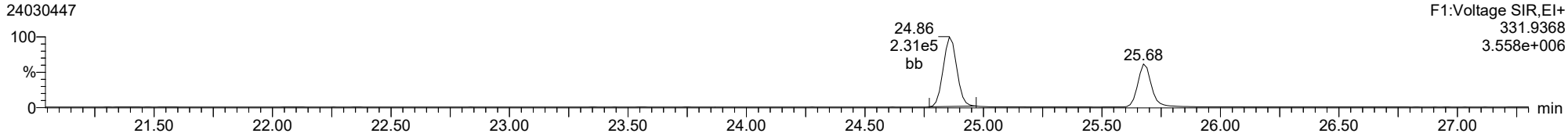
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

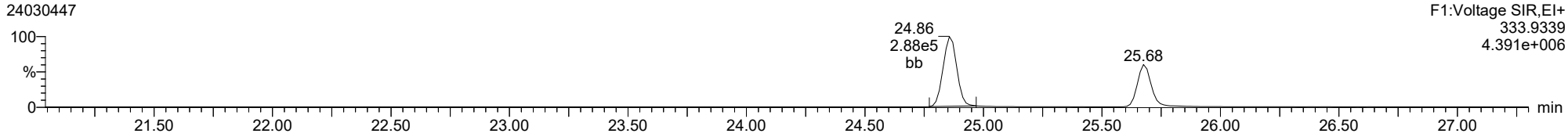
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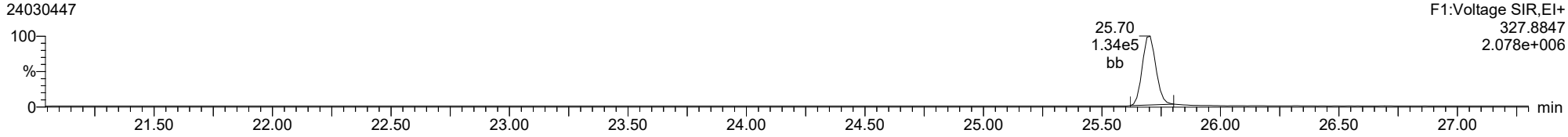
13C-1234-TCDD



13C-1234-TCDD

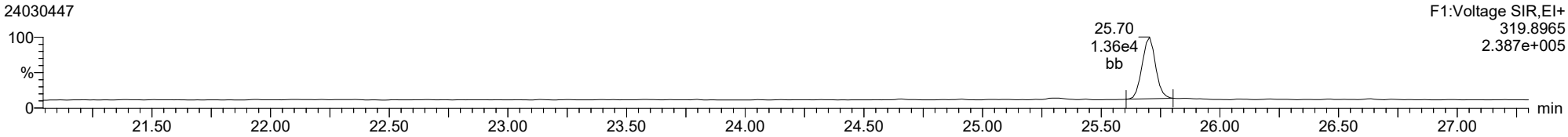


37CL-2378-TCDD

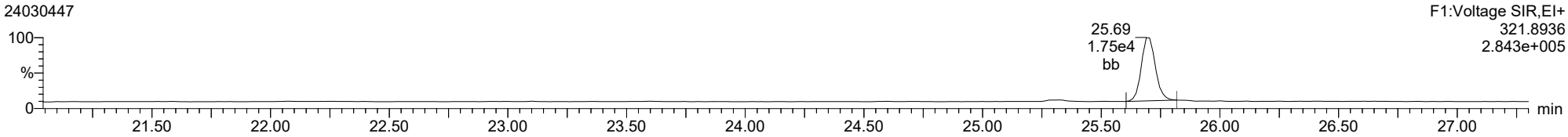


ID: BMA0737-BS1, Name: 24030447, Date: 06-Mar-2024, Time: 00:32:48, Conditions: AUTOSPEC01, User: pk

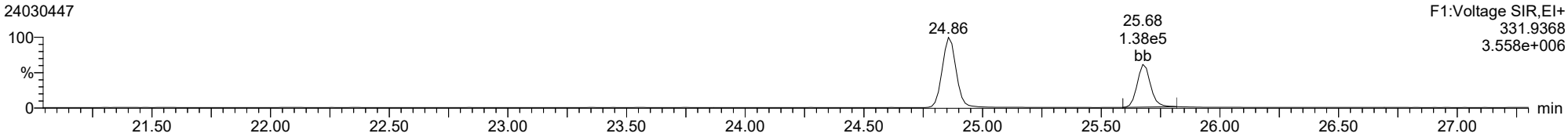
2378-TCDD



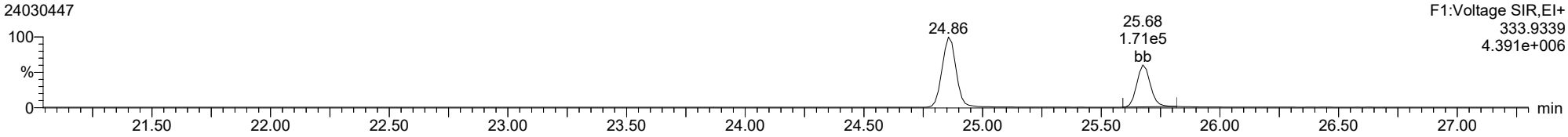
2378-TCDD



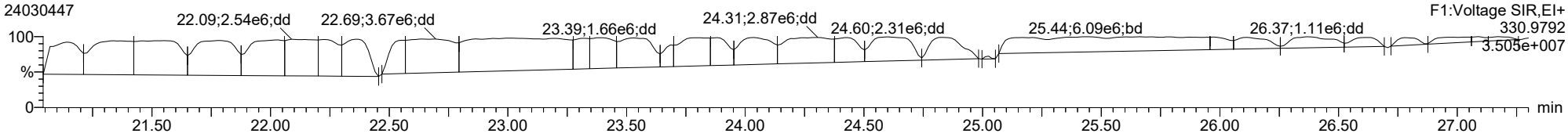
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13C-2378-TCDD

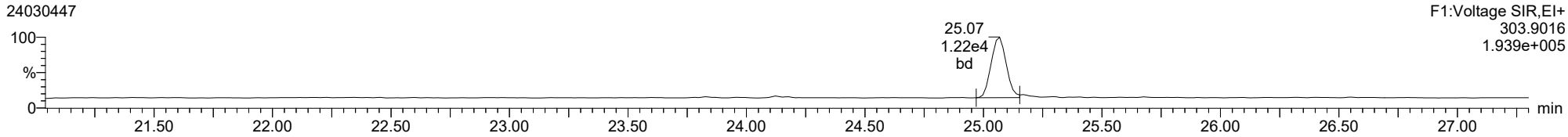


FUNCTION1 PFK

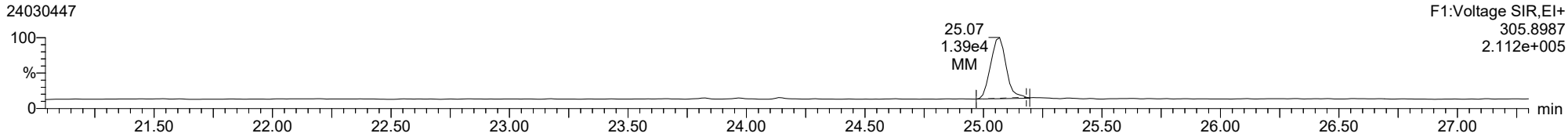


ID: BMA0737-BS1, Name: 24030447, Date: 06-Mar-2024, Time: 00:32:48, Conditions: AUTOSPEC01, User: pk

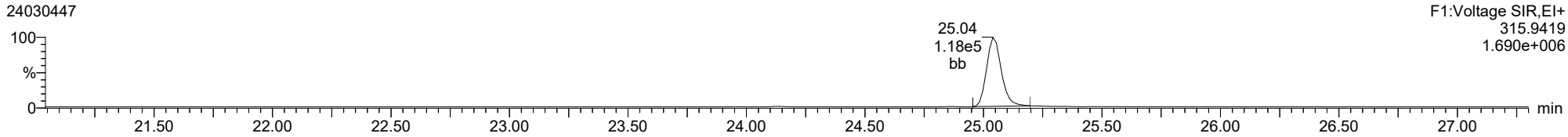
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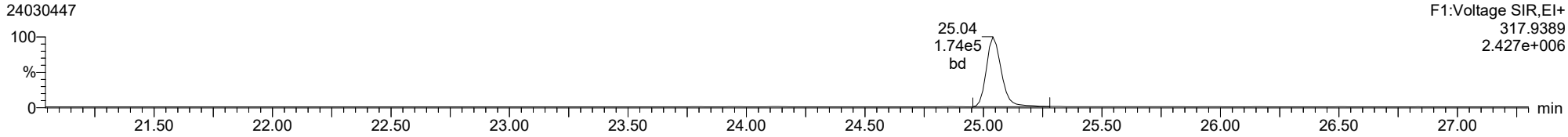
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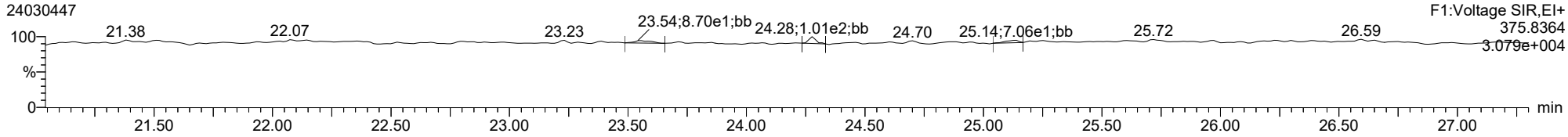
13C-2378-TCDF



13C-2378-TCDF

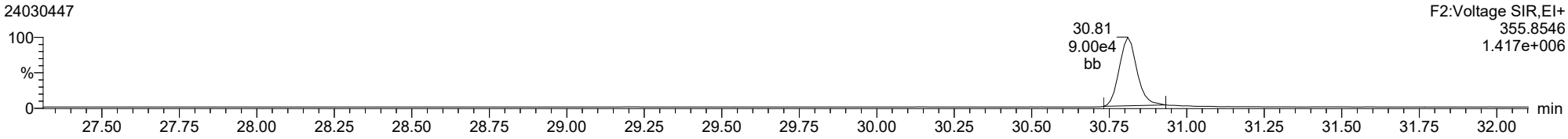


FUNCTION1 HXCDPE

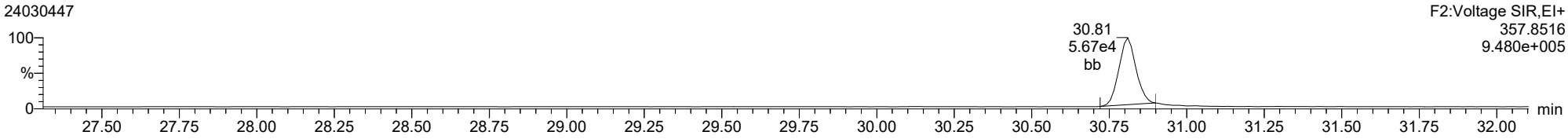


ID: BMA0737-BS1, Name: 24030447, Date: 06-Mar-2024, Time: 00:32:48, Conditions: AUTOSPEC01, User: pk

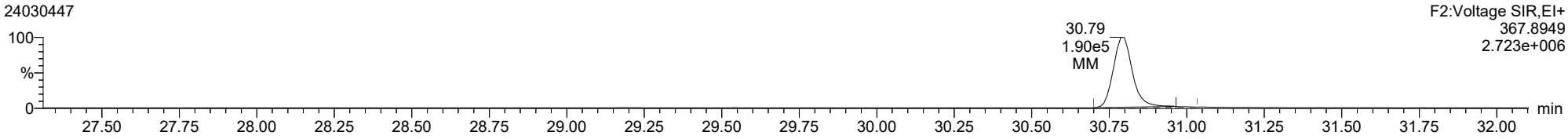
12378-PeCDD



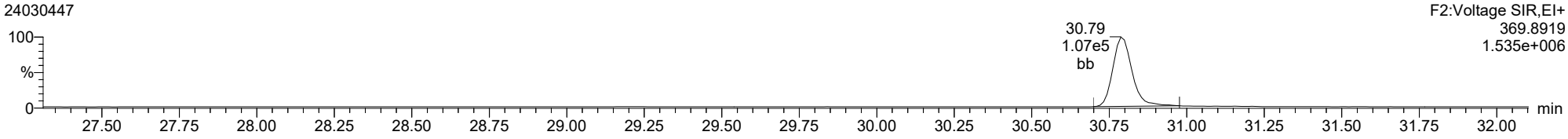
12378-PeCDD



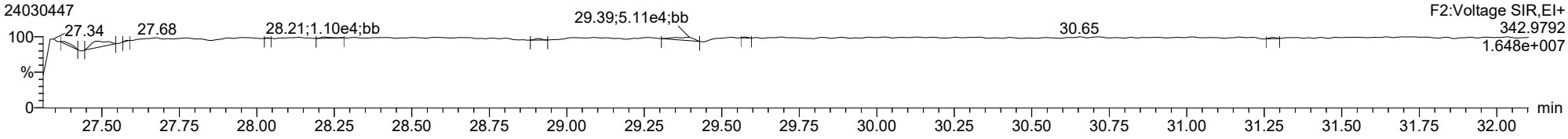
13C-12378-PeCDD



13C-12378-PeCDD

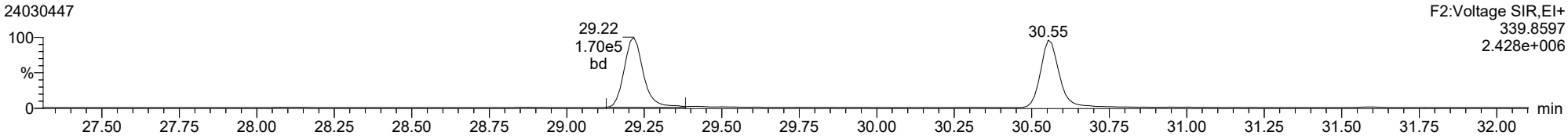


FUNCTION2 PFK

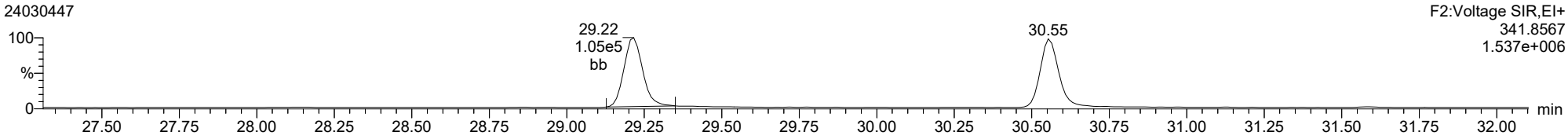


ID: BMA0737-BS1, Name: 24030447, Date: 06-Mar-2024, Time: 00:32:48, Conditions: AUTOSPEC01, User: pk

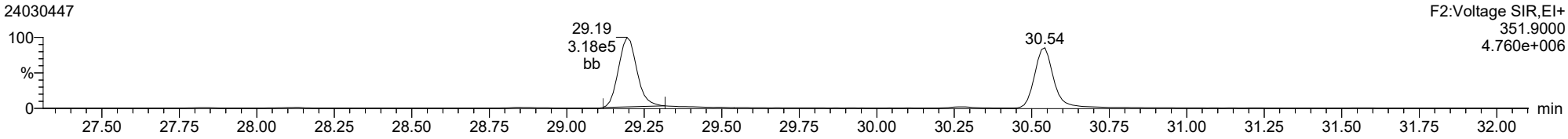
12378-PeCDF



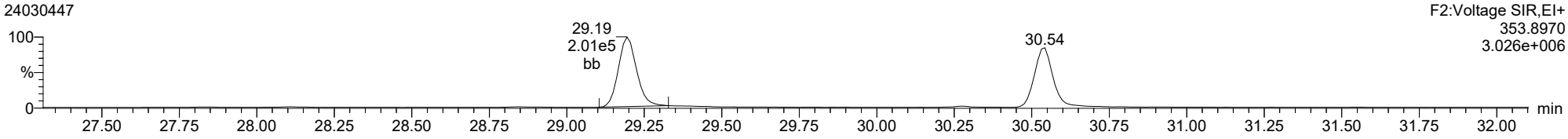
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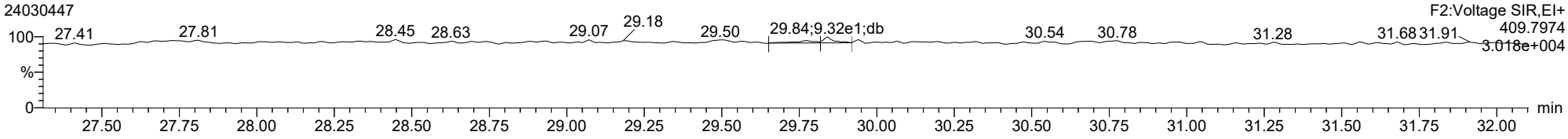
13C-12378-PeCDF



13C-12378-PeCDF

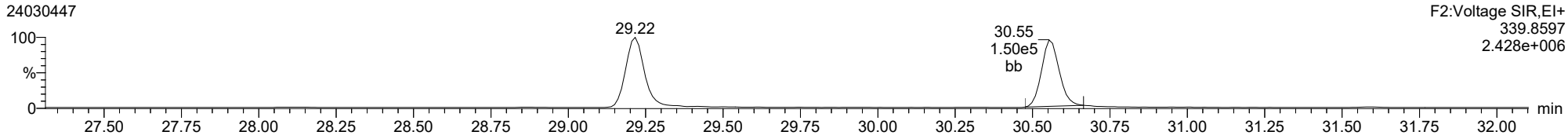


FUNCTION2 HPCDPE

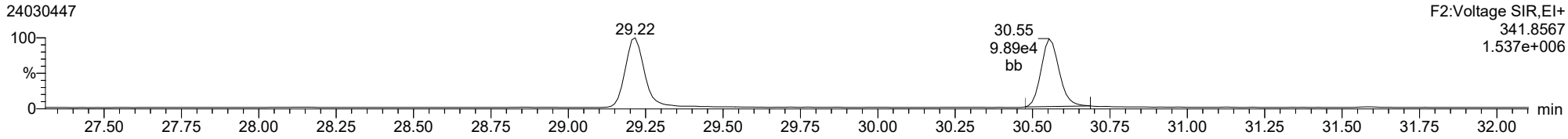


ID: BMA0737-BS1, Name: 24030447, Date: 06-Mar-2024, Time: 00:32:48, Conditions: AUTOSPEC01, User: pk

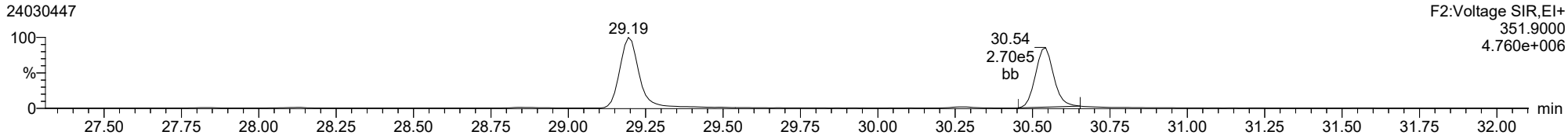
23478-PeCDF



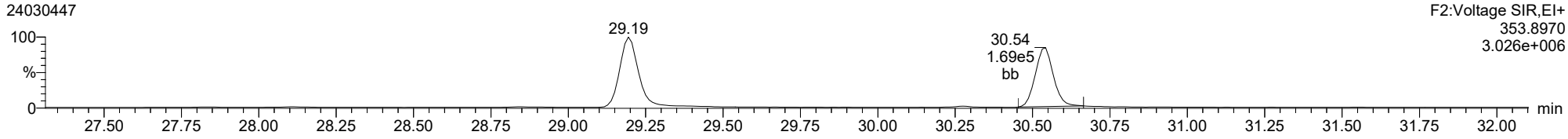
23478-PeCDF



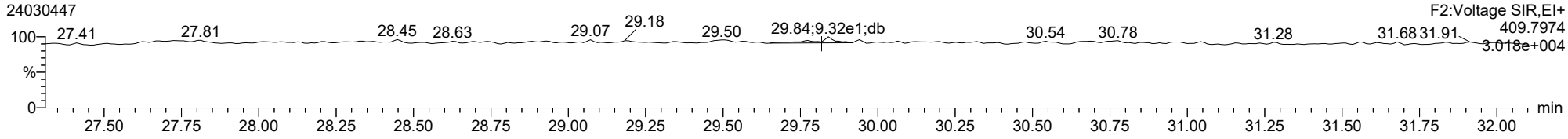
13C-23478-PeCDF



13C-23478-PeCDF

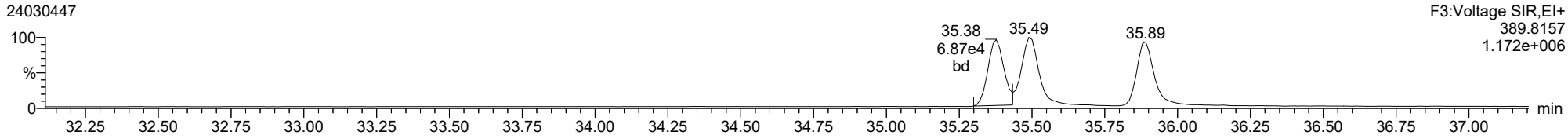


FUNCTION2 HPCDPE

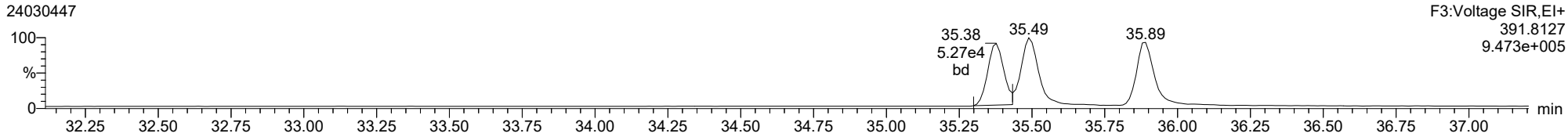


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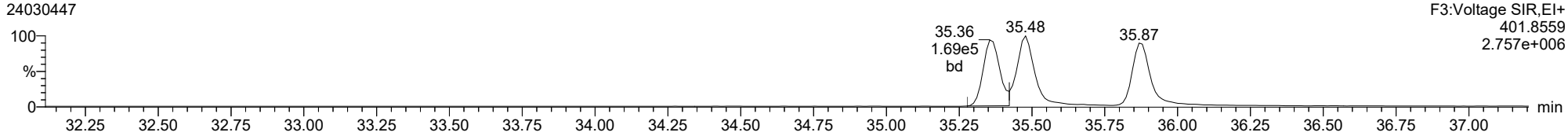
123478-HxCDD



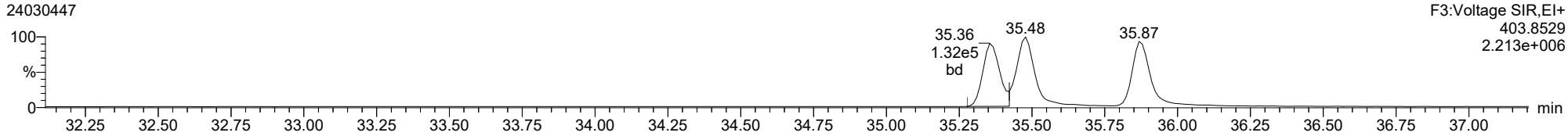
123478-HxCDD



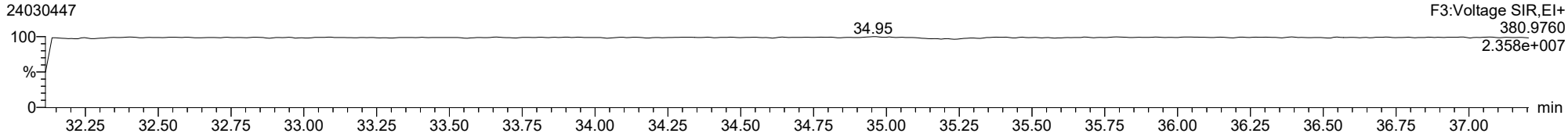
13C-123478-HxCDD



13C-123478-HxCDD



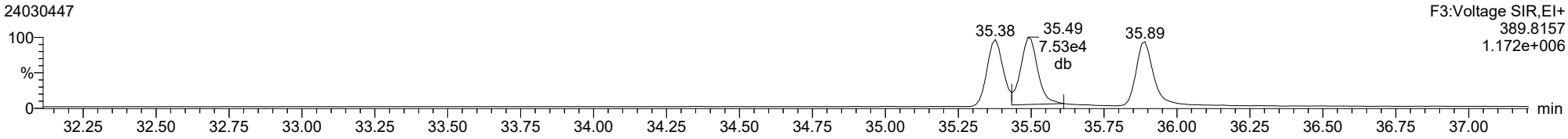
FUNCTION3 PFK



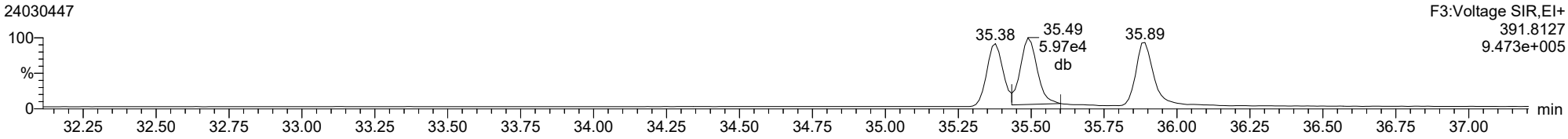
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Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
Printed: Wednesday, March 06, 2024 10:50:52 Pacific Standard Time

ID: BMA0737-BS1, Name: 24030447, Date: 06-Mar-2024, Time: 00:32:48, Conditions: AUTOSPEC01, User: pk

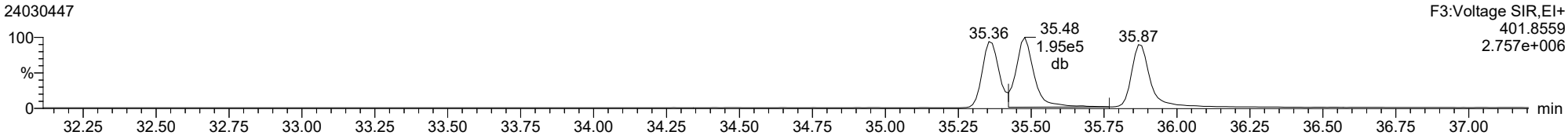
123678-HxCDD



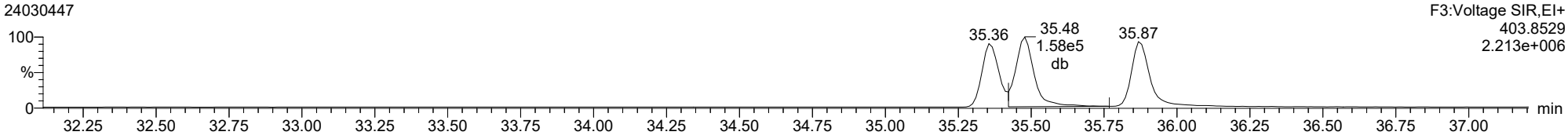
123678-HxCDD



13C-123678-HxCDD

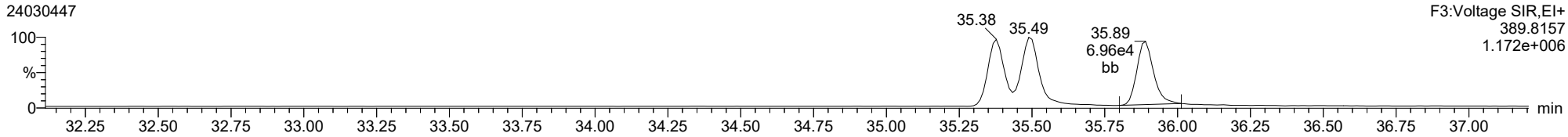


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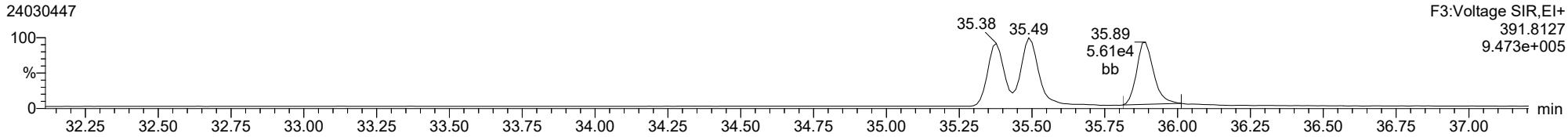


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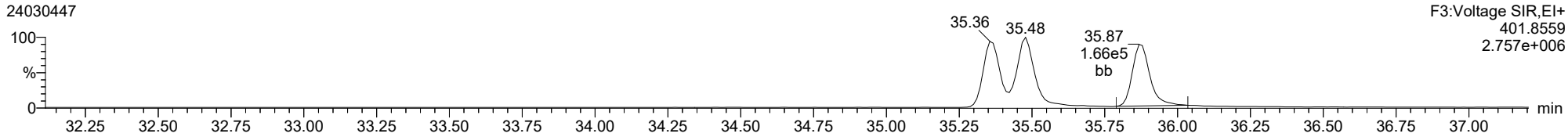
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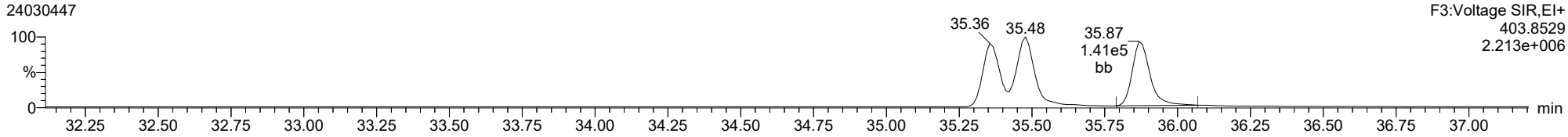
123789-HxCDD



13C-123789-HxCDD

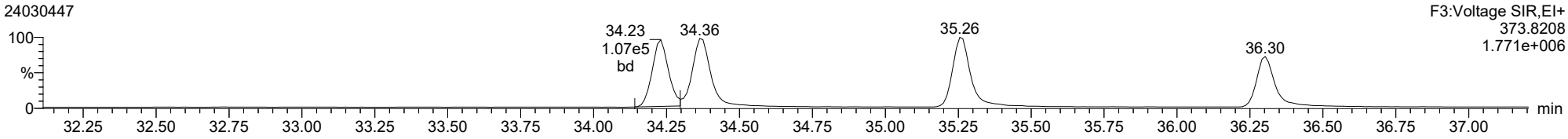


13C-123789-HxCDD

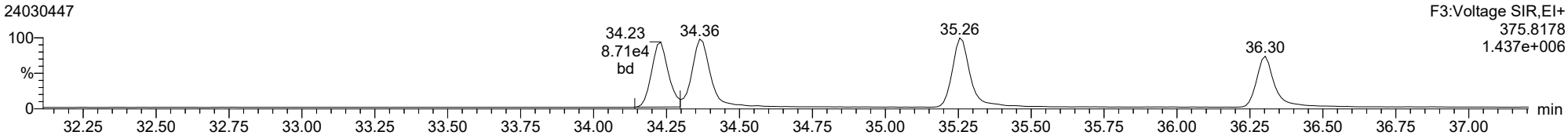


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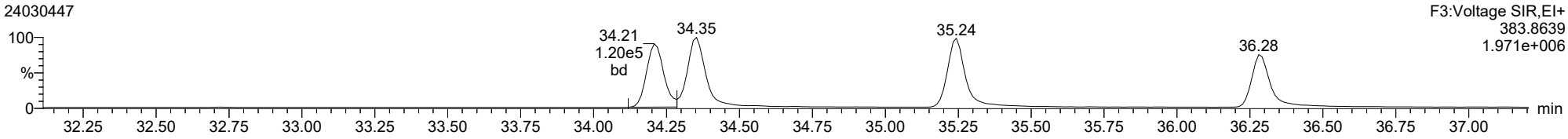
123478-HxCDF



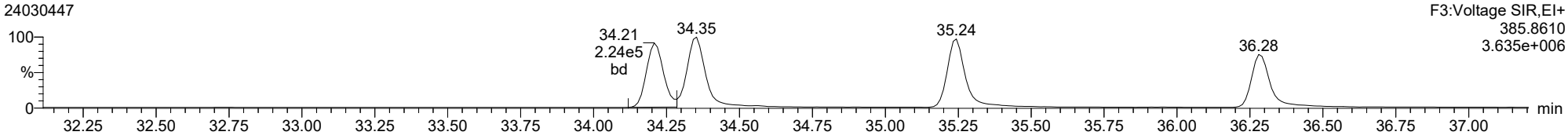
123478-HxCDF



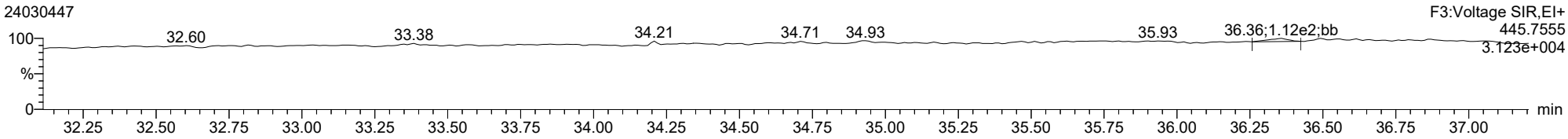
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13C-123478-HxCDF

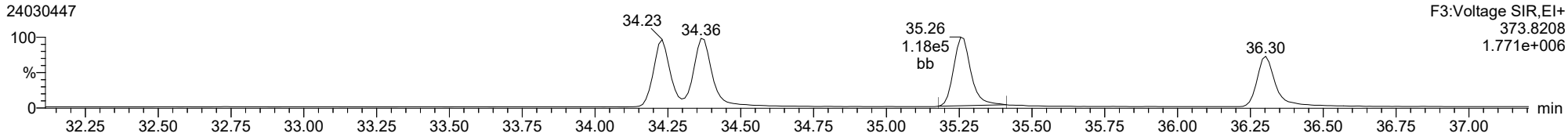


FUNCTION3 OCDPE

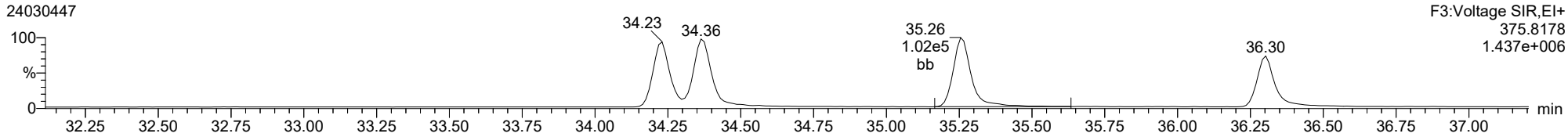


ID: BMA0737-BS1, Name: 24030447, Date: 06-Mar-2024, Time: 00:32:48, Conditions: AUTOSPEC01, User: pk

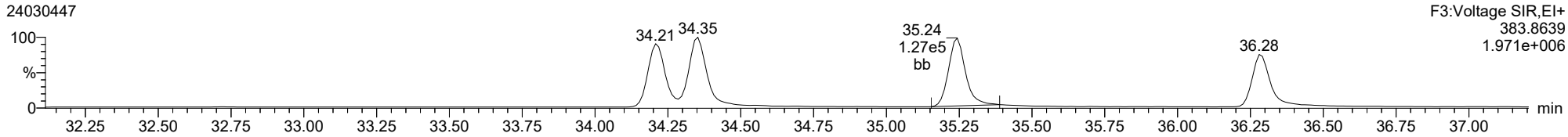
234678-HxCDF



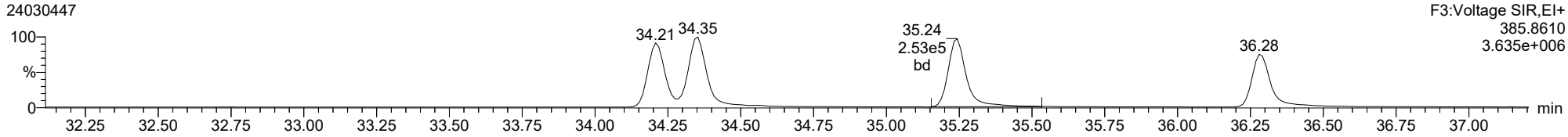
234678-HxCDF



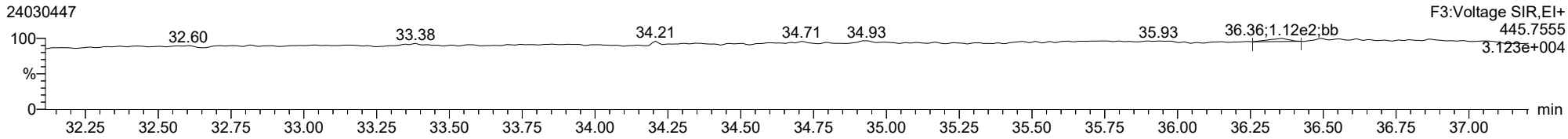
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13C-234678-HxCDF

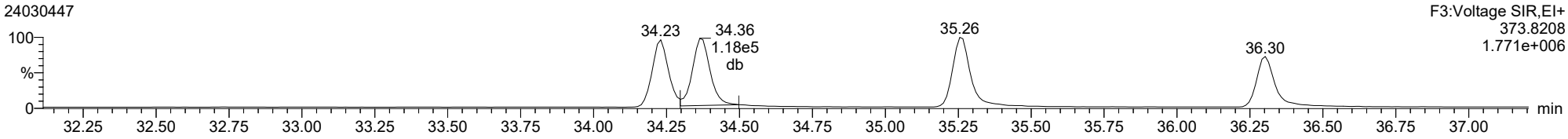


FUNCTION3 OCDPE

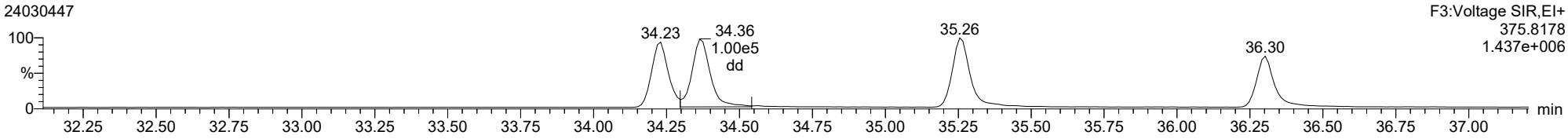


ID: BMA0737-BS1, Name: 24030447, Date: 06-Mar-2024, Time: 00:32:48, Conditions: AUTOSPEC01, User: pk

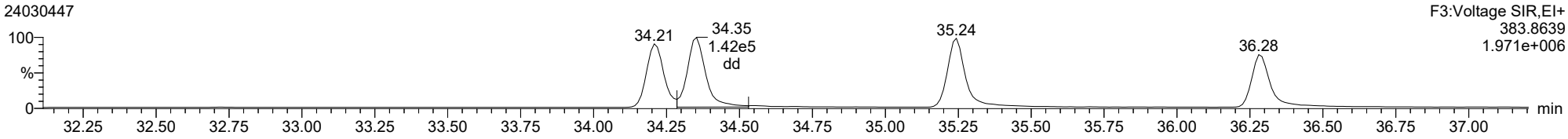
123678-HxCDF



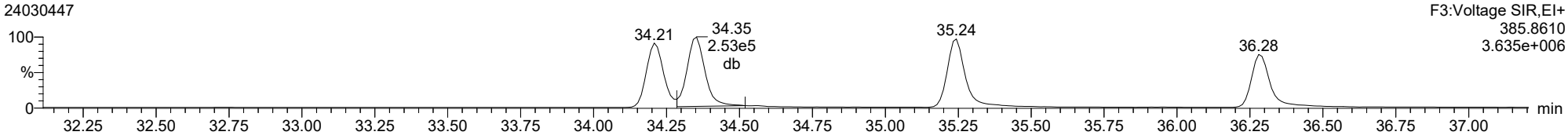
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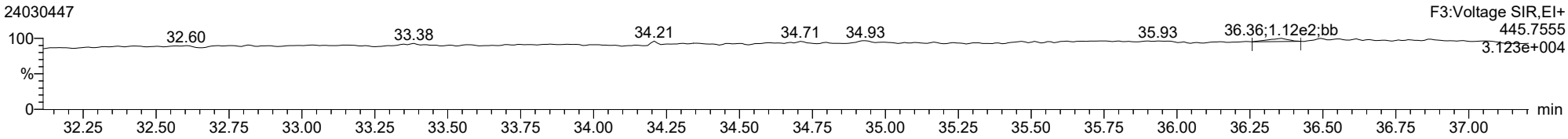
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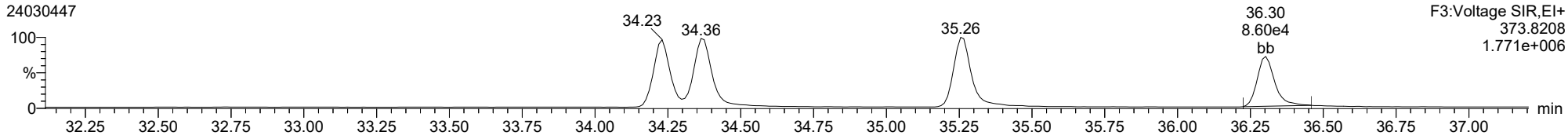


FUNCTION3 OCDPE

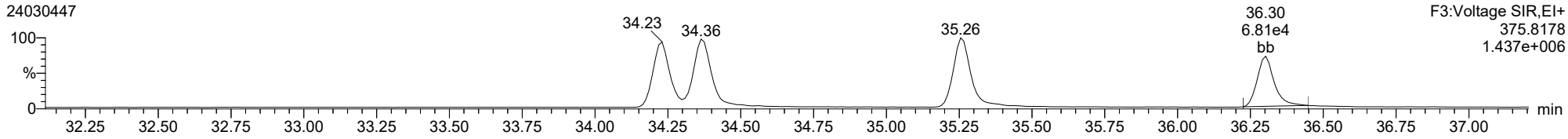


ID: BMA0737-BS1, Name: 24030447, Date: 06-Mar-2024, Time: 00:32:48, Conditions: AUTOSPEC01, User: pk

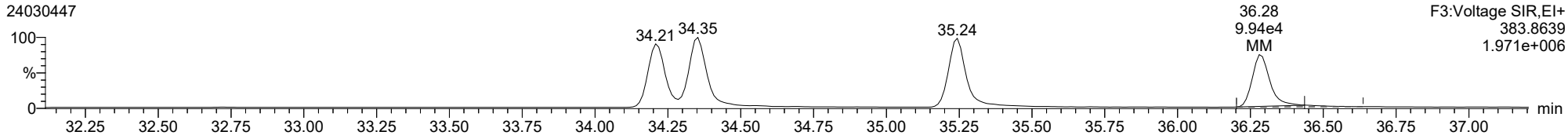
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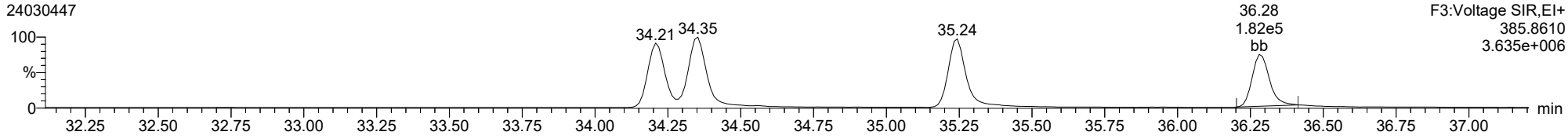
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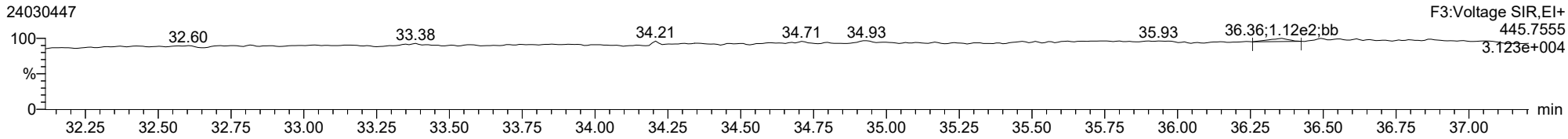
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13C-123789-HxCDF

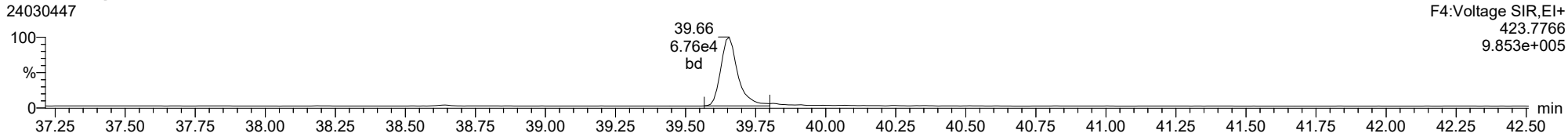


FUNCTION3 OCDPE

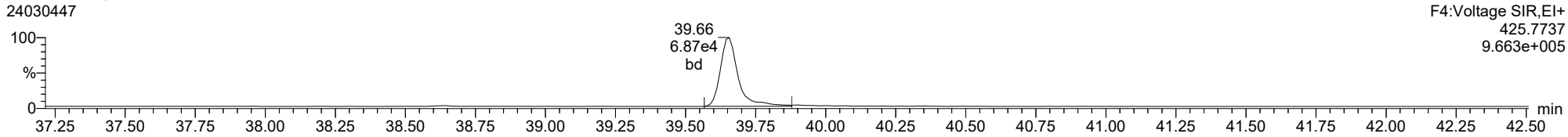


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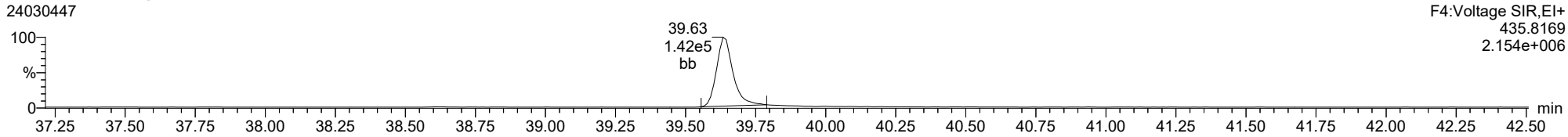
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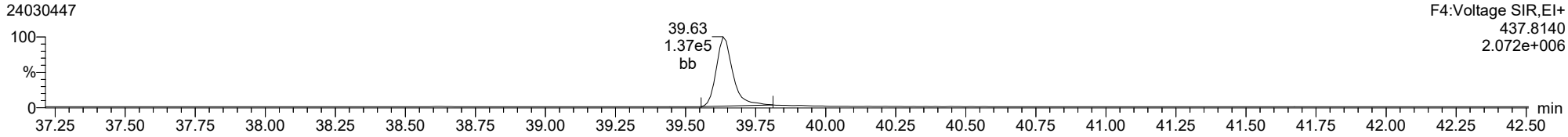
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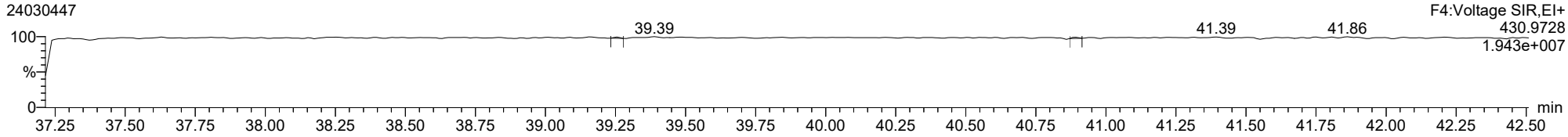
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13C-1234678-HpCDD

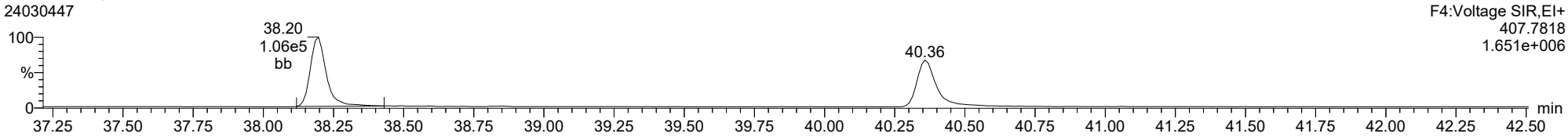


FUNCTION4 PFK

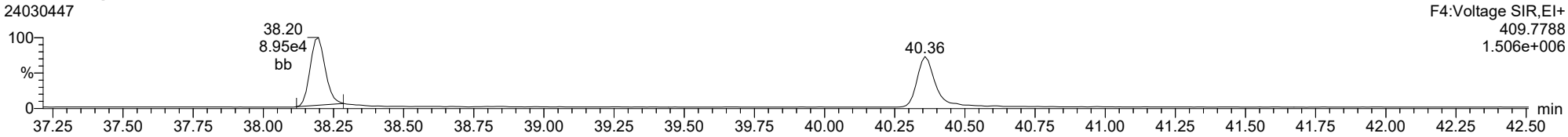


ID: BMA0737-BS1, Name: 24030447, Date: 06-Mar-2024, Time: 00:32:48, Conditions: AUTOSPEC01, User: pk

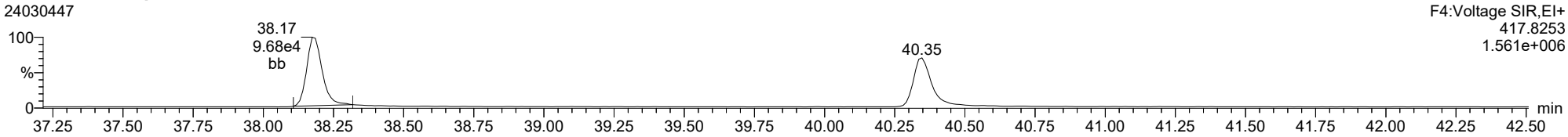
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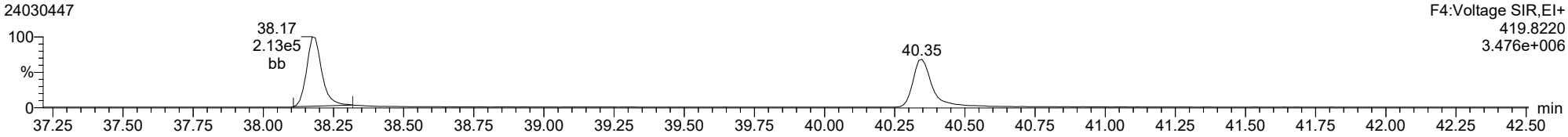
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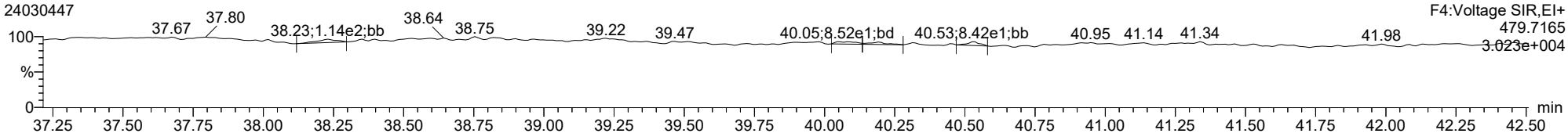
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13C-1234678-HpCDF

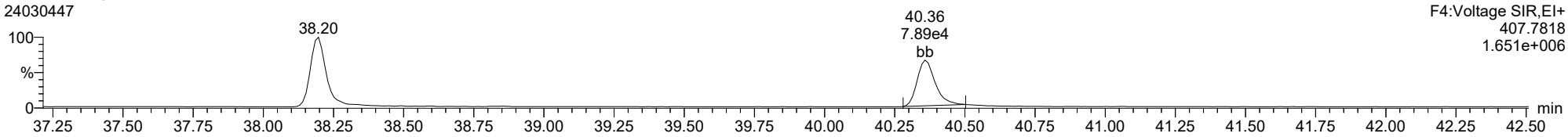


FUNCTION4 NCDPE

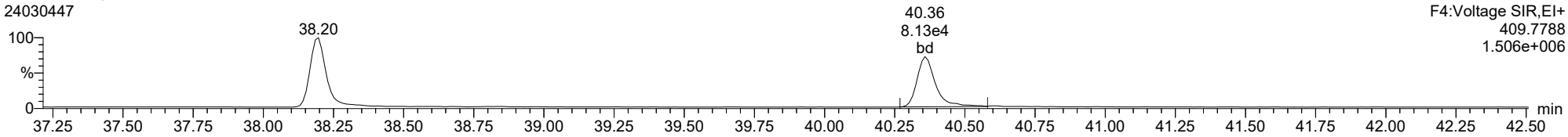


ID: BMA0737-BS1, Name: 24030447, Date: 06-Mar-2024, Time: 00:32:48, Conditions: AUTOSPEC01, User: pk

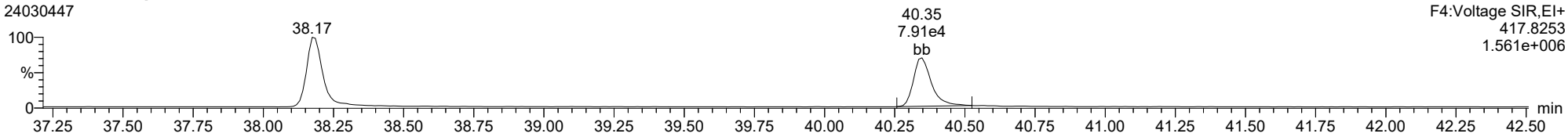
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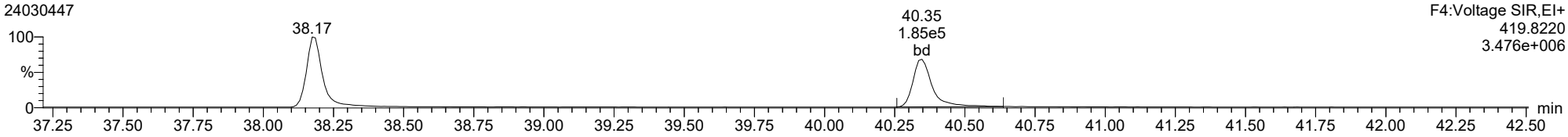
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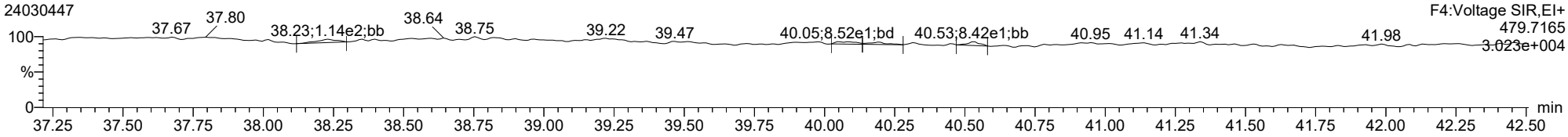
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13C-1234789-HpCDF

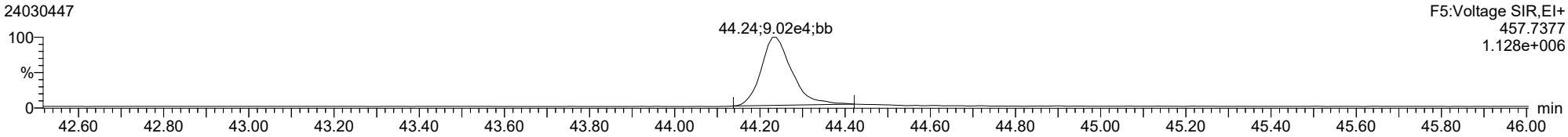


FUNCTION4 NCDPE

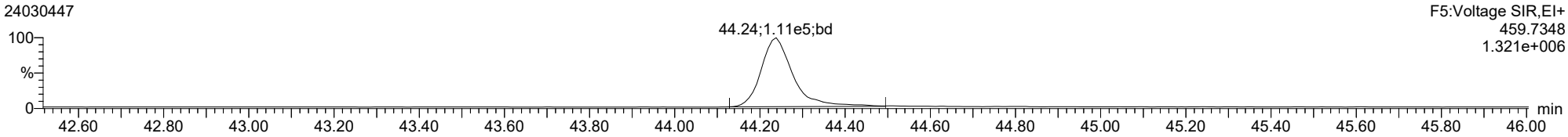


ID: BMA0737-BS1, Name: 24030447, Date: 06-Mar-2024, Time: 00:32:48, Conditions: AUTOSPEC01, User: pk

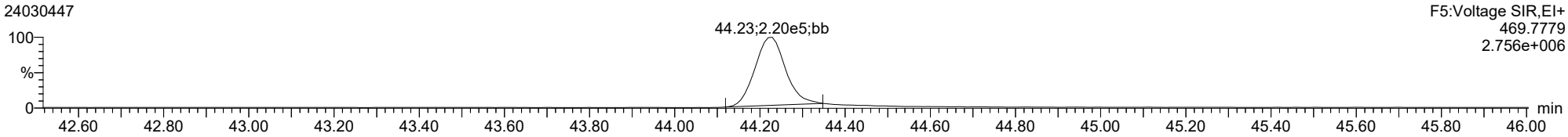
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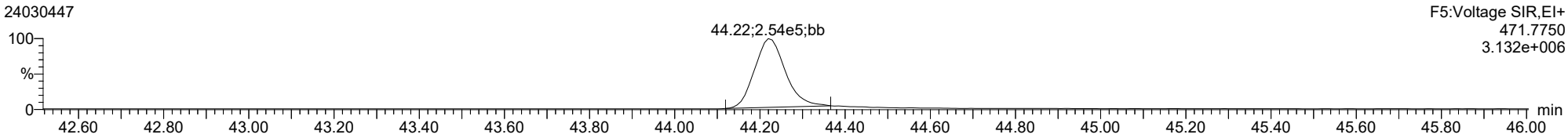
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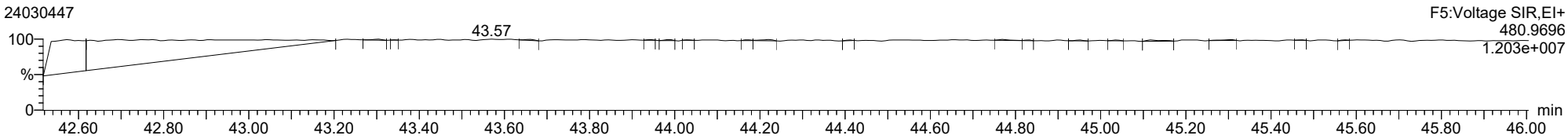
13C-OCDD



13C-OCDD



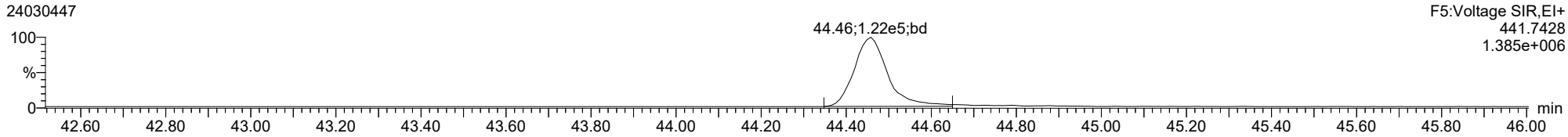
FUNCTION5 PFK



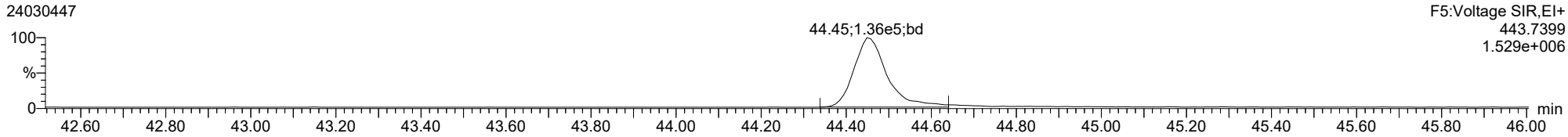
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Printed: Wednesday, March 06, 2024 10:50:52 Pacific Standard Time

ID: BMA0737-BS1, Name: 24030447, Date: 06-Mar-2024, Time: 00:32:48, Conditions: AUTOSPEC01, User: pk

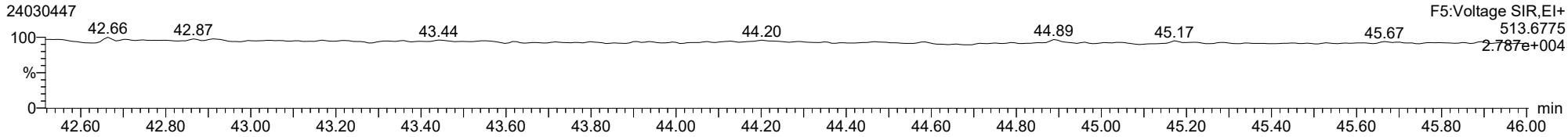
OCDF



OCDF

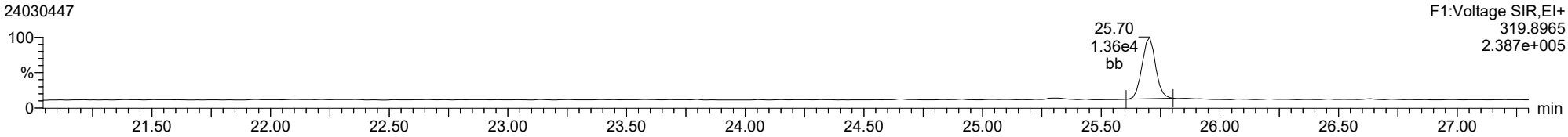


FUNCTION5 DCDPE

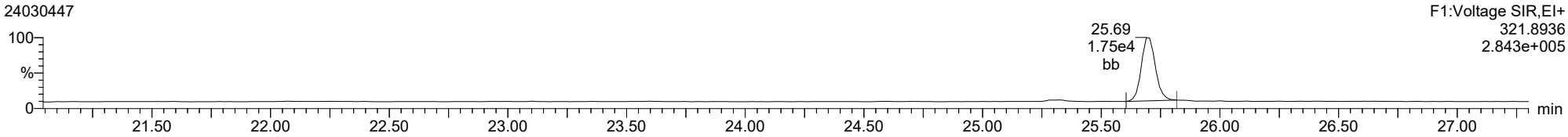


ID: BMA0737-BS1, Name: 24030447, Date: 06-Mar-2024, Time: 00:32:48, Conditions: AUTOSPEC01, User: pk

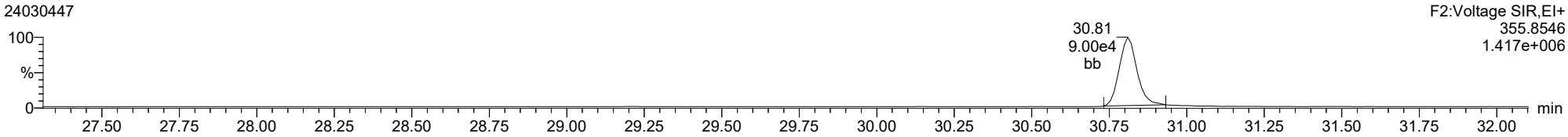
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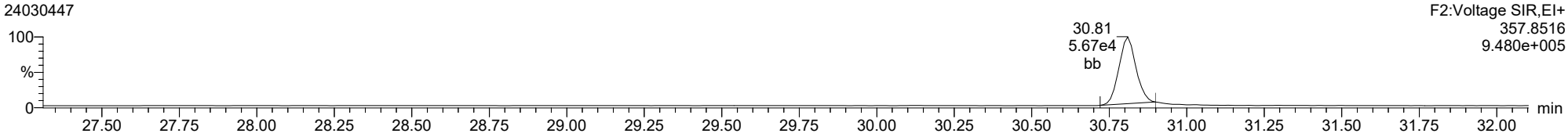
Total-tetradioxins



Total-pentadioxins



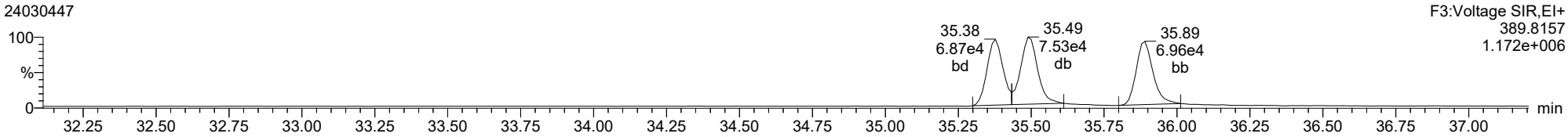
Total-pentadioxins



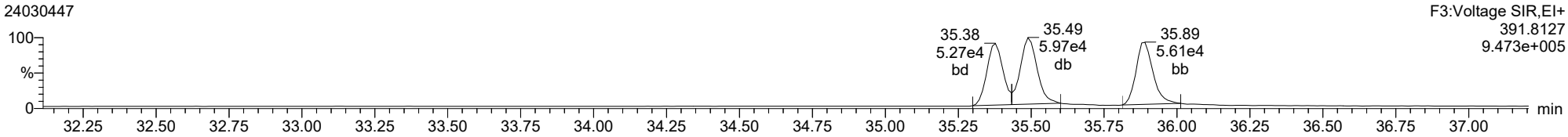
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ID: BMA0737-BS1, Name: 24030447, Date: 06-Mar-2024, Time: 00:32:48, Conditions: AUTOSPEC01, User: pk

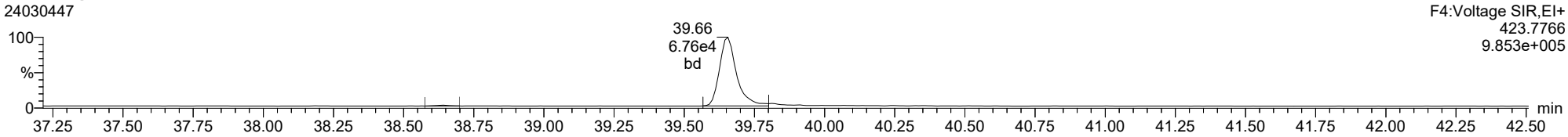
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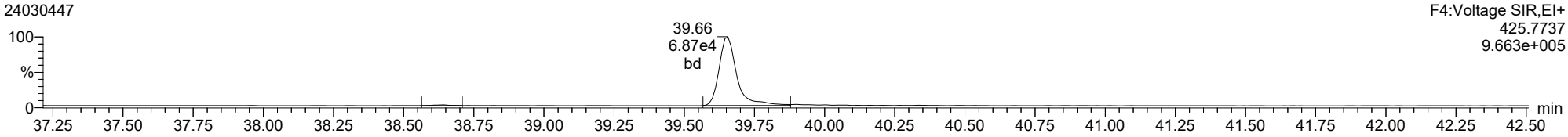
Total-hexadioxins



Total-heptadioxins

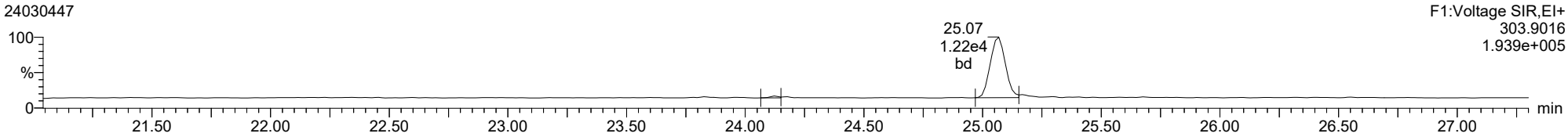


Total-heptadioxins

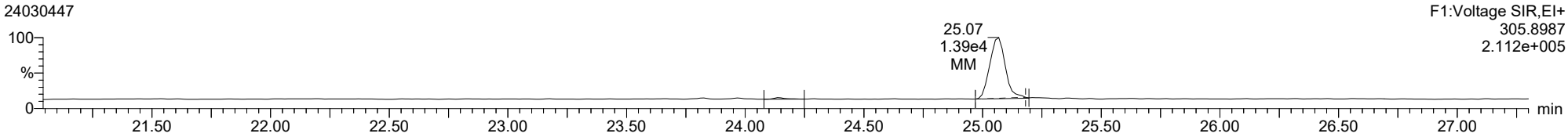


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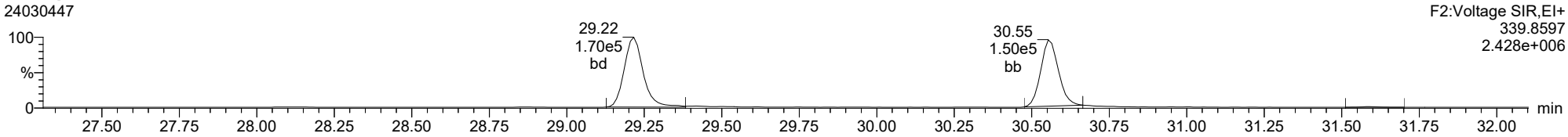
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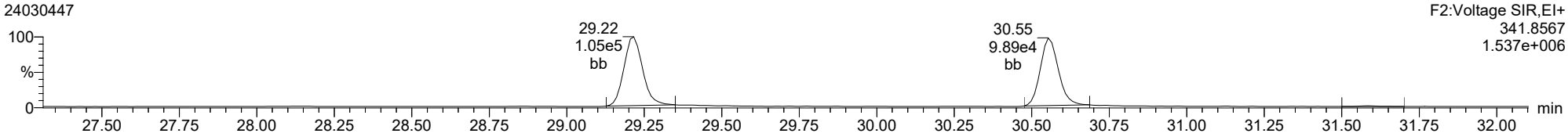
Total-tetrafurans



Total-pentafurans



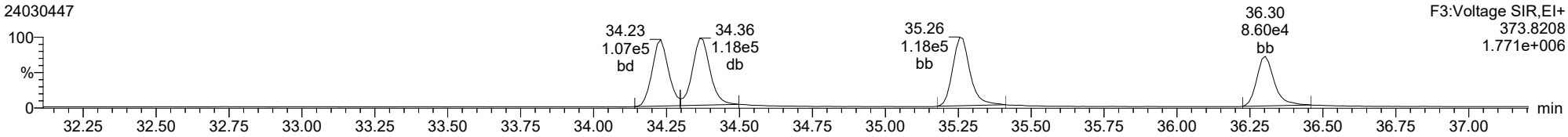
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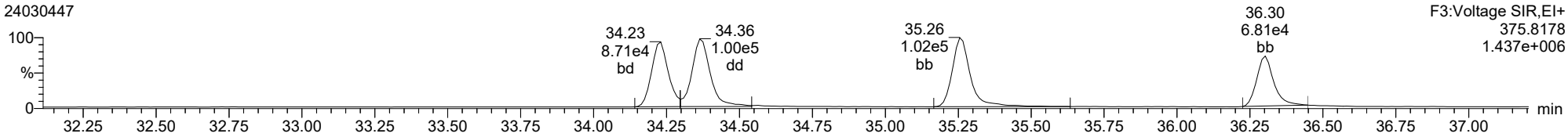
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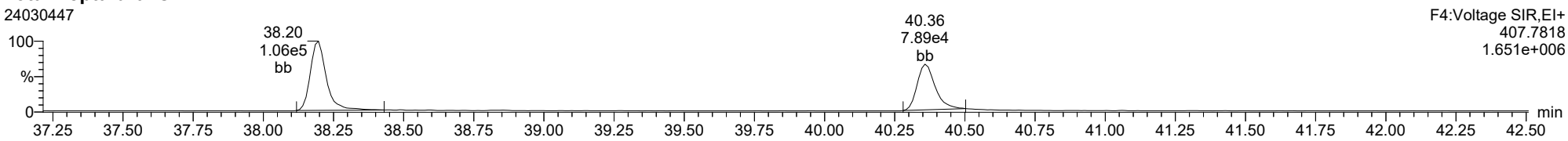
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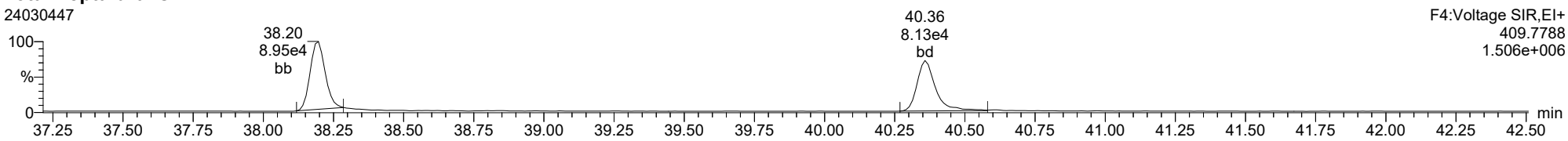
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

H4H-05-0.5-1.0

DUPLICATES
EPA 1613B

Laboratory: Analytical Resources, LLC
Client: Floyd - Snider
Matrix: Solid
Batch: BMA0737
Preparation: EPA 1613
Source Sample Name: H4H-05-0.5-1.0

SDG: 23I0156
Project: Smith-Kem
Laboratory ID: BMA0737-DUP1
Lab Source ID: 23I0156-20
Initial/Final: 12.31 g / 20 uL
% Solids: 81.24

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION (ng/kg dry)	C	DUPLICATE CONCENTRATION (ng/kg dry)	C	RPD %	Q
2,3,7,8-TCDF	25	6.43	X	7.96	X	21.3	
2,3,7,8-TCDD	25	0.386	EMPC, J	ND	U		
1,2,3,7,8-PeCDF	25	1.54	EMP	1.40		9.27	
2,3,4,7,8-PeCDF	25	10.5		10.2		2.57	
1,2,3,7,8-PeCDD	25	1.92		ND	U		
1,2,3,4,7,8-HxCDF	25	4.19		4.17		0.499	
1,2,3,6,7,8-HxCDF	25	11.0		9.61		13.0	
2,3,4,6,7,8-HxCDF	25	30.3		12.5	*	83.5	*
1,2,3,7,8,9-HxCDF	25	3.87		3.62		6.44	
1,2,3,4,7,8-HxCDD	25	0.776	EMPC, J	0.661	J	16.0	
1,2,3,6,7,8-HxCDD	25	3.18		2.56		21.9	
1,2,3,7,8,9-HxCDD	25	1.71		1.31	*	26.1	*
1,2,3,4,6,7,8-HpCDF	25	16.6		14.0		16.8	
1,2,3,4,7,8,9-HpCDF	25	1.32		1.16		13.1	
1,2,3,4,6,7,8-HpCDD	25	18.0		16.3		10.1	
OCDF	25	23.3		21.7		7.31	
OCDD	25	91.9	B	77.6	B	16.9	
Total TCDF	200	302		299		0.997	
Total TCDD	200	5.34		6.20		15.0	
Total PeCDF	200	741		695		6.48	
Total PeCDD	200	16.1		8.95		57.2	
Total HxCDF	200	358		333		7.21	
Total HxCDD	200	25.0		22.3		11.4	
Total HpCDF	200	44.8		37.5		17.6	
Total HpCDD	200	31.9		27.6		14.3	
13C12-2,3,7,8-TCDF		162		130			
13C12-2,3,7,8-TCDD		187		161			
13C12-1,2,3,7,8-PeCDF		194		201			
13C12-2,3,4,7,8-PeCDF		198		201			

* Values outside of QC limits
L Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to +/- RL instead of 20% RPD

Analytical Resources, LLC
Analytical Chemists and Consultants

H4H-05-0.5-1.0

DUPLICATES

EPA 1613B

Laboratory: Analytical Resources, LLC
Client: Floyd - Snider
Matrix: Solid
Batch: BMA0737
Preparation: EPA 1613
Source Sample Name: H4H-05-0.5-1.0

SDG: 23I0156
Project: Smith-Kem
Laboratory ID: BMA0737-DUP1
Lab Source ID: 23I0156-20
Initial/Final: 12.31 g / 20 uL
% Solids: 81.24

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION (ng/kg dry)	C	DUPLICATE CONCENTRATION (ng/kg dry)	C	RPD %	Q
13C12-1,2,3,7,8-PeCDD		169		173			
13C12-1,2,3,4,7,8-HxCDF		199		213			
13C12-1,2,3,6,7,8-HxCDF		190		214			
13C12-2,3,4,6,7,8-HxCDF		196		209			
13C12-1,2,3,7,8,9-HxCDF		210		227			
13C12-1,2,3,4,7,8-HxCDD		198		209			
13C12-1,2,3,6,7,8-HxCDD		181		201			
13C12-1,2,3,4,6,7,8-HpCDF		201		220			
13C12-1,2,3,4,7,8,9-HpCDF		234		261			
13C12-1,2,3,4,6,7,8-HpCDD		217		233			
13C12-OCDD		431		433			
37Cl4-2,3,7,8-TCDD		73.5		63.4			

*: Values outside of QC limits
L: Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to Dup = +/- RL instead of 20% RPD

Dataset: T:\Autospec\Processed Data Batch\240304IH1.qld
Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
Printed: Wednesday, March 06, 2024 10:51:05 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240306.mdb 06 Mar 2024 10:17:07
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

ID: BMA0737-DUP1, Name: 24030448, Date: 06-Mar-2024, Time: 01:21:41, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.068	1.001	1.027e4	1.263e4	0.980	0.813	0.770	1814	2539	1.70e5	1.93e5	94.0	75.9	NO	bb	bd	3.981
12378-PeCDF	29.219	1.001	2.836e3	1.973e3	1.047	1.437	1.550	2460	2230	3.97e4	2.84e4	16.2	12.8	NO	bb	bb	0.701
23478-PeCDF	30.556	1.000	2.170e4	1.451e4	1.156	1.496	1.550	2460	2230	2.92e5	2.01e5	118.8	90.3	NO	db	dd	5.112
123478-HxCDF	34.244	1.001	6.215e3	4.808e3	1.224	1.293	1.240	1510	1505	8.94e4	7.05e4	59.2	46.8	NO	bd	bd	2.084
234678-HxCDF	35.269	1.000	1.761e4	1.462e4	1.235	1.204	1.240	1510	1505	3.25e5	2.57e5	214.9	170.6	NO	db	db	6.230
123678-HxCDF	34.377	1.000	1.560e4	1.289e4	1.193	1.211	1.240	1510	1505	2.28e5	1.96e5	150.7	130.3	NO	db	db	4.806
123789-HxCDF	36.271	0.999	4.616e3	3.265e3	1.100	1.414	1.240	1510	1505	6.93e4	4.53e4	45.9	30.1	NO	bb	bb	1.812
1234678-HpCDF	38.199	1.000	1.898e4	1.794e4	1.392	1.058	1.050	984	1069	3.01e5	2.92e5	306.4	273.3	NO	bb	bb	6.992
1234789-HpCDF	40.371	1.001	1.401e3	1.239e3	1.381	1.130	1.050	984	1069	1.98e4	1.87e4	20.1	17.5	NO	bb	bb	0.581
OCDF	44.469	1.005	1.785e4	1.803e4	1.222	0.990	0.890	846	732	2.16e5	2.11e5	254.8	288.3	NO	bd	bb	10.829
2378-TCDD					1.227		0.770	712	924								
12378-PeCDD					0.964		1.550	1492	4637								
123478-HxCDD	35.391	1.000	6.331e2	4.582e2	0.841	1.382	1.240	835	902	1.13e4	6.97e3	13.6	7.7	NO	bd	bd	0.330
123678-HxCDD	35.514	1.000	2.747e3	1.928e3	0.833	1.425	1.240	835	902	4.45e4	3.07e4	53.3	34.0	NO	db	db	1.278
123789-HxCDD	35.893	1.011	1.175e3	9.315e2	0.770	1.262	1.240	835	902	1.98e4	1.90e4	23.7	21.1	NO	bd	bb	0.657
1234678-HpCDD	39.658	1.001	1.387e4	1.344e4	0.984	1.032	1.050	778	911	2.05e5	2.06e5	263.0	225.9	NO	bd	bb	8.154
OCDD	44.240	1.000	4.493e4	5.364e4	0.938	0.838	0.890	832	1354	5.36e5	6.23e5	643.9	460.0	NO	bd	bd	38.791
13C-2378-TCDF	25.040	1.007	2.379e5	3.488e5	1.655	0.682	0.770	1629	1246	3.62e6	5.22e6	2223.9	4185.4	NO	bb	bb	64.975
13C-12378-PeCDF	29.197	1.175	4.051e5	2.496e5	1.196	1.623	1.550	2855	1628	6.11e6	3.81e6	2138.6	2342.8	NO	bb	bb	100.361
13C-23478-PeCDF	30.545	1.229	3.761e5	2.368e5	1.117	1.588	1.550	2855	1628	5.55e6	3.58e6	1944.2	2198.8	NO	bb	bb	100.566
13C-123478-HxCDF	34.222	0.953	1.502e5	2.820e5	1.028	0.533	0.510	1215	1994	2.22e6	4.19e6	1825.4	2101.4	NO	bd	bd	106.280
13C-123678-HxCDF	34.366	0.957	1.797e5	3.173e5	1.176	0.566	0.510	1215	1994	2.40e6	4.44e6	1974.2	2225.5	NO	dd	db	106.870
13C-234678-HxCDF	35.257	0.982	1.451e5	2.740e5	1.016	0.530	0.510	1215	1994	2.18e6	4.12e6	1793.4	2064.7	NO	bb	bb	104.270
13C-123789-HxCDF	36.294	1.011	1.369e5	2.586e5	0.879	0.530	0.510	1215	1994	2.09e6	3.95e6	1721.9	1983.0	NO	bb	bb	113.724
13C-1234678-HpCDF	38.188	1.064	1.164e5	2.627e5	0.870	0.443	0.440	1286	1740	1.90e6	4.19e6	1473.6	2406.5	NO	bb	bb	110.183
13C-1234789-HpCDF	40.349	1.124	1.023e5	2.270e5	0.638	0.451	0.440	1286	1740	1.44e6	3.08e6	1119.9	1771.9	NO	bd	bb	130.558
13C-1234-TCDD	24.856	0.000	2.457e5	2.999e5	1.000	0.819	0.770	2025	1054	3.90e6	4.74e6	1926.6	4497.8	NO	bb	bb	100.000
13C-2378-TCDD	25.675	1.033	2.239e5	2.824e5	1.151	0.793	0.770	2025	1054	3.39e6	4.29e6	1675.7	4075.2	NO	bb	bb	80.644
13C-12378-PeCDD	30.801	1.239	2.444e5	1.459e5	0.828	1.675	1.550	1484	791	3.44e6	2.03e6	2317.7	2568.6	NO	bb	bb	86.362
13C-123478-HxCDD	35.380	0.986	2.191e5	1.739e5	0.950	1.260	1.240	1207	1331	3.46e6	2.78e6	2868.0	2090.8	NO	bd	bd	104.620
13C-123678-HxCDD	35.503	0.989	2.433e5	1.959e5	1.107	1.242	1.240	1207	1331	3.47e6	2.77e6	2879.4	2078.8	NO	db	db	100.305
13C-1234678-HpCDD	39.636	1.104	1.762e5	1.641e5	0.737	1.073	1.050	1107	1452	2.61e6	2.41e6	2355.8	1657.4	NO	bb	bb	116.733
13C-OCDD	44.231	1.232	2.570e5	2.851e5	0.633	0.901	0.890	1588	1497	3.08e6	3.48e6	1942.3	2323.3	NO	bb	bb	216.647
13C-123789-HxCDD	35.893	0.000	2.170e5	1.785e5	1.000	1.216	1.240	1207	1331	3.22e6	2.63e6	2665.0	1974.6	NO	bd	bd	100.000
37CL-2378-TCDD	25.690	1.034	2.270e5		1.312			810		3.37e6		4156.6			bb		31.699

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ID: BMA0737-DUP1, Name: 24030448, Date: 06-Mar-2024, Time: 01:21:41, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.565	0.861	1.301e3	2.332e3	1.247	0.558	0.770	1814	2539	1.68e4	3.05e4	9.2	12.0	YES	db	db	0.497
1289-TCDF	26.509	1.059	5.033e3	6.559e3	0.916	0.767	0.770	1814	2539	6.62e4	9.38e4	36.5	36.9	NO	bb	bb	2.158
13468-PECDF	26.495	0.907	8.281e5	5.250e5	1.353	1.577	1.550	801	1158	1.28e7	8.09e6	16018.0	6982.6	NO	bb	bb	152.713
12389-PECDF	31.492	1.079	6.069e3	4.846e3	0.925	1.252	1.550	2460	2230	9.07e4	6.29e4	36.9	28.2	YES	bd	dd	1.802
123468-HXCDF	32.528	0.951	4.098e4	3.193e4	1.335	1.284	1.240	1510	1505	6.21e5	4.73e5	411.2	314.0	NO	bb	bb	12.632
1368-TCDD	22.836	0.889	1.149e3	1.425e3	1.120	0.806	0.770	712	924	1.91e4	2.17e4	26.8	23.4	NO	bb	bb	0.454
1289-TCDD	26.226	1.021	8.824e2	1.320e3	0.966	0.669	0.770	712	924	1.68e4	1.90e4	23.6	20.6	NO	bb	db	0.450
12479-PECDD	28.138	0.914	9.823e3	6.488e3	1.859	1.514	1.550	1492	4637	1.15e5	8.05e4	77.2	17.4	NO	db	dd	2.248
12389-PECDD	31.202	1.013	6.554e2	2.438e2	1.154	2.688	1.550	1492	4637	9.08e3	4.38e3	6.1	0.9	YES	bb	db	0.200
124679-HXCDD	33.330	0.942	6.730e3	5.242e3	1.006	1.284	1.240	835	902	1.01e5	7.25e4	120.8	80.4	NO	bb	bd	3.027
1234679-HPCDD	38.645	0.975	1.133e4	1.147e4	1.184	0.988	1.050	778	911	1.85e5	1.81e5	237.5	199.1	NO	bb	bd	5.658
Total-tetrafurans			4.143e5		1.048			1814		6.60e6							149.631
Total-penta1			8.316e5					801		1.29e7							153.641
Total-pentafurans			7.779e5		1.043			2460		9.77e6							193.662
Total-hexafurans			4.975e5		1.217			1510		7.59e6							166.390
Total-heptafurans			4.891e4		1.387			984		7.68e5							18.775
Total-Furans			2.588e6		1.180			1814		3.78e7							692.928
Total-tetradioxins			7.288e3		1.104			712		1.17e5							3.101
Total-pentadioxins			1.691e4		1.326			1492		2.22e5							4.477
Total-hexadioxins			2.279e4		0.863			835		3.22e5							11.157
Total-heptadioxins			2.520e4		1.084			778		3.90e5							13.812
Total-Dioxins			1.175e5		1.065			712		1.59e6							71.494
Total-TEQ			2.706e6					712		3.94e7							764.422
FUNCTION1 PFK			1.053e7					221006		2.33e7							
FUNCTION2 PFK			5.749e5					235381		9.92e5							0.000
FUNCTION3 PFK			2.714e6					200933		6.00e6							0.000
FUNCTION4 PFK			0.000e0					171600		0.00e0							
FUNCTION5 PFK			6.554e4					117113		2.76e6							
FUNCTION1 HXCD...			2.642e4					719		4.33e5							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			4.125e3					798		6.54e4							0.000
FUNCTION3 OCDPE			5.301e2					426		8.52e3							0.000
FUNCTION4 NCDPE			3.643e3					612		6.21e4							0.000
FUNCTION5 DCDPE			2.906e2					386		2.97e3							0.000

Method: T:\Autospec\Methods\Dioxin240306.mdb 06 Mar 2024 10:17:07
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ID: BMA0737-DUP1, Name: 24030448, Date: 06-Mar-2024, Time: 01:21:41, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.73	4.679e3	5.638e3	1.048	0.83	0.77	44.6	YES	NO	bd	bd	1.678
2	Total-tetrafurans	23.05	8.161e4	1.032e5	1.048	0.79	0.77	695.6	YES	NO	bb	bb	30.072
3	Total-tetrafurans	22.81	3.289e4	3.891e4	1.048	0.85	0.77	288.1	YES	NO	db	db	11.680
4	Total-tetrafurans	22.53	5.733e3	6.706e3	1.048	0.85	0.77	46.4	YES	NO	db	db	2.024
5	Total-tetrafurans	22.40	1.632e5	1.922e5	1.048	0.85	0.77	1463.4	YES	NO	bd	bd	57.831
6	Total-tetrafurans	21.82	1.727e4	2.074e4	1.048	0.83	0.77	152.9	YES	NO	bb	bb	6.185
7	1289-TCDF	26.51	5.033e3	6.559e3	0.916	0.77	0.77	36.5	YES	NO	bb	bb	2.158
8	Total-tetrafurans	25.42	1.328e4	1.696e4	1.048	0.78	0.77	119.3	YES	NO	db	db	4.920
9	Total-tetrafurans	25.29	1.151e3	1.347e3	1.048	0.85	0.77	9.4	YES	NO	bd	dd	0.406
10	2378-TCDF	25.07	1.027e4	1.263e4	0.980	0.81	0.77	94.0	YES	NO	bb	bd	3.981
11	Total-tetrafurans	23.97	7.917e4	9.722e4	1.048	0.81	0.77	689.1	YES	NO	bb	bb	28.695

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.20	3.509e3	2.060e3		1.70	1.55	69.6	YES	NO	bb	bb	0.928
2	13468-PECDF	26.49	8.281e5	5.250e5	1.353	1.58	1.55	16018.0	YES	NO	bb	bb	152.713

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.75	1.334e4	9.707e3	1.043	1.37	1.55	88.1	YES	NO	bd	bd	3.488
2	Total-pentafurans	28.47	5.249e2	3.345e2	1.043	1.57	1.55	5.1	YES	NO	dd	dd	0.130
3	Total-pentafurans	28.15	4.281e5	2.739e5	1.043	1.56	1.55	1843.8	YES	NO	dd	dd	106.229
4	Total-pentafurans	27.96	1.817e4	1.188e4	1.043	1.53	1.55	117.7	YES	NO	dd	bd	4.548
5	23478-PeCDF	30.56	2.170e4	1.451e4	1.156	1.50	1.55	118.8	YES	NO	db	dd	5.112
6	Total-pentafurans	30.40	1.214e5	7.897e4	1.043	1.54	1.55	713.1	YES	NO	dd	dd	30.324
7	Total-pentafurans	30.29	3.533e3	2.404e3	1.043	1.47	1.55	25.2	YES	NO	bd	bd	0.898
8	Total-pentafurans	30.00	1.205e3	7.950e2	1.043	1.52	1.55	5.7	YES	NO	bb	bb	0.303
9	Total-pentafurans	29.41	4.168e4	2.713e4	1.043	1.54	1.55	240.7	YES	NO	bb	bb	10.412
10	12378-PeCDF	29.22	2.836e3	1.973e3	1.047	1.44	1.55	16.2	YES	NO	bb	bb	0.701
11	Total-pentafurans	28.85	1.253e5	8.295e4	1.043	1.51	1.55	797.1	YES	NO	db	db	31.518

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HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.27	4.616e3	3.265e3	1.100	1.41	1.24	45.9	YES	NO	bb	bb	1.812
2	234678-HxCDF	35.27	1.761e4	1.462e4	1.235	1.20	1.24	214.9	YES	NO	db	db	6.230
3	Total-hexafurans	35.22	2.382e4	1.923e4	1.217	1.24	1.24	245.0	YES	NO	bd	bd	8.113
4	123678-HxCDF	34.38	1.560e4	1.289e4	1.193	1.21	1.24	150.7	YES	NO	db	db	4.806
5	123478-HxCDF	34.24	6.215e3	4.808e3	1.224	1.29	1.24	59.2	YES	NO	bd	bd	2.084
6	Total-hexafurans	34.07	9.777e2	9.030e2	1.217	1.08	1.24	12.2	YES	NO	bb	bb	0.354
7	Total-hexafurans	33.60	1.733e5	1.337e5	1.217	1.30	1.24	1746.4	YES	NO	bb	bb	57.853
8	Total-hexafurans	33.29	2.114e3	1.780e3	1.217	1.19	1.24	22.0	YES	NO	bb	bb	0.734
9	Total-hexafurans	32.75	2.122e5	1.686e5	1.217	1.26	1.24	2119.3	YES	NO	bb	bb	71.773
10	123468-HXCDF	32.53	4.098e4	3.193e4	1.335	1.28	1.24	411.2	YES	NO	bb	bb	12.632

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.37	1.401e3	1.239e3	1.381	1.13	1.05	20.1	YES	NO	bb	bb	0.581
2	Total-heptafurans	38.83	2.853e4	2.648e4	1.387	1.08	1.05	454.2	YES	NO	bb	bb	11.202
3	1234678-HpCDF	38.20	1.898e4	1.794e4	1.392	1.06	1.05	306.4	YES	NO	bb	bb	6.992

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ID: BMA0737-DUP1, Name: 24030448, Date: 06-Mar-2024, Time: 01:21:41, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.73	4.679e3	5.638e3	1.048	0.83	0.77	44.6	YES	NO	bd	bd	1.678
2	Total-tetrafurans	23.05	8.161e4	1.032e5	1.048	0.79	0.77	695.6	YES	NO	bb	bb	30.072
3	Total-tetrafurans	22.81	3.289e4	3.891e4	1.048	0.85	0.77	288.1	YES	NO	db	db	11.680
4	Total-tetrafurans	22.53	5.733e3	6.706e3	1.048	0.85	0.77	46.4	YES	NO	db	db	2.024
5	Total-tetrafurans	22.40	1.632e5	1.922e5	1.048	0.85	0.77	1463.4	YES	NO	bd	bd	57.831
6	Total-tetrafurans	21.82	1.727e4	2.074e4	1.048	0.83	0.77	152.9	YES	NO	bb	bb	6.185
7	1289-TCDF	26.51	5.033e3	6.559e3	0.916	0.77	0.77	36.5	YES	NO	bb	bb	2.158
8	Total-tetrafurans	25.42	1.328e4	1.696e4	1.048	0.78	0.77	119.3	YES	NO	db	db	4.920
9	Total-tetrafurans	25.29	1.151e3	1.347e3	1.048	0.85	0.77	9.4	YES	NO	bd	dd	0.406
10	2378-TCDF	25.07	1.027e4	1.263e4	0.980	0.81	0.77	94.0	YES	NO	bb	bd	3.981
11	Total-tetrafurans	23.97	7.917e4	9.722e4	1.048	0.81	0.77	689.1	YES	NO	bb	bb	28.695
12	Total-pentafurans	28.75	1.334e4	9.707e3	1.043	1.37	1.55	88.1	YES	NO	bd	bd	3.488
13	Total-pentafurans	28.47	5.249e2	3.345e2	1.043	1.57	1.55	5.1	YES	NO	dd	dd	0.130
14	Total-pentafurans	28.15	4.281e5	2.739e5	1.043	1.56	1.55	1843.8	YES	NO	dd	dd	106.229
15	Total-pentafurans	27.96	1.817e4	1.188e4	1.043	1.53	1.55	117.7	YES	NO	dd	bd	4.548
16	23478-PeCDF	30.56	2.170e4	1.451e4	1.156	1.50	1.55	118.8	YES	NO	db	dd	5.112
17	Total-pentafurans	30.40	1.214e5	7.897e4	1.043	1.54	1.55	713.1	YES	NO	dd	dd	30.324
18	Total-pentafurans	30.29	3.533e3	2.404e3	1.043	1.47	1.55	25.2	YES	NO	bd	bd	0.898
19	Total-pentafurans	30.00	1.205e3	7.950e2	1.043	1.52	1.55	5.7	YES	NO	bb	bb	0.303
20	Total-pentafurans	29.41	4.168e4	2.713e4	1.043	1.54	1.55	240.7	YES	NO	bb	bb	10.412
21	12378-PeCDF	29.22	2.836e3	1.973e3	1.047	1.44	1.55	16.2	YES	NO	bb	bb	0.701
22	Total-pentafurans	28.85	1.253e5	8.295e4	1.043	1.51	1.55	797.1	YES	NO	db	db	31.518
23	123789-HxCDF	36.27	4.616e3	3.265e3	1.100	1.41	1.24	45.9	YES	NO	bb	bb	1.812
24	234678-HxCDF	35.27	1.761e4	1.462e4	1.235	1.20	1.24	214.9	YES	NO	db	db	6.230
25	Total-hexafurans	35.22	2.382e4	1.923e4	1.217	1.24	1.24	245.0	YES	NO	bd	bd	8.113
26	123678-HxCDF	34.38	1.560e4	1.289e4	1.193	1.21	1.24	150.7	YES	NO	db	db	4.806
27	123478-HxCDF	34.24	6.215e3	4.808e3	1.224	1.29	1.24	59.2	YES	NO	bd	bd	2.084
28	Total-hexafurans	34.07	9.777e2	9.030e2	1.217	1.08	1.24	12.2	YES	NO	bb	bb	0.354
29	Total-hexafurans	33.60	1.733e5	1.337e5	1.217	1.30	1.24	1746.4	YES	NO	bb	bb	57.853
30	Total-hexafurans	33.29	2.114e3	1.780e3	1.217	1.19	1.24	22.0	YES	NO	bb	bb	0.734
31	Total-hexafurans	32.75	2.122e5	1.686e5	1.217	1.26	1.24	2119.3	YES	NO	bb	bb	71.773
32	123468-HXCDF	32.53	4.098e4	3.193e4	1.335	1.28	1.24	411.2	YES	NO	bb	bb	12.632
33	1234789-HpCDF	40.37	1.401e3	1.239e3	1.381	1.13	1.05	20.1	YES	NO	bb	bb	0.581
34	Total-heptafurans	38.83	2.853e4	2.648e4	1.387	1.08	1.05	454.2	YES	NO	bb	bb	11.202
35	1234678-HpCDF	38.20	1.898e4	1.794e4	1.392	1.06	1.05	306.4	YES	NO	bb	bb	6.992
36	OCDF	44.47	1.785e4	1.803e4	1.222	0.99	0.89	254.8	YES	NO	bd	bb	10.829
37	Total-penta1	27.20	3.509e3	2.060e3		1.70	1.55	69.6	YES	NO	bb	bb	0.928

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	13468-PECDF	26.49	8.281e5	5.250e5	1.353	1.58	1.55	16018.0	YES	NO	bb	bb	152.713

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	23.10	6.417e2	9.042e2	1.104	0.71	0.77	13.6	YES	NO	bd	bd	0.276
2	1368-TCDD	22.84	1.149e3	1.425e3	1.120	0.81	0.77	26.8	YES	NO	bb	bb	0.454
3	Total-tetradioxins	26.55	1.871e3	2.376e3	1.104	0.79	0.77	40.7	YES	NO	bb	bb	0.759
4	1289-TCDD	26.23	8.824e2	1.320e3	0.966	0.67	0.77	23.6	YES	NO	bb	db	0.450
5	Total-tetradioxins	25.32	6.500e2	9.145e2	1.104	0.71	0.77	14.6	YES	NO	bb	bb	0.280
6	Total-tetradioxins	24.67	4.090e2	5.225e2	1.104	0.78	0.77	8.5	YES	NO	db	db	0.167
7	Total-tetradioxins	24.59	1.292e3	1.775e3	1.104	0.73	0.77	27.0	YES	NO	bd	bd	0.548
8	Total-tetradioxins	23.66	1.988e2	2.595e2	1.104	0.77	0.77	5.0	YES	NO	bb	bb	0.082
9	Total-tetradioxins	23.32	1.947e2	2.764e2	1.104	0.70	0.77	3.7	YES	NO	db	db	0.084

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	29.43	2.601e3	1.601e3	1.326	1.62	1.55	24.8	YES	NO	dd	bd	0.812
2	Total-pentadioxins	29.21	4.484e3	2.847e3	1.326	1.58	1.55	46.8	YES	NO	bd	bb	1.417
3	12479-PECDD	28.14	9.823e3	6.488e3	1.859	1.51	1.55	77.2	YES	NO	db	dd	2.248

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDD	35.51	2.747e3	1.928e3	0.833	1.42	1.24	53.3	YES	NO	db	db	1.278
2	123478-HxCDD	35.39	6.331e2	4.582e2	0.841	1.38	1.24	13.6	YES	NO	bd	bd	0.330
3	Total-hexadioxins	34.50	1.151e4	9.534e3	0.863	1.21	1.24	174.6	YES	NO	bb	bb	5.864
4	124679-HXCDD	33.33	6.730e3	5.242e3	1.006	1.28	1.24	120.8	YES	NO	bb	bd	3.027
5	123789-HxCDD	35.89	1.175e3	9.315e2	0.770	1.26	1.24	23.7	YES	NO	bd	bb	0.657

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.66	1.387e4	1.344e4	0.984	1.03	1.05	263.0	YES	NO	bd	bb	8.154
2	1234679-HPCDD	38.64	1.133e4	1.147e4	1.184	0.99	1.05	237.5	YES	NO	bb	bd	5.658

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	23.10	6.417e2	9.042e2	1.104	0.71	0.77	13.6	YES	NO	bd	bd	0.276
2	1368-TCDD	22.84	1.149e3	1.425e3	1.120	0.81	0.77	26.8	YES	NO	bb	bb	0.454
3	Total-Dioxins	22.19	3.886e2	4.603e2	1.065	0.84	0.77	8.3	YES	NO	bb	bb	0.157
4	Total-tetradioxins	26.55	1.871e3	2.376e3	1.104	0.79	0.77	40.7	YES	NO	bb	bb	0.759
5	1289-TCDD	26.23	8.824e2	1.320e3	0.966	0.67	0.77	23.6	YES	NO	bb	db	0.450
6	Total-tetradioxins	25.32	6.500e2	9.145e2	1.104	0.71	0.77	14.6	YES	NO	bb	bb	0.280
7	Total-tetradioxins	24.67	4.090e2	5.225e2	1.104	0.78	0.77	8.5	YES	NO	db	db	0.167
8	Total-tetradioxins	24.59	1.292e3	1.775e3	1.104	0.73	0.77	27.0	YES	NO	bd	bd	0.548
9	Total-tetradioxins	23.66	1.988e2	2.595e2	1.104	0.77	0.77	5.0	YES	NO	bb	bb	0.082
10	Total-tetradioxins	23.32	1.947e2	2.764e2	1.104	0.70	0.77	3.7	YES	NO	db	db	0.084
11	Total-pentadioxins	29.43	2.601e3	1.601e3	1.326	1.62	1.55	24.8	YES	NO	dd	bd	0.812
12	Total-pentadioxins	29.21	4.484e3	2.847e3	1.326	1.58	1.55	46.8	YES	NO	bd	bb	1.417
13	12479-PECDD	28.14	9.823e3	6.488e3	1.859	1.51	1.55	77.2	YES	NO	db	dd	2.248
14	123678-HxCDD	35.51	2.747e3	1.928e3	0.833	1.42	1.24	53.3	YES	NO	db	db	1.278
15	123478-HxCDD	35.39	6.331e2	4.582e2	0.841	1.38	1.24	13.6	YES	NO	bd	bd	0.330
16	Total-hexadioxins	34.50	1.151e4	9.534e3	0.863	1.21	1.24	174.6	YES	NO	bb	bb	5.864
17	124679-HXCDD	33.33	6.730e3	5.242e3	1.006	1.28	1.24	120.8	YES	NO	bb	bd	3.027
18	123789-HxCDD	35.89	1.175e3	9.315e2	0.770	1.26	1.24	23.7	YES	NO	bd	bb	0.657
19	1234678-HpCDD	39.66	1.387e4	1.344e4	0.984	1.03	1.05	263.0	YES	NO	bd	bb	8.154
20	1234679-HPCDD	38.64	1.133e4	1.147e4	1.184	0.99	1.05	237.5	YES	NO	bb	bd	5.658
21	OCDD	44.24	4.493e4	5.364e4	0.938	0.84	0.89	643.9	YES	NO	bd	bd	38.791

Dataset: T:\Autospec\Processed Data Batch\240304IH1.qld
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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.73	4.679e3	5.638e3	1.048	0.83	0.77	44.6	YES	NO	bd	bd	1.678
2	Total-tetrafurans	23.05	8.161e4	1.032e5	1.048	0.79	0.77	695.6	YES	NO	bb	bb	30.072
3	Total-tetrafurans	22.81	3.289e4	3.891e4	1.048	0.85	0.77	288.1	YES	NO	db	db	11.680
4	Total-tetrafurans	22.53	5.733e3	6.706e3	1.048	0.85	0.77	46.4	YES	NO	db	db	2.024
5	Total-tetrafurans	22.40	1.632e5	1.922e5	1.048	0.85	0.77	1463.4	YES	NO	bd	bd	57.831
6	Total-tetrafurans	21.82	1.727e4	2.074e4	1.048	0.83	0.77	152.9	YES	NO	bb	bb	6.185
7	1289-TCDF	26.51	5.033e3	6.559e3	0.916	0.77	0.77	36.5	YES	NO	bb	bb	2.158
8	Total-tetrafurans	25.42	1.328e4	1.696e4	1.048	0.78	0.77	119.3	YES	NO	db	db	4.920
9	Total-tetrafurans	25.29	1.151e3	1.347e3	1.048	0.85	0.77	9.4	YES	NO	bd	dd	0.406
10	2378-TCDF	25.07	1.027e4	1.263e4	0.980	0.81	0.77	94.0	YES	NO	bb	bd	3.981
11	Total-tetrafurans	23.97	7.917e4	9.722e4	1.048	0.81	0.77	689.1	YES	NO	bb	bb	28.695
12	Total-pentafurans	28.75	1.334e4	9.707e3	1.043	1.37	1.55	88.1	YES	NO	bd	bd	3.488
13	Total-pentafurans	28.47	5.249e2	3.345e2	1.043	1.57	1.55	5.1	YES	NO	dd	dd	0.130
14	Total-pentafurans	28.15	4.281e5	2.739e5	1.043	1.56	1.55	1843.8	YES	NO	dd	dd	106.229
15	Total-pentafurans	27.96	1.817e4	1.188e4	1.043	1.53	1.55	117.7	YES	NO	dd	bd	4.548
16	23478-PeCDF	30.56	2.170e4	1.451e4	1.156	1.50	1.55	118.8	YES	NO	db	dd	5.112
17	Total-pentafurans	30.40	1.214e5	7.897e4	1.043	1.54	1.55	713.1	YES	NO	dd	dd	30.324
18	Total-pentafurans	30.29	3.533e3	2.404e3	1.043	1.47	1.55	25.2	YES	NO	bd	bd	0.898
19	Total-pentafurans	30.00	1.205e3	7.950e2	1.043	1.52	1.55	5.7	YES	NO	bb	bb	0.303
20	Total-pentafurans	29.41	4.168e4	2.713e4	1.043	1.54	1.55	240.7	YES	NO	bb	bb	10.412
21	12378-PeCDF	29.22	2.836e3	1.973e3	1.047	1.44	1.55	16.2	YES	NO	bb	bb	0.701
22	Total-pentafurans	28.85	1.253e5	8.295e4	1.043	1.51	1.55	797.1	YES	NO	db	db	31.518
23	123789-HxCDF	36.27	4.616e3	3.265e3	1.100	1.41	1.24	45.9	YES	NO	bb	bb	1.812
24	234678-HxCDF	35.27	1.761e4	1.462e4	1.235	1.20	1.24	214.9	YES	NO	db	db	6.230
25	Total-hexafurans	35.22	2.382e4	1.923e4	1.217	1.24	1.24	245.0	YES	NO	bd	bd	8.113
26	123678-HxCDF	34.38	1.560e4	1.289e4	1.193	1.21	1.24	150.7	YES	NO	db	db	4.806
27	123478-HxCDF	34.24	6.215e3	4.808e3	1.224	1.29	1.24	59.2	YES	NO	bd	bd	2.084
28	Total-hexafurans	34.07	9.777e2	9.030e2	1.217	1.08	1.24	12.2	YES	NO	bb	bb	0.354
29	Total-hexafurans	33.60	1.733e5	1.337e5	1.217	1.30	1.24	1746.4	YES	NO	bb	bb	57.853
30	Total-hexafurans	33.29	2.114e3	1.780e3	1.217	1.19	1.24	22.0	YES	NO	bb	bb	0.734
31	Total-hexafurans	32.75	2.122e5	1.686e5	1.217	1.26	1.24	2119.3	YES	NO	bb	bb	71.773
32	123468-HXCDF	32.53	4.098e4	3.193e4	1.335	1.28	1.24	411.2	YES	NO	bb	bb	12.632
33	1234789-HpCDF	40.37	1.401e3	1.239e3	1.381	1.13	1.05	20.1	YES	NO	bb	bb	0.581
34	Total-heptafurans	38.83	2.853e4	2.648e4	1.387	1.08	1.05	454.2	YES	NO	bb	bb	11.202
35	1234678-HpCDF	38.20	1.898e4	1.794e4	1.392	1.06	1.05	306.4	YES	NO	bb	bb	6.992
36	OCDF	44.47	1.785e4	1.803e4	1.222	0.99	0.89	254.8	YES	NO	bd	bb	10.829
37	Total-penta1	27.20	3.509e3	2.060e3		1.70	1.55	69.6	YES	NO	bb	bb	0.928

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	13468-PECDF	26.49	8.281e5	5.250e5	1.353	1.58	1.55	16018.0	YES	NO	bb	bb	152.713
39	Total-tetradioxins	23.10	6.417e2	9.042e2	1.104	0.71	0.77	13.6	YES	NO	bd	bd	0.276
40	1368-TCDD	22.84	1.149e3	1.425e3	1.120	0.81	0.77	26.8	YES	NO	bb	bb	0.454
41	Total-Dioxins	22.19	3.886e2	4.603e2	1.065	0.84	0.77	8.3	YES	NO	bb	bb	0.157
42	Total-tetradioxins	26.55	1.871e3	2.376e3	1.104	0.79	0.77	40.7	YES	NO	bb	bb	0.759
43	1289-TCDD	26.23	8.824e2	1.320e3	0.966	0.67	0.77	23.6	YES	NO	bb	db	0.450
44	Total-tetradioxins	25.32	6.500e2	9.145e2	1.104	0.71	0.77	14.6	YES	NO	bb	bb	0.280
45	Total-tetradioxins	24.67	4.090e2	5.225e2	1.104	0.78	0.77	8.5	YES	NO	db	db	0.167
46	Total-tetradioxins	24.59	1.292e3	1.775e3	1.104	0.73	0.77	27.0	YES	NO	bd	bd	0.548
47	Total-tetradioxins	23.66	1.988e2	2.595e2	1.104	0.77	0.77	5.0	YES	NO	bb	bb	0.082
48	Total-tetradioxins	23.32	1.947e2	2.764e2	1.104	0.70	0.77	3.7	YES	NO	db	db	0.084
49	Total-pentadioxins	29.43	2.601e3	1.601e3	1.326	1.62	1.55	24.8	YES	NO	dd	bd	0.812
50	Total-pentadioxins	29.21	4.484e3	2.847e3	1.326	1.58	1.55	46.8	YES	NO	bd	bb	1.417
51	12479-PECDD	28.14	9.823e3	6.488e3	1.859	1.51	1.55	77.2	YES	NO	db	dd	2.248
52	123678-HxCDD	35.51	2.747e3	1.928e3	0.833	1.42	1.24	53.3	YES	NO	db	db	1.278
53	123478-HxCDD	35.39	6.331e2	4.582e2	0.841	1.38	1.24	13.6	YES	NO	bd	bd	0.330
54	Total-hexadioxins	34.50	1.151e4	9.534e3	0.863	1.21	1.24	174.6	YES	NO	bb	bb	5.864
55	124679-HXCDD	33.33	6.730e3	5.242e3	1.006	1.28	1.24	120.8	YES	NO	bb	bd	3.027
56	123789-HxCDD	35.89	1.175e3	9.315e2	0.770	1.26	1.24	23.7	YES	NO	bd	bb	0.657
57	1234678-HpCDD	39.66	1.387e4	1.344e4	0.984	1.03	1.05	263.0	YES	NO	bd	bb	8.154
58	1234679-HPCDD	38.64	1.133e4	1.147e4	1.184	0.99	1.05	237.5	YES	NO	bb	bd	5.658
59	OCDD	44.24	4.493e4	5.364e4	0.938	0.84	0.89	643.9	YES	NO	bd	bd	38.791

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.25	3.653e6					64.7	YES		bb		
2	FUNCTION1 PFK	26.64	1.998e5					5.9	YES		bb		
3	FUNCTION1 PFK	25.25	3.604e5					5.0	YES		bb		
4	FUNCTION1 PFK	24.80	4.286e5					7.2	YES		bb		
5	FUNCTION1 PFK	21.96	5.887e6					22.4	YES		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	31.48	1.022e4					1.8	NO		bb		0.000
2	FUNCTION2 PFK	29.05	5.646e5					2.5	NO		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	36.43	1.057e6					16.5	YES		bb		0.000
2	FUNCTION3 PFK	35.85	1.657e6					13.4	YES		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.00	3.015e3					1.2	NO		bb		
2	FUNCTION5 PFK	42.96	1.176e3					0.7	NO		bb		
3	FUNCTION5 PFK	42.70	2.083e3					1.0	NO		bb		
4	FUNCTION5 PFK	42.62	3.578e3					1.6	NO		bb		
5	FUNCTION5 PFK	45.78	2.839e3					1.2	NO		bb		
6	FUNCTION5 PFK	45.67	5.572e3					1.7	NO		db		
7	FUNCTION5 PFK	45.60	7.220e3					1.8	NO		bd		
8	FUNCTION5 PFK	45.36	2.213e3					1.2	NO		db		
9	FUNCTION5 PFK	45.33	6.107e3					1.8	NO		bd		
10	FUNCTION5 PFK	45.06	3.222e3					1.3	NO		bb		
11	FUNCTION5 PFK	44.73	3.842e3					1.5	NO		bb		
12	FUNCTION5 PFK	44.64	7.166e2					0.7	NO		bb		
13	FUNCTION5 PFK	44.50	7.256e3					1.9	NO		bb		
14	FUNCTION5 PFK	44.37	5.956e3					1.8	NO		bb		
15	FUNCTION5 PFK	44.25	4.577e3					2.1	NO		bb		
16	FUNCTION5 PFK	43.35	6.164e3					2.1	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	23.05	5.572e3					135.2	YES		bb		0.000
2	FUNCTION1 HXCD...	22.54	8.316e1					2.1	NO		bb		0.000
3	FUNCTION1 HXCD...	22.05	1.343e3					30.5	YES		bb		0.000
4	FUNCTION1 HXCD...	26.93	1.156e3					22.4	YES		bb		0.000
5	FUNCTION1 HXCD...	26.48	8.153e1					2.2	NO		bb		0.000
6	FUNCTION1 HXCD...	26.06	2.773e3					61.4	YES		bb		0.000
7	FUNCTION1 HXCD...	25.41	9.511e3					213.8	YES		bb		0.000
8	FUNCTION1 HXCD...	25.05	4.441e3					104.5	YES		bb		0.000
9	FUNCTION1 HXCD...	24.83	1.379e2					3.5	YES		bb		0.000
10	FUNCTION1 HXCD...	24.38	1.321e3					27.1	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.48	9.215e2					20.7	YES		bb		0.000
2	FUNCTION2 HPCD...	30.42	3.243e2					6.5	YES		bb		0.000
3	FUNCTION2 HPCD...	28.37	1.607e2					4.2	YES		bb		0.000
4	FUNCTION2 HPCD...	28.24	2.719e3					50.4	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	32.98	1.524e2					6.2	YES		bb		0.000
2	FUNCTION3 OCDPE	32.36	3.776e2					13.8	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	41.69	2.777e2					11.5	YES		db		0.000
2	FUNCTION4 NCDPE	41.65	1.141e2					6.5	YES		bd		0.000
3	FUNCTION4 NCDPE	37.81	3.251e3					83.7	YES		bb		0.000

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Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
Printed: Wednesday, March 06, 2024 10:51:05 Pacific Standard Time

ID: BMA0737-DUP1, Name: 24030448, Date: 06-Mar-2024, Time: 01:21:41, Conditions: AUTOSPEC01, User: pk

ETHERS6

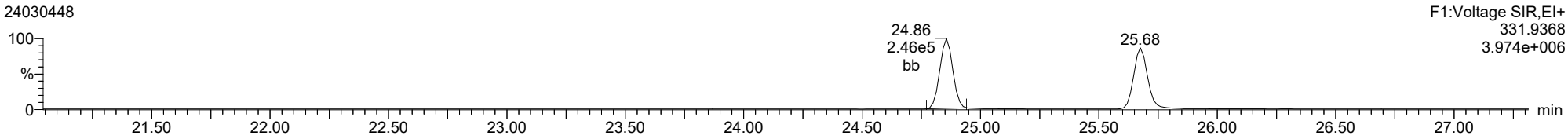
	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.60	1.249e2					3.7	YES		bb		0.000
2	FUNCTION5 DCDPE	44.22	1.657e2					4.0	YES		bb		0.000

Dataset: T:\Autospec\Processed Data Batch\240304IH1.qld
Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
Printed: Wednesday, March 06, 2024 10:51:05 Pacific Standard Time

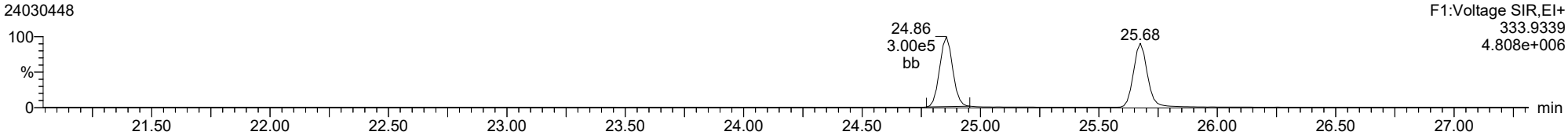
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ID: BMA0737-DUP1, Name: 24030448, Date: 06-Mar-2024, Time: 01:21:41, Conditions: AUTOSPEC01, User: pk

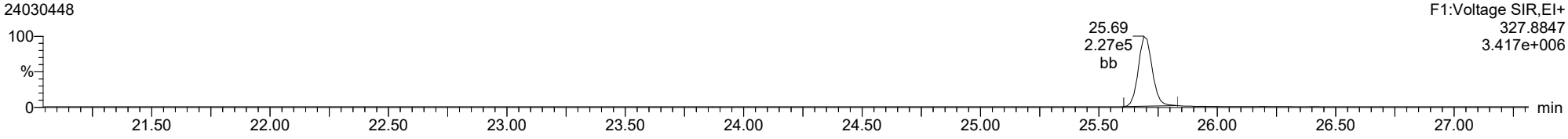
13C-1234-TCDD



13C-1234-TCDD

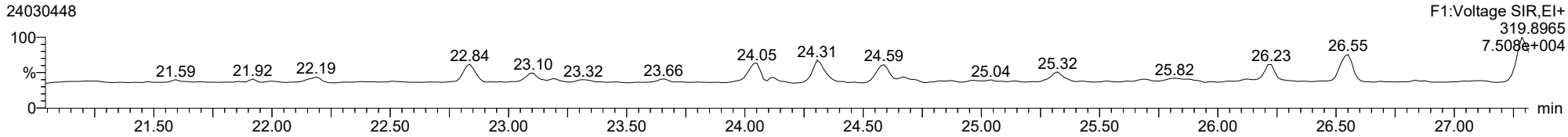


37CL-2378-TCDD

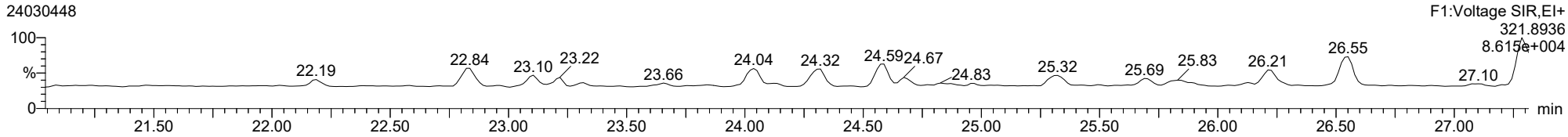


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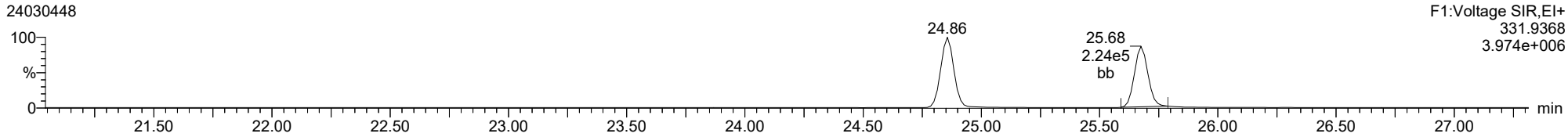
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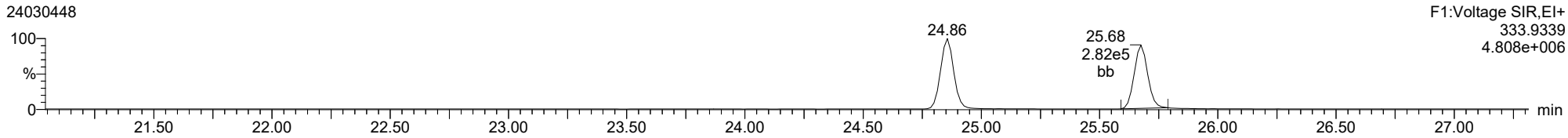
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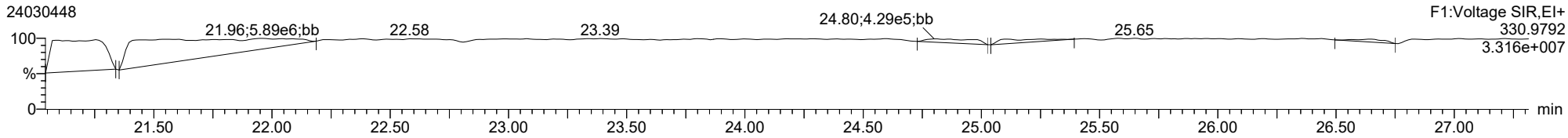
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13C-2378-TCDD

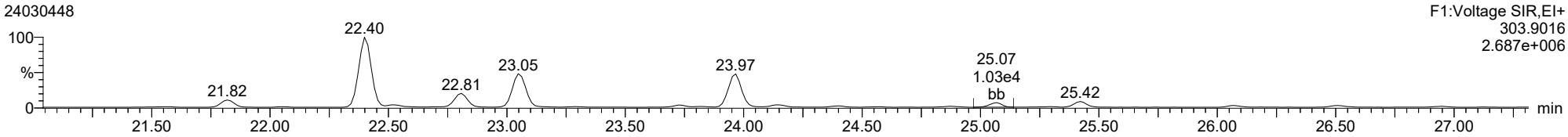


FUNCTION1 PFK

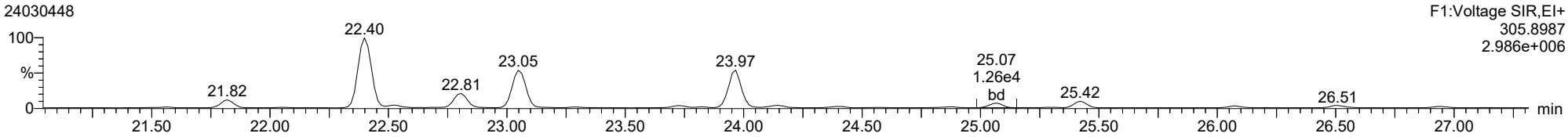


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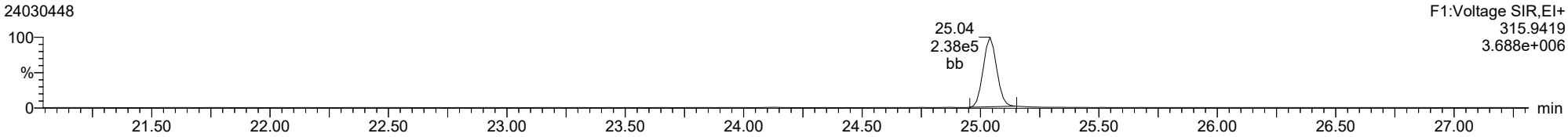
2378-TCDF



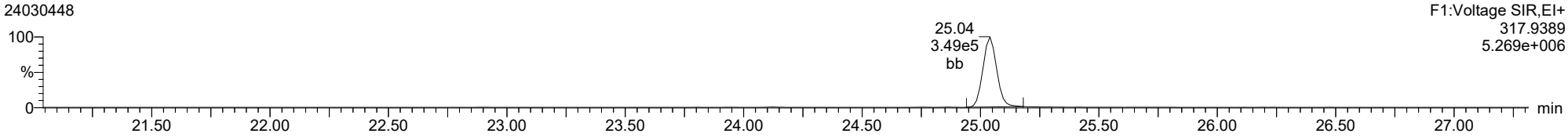
2378-TCDF



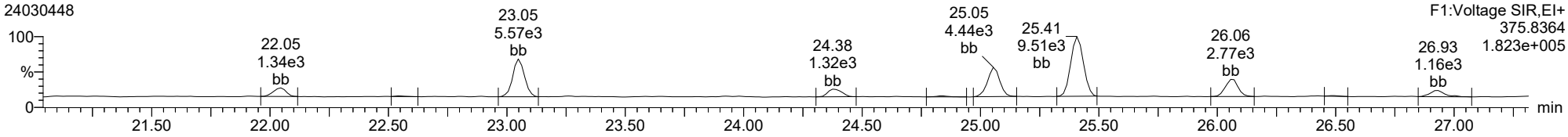
13C-2378-TCDF



13C-2378-TCDF

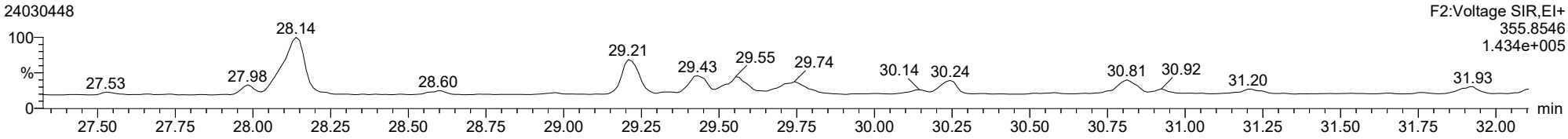


FUNCTION1 HXCDPE

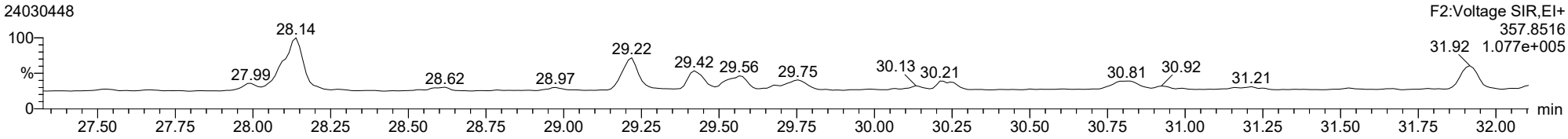


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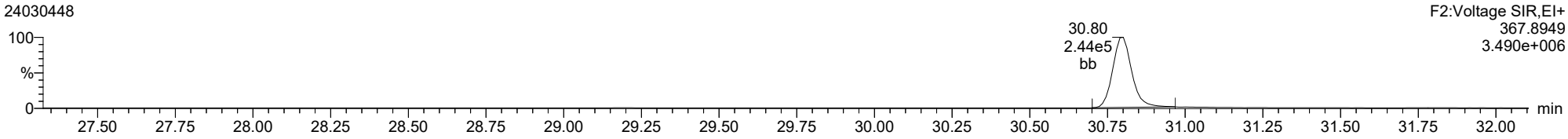
12378-PeCDD



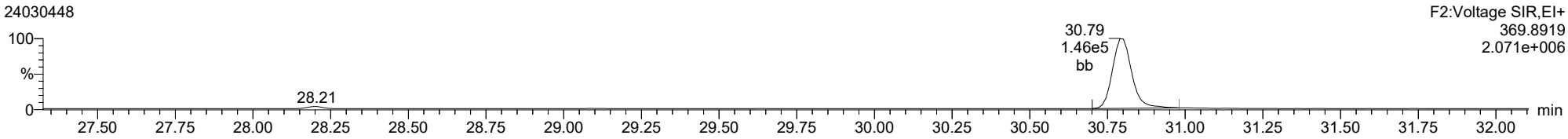
12378-PeCDD



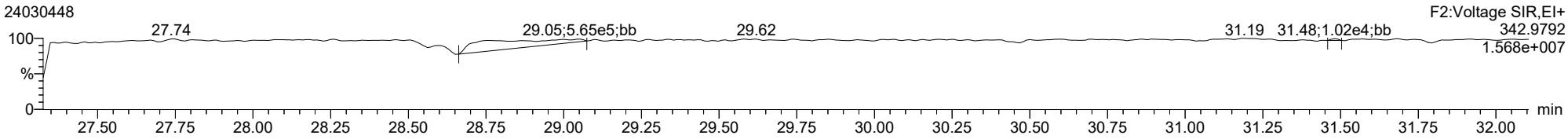
13C-12378-PeCDD



13C-12378-PeCDD

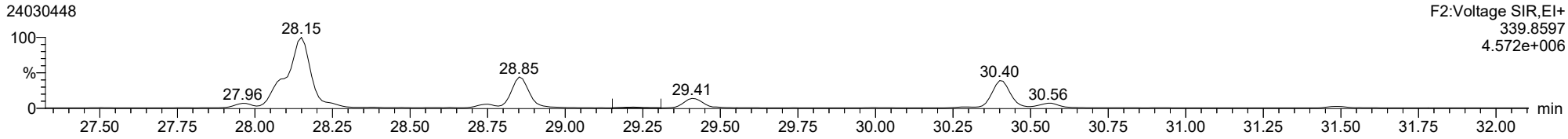


FUNCTION2 PFK

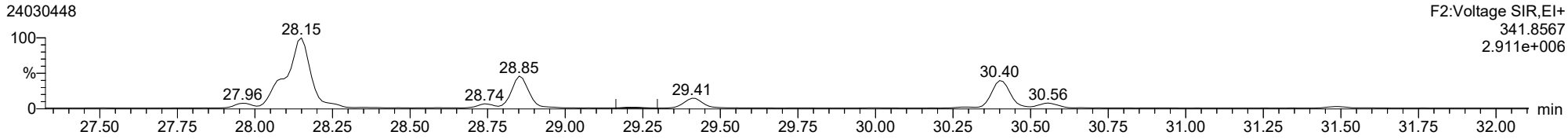


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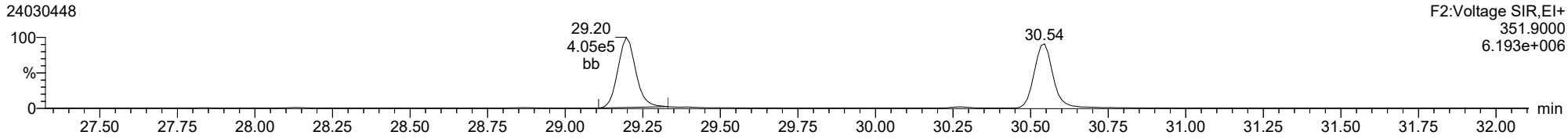
12378-PeCDF



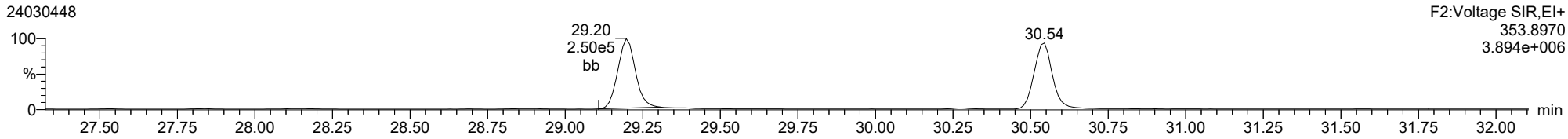
12378-PeCDF



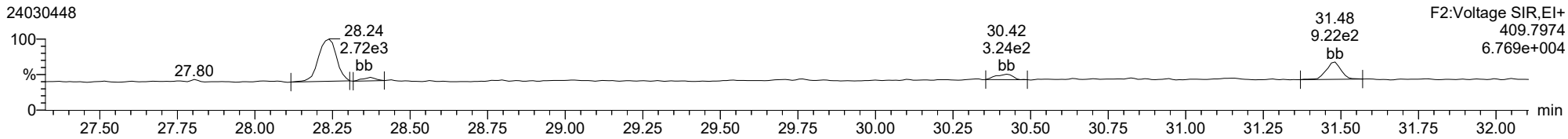
13C-12378-PeCDF



13C-12378-PeCDF

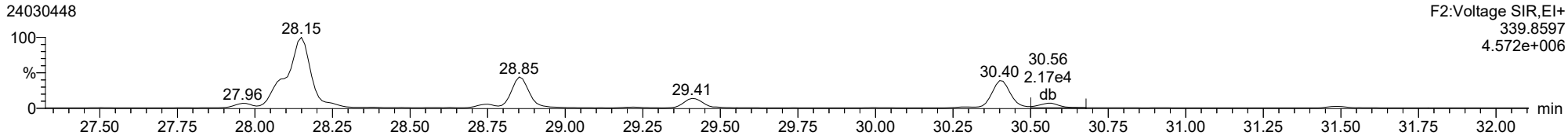


FUNCTION2 HPCDPE

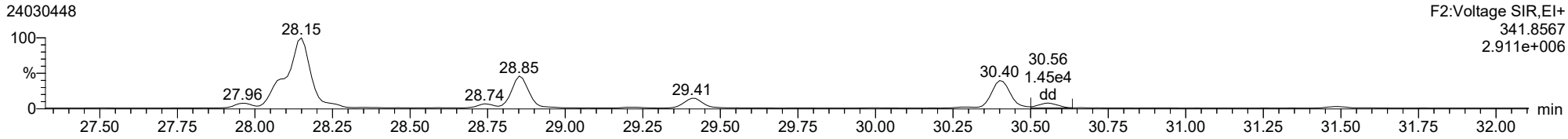


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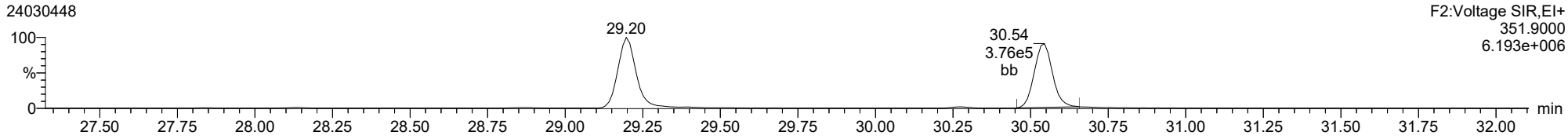
23478-PeCDF



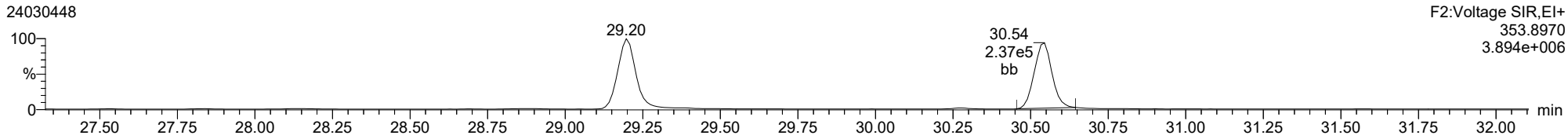
23478-PeCDF



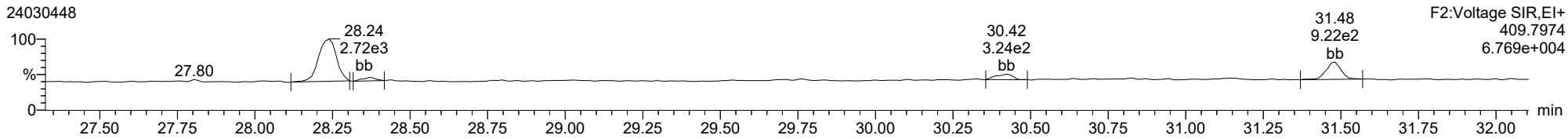
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13C-23478-PeCDF

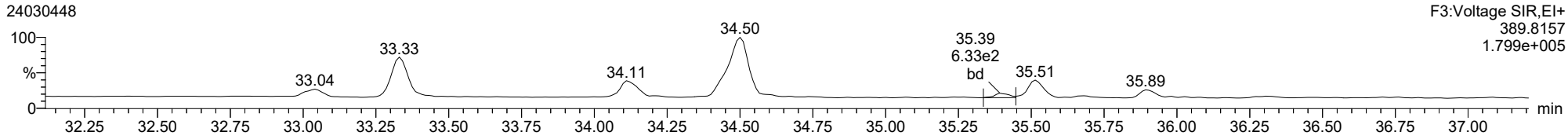


FUNCTION2 HPCDPE

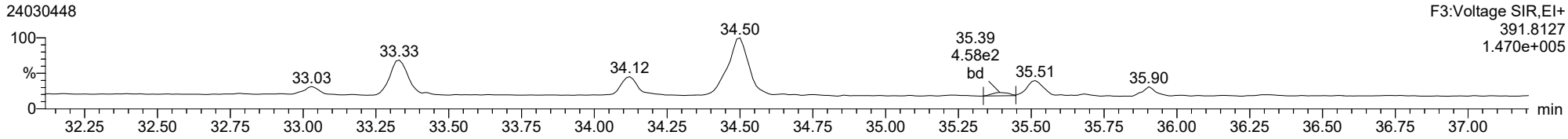


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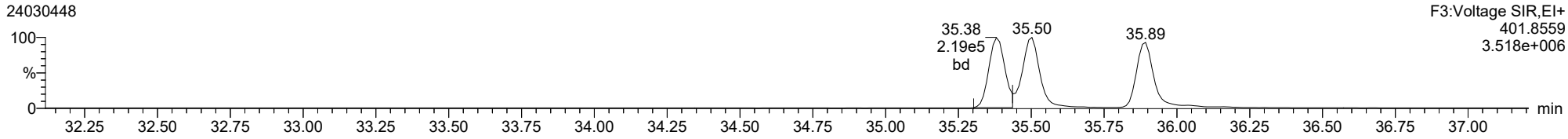
123478-HxCDD



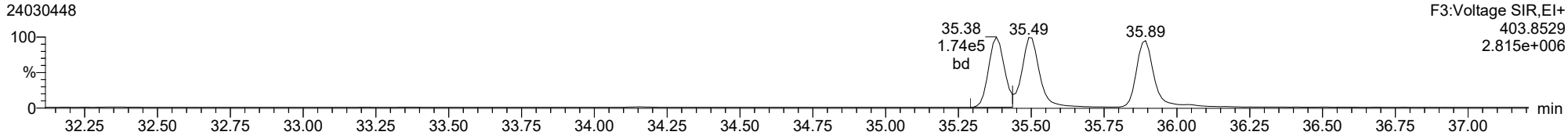
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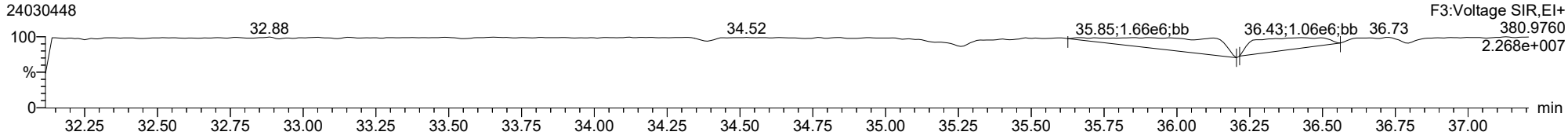
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13C-123478-HxCDD

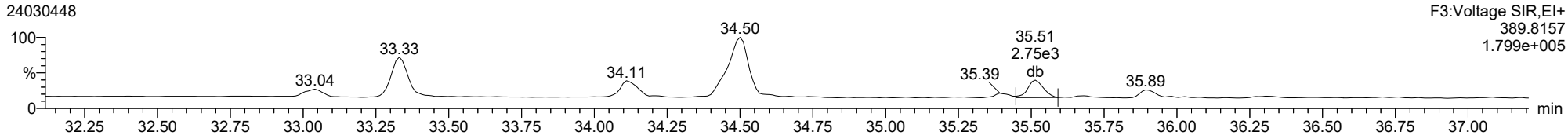


FUNCTION3 PFK

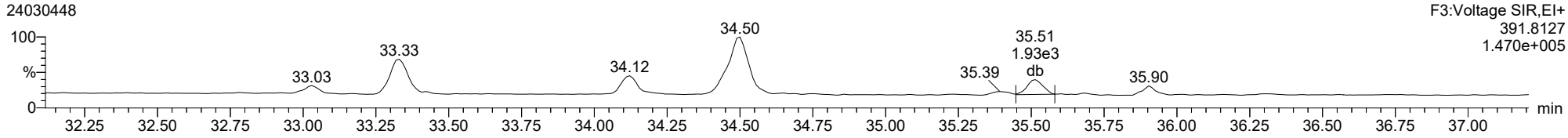


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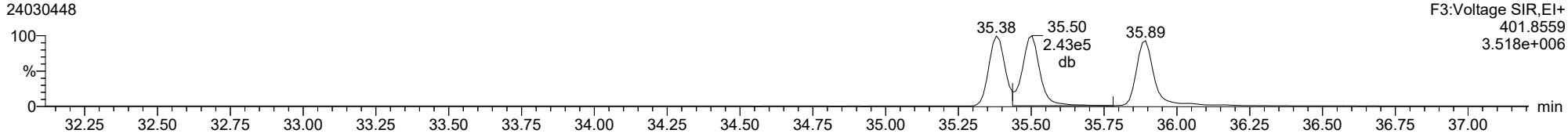
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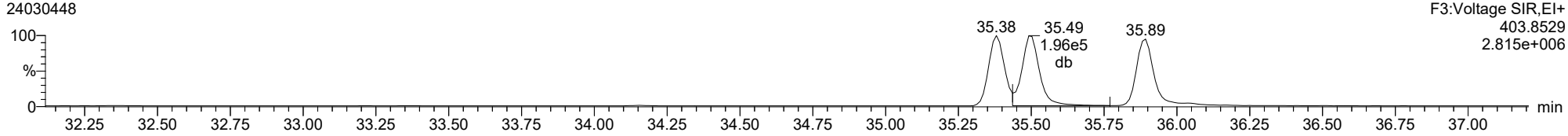
123678-HxCDD



13C-123678-HxCDD



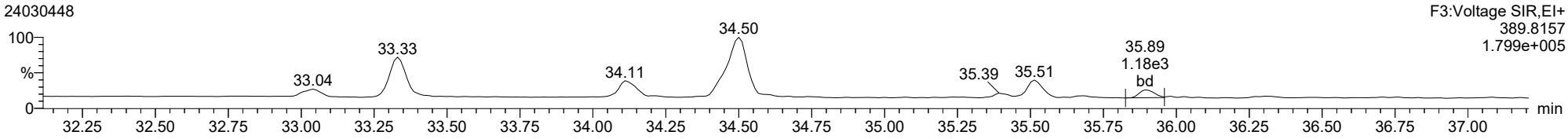
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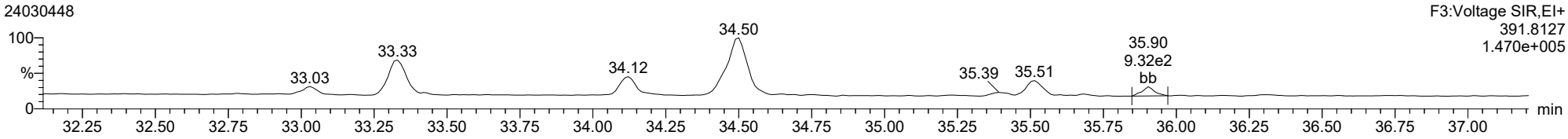
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Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
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ID: BMA0737-DUP1, Name: 24030448, Date: 06-Mar-2024, Time: 01:21:41, Conditions: AUTOSPEC01, User: pk

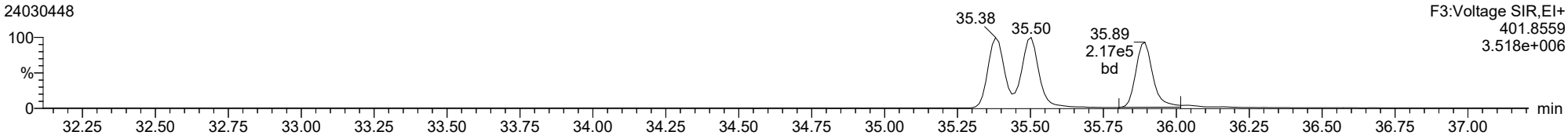
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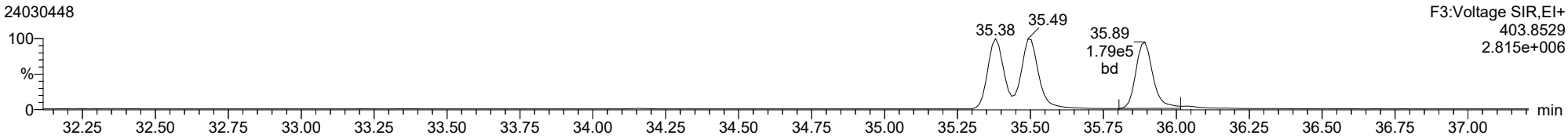
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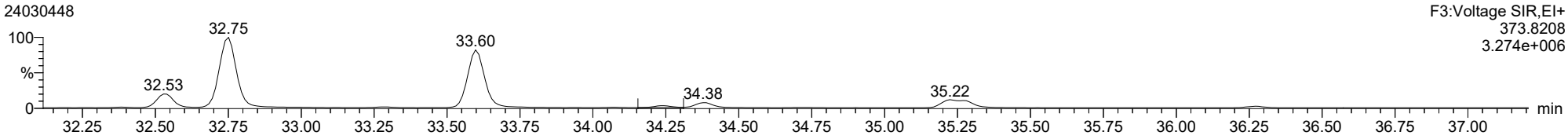


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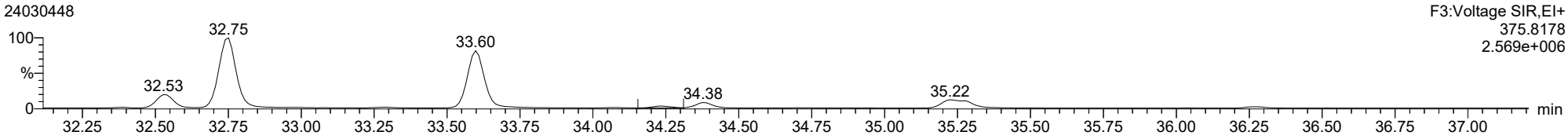


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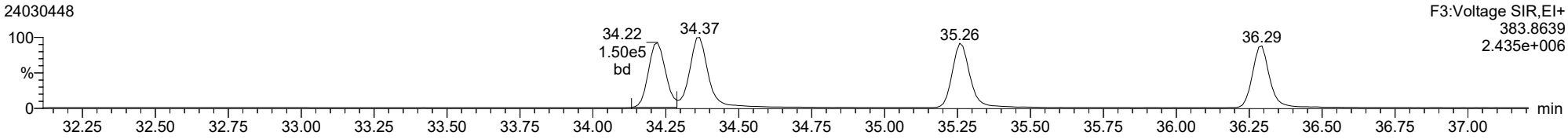
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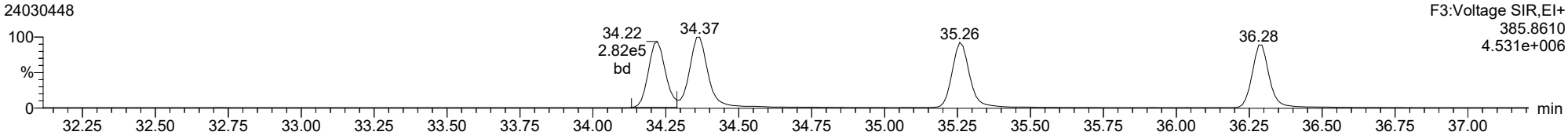
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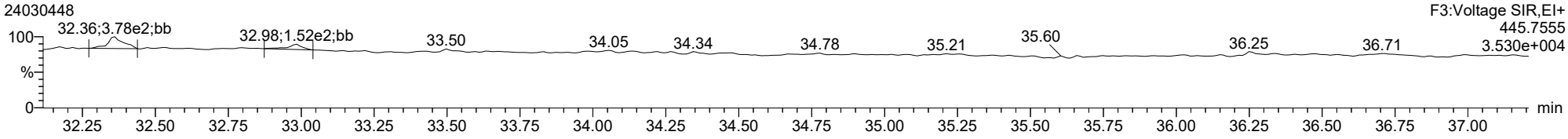
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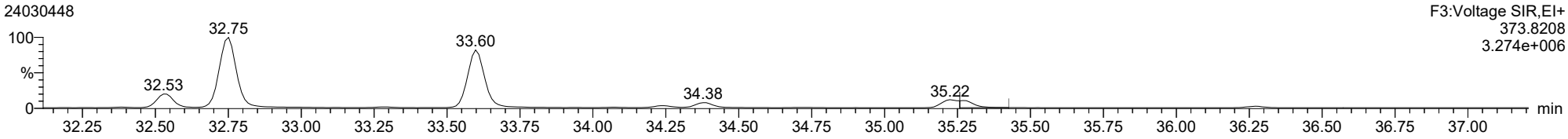


FUNCTION3 OCDPE

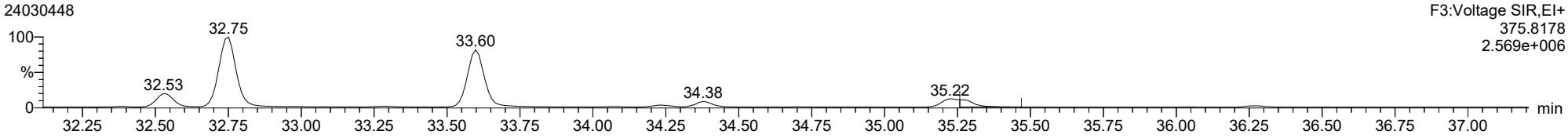


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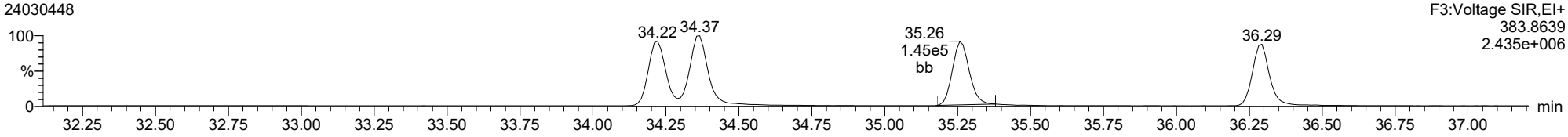
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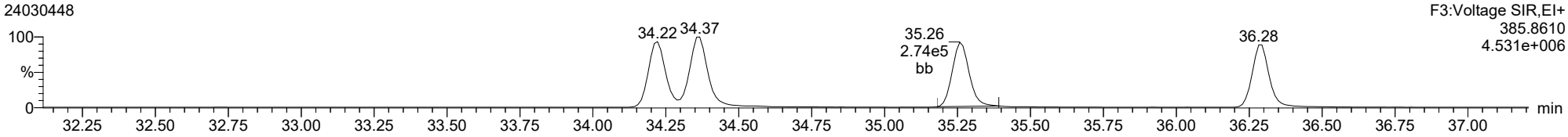
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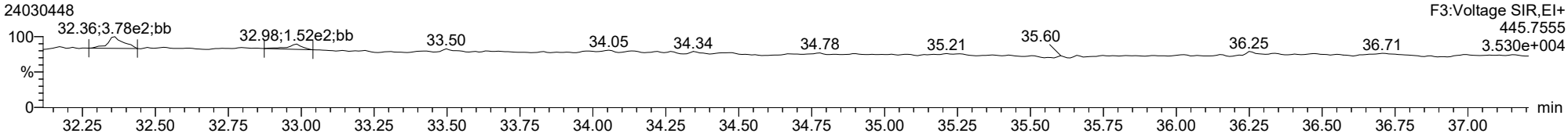
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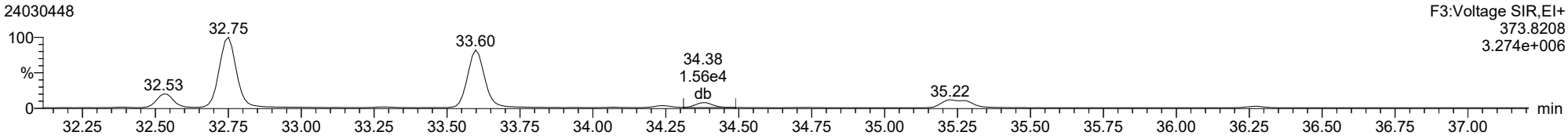


FUNCTION3 OCDPE

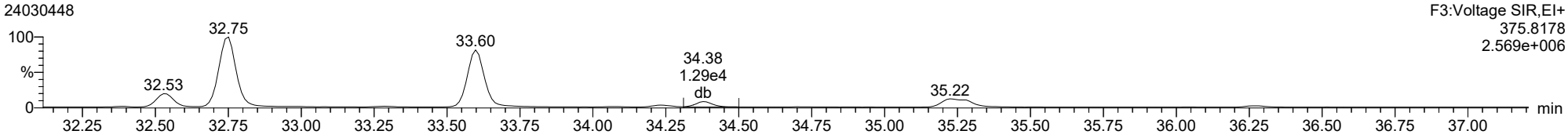


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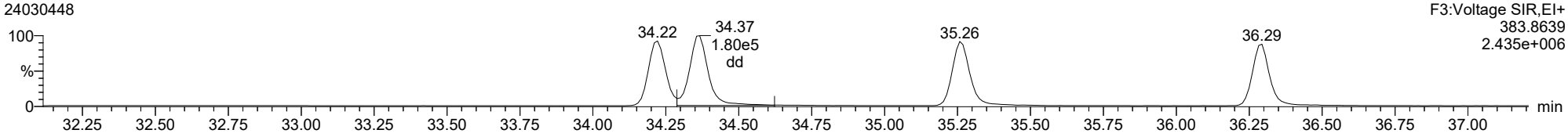
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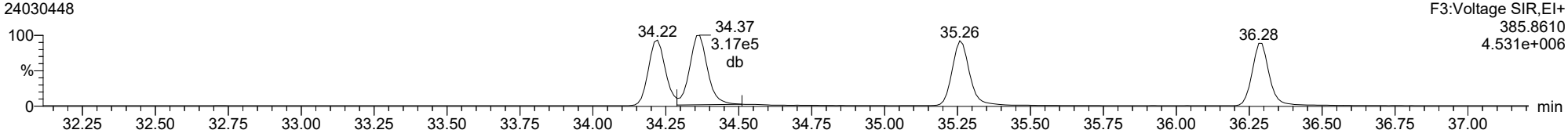
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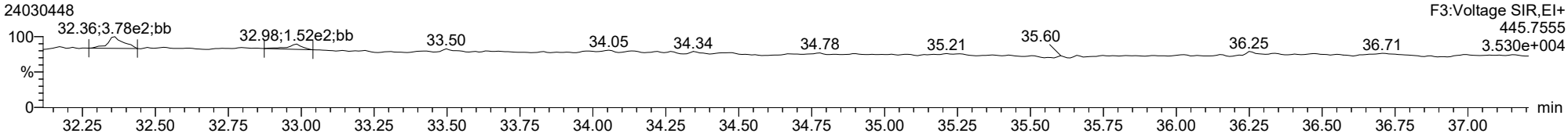
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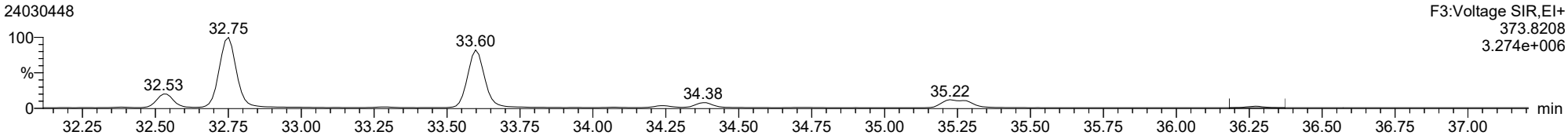


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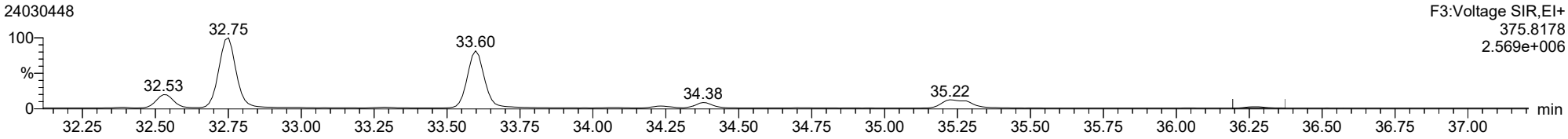


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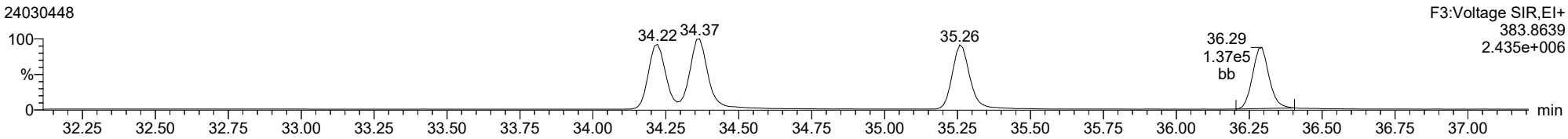
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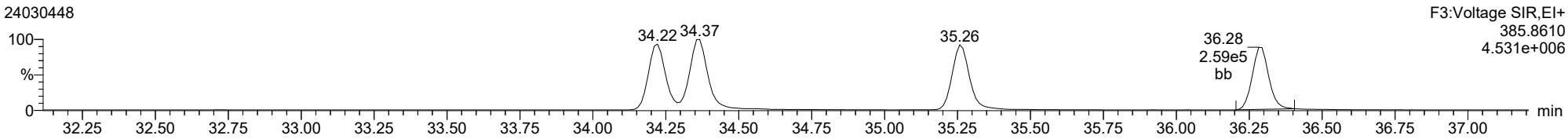
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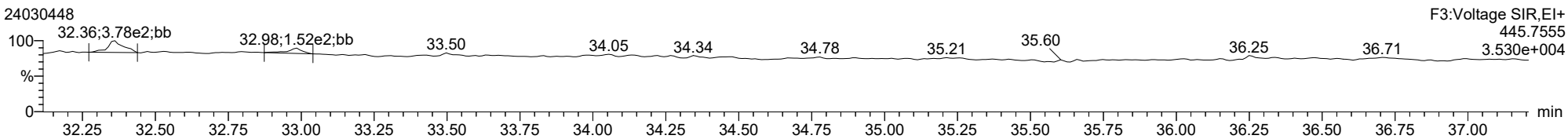
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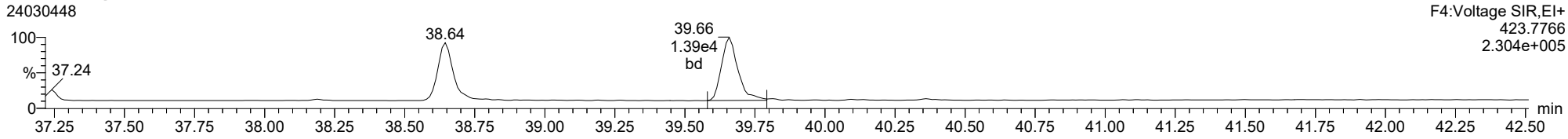


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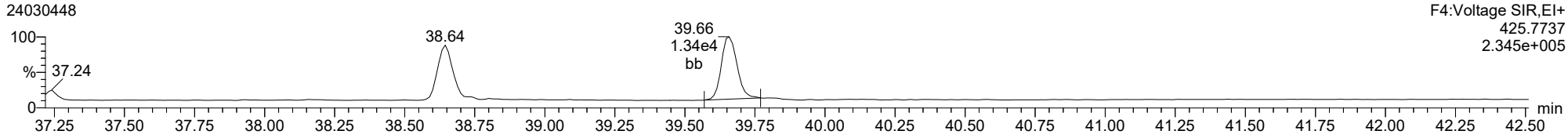


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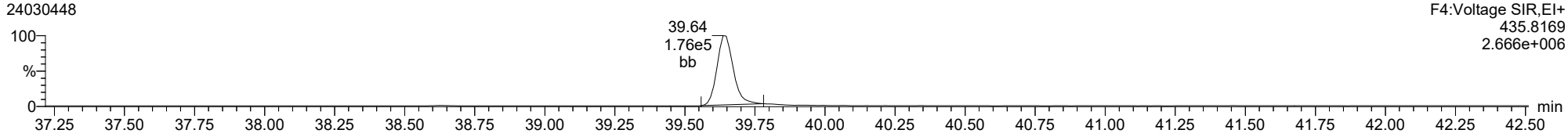
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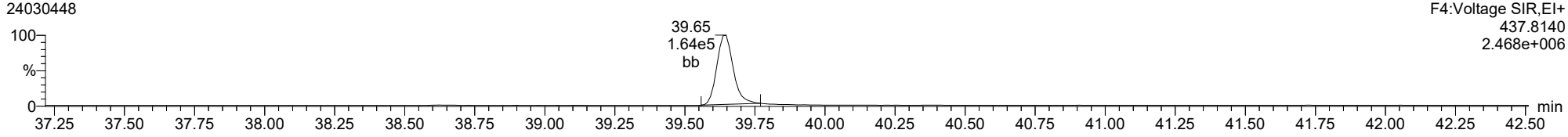
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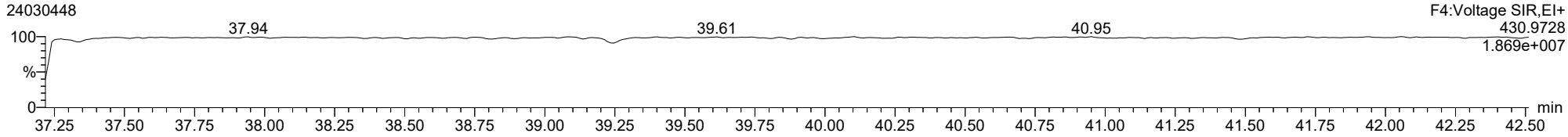
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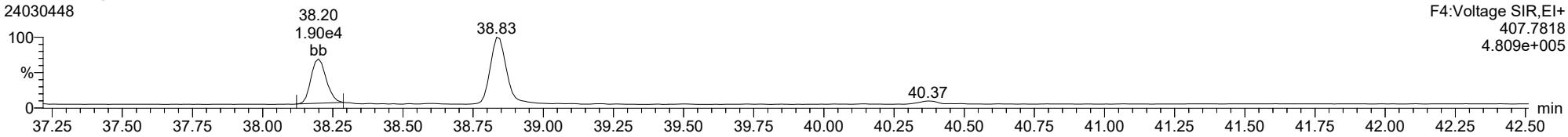


FUNCTION4 PFK

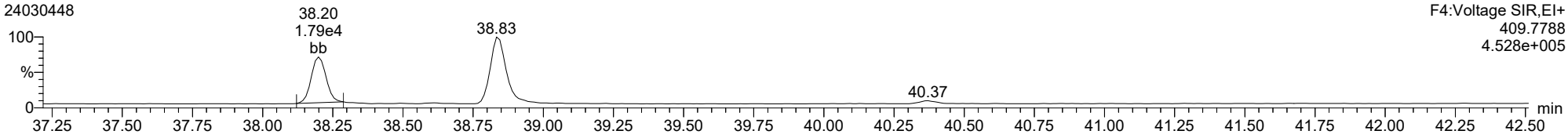


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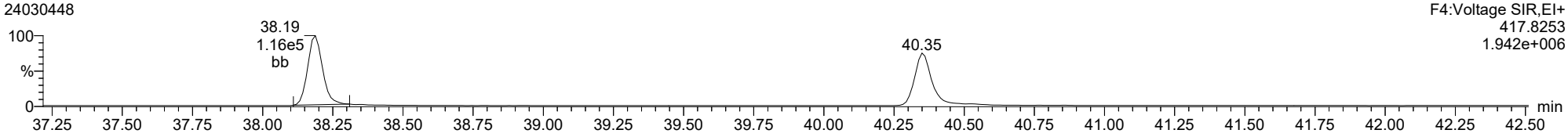
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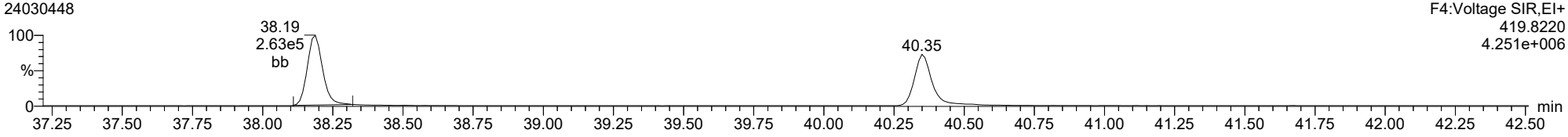
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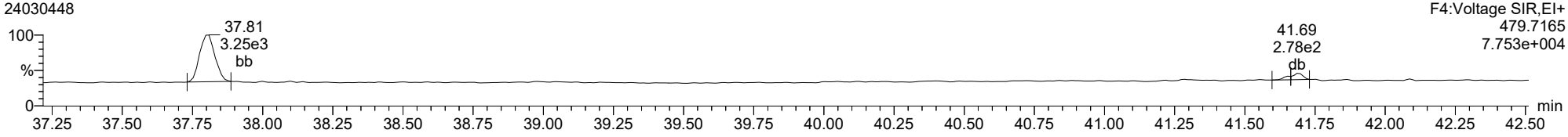
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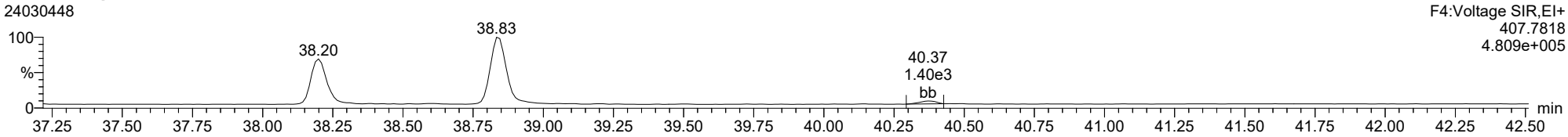


FUNCTION4 NCDPE

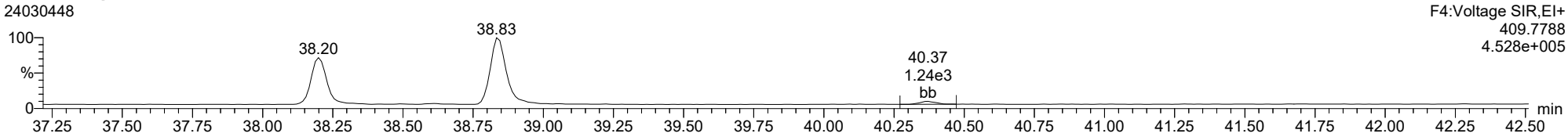


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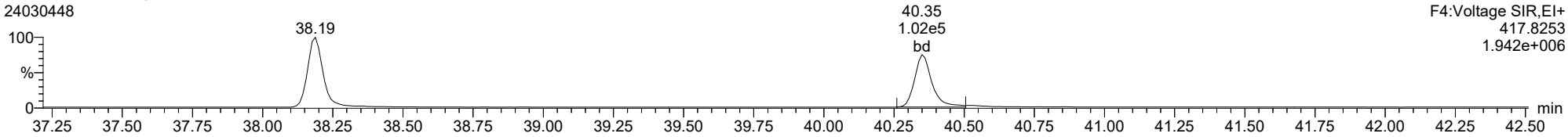
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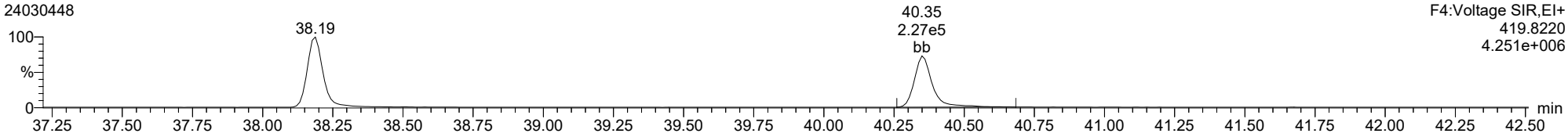
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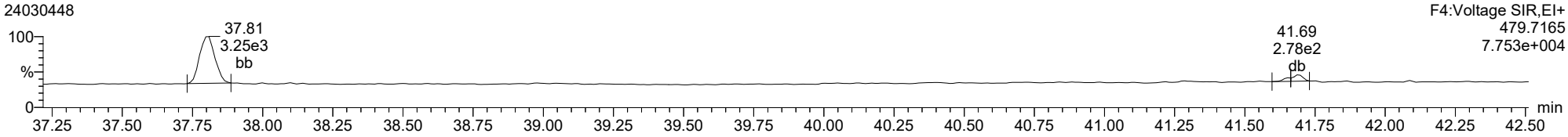
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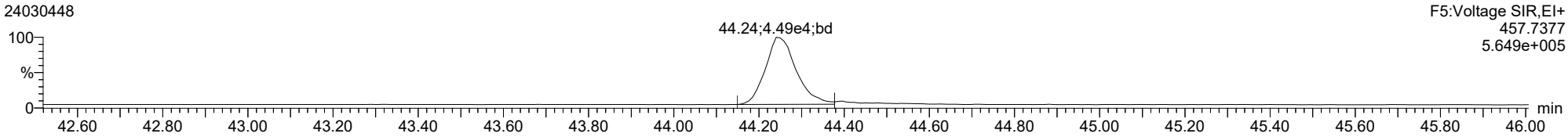


FUNCTION4 NCDPE

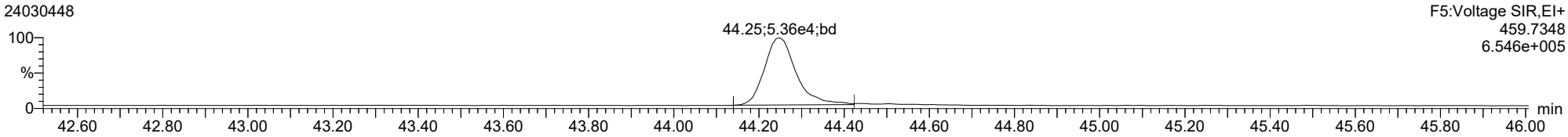


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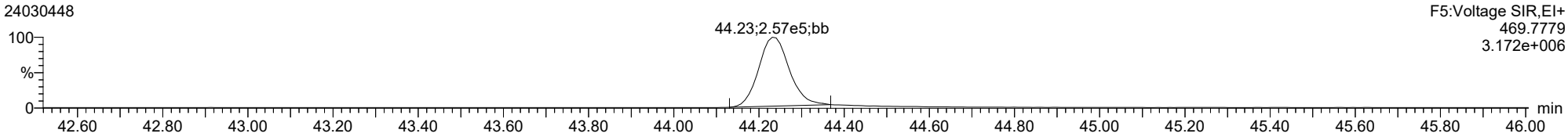
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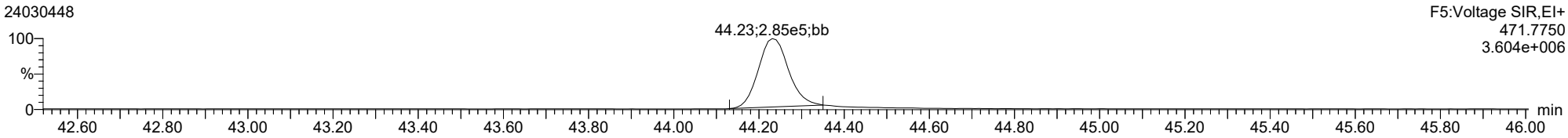
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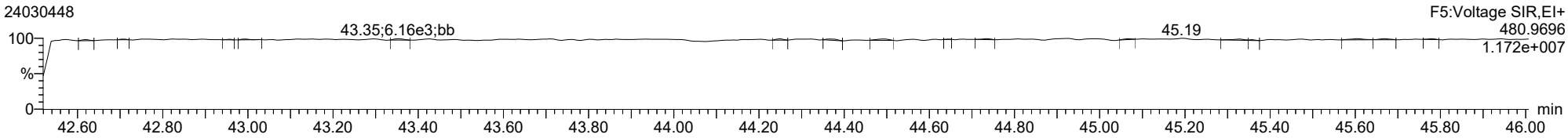
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13C-OCDD

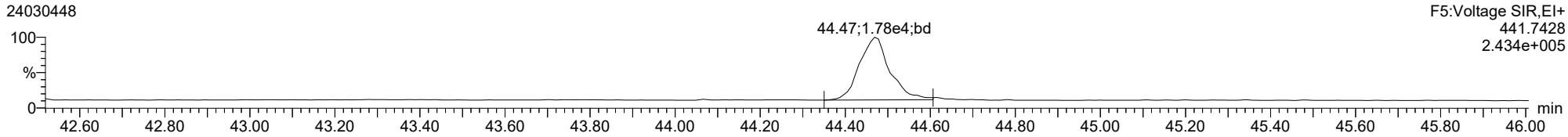


FUNCTION5 PFK

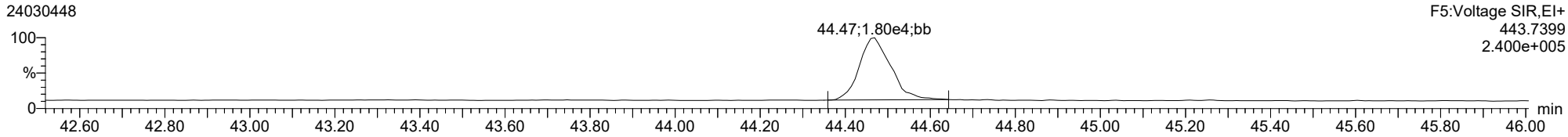


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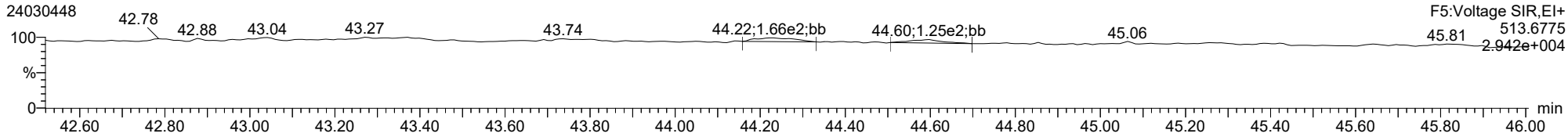
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OCDF

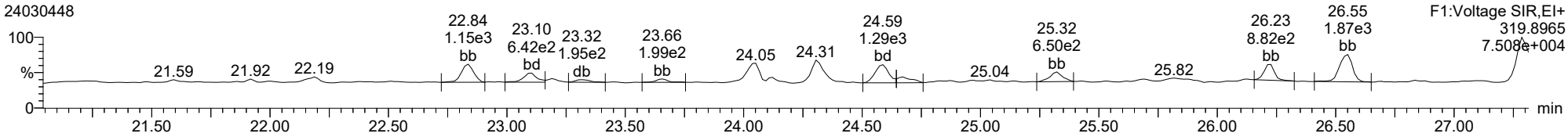


FUNCTION5 DCDPE

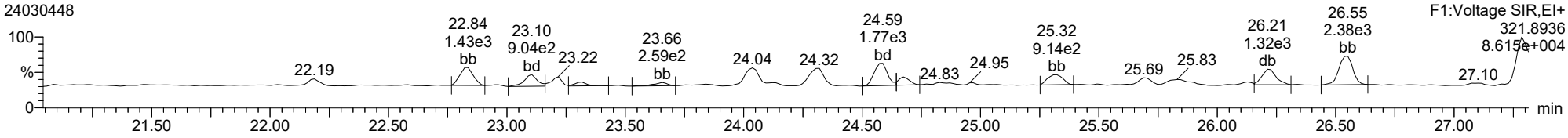


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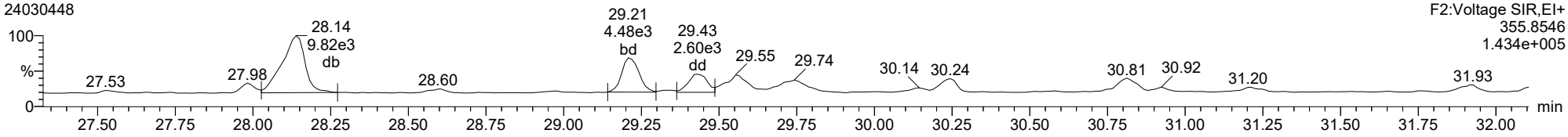
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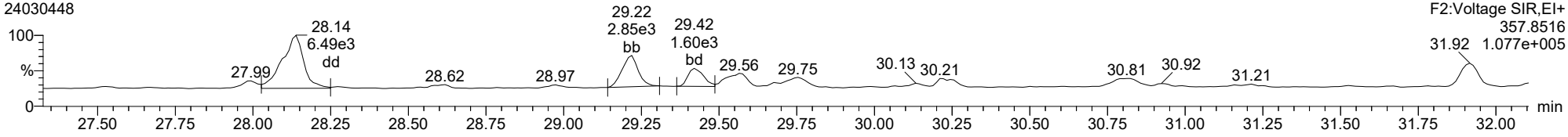
Total-tetradioxins



Total-pentadioxins

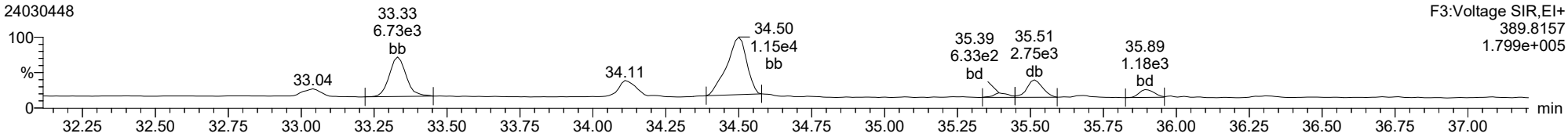


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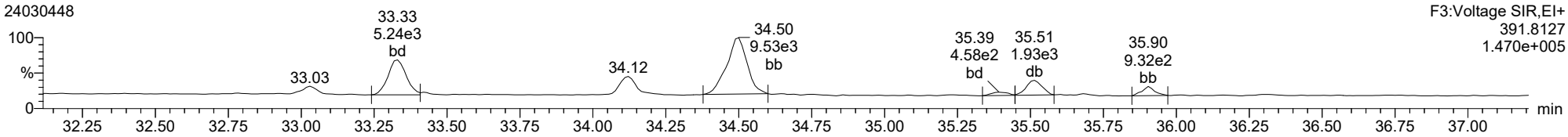


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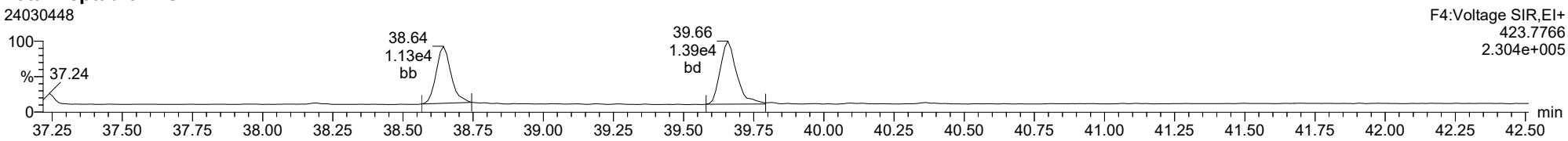
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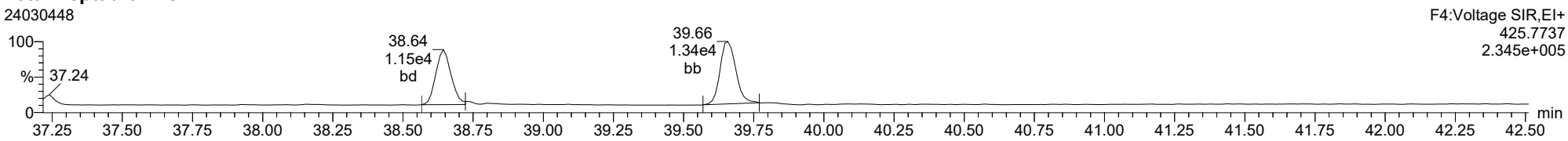
Total-hexadioxins



Total-heptadioxins

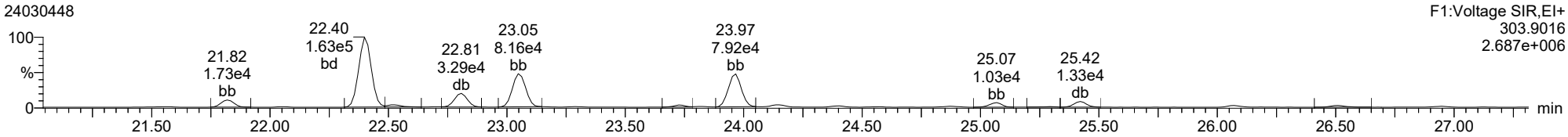


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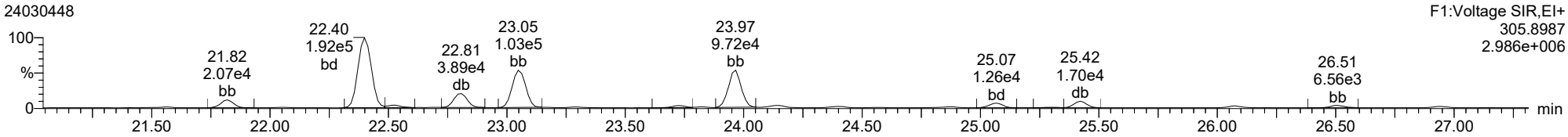


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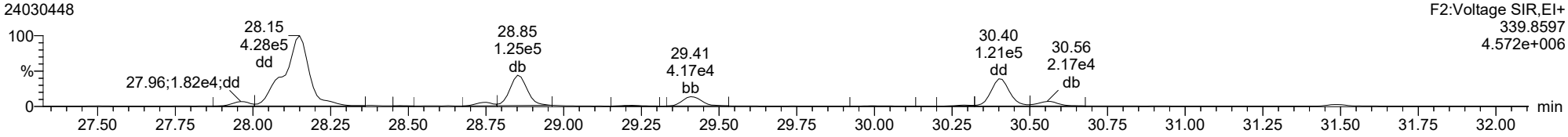
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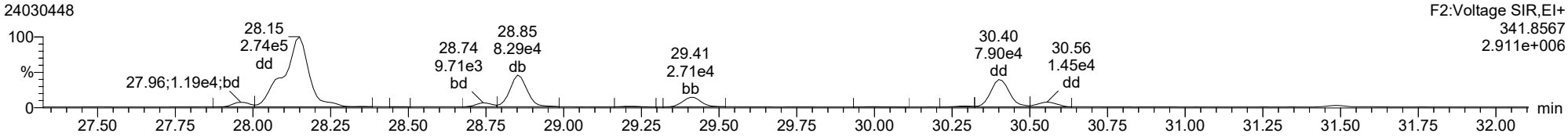
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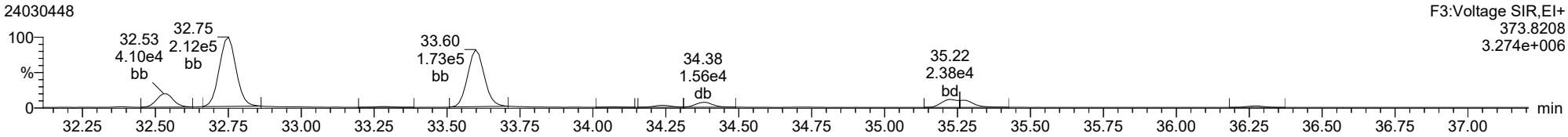
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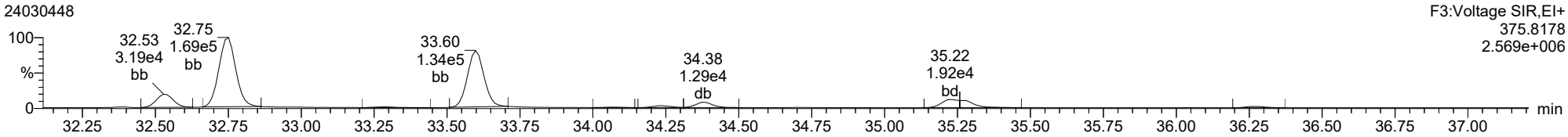
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Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
Printed: Wednesday, March 06, 2024 10:51:05 Pacific Standard Time

ID: BMA0737-DUP1, Name: 24030448, Date: 06-Mar-2024, Time: 01:21:41, Conditions: AUTOSPEC01, User: pk

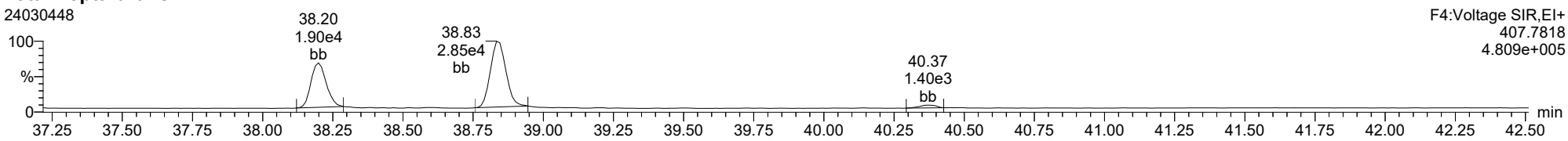
Total-hexafurans



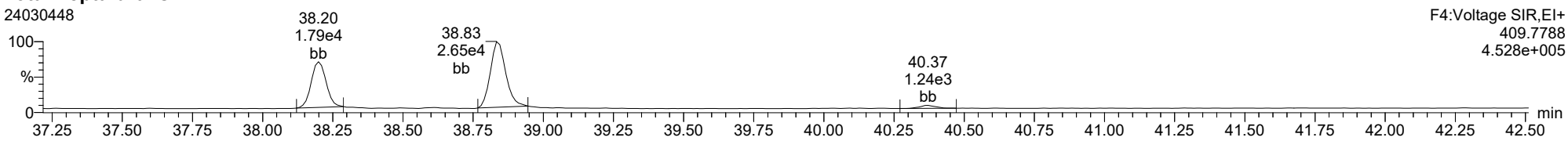
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GH00041	Instrument:	AUTOSPEC01
Calibration Date:	08/11/2023	Column (1):	RTX-Dioxin2

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
2,3,7,8-TCDF			0.5	0.9170169	2	0.8896049	10	0.8956648	40	0.9072161	200	0.9062335
2,3,7,8-TCDD			0.5	1.291459	2	1.233047	10	1.171298	40	1.242227	200	1.27688
1,2,3,7,8-PeCDF	0.5	0.9050012	2.5	0.8965486	10	0.9540675	50	0.9277948	200	0.9293139	1000	0.9266945
2,3,4,7,8-PeCDF	0.5	0.9085743	2.5	1.051184	10	0.9802419	50	0.9945154	200	0.9985836	1000	1.010871
1,2,3,7,8-PeCDD	0.5	1.13089	2.5	1.142394	10	1.12465	50	1.173623	200	1.163067	1000	1.165895
1,2,3,4,7,8-HxCDF	0.5	1.171522	2.5	1.146258	10	1.102409	50	1.083471	200	1.1275	1000	1.137861
1,2,3,6,7,8-HxCDF	0.5	1.002442	2.5	1.01135	10	1.068924	50	1.022077	200	1.03404	1000	1.055313
2,3,4,6,7,8-HxCDF	0.5	1.047067	2.5	1.079021	10	1.105346	50	1.050327	200	1.086324	1000	1.120738
1,2,3,7,8,9-HxCDF	0.5	0.9624625	2.5	0.9081871	10	0.9833481	50	0.9872332	200	1.040889	1000	1.043569
1,2,3,4,7,8-HxCDD	0.5	1.146907	2.5	0.8861021	10	0.9660919	50	0.8986722	200	0.9337293	1000	0.9290194
1,2,3,6,7,8-HxCDD	0.5	0.8554847	2.5	0.8247378	10	0.8750677	50	0.9220737	200	0.8930401	1000	0.9257571
1,2,3,7,8,9-HxCDD	0.5	0.7019908	2.5	0.7130637	10	0.8584371	50	0.8446464	200	0.829624	1000	0.8746994
1,2,3,4,6,7,8-HpCDF	0.5	1.223099	2.5	1.104545	10	1.167736	50	1.124315	200	1.161503	1000	1.201057
1,2,3,4,7,8,9-HpCDF	0.5	0.93457	2.5	1.013728	10	1.111552	50	1.146994	200	1.261925	1000	1.153009
1,2,3,4,6,7,8-HpCDD	0.5	1.487743	2.5	1.080656	10	1.131152	50	1.184304	200	1.134631	1000	1.179134
OCDF	1	0.9623343	5	0.9592974	20	1.274279	100	1.104526	400	1.250961	2000	1.229832
OCDD	1	1.11973	5	0.9863372	20	1.039534	100	0.989959	400	1.135737	2000	1.080698
13C12-2,3,7,8-TCDF	100	1.827549	100	1.875447	100	1.843357	100	1.772636	100	1.770442	100	1.922881
13C12-2,3,7,8-TCDD	100	1.088774	100	1.14768	100	1.064817	100	1.160829	100	0.9954637	100	1.199712
13C12-1,2,3,7,8-PeCDF	100	1.417003	100	1.445072	100	1.312187	100	1.305943	100	1.210215	100	1.568867
13C12-2,3,4,7,8-PeCDF	100	1.306495	100	1.301506	100	1.260886	100	1.252619	100	1.167718	100	1.518179
13C12-1,2,3,7,8-PeCDD	100	0.7639065	100	0.7852329	100	0.685109	100	0.7320055	100	0.6328894	100	0.9229378
13C12-1,2,3,4,7,8-HxCDF	100	1.017315	100	1.068631	100	1.169113	100	1.126009	100	1.156912	100	1.005921
13C12-1,2,3,6,7,8-HxCDF	100	1.231598	100	1.390159	100	1.481835	100	1.379081	100	1.388592	100	1.170109
13C12-2,3,4,6,7,8-HxCDF	100	1.027322	100	1.107706	100	1.15593	100	1.115236	100	1.117234	100	1.037253
13C12-1,2,3,7,8,9-HxCDF	100	0.8795225	100	0.9166548	100	1.027554	100	0.9757214	100	0.9944612	100	0.9157163
13C12-1,2,3,4,7,8-HxCDD	100	0.9104907	100	0.9956927	100	0.9346567	100	0.972884	100	0.9645194	100	0.981134
13C12-1,2,3,6,7,8-HxCDD	100	1.183922	100	1.232021	100	1.115505	100	1.222273	100	1.126356	100	1.075454

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GH00041	Instrument:	AUTOSPEC01
Calibration Date:	08/11/2023	Column (1):	RTX-Dioxin2

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RRF	Conc	**RRF**	Conc	RRF	Conc	RRF	Conc	**RRF**	Conc	**RRF**
13C12-1,2,3,4,6,7,8-HpCDF	100	0.9279461	100	1.003576	100	1.022714	100	1.032271	100	0.9834014	100	0.939784
13C12-1,2,3,4,7,8,9-HpCDF	100	0.7242028	100	0.7724378	100	0.7645327	100	0.7376695	100	0.747954	100	0.7880098
13C12-1,2,3,4,6,7,8-HpCDD	100	0.6408675	100	0.6675492	100	0.5609532	100	0.6552775	100	0.61085	100	0.6402193
13C12-OCDD	200	0.6642378	200	0.7010461	200	0.5069038	200	0.6533745	200	0.5799566	200	0.7053341
37Cl4-2,3,7,8-TCDD	0.1	1.195029	0.5	1.123797	2	1.12089	10	1.150483	40	1.052937	200	1.300967
13C12-1,2,3,4-TCDD	100	1	100	1	100	1	100	1	100	1	100	1
13C12-1,2,3,7,8,9-HxCDD	100	1	100	1	100	1	100	1	100	1	100	1

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GH00041	Instrument:	AUTOSPEC01
Calibration Date:	08/11/2023	Column (1):	RTX-Dioxin2

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
2,3,7,8-TCDF	0.9031472	1.2			RSD ()	
2,3,7,8-TCDD	1.242982	3.8			RSD ()	
1,2,3,7,8-PeCDF	0.9232368	2.2			RSD ()	
2,3,4,7,8-PeCDF	0.9906617	4.7			RSD ()	
1,2,3,7,8-PeCDD	1.150086	1.8			RSD ()	
1,2,3,4,7,8-HxCDF	1.12817	2.8			RSD ()	
1,2,3,6,7,8-HxCDF	1.032358	2.5			RSD ()	
2,3,4,6,7,8-HxCDF	1.08147	2.7			RSD ()	
1,2,3,7,8,9-HxCDF	0.9876148	5.1			RSD ()	
1,2,3,4,7,8-HxCDD	0.960087	10.0			RSD ()	
1,2,3,6,7,8-HxCDD	0.8826935	4.4			RSD ()	
1,2,3,7,8,9-HxCDD	0.8037436	9.5			RSD ()	
1,2,3,4,6,7,8-HpCDF	1.163709	3.8			RSD ()	
1,2,3,4,7,8,9-HpCDF	1.10363	10.4			RSD ()	
1,2,3,4,6,7,8-HpCDD	1.199603	12.2			RSD ()	
OCDF	1.130205	12.7			RSD ()	
OCDD	1.058666	6.0			RSD ()	
13C12-2,3,7,8-TCDF	1.835385	3.2			RSD ()	
13C12-2,3,7,8-TCDD	1.109546	6.7			RSD ()	
13C12-1,2,3,7,8-PeCDF	1.376548	9.2			RSD ()	
13C12-2,3,4,7,8-PeCDF	1.301234	9.0			RSD ()	
13C12-1,2,3,7,8-PeCDD	0.7536802	13.2			RSD ()	
13C12-1,2,3,4,7,8-HxCDF	1.09065	6.5			RSD ()	
13C12-1,2,3,6,7,8-HxCDF	1.340229	8.6			RSD ()	
13C12-2,3,4,6,7,8-HxCDF	1.093447	4.6			RSD ()	
13C12-1,2,3,7,8,9-HxCDF	0.951605	5.9			RSD ()	
13C12-1,2,3,4,7,8-HxCDD	0.9598962	3.3			RSD ()	
13C12-1,2,3,6,7,8-HxCDD	1.159255	5.4			RSD ()	
13C12-1,2,3,4,6,7,8-HpCDF	0.9849488	4.4			RSD ()	
13C12-1,2,3,4,7,8,9-HpCDF	0.7558011	3.1			RSD ()	
13C12-1,2,3,4,6,7,8-HpCDD	0.6292861	6.1			RSD ()	

Analytical Resources, LLC
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INITIAL CALIBRATION DATA

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GH00041	Instrument:	AUTOSPEC01
Calibration Date:	08/11/2023	Column (1):	RTX-Dioxin2

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
13C12-OCDD	0.6351422	12.2			RSD ()	
37Cl4-2,3,7,8-TCDD	1.157351	7.3			RSD ()	
13C12-1,2,3,4-TCDD	1	0.0			RSD ()	
13C12-1,2,3,7,8,9-HxCDD	1	0.0			RSD ()	

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Printed: 8/15/2023 1:59:43PM

ANALYSIS SEQUENCE

SLH0135

Instrument: AUTOSPEC01 HRGCMS Column ID: L2314
Calibration ID: GH00041 Tune File: JUL0323_1
EM Voltage: 350 Resolution check times : 10:27, 18:59

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
SLH0135-ICV1	CS3F1	QC		1	K009821	G007694	08/11/2023 10:28	23081102	PK	
SLH0135-RES1	ISCF1	QC		2	L002084	G007694	08/11/2023 11:19	23081103	PK	
SLH0135-CAL1	CSLCF	QC		3	I005460		08/11/2023 12:07	23081104	PK	
SLH0135-CAL2	CS1CF	QC		4	I005456		08/11/2023 13:01	23081105	PK	
SLH0135-CAL3	CS2CF	QC		5	I005457		08/11/2023 13:56	23081106	PK	
SLH0135-CAL4	CS3CF	QC		6	K009821		08/11/2023 14:52	23081107	PK	
SLH0135-CAL5	CS4CF	QC		7	I005458		08/11/2023 15:40	23081108	PK	
SLH0135-CAL6	CS5CF	QC		8	I005459		08/11/2023 16:29	23081109	PK	
SLH0135-SCV1	ICVCF	QC		9	H008219		08/11/2023 17:18	23081110	PK	
SLH0135-CCV1	CS3F2	QC		10	K009821	G007694	08/11/2023 18:06	23081111	PK	
SLH0135-RES2	ISCF2	QC		11	L002084	G007694	08/11/2023 18:59	23081112	PK	

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:23:00 Pacific Daylight Time 8/15/23 PK

Event	Details	Sample ID
Process Quantify		
Process Integrate		
Process Extract		
Process Calibrate		
Pre modification peak	Sample:23081104, Compound:HF, RT:34.421	1
Pre modification peak	Sample:23081104, Compound:PD, RT:30.878	1
Pre modification peak	Sample:23081104, Compound:HD, RT:35.412	1
Pre modification peak	Sample:23081104, Compound:HPD, RT:39.657	1
Pre modification peak	Sample:23081104, Compound:OD, RT:44.238	1
Pre modification peak	Sample:23081104, Compound:PF, RT:30.622	1
Pre modification peak	Sample:23081104, Compound:HF, RT:35.312	1
Pre modification peak	Sample:23081104, Compound:HF, RT:36.326	1
Pre modification peak	Sample:23081107, Compound:HPD, RT:38.666	4
Peak modified	Sample:23081104, Compound:HF, RT:34.421	1
Peak modified	Sample:23081104, Compound:PD, RT:30.878	1
Peak modified	Sample:23081104, Compound:HD, RT:35.412	1
Peak modified	Sample:23081104, Compound:HD, RT:35.412	1
Peak modified	Sample:23081104, Compound:HD, RT:35.412	1
Peak modified	Sample:23081104, Compound:HD, RT:35.412	1
Peak modified	Sample:23081104, Compound:HPD, RT:39.657	1
Peak modified	Sample:23081104, Compound:HPD, RT:39.657	1
Peak modified	Sample:23081104, Compound:OD, RT:44.238	1
Peak modified	Sample:23081104, Compound:PF, RT:30.622	1
Peak modified	Sample:23081104, Compound:HF, RT:35.312	1
Peak modified	Sample:23081104, Compound:HF, RT:36.326	1
Peak modified	Sample:23081107, Compound:HPD, RT:38.666	4
Peak deleted	Sample:23081104, Compound:TF, RT:25.167	1
Peak deleted	Sample:23081104, Compound:TD, RT:25.774	1
Peak deleted	Sample:23081109, Compound:TF, RT:26.594	6
Peak deleted	Sample:23081108, Compound:PF, RT:31.646	5
Peak deleted	Sample:23081109, Compound:PF, RT:31.658	6
Peak deleted	Sample:23081109, Compound:HF, RT:32.582	6
Peak deleted	Sample:23081109, Compound:TD, RT:26.368	6
Peak deleted	Sample:23081108, Compound:PD, RT:31.234	5
Peak deleted	Sample:23081108, Compound:HPD, RT:38.665	5
Peak deleted	Sample:23081109, Compound:HPD, RT:38.654	6
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\230811ICIH.qld'	
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\230811ICIH.qld'	
Dataset Created		
Calibration Saved	Saved to 'T:\Autospec\Curves\230811ICIH.cdb'	

Dataset: T:\Autospec\Processed Data Batch\230811ICVIH.qld
Last Altered: Tuesday, August 15, 2023 12:21:02 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:22:06 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 12 Aug 2023 10:54:09
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.153	1.001	3.267e4	4.418e4	0.903	0.739	0.770	1410	1260	4.83e5	6.44e5	342.9	510.8	NO	bb	bb	10.031
12378-PeCDF	29.307	1.001	1.871e5	1.156e5	0.923	1.618	1.550	1821	2061	2.72e6	1.69e6	1495.1	820.5	NO	bb	bb	48.648
23478-PeCDF	30.644	1.001	1.913e5	1.241e5	0.991	1.541	1.550	1821	2061	2.79e6	1.79e6	1530.5	870.8	NO	bb	bb	49.008
123478-HxCDF	34.287	1.000	1.489e5	1.185e5	1.128	1.257	1.240	2017	1502	2.25e6	1.80e6	1117.2	1197.9	NO	bd	bd	48.528
234678-HxCDF	35.312	1.000	1.362e5	1.137e5	1.081	1.198	1.240	2017	1502	2.11e6	1.73e6	1048.4	1153.8	NO	bb	bb	50.502
123678-HxCDF	34.432	1.001	1.589e5	1.237e5	1.032	1.285	1.240	2017	1502	2.28e6	1.79e6	1128.5	1194.7	NO	db	db	50.011
123789-HxCDF	36.360	1.001	1.143e5	9.000e4	0.988	1.270	1.240	2017	1502	1.64e6	1.31e6	815.1	875.3	NO	bb	bb	52.425
1234678-HpCDF	38.231	1.000	1.206e5	1.238e5	1.164	0.975	1.050	1813	1581	1.96e6	1.86e6	1080.8	1179.7	NO	bb	bd	48.385
1234789-HpCDF	40.393	1.000	9.889e4	9.879e4	1.104	1.001	1.050	1813	1581	1.34e6	1.31e6	741.6	828.6	NO	bb	bd	50.882
OCDF	44.467	1.005	1.502e5	1.593e5	1.130	0.943	0.890	2635	2358	1.65e6	1.82e6	627.8	770.8	NO	bd	bb	91.314
2378-TCDD	25.803	1.001	2.952e4	3.590e4	1.243	0.822	0.770	909	976	4.44e5	5.33e5	488.6	546.5	NO	bb	bb	9.127
12378-PeCDD	30.889	1.000	1.367e5	8.588e4	1.150	1.592	1.550	1821	1131	2.04e6	1.27e6	1120.9	1118.1	NO	bb	bb	51.387
123478-HxCDD	35.435	1.001	1.108e5	8.990e4	0.960	1.233	1.240	1642	1463	1.69e6	1.40e6	1029.2	955.0	NO	bd	bd	47.909
123678-HxCDD	35.546	1.000	1.224e5	1.046e5	0.883	1.170	1.240	1642	1463	1.84e6	1.52e6	1119.7	1039.8	NO	db	dd	52.387
123789-HxCDD	35.936	1.011	1.128e5	9.363e4	0.804	1.205	1.240	1642	1463	1.66e6	1.38e6	1013.3	945.6	NO	bb	bb	55.394
1234678-HpCDD	39.680	1.000	9.018e4	7.760e4	1.200	1.162	1.050	1298	1454	1.26e6	1.16e6	968.3	797.3	NO	bd	bb	46.513
OCDD	44.247	1.000	1.584e5	1.773e5	1.059	0.893	0.890	2820	2004	1.74e6	1.94e6	616.2	969.1	NO	bd	bd	105.741
13C-2378-TCDF	25.139	1.007	3.752e5	4.731e5	1.835	0.793	0.770	1743	1019	5.50e6	6.96e6	3156.8	6833.5	NO	bb	bb	93.584
13C-12378-PeCDF	29.285	1.173	4.095e5	2.644e5	1.377	1.549	1.550	2319	2122	6.02e6	3.91e6	2596.1	1840.7	NO	bb	bb	99.132
13C-23478-PeCDF	30.622	1.226	3.942e5	2.553e5	1.301	1.544	1.550	2319	2122	5.70e6	3.76e6	2456.8	1772.1	NO	bb	bb	101.066
13C-123478-HxCDF	34.276	0.954	1.654e5	3.231e5	1.091	0.512	0.510	1344	2378	2.47e6	4.81e6	1838.1	2021.3	NO	bd	bd	100.193
13C-123678-HxCDF	34.410	0.958	1.939e5	3.534e5	1.340	0.549	0.510	1344	2378	2.59e6	5.02e6	1926.2	2110.2	NO	dd	db	91.372
13C-234678-HxCDF	35.301	0.983	1.551e5	3.025e5	1.093	0.513	0.510	1344	2378	2.26e6	4.41e6	1679.6	1852.4	NO	bb	bb	93.633
13C-123789-HxCDF	36.337	1.011	1.338e5	2.608e5	0.952	0.513	0.510	1344	2378	1.91e6	3.82e6	1420.2	1605.6	NO	bb	bb	92.769
13C-1234678-HpCDF	38.220	1.064	1.397e5	2.943e5	0.985	0.475	0.440	1575	2088	2.04e6	4.54e6	1292.2	2173.4	NO	bd	bb	98.578
13C-1234789-HpCDF	40.382	1.124	1.068e5	2.453e5	0.756	0.435	0.440	1575	2088	1.42e6	3.11e6	899.8	1489.6	NO	bd	bb	104.203
13C-1234-TCDD	24.969	0.000	2.166e5	2.773e5	1.000	0.781	0.770	1831	1204	3.27e6	4.17e6	1785.4	3464.8	NO	bb	bb	100.000
13C-2378-TCDD	25.774	1.032	2.575e5	3.192e5	1.110	0.807	0.770	1831	1204	3.85e6	4.88e6	2104.1	4053.6	NO	bb	bb	105.229
13C-12378-PeCDD	30.878	1.237	2.354e5	1.412e5	0.754	1.667	1.550	948	840	3.39e6	2.08e6	3572.5	2479.5	NO	bb	bb	101.171
13C-123478-HxCDD	35.412	0.986	2.434e5	1.930e5	0.960	1.261	1.240	1622	1115	3.72e6	2.95e6	2295.3	2649.4	NO	bd	bd	101.721
13C-123678-HxCDD	35.535	0.989	2.685e5	2.223e5	1.159	1.208	1.240	1622	1115	3.87e6	3.15e6	2386.3	2828.6	NO	db	db	94.721
13C-1234678-HpCDD	39.668	1.104	1.607e5	1.400e5	0.629	1.148	1.050	1237	1522	2.19e6	2.03e6	1766.5	1330.4	NO	bd	bb	106.902
13C-OCDD	44.229	1.231	2.897e5	3.101e5	0.635	0.934	0.890	1717	2028	3.19e6	3.43e6	1855.4	1692.1	NO	bd	bd	211.248
13C-123789-HxCDD	35.925	0.000	2.477e5	1.993e5	1.000	1.243	1.240	1622	1115	3.79e6	2.98e6	2336.3	2673.0	NO	bb	bb	100.000
37CL-2378-TCDD	25.788	1.033	5.819e4		1.157			1031		8.39e5		814.2			bb		10.181

Dataset: T:\Autospec\Processed Data Batch\230811ICVIH.qld
Last Altered: Tuesday, August 15, 2023 12:21:02 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:22:06 Pacific Daylight Time

ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.678	0.862	4.357e4	5.802e4	1.170	0.751	0.770	1410	1260	6.55e5	8.89e5	464.6	705.7	NO	bb	bb	10.233
1289-TCDF	26.636	1.060	3.249e4	4.226e4	0.847	0.769	0.770	1410	1260	4.59e5	5.91e5	325.7	469.0	NO	db	db	10.408
13468-PECDF	26.509	0.905	2.435e5	1.584e5	1.241	1.538	1.550	709	694	3.73e6	2.42e6	5263.9	3490.4	NO	bb	bb	48.052
12389-PECDF	31.669	1.081	1.948e5	1.176e5	0.880	1.656	1.550	1821	2061	2.59e6	1.63e6	1421.1	790.4	NO	bd	bb	52.702
123468-HXCDF	32.594	0.951	1.572e5	1.265e5	1.206	1.243	1.240	2017	1502	2.34e6	1.90e6	1162.2	1262.2	NO	bb	bb	48.177
1368-TCDD	22.935	0.890	2.959e4	3.663e4	1.181	0.808	0.770	909	976	4.61e5	5.72e5	507.2	585.7	NO	bb	bb	9.725
1289-TCDD	26.396	1.024	2.667e4	3.303e4	0.963	0.807	0.770	909	976	3.82e5	4.40e5	420.6	451.1	NO	bb	bd	10.754
12479-PECDD	28.170	0.912	2.449e5	1.524e5	2.166	1.607	1.550	1821	1131	2.32e6	1.47e6	1275.6	1295.2	NO	bb	bb	48.697
12389-PECDD	31.290	1.013	1.599e5	1.040e5	1.326	1.538	1.550	1821	1131	2.26e6	1.42e6	1241.0	1256.0	NO	bb	bd	52.847
124679-HXCDD	33.385	0.943	1.262e5	1.040e5	1.127	1.213	1.240	1642	1463	1.83e6	1.51e6	1114.4	1030.9	NO	bb	bb	46.808
1234679-HPCDD	38.666	0.975	1.017e5	9.556e4	1.303	1.064	1.050	1298	1454	1.56e6	1.48e6	1205.3	1021.4	NO	bb	bb	50.367
Total-tetrafurans			1.090e5		0.973			1410		1.60e6							30.751
Total-penta1			2.435e5					709		3.73e6							48.052
Total-pentafurans			6.055e5		0.931			1821		8.58e6							158.813
Total-hexafurans			7.156e5		1.087			2017		1.06e7							249.643
Total-heptafurans			2.195e5		1.134			1813		3.30e6							99.267
Total-Furans			2.043e6		1.053			1410		2.95e7							677.840
Total-tetradioxins			1.446e5		1.129			909		1.97e6							49.641
Total-pentadioxins			5.415e5		1.548			1821		6.62e6							152.931
Total-hexadioxins			4.722e5		0.943			1642		7.02e6							202.499
Total-heptadioxins			1.919e5		1.251			1298		2.82e6							96.880
Total-Dioxins			1.509e6		1.182			909		2.02e7							607.691
Total-TEQ			3.552e6					909		4.97e7							1285.531
FUNCTION1 PFK			7.924e5					446175		1.36e7							
FUNCTION2 PFK			5.581e5					351760		1.44e7							0.000
FUNCTION3 PFK			1.585e5					424568		5.08e6							0.000
FUNCTION4 PFK			0.000e0					308815		0.00e0							
FUNCTION5 PFK			5.965e4					171904		2.21e6							
FUNCTION1 HXCD...			1.292e3					668		1.76e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			3.182e2					688		6.67e3							0.000
FUNCTION3 OCDPE			6.041e2					430		9.00e3							0.000
FUNCTION4 NCDPE			3.725e2					636		5.58e3							0.000
FUNCTION5 DCDPE			0.000e0					371		0.00e0							

Method: T:\Autospec\Methods\Dioxin230810.mdb 12 Aug 2023 10:54:09
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	3.249e4	4.226e4	0.847	0.77	0.77	325.7	YES	NO	db	db	10.408
2	2378-TCDF	25.15	3.267e4	4.418e4	0.903	0.74	0.77	342.9	YES	NO	bb	bb	10.031
3	Total-tetrafurans	24.26	2.922e2	3.648e2	0.973	0.80	0.77	4.1	YES	NO	bb	bb	0.080
4	1368-TCDF	21.68	4.357e4	5.802e4	1.170	0.75	0.77	464.6	YES	NO	bb	bb	10.233

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.51	2.435e5	1.584e5	1.241	1.54	1.55	5263.9	YES	NO	bb	bb	48.052

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.64	1.913e5	1.241e5	0.991	1.54	1.55	1530.5	YES	NO	bb	bb	49.008
2	12378-PeCDF	29.31	1.871e5	1.156e5	0.923	1.62	1.55	1495.1	YES	NO	bb	bb	48.648
3	Total-pentafurans	28.16	3.242e4	1.967e4	0.931	1.65	1.55	264.3	YES	NO	bb	bb	8.454
4	12389-PECDF	31.67	1.948e5	1.176e5	0.880	1.66	1.55	1421.1	YES	NO	bd	bb	52.702

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.36	1.143e5	9.000e4	0.988	1.27	1.24	815.1	YES	NO	bb	bb	52.425
2	234678-HxCDF	35.31	1.362e5	1.137e5	1.081	1.20	1.24	1048.4	YES	NO	bb	bb	50.502
3	123678-HxCDF	34.43	1.589e5	1.237e5	1.032	1.28	1.24	1128.5	YES	NO	db	db	50.011
4	123478-HxCDF	34.29	1.489e5	1.185e5	1.128	1.26	1.24	1117.2	YES	NO	bd	bd	48.528
5	123468-HXCDF	32.59	1.572e5	1.265e5	1.206	1.24	1.24	1162.2	YES	NO	bb	bb	48.177

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.39	9.889e4	9.879e4	1.104	1.00	1.05	741.6	YES	NO	bb	bd	50.882
2	1234678-HpCDF	38.23	1.206e5	1.238e5	1.164	0.97	1.05	1080.8	YES	NO	bb	bd	48.385

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	3.249e4	4.226e4	0.847	0.77	0.77	325.7	YES	NO	db	db	10.408
2	2378-TCDF	25.15	3.267e4	4.418e4	0.903	0.74	0.77	342.9	YES	NO	bb	bb	10.031
3	Total-tetrafurans	24.26	2.922e2	3.648e2	0.973	0.80	0.77	4.1	YES	NO	bb	bb	0.080
4	1368-TCDF	21.68	4.357e4	5.802e4	1.170	0.75	0.77	464.6	YES	NO	bb	bb	10.233
5	23478-PeCDF	30.64	1.913e5	1.241e5	0.991	1.54	1.55	1530.5	YES	NO	bb	bb	49.008
6	12378-PeCDF	29.31	1.871e5	1.156e5	0.923	1.62	1.55	1495.1	YES	NO	bb	bb	48.648
7	Total-pentafurans	28.16	3.242e4	1.967e4	0.931	1.65	1.55	264.3	YES	NO	bb	bb	8.454
8	12389-PECDF	31.67	1.948e5	1.176e5	0.880	1.66	1.55	1421.1	YES	NO	bd	bb	52.702
9	123789-HxCDF	36.36	1.143e5	9.000e4	0.988	1.27	1.24	815.1	YES	NO	bb	bb	52.425
10	234678-HxCDF	35.31	1.362e5	1.137e5	1.081	1.20	1.24	1048.4	YES	NO	bb	bb	50.502
11	123678-HxCDF	34.43	1.589e5	1.237e5	1.032	1.28	1.24	1128.5	YES	NO	db	db	50.011
12	123478-HxCDF	34.29	1.489e5	1.185e5	1.128	1.26	1.24	1117.2	YES	NO	bd	bd	48.528
13	123468-HXCDF	32.59	1.572e5	1.265e5	1.206	1.24	1.24	1162.2	YES	NO	bb	bb	48.177
14	1234789-HpCDF	40.39	9.889e4	9.879e4	1.104	1.00	1.05	741.6	YES	NO	bb	bd	50.882
15	1234678-HpCDF	38.23	1.206e5	1.238e5	1.164	0.97	1.05	1080.8	YES	NO	bb	bd	48.385
16	OCDF	44.47	1.502e5	1.593e5	1.130	0.94	0.89	627.8	YES	NO	bd	bb	91.314
17	13468-PECDF	26.51	2.435e5	1.584e5	1.241	1.54	1.55	5263.9	YES	NO	bb	bb	48.052

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.40	2.667e4	3.303e4	0.963	0.81	0.77	420.6	YES	NO	bb	bd	10.754
2	2378-TCDD	25.80	2.952e4	3.590e4	1.243	0.82	0.77	488.6	YES	NO	bb	bb	9.127
3	Total-tetradioxins	25.46	4.462e4	5.454e4	1.129	0.82	0.77	507.1	YES	NO	bd	bb	15.232
4	Total-tetradioxins	24.98	1.421e4	1.705e4	1.129	0.83	0.77	248.5	YES	NO	bd	bb	4.803
5	1368-TCDD	22.94	2.959e4	3.663e4	1.181	0.81	0.77	507.2	YES	NO	bb	bb	9.725

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.29	1.599e5	1.040e5	1.326	1.54	1.55	1241.0	YES	NO	bb	bd	52.847
2	12378-PeCDD	30.89	1.367e5	8.588e4	1.150	1.59	1.55	1120.9	YES	NO	bb	bb	51.387
3	12479-PECDD	28.17	2.449e5	1.524e5	2.166	1.61	1.55	1275.6	YES	NO	bb	bb	48.697

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDD	35.43	1.108e5	8.990e4	0.960	1.23	1.24	1029.2	YES	NO	bd	bd	47.909
2	124679-HXCDD	33.38	1.262e5	1.040e5	1.127	1.21	1.24	1114.4	YES	NO	bb	bb	46.808
3	123789-HxCDD	35.94	1.128e5	9.363e4	0.804	1.20	1.24	1013.3	YES	NO	bb	bb	55.394
4	123678-HxCDD	35.55	1.224e5	1.046e5	0.883	1.17	1.24	1119.7	YES	NO	db	dd	52.387

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.68	9.018e4	7.760e4	1.200	1.16	1.05	968.3	YES	NO	bd	bb	46.513
2	1234679-HPCDD	38.67	1.017e5	9.556e4	1.303	1.06	1.05	1205.3	YES	NO	bb	bb	50.367

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.40	2.667e4	3.303e4	0.963	0.81	0.77	420.6	YES	NO	bb	bd	10.754
2	2378-TCDD	25.80	2.952e4	3.590e4	1.243	0.82	0.77	488.6	YES	NO	bb	bb	9.127
3	Total-tetradioxins	25.46	4.462e4	5.454e4	1.129	0.82	0.77	507.1	YES	NO	bd	bb	15.232
4	Total-tetradioxins	24.98	1.421e4	1.705e4	1.129	0.83	0.77	248.5	YES	NO	bd	bb	4.803
5	1368-TCDD	22.94	2.959e4	3.663e4	1.181	0.81	0.77	507.2	YES	NO	bb	bb	9.725
6	12389-PECDD	31.29	1.599e5	1.040e5	1.326	1.54	1.55	1241.0	YES	NO	bb	bd	52.847
7	12378-PeCDD	30.89	1.367e5	8.588e4	1.150	1.59	1.55	1120.9	YES	NO	bb	bb	51.387
8	12479-PECDD	28.17	2.449e5	1.524e5	2.166	1.61	1.55	1275.6	YES	NO	bb	bb	48.697
9	123478-HxCDD	35.43	1.108e5	8.990e4	0.960	1.23	1.24	1029.2	YES	NO	bd	bd	47.909
10	124679-HXCDD	33.38	1.262e5	1.040e5	1.127	1.21	1.24	1114.4	YES	NO	bb	bb	46.808
11	123789-HxCDD	35.94	1.128e5	9.363e4	0.804	1.20	1.24	1013.3	YES	NO	bb	bb	55.394
12	123678-HxCDD	35.55	1.224e5	1.046e5	0.883	1.17	1.24	1119.7	YES	NO	db	dd	52.387
13	1234678-HpCDD	39.68	9.018e4	7.760e4	1.200	1.16	1.05	968.3	YES	NO	bd	bb	46.513
14	1234679-HPCDD	38.67	1.017e5	9.556e4	1.303	1.06	1.05	1205.3	YES	NO	bb	bb	50.367
15	OCDD	44.25	1.584e5	1.773e5	1.059	0.89	0.89	616.2	YES	NO	bd	bd	105.741

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	3.249e4	4.226e4	0.847	0.77	0.77	325.7	YES	NO	db	db	10.408
2	2378-TCDF	25.15	3.267e4	4.418e4	0.903	0.74	0.77	342.9	YES	NO	bb	bb	10.031
3	Total-tetrafurans	24.26	2.922e2	3.648e2	0.973	0.80	0.77	4.1	YES	NO	bb	bb	0.080
4	1368-TCDF	21.68	4.357e4	5.802e4	1.170	0.75	0.77	464.6	YES	NO	bb	bb	10.233
5	23478-PeCDF	30.64	1.913e5	1.241e5	0.991	1.54	1.55	1530.5	YES	NO	bb	bb	49.008
6	12378-PeCDF	29.31	1.871e5	1.156e5	0.923	1.62	1.55	1495.1	YES	NO	bb	bb	48.648
7	Total-pentafurans	28.16	3.242e4	1.967e4	0.931	1.65	1.55	264.3	YES	NO	bb	bb	8.454
8	12389-PECDF	31.67	1.948e5	1.176e5	0.880	1.66	1.55	1421.1	YES	NO	bd	bb	52.702
9	123789-HxCDF	36.36	1.143e5	9.000e4	0.988	1.27	1.24	815.1	YES	NO	bb	bb	52.425
10	234678-HxCDF	35.31	1.362e5	1.137e5	1.081	1.20	1.24	1048.4	YES	NO	bb	bb	50.502
11	123678-HxCDF	34.43	1.589e5	1.237e5	1.032	1.28	1.24	1128.5	YES	NO	db	db	50.011
12	123478-HxCDF	34.29	1.489e5	1.185e5	1.128	1.26	1.24	1117.2	YES	NO	bd	bd	48.528
13	123468-HXCDF	32.59	1.572e5	1.265e5	1.206	1.24	1.24	1162.2	YES	NO	bb	bb	48.177
14	1234789-HpCDF	40.39	9.889e4	9.879e4	1.104	1.00	1.05	741.6	YES	NO	bb	bd	50.882
15	1234678-HpCDF	38.23	1.206e5	1.238e5	1.164	0.97	1.05	1080.8	YES	NO	bb	bd	48.385
16	OCDF	44.47	1.502e5	1.593e5	1.130	0.94	0.89	627.8	YES	NO	bd	bb	91.314
17	13468-PECDF	26.51	2.435e5	1.584e5	1.241	1.54	1.55	5263.9	YES	NO	bb	bb	48.052
18	1289-TCDD	26.40	2.667e4	3.303e4	0.963	0.81	0.77	420.6	YES	NO	bb	bd	10.754
19	2378-TCDD	25.80	2.952e4	3.590e4	1.243	0.82	0.77	488.6	YES	NO	bb	bb	9.127
20	Total-tetradioxins	25.46	4.462e4	5.454e4	1.129	0.82	0.77	507.1	YES	NO	bd	bb	15.232
21	Total-tetradioxins	24.98	1.421e4	1.705e4	1.129	0.83	0.77	248.5	YES	NO	bd	bb	4.803
22	1368-TCDD	22.94	2.959e4	3.663e4	1.181	0.81	0.77	507.2	YES	NO	bb	bb	9.725
23	12389-PECDD	31.29	1.599e5	1.040e5	1.326	1.54	1.55	1241.0	YES	NO	bb	bd	52.847
24	12378-PeCDD	30.89	1.367e5	8.588e4	1.150	1.59	1.55	1120.9	YES	NO	bb	bb	51.387
25	12479-PECDD	28.17	2.449e5	1.524e5	2.166	1.61	1.55	1275.6	YES	NO	bb	bb	48.697
26	123478-HxCDD	35.43	1.108e5	8.990e4	0.960	1.23	1.24	1029.2	YES	NO	bd	bd	47.909
27	124679-HXCDD	33.38	1.262e5	1.040e5	1.127	1.21	1.24	1114.4	YES	NO	bb	bb	46.808
28	123789-HxCDD	35.94	1.128e5	9.363e4	0.804	1.20	1.24	1013.3	YES	NO	bb	bb	55.394
29	123678-HxCDD	35.55	1.224e5	1.046e5	0.883	1.17	1.24	1119.7	YES	NO	db	dd	52.387
30	1234678-HpCDD	39.68	9.018e4	7.760e4	1.200	1.16	1.05	968.3	YES	NO	bd	bb	46.513
31	1234679-HPCDD	38.67	1.017e5	9.556e4	1.303	1.06	1.05	1205.3	YES	NO	bb	bb	50.367
32	OCDD	44.25	1.584e5	1.773e5	1.059	0.89	0.89	616.2	YES	NO	bd	bd	105.741

ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	26.10	3.058e4					0.7	NO		bb		
2	FUNCTION1 PFK	25.83	2.167e4					1.5	NO		bb		
3	FUNCTION1 PFK	25.75	1.003e4					1.0	NO		bb		
4	FUNCTION1 PFK	25.68	2.815e4					1.7	NO		bb		
5	FUNCTION1 PFK	25.20	4.577e4					1.7	NO		bb		
6	FUNCTION1 PFK	25.10	1.950e4					1.5	NO		bb		
7	FUNCTION1 PFK	24.98	1.460e4					1.0	NO		bb		
8	FUNCTION1 PFK	24.25	2.099e4					1.6	NO		bb		
9	FUNCTION1 PFK	22.89	4.902e4					1.9	NO		bb		
10	FUNCTION1 PFK	22.67	2.144e4					1.5	NO		db		
11	FUNCTION1 PFK	22.61	1.329e4					1.0	NO		bd		
12	FUNCTION1 PFK	22.53	9.681e3					1.0	NO		bb		
13	FUNCTION1 PFK	22.00	3.405e4					2.0	NO		bb		
14	FUNCTION1 PFK	21.38	2.152e5					5.1	YES		bb		
15	FUNCTION1 PFK	21.13	2.235e4					1.5	NO		bb		
16	FUNCTION1 PFK	26.38	2.126e5					4.1	YES		bb		
17	FUNCTION1 PFK	26.27	2.350e4					1.6	NO		bb		

Dataset: T:\Autospec\Processed Data Batch\230811ICVIH.qld
Last Altered: Tuesday, August 15, 2023 12:21:02 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:22:06 Pacific Daylight Time

ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.26	1.698e4					1.3	NO		bd		0.000
2	FUNCTION2 PFK	29.22	9.896e3					0.8	NO		db		0.000
3	FUNCTION2 PFK	29.13	1.828e4					1.7	NO		bd		0.000
4	FUNCTION2 PFK	28.98	6.411e3					0.9	NO		db		0.000
5	FUNCTION2 PFK	28.91	3.286e4					2.2	NO		bd		0.000
6	FUNCTION2 PFK	28.76	8.921e3					1.0	NO		bb		0.000
7	FUNCTION2 PFK	28.35	2.476e3					0.6	NO		bb		0.000
8	FUNCTION2 PFK	28.30	1.117e4					1.4	NO		bb		0.000
9	FUNCTION2 PFK	28.26	1.521e3					0.4	NO		bb		0.000
10	FUNCTION2 PFK	28.20	2.571e4					1.7	NO		bb		0.000
11	FUNCTION2 PFK	27.96	1.137e4					1.0	NO		bb		0.000
12	FUNCTION2 PFK	27.76	1.343e4					1.0	NO		bb		0.000
13	FUNCTION2 PFK	27.50	5.807e3					0.8	NO		bb		0.000
14	FUNCTION2 PFK	31.48	1.330e4					1.4	NO		db		0.000
15	FUNCTION2 PFK	31.45	2.866e4					1.6	NO		dd		0.000
16	FUNCTION2 PFK	31.35	6.909e3					0.8	NO		dd		0.000
17	FUNCTION2 PFK	31.29	1.971e4					1.8	NO		bd		0.000
18	FUNCTION2 PFK	30.92	2.157e4					1.4	NO		bb		0.000
19	FUNCTION2 PFK	30.73	1.688e3					0.4	NO		bb		0.000
20	FUNCTION2 PFK	30.50	1.583e4					1.4	NO		bb		0.000
21	FUNCTION2 PFK	30.43	7.919e3					0.8	NO		bb		0.000
22	FUNCTION2 PFK	30.20	1.363e4					1.2	NO		bb		0.000
23	FUNCTION2 PFK	30.01	3.933e4					2.2	NO		db		0.000
24	FUNCTION2 PFK	29.85	1.133e5					4.0	YES		bd		0.000
25	FUNCTION2 PFK	29.76	1.253e4					1.2	NO		db		0.000
26	FUNCTION2 PFK	29.66	4.510e4					1.8	NO		bd		0.000
27	FUNCTION2 PFK	29.55	1.168e4					1.2	NO		bb		0.000
28	FUNCTION2 PFK	29.42	1.201e4					1.4	NO		bb		0.000
29	FUNCTION2 PFK	29.32	7.622e3					1.1	NO		db		0.000
30	FUNCTION2 PFK	31.96	1.865e3					0.5	NO		bb		0.000
31	FUNCTION2 PFK	31.91	6.856e3					1.0	NO		bb		0.000
32	FUNCTION2 PFK	31.80	1.369e4					1.0	NO		bb		0.000

Dataset: T:\Autospec\Processed Data Batch\230811ICVIH.qld
Last Altered: Tuesday, August 15, 2023 12:21:02 Pacific Daylight Time
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ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	35.95	2.169e4					1.7	NO		bb		0.000
2	FUNCTION3 PFK	35.70	2.880e4					2.0	NO		bb		0.000
3	FUNCTION3 PFK	34.21	2.768e3					0.6	NO		bb		0.000
4	FUNCTION3 PFK	33.50	2.810e4					2.1	NO		db		0.000
5	FUNCTION3 PFK	33.46	3.177e4					2.4	NO		bd		0.000
6	FUNCTION3 PFK	33.07	1.826e4					1.5	NO		bb		0.000
7	FUNCTION3 PFK	32.40	2.714e4					1.7	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.38	4.668e3					1.2	NO		bd		
2	FUNCTION5 PFK	44.06	1.022e4					2.0	NO		bb		
3	FUNCTION5 PFK	43.01	7.561e3					2.2	NO		bb		
4	FUNCTION5 PFK	45.92	5.621e3					1.7	NO		bb		
5	FUNCTION5 PFK	45.85	3.368e3					1.3	NO		bb		
6	FUNCTION5 PFK	44.70	2.424e3					0.9	NO		db		
7	FUNCTION5 PFK	44.66	2.009e4					2.1	NO		bd		
8	FUNCTION5 PFK	44.42	5.700e3					1.5	NO		db		

ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.31	9.776e1					2.1	NO		db		0.000
2	FUNCTION1 HXCD...	26.17	1.145e2					2.2	NO		dd		0.000
3	FUNCTION1 HXCD...	26.10	1.085e2					2.3	NO		bd		0.000
4	FUNCTION1 HXCD...	25.79	1.710e2					2.7	NO		db		0.000
5	FUNCTION1 HXCD...	25.66	8.247e1					2.4	NO		dd		0.000
6	FUNCTION1 HXCD...	25.56	9.000e1					1.7	NO		bd		0.000
7	FUNCTION1 HXCD...	24.96	1.201e2					2.8	NO		bb		0.000
8	FUNCTION1 HXCD...	23.43	1.148e2					2.1	NO		bb		0.000
9	FUNCTION1 HXCD...	22.43	7.998e1					1.3	NO		bb		0.000
10	FUNCTION1 HXCD...	21.38	1.181e2					2.0	NO		bb		0.000
11	FUNCTION1 HXCD...	27.05	1.032e2					1.9	NO		bb		0.000
12	FUNCTION1 HXCD...	26.66	9.117e1					2.9	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.90	7.786e1					1.4	NO		bb		0.000
2	FUNCTION2 HPCD...	30.49	2.403e2					8.3	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.91	9.546e1					2.9	NO		bb		0.000
2	FUNCTION3 OCDPE	35.53	1.655e2					5.4	YES		db		0.000
3	FUNCTION3 OCDPE	35.42	1.776e2					8.6	YES		dd		0.000
4	FUNCTION3 OCDPE	35.30	1.655e2					4.0	YES		bd		0.000

ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	41.97	8.451e1					2.2	NO		bb		0.000
2	FUNCTION4 NCDPE	40.79	7.795e1					2.1	NO		bb		0.000
3	FUNCTION4 NCDPE	38.00	8.803e1					1.5	NO		bb		0.000
4	FUNCTION4 NCDPE	37.36	1.220e2					2.9	NO		bb		0.000

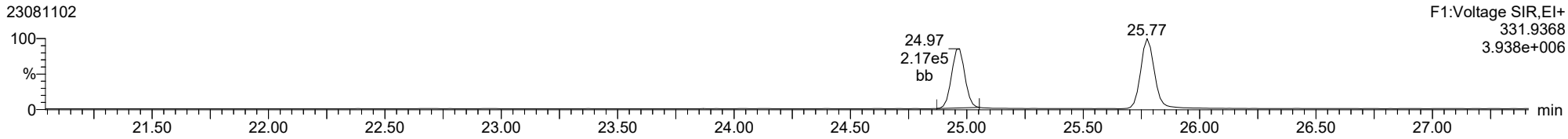
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

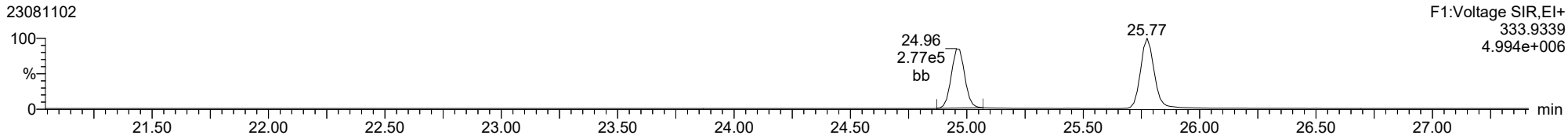
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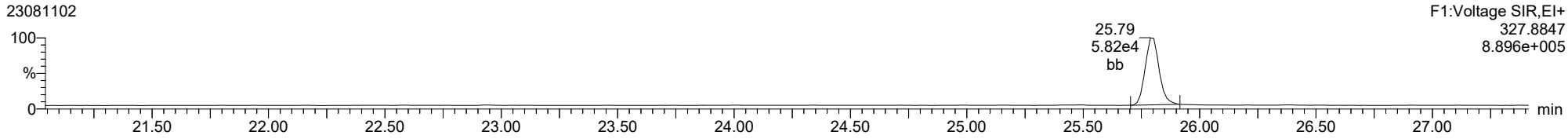
13C-1234-TCDD



13C-1234-TCDD

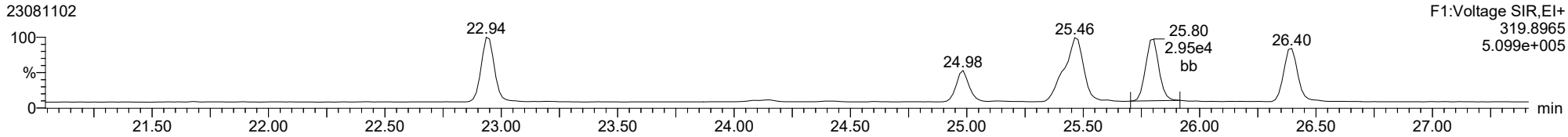


37CL-2378-TCDD

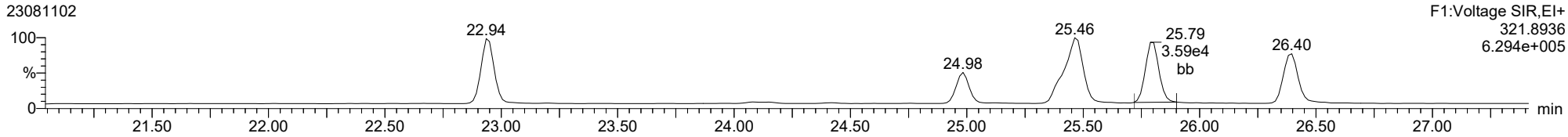


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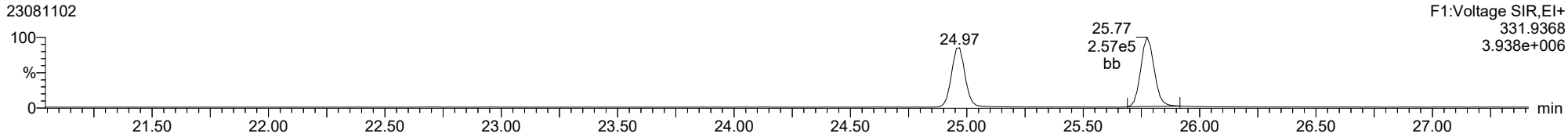
2378-TCDD



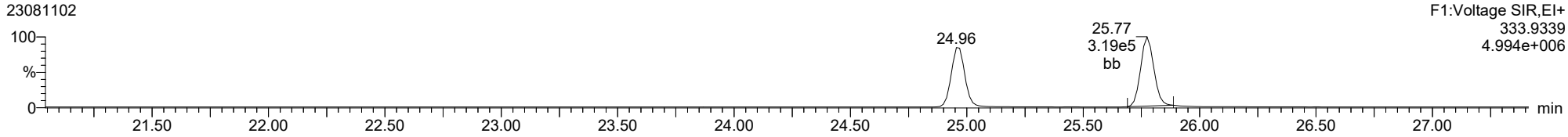
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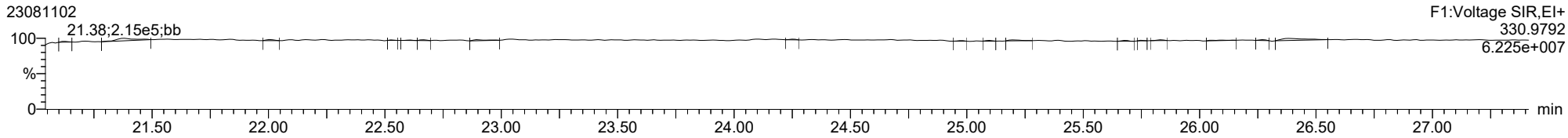
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13C-2378-TCDD

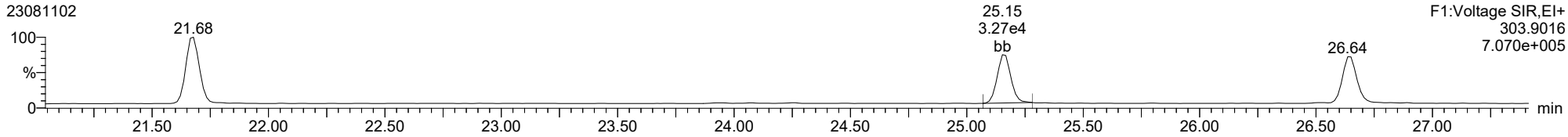


FUNCTION1 PFK

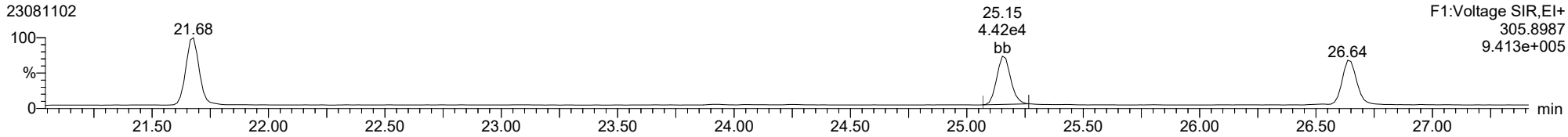


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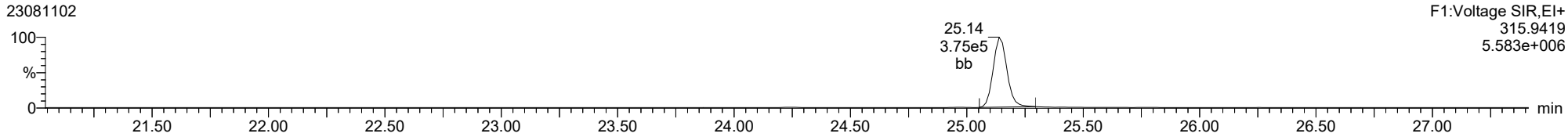
2378-TCDF



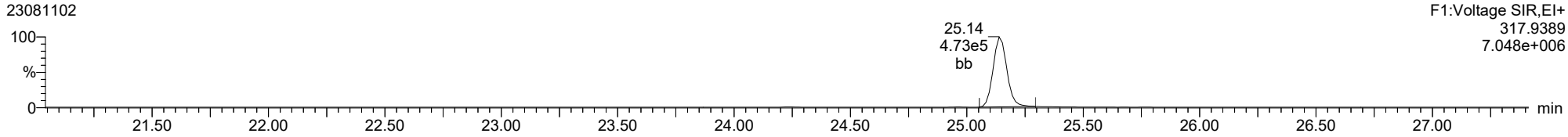
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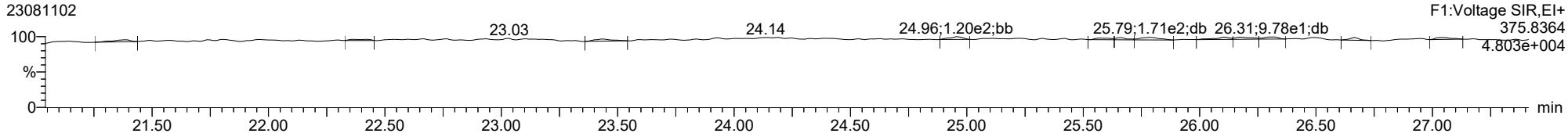
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13C-2378-TCDF

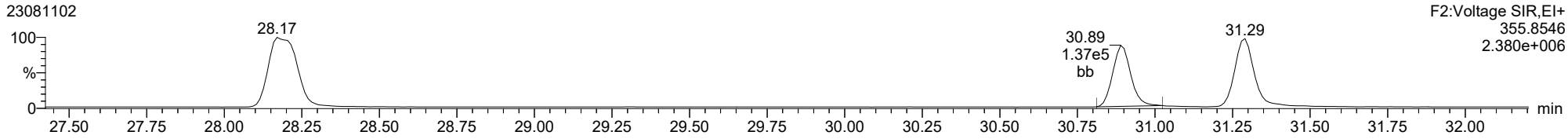


FUNCTION1 HXCDPE

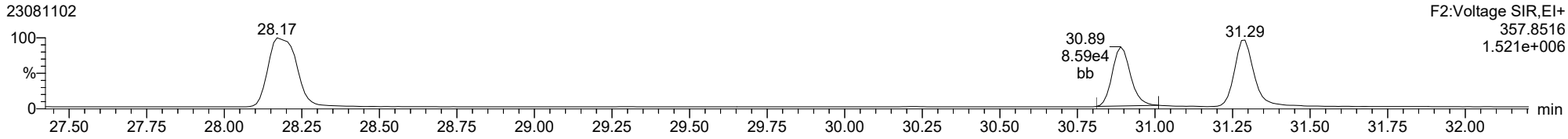


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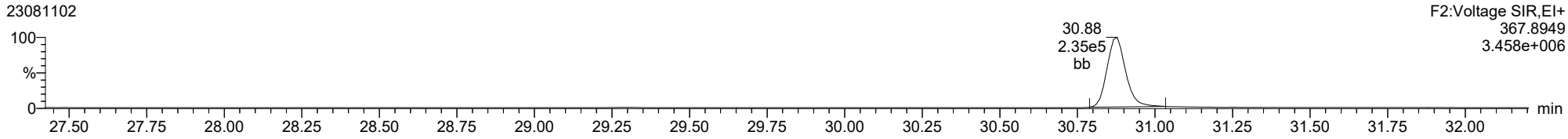
12378-PeCDD



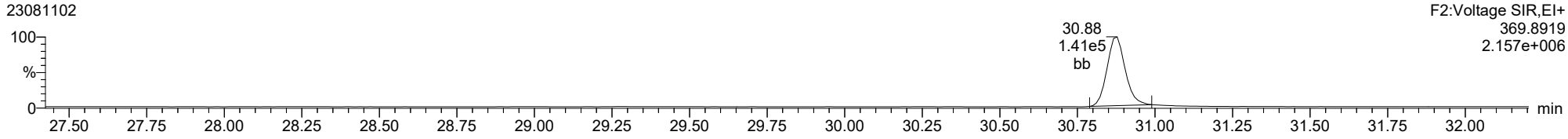
12378-PeCDD



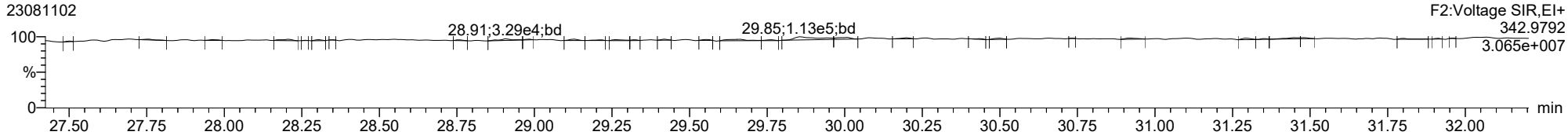
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13C-12378-PeCDD

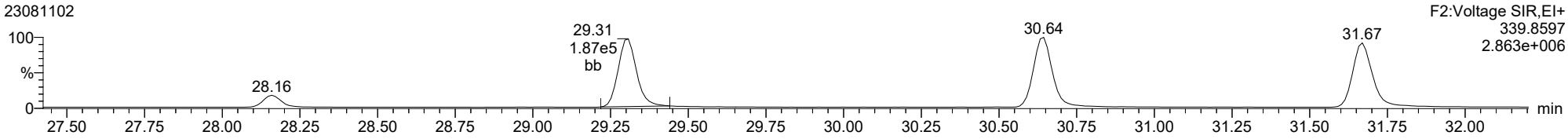


FUNCTION2 PFK

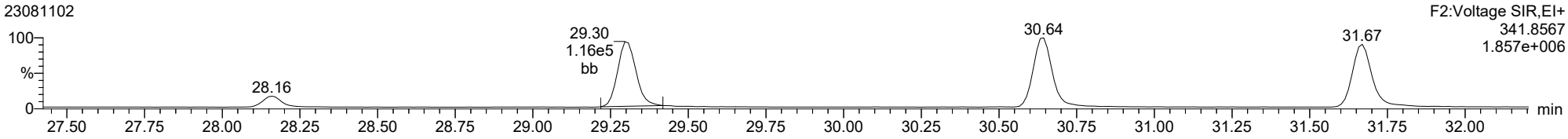


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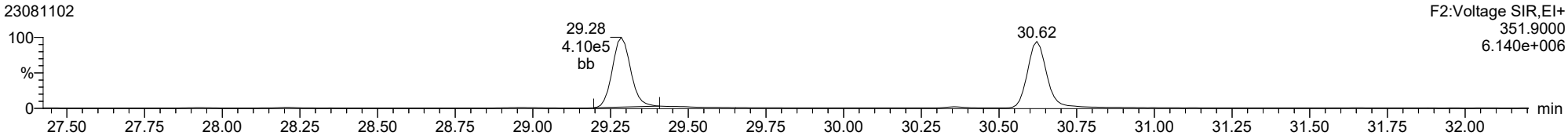
12378-PeCDF



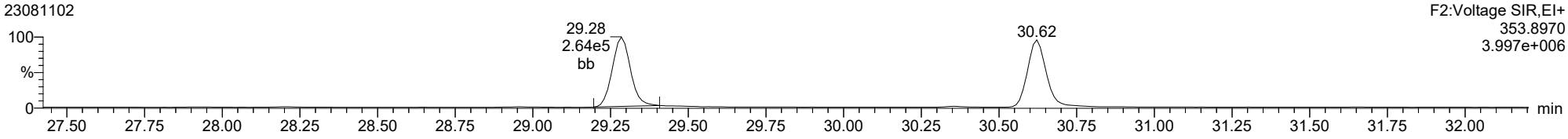
12378-PeCDF



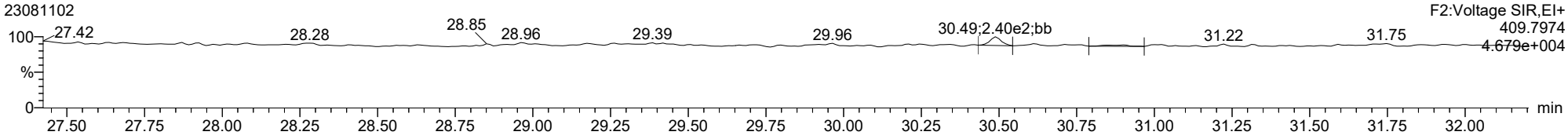
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13C-12378-PeCDF

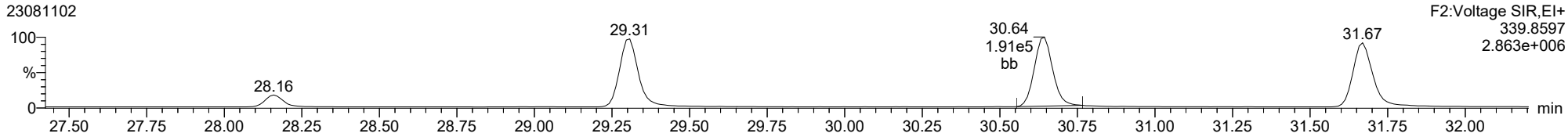


FUNCTION2 HPCDPE

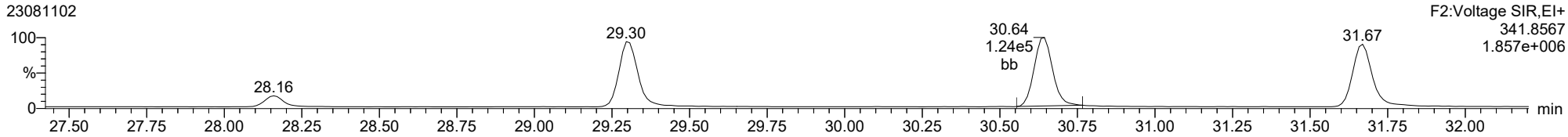


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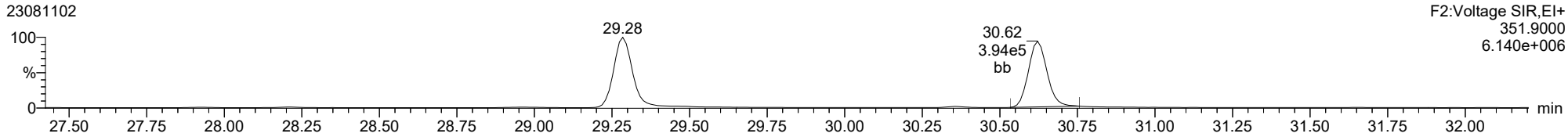
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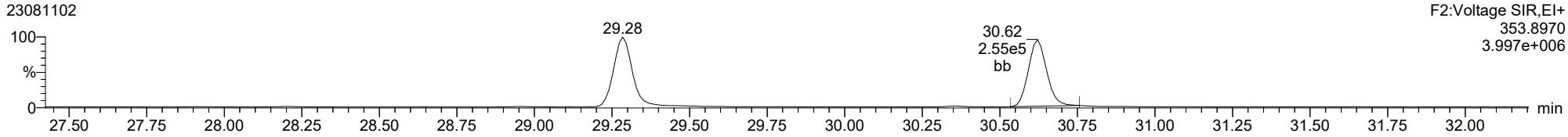
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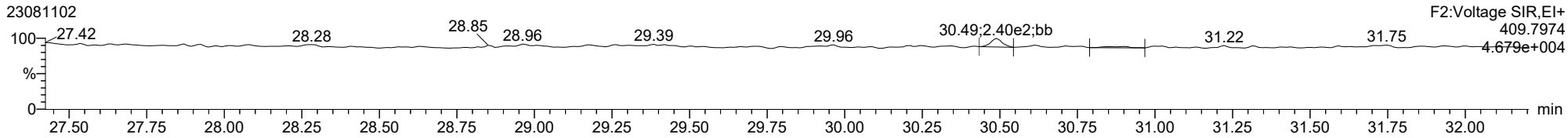
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13C-23478-PeCDF

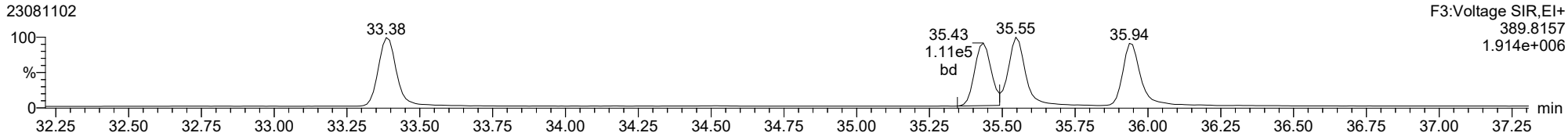


FUNCTION2 HPCDPE

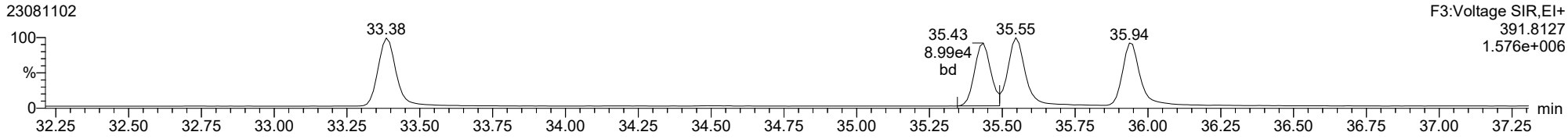


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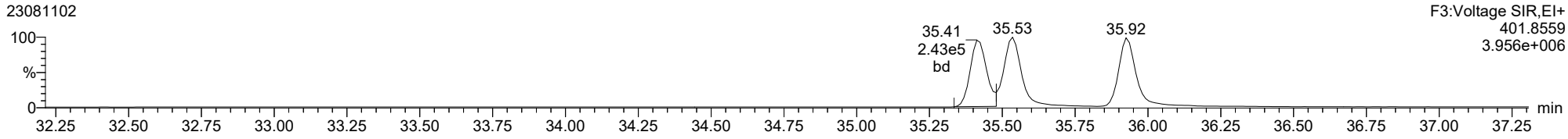
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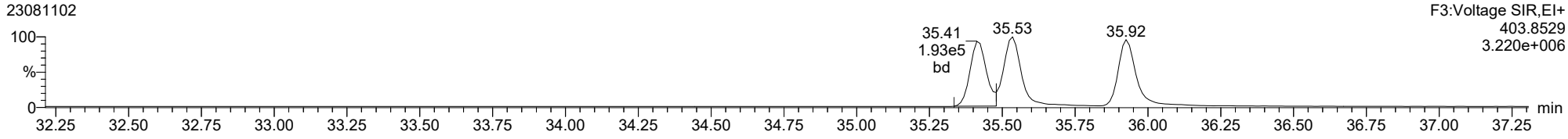
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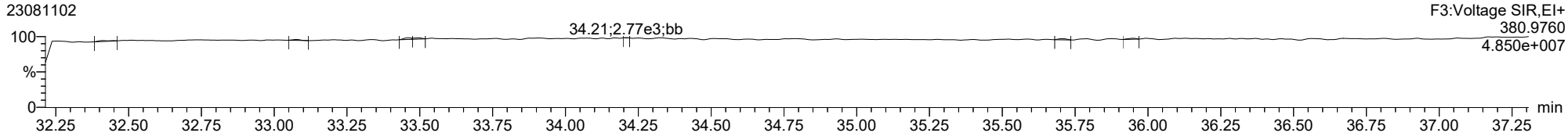
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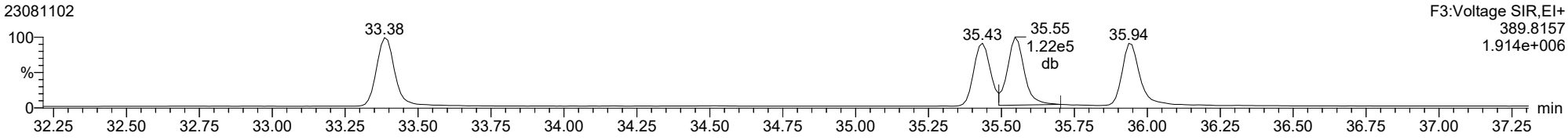


FUNCTION3 PFK

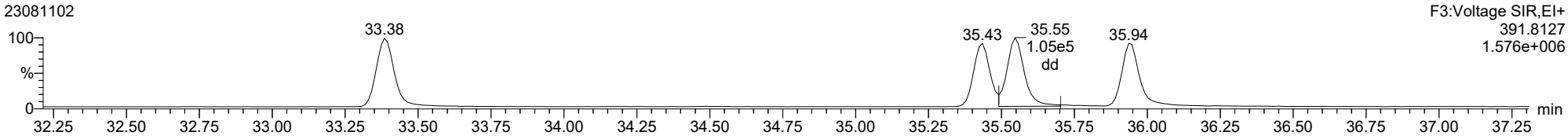


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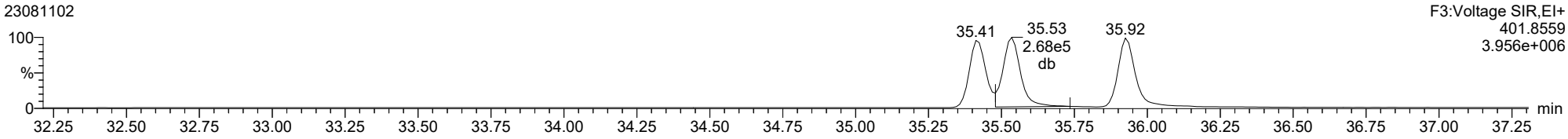
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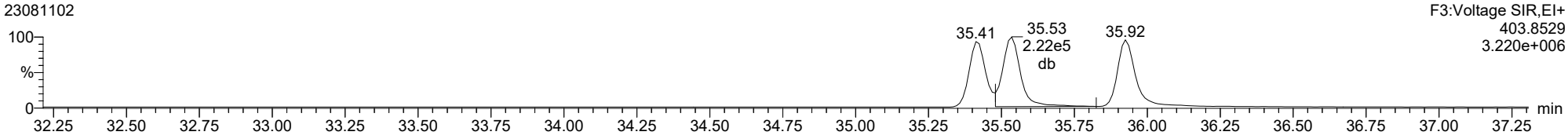
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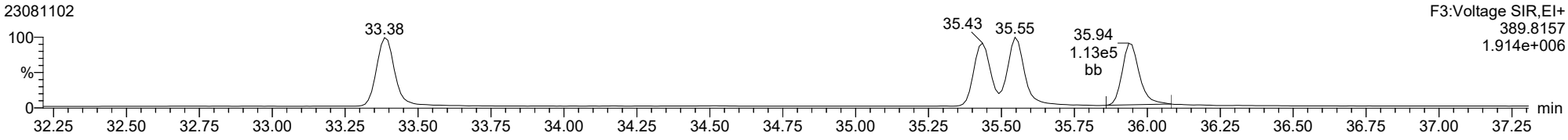


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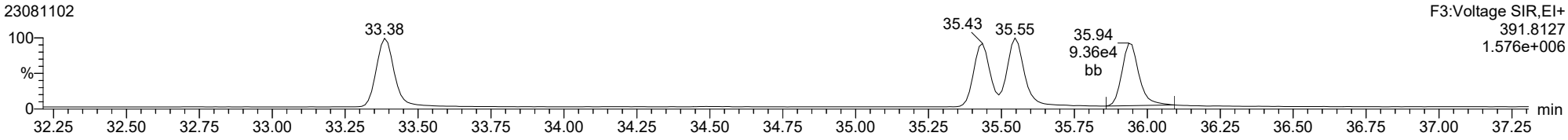


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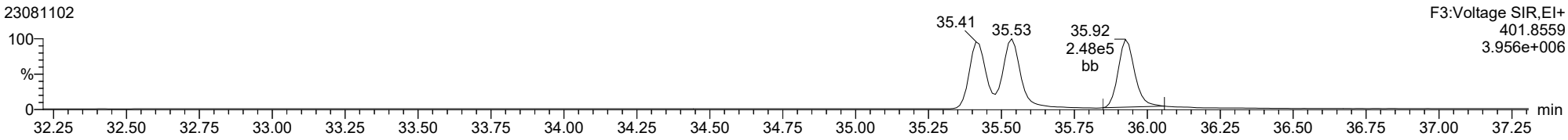
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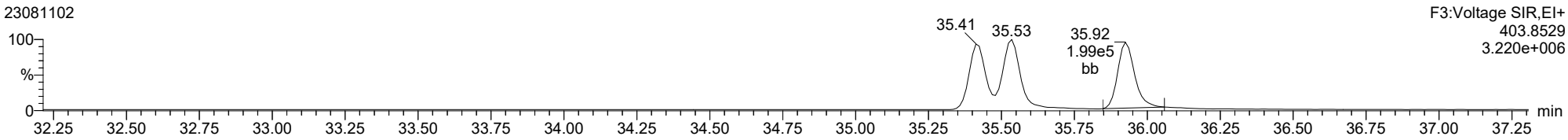
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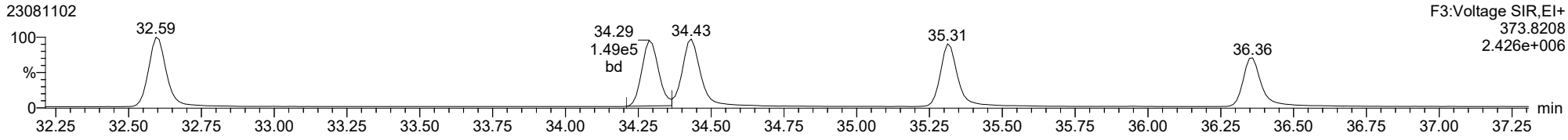


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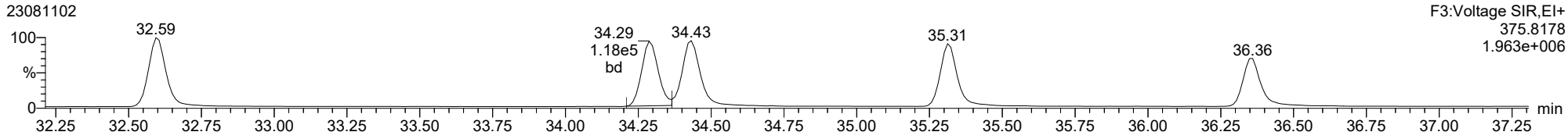


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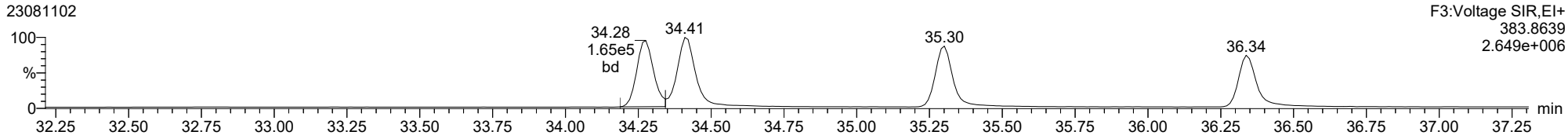
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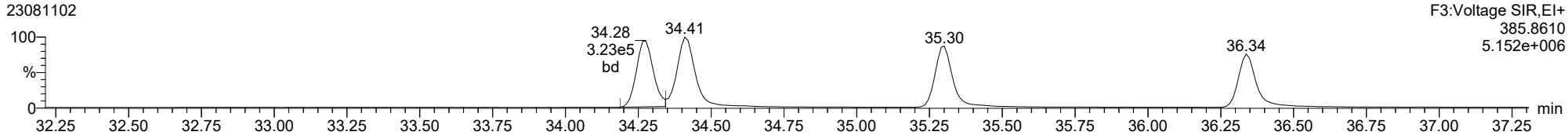
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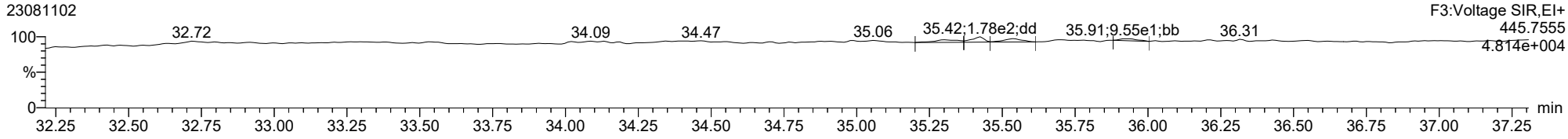
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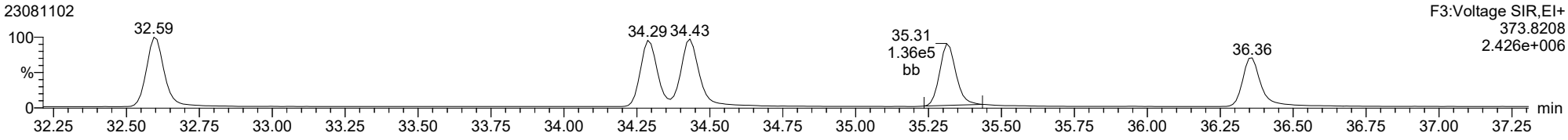


FUNCTION3 OCDPE

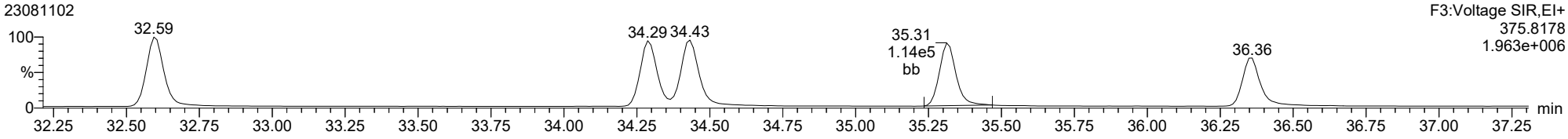


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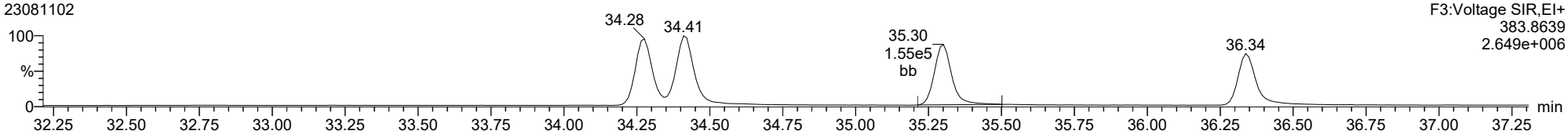
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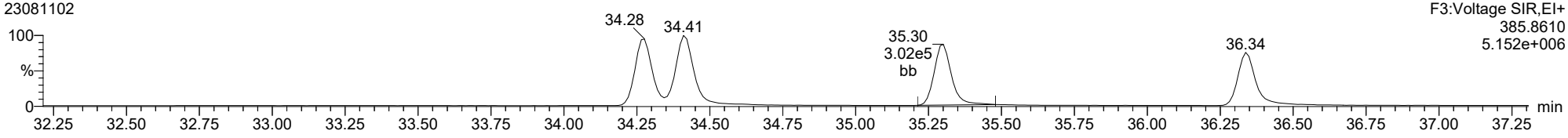
234678-HxCDF



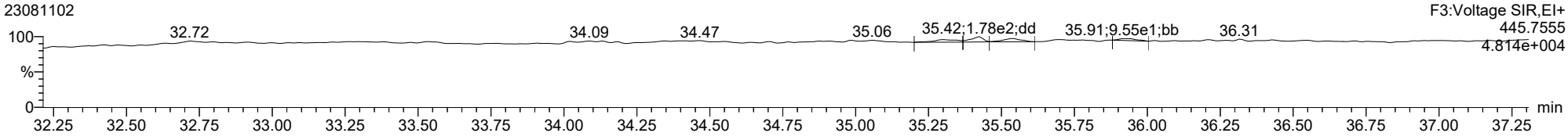
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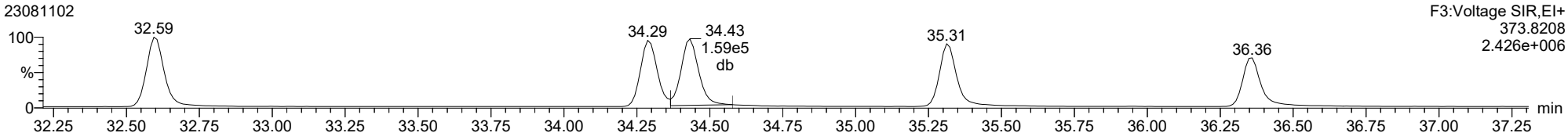


FUNCTION3 OCDPE

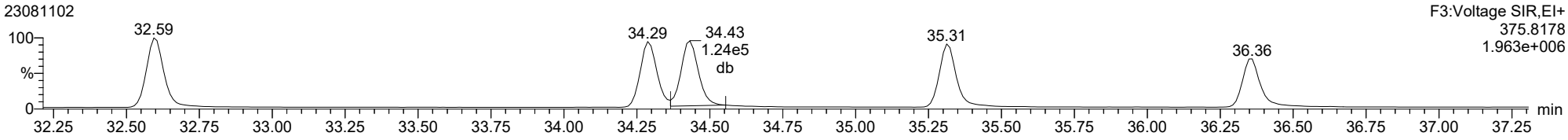


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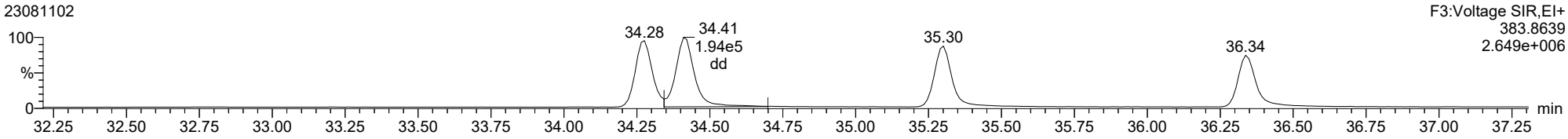
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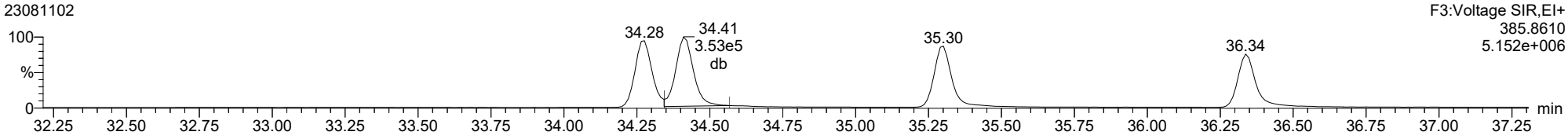
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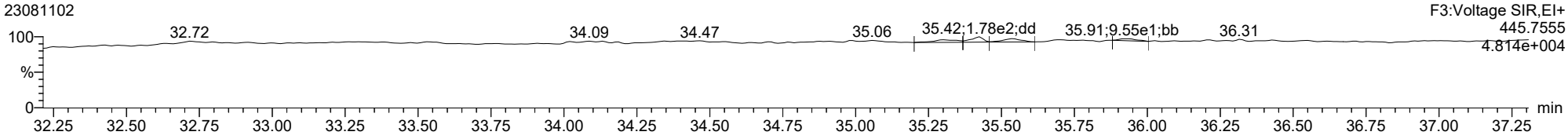
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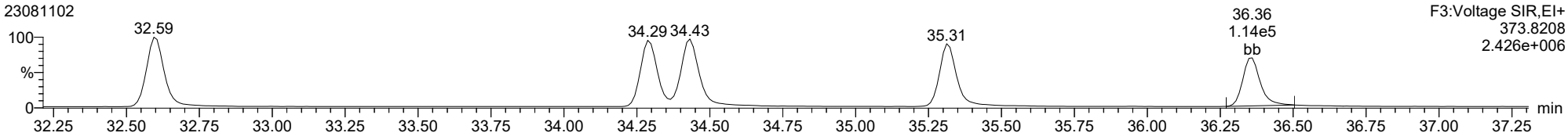


FUNCTION3 OCDPE

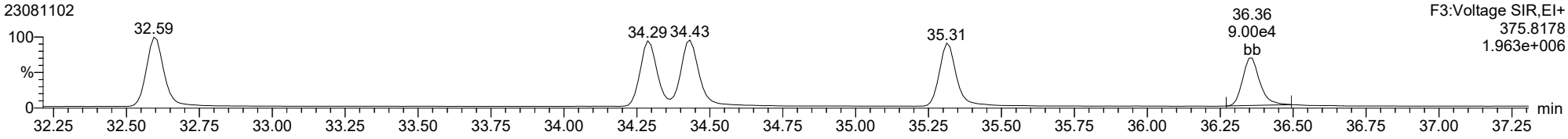


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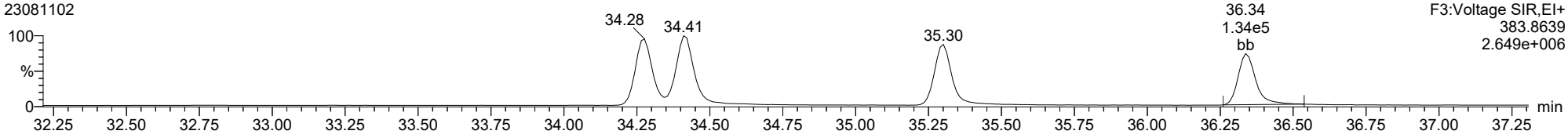
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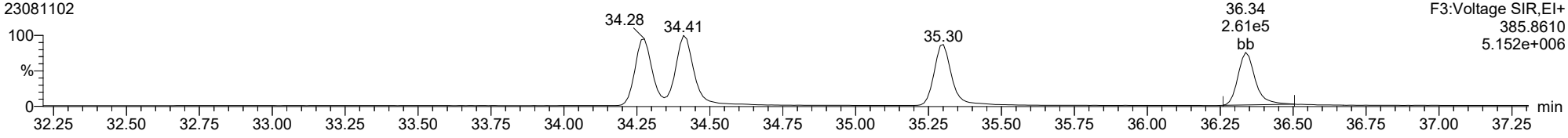
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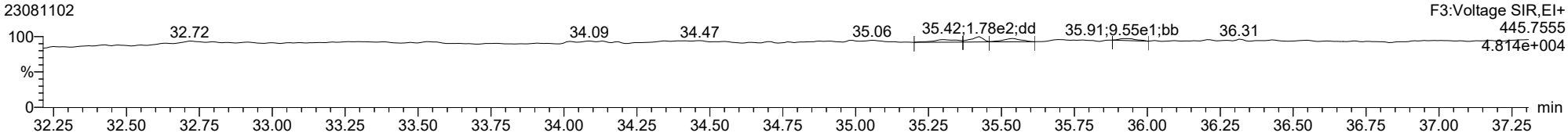
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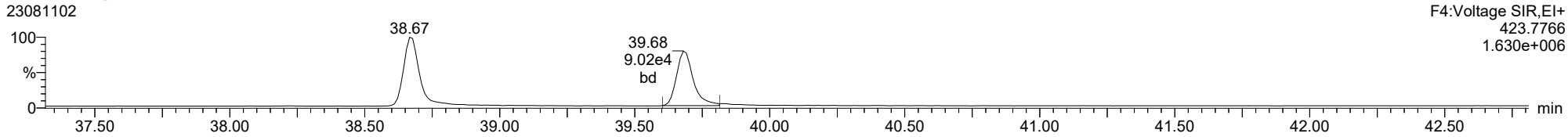


FUNCTION3 OCDPE

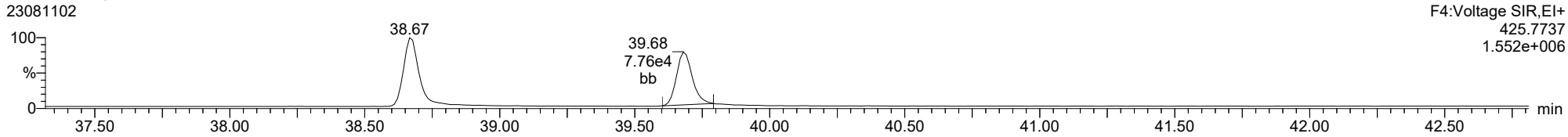


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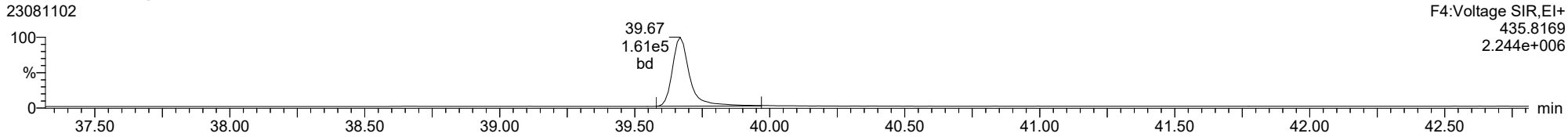
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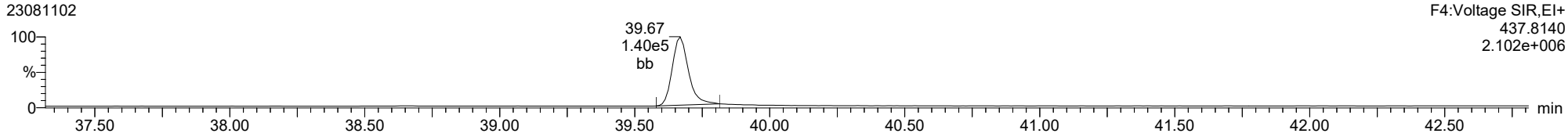
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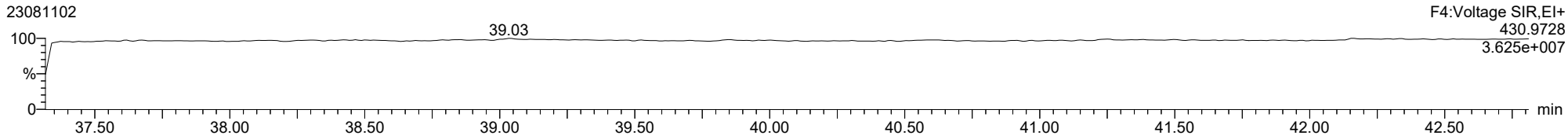
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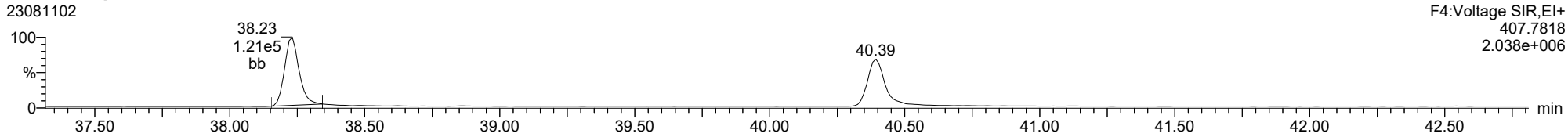


FUNCTION4 PFK

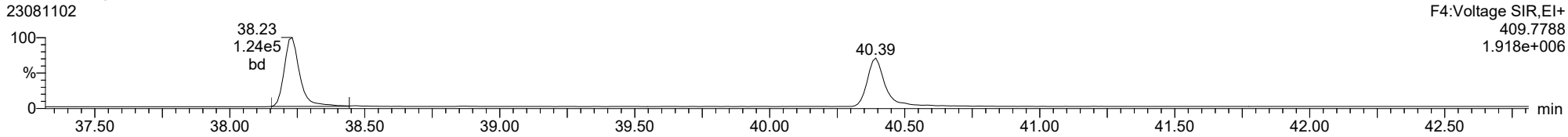


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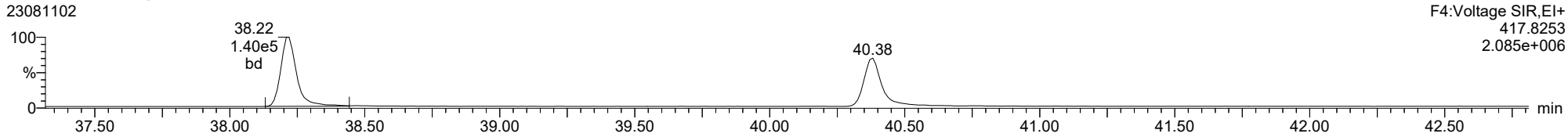
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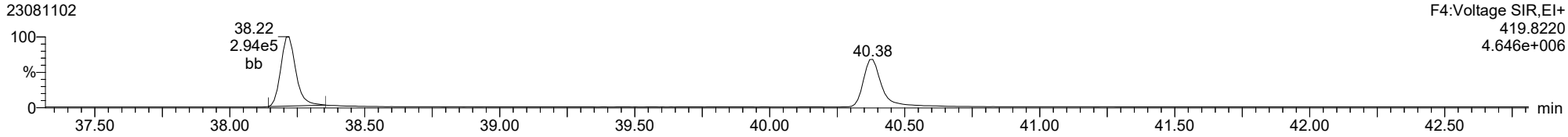
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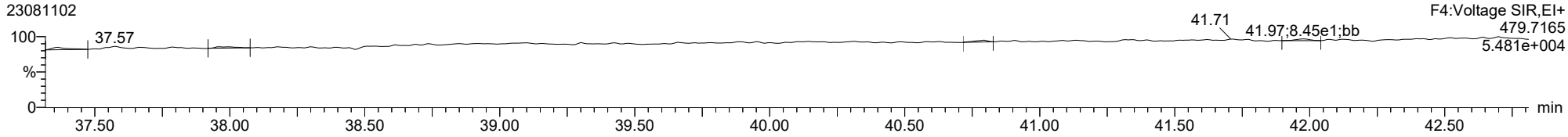
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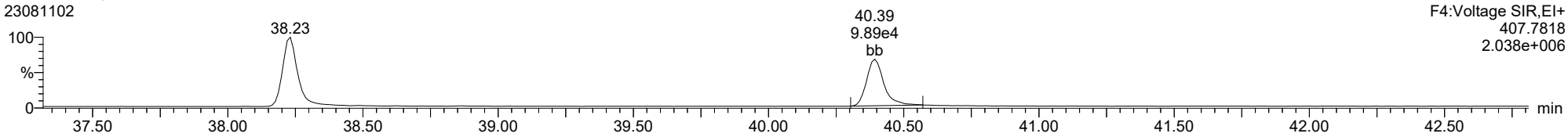


FUNCTION4 NCDPE

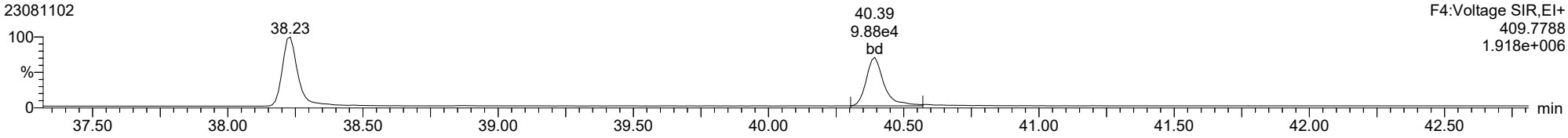


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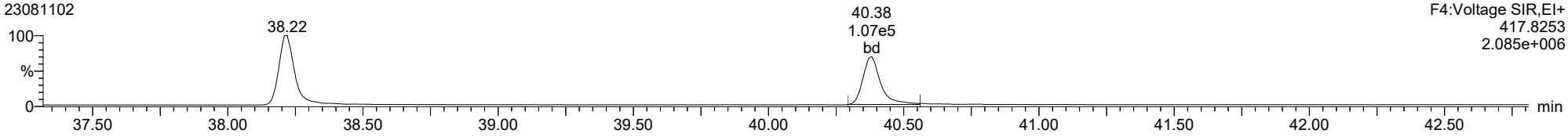
1234789-HpCDF



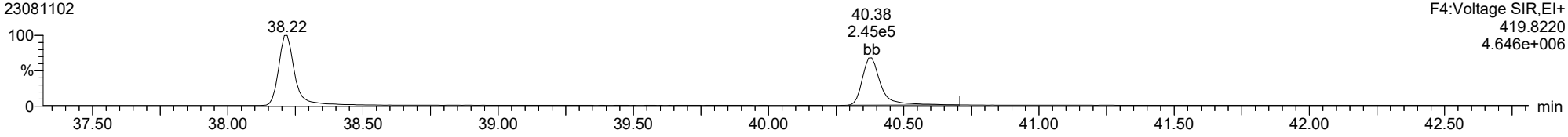
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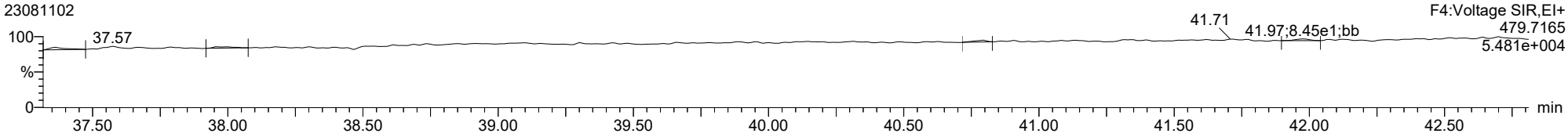
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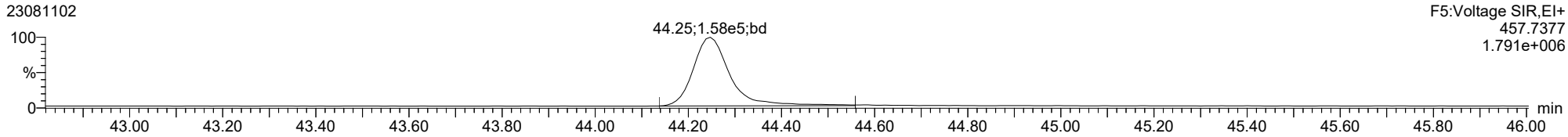


FUNCTION4 NCDPE

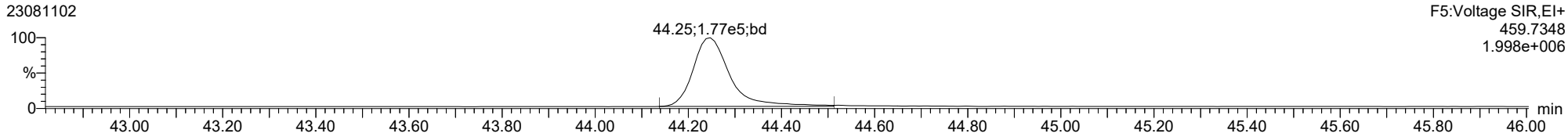


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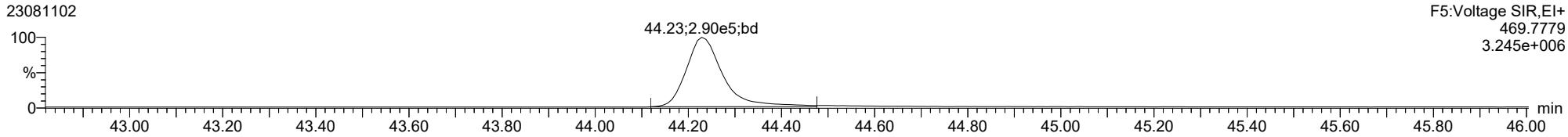
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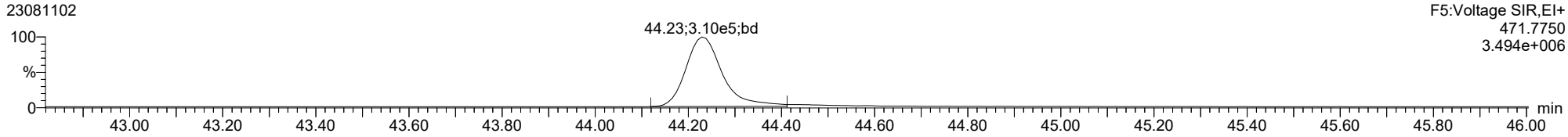
OCDD



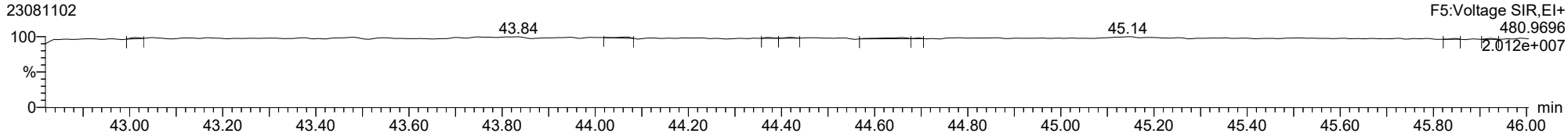
13C-OCDD



13C-OCDD

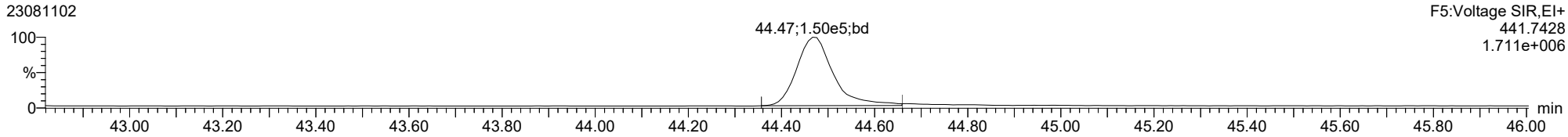


FUNCTION5 PFK

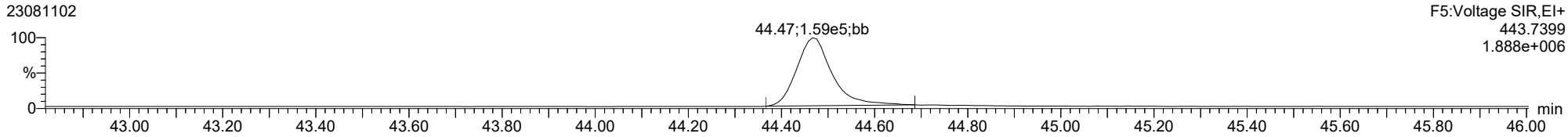


ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

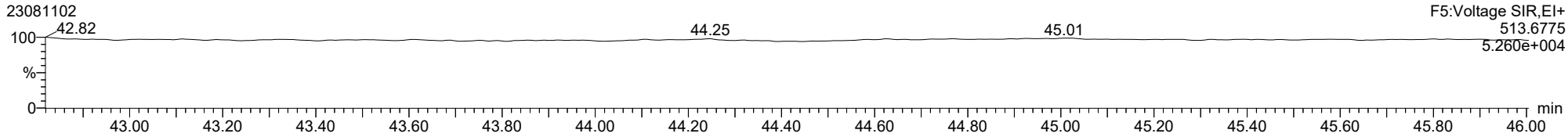
OCDF



OCDF

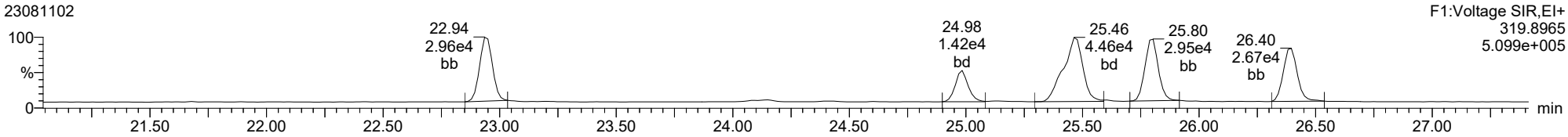


FUNCTION5 DCDPE

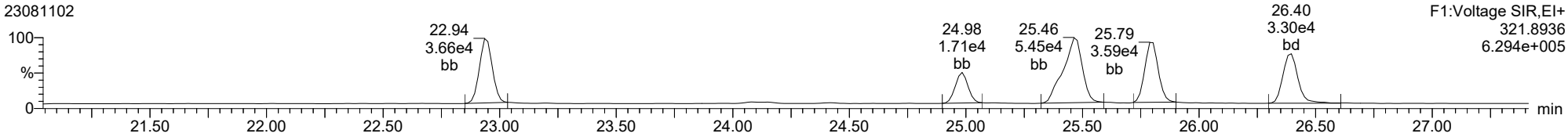


ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

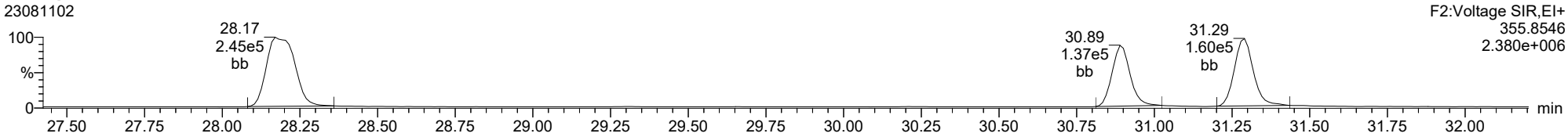
Total-tetradioxins



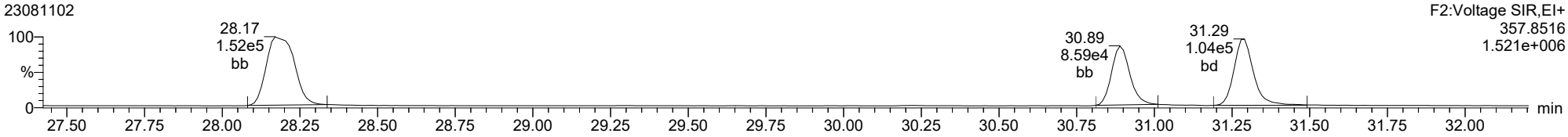
Total-tetradioxins



Total-pentadioxins

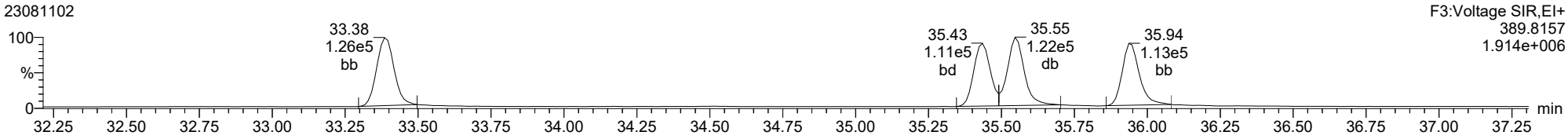


Total-pentadioxins

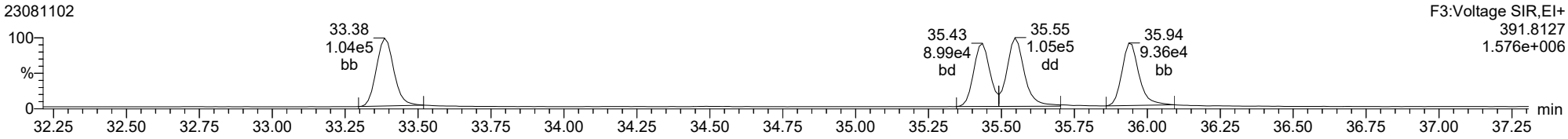


ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

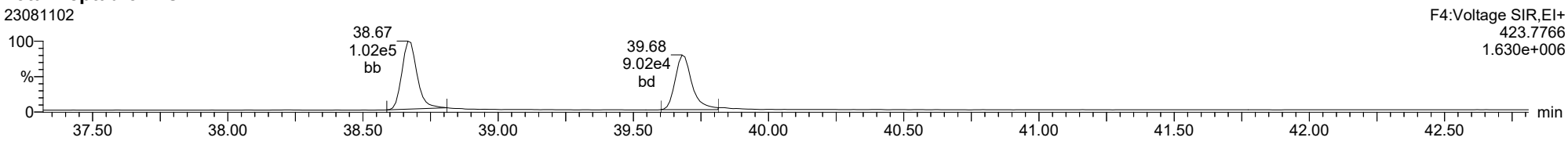
Total-hexadioxins



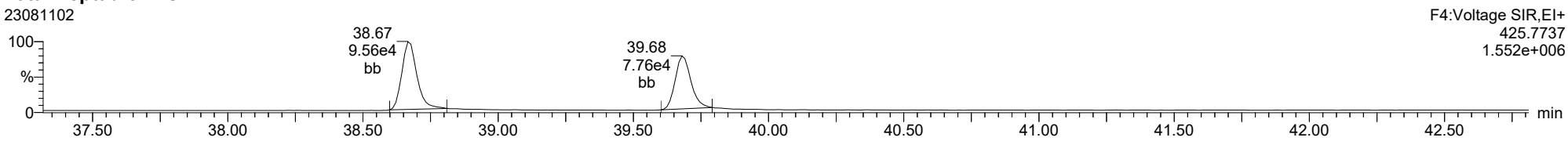
Total-hexadioxins



Total-heptadioxins



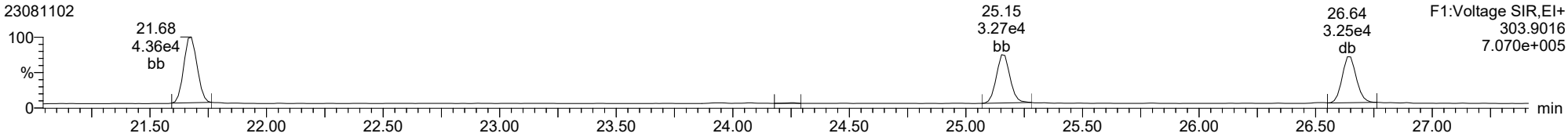
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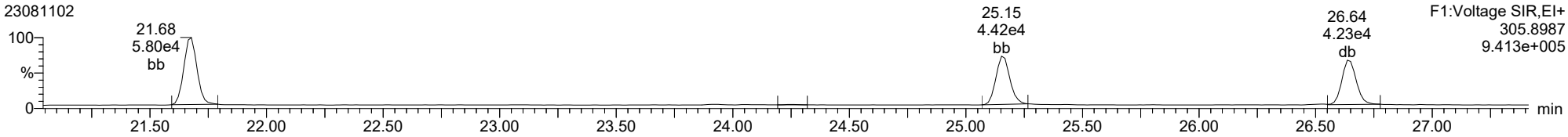
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Last Altered: Tuesday, August 15, 2023 12:21:02 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:22:06 Pacific Daylight Time

ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

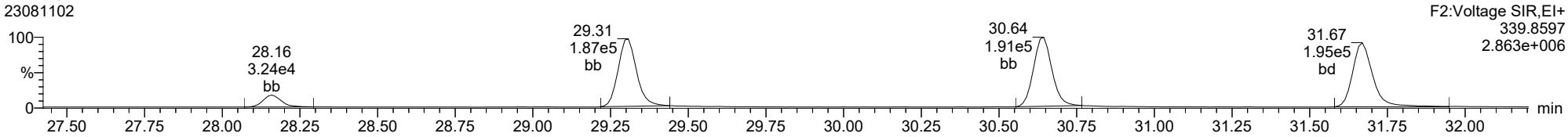
Total-tetrafurans



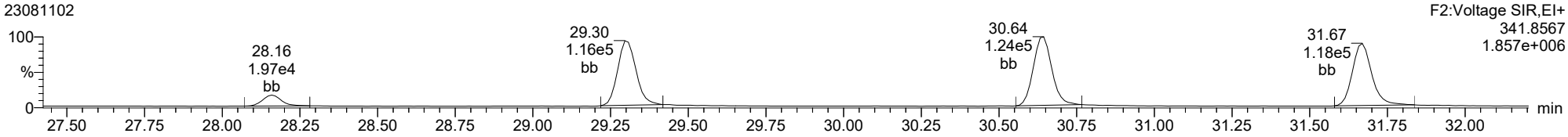
Total-tetrafurans



Total-pentafurans

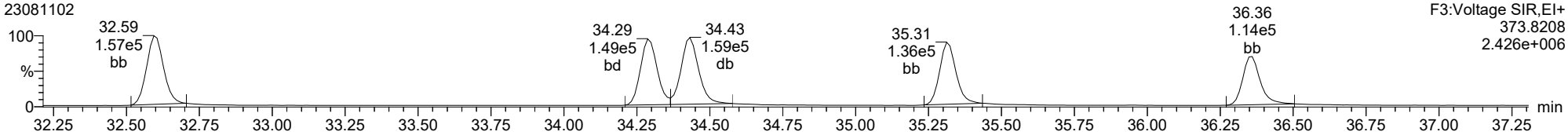


Total-pentafurans

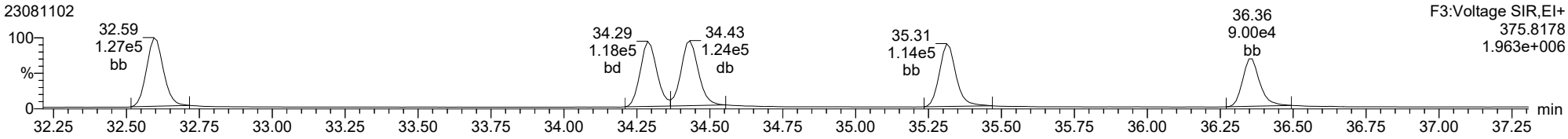


ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

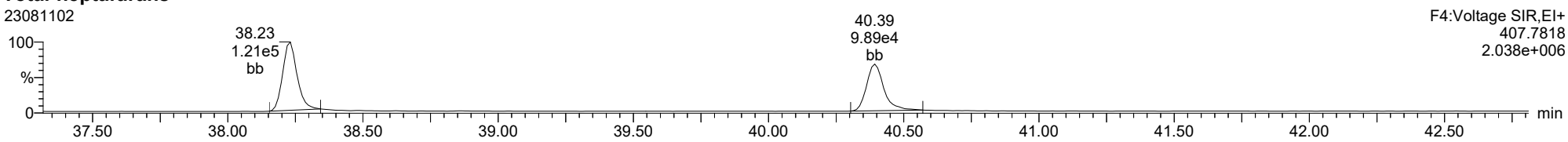
Total-hexafurans



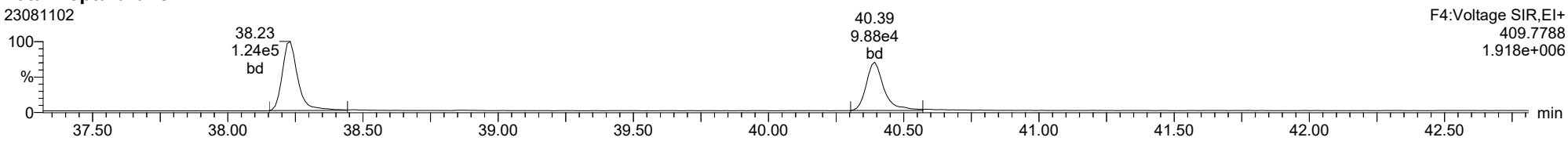
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:23:54 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF					0.903		0.770	620	1084								
12378-PeCDF	29.285	1.000	1.884e3	1.134e3	0.923	1.661	1.550	694	714	2.90e4	1.67e4	41.8	23.4	NO	bb	bb	0.490
23478-PeCDF	30.622	1.000	1.678e3	1.115e3	0.991	1.504	1.550	694	714	2.63e4	1.74e4	37.8	24.3	NO	bb	MM	0.459
123478-HxCDF	34.276	1.000	1.424e3	1.052e3	1.128	1.355	1.240	557	621	1.90e4	1.52e4	34.0	24.4	NO	bd	bd	0.519
234678-HxCDF	35.301	1.000	1.282e3	9.529e2	1.081	1.345	1.240	557	621	1.62e4	1.44e4	29.0	23.3	NO	bd	MM	0.484
123678-HxCDF	34.421	1.001	1.456e3	1.109e3	1.032	1.313	1.240	557	621	2.26e4	1.47e4	40.6	23.7	NO	MM	db	0.486
123789-HxCDF	36.337	1.000	9.213e2	8.373e2	0.988	1.100	1.240	557	621	1.31e4	1.08e4	23.4	17.4	NO	bd	MM	0.487
1234678-HpCDF	38.220	1.000	1.279e3	1.078e3	1.164	1.186	1.050	652	594	1.98e4	1.55e4	30.3	26.1	NO	bb	bb	0.526
1234789-HpCDF	40.382	1.000	7.409e2	6.652e2	1.104	1.114	1.050	652	594	1.15e4	1.20e4	17.6	20.2	NO	bb	bb	0.423
OCDF	44.458	1.005	1.244e3	1.412e3	1.130	0.881	0.890	747	1121	1.70e4	1.59e4	22.7	14.1	NO	bd	bb	0.851
2378-TCDD					1.243		0.770	1009	502								
12378-PeCDD	30.878	1.001	1.244e3	7.881e2	1.150	1.579	1.550	698	698	1.80e4	1.04e4	25.7	14.9	NO	MM	bb	0.492
123478-HxCDD	35.424	1.001	1.264e3	9.051e2	0.960	1.397	1.240	537	779	2.06e4	1.40e4	38.4	18.0	NO	dd	MM	0.597
123678-HxCDD	35.546	1.001	1.088e3	1.016e3	0.883	1.071	1.240	537	779	1.58e4	1.42e4	29.3	18.2	NO	db	db	0.485
123789-HxCDD	35.936	1.012	8.774e2	6.498e2	0.804	1.350	1.240	537	779	1.17e4	1.12e4	21.8	14.4	NO	bb	bb	0.437
1234678-HpCDD	39.657	1.000	1.060e3	9.203e2	1.200	1.152	1.050	800	828	1.59e4	1.09e4	19.9	13.1	NO	MM	bb	0.620
OCDD	44.238	1.000	1.480e3	1.611e3	1.059	0.919	0.890	745	807	1.88e4	1.99e4	25.2	24.6	NO	bb	MM	1.058
13C-2378-TCDF	25.125	1.007	3.809e5	4.791e5	1.835	0.795	0.770	1678	1670	5.47e6	6.97e6	3260.3	4171.6	NO	bb	bb	99.573
13C-12378-PeCDF	29.274	1.174	3.978e5	2.690e5	1.377	1.479	1.550	2452	1825	5.52e6	3.61e6	2253.4	1977.4	NO	bb	bd	102.939
13C-23478-PeCDF	30.611	1.227	3.737e5	2.411e5	1.301	1.550	1.550	2452	1825	5.25e6	3.34e6	2140.6	1832.6	NO	bb	bb	100.404
13C-123478-HxCDF	34.265	0.954	1.433e5	2.793e5	1.091	0.513	0.510	1837	2437	2.05e6	4.04e6	1114.0	1659.7	NO	bd	bd	93.276
13C-123678-HxCDF	34.398	0.958	1.744e5	3.373e5	1.340	0.517	0.510	1837	2437	2.22e6	4.36e6	1206.1	1788.4	NO	db	db	91.895
13C-234678-HxCDF	35.290	0.983	1.411e5	2.858e5	1.093	0.494	0.510	1837	2437	1.89e6	3.72e6	1026.7	1525.6	NO	bb	bb	93.953
13C-123789-HxCDF	36.326	1.012	1.194e5	2.460e5	0.952	0.486	0.510	1837	2437	1.61e6	3.15e6	878.8	1293.2	NO	bb	bd	92.425
13C-1234678-HpCDF	38.209	1.064	1.196e5	2.660e5	0.985	0.450	0.440	1900	2426	1.78e6	3.88e6	937.8	1599.4	NO	bb	bb	94.213
13C-1234789-HpCDF	40.370	1.124	9.081e4	2.101e5	0.756	0.432	0.440	1900	2426	1.18e6	2.64e6	620.8	1088.8	NO	bb	bb	95.819
13C-1234-TCDD	24.941	0.000	2.078e5	2.628e5	1.000	0.791	0.770	1573	1080	3.13e6	3.99e6	1989.5	3694.9	NO	bb	bb	100.000
13C-2378-TCDD	25.760	1.033	2.247e5	2.876e5	1.110	0.781	0.770	1573	1080	3.38e6	4.29e6	2151.4	3969.2	NO	bb	bb	98.128
13C-12378-PeCDD	30.855	1.237	2.225e5	1.369e5	0.754	1.625	1.550	1069	1005	3.13e6	1.95e6	2925.3	1945.2	NO	bb	bb	101.357
13C-123478-HxCDD	35.401	0.986	2.102e5	1.681e5	0.960	1.250	1.240	2398	2304	3.26e6	2.62e6	1360.6	1138.7	NO	bd	bd	94.853
13C-123678-HxCDD	35.524	0.989	2.731e5	2.188e5	1.159	1.248	1.240	2398	2304	3.39e6	2.76e6	1413.4	1196.6	NO	db	dd	102.128
13C-1234678-HpCDD	39.657	1.104	1.414e5	1.248e5	0.629	1.133	1.050	1206	1681	1.79e6	1.67e6	1480.9	994.5	NO	bd	bb	101.840
13C-OCDD	44.220	1.231	2.620e5	2.900e5	0.635	0.904	0.890	2308	3179	2.71e6	2.93e6	1172.9	920.5	NO	bd	bd	209.162
13C-123789-HxCDD	35.914	0.000	2.382e5	1.773e5	1.000	1.343	1.240	2398	2304	3.12e6	2.48e6	1302.6	1074.2	NO	bd	bb	100.000
37CL-2378-TCDD	25.774	1.033	5.623e2		1.157			715		6.32e3		8.8			bb		0.103

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:23:54 Pacific Daylight Time

ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.170		0.770	620	1084								
1289-TCDF					0.847		0.770	620	1084								
13468-PECDF					1.241		1.550	569	726								
12389-PECDF					0.880		1.550	694	714								
123468-HXCDF					1.206		1.240	557	621								
1368-TCDD					1.181		0.770	1009	502								
1289-TCDD					0.963		0.770	1009	502								
12479-PECDD					2.166		1.550	698	698								
12389-PECDD					1.326		1.550	698	698								
124679-HXCDD					1.127		1.240	537	779								
1234679-HPCDD					1.303		1.050	800	828								
Total-tetrafurans			0.000e0		0.973			620		0.00e0							
Total-penta1			0.000e0					569		0.00e0							
Total-pentafurans			3.561e3		0.931			694		5.53e4							0.949
Total-hexafurans			5.083e3		1.087			557		7.08e4							1.976
Total-heptafurans			2.020e3		1.134			652		3.12e4							0.949
Total-Furans			1.191e4		1.053			620		1.74e5							4.725
Total-tetradioxins			0.000e0		1.129			1009		0.00e0							
Total-pentadioxins			1.244e3		1.548			698		1.80e4							0.492
Total-hexadioxins			3.230e3		0.943			537		4.81e4							1.519
Total-heptadioxins			1.060e3		1.251			800		1.59e4							0.620
Total-Dioxins			7.014e3		1.182			1009		1.01e5							3.688
Total-TEQ			1.892e4					1009		2.75e5							8.413
FUNCTION1 PFK			6.705e5					413218		1.14e7							
FUNCTION2 PFK			7.487e5					282117		1.93e7							0.000
FUNCTION3 PFK			0.000e0					352784		0.00e0							
FUNCTION4 PFK			2.154e4					324184		7.26e5							
FUNCTION5 PFK			1.598e5					219229		6.10e6							
FUNCTION1 HXCD...			0.000e0					576		0.00e0							
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			2.109e2					630		4.06e3							0.000
FUNCTION3 OCDPE			2.113e2					513		2.77e3							0.000
FUNCTION4 NCDPE			0.000e0					613		0.00e0							
FUNCTION5 DCDPE			1.021e2					592		2.13e3							0.000

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.62	1.678e3	1.115e3	0.991	1.50	1.55	37.8	YES	NO	bb	MM	0.459
2	12378-PeCDF	29.28	1.884e3	1.134e3	0.923	1.66	1.55	41.8	YES	NO	bb	bb	0.490

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	234678-HxCDF	35.30	1.282e3	9.529e2	1.081	1.35	1.24	29.0	YES	NO	bd	MM	0.484
2	123678-HxCDF	34.42	1.456e3	1.109e3	1.032	1.31	1.24	40.6	YES	NO	MM	db	0.486
3	123478-HxCDF	34.28	1.424e3	1.052e3	1.128	1.35	1.24	34.0	YES	NO	bd	bd	0.519
4	123789-HxCDF	36.34	9.213e2	8.373e2	0.988	1.10	1.24	23.4	YES	NO	bd	MM	0.487

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.22	1.279e3	1.078e3	1.164	1.19	1.05	30.3	YES	NO	bb	bb	0.526
2	1234789-HpCDF	40.38	7.409e2	6.652e2	1.104	1.11	1.05	17.6	YES	NO	bb	bb	0.423

ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	234678-HxCDF	35.30	1.282e3	9.529e2	1.081	1.35	1.24	29.0	YES	NO	bd	MM	0.484
2	123678-HxCDF	34.42	1.456e3	1.109e3	1.032	1.31	1.24	40.6	YES	NO	MM	db	0.486
3	123478-HxCDF	34.28	1.424e3	1.052e3	1.128	1.35	1.24	34.0	YES	NO	bd	bd	0.519
4	23478-PeCDF	30.62	1.678e3	1.115e3	0.991	1.50	1.55	37.8	YES	NO	bb	MM	0.459
5	12378-PeCDF	29.28	1.884e3	1.134e3	0.923	1.66	1.55	41.8	YES	NO	bb	bb	0.490
6	1234678-HpCDF	38.22	1.279e3	1.078e3	1.164	1.19	1.05	30.3	YES	NO	bb	bb	0.526
7	123789-HxCDF	36.34	9.213e2	8.373e2	0.988	1.10	1.24	23.4	YES	NO	bd	MM	0.487
8	OCDF	44.46	1.244e3	1.412e3	1.130	0.88	0.89	22.7	YES	NO	bd	bb	0.851
9	1234789-HpCDF	40.38	7.409e2	6.652e2	1.104	1.11	1.05	17.6	YES	NO	bb	bb	0.423

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.88	1.244e3	7.881e2	1.150	1.58	1.55	25.7	YES	NO	MM	bb	0.492

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.94	8.774e2	6.498e2	0.804	1.35	1.24	21.8	YES	NO	bb	bb	0.437
2	123678-HxCDD	35.55	1.088e3	1.016e3	0.883	1.07	1.24	29.3	YES	NO	db	db	0.485
3	123478-HxCDD	35.42	1.264e3	9.051e2	0.960	1.40	1.24	38.4	YES	NO	dd	MM	0.597

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.66	1.060e3	9.203e2	1.200	1.15	1.05	19.9	YES	NO	MM	bb	0.620

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:23:54 Pacific Daylight Time

ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.94	8.774e2	6.498e2	0.804	1.35	1.24	21.8	YES	NO	bb	bb	0.437
2	123678-HxCDD	35.55	1.088e3	1.016e3	0.883	1.07	1.24	29.3	YES	NO	db	db	0.485
3	123478-HxCDD	35.42	1.264e3	9.051e2	0.960	1.40	1.24	38.4	YES	NO	dd	MM	0.597
4	12378-PeCDD	30.88	1.244e3	7.881e2	1.150	1.58	1.55	25.7	YES	NO	MM	bb	0.492
5	OCDD	44.24	1.480e3	1.611e3	1.059	0.92	0.89	25.2	YES	NO	bb	MM	1.058
6	1234678-HpCDD	39.66	1.060e3	9.203e2	1.200	1.15	1.05	19.9	YES	NO	MM	bb	0.620

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	234678-HxCDF	35.30	1.282e3	9.529e2	1.081	1.35	1.24	29.0	YES	NO	bd	MM	0.484
2	123678-HxCDF	34.42	1.456e3	1.109e3	1.032	1.31	1.24	40.6	YES	NO	MM	db	0.486
3	123478-HxCDF	34.28	1.424e3	1.052e3	1.128	1.35	1.24	34.0	YES	NO	bd	bd	0.519
4	23478-PeCDF	30.62	1.678e3	1.115e3	0.991	1.50	1.55	37.8	YES	NO	bb	MM	0.459
5	12378-PeCDF	29.28	1.884e3	1.134e3	0.923	1.66	1.55	41.8	YES	NO	bb	bb	0.490
6	1234678-HpCDF	38.22	1.279e3	1.078e3	1.164	1.19	1.05	30.3	YES	NO	bb	bb	0.526
7	123789-HxCDF	36.34	9.213e2	8.373e2	0.988	1.10	1.24	23.4	YES	NO	bd	MM	0.487
8	OCDF	44.46	1.244e3	1.412e3	1.130	0.88	0.89	22.7	YES	NO	bd	bb	0.851
9	1234789-HpCDF	40.38	7.409e2	6.652e2	1.104	1.11	1.05	17.6	YES	NO	bb	bb	0.423
10	123789-HxCDD	35.94	8.774e2	6.498e2	0.804	1.35	1.24	21.8	YES	NO	bb	bb	0.437
11	123678-HxCDD	35.55	1.088e3	1.016e3	0.883	1.07	1.24	29.3	YES	NO	db	db	0.485
12	123478-HxCDD	35.42	1.264e3	9.051e2	0.960	1.40	1.24	38.4	YES	NO	dd	MM	0.597
13	12378-PeCDD	30.88	1.244e3	7.881e2	1.150	1.58	1.55	25.7	YES	NO	MM	bb	0.492
14	OCDD	44.24	1.480e3	1.611e3	1.059	0.92	0.89	25.2	YES	NO	bb	MM	1.058
15	1234678-HpCDD	39.66	1.060e3	9.203e2	1.200	1.15	1.05	19.9	YES	NO	MM	bb	0.620

ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	27.33	7.051e4					2.0	NO		bb		
2	FUNCTION1 PFK	26.51	8.607e4					2.9	NO		bb		
3	FUNCTION1 PFK	25.58	7.848e4					2.2	NO		bb		
4	FUNCTION1 PFK	24.45	7.780e4					3.9	YES		bb		
5	FUNCTION1 PFK	23.99	3.124e4					1.6	NO		bb		
6	FUNCTION1 PFK	23.18	5.543e4					2.6	NO		bb		
7	FUNCTION1 PFK	23.02	5.454e4					2.2	NO		bb		
8	FUNCTION1 PFK	22.86	2.387e4					1.6	NO		bb		
9	FUNCTION1 PFK	21.38	1.061e5					2.6	NO		db		
10	FUNCTION1 PFK	21.32	3.918e4					2.4	NO		bd		
11	FUNCTION1 PFK	21.16	2.365e4					2.1	NO		db		
12	FUNCTION1 PFK	21.13	2.362e4					1.6	NO		bd		

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ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.45	1.899e4					1.2	NO		bb		0.000
2	FUNCTION2 PFK	29.21	6.358e4					1.7	NO		bb		0.000
3	FUNCTION2 PFK	29.04	1.204e4					1.0	NO		bb		0.000
4	FUNCTION2 PFK	28.79	1.769e4					1.9	NO		db		0.000
5	FUNCTION2 PFK	28.72	2.654e4					2.1	NO		bd		0.000
6	FUNCTION2 PFK	28.65	8.539e3					1.2	NO		db		0.000
7	FUNCTION2 PFK	28.60	8.457e3					1.1	NO		bd		0.000
8	FUNCTION2 PFK	28.44	1.958e3					0.4	NO		bb		0.000
9	FUNCTION2 PFK	28.39	3.544e3					0.8	NO		bb		0.000
10	FUNCTION2 PFK	27.98	4.790e3					0.8	NO		db		0.000
11	FUNCTION2 PFK	27.94	1.066e4					1.6	NO		dd		0.000
12	FUNCTION2 PFK	27.90	2.600e4					2.5	NO		bd		0.000
13	FUNCTION2 PFK	27.84	1.458e3					0.5	NO		bb		0.000
14	FUNCTION2 PFK	27.62	4.636e4					2.4	NO		bb		0.000
15	FUNCTION2 PFK	27.51	1.812e4					2.0	NO		db		0.000
16	FUNCTION2 PFK	27.47	2.559e4					2.6	NO		bd		0.000
17	FUNCTION2 PFK	30.73	5.726e4					2.3	NO		bb		0.000
18	FUNCTION2 PFK	30.57	3.668e3					0.8	NO		db		0.000
19	FUNCTION2 PFK	30.52	3.079e4					2.3	NO		bd		0.000
20	FUNCTION2 PFK	30.41	1.410e4					1.2	NO		bb		0.000
21	FUNCTION2 PFK	30.29	7.170e3					1.1	NO		bb		0.000
22	FUNCTION2 PFK	30.21	1.308e4					1.4	NO		bb		0.000
23	FUNCTION2 PFK	30.10	4.503e3					0.6	NO		db		0.000
24	FUNCTION2 PFK	30.05	1.008e4					1.5	NO		dd		0.000
25	FUNCTION2 PFK	30.02	1.789e4					1.8	NO		dd		0.000
26	FUNCTION2 PFK	29.98	1.502e4					1.7	NO		bd		0.000
27	FUNCTION2 PFK	29.89	2.330e4					2.5	NO		db		0.000
28	FUNCTION2 PFK	29.83	1.834e4					2.0	NO		dd		0.000
29	FUNCTION2 PFK	29.75	3.782e4					2.3	NO		dd		0.000
30	FUNCTION2 PFK	29.70	1.853e4					1.6	NO		bd		0.000
31	FUNCTION2 PFK	29.62	4.685e3					0.8	NO		bb		0.000
32	FUNCTION2 PFK	29.56	2.778e3					0.5	NO		bb		0.000
33	FUNCTION2 PFK	32.08	5.572e3					0.7	NO		bb		0.000
34	FUNCTION2 PFK	31.91	3.439e4					2.3	NO		bb		0.000
35	FUNCTION2 PFK	31.82	8.072e3					1.1	NO		db		0.000
36	FUNCTION2 PFK	31.78	9.469e3					1.1	NO		bd		0.000
37	FUNCTION2 PFK	31.58	4.107e3					0.8	NO		bb		0.000

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION2 PFK	31.54	1.047e4					1.2	NO		bb		0.000
39	FUNCTION2 PFK	31.46	7.901e3					1.1	NO		bb		0.000
40	FUNCTION2 PFK	31.40	1.825e3					0.6	NO		bb		0.000
41	FUNCTION2 PFK	31.29	1.391e4					1.5	NO		bb		0.000
42	FUNCTION2 PFK	31.22	4.769e3					0.6	NO		bb		0.000
43	FUNCTION2 PFK	31.18	3.877e3					0.8	NO		bb		0.000
44	FUNCTION2 PFK	31.11	1.368e4					1.6	NO		db		0.000
45	FUNCTION2 PFK	31.07	1.582e4					1.6	NO		dd		0.000
46	FUNCTION2 PFK	30.99	1.154e4					1.3	NO		bd		0.000
47	FUNCTION2 PFK	30.87	8.968e3					1.4	NO		db		0.000
48	FUNCTION2 PFK	30.86	9.432e3					1.2	NO		bd		0.000
49	FUNCTION2 PFK	32.15	1.152e4					1.3	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	41.41	2.154e4					2.2	NO		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.54	6.590e3					1.3	NO		bd		
2	FUNCTION5 PFK	44.35	1.591e4					2.0	NO		bb		
3	FUNCTION5 PFK	44.29	1.893e3					0.6	NO		bb		
4	FUNCTION5 PFK	43.92	8.732e3					1.8	NO		bb		
5	FUNCTION5 PFK	43.77	3.693e3					0.9	NO		bb		
6	FUNCTION5 PFK	43.49	1.170e4					1.9	NO		db		
7	FUNCTION5 PFK	43.44	3.839e3					1.0	NO		bd		
8	FUNCTION5 PFK	43.17	6.024e3					1.4	NO		bb		
9	FUNCTION5 PFK	43.00	4.281e3					0.8	NO		bb		
10	FUNCTION5 PFK	42.96	1.229e4					1.3	NO		db		
11	FUNCTION5 PFK	42.89	8.136e3					1.2	NO		bd		
12	FUNCTION5 PFK	45.63	1.111e4					1.4	NO		db		
13	FUNCTION5 PFK	45.57	1.193e4					1.9	NO		bd		
14	FUNCTION5 PFK	45.35	8.690e2					0.4	NO		bb		
15	FUNCTION5 PFK	45.30	8.430e3					1.4	NO		bb		
16	FUNCTION5 PFK	45.25	2.811e3					0.8	NO		bb		
17	FUNCTION5 PFK	45.18	3.339e3					1.0	NO		bb		
18	FUNCTION5 PFK	45.07	9.295e3					1.2	NO		bb		
19	FUNCTION5 PFK	45.01	7.058e3					1.3	NO		bb		
20	FUNCTION5 PFK	44.84	4.703e3					1.2	NO		bb		
21	FUNCTION5 PFK	44.78	1.010e4					1.3	NO		bb		
22	FUNCTION5 PFK	44.72	8.244e2					0.4	NO		bb		
23	FUNCTION5 PFK	44.59	6.289e3					1.4	NO		db		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.90	1.280e2					1.8	NO		bb		0.000
2	FUNCTION2 HPCD...	29.04	8.294e1					4.7	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	33.99	1.362e2					3.8	YES		bb		0.000
2	FUNCTION3 OCDPE	33.64	7.511e1					1.6	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

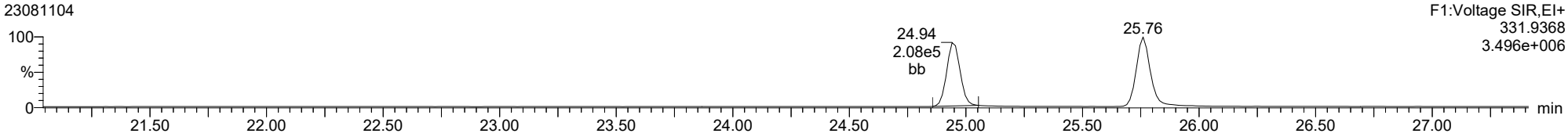
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.60	1.021e2					3.6	YES		bb		0.000

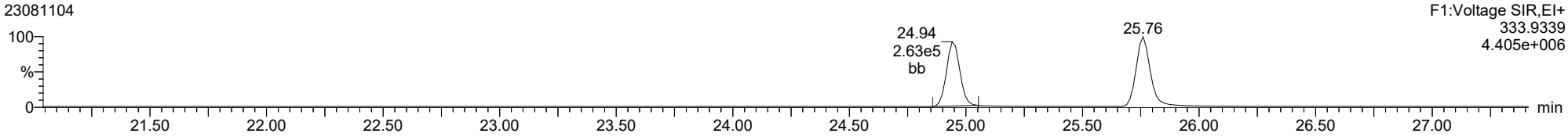
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ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

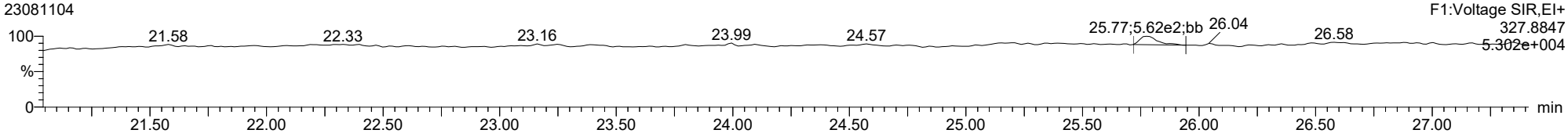
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13C-1234-TCDD

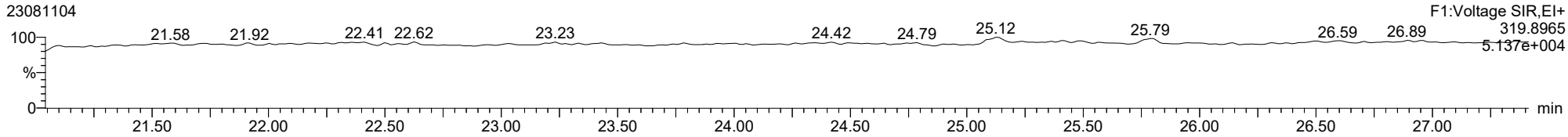


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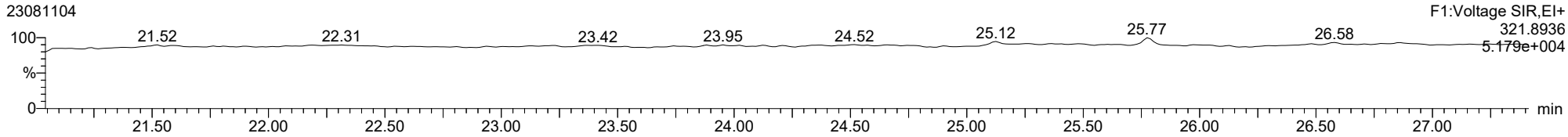


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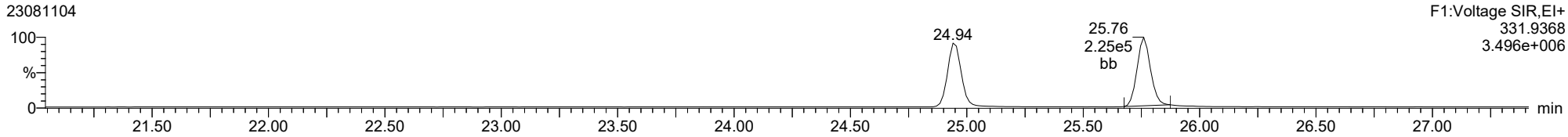
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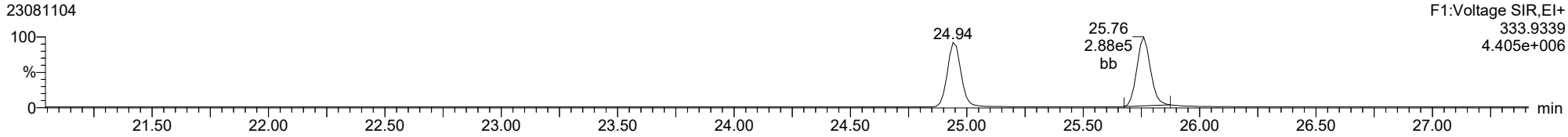
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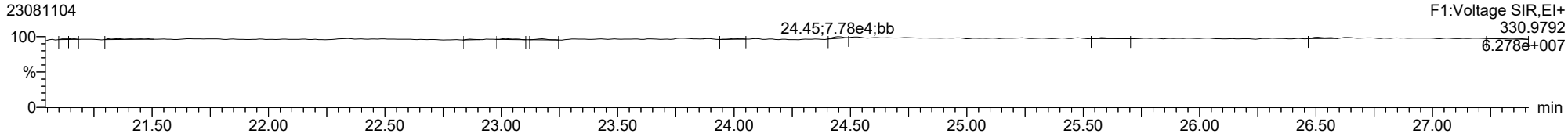
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13C-2378-TCDD

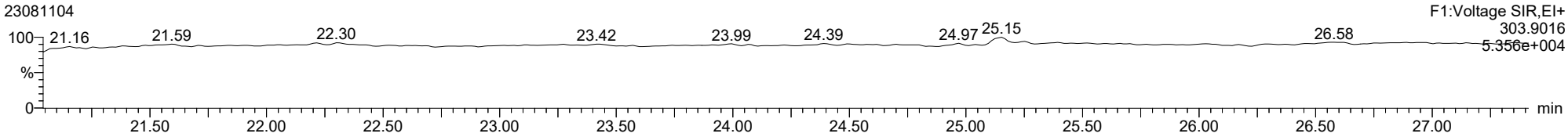


FUNCTION1 PFK

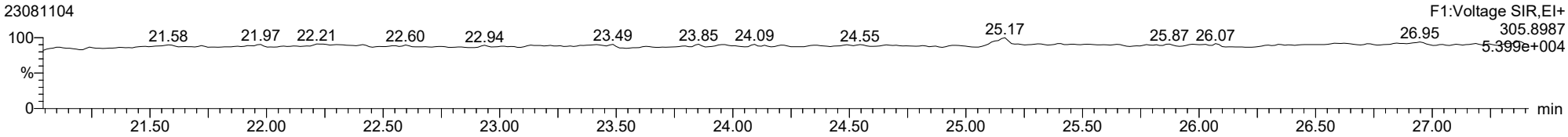


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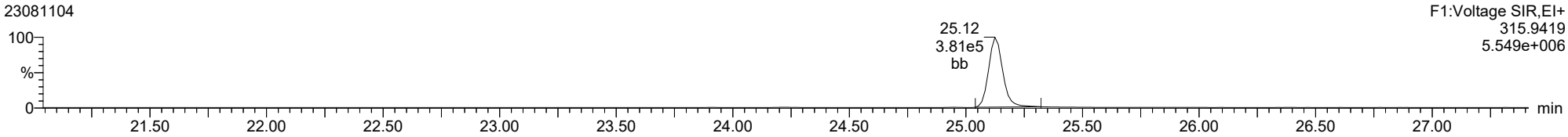
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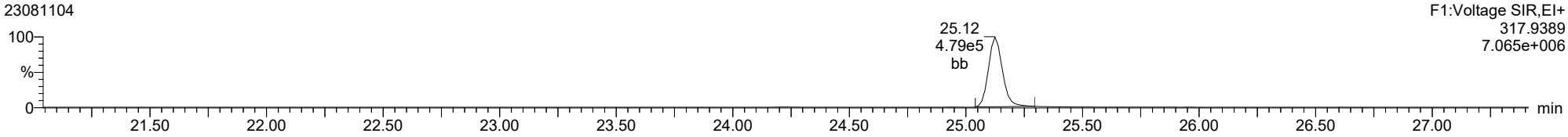
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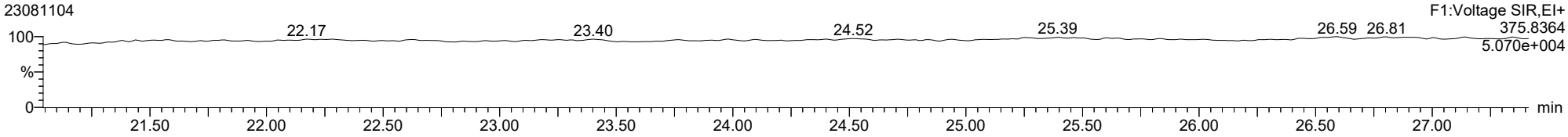
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13C-2378-TCDF

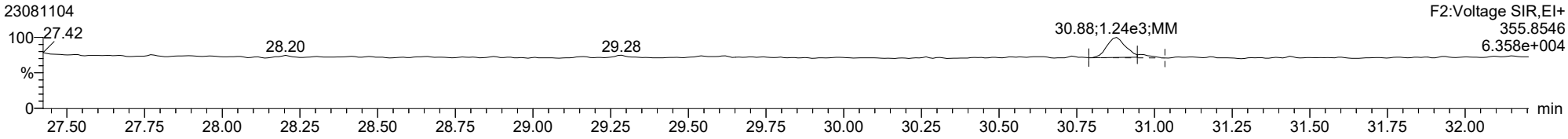


FUNCTION1 HXCDPE

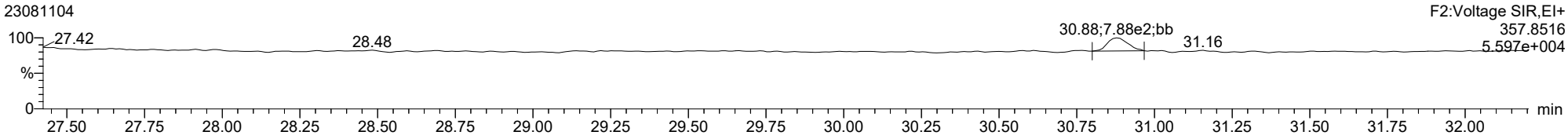


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

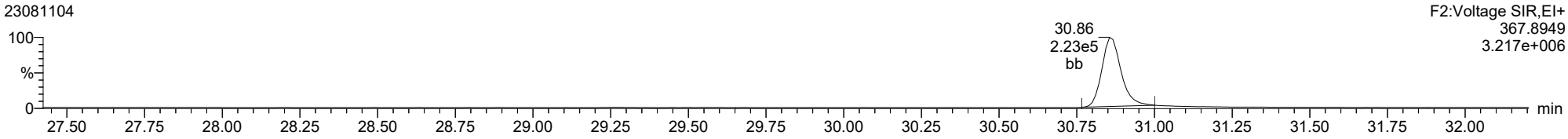
12378-PeCDD



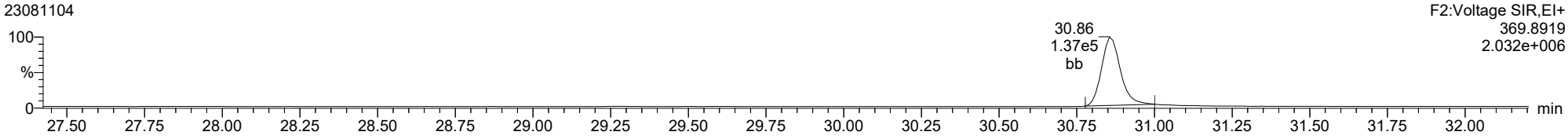
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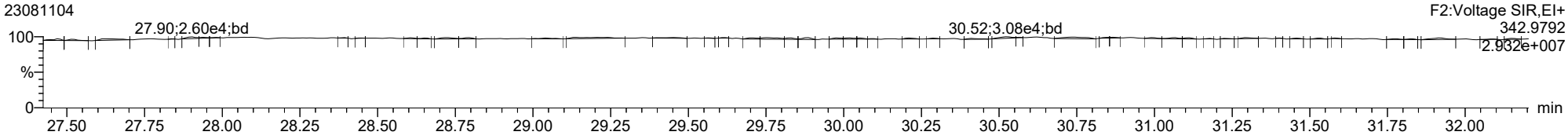
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13C-12378-PeCDD

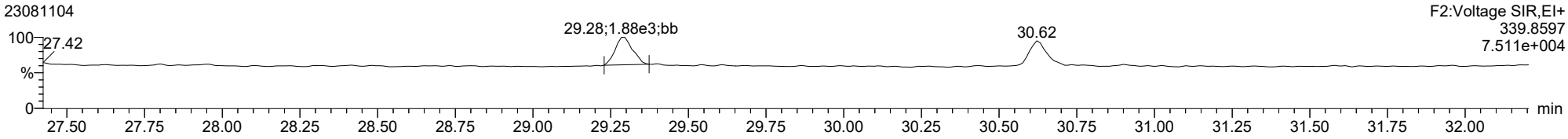


FUNCTION2 PFK

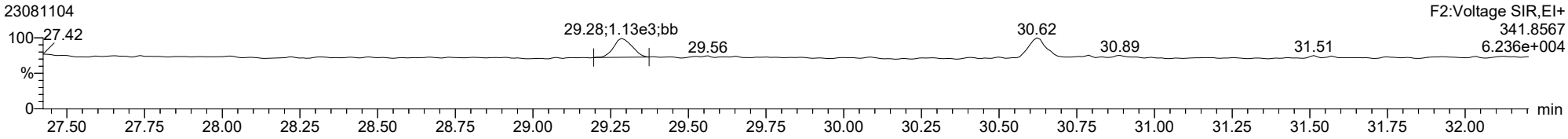


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

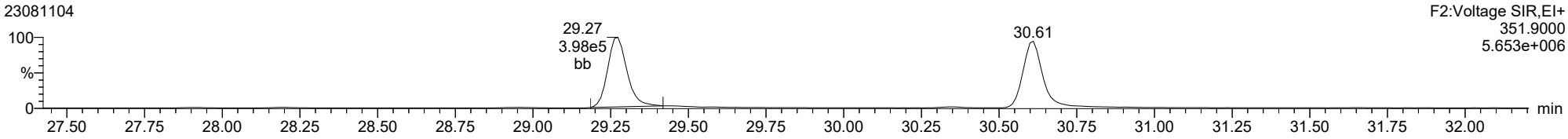
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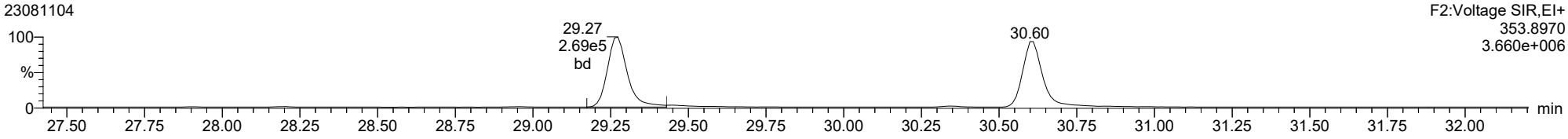
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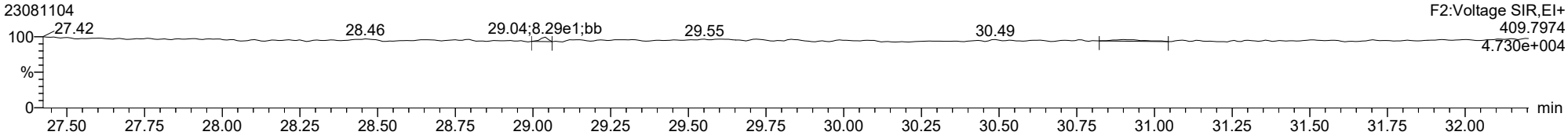
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13C-12378-PeCDF

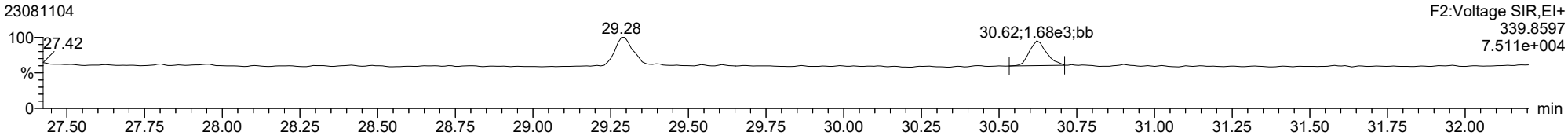


FUNCTION2 HPCDPE

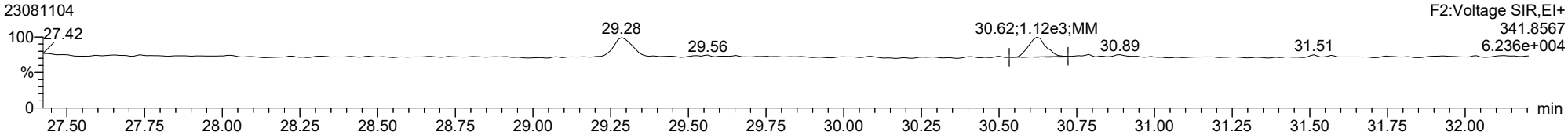


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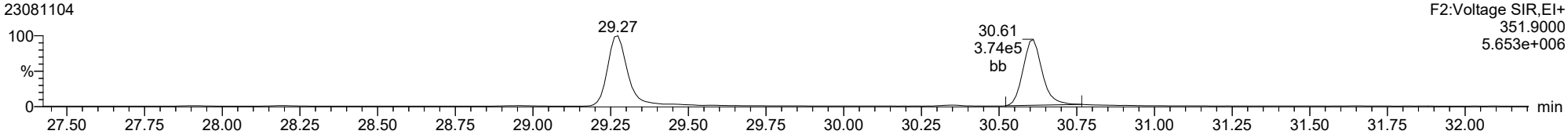
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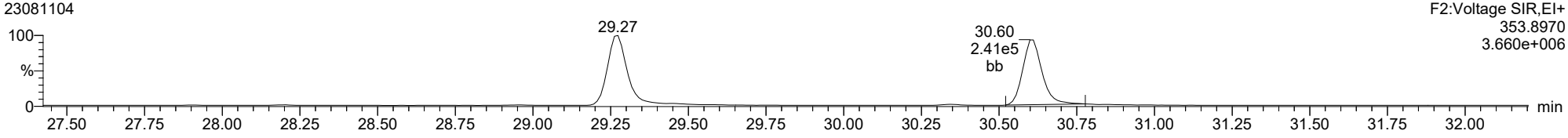
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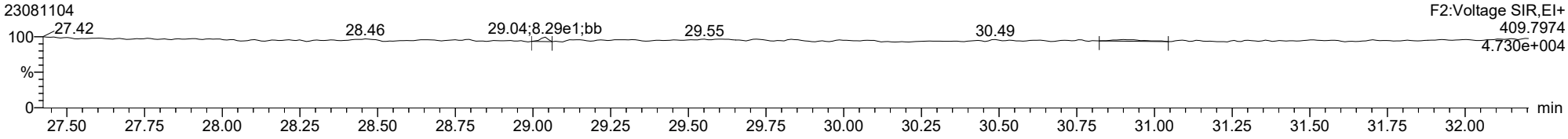
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13C-23478-PeCDF



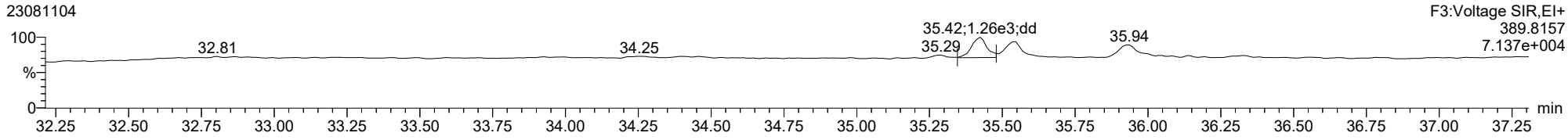
FUNCTION2 HPCDPE



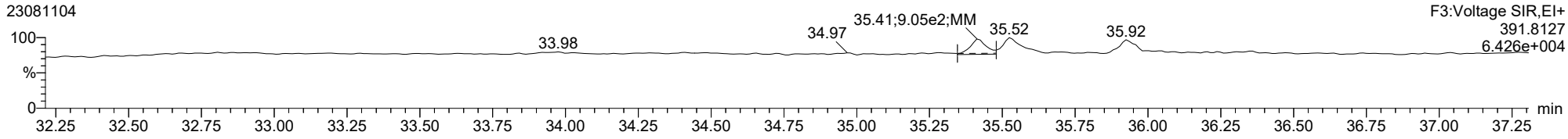
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Printed: Tuesday, August 15, 2023 12:23:54 Pacific Daylight Time

ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

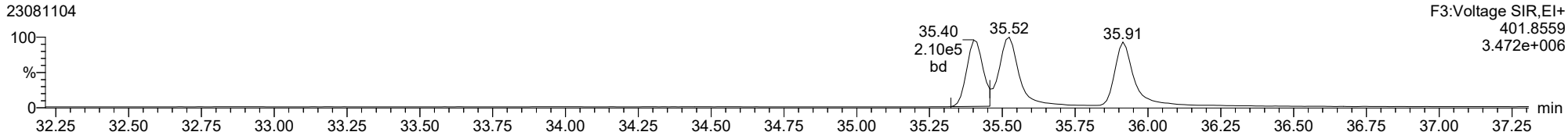
123478-HxCDD



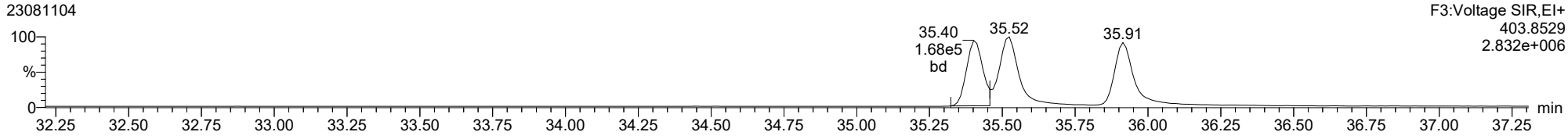
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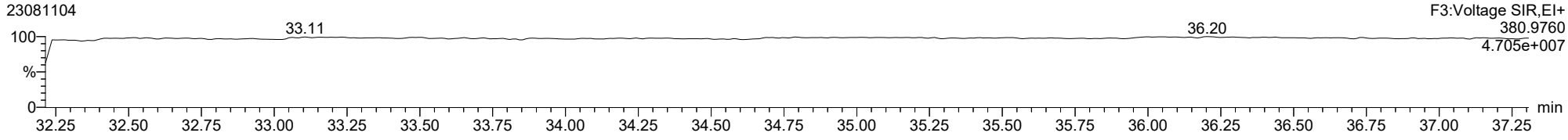
13C-123478-HxCDD



13C-123478-HxCDD



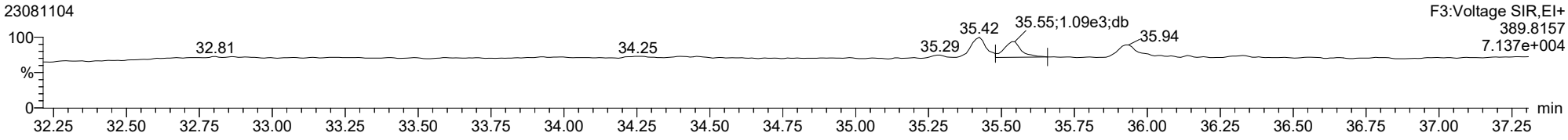
FUNCTION3 PFK



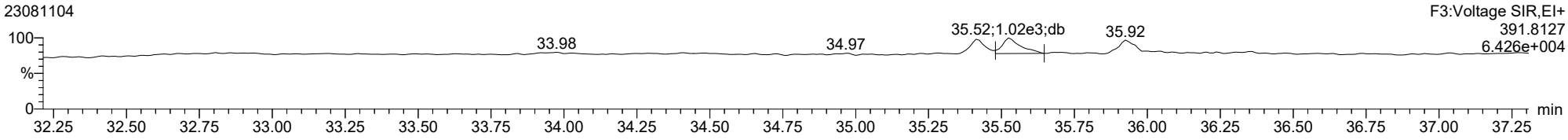
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ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

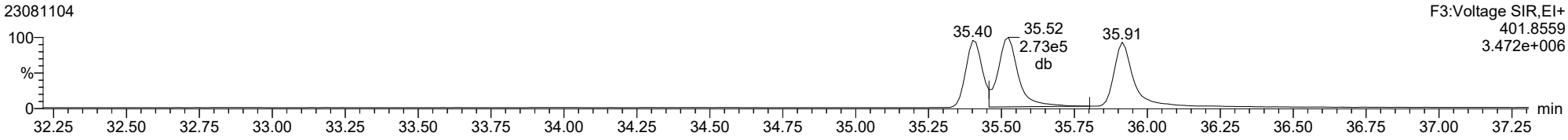
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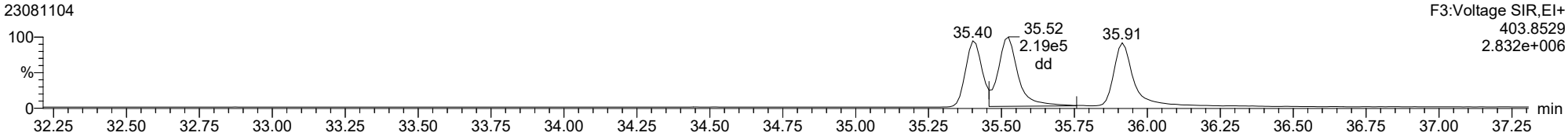
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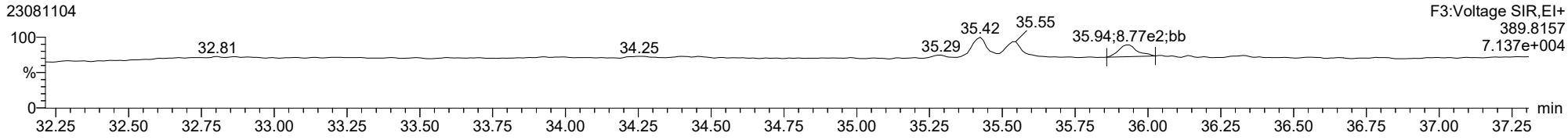
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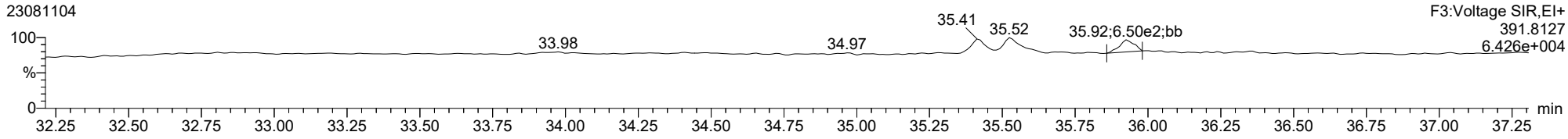
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ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

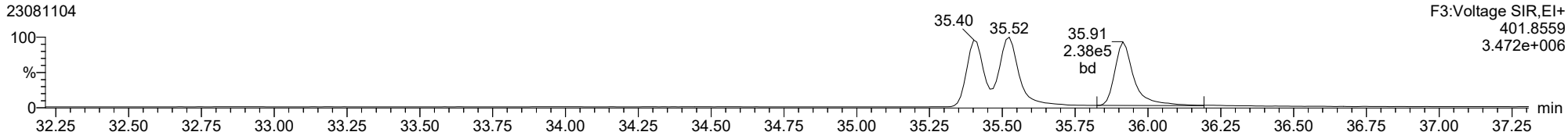
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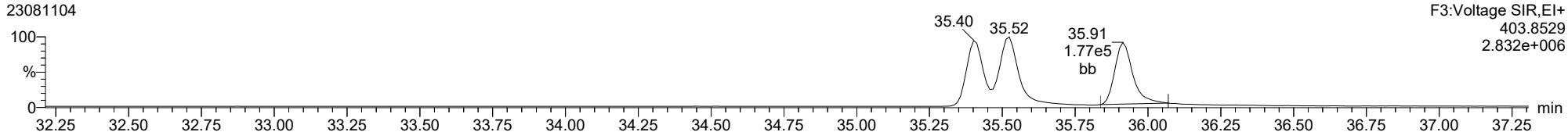
123789-HxCDD



13C-123789-HxCDD

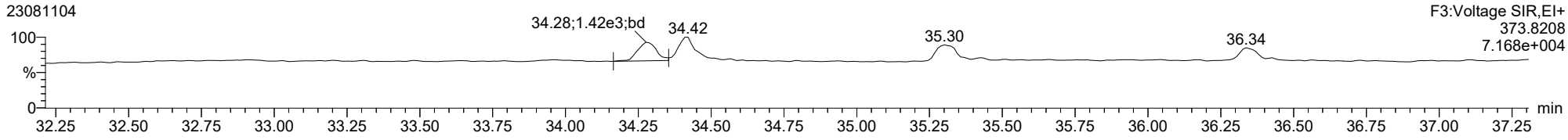


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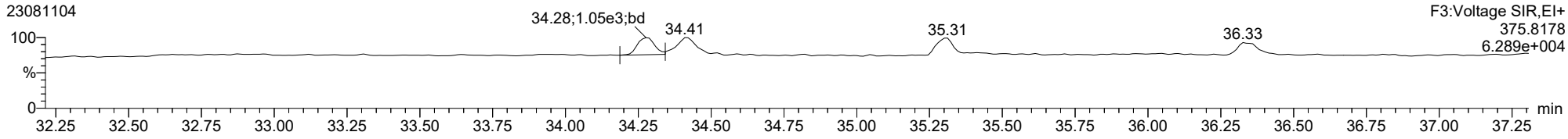


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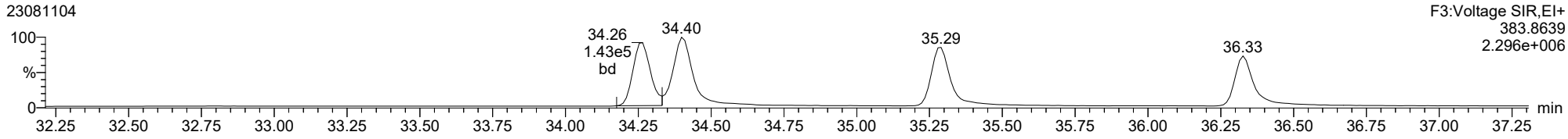
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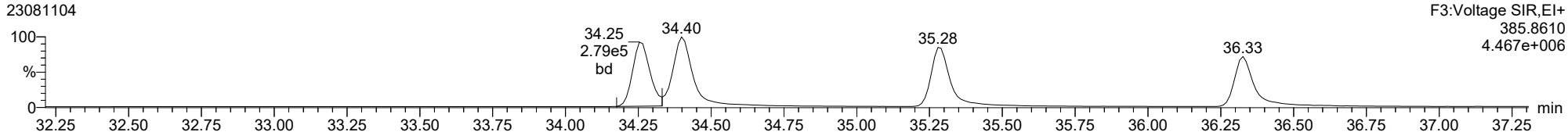
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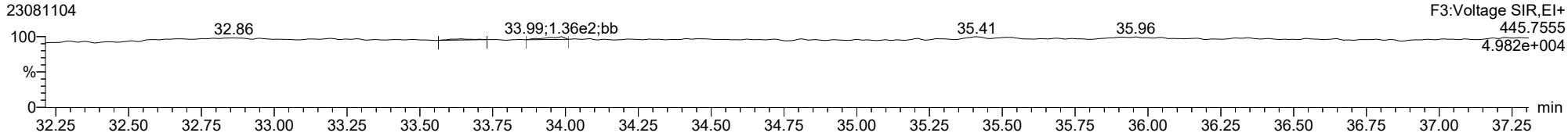
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13C-123478-HxCDF

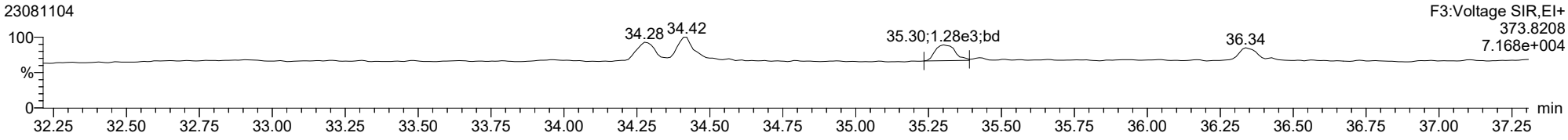


FUNCTION3 OCDPE

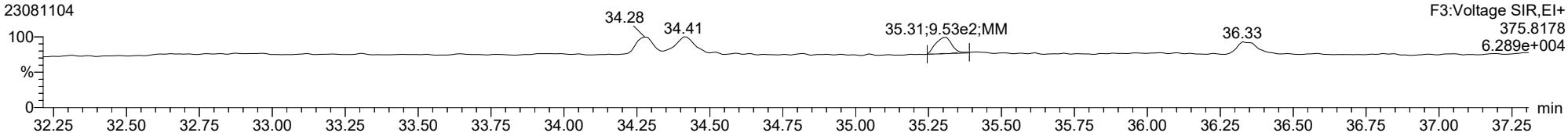


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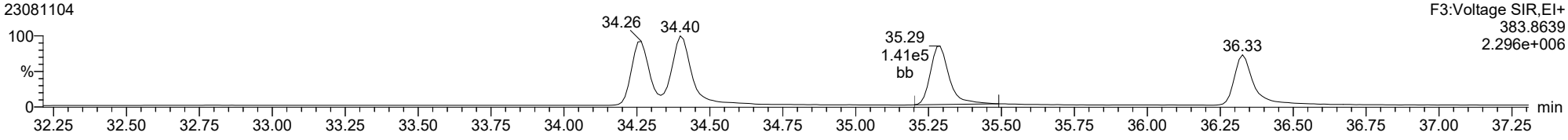
234678-HxCDF



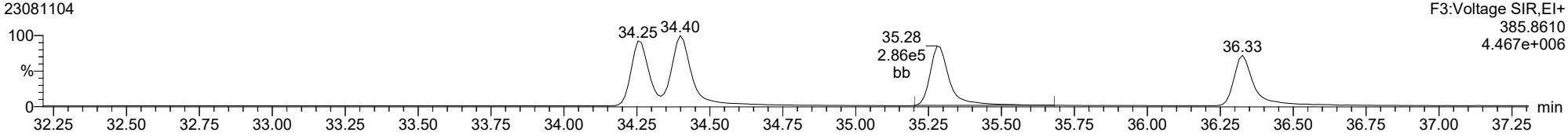
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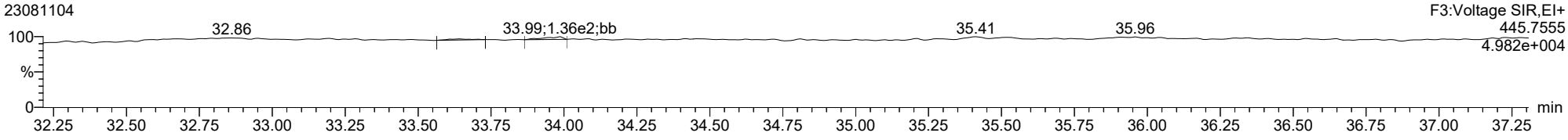
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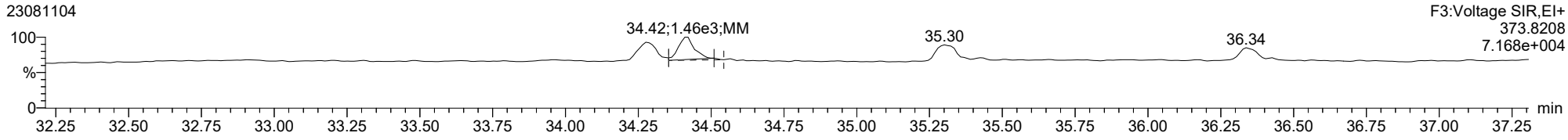


FUNCTION3 OCDPE

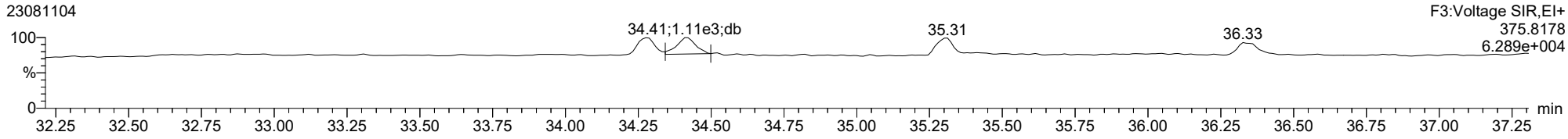


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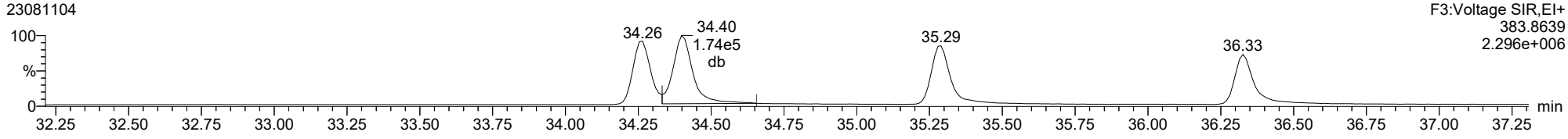
123678-HxCDF



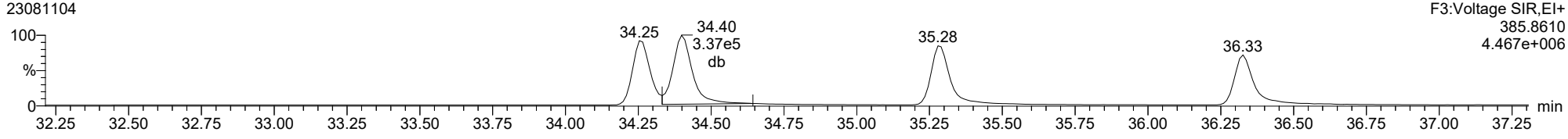
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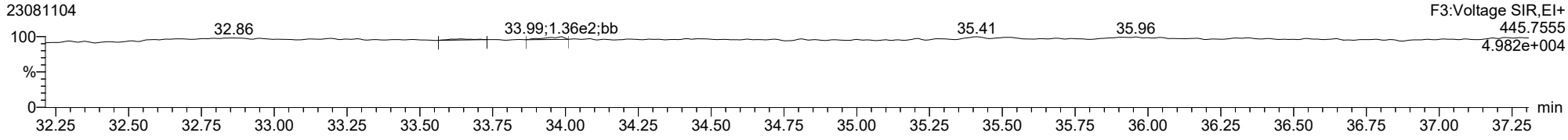
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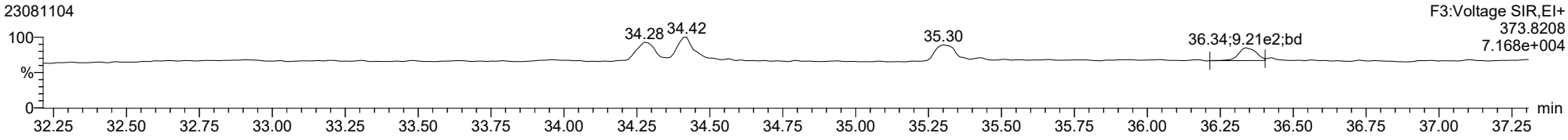


FUNCTION3 OCDPE

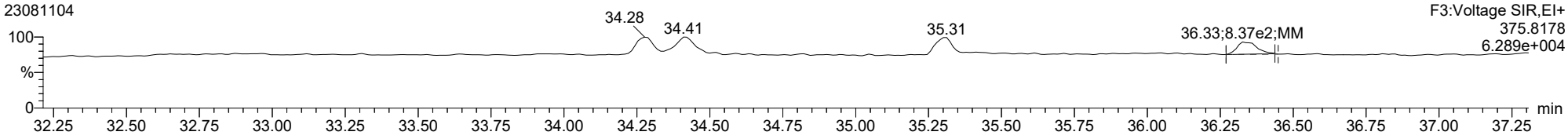


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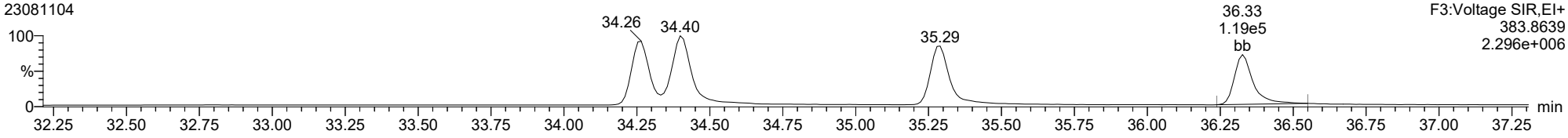
123789-HxCDF



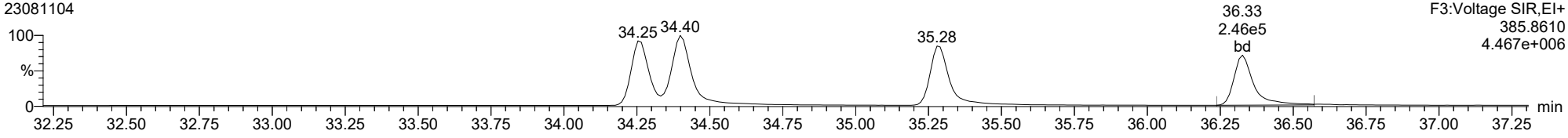
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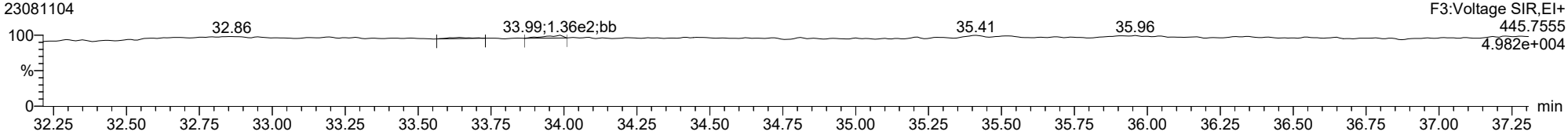
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13C-123789-HxCDF

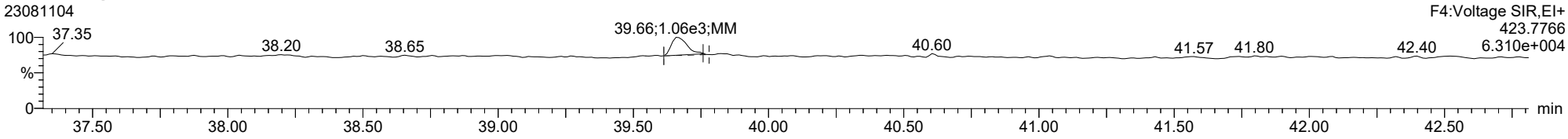


FUNCTION3 OCDPE

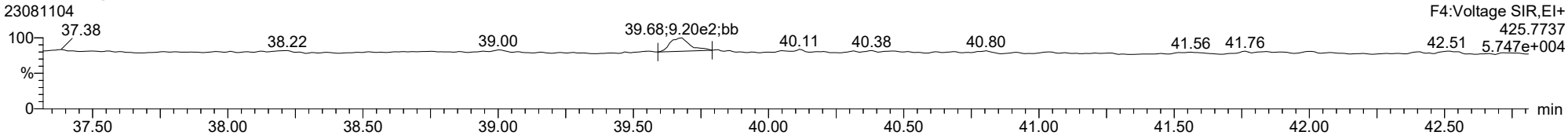


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

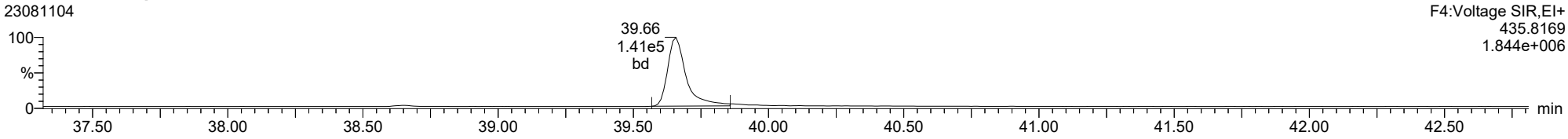
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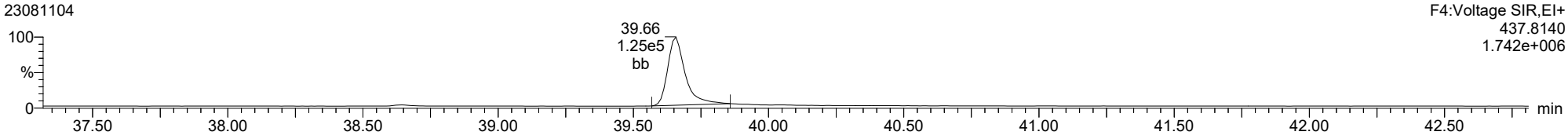
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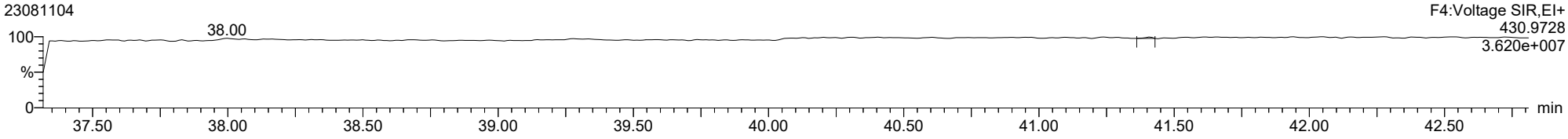
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13C-1234678-HpCDD

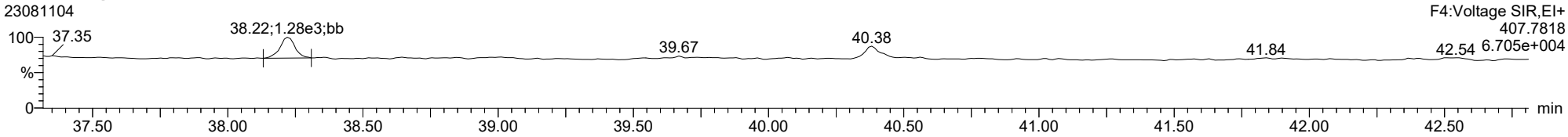


FUNCTION4 PFK

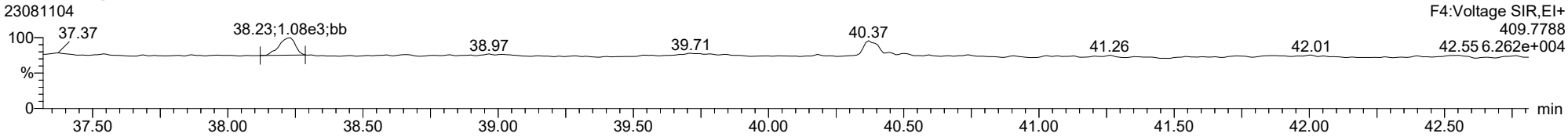


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

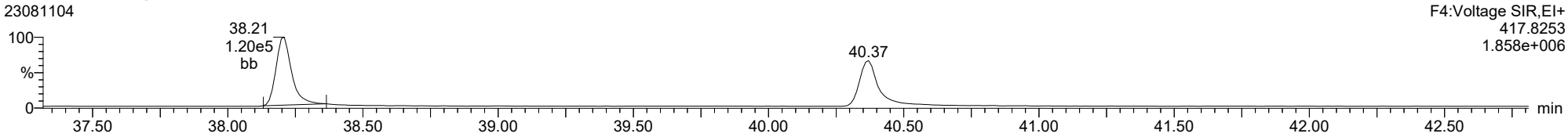
1234678-HpCDF



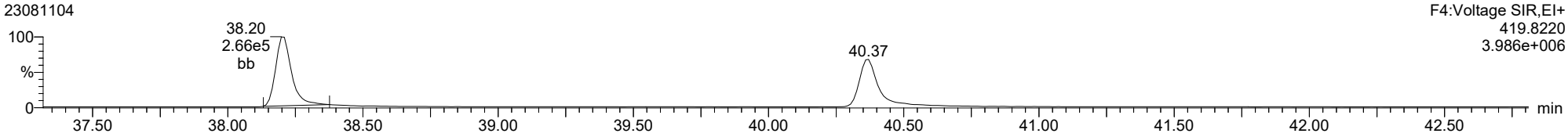
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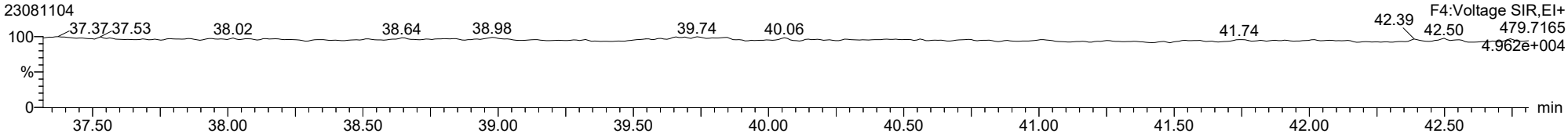
13C-1234678-HpCDF



13C-1234678-HpCDF

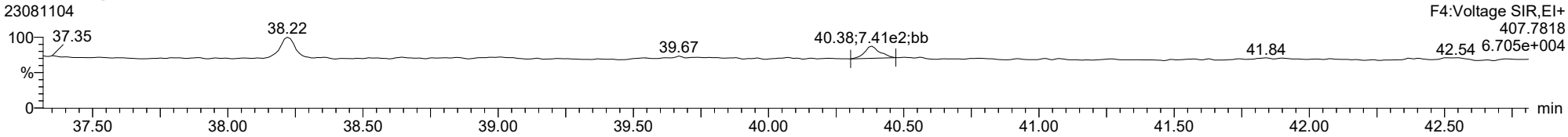


FUNCTION4 NCDPE

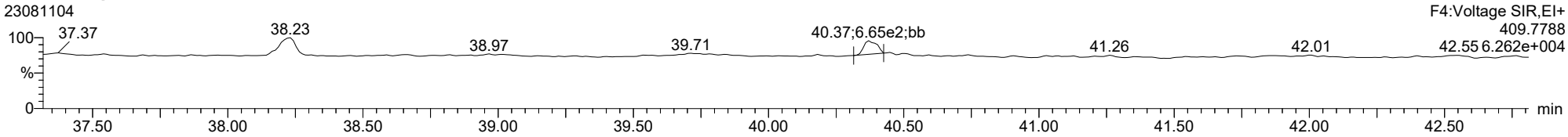


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

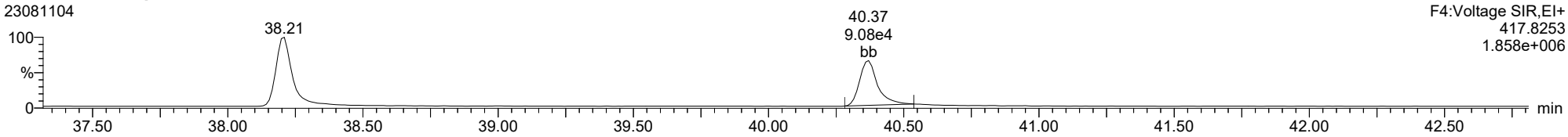
1234789-HpCDF



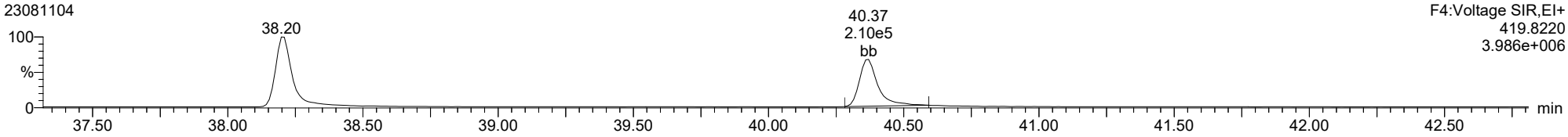
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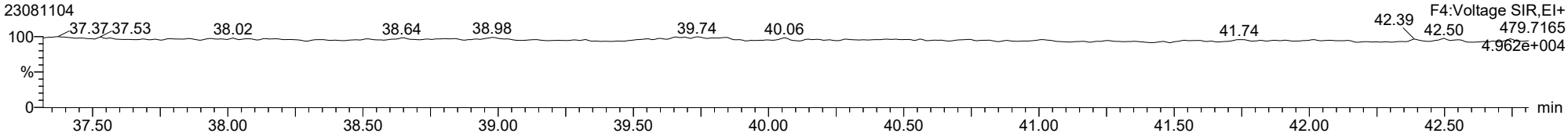
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13C-1234789-HpCDF

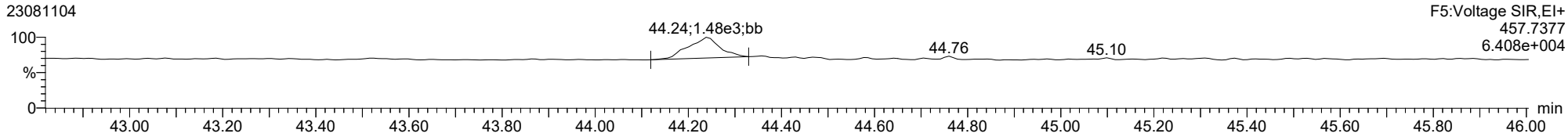


FUNCTION4 NCDPE

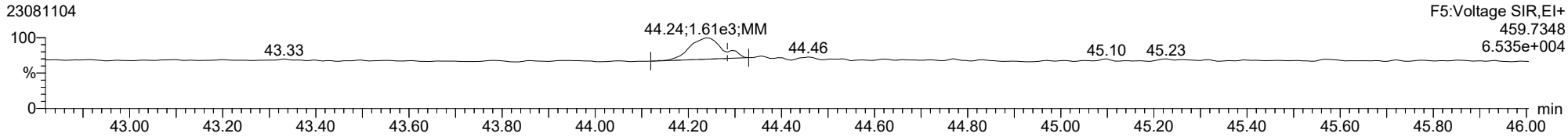


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

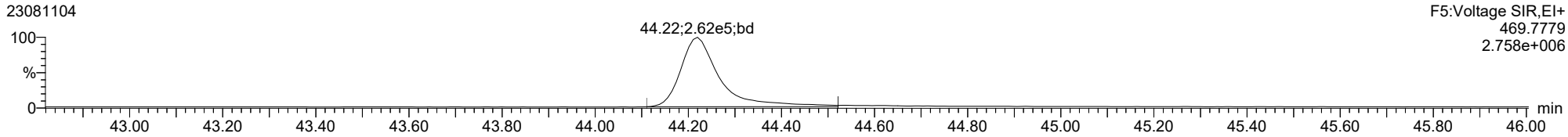
OCDD



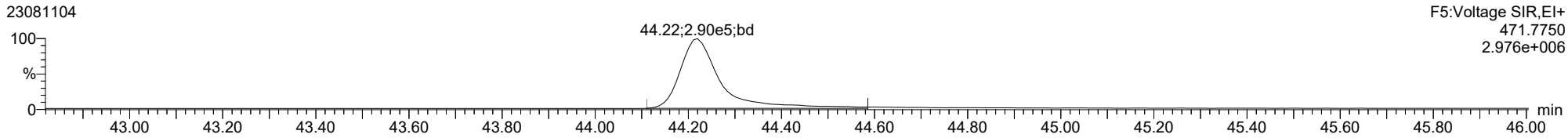
OCDD



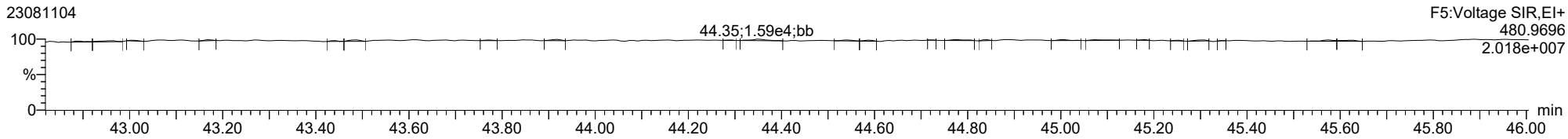
13C-OCDD



13C-OCDD

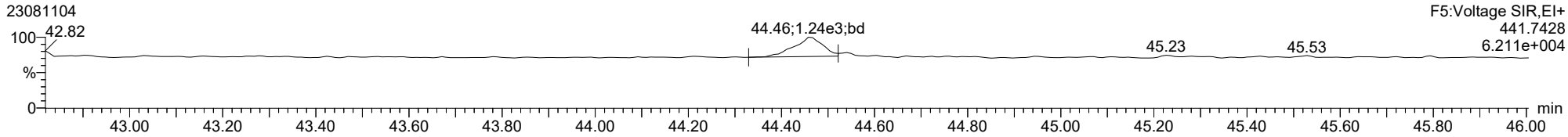


FUNCTION5 PFK

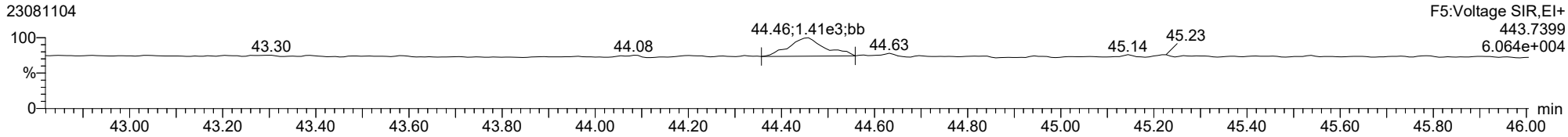


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

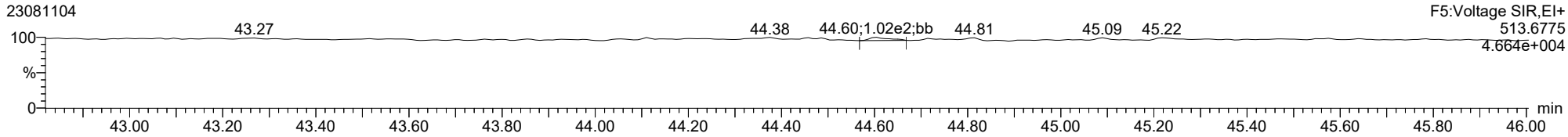
OCDF



OCDF

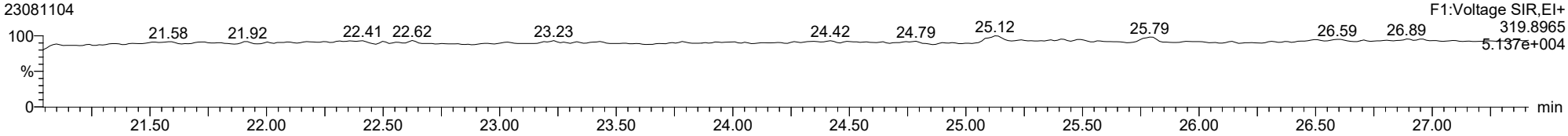


FUNCTION5 DCDPE

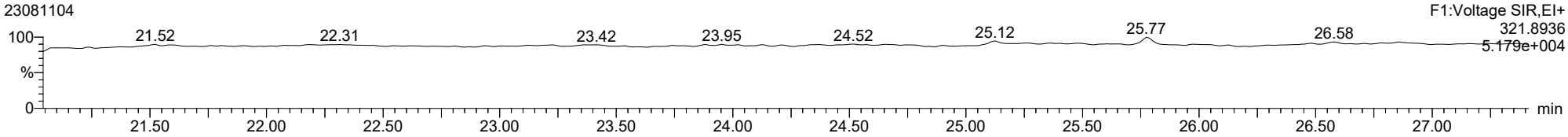


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

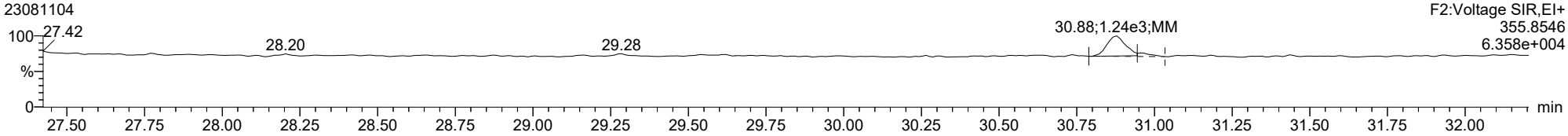
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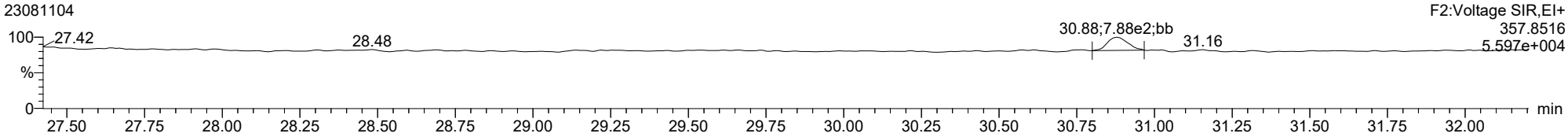
Total-tetradioxins



Total-pentadioxins

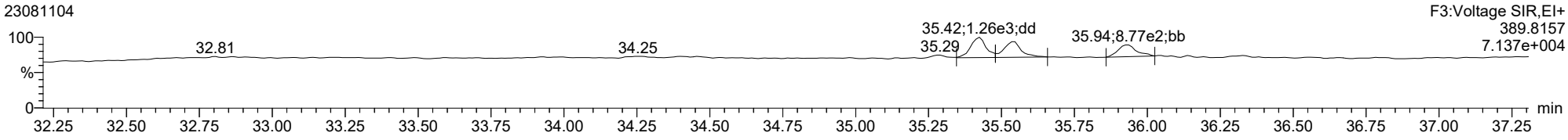


Total-pentadioxins

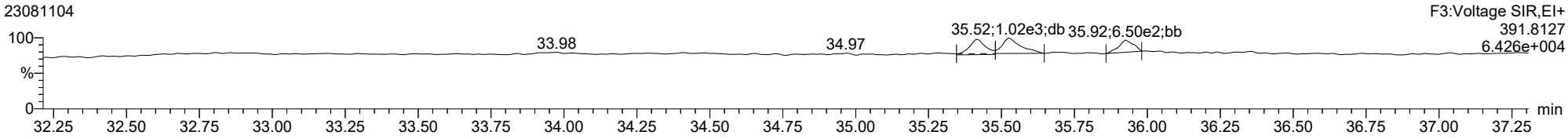


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

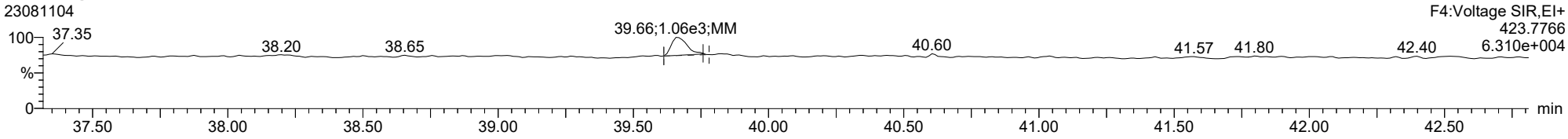
Total-hexadioxins



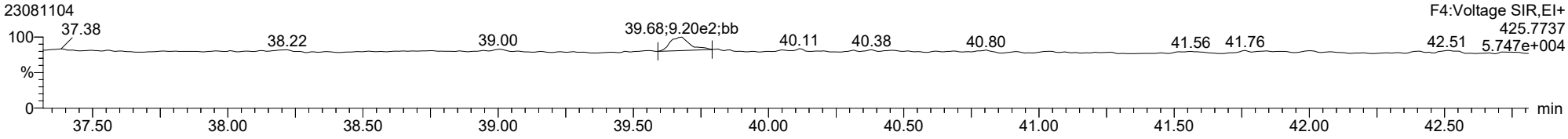
Total-hexadioxins



Total-heptadioxins



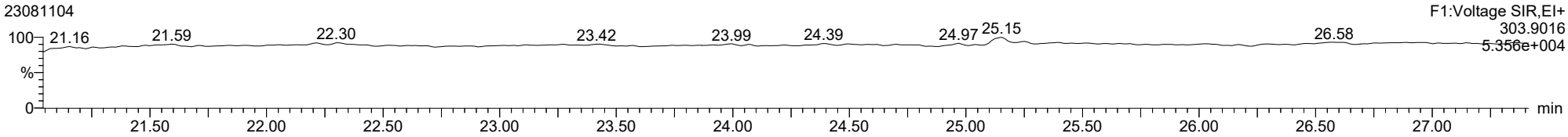
Total-heptadioxins



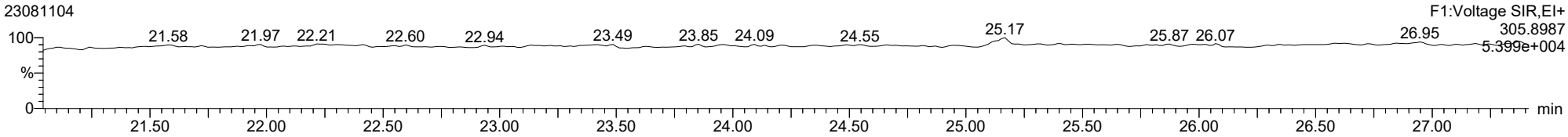
Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:23:54 Pacific Daylight Time

ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

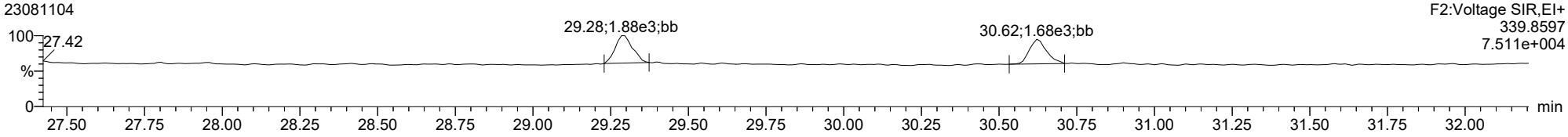
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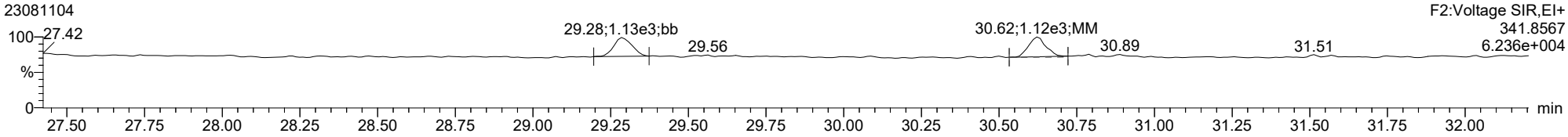
Total-tetrafurans



Total-pentafurans



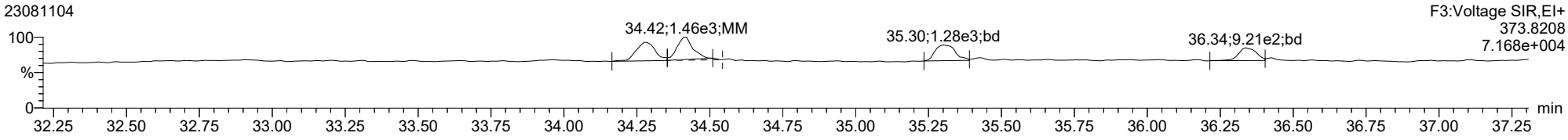
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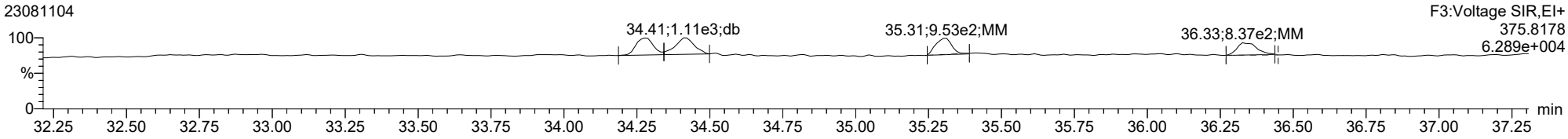
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ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

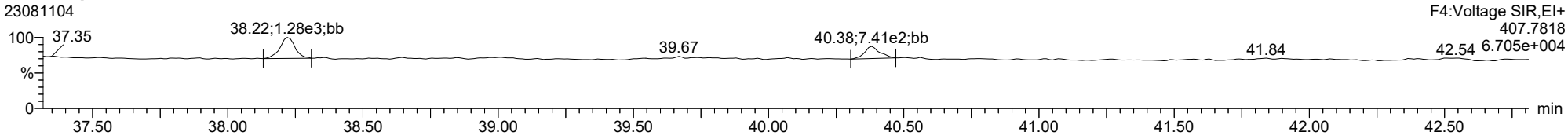
Total-hexafurans



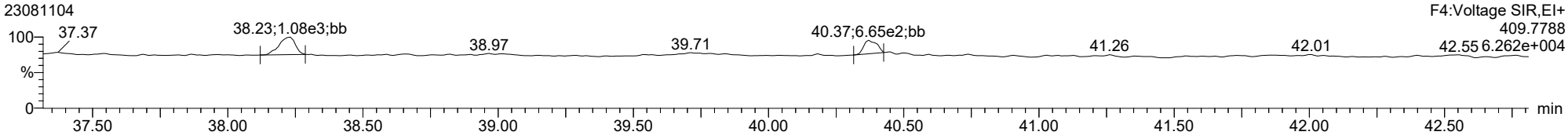
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:07 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.153	1.001	1.869e3	2.531e3	0.903	0.738	0.770	607	948	2.63e4	3.50e4	43.4	37.0	NO	bb	bb	0.508
12378-PeCDF	29.296	1.000	9.818e3	6.752e3	0.923	1.454	1.550	897	870	1.32e5	1.05e5	147.3	121.1	NO	bb	bb	2.428
23478-PeCDF	30.644	1.001	1.114e4	6.361e3	0.991	1.751	1.550	897	870	1.63e5	9.08e4	181.2	104.4	NO	bd	bb	2.653
123478-HxCDF	34.287	1.000	7.325e3	5.847e3	1.128	1.253	1.240	965	778	1.03e5	8.56e4	106.5	110.0	NO	bd	bd	2.540
234678-HxCDF	35.312	1.000	6.992e3	5.860e3	1.081	1.193	1.240	965	778	9.58e4	7.93e4	99.2	101.9	NO	bd	bb	2.494
123678-HxCDF	34.432	1.001	8.290e3	6.828e3	1.032	1.214	1.240	965	778	1.12e5	9.41e4	116.4	121.0	NO	db	dd	2.449
123789-HxCDF	36.348	1.000	4.809e3	4.143e3	0.988	1.161	1.240	965	778	7.16e4	5.08e4	74.2	65.3	NO	bb	bb	2.299
1234678-HpCDF	38.231	1.000	6.302e3	5.617e3	1.164	1.122	1.050	701	740	8.16e4	8.79e4	116.5	118.7	NO	bb	bd	2.373
1234789-HpCDF	40.393	1.000	4.119e3	4.301e3	1.104	0.958	1.050	701	740	5.52e4	5.68e4	78.8	76.7	NO	bb	bd	2.296
OCDF	44.467	1.005	7.021e3	7.442e3	1.130	0.943	0.890	689	1027	7.58e4	8.91e4	110.0	86.8	NO	bd	bd	4.244
2378-TCDD	25.803	1.001	1.741e3	2.051e3	1.243	0.849	0.770	749	648	2.33e4	3.20e4	31.1	49.3	NO	bb	bd	0.520
12378-PeCDD	30.889	1.000	7.141e3	4.332e3	1.150	1.648	1.550	748	524	1.09e5	6.14e4	146.1	117.2	NO	bd	bb	2.483
123478-HxCDD	35.435	1.001	5.228e3	4.259e3	0.960	1.227	1.240	969	784	7.96e4	6.49e4	82.2	82.8	NO	bd	bd	2.307
123678-HxCDD	35.546	1.000	6.122e3	4.803e3	0.883	1.275	1.240	969	784	8.53e4	6.59e4	88.0	84.0	NO	dd	db	2.336
123789-HxCDD	35.936	1.011	4.721e3	3.820e3	0.804	1.236	1.240	969	784	7.02e4	5.55e4	72.5	70.7	NO	bd	bb	2.218
1234678-HpCDD	39.680	1.000	4.195e3	3.562e3	1.200	1.178	1.050	930	787	6.18e4	5.19e4	66.4	65.9	NO	bb	bb	2.252
OCDD	44.238	1.000	7.186e3	7.684e3	1.059	0.935	0.890	1114	762	8.26e4	9.31e4	74.1	122.3	NO	bb	bd	4.658
13C-2378-TCDF	25.139	1.007	4.246e5	5.349e5	1.835	0.794	0.770	1462	1519	5.96e6	7.55e6	4077.1	4968.7	NO	bb	bb	102.183
13C-12378-PeCDF	29.285	1.173	4.516e5	2.877e5	1.377	1.570	1.550	3504	2886	6.51e6	4.14e6	1859.1	1432.9	NO	bb	bb	104.978
13C-23478-PeCDF	30.622	1.226	4.060e5	2.598e5	1.301	1.563	1.550	3504	2886	5.72e6	3.71e6	1632.3	1285.9	NO	bb	bb	100.021
13C-123478-HxCDF	34.276	0.954	1.550e5	3.046e5	1.091	0.509	0.510	1767	3144	2.20e6	4.37e6	1244.4	1391.1	NO	bd	bd	97.981
13C-123678-HxCDF	34.410	0.958	1.978e5	4.002e5	1.340	0.494	0.510	1767	3144	2.44e6	4.84e6	1379.8	1538.2	NO	db	db	103.726
13C-234678-HxCDF	35.301	0.983	1.551e5	3.213e5	1.093	0.483	0.510	1767	3144	2.13e6	4.17e6	1206.1	1327.8	NO	bb	bb	101.304
13C-123789-HxCDF	36.337	1.012	1.331e5	2.611e5	0.952	0.510	0.510	1767	3144	1.70e6	3.36e6	962.9	1069.8	NO	bb	bb	96.327
13C-1234678-HpCDF	38.220	1.064	1.295e5	3.022e5	0.985	0.428	0.440	2154	2867	1.90e6	4.11e6	882.3	1433.9	NO	bb	bd	101.891
13C-1234789-HpCDF	40.382	1.124	1.038e5	2.284e5	0.756	0.455	0.440	2154	2867	1.27e6	2.80e6	589.1	976.5	NO	bd	bb	102.201
13C-1234-TCDD	24.969	0.000	2.249e5	2.867e5	1.000	0.785	0.770	1471	1413	3.31e6	4.16e6	2247.7	2946.6	NO	bb	bb	100.000
13C-2378-TCDD	25.774	1.032	2.598e5	3.274e5	1.110	0.794	0.770	1471	1413	3.75e6	4.74e6	2547.1	3354.2	NO	bb	bb	103.437
13C-12378-PeCDD	30.878	1.237	2.472e5	1.545e5	0.754	1.600	1.550	1248	1186	3.35e6	2.06e6	2685.7	1740.2	NO	bb	bb	104.186
13C-123478-HxCDD	35.412	0.986	2.370e5	1.912e5	0.960	1.239	1.240	1678	2744	3.48e6	2.81e6	2071.0	1025.4	NO	bd	bd	103.729
13C-123678-HxCDD	35.535	0.989	2.914e5	2.386e5	1.159	1.221	1.240	1678	2744	3.80e6	3.07e6	2262.4	1117.2	NO	db	db	106.277
13C-1234678-HpCDD	39.668	1.104	1.492e5	1.379e5	0.629	1.082	1.050	2077	1506	1.99e6	1.88e6	959.9	1249.3	NO	bb	bb	106.080
13C-OCDD	44.229	1.231	2.878e5	3.153e5	0.635	0.913	0.890	1771	2421	2.88e6	3.12e6	1628.5	1289.7	NO	bd	bb	220.753
13C-123789-HxCDD	35.925	0.000	2.385e5	1.916e5	1.000	1.245	1.240	1678	2744	3.26e6	2.67e6	1945.5	973.8	NO	bb	bb	100.000
37CL-2378-TCDD	25.803	1.033	2.875e3		1.157			862		4.26e4		49.4			bb		0.486

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:07 Pacific Daylight Time

ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.170		0.770	607	948								
1289-TCDF					0.847		0.770	607	948								
13468-PECDF					1.241		1.550	544	667								
12389-PECDF					0.880		1.550	897	870								
123468-HXCDF					1.206		1.240	965	778								
1368-TCDD					1.181		0.770	749	648								
1289-TCDD					0.963		0.770	749	648								
12479-PECDD					2.166		1.550	748	524								
12389-PECDD					1.326		1.550	748	524								
124679-HXCDD					1.127		1.240	969	784								
1234679-HPCDD					1.303		1.050	930	787								
Total-tetrafurans			1.869e3		0.973			607		2.63e4							0.508
Total-penta1			0.000e0					544		0.00e0							
Total-pentafurans			2.095e4		0.931			897		2.95e5							5.080
Total-hexafurans			2.742e4		1.087			965		3.83e5							9.782
Total-heptafurans			1.042e4		1.134			701		1.37e5							4.669
Total-Furans			6.768e4		1.053			607		9.16e5							24.284
Total-tetradioxins			1.741e3		1.129			749		2.33e4							0.520
Total-pentadioxins			7.141e3		1.548			748		1.09e5							2.483
Total-hexadioxins			1.607e4		0.943			969		2.35e5							6.861
Total-heptadioxins			4.195e3		1.251			930		6.18e4							2.252
Total-Dioxins			3.633e4		1.182			749		5.12e5							16.774
Total-TEQ			1.040e5					749		1.43e6							41.058
FUNCTION1 PFK			1.685e5					481618		3.23e6							
FUNCTION2 PFK			3.490e5					353619		9.72e6							0.000
FUNCTION3 PFK			3.025e5					411684		5.51e6							0.000
FUNCTION4 PFK			5.244e4					281669		8.98e5							
FUNCTION5 PFK			5.040e4					232970		2.05e6							
FUNCTION1 HXCD...			1.506e2					618		4.08e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			1.806e2					647		3.08e3							0.000
FUNCTION3 OCDPE			0.000e0					540		0.00e0							
FUNCTION4 NCDPE			3.562e2					656		5.44e3							0.000
FUNCTION5 DCDPE			7.446e1					445		7.45e2							0.000

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:07 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.15	1.869e3	2.531e3	0.903	0.74	0.77	43.4	YES	NO	bb	bb	0.508

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.64	1.114e4	6.361e3	0.991	1.75	1.55	181.2	YES	NO	bd	bb	2.653
2	12378-PeCDF	29.30	9.818e3	6.752e3	0.923	1.45	1.55	147.3	YES	NO	bb	bb	2.428

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.35	4.809e3	4.143e3	0.988	1.16	1.24	74.2	YES	NO	bb	bb	2.299
2	234678-HxCDF	35.31	6.992e3	5.860e3	1.081	1.19	1.24	99.2	YES	NO	bd	bb	2.494
3	123678-HxCDF	34.43	8.290e3	6.828e3	1.032	1.21	1.24	116.4	YES	NO	db	dd	2.449
4	123478-HxCDF	34.29	7.325e3	5.847e3	1.128	1.25	1.24	106.5	YES	NO	bd	bd	2.540

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.39	4.119e3	4.301e3	1.104	0.96	1.05	78.8	YES	NO	bb	bd	2.296
2	1234678-HpCDF	38.23	6.302e3	5.617e3	1.164	1.12	1.05	116.5	YES	NO	bb	bd	2.373

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.64	1.114e4	6.361e3	0.991	1.75	1.55	181.2	YES	NO	bd	bb	2.653
2	12378-PeCDF	29.30	9.818e3	6.752e3	0.923	1.45	1.55	147.3	YES	NO	bb	bb	2.428
3	2378-TCDF	25.15	1.869e3	2.531e3	0.903	0.74	0.77	43.4	YES	NO	bb	bb	0.508
4	123789-HxCDF	36.35	4.809e3	4.143e3	0.988	1.16	1.24	74.2	YES	NO	bb	bb	2.299
5	234678-HxCDF	35.31	6.992e3	5.860e3	1.081	1.19	1.24	99.2	YES	NO	bd	bb	2.494
6	123678-HxCDF	34.43	8.290e3	6.828e3	1.032	1.21	1.24	116.4	YES	NO	db	dd	2.449
7	123478-HxCDF	34.29	7.325e3	5.847e3	1.128	1.25	1.24	106.5	YES	NO	bd	bd	2.540
8	1234789-HpCDF	40.39	4.119e3	4.301e3	1.104	0.96	1.05	78.8	YES	NO	bb	bd	2.296
9	1234678-HpCDF	38.23	6.302e3	5.617e3	1.164	1.12	1.05	116.5	YES	NO	bb	bd	2.373
10	OCDF	44.47	7.021e3	7.442e3	1.130	0.94	0.89	110.0	YES	NO	bd	bd	4.244

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.80	1.741e3	2.051e3	1.243	0.85	0.77	31.1	YES	NO	bb	bd	0.520

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.89	7.141e3	4.332e3	1.150	1.65	1.55	146.1	YES	NO	bd	bb	2.483

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.94	4.721e3	3.820e3	0.804	1.24	1.24	72.5	YES	NO	bd	bb	2.218
2	123678-HxCDD	35.55	6.122e3	4.803e3	0.883	1.27	1.24	88.0	YES	NO	dd	db	2.336
3	123478-HxCDD	35.43	5.228e3	4.259e3	0.960	1.23	1.24	82.2	YES	NO	bd	bd	2.307

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.68	4.195e3	3.562e3	1.200	1.18	1.05	66.4	YES	NO	bb	bb	2.252

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.80	1.741e3	2.051e3	1.243	0.85	0.77	31.1	YES	NO	bb	bd	0.520
2	123789-HxCDD	35.94	4.721e3	3.820e3	0.804	1.24	1.24	72.5	YES	NO	bd	bb	2.218
3	123678-HxCDD	35.55	6.122e3	4.803e3	0.883	1.27	1.24	88.0	YES	NO	dd	db	2.336
4	123478-HxCDD	35.43	5.228e3	4.259e3	0.960	1.23	1.24	82.2	YES	NO	bd	bd	2.307
5	12378-PeCDD	30.89	7.141e3	4.332e3	1.150	1.65	1.55	146.1	YES	NO	bd	bb	2.483
6	OCDD	44.24	7.186e3	7.684e3	1.059	0.94	0.89	74.1	YES	NO	bb	bd	4.658
7	1234678-HpCDD	39.68	4.195e3	3.562e3	1.200	1.18	1.05	66.4	YES	NO	bb	bb	2.252

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.64	1.114e4	6.361e3	0.991	1.75	1.55	181.2	YES	NO	bd	bb	2.653
2	12378-PeCDF	29.30	9.818e3	6.752e3	0.923	1.45	1.55	147.3	YES	NO	bb	bb	2.428
3	2378-TCDF	25.15	1.869e3	2.531e3	0.903	0.74	0.77	43.4	YES	NO	bb	bb	0.508
4	123789-HxCDF	36.35	4.809e3	4.143e3	0.988	1.16	1.24	74.2	YES	NO	bb	bb	2.299
5	234678-HxCDF	35.31	6.992e3	5.860e3	1.081	1.19	1.24	99.2	YES	NO	bd	bb	2.494
6	123678-HxCDF	34.43	8.290e3	6.828e3	1.032	1.21	1.24	116.4	YES	NO	db	dd	2.449
7	123478-HxCDF	34.29	7.325e3	5.847e3	1.128	1.25	1.24	106.5	YES	NO	bd	bd	2.540
8	1234789-HpCDF	40.39	4.119e3	4.301e3	1.104	0.96	1.05	78.8	YES	NO	bb	bd	2.296
9	1234678-HpCDF	38.23	6.302e3	5.617e3	1.164	1.12	1.05	116.5	YES	NO	bb	bd	2.373
10	OCDF	44.47	7.021e3	7.442e3	1.130	0.94	0.89	110.0	YES	NO	bd	bd	4.244
11	2378-TCDD	25.80	1.741e3	2.051e3	1.243	0.85	0.77	31.1	YES	NO	bb	bd	0.520
12	123789-HxCDD	35.94	4.721e3	3.820e3	0.804	1.24	1.24	72.5	YES	NO	bd	bb	2.218
13	123678-HxCDD	35.55	6.122e3	4.803e3	0.883	1.27	1.24	88.0	YES	NO	dd	db	2.336
14	123478-HxCDD	35.43	5.228e3	4.259e3	0.960	1.23	1.24	82.2	YES	NO	bd	bd	2.307
15	12378-PeCDD	30.89	7.141e3	4.332e3	1.150	1.65	1.55	146.1	YES	NO	bd	bb	2.483
16	OCDD	44.24	7.186e3	7.684e3	1.059	0.94	0.89	74.1	YES	NO	bb	bd	4.658
17	1234678-HpCDD	39.68	4.195e3	3.562e3	1.200	1.18	1.05	66.4	YES	NO	bb	bb	2.252

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	24.46	9.288e4					3.6	YES		bb		
2	FUNCTION1 PFK	21.17	7.566e4					3.1	YES		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	27.78	1.684e4					1.7	NO		bd		0.000
2	FUNCTION2 PFK	27.66	6.206e3					0.7	NO		bb		0.000
3	FUNCTION2 PFK	27.52	1.777e4					1.7	NO		bb		0.000
4	FUNCTION2 PFK	31.50	2.220e3					0.5	NO		bb		0.000
5	FUNCTION2 PFK	31.35	1.532e4					1.0	NO		bb		0.000
6	FUNCTION2 PFK	31.29	3.058e4					1.7	NO		db		0.000
7	FUNCTION2 PFK	31.22	1.055e4					1.3	NO		bd		0.000
8	FUNCTION2 PFK	31.17	7.982e3					0.9	NO		bb		0.000
9	FUNCTION2 PFK	31.02	2.210e4					1.6	NO		bb		0.000
10	FUNCTION2 PFK	30.78	6.727e3					0.8	NO		bb		0.000
11	FUNCTION2 PFK	30.63	3.779e4					3.0	NO		db		0.000
12	FUNCTION2 PFK	30.59	2.979e4					2.9	NO		bd		0.000
13	FUNCTION2 PFK	30.50	2.622e4					1.4	NO		bb		0.000
14	FUNCTION2 PFK	29.88	6.065e3					0.9	NO		bb		0.000
15	FUNCTION2 PFK	29.69	3.832e4					1.9	NO		bb		0.000
16	FUNCTION2 PFK	29.44	9.175e3					1.0	NO		bb		0.000
17	FUNCTION2 PFK	28.98	7.307e3					0.6	NO		bb		0.000
18	FUNCTION2 PFK	28.18	2.082e4					1.2	NO		bb		0.000
19	FUNCTION2 PFK	27.81	1.127e4					1.5	NO		db		0.000
20	FUNCTION2 PFK	31.76	2.592e4					1.1	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	34.32	2.413e4					2.4	NO		bb		0.000
2	FUNCTION3 PFK	33.62	1.658e5					3.9	YES		bb		0.000
3	FUNCTION3 PFK	33.41	7.609e4					3.5	YES		bb		0.000
4	FUNCTION3 PFK	33.34	1.911e4					1.8	NO		bb		0.000
5	FUNCTION3 PFK	32.35	1.740e4					1.9	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	39.52	5.244e4					3.2	YES		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.67	1.198e4					1.6	NO		bb		
2	FUNCTION5 PFK	43.51	4.599e3					1.1	NO		bb		
3	FUNCTION5 PFK	43.42	3.079e3					0.8	NO		bb		
4	FUNCTION5 PFK	43.39	3.025e3					0.7	NO		bb		
5	FUNCTION5 PFK	43.31	1.081e3					0.5	NO		bb		
6	FUNCTION5 PFK	42.96	1.023e3					0.5	NO		bb		
7	FUNCTION5 PFK	45.28	9.172e2					0.4	NO		bb		
8	FUNCTION5 PFK	44.70	2.577e3					0.7	NO		bb		
9	FUNCTION5 PFK	43.99	3.331e3					0.7	NO		bb		
10	FUNCTION5 PFK	43.80	1.879e4					1.8	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	22.34	7.892e1					3.3	YES		bb		0.000
2	FUNCTION1 HXCD...	22.16	7.163e1					3.3	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.00	8.618e1					2.2	NO		bb		0.000
2	FUNCTION2 HPCD...	28.87	9.443e1					2.6	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.28	8.452e1					2.0	NO		bb		0.000
2	FUNCTION4 NCDPE	38.59	1.002e2					2.2	NO		db		0.000
3	FUNCTION4 NCDPE	38.48	8.467e1					2.4	NO		bd		0.000
4	FUNCTION4 NCDPE	37.87	8.682e1					1.7	NO		bb		0.000

ETHERS6

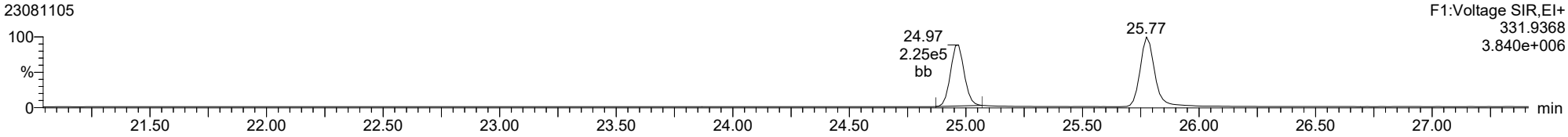
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1	FUNCTION5 DCDPE	43.03	7.446e1					1.7	NO		bb		0.000

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Printed: Tuesday, August 15, 2023 12:24:07 Pacific Daylight Time

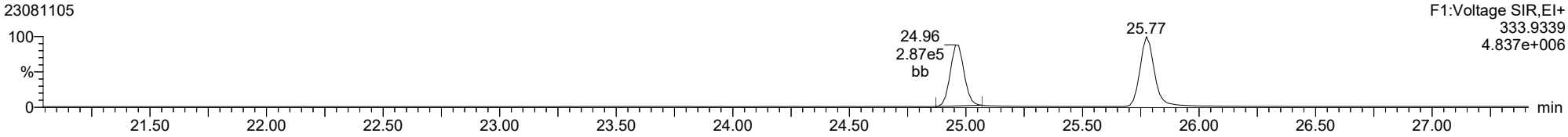
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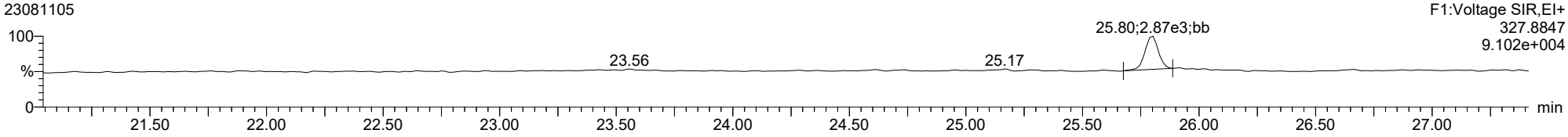
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13C-1234-TCDD

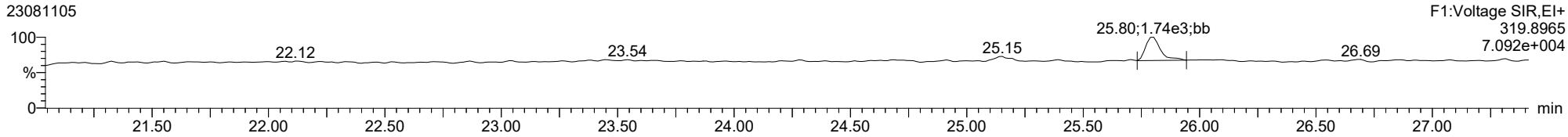


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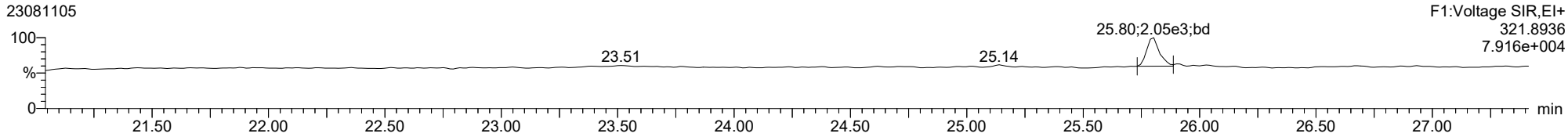


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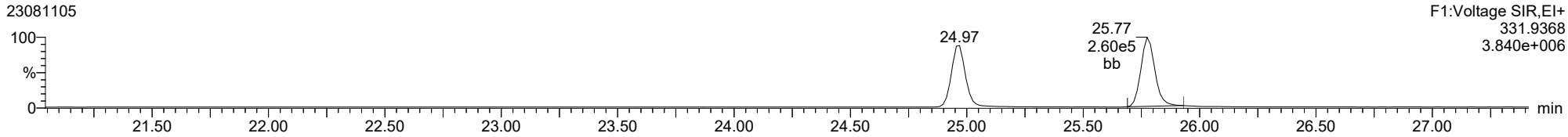
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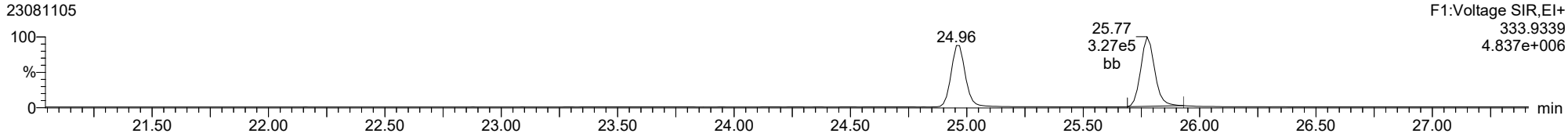
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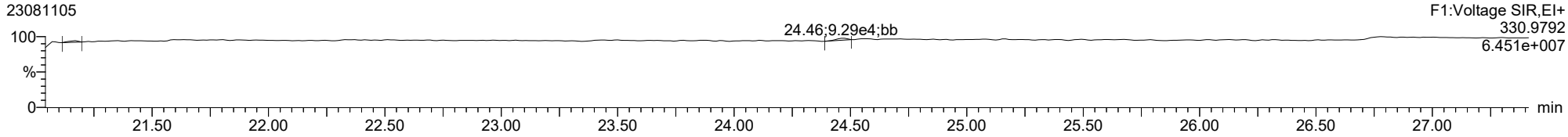
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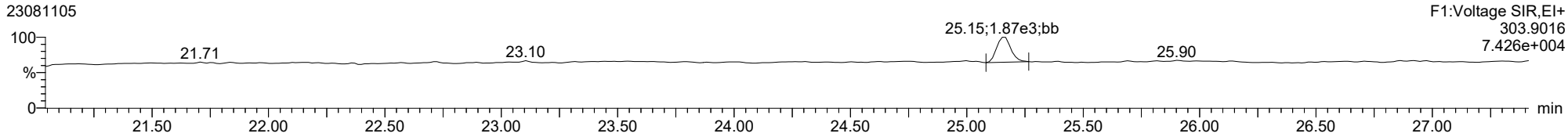


FUNCTION1 PFK

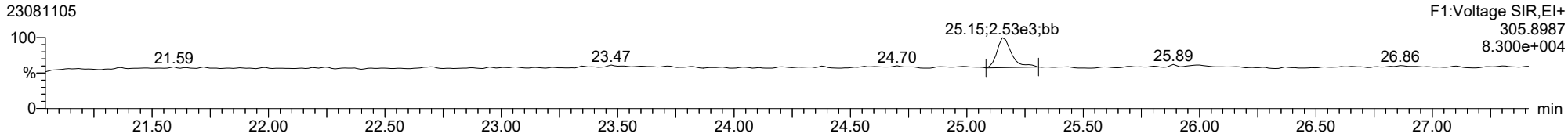


ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

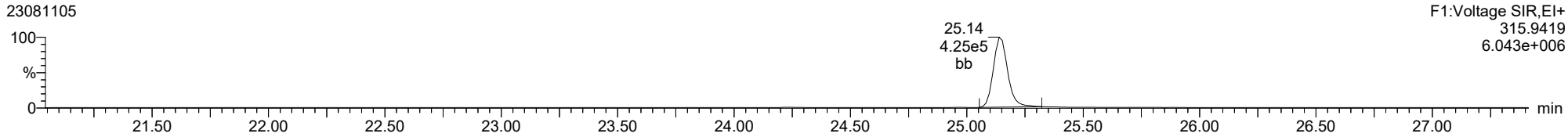
2378-TCDF



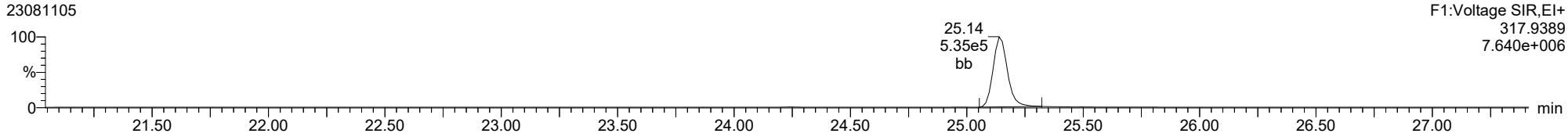
2378-TCDF



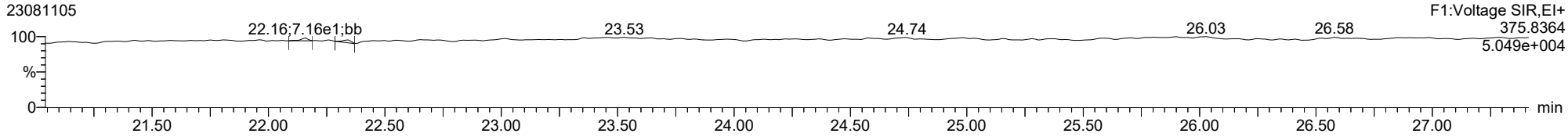
13C-2378-TCDF



13C-2378-TCDF

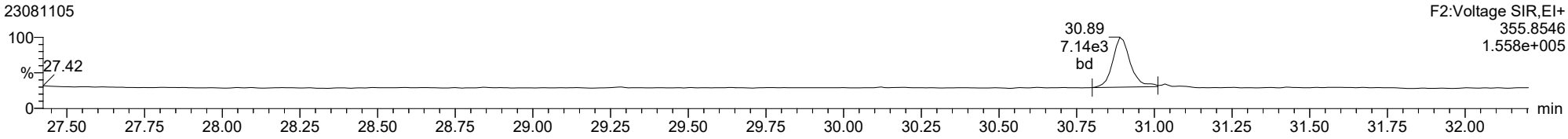


FUNCTION1 HXCDPE

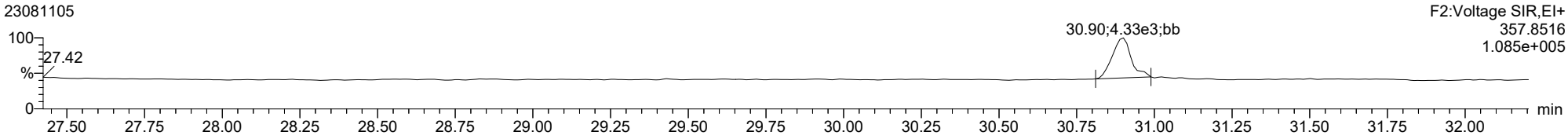


ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

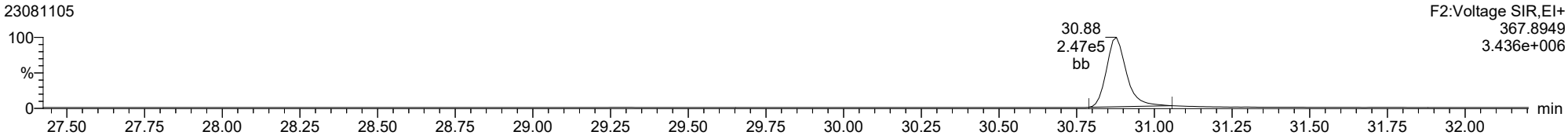
12378-PeCDD



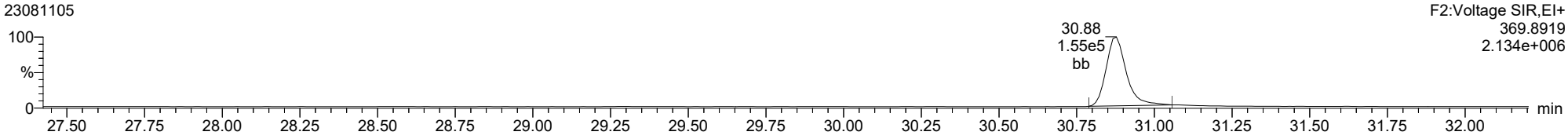
12378-PeCDD



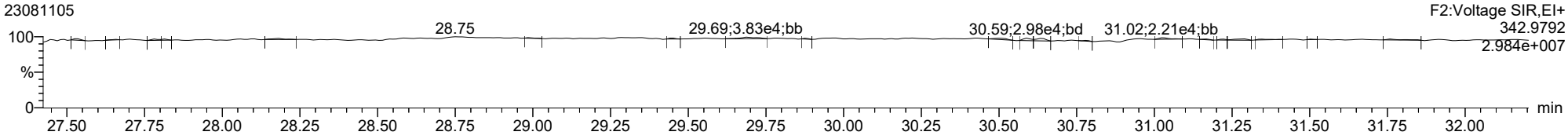
13C-12378-PeCDD



13C-12378-PeCDD

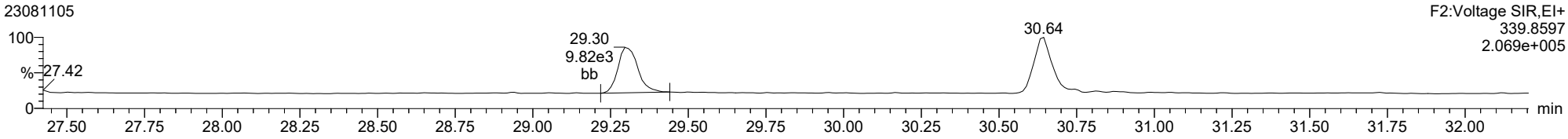


FUNCTION2 PFK

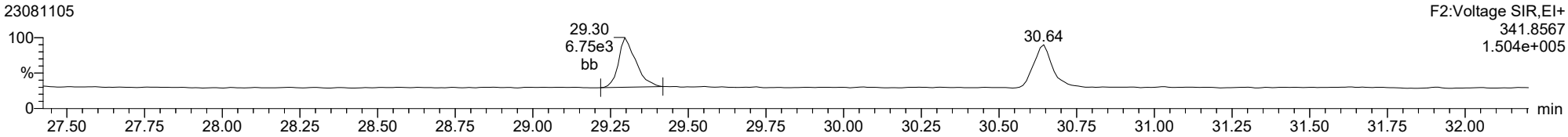


ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

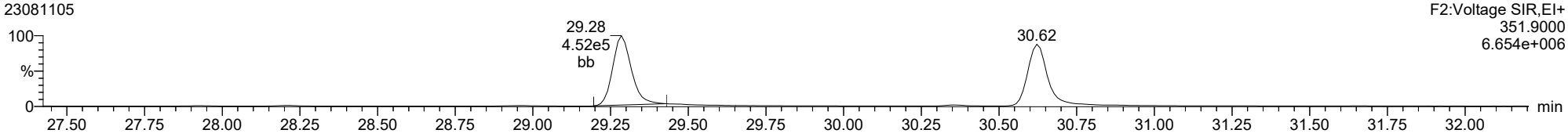
12378-PeCDF



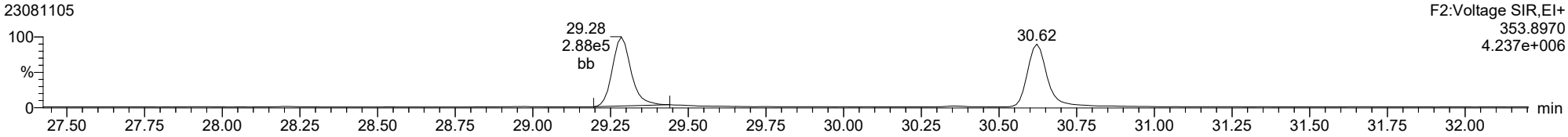
12378-PeCDF



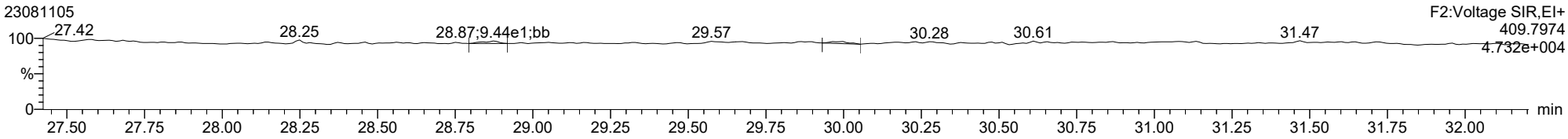
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13C-12378-PeCDF

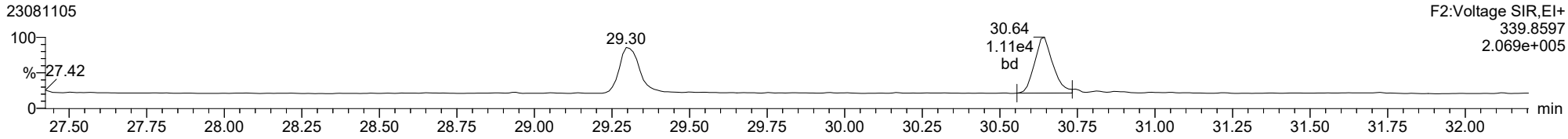


FUNCTION2 HPCDPE

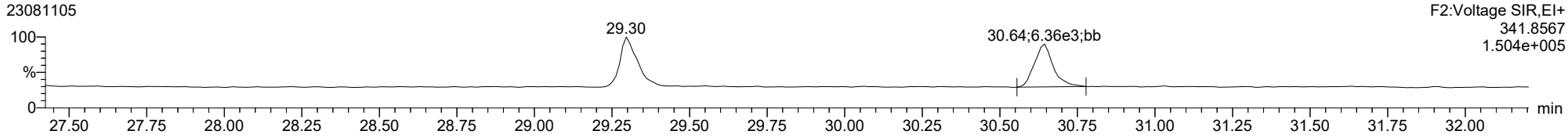


ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

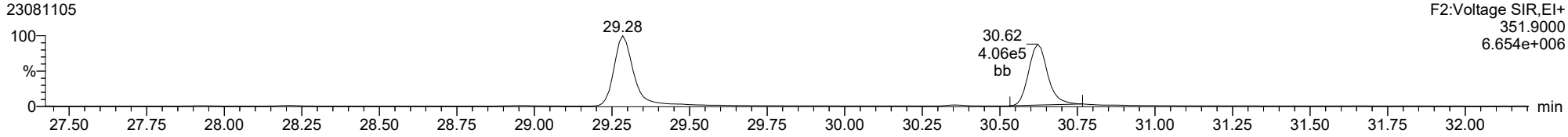
23478-PeCDF



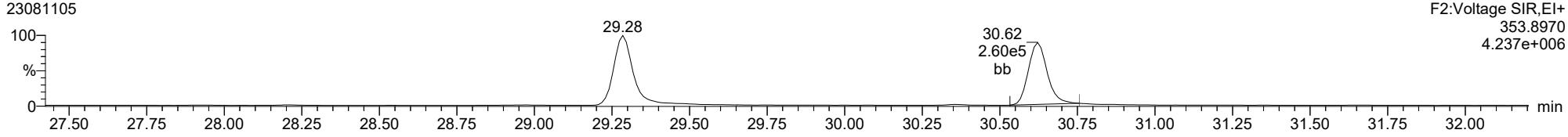
23478-PeCDF



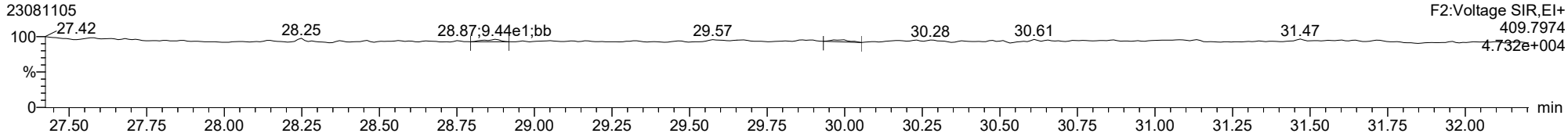
13C-23478-PeCDF



13C-23478-PeCDF

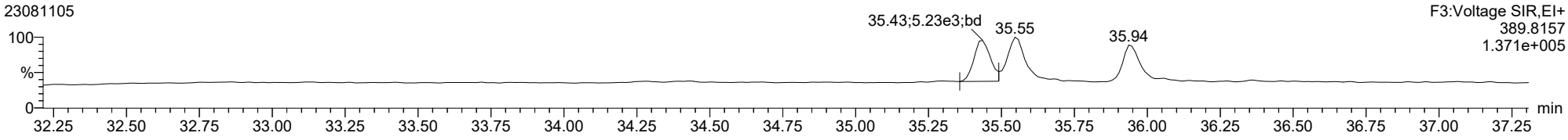


FUNCTION2 HPCDPE

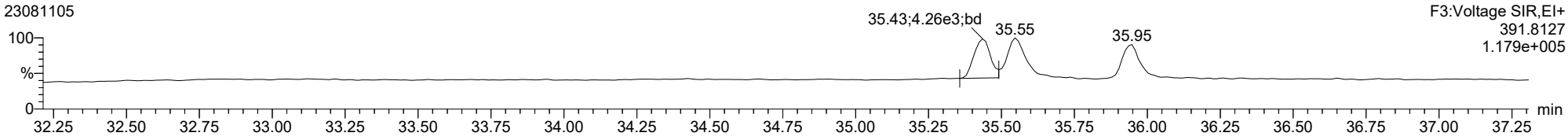


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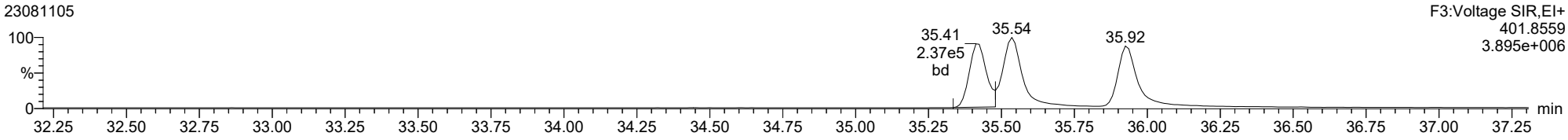
123478-HxCDD



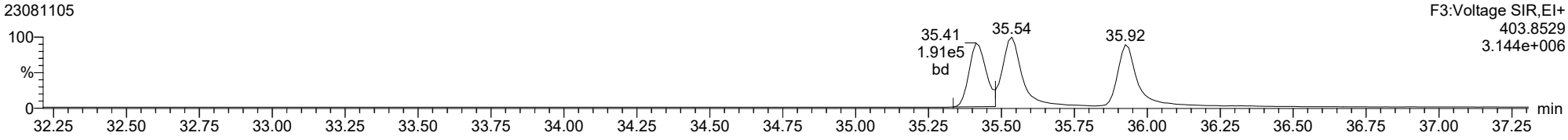
123478-HxCDD



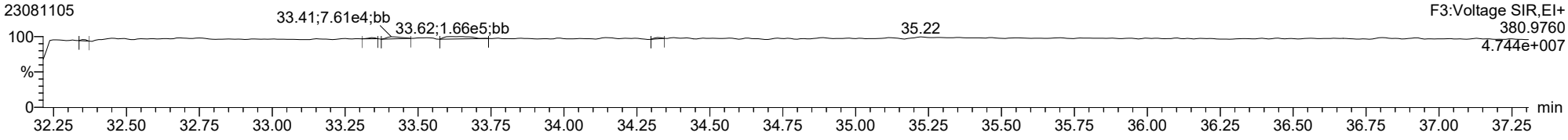
13C-123478-HxCDD



13C-123478-HxCDD



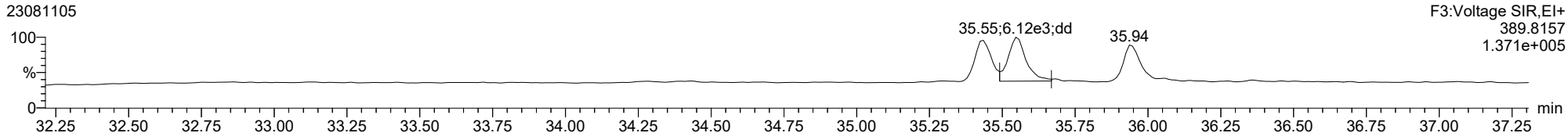
FUNCTION3 PFK



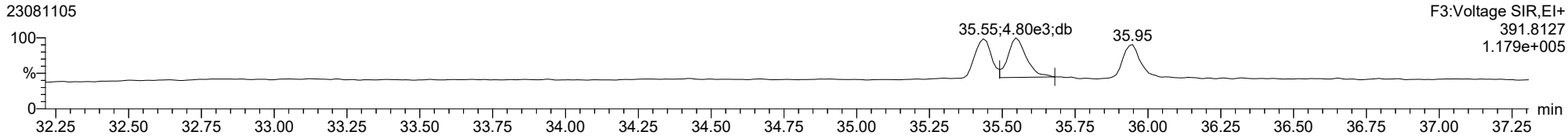
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Printed: Tuesday, August 15, 2023 12:24:07 Pacific Daylight Time

ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

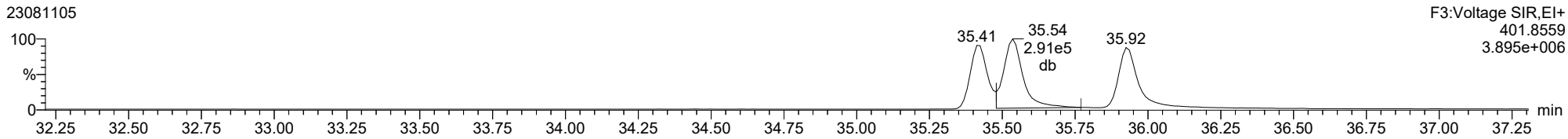
123678-HxCDD



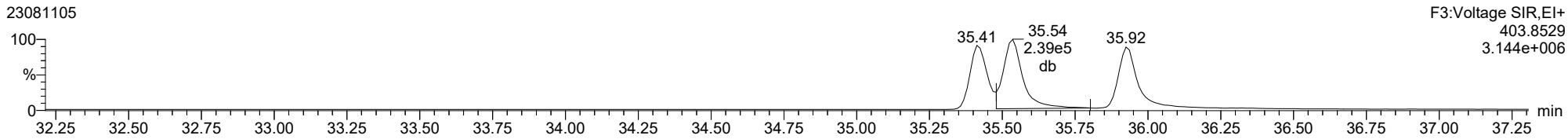
123678-HxCDD



13C-123678-HxCDD



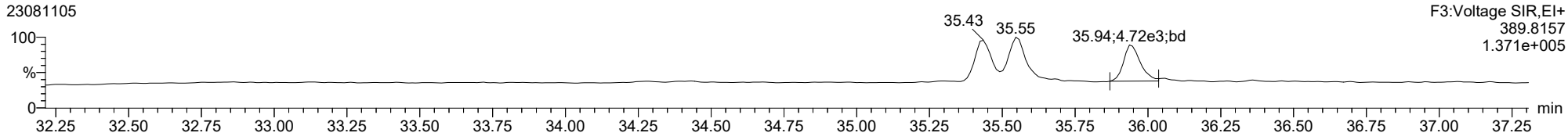
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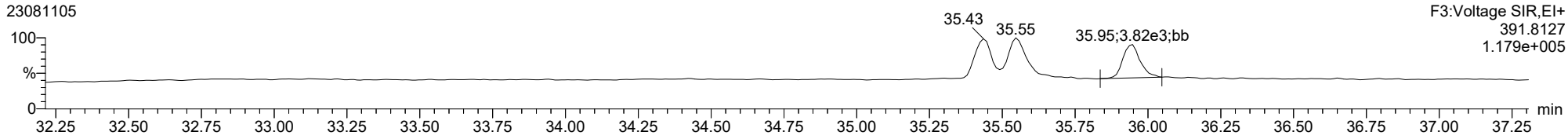
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ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

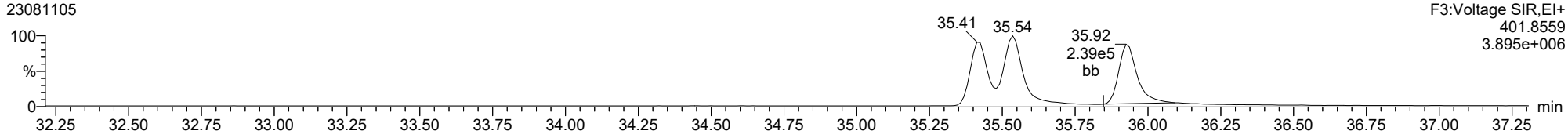
123789-HxCDD



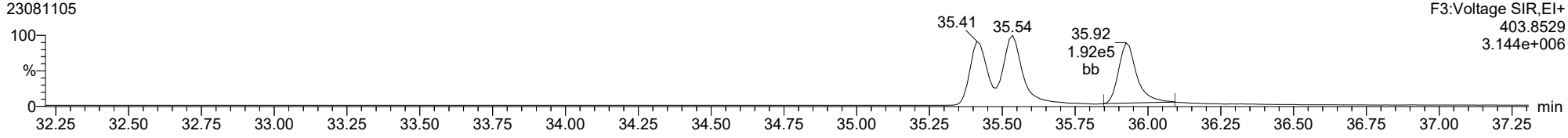
123789-HxCDD



13C-123789-HxCDD

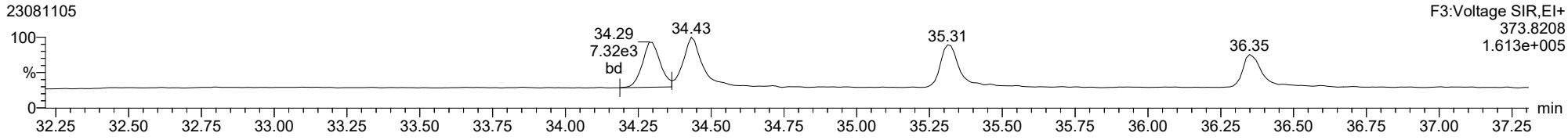


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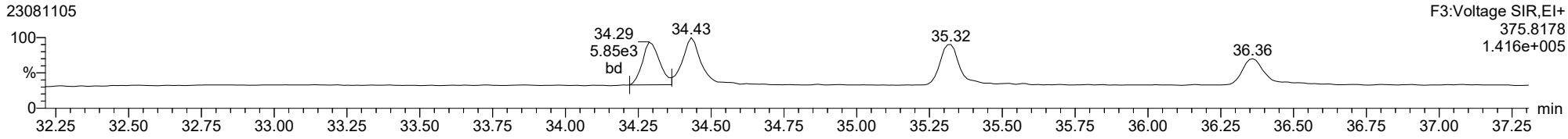


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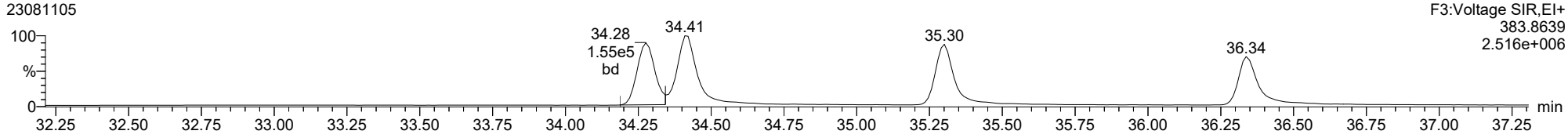
123478-HxCDF



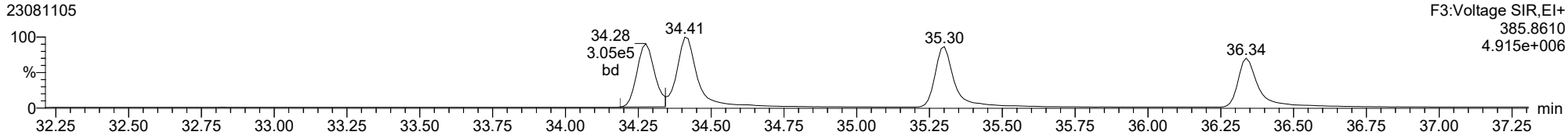
123478-HxCDF



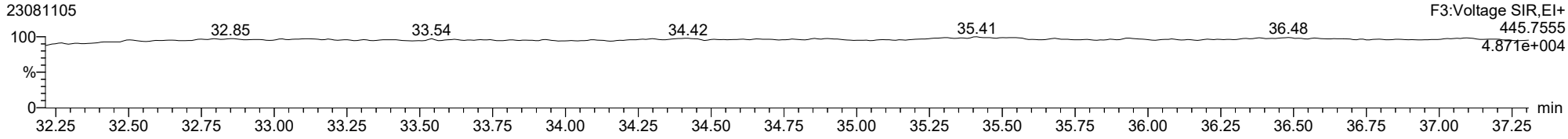
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13C-123478-HxCDF

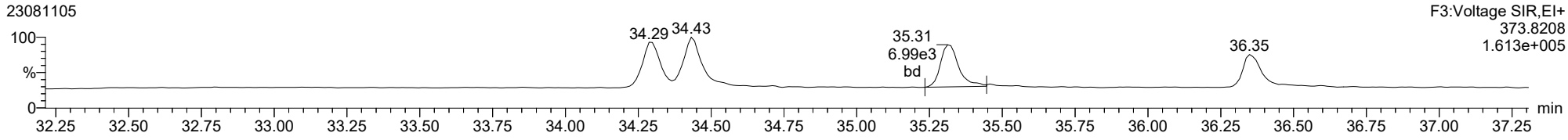


FUNCTION3 OCDPE

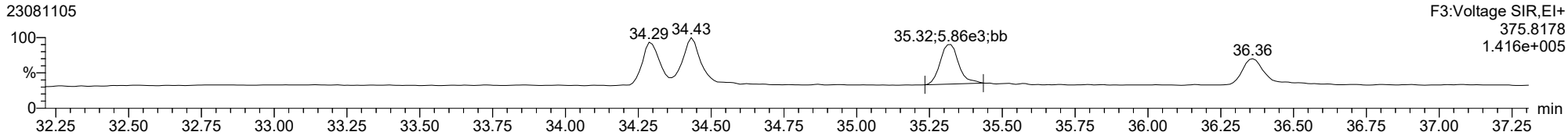


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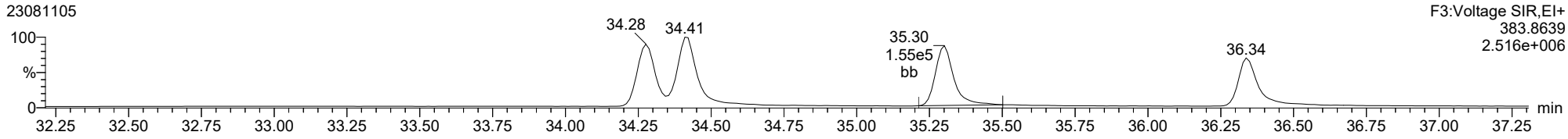
234678-HxCDF



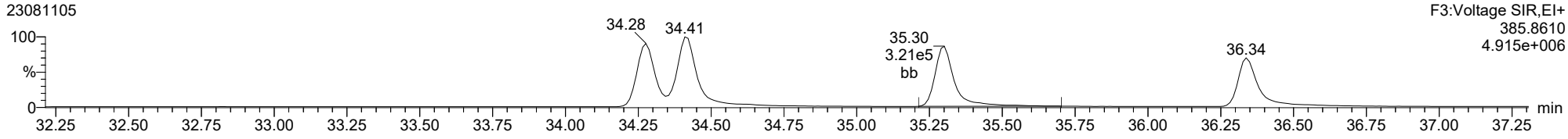
234678-HxCDF



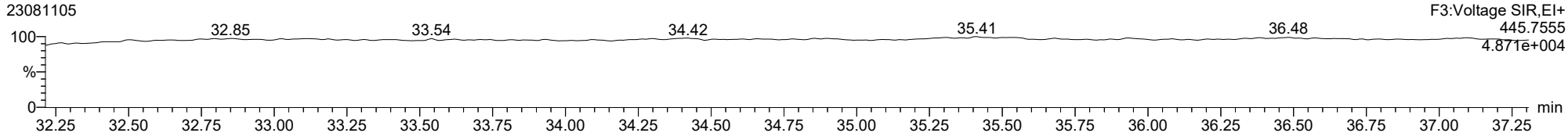
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13C-234678-HxCDF

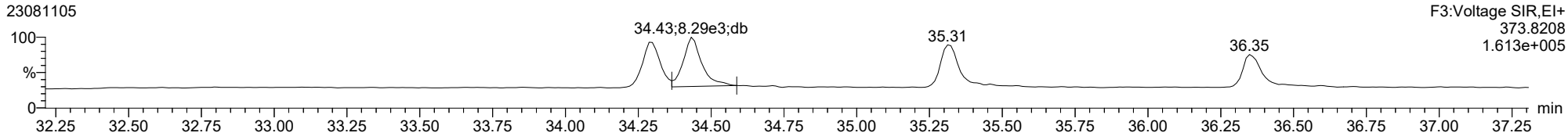


FUNCTION3 OCDPE

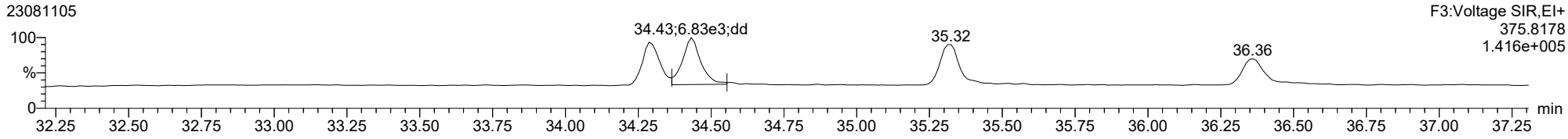


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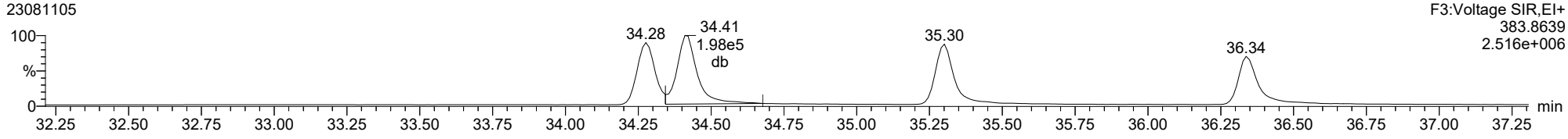
123678-HxCDF



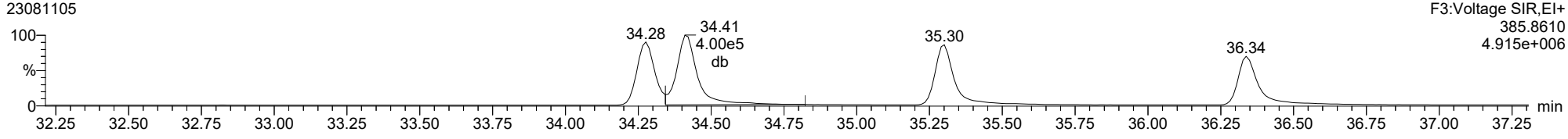
123678-HxCDF



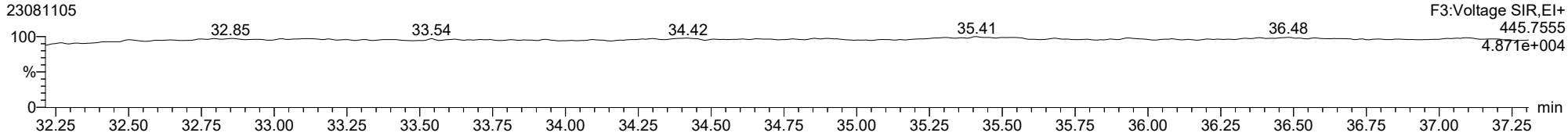
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13C-123678-HxCDF

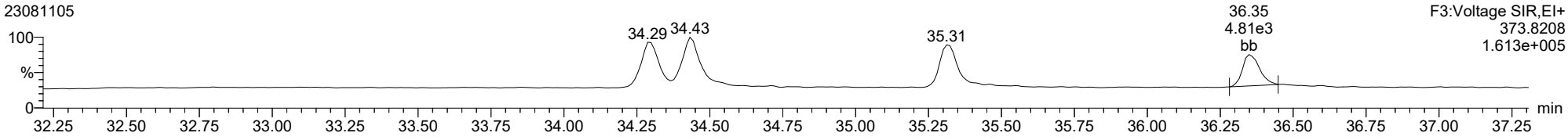


FUNCTION3 OCDPE

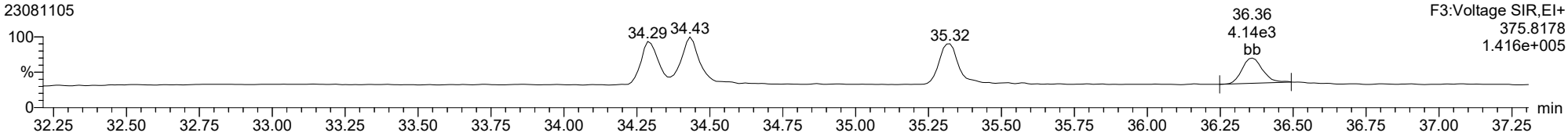


ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

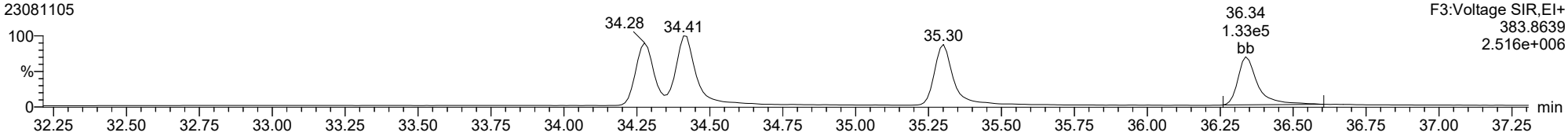
123789-HxCDF



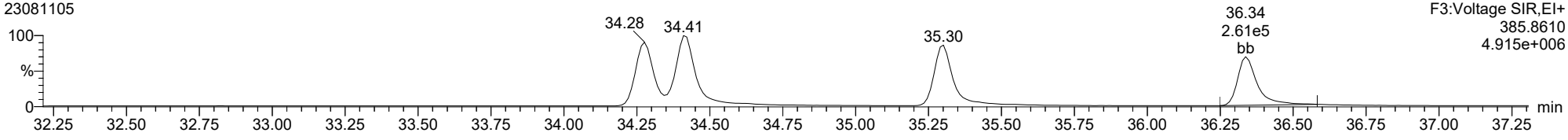
123789-HxCDF



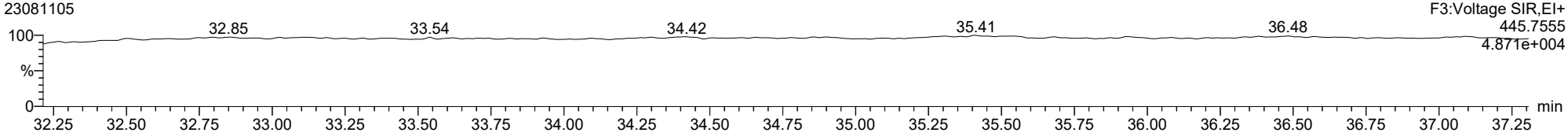
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13C-123789-HxCDF

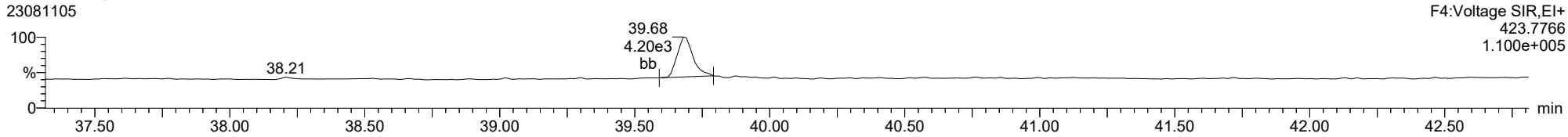


FUNCTION3 OCDPE

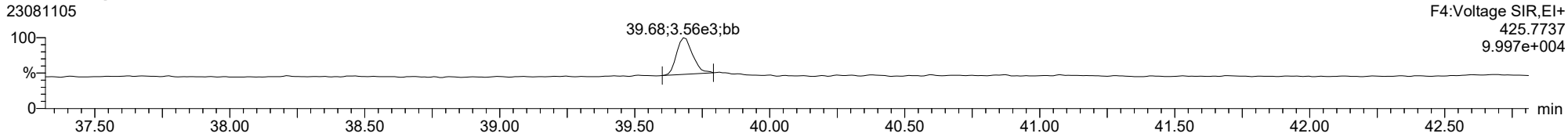


ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

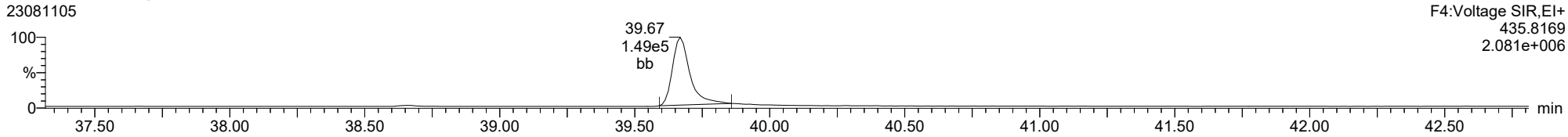
1234678-HpCDD



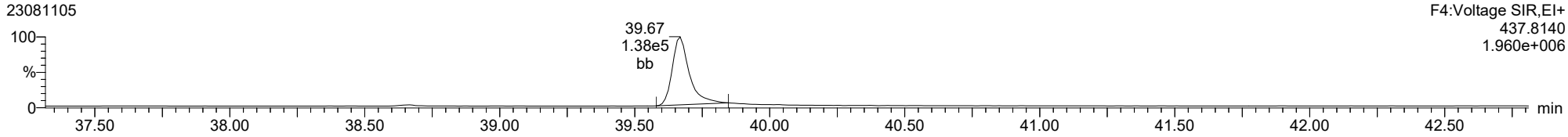
1234678-HpCDD



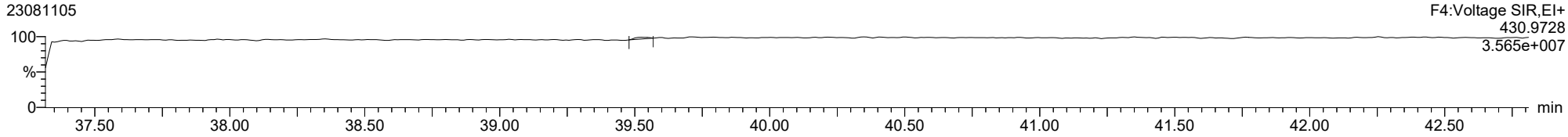
13C-1234678-HpCDD



13C-1234678-HpCDD

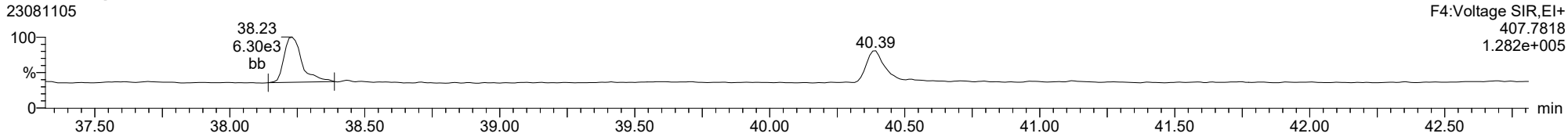


FUNCTION4 PFK

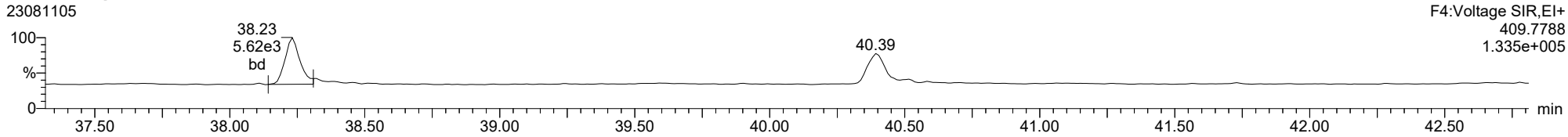


ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

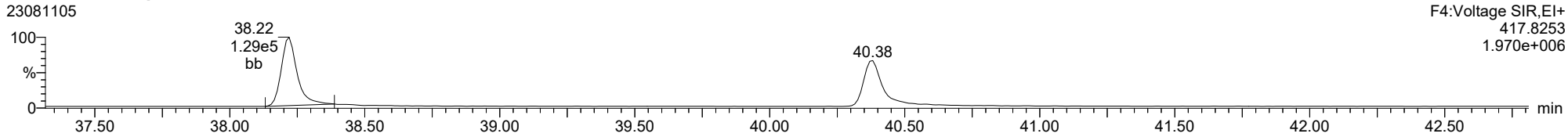
1234678-HpCDF



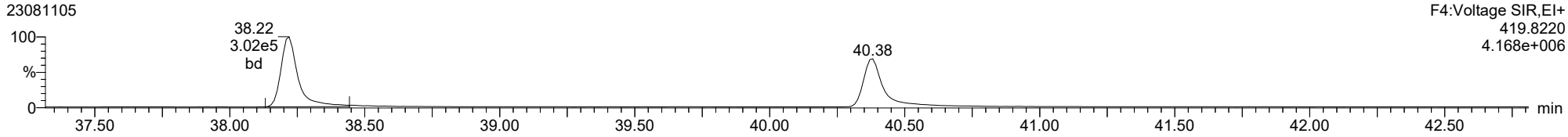
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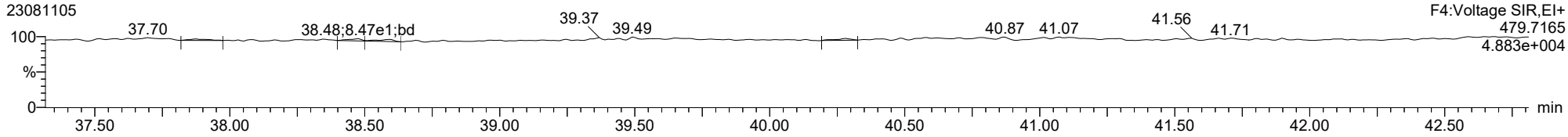
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13C-1234678-HpCDF

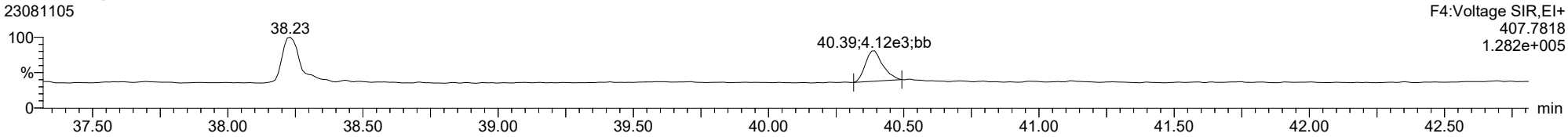


FUNCTION4 NCDPE

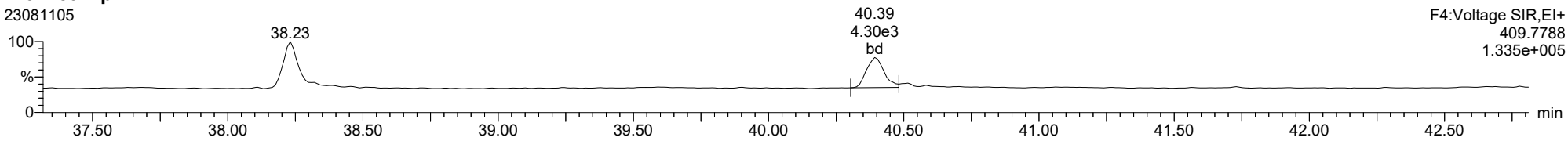


ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

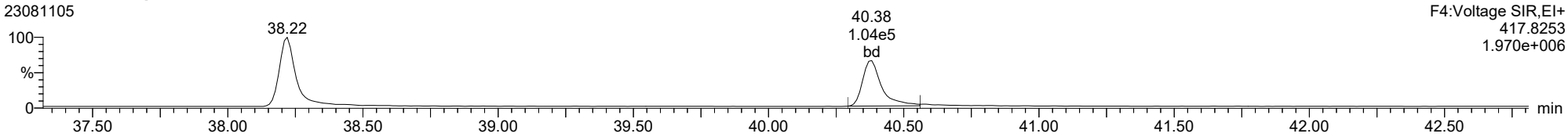
1234789-HpCDF



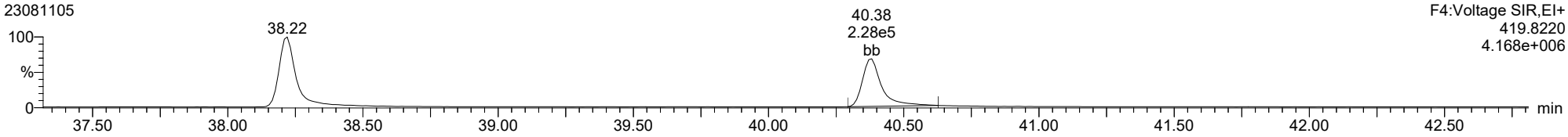
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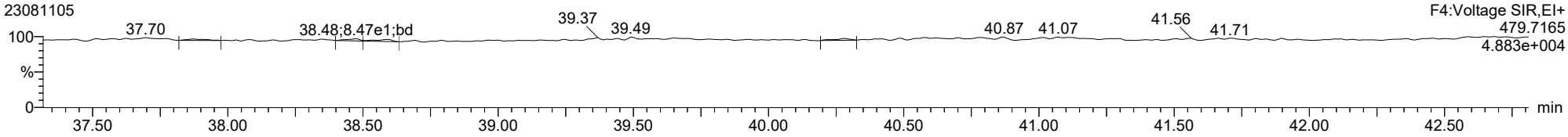
13C-1234789-HpCDF



13C-1234789-HpCDF

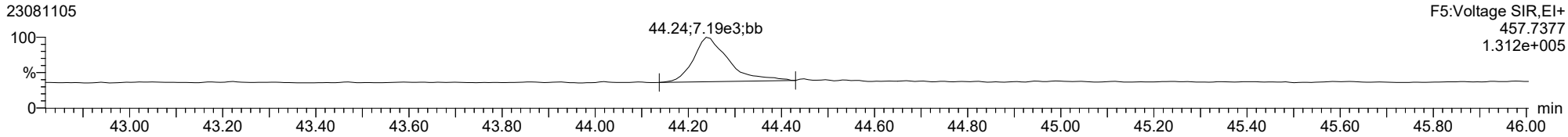


FUNCTION4 NCDPE

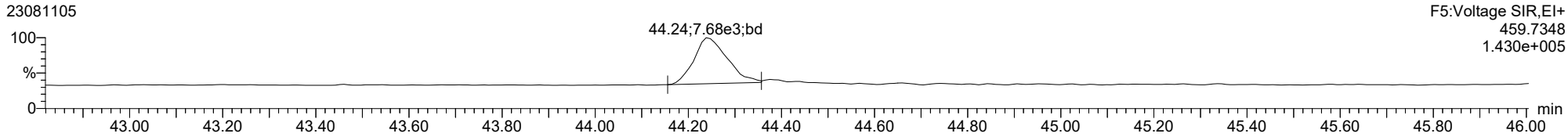


ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

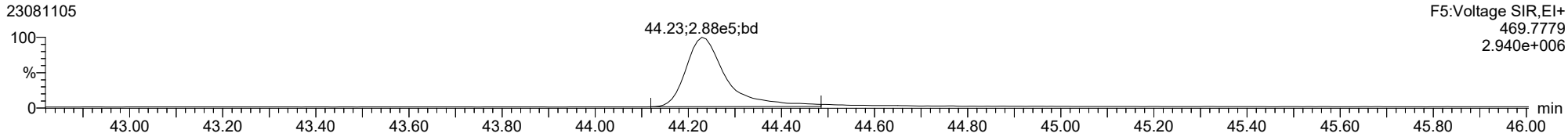
OCDD



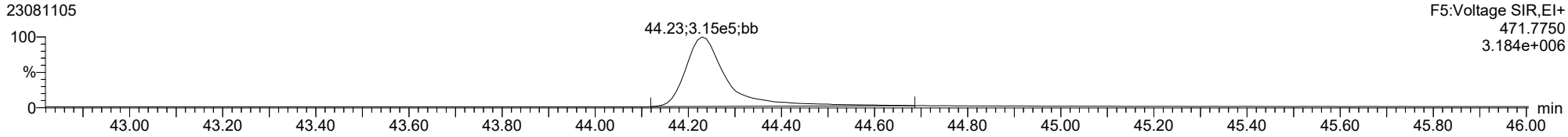
OCDD



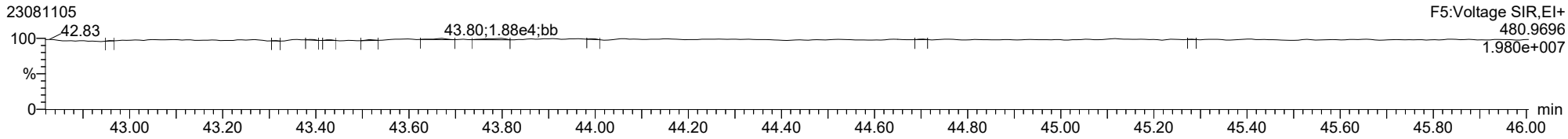
13C-OCDD



13C-OCDD

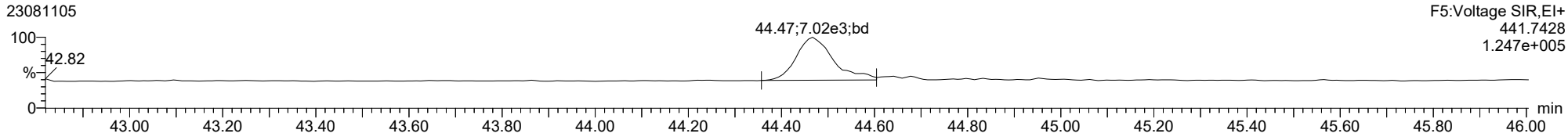


FUNCTION5 PFK

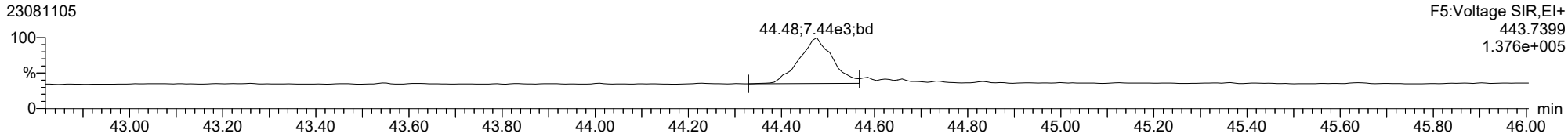


ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

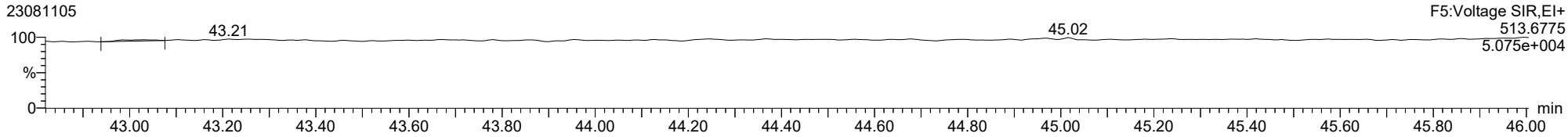
OCDF



OCDF

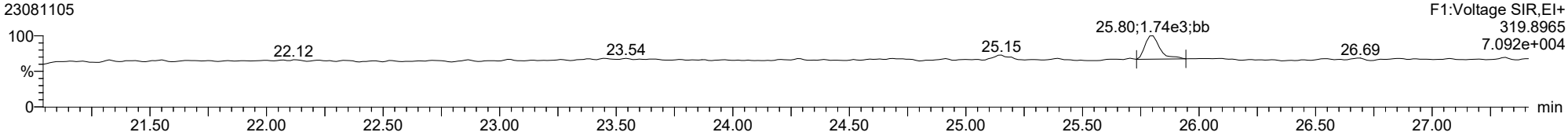


FUNCTION5 DCDPE

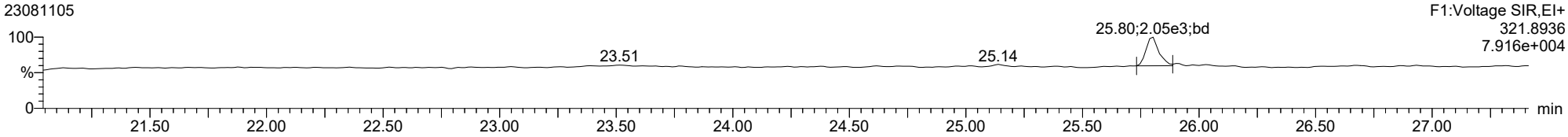


ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

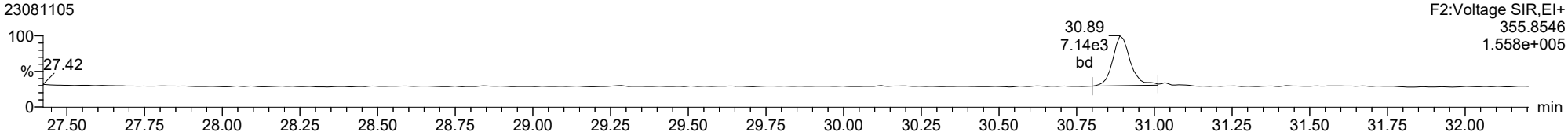
Total-tetradioxins



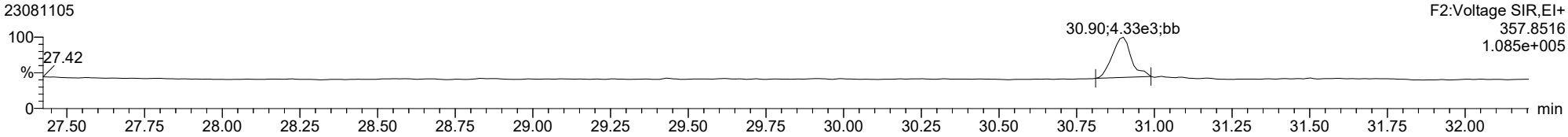
Total-tetradioxins



Total-pentadioxins

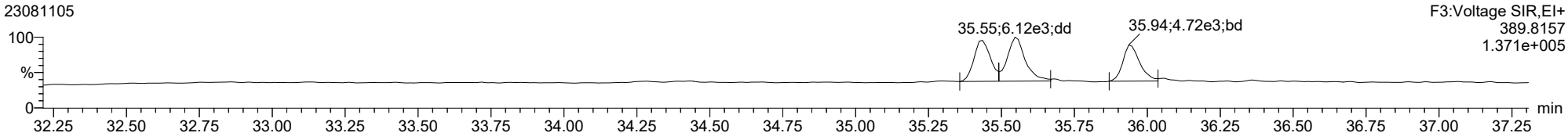


Total-pentadioxins

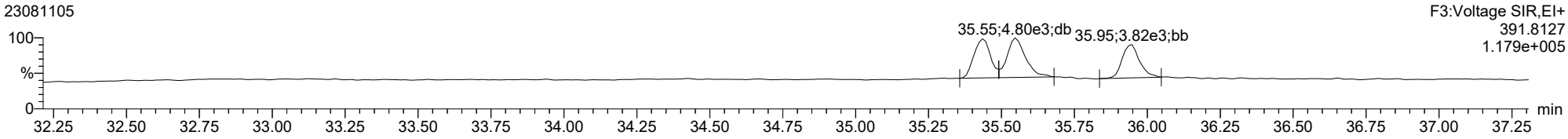


ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

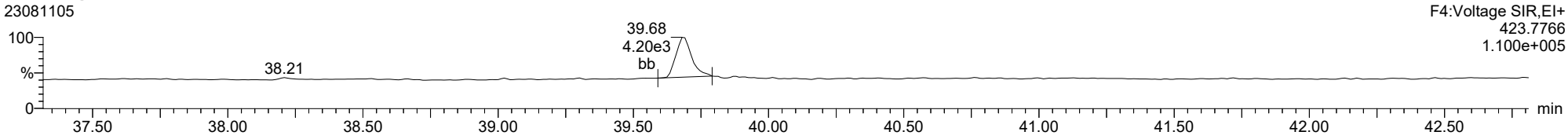
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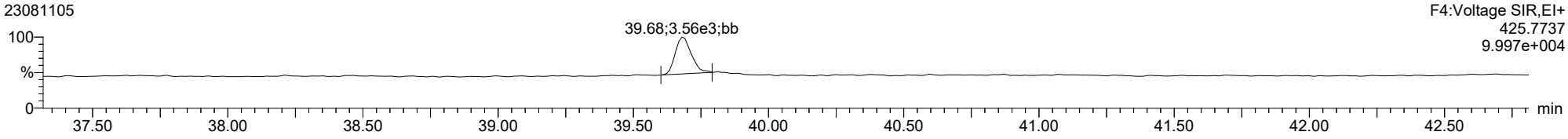
Total-hexadioxins



Total-heptadioxins

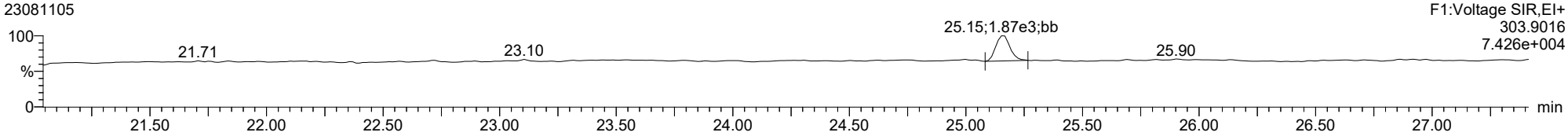


Total-heptadioxins

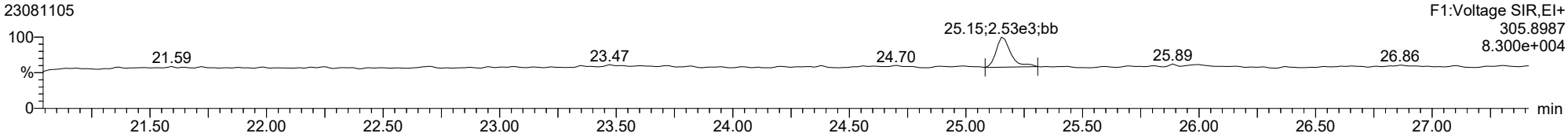


ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

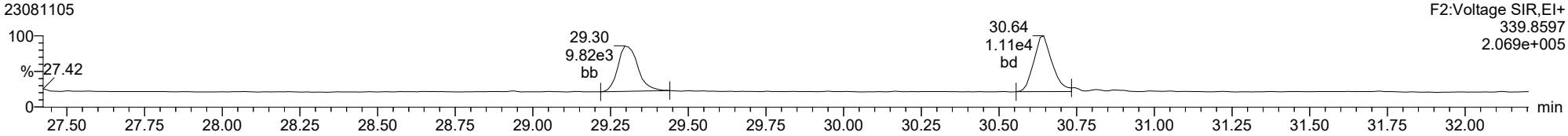
Total-tetrafurans



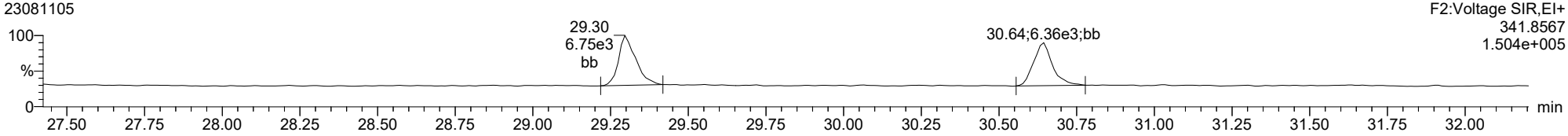
Total-tetrafurans



Total-pentafurans



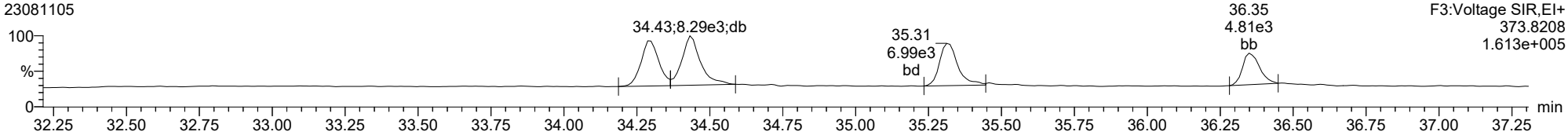
Total-pentafurans



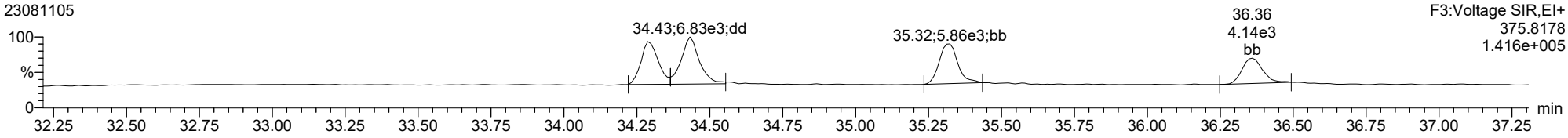
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Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:07 Pacific Daylight Time

ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

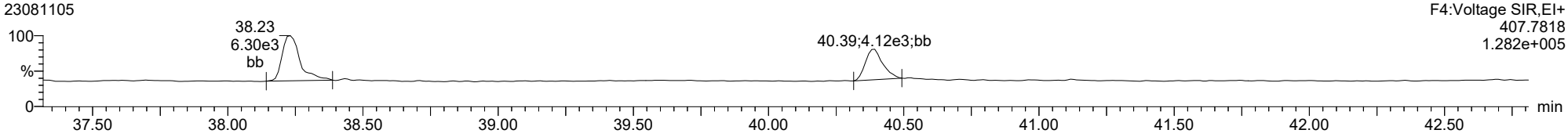
Total-hexafurans



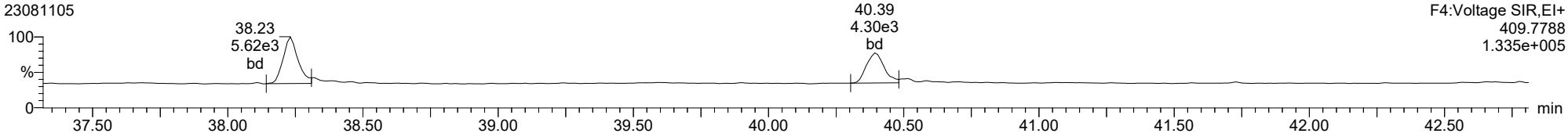
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
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Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.167	1.001	6.639e3	8.975e3	0.903	0.740	0.770	538	993	9.21e4	1.31e5	171.1	132.1	NO	bb	bb	1.970
12378-PeCDF	29.307	1.001	3.740e4	2.220e4	0.923	1.684	1.550	1167	1190	4.81e5	3.04e5	411.7	255.4	NO	bb	bd	10.334
23478-PeCDF	30.644	1.001	3.540e4	2.344e4	0.991	1.510	1.550	1167	1190	4.95e5	3.17e5	424.4	266.2	NO	bb	bd	9.895
123478-HxCDF	34.298	1.001	2.384e4	1.903e4	1.128	1.253	1.240	1466	1136	3.44e5	2.76e5	234.6	242.7	NO	bd	bd	9.772
234678-HxCDF	35.323	1.001	2.434e4	1.816e4	1.081	1.340	1.240	1466	1136	3.13e5	2.58e5	213.5	227.4	NO	bd	bb	10.221
123678-HxCDF	34.432	1.000	2.948e4	2.321e4	1.032	1.270	1.240	1466	1136	3.59e5	2.86e5	244.6	251.7	NO	dd	dd	10.354
123789-HxCDF	36.359	1.000	1.833e4	1.528e4	0.988	1.200	1.240	1466	1136	2.44e5	1.98e5	166.3	174.1	NO	bb	bd	9.957
1234678-HpCDF	38.231	1.000	2.069e4	1.904e4	1.164	1.087	1.050	1165	914	2.82e5	2.63e5	242.1	287.7	NO	bd	bd	10.035
1234789-HpCDF	40.403	1.000	1.452e4	1.375e4	1.104	1.056	1.050	1165	914	1.89e5	1.80e5	161.9	196.4	NO	bd	bd	10.072
OCDF	44.475	1.005	2.020e4	2.277e4	1.130	0.887	0.890	1047	1105	2.11e5	2.19e5	201.8	198.1	NO	bd	bd	22.550
2378-TCDD	25.803	1.001	5.548e3	6.953e3	1.243	0.798	0.770	803	625	7.86e4	9.57e4	97.9	153.2	NO	bd	bd	1.984
12378-PeCDD	30.900	1.001	2.229e4	1.439e4	1.150	1.549	1.550	754	561	3.06e5	2.04e5	405.8	364.2	NO	bb	bd	9.779
123478-HxCDD	35.435	1.000	1.653e4	1.351e4	0.960	1.224	1.240	811	937	2.39e5	1.94e5	295.1	207.1	NO	bd	bd	10.063
123678-HxCDD	35.557	1.001	1.716e4	1.531e4	0.883	1.121	1.240	811	937	2.38e5	1.95e5	293.1	207.7	NO	dd	dd	9.914
123789-HxCDD	35.947	1.012	1.586e4	1.341e4	0.804	1.183	1.240	811	937	2.09e5	1.88e5	257.8	200.7	NO	bd	bd	10.680
1234678-HpCDD	39.690	1.001	1.073e4	1.037e4	1.200	1.035	1.050	1103	680	1.37e5	1.38e5	123.9	203.2	NO	bd	bd	9.429
OCDD	44.247	1.000	1.670e4	1.836e4	1.059	0.910	0.890	879	1587	1.83e5	2.04e5	207.8	128.8	NO	bd	bb	19.639
13C-2378-TCDF	25.153	1.007	3.886e5	4.890e5	1.835	0.795	0.770	1364	1344	5.37e6	6.83e6	3939.0	5083.6	NO	bb	bb	100.434
13C-12378-PeCDF	29.285	1.173	3.779e5	2.468e5	1.377	1.531	1.550	3286	2729	5.12e6	3.35e6	1559.6	1229.0	NO	bb	bb	95.324
13C-23478-PeCDF	30.622	1.226	3.655e5	2.348e5	1.301	1.557	1.550	3286	2729	4.81e6	3.14e6	1465.3	1148.8	NO	bb	bb	96.899
13C-123478-HxCDF	34.276	0.954	1.314e5	2.576e5	1.091	0.510	0.510	1750	2697	1.85e6	3.61e6	1057.7	1339.3	NO	bd	bd	107.194
13C-123678-HxCDF	34.421	0.958	1.547e5	3.382e5	1.340	0.457	0.510	1750	2697	2.05e6	4.08e6	1171.2	1512.3	NO	db	db	110.566
13C-234678-HxCDF	35.301	0.982	1.364e5	2.481e5	1.093	0.550	0.510	1750	2697	1.72e6	3.32e6	983.2	1231.8	NO	bb	bb	105.714
13C-123789-HxCDF	36.348	1.012	1.112e5	2.306e5	0.952	0.482	0.510	1750	2697	1.36e6	2.75e6	779.0	1019.4	NO	bb	bb	107.981
13C-1234678-HpCDF	38.220	1.064	9.913e4	2.411e5	0.985	0.411	0.440	1895	2595	1.40e6	3.17e6	737.2	1220.7	NO	bb	bb	103.834
13C-1234789-HpCDF	40.381	1.124	7.550e4	1.788e5	0.756	0.422	0.440	1895	2595	9.30e5	2.09e6	490.9	805.4	NO	bb	bd	101.155
13C-1234-TCDD	24.969	0.000	2.112e5	2.649e5	1.000	0.797	0.770	1680	1124	3.19e6	4.00e6	1899.2	3554.0	NO	bb	bb	100.000
13C-2378-TCDD	25.788	1.033	2.248e5	2.821e5	1.110	0.797	0.770	1680	1124	3.12e6	3.97e6	1858.7	3527.9	NO	bb	bb	95.969
13C-12378-PeCDD	30.878	1.237	2.020e5	1.242e5	0.754	1.627	1.550	1223	944	2.75e6	1.67e6	2245.0	1771.6	NO	bb	bb	90.902
13C-123478-HxCDD	35.423	0.986	1.742e5	1.367e5	0.960	1.275	1.240	1410	1296	2.60e6	2.05e6	1845.4	1580.5	NO	bd	bd	97.371
13C-123678-HxCDD	35.535	0.989	2.078e5	1.633e5	1.159	1.273	1.240	1410	1296	2.57e6	2.02e6	1824.4	1557.0	NO	db	db	96.226
13C-1234678-HpCDD	39.668	1.104	9.858e4	8.803e4	0.629	1.120	1.050	1254	2104	1.25e6	1.14e6	994.6	540.8	NO	bd	bd	89.141
13C-OCDD	44.238	1.231	1.612e5	1.761e5	0.635	0.915	0.890	2400	1954	1.62e6	1.78e6	676.5	910.4	NO	bd	bd	159.619
13C-123789-HxCDD	35.936	0.000	1.861e5	1.465e5	1.000	1.270	1.240	1410	1296	2.41e6	1.88e6	1710.5	1449.2	NO	bb	bb	100.000
37CL-2378-TCDD	25.803	1.033	1.067e4		1.157			862		1.46e5		169.4			bb		1.937

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:22 Pacific Daylight Time

ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.170		0.770	538	993								
1289-TCDF					0.847		0.770	538	993								
13468-PECDF					1.241		1.550	576	687								
12389-PECDF					0.880		1.550	1167	1190								
123468-HXCDF					1.206		1.240	1466	1136								
1368-TCDD					1.181		0.770	803	625								
1289-TCDD					0.963		0.770	803	625								
12479-PECDD					2.166		1.550	754	561								
12389-PECDD					1.326		1.550	754	561								
124679-HXCDD					1.127		1.240	811	937								
1234679-HPCDD					1.303		1.050	1103	680								
Total-tetrafurans			6.639e3		0.973			538		9.21e4							1.970
Total-penta1			0.000e0					576		0.00e0							
Total-pentafurans			7.280e4		0.931			1167		9.76e5							20.229
Total-hexafurans			9.600e4		1.087			1466		1.26e6							40.303
Total-heptafurans			3.521e4		1.134			1165		4.71e5							20.106
Total-Furans			2.308e5		1.053			538		3.01e6							105.158
Total-tetradioxins			5.548e3		1.129			803		7.86e4							1.984
Total-pentadioxins			2.229e4		1.548			754		3.06e5							9.779
Total-hexadioxins			4.955e4		0.943			811		6.86e5							30.657
Total-heptadioxins			1.073e4		1.251			1103		1.37e5							9.429
Total-Dioxins			1.048e5		1.182			803		1.39e6							71.487
Total-TEQ			3.357e5					803		4.40e6							176.646
FUNCTION1 PFK			6.101e5					529815		9.62e6							
FUNCTION2 PFK			3.300e5					262661		9.68e6							0.000
FUNCTION3 PFK			3.679e4					410224		9.46e5							0.000
FUNCTION4 PFK			9.280e4					245564		2.16e6							
FUNCTION5 PFK			2.234e4					217516		1.10e6							
FUNCTION1 HXCD...			1.047e3					646		1.33e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			1.453e2					593		3.14e3							0.000
FUNCTION3 OCDPE			0.000e0					501		0.00e0							
FUNCTION4 NCDPE			0.000e0					705		0.00e0							
FUNCTION5 DCDPE			0.000e0					568		0.00e0							

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.17	6.639e3	8.975e3	0.903	0.74	0.77	171.1	YES	NO	bb	bb	1.970

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.64	3.540e4	2.344e4	0.991	1.51	1.55	424.4	YES	NO	bb	bd	9.895
2	12378-PeCDF	29.31	3.740e4	2.220e4	0.923	1.68	1.55	411.7	YES	NO	bb	bd	10.334

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.36	1.833e4	1.528e4	0.988	1.20	1.24	166.3	YES	NO	bb	bd	9.957
2	234678-HxCDF	35.32	2.434e4	1.816e4	1.081	1.34	1.24	213.5	YES	NO	bd	bb	10.221
3	123678-HxCDF	34.43	2.948e4	2.321e4	1.032	1.27	1.24	244.6	YES	NO	dd	dd	10.354
4	123478-HxCDF	34.30	2.384e4	1.903e4	1.128	1.25	1.24	234.6	YES	NO	bd	bd	9.772

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.40	1.452e4	1.375e4	1.104	1.06	1.05	161.9	YES	NO	bd	bd	10.072
2	1234678-HpCDF	38.23	2.069e4	1.904e4	1.164	1.09	1.05	242.1	YES	NO	bd	bd	10.035

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.64	3.540e4	2.344e4	0.991	1.51	1.55	424.4	YES	NO	bb	bd	9.895
2	12378-PeCDF	29.31	3.740e4	2.220e4	0.923	1.68	1.55	411.7	YES	NO	bb	bd	10.334
3	2378-TCDF	25.17	6.639e3	8.975e3	0.903	0.74	0.77	171.1	YES	NO	bb	bb	1.970
4	123789-HxCDF	36.36	1.833e4	1.528e4	0.988	1.20	1.24	166.3	YES	NO	bb	bd	9.957
5	234678-HxCDF	35.32	2.434e4	1.816e4	1.081	1.34	1.24	213.5	YES	NO	bd	bb	10.221
6	123678-HxCDF	34.43	2.948e4	2.321e4	1.032	1.27	1.24	244.6	YES	NO	dd	dd	10.354
7	123478-HxCDF	34.30	2.384e4	1.903e4	1.128	1.25	1.24	234.6	YES	NO	bd	bd	9.772
8	1234789-HpCDF	40.40	1.452e4	1.375e4	1.104	1.06	1.05	161.9	YES	NO	bd	bd	10.072
9	1234678-HpCDF	38.23	2.069e4	1.904e4	1.164	1.09	1.05	242.1	YES	NO	bd	bd	10.035
10	OCDF	44.48	2.020e4	2.277e4	1.130	0.89	0.89	201.8	YES	NO	bd	bd	22.550

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.80	5.548e3	6.953e3	1.243	0.80	0.77	97.9	YES	NO	bd	bd	1.984

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.90	2.229e4	1.439e4	1.150	1.55	1.55	405.8	YES	NO	bb	bd	9.779

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.95	1.586e4	1.341e4	0.804	1.18	1.24	257.8	YES	NO	bd	bd	10.680
2	123678-HxCDD	35.56	1.716e4	1.531e4	0.883	1.12	1.24	293.1	YES	NO	dd	dd	9.914
3	123478-HxCDD	35.43	1.653e4	1.351e4	0.960	1.22	1.24	295.1	YES	NO	bd	bd	10.063

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.69	1.073e4	1.037e4	1.200	1.03	1.05	123.9	YES	NO	bd	bd	9.429

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.80	5.548e3	6.953e3	1.243	0.80	0.77	97.9	YES	NO	bd	bd	1.984
2	123789-HxCDD	35.95	1.586e4	1.341e4	0.804	1.18	1.24	257.8	YES	NO	bd	bd	10.680
3	123678-HxCDD	35.56	1.716e4	1.531e4	0.883	1.12	1.24	293.1	YES	NO	dd	dd	9.914
4	123478-HxCDD	35.43	1.653e4	1.351e4	0.960	1.22	1.24	295.1	YES	NO	bd	bd	10.063
5	12378-PeCDD	30.90	2.229e4	1.439e4	1.150	1.55	1.55	405.8	YES	NO	bb	bd	9.779
6	OCDD	44.25	1.670e4	1.836e4	1.059	0.91	0.89	207.8	YES	NO	bd	bb	19.639
7	1234678-HpCDD	39.69	1.073e4	1.037e4	1.200	1.03	1.05	123.9	YES	NO	bd	bd	9.429

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.64	3.540e4	2.344e4	0.991	1.51	1.55	424.4	YES	NO	bb	bd	9.895
2	12378-PeCDF	29.31	3.740e4	2.220e4	0.923	1.68	1.55	411.7	YES	NO	bb	bd	10.334
3	2378-TCDF	25.17	6.639e3	8.975e3	0.903	0.74	0.77	171.1	YES	NO	bb	bb	1.970
4	123789-HxCDF	36.36	1.833e4	1.528e4	0.988	1.20	1.24	166.3	YES	NO	bb	bd	9.957
5	234678-HxCDF	35.32	2.434e4	1.816e4	1.081	1.34	1.24	213.5	YES	NO	bd	bb	10.221
6	123678-HxCDF	34.43	2.948e4	2.321e4	1.032	1.27	1.24	244.6	YES	NO	dd	dd	10.354
7	123478-HxCDF	34.30	2.384e4	1.903e4	1.128	1.25	1.24	234.6	YES	NO	bd	bd	9.772
8	1234789-HpCDF	40.40	1.452e4	1.375e4	1.104	1.06	1.05	161.9	YES	NO	bd	bd	10.072
9	1234678-HpCDF	38.23	2.069e4	1.904e4	1.164	1.09	1.05	242.1	YES	NO	bd	bd	10.035
10	OCDF	44.48	2.020e4	2.277e4	1.130	0.89	0.89	201.8	YES	NO	bd	bd	22.550
11	2378-TCDD	25.80	5.548e3	6.953e3	1.243	0.80	0.77	97.9	YES	NO	bd	bd	1.984
12	123789-HxCDD	35.95	1.586e4	1.341e4	0.804	1.18	1.24	257.8	YES	NO	bd	bd	10.680
13	123678-HxCDD	35.56	1.716e4	1.531e4	0.883	1.12	1.24	293.1	YES	NO	dd	dd	9.914
14	123478-HxCDD	35.43	1.653e4	1.351e4	0.960	1.22	1.24	295.1	YES	NO	bd	bd	10.063
15	12378-PeCDD	30.90	2.229e4	1.439e4	1.150	1.55	1.55	405.8	YES	NO	bb	bd	9.779
16	OCDD	44.25	1.670e4	1.836e4	1.059	0.91	0.89	207.8	YES	NO	bd	bb	19.639
17	1234678-HpCDD	39.69	1.073e4	1.037e4	1.200	1.03	1.05	123.9	YES	NO	bd	bd	9.429

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	27.13	4.567e4					1.8	NO		bb		
2	FUNCTION1 PFK	26.93	1.033e5					1.9	NO		bb		
3	FUNCTION1 PFK	25.83	1.767e4					0.9	NO		db		
4	FUNCTION1 PFK	25.76	2.157e4					1.2	NO		bd		
5	FUNCTION1 PFK	25.36	1.644e4					1.0	NO		bb		
6	FUNCTION1 PFK	24.72	9.596e3					0.9	NO		bb		
7	FUNCTION1 PFK	23.80	8.729e4					1.7	NO		bb		
8	FUNCTION1 PFK	23.68	1.279e4					0.8	NO		bb		
9	FUNCTION1 PFK	22.95	2.100e4					1.1	NO		bb		
10	FUNCTION1 PFK	22.55	1.612e5					2.6	NO		bb		
11	FUNCTION1 PFK	21.37	6.636e4					1.6	NO		bb		
12	FUNCTION1 PFK	21.24	1.932e4					1.3	NO		bb		
13	FUNCTION1 PFK	27.37	2.793e4					1.4	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.56	1.108e3					0.4	NO		bb		0.000
2	FUNCTION2 PFK	29.42	1.592e4					1.3	NO		bb		0.000
3	FUNCTION2 PFK	29.14	8.800e3					0.6	NO		bb		0.000
4	FUNCTION2 PFK	29.04	1.126e3					0.4	NO		bb		0.000
5	FUNCTION2 PFK	28.89	1.092e3					0.4	NO		bb		0.000
6	FUNCTION2 PFK	28.67	2.760e3					0.6	NO		bb		0.000
7	FUNCTION2 PFK	28.54	4.266e4					2.3	NO		db		0.000
8	FUNCTION2 PFK	28.50	7.502e3					1.4	NO		bd		0.000
9	FUNCTION2 PFK	28.44	4.754e3					0.8	NO		bb		0.000
10	FUNCTION2 PFK	28.24	1.817e3					0.6	NO		bb		0.000
11	FUNCTION2 PFK	27.91	2.129e4					1.8	NO		bb		0.000
12	FUNCTION2 PFK	27.70	1.104e4					1.3	NO		bb		0.000
13	FUNCTION2 PFK	27.56	1.554e4					2.6	NO		bb		0.000
14	FUNCTION2 PFK	27.48	7.233e3					1.3	NO		bb		0.000
15	FUNCTION2 PFK	31.65	2.742e3					0.7	NO		db		0.000
16	FUNCTION2 PFK	31.61	7.483e3					1.0	NO		dd		0.000
17	FUNCTION2 PFK	31.57	8.598e3					1.1	NO		bd		0.000
18	FUNCTION2 PFK	31.48	5.872e3					0.9	NO		bb		0.000
19	FUNCTION2 PFK	31.17	2.153e4					1.7	NO		bb		0.000
20	FUNCTION2 PFK	31.02	6.265e3					1.0	NO		bb		0.000
21	FUNCTION2 PFK	30.97	5.713e3					1.0	NO		db		0.000
22	FUNCTION2 PFK	30.93	5.520e3					1.0	NO		bd		0.000
23	FUNCTION2 PFK	30.78	1.253e4					1.2	NO		db		0.000
24	FUNCTION2 PFK	30.72	1.563e4					2.1	NO		dd		0.000
25	FUNCTION2 PFK	30.69	5.597e4					3.6	YES		bd		0.000
26	FUNCTION2 PFK	30.50	7.111e3					1.1	NO		bb		0.000
27	FUNCTION2 PFK	30.34	3.928e3					0.6	NO		bb		0.000
28	FUNCTION2 PFK	30.29	1.253e4					1.3	NO		db		0.000
29	FUNCTION2 PFK	30.22	9.994e3					1.2	NO		bd		0.000
30	FUNCTION2 PFK	30.08	3.205e3					0.7	NO		bb		0.000
31	FUNCTION2 PFK	31.76	2.713e3					0.6	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	36.80	3.679e4					2.3	NO		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	41.57	1.891e4					2.5	NO		bb		
2	FUNCTION4 PFK	40.08	2.932e4					2.7	NO		bb		
3	FUNCTION4 PFK	37.54	4.458e4					3.6	YES		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.33	1.090e3					0.5	NO		bb		
2	FUNCTION5 PFK	44.09	8.882e3					1.5	NO		bb		
3	FUNCTION5 PFK	43.42	9.419e3					1.5	NO		bb		
4	FUNCTION5 PFK	43.07	1.093e3					0.5	NO		bb		
5	FUNCTION5 PFK	43.00	1.858e3					0.9	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	21.45	1.010e2					1.8	NO		db		0.000
2	FUNCTION1 HXCD...	21.33	1.737e2					2.5	NO		bd		0.000
3	FUNCTION1 HXCD...	26.28	1.182e2					1.7	NO		db		0.000
4	FUNCTION1 HXCD...	26.16	8.898e1					2.4	NO		dd		0.000
5	FUNCTION1 HXCD...	26.10	1.100e2					2.3	NO		bd		0.000
6	FUNCTION1 HXCD...	25.92	8.664e1					2.0	NO		db		0.000
7	FUNCTION1 HXCD...	25.80	8.460e1					1.7	NO		bd		0.000
8	FUNCTION1 HXCD...	23.51	1.186e2					2.4	NO		db		0.000
9	FUNCTION1 HXCD...	23.39	8.900e1					2.1	NO		bd		0.000
10	FUNCTION1 HXCD...	22.67	7.641e1					1.6	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	28.44	7.425e1					2.3	NO		bb		0.000
2	FUNCTION2 HPCD...	27.79	7.103e1					3.0	NO		bb		0.000

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ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

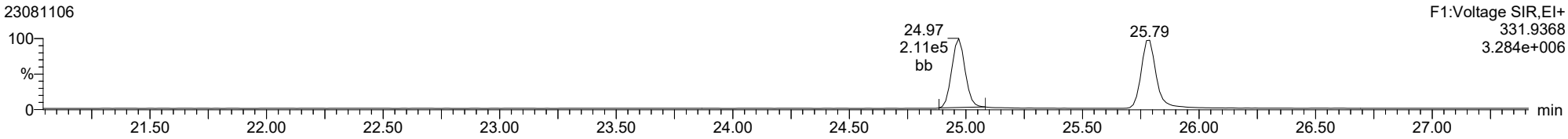
ETHERS6

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1													

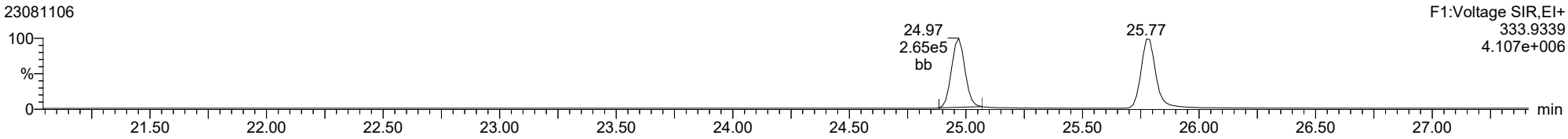
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ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

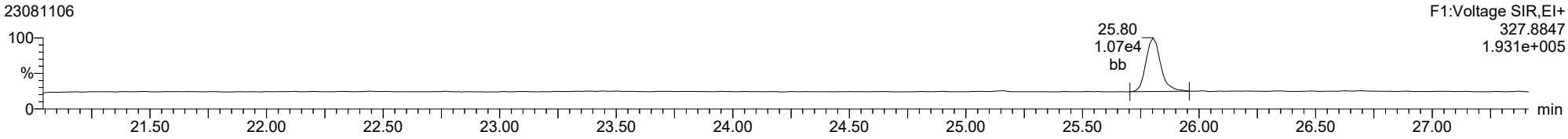
13C-1234-TCDD



13C-1234-TCDD

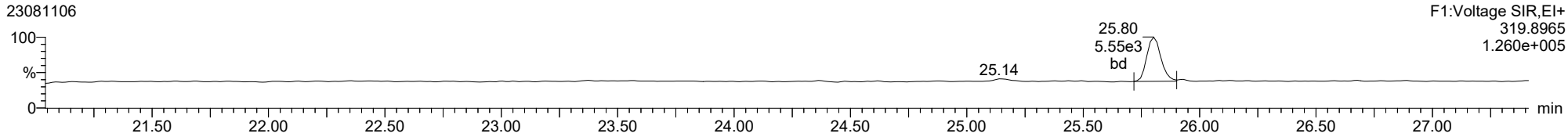


37CL-2378-TCDD

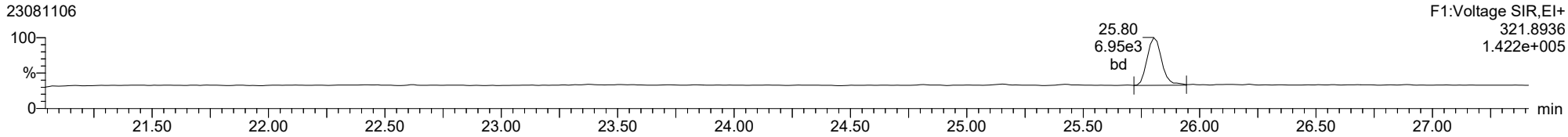


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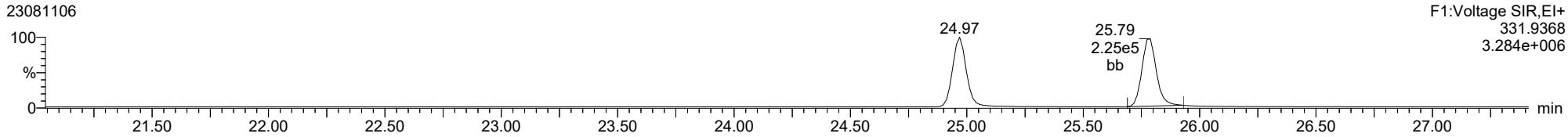
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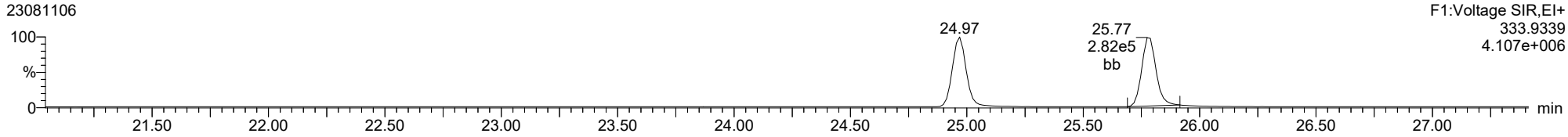
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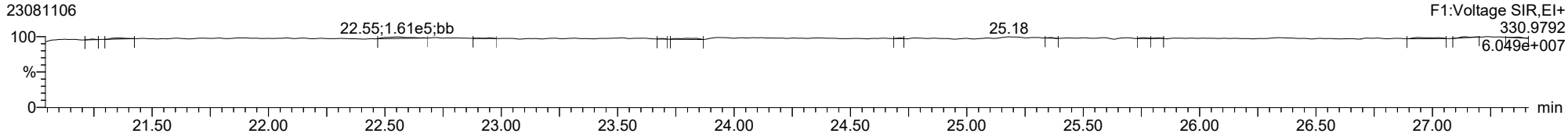
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13C-2378-TCDD

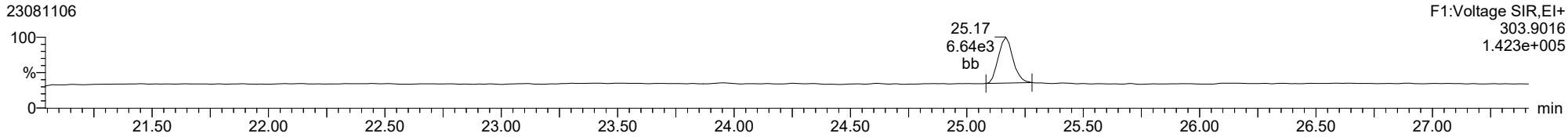


FUNCTION1 PFK

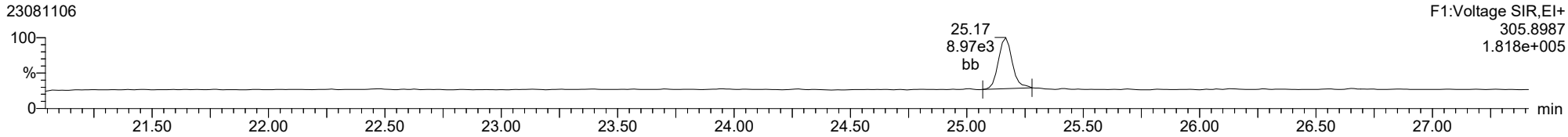


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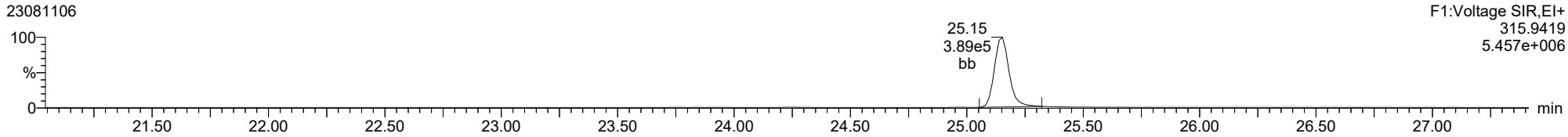
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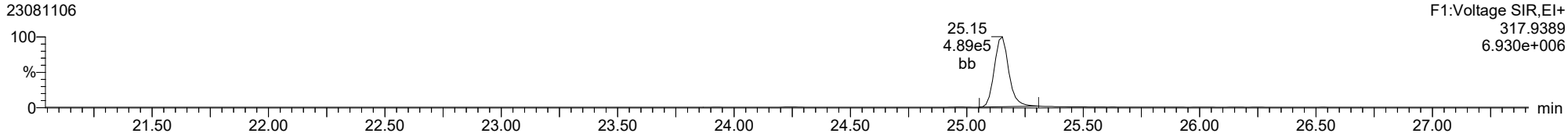
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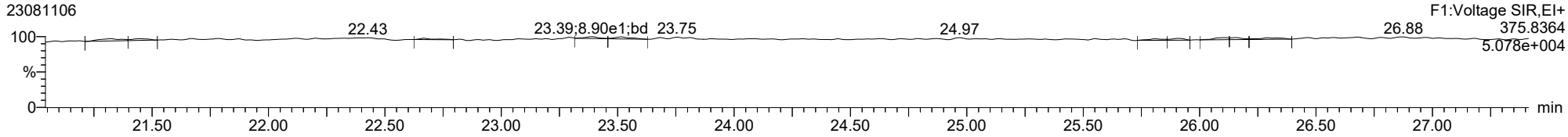
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13C-2378-TCDF

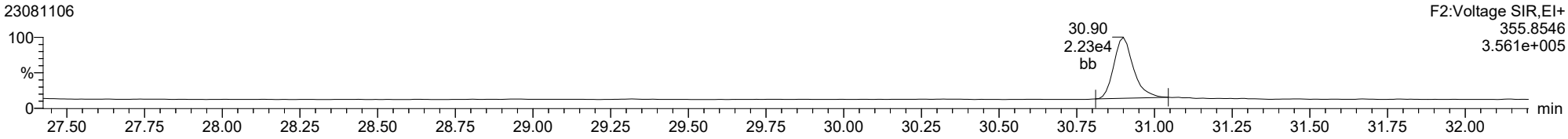


FUNCTION1 HXCDPE

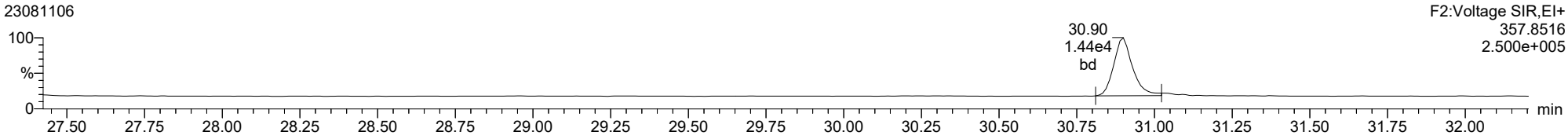


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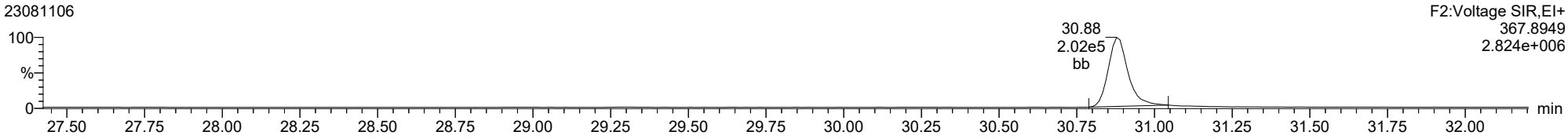
12378-PeCDD



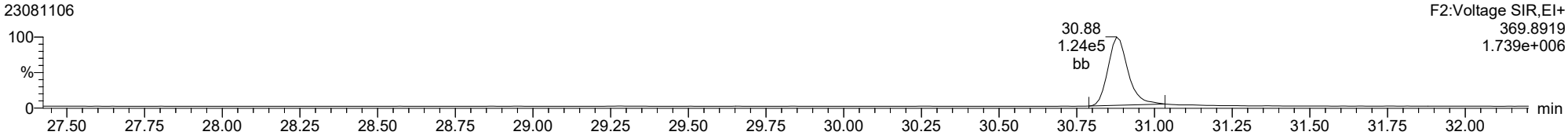
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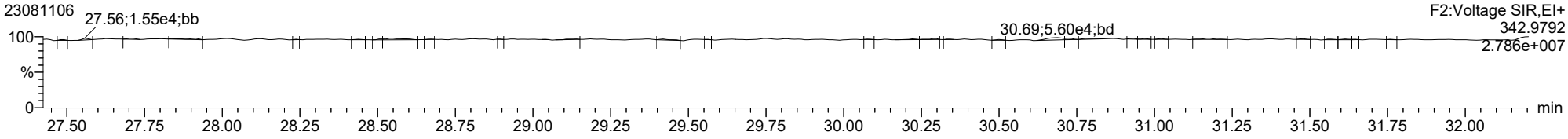
13C-12378-PeCDD



13C-12378-PeCDD

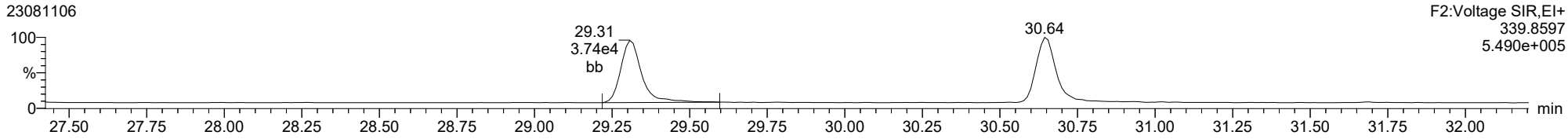


FUNCTION2 PFK

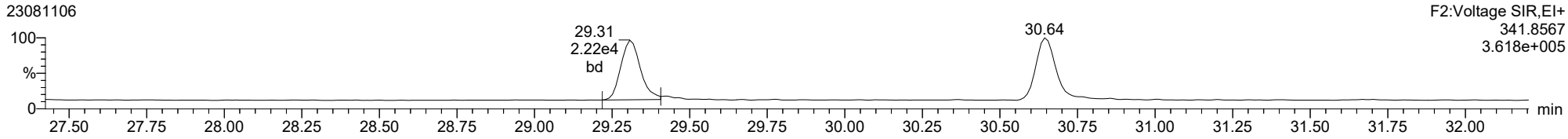


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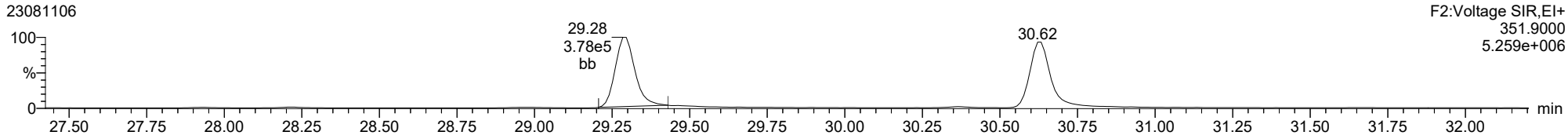
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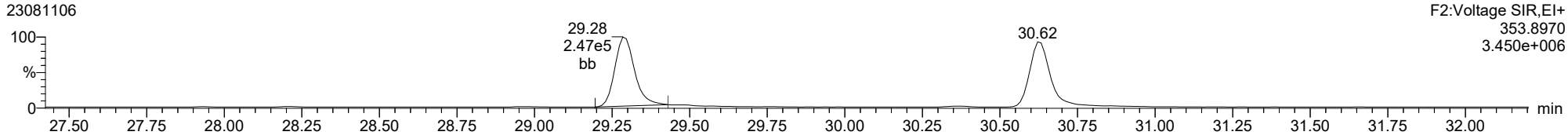
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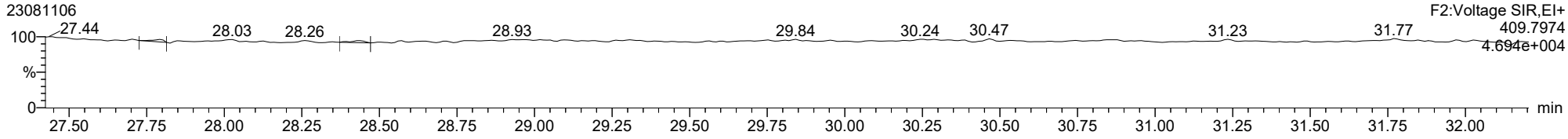
13C-12378-PeCDF



13C-12378-PeCDF



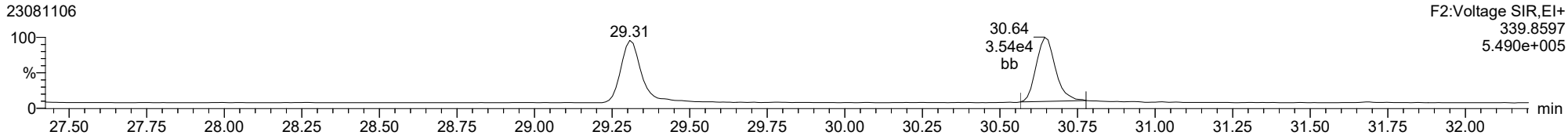
FUNCTION2 HPCDPE



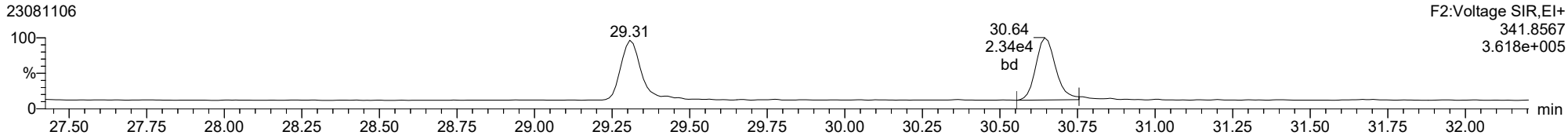
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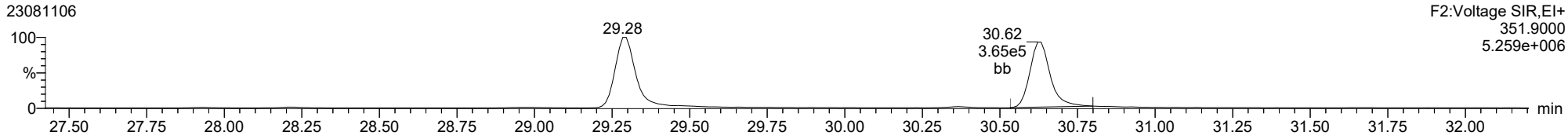
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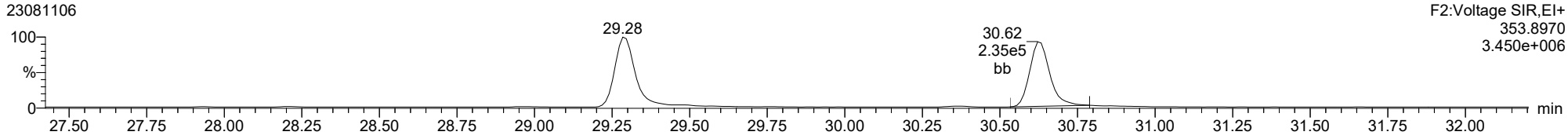
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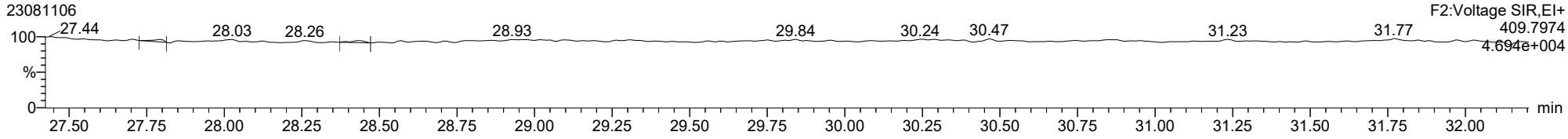
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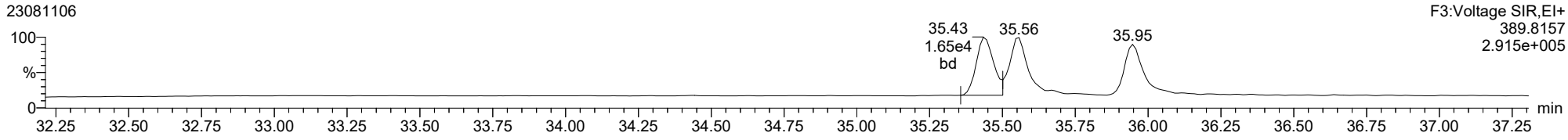


FUNCTION2 HPCDPE

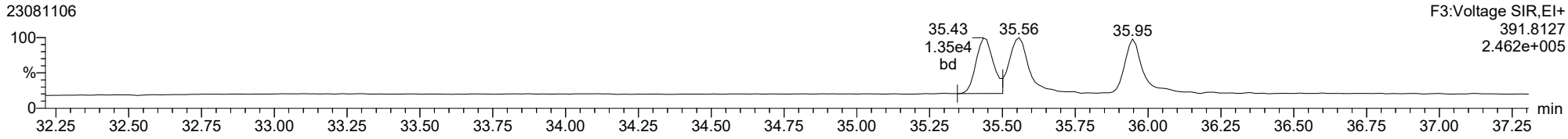


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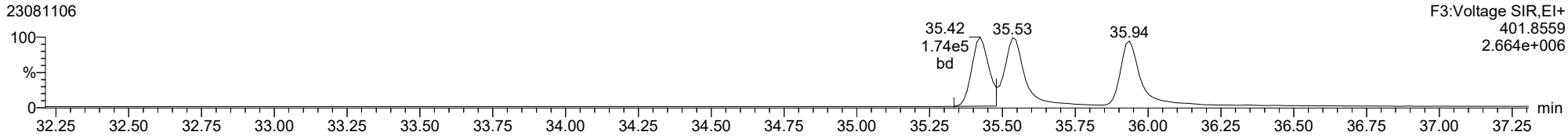
123478-HxCDD



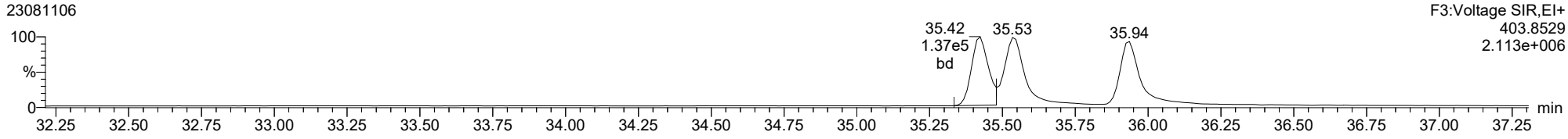
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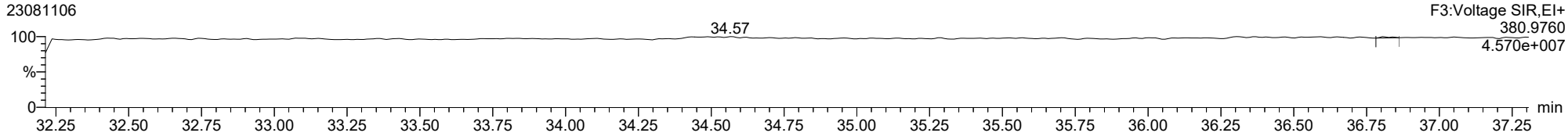
13C-123478-HxCDD



13C-123478-HxCDD



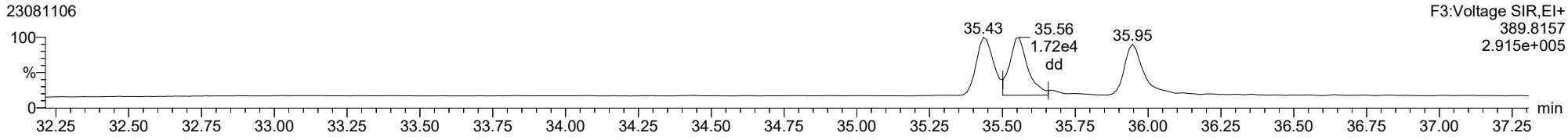
FUNCTION3 PFK



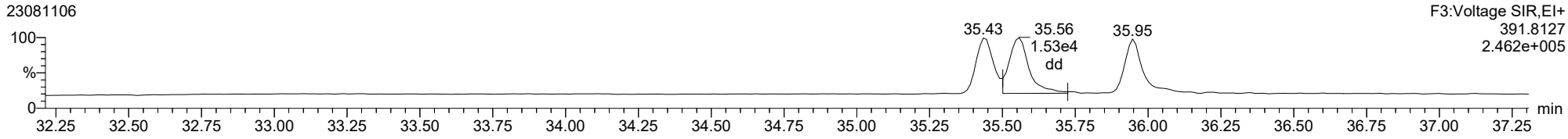
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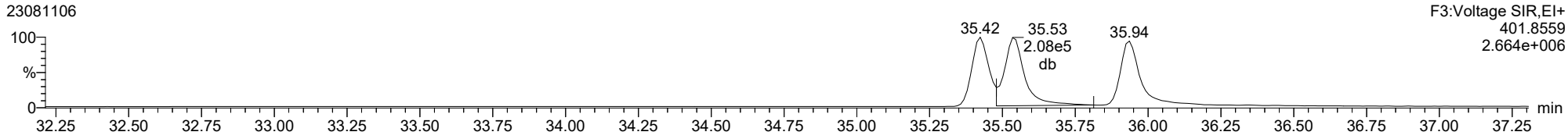
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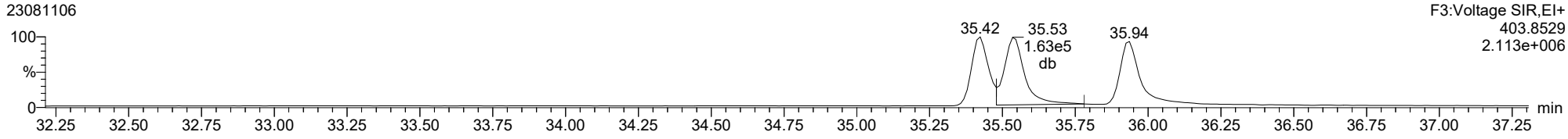
123678-HxCDD



13C-123678-HxCDD

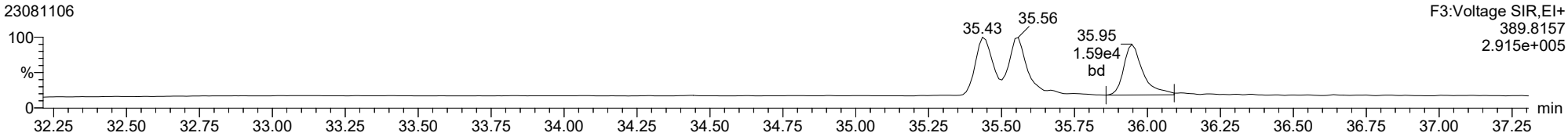


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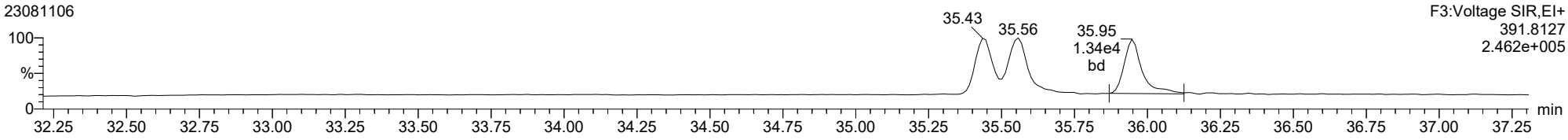


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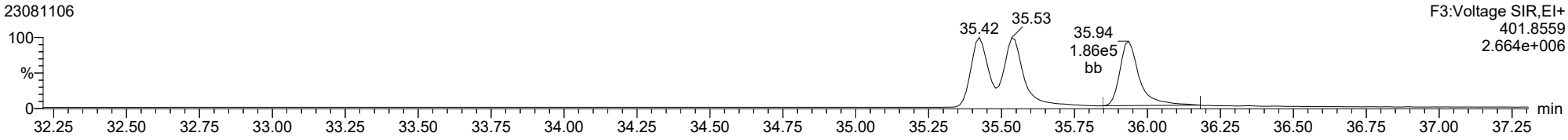
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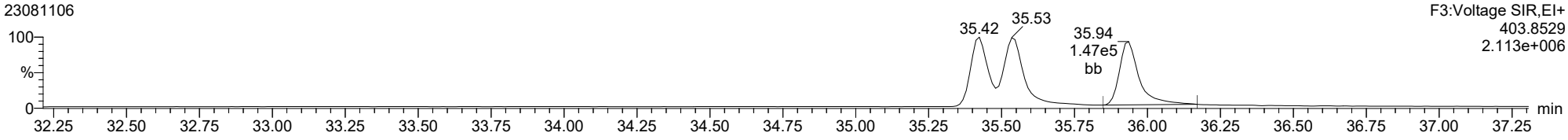
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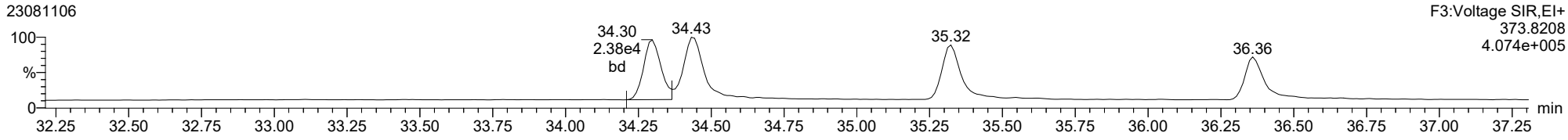


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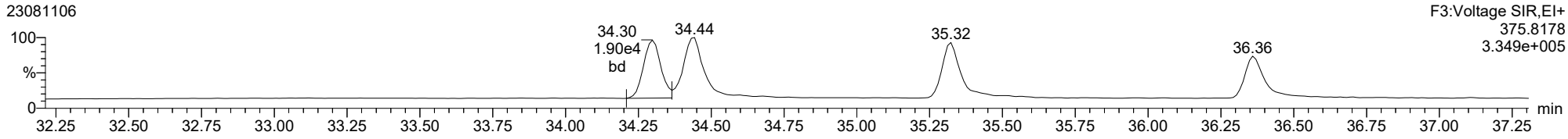


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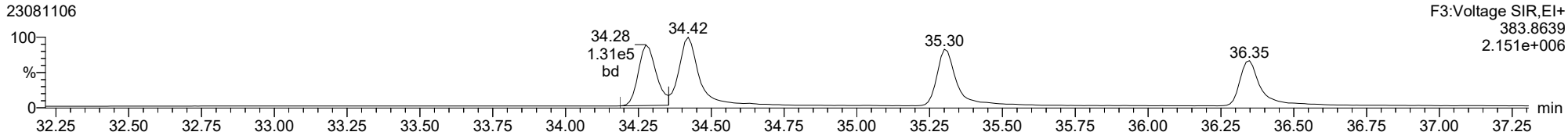
123478-HxCDF



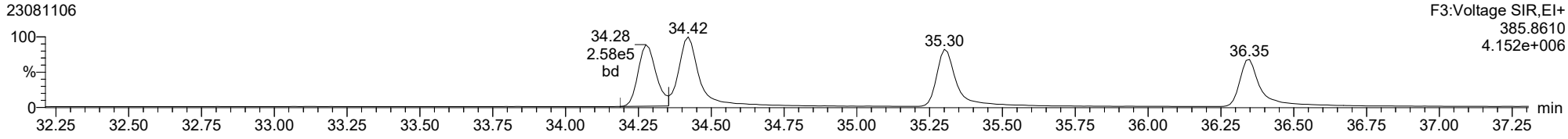
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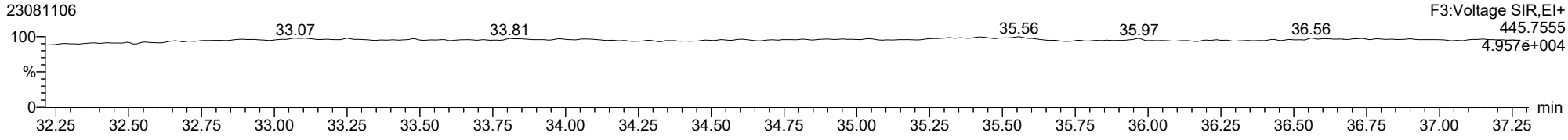
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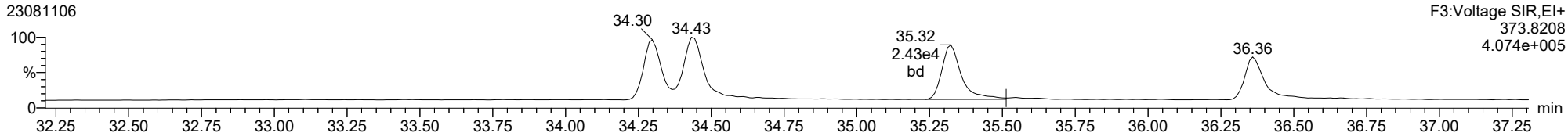


FUNCTION3 OCDPE

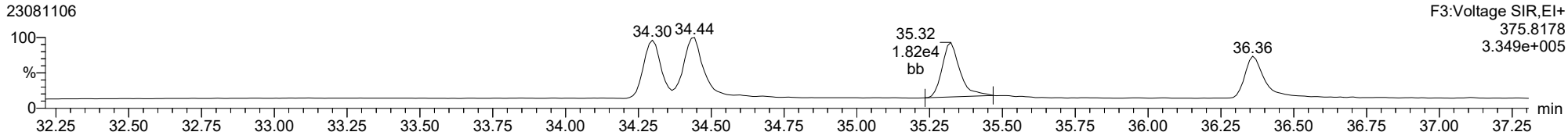


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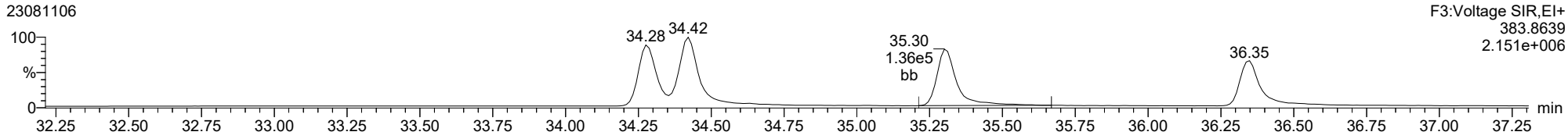
234678-HxCDF



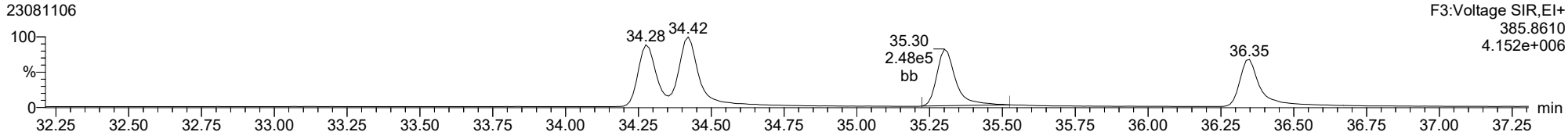
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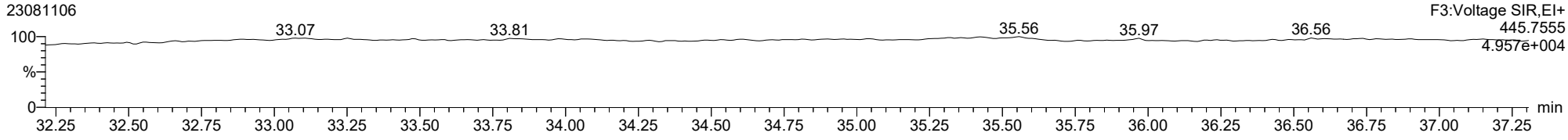
13C-234678-HxCDF



13C-234678-HxCDF



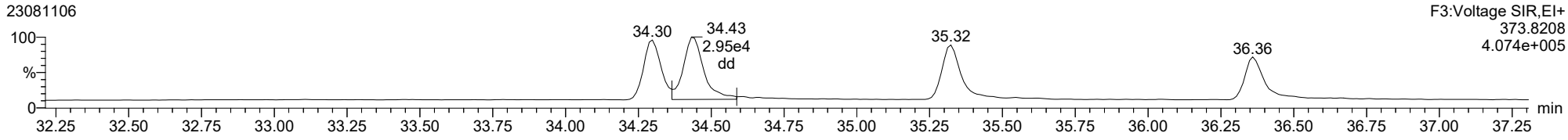
FUNCTION3 OCDPE



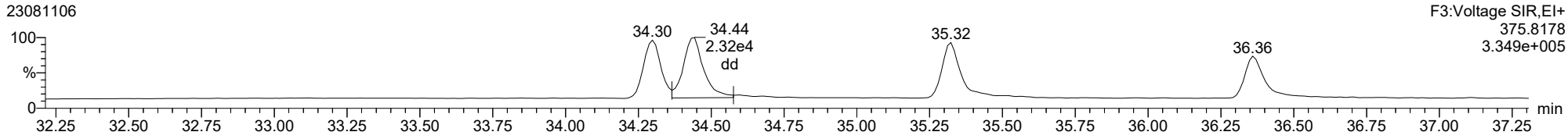
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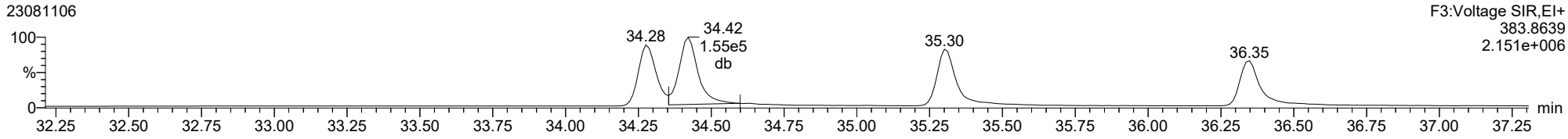
123678-HxCDF



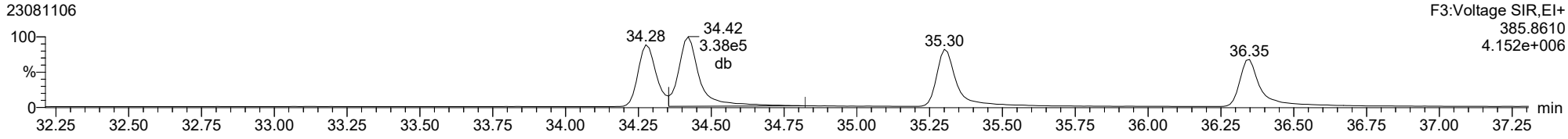
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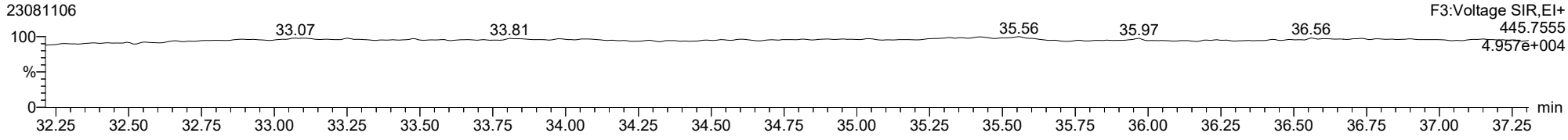
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13C-123678-HxCDF

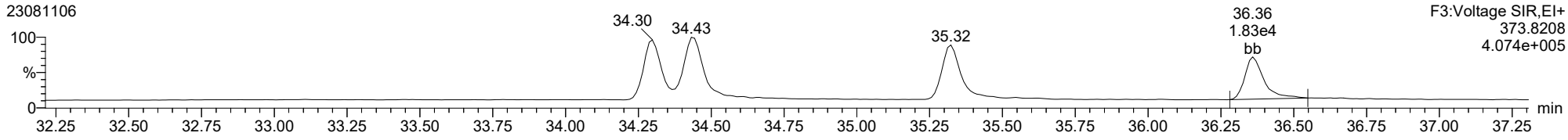


FUNCTION3 OCDPE

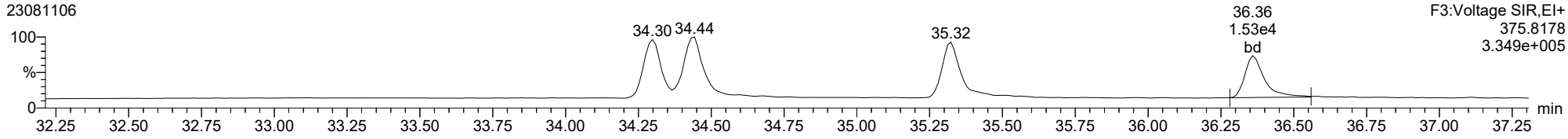


ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

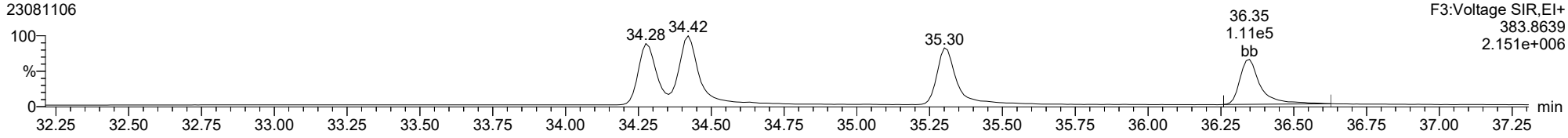
123789-HxCDF



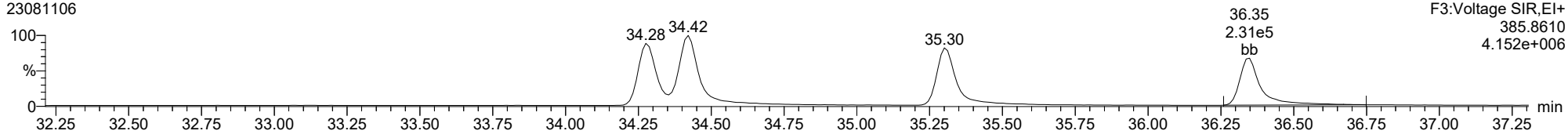
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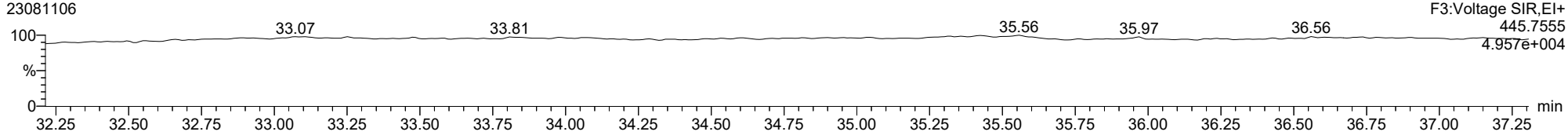
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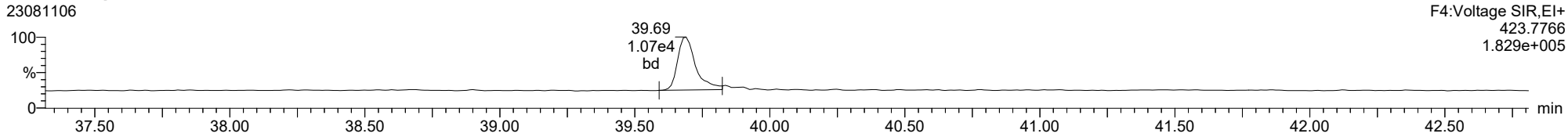


FUNCTION3 OCDPE

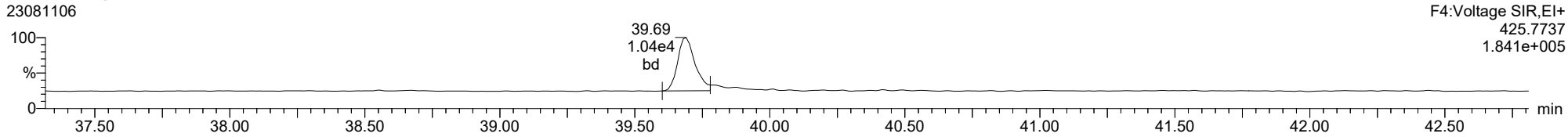


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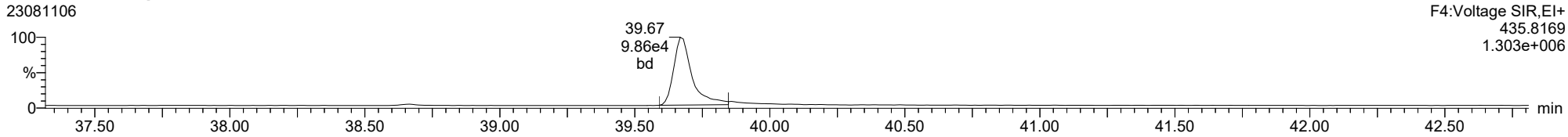
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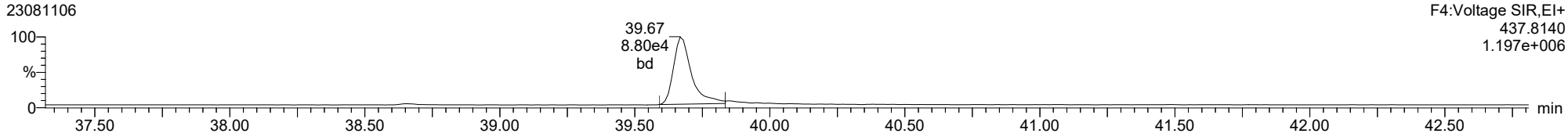
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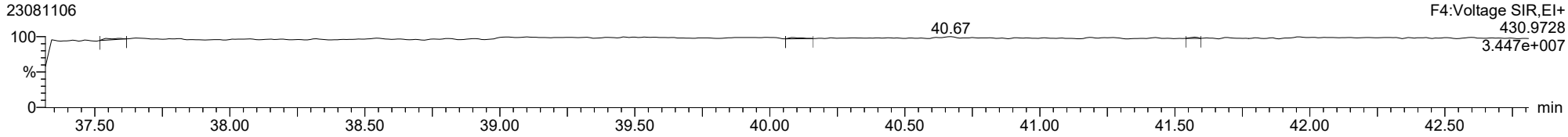
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13C-1234678-HpCDD

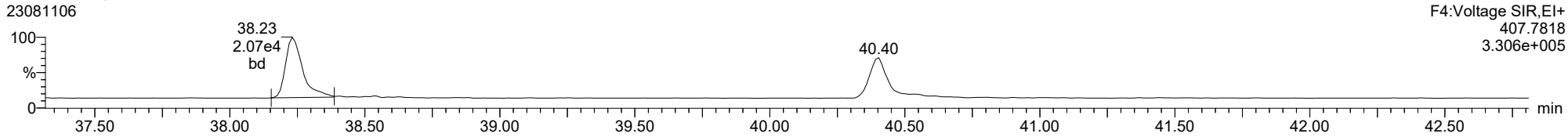


FUNCTION4 PFK

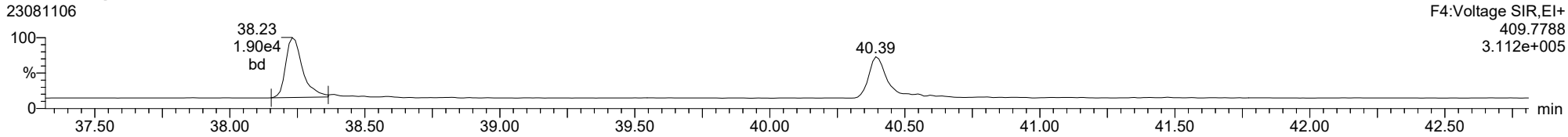


ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

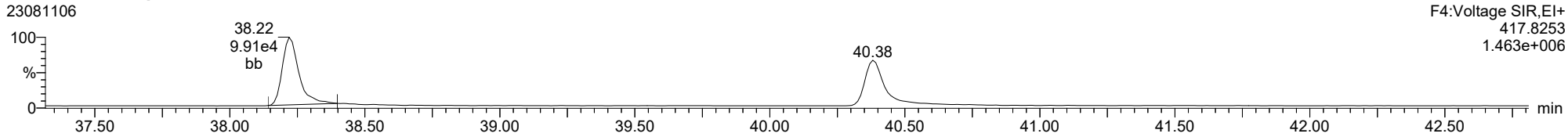
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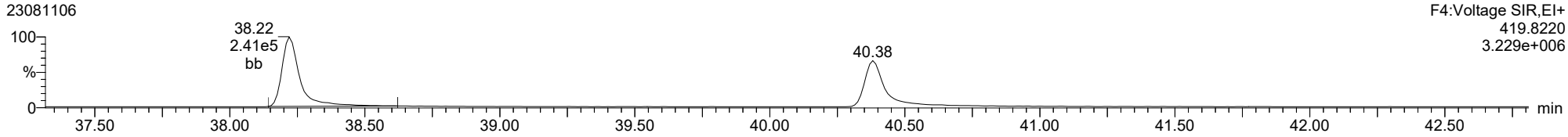
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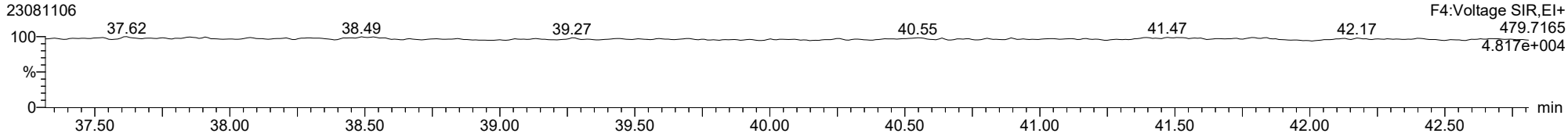
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13C-1234678-HpCDF

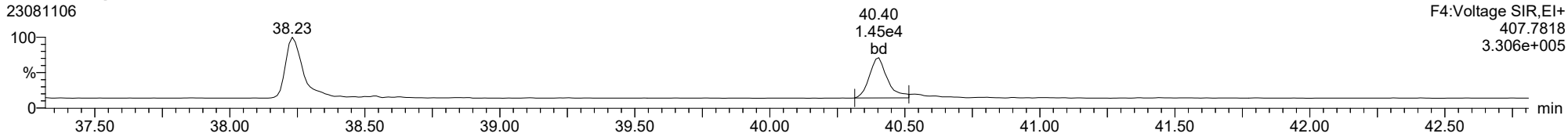


FUNCTION4 NCDPE

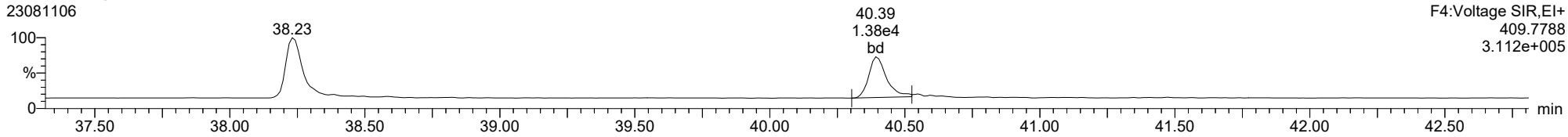


ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

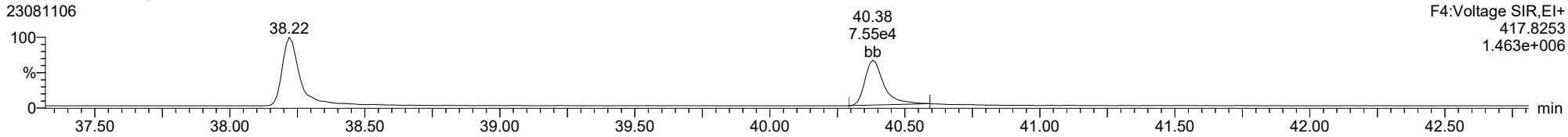
1234789-HpCDF



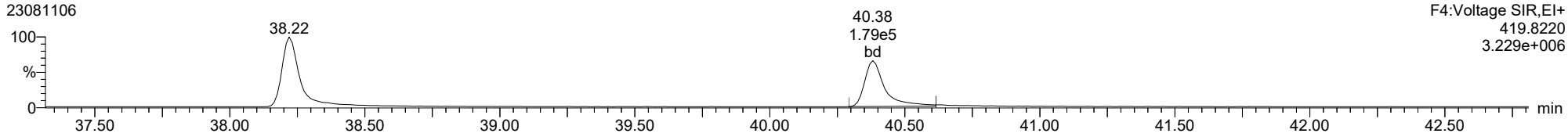
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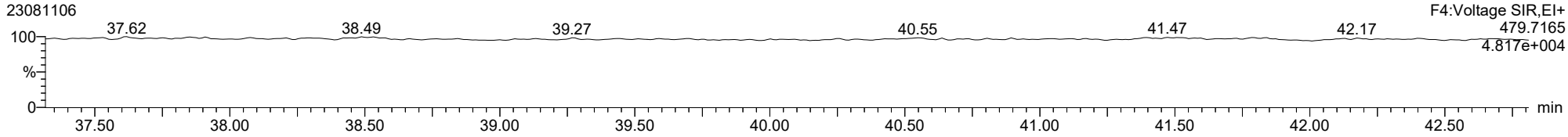
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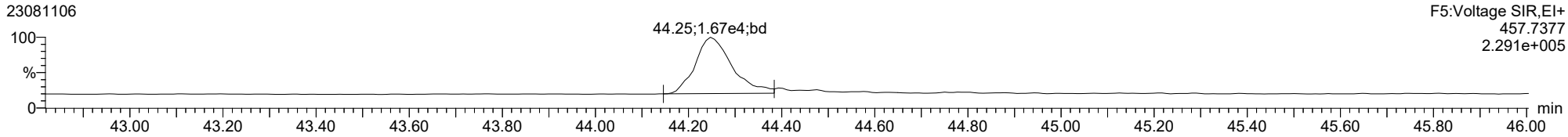


FUNCTION4 NCDPE

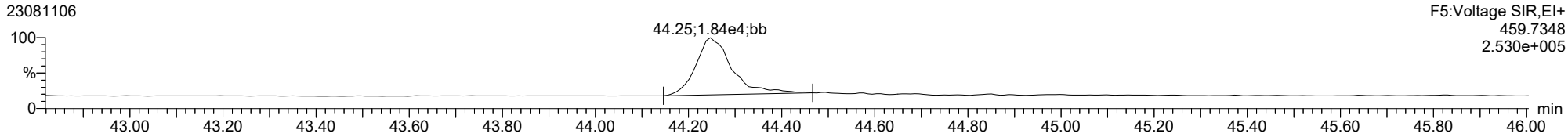


ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

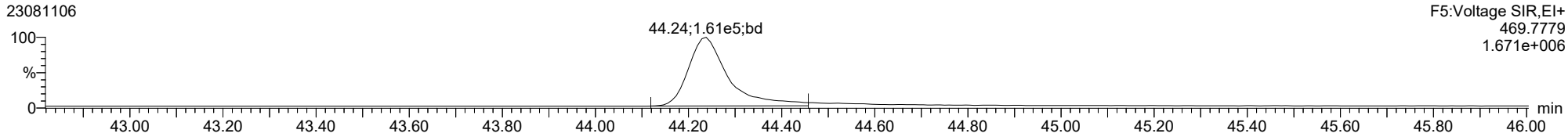
OCDD



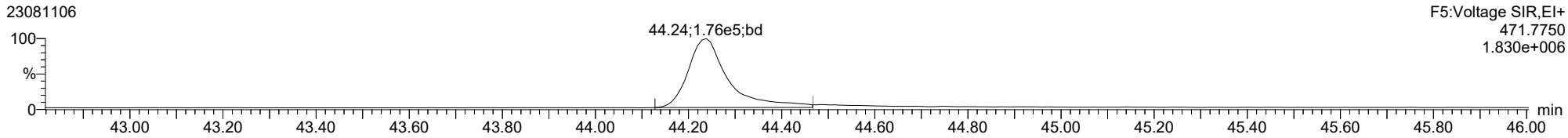
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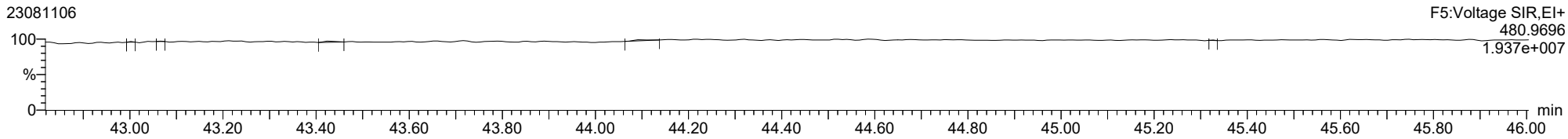
13C-OCDD



13C-OCDD

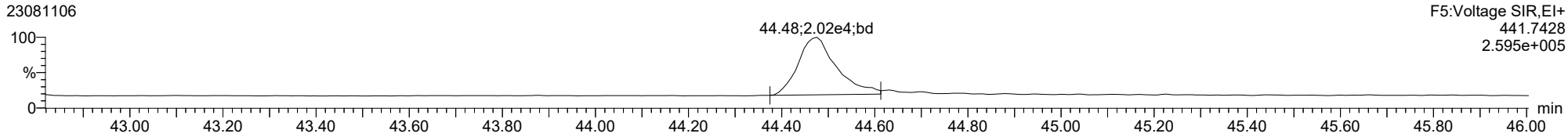


FUNCTION5 PFK

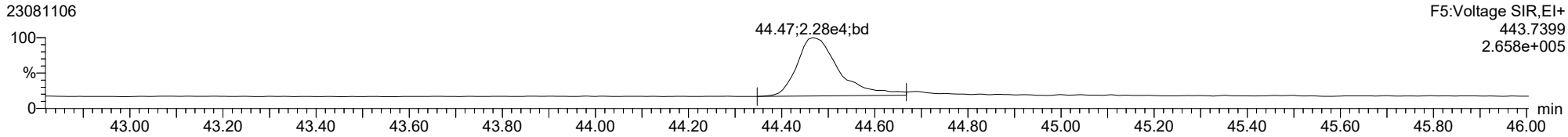


ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

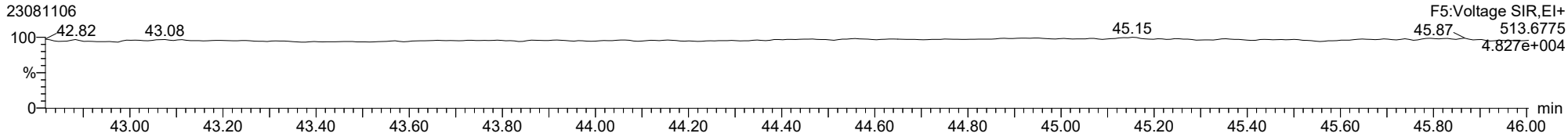
OCDF



OCDF

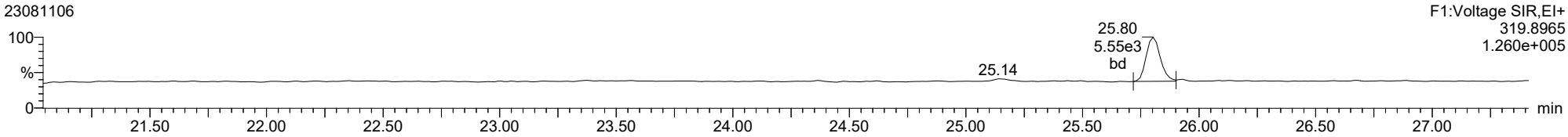


FUNCTION5 DCDPE

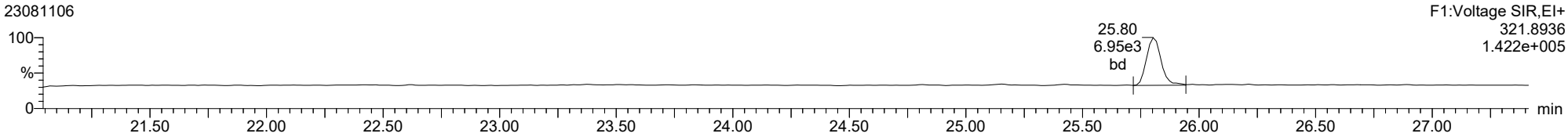


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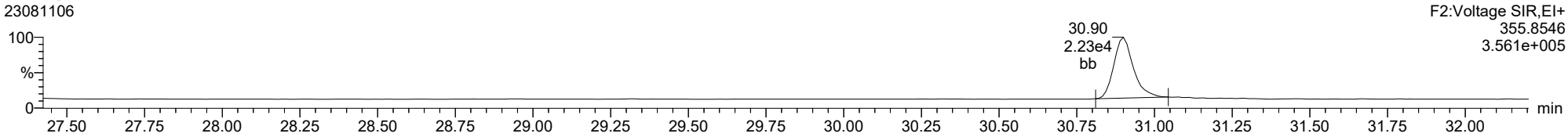
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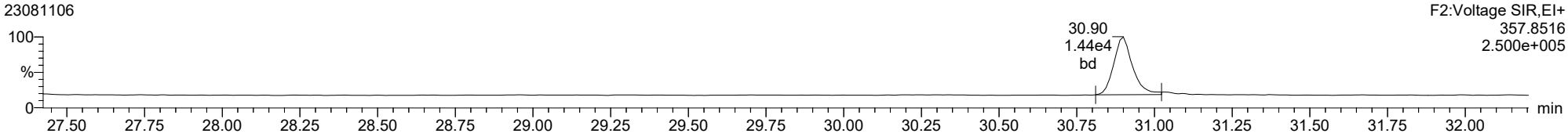
Total-tetradioxins



Total-pentadioxins

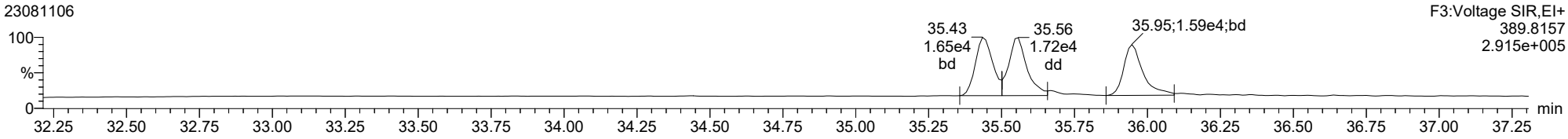


Total-pentadioxins

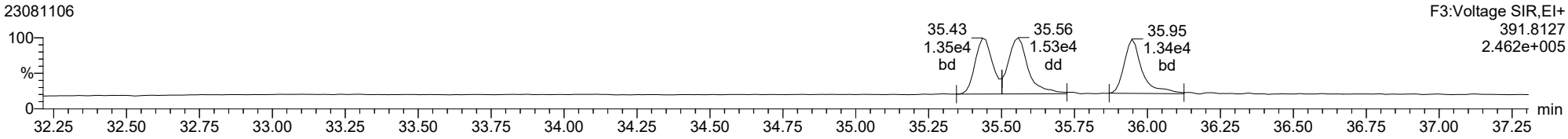


ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

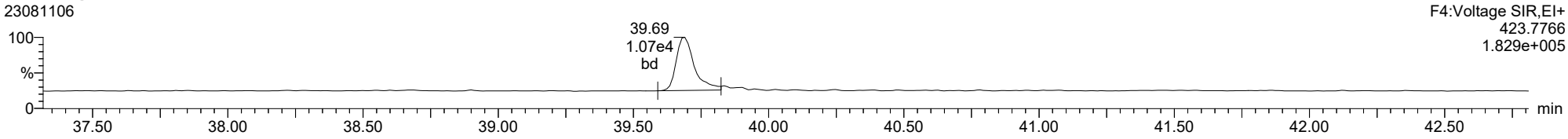
Total-hexadioxins



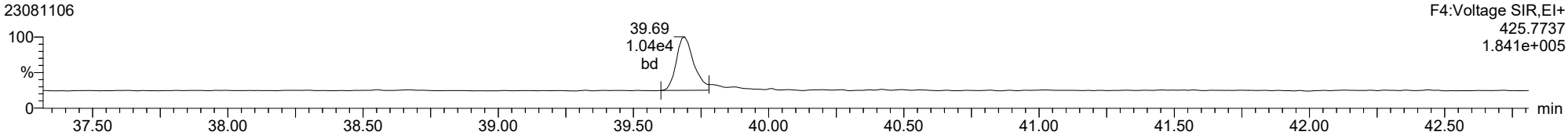
Total-hexadioxins



Total-heptadioxins



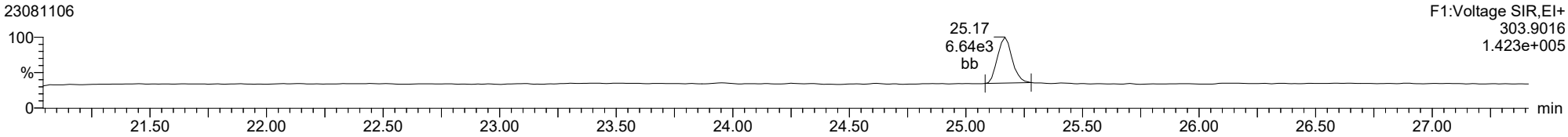
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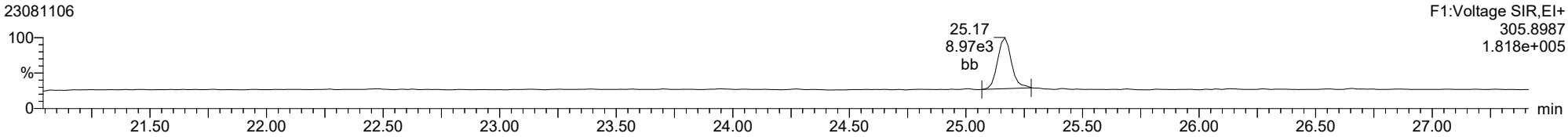
Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:22 Pacific Daylight Time

ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

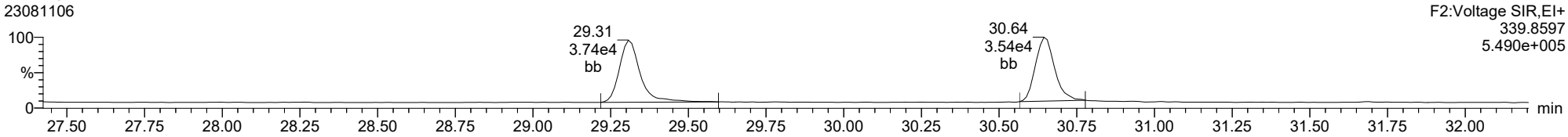
Total-tetrafurans



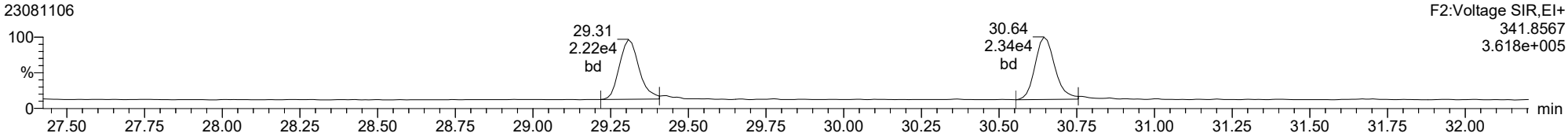
Total-tetrafurans



Total-pentafurans



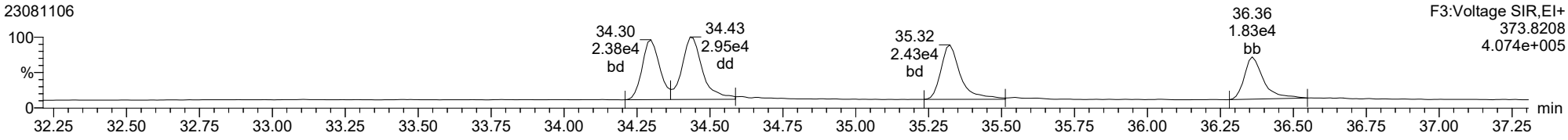
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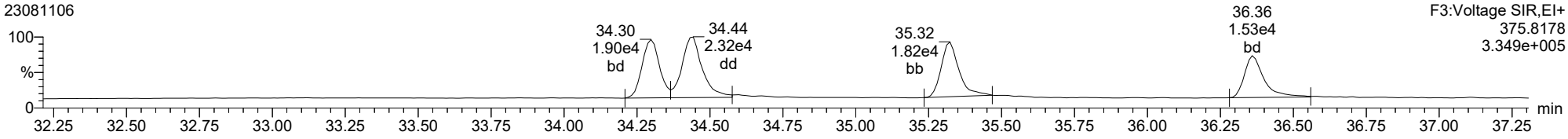
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ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

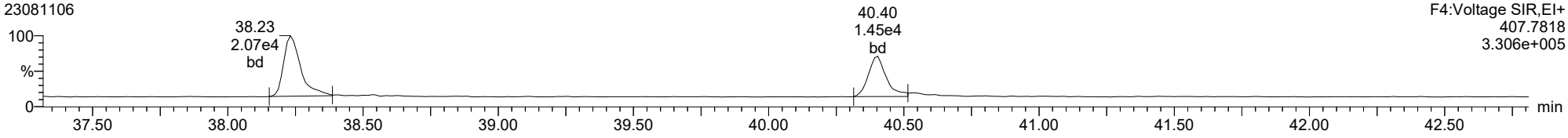
Total-hexafurans



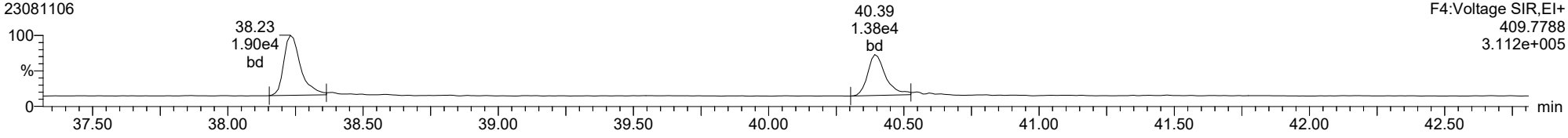
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
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Printed: Tuesday, August 15, 2023 12:24:35 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.153	1.001	3.950e4	4.814e4	0.903	0.820	0.770	873	1493	5.76e5	7.02e5	660.2	470.0	NO	bb	bb	9.917
12378-PeCDF	29.296	1.001	2.038e5	1.306e5	0.923	1.560	1.550	2701	2600	2.84e6	1.82e6	1052.5	698.6	NO	bb	bb	50.247
23478-PeCDF	30.633	1.001	2.084e5	1.355e5	0.991	1.538	1.550	2701	2600	2.94e6	1.88e6	1090.3	724.9	NO	bb	bb	50.195
123478-HxCDF	34.287	1.001	1.471e5	1.155e5	1.128	1.273	1.240	2156	1968	2.16e6	1.67e6	999.7	847.7	NO	bd	bd	48.019
234678-HxCDF	35.312	1.001	1.397e5	1.124e5	1.081	1.242	1.240	2156	1968	1.96e6	1.53e6	909.5	778.6	NO	bb	bb	48.560
123678-HxCDF	34.421	1.000	1.708e5	1.326e5	1.032	1.288	1.240	2156	1968	2.22e6	1.77e6	1031.8	901.1	NO	db	db	49.502
123789-HxCDF	36.348	1.000	1.152e5	9.214e4	0.988	1.250	1.240	2156	1968	1.55e6	1.22e6	720.9	619.7	NO	bb	bb	49.981
1234678-HpCDF	38.220	1.000	1.266e5	1.232e5	1.164	1.028	1.050	2236	2527	1.73e6	1.70e6	772.6	672.1	NO	bd	bd	48.307
1234789-HpCDF	40.381	1.000	9.773e4	8.439e4	1.104	1.158	1.050	2236	2527	1.18e6	1.09e6	527.4	431.6	NO	bd	bb	51.965
OCDF	44.457	1.005	1.439e5	1.668e5	1.130	0.863	0.890	3053	2200	1.51e6	1.65e6	496.2	748.3	NO	bd	bd	97.728
2378-TCDD	25.788	1.001	3.416e4	4.089e4	1.243	0.835	0.770	867	861	4.83e5	5.94e5	557.1	689.8	NO	db	bb	9.423
12378-PeCDD	30.878	1.000	1.444e5	9.272e4	1.150	1.557	1.550	1474	1776	2.00e6	1.26e6	1355.0	710.8	NO	bb	bb	51.023
123478-HxCDD	35.424	1.000	1.045e5	8.370e4	0.960	1.248	1.240	2064	1909	1.64e6	1.31e6	794.5	688.4	NO	bd	bd	46.802
123678-HxCDD	35.535	1.000	1.368e5	1.058e5	0.883	1.293	1.240	2064	1909	1.73e6	1.40e6	836.6	732.4	NO	db	db	52.231
123789-HxCDD	35.936	1.012	1.075e5	9.200e4	0.804	1.169	1.240	2064	1909	1.46e6	1.18e6	706.7	615.7	NO	bb	bd	52.545
1234678-HpCDD	39.668	1.000	8.606e4	8.097e4	1.200	1.063	1.050	1598	1550	1.09e6	1.03e6	679.9	666.2	NO	bd	bd	49.362
OCDD	44.238	1.000	1.310e5	1.474e5	1.059	0.889	0.890	2537	2205	1.35e6	1.50e6	533.8	680.4	NO	bd	bd	93.510
13C-2378-TCDF	25.139	1.007	4.359e5	5.426e5	1.835	0.803	0.770	1414	1242	6.17e6	7.67e6	4364.7	6173.2	NO	bb	bb	96.581
13C-12378-PeCDF	29.274	1.173	4.378e5	2.830e5	1.377	1.547	1.550	3103	2166	6.17e6	3.98e6	1989.0	1837.3	NO	bb	bb	94.871
13C-23478-PeCDF	30.610	1.227	4.199e5	2.715e5	1.301	1.547	1.550	3103	2166	5.81e6	3.79e6	1871.2	1752.0	NO	bb	bb	96.264
13C-123478-HxCDF	34.265	0.954	1.623e5	3.225e5	1.091	0.503	0.510	1940	1819	2.28e6	4.56e6	1177.0	2508.0	NO	bd	bd	103.242
13C-123678-HxCDF	34.410	0.958	1.881e5	4.055e5	1.340	0.464	0.510	1940	1819	2.45e6	4.92e6	1263.9	2702.9	NO	db	dd	102.899
13C-234678-HxCDF	35.290	0.983	1.605e5	3.196e5	1.093	0.502	0.510	1940	1819	2.11e6	4.12e6	1086.3	2264.8	NO	bd	bb	101.993
13C-123789-HxCDF	36.337	1.012	1.422e5	2.778e5	0.952	0.512	0.510	1940	1819	1.72e6	3.42e6	888.9	1878.1	NO	bd	bb	102.534
13C-1234678-HpCDF	38.209	1.064	1.341e5	3.102e5	0.985	0.432	0.440	2232	3004	1.84e6	4.12e6	826.4	1371.4	NO	bd	bd	104.805
13C-1234789-HpCDF	40.370	1.124	1.014e5	2.161e5	0.756	0.469	0.440	2232	3004	1.20e6	2.70e6	536.5	900.2	NO	bd	bb	97.601
13C-1234-TCDD	24.955	0.000	2.441e5	3.079e5	1.000	0.793	0.770	1284	927	3.72e6	4.66e6	2895.0	5027.7	NO	bb	bb	100.000
13C-2378-TCDD	25.774	1.033	2.818e5	3.589e5	1.110	0.785	0.770	1284	927	3.93e6	5.00e6	3063.6	5390.0	NO	bb	bb	104.622
13C-12378-PeCDD	30.867	1.237	2.486e5	1.554e5	0.754	1.600	1.550	1606	1291	3.49e6	2.16e6	2172.2	1676.1	NO	bb	bb	97.124
13C-123478-HxCDD	35.412	0.986	2.333e5	1.855e5	0.960	1.258	1.240	2335	1654	3.56e6	2.79e6	1524.6	1684.4	NO	bd	bd	101.353
13C-123678-HxCDD	35.524	0.989	2.914e5	2.348e5	1.159	1.241	1.240	2335	1654	3.67e6	3.00e6	1571.1	1811.5	NO	db	db	105.436
13C-1234678-HpCDD	39.657	1.104	1.504e5	1.316e5	0.629	1.143	1.050	1322	1098	1.89e6	1.73e6	1430.1	1574.5	NO	bd	bb	104.130
13C-OCDD	44.219	1.231	2.700e5	2.925e5	0.635	0.923	0.890	2095	2668	2.66e6	2.85e6	1270.5	1068.4	NO	bd	bd	205.741
13C-123789-HxCDD	35.914	0.000	2.377e5	1.927e5	1.000	1.234	1.240	2335	1654	3.19e6	2.58e6	1365.8	1558.0	NO	bb	bb	100.000
37CL-2378-TCDD	25.788	1.033	6.351e4		1.157			931		9.35e5		1004.8			bb		9.941

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:35 Pacific Daylight Time

ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.664	0.862	4.983e4	6.469e4	1.170	0.770	0.770	873	1493	7.90e5	1.00e6	904.1	670.7	NO	bb	bb	10.000
1289-TCDF	26.636	1.060	3.514e4	4.772e4	0.847	0.736	0.770	873	1493	4.94e5	6.43e5	565.8	430.8	NO	db	db	10.000
13468-PECDF	26.495	0.905	2.671e5	1.802e5	1.241	1.482	1.550	728	832	3.87e6	2.64e6	5321.4	3168.6	NO	bb	bb	50.000
12389-PECDF	31.658	1.081	1.897e5	1.273e5	0.880	1.490	1.550	2701	2600	2.48e6	1.60e6	916.9	617.2	NO	bb	bb	50.000
123468-HXCDF	32.593	0.951	1.625e5	1.297e5	1.206	1.252	1.240	2156	1968	2.24e6	1.79e6	1039.7	910.7	NO	bb	bb	50.000
1368-TCDD	22.935	0.890	3.442e4	4.124e4	1.181	0.835	0.770	867	861	5.40e5	6.51e5	623.2	756.9	NO	bb	bb	10.000
1289-TCDD	26.382	1.024	2.831e4	3.339e4	0.963	0.848	0.770	867	861	3.83e5	4.79e5	442.0	556.7	NO	bb	bb	10.000
12479-PECDD	28.182	0.913	2.672e5	1.705e5	2.166	1.567	1.550	1474	1776	2.50e6	1.55e6	1692.5	875.4	NO	bb	bb	50.000
12389-PECDD	31.279	1.013	1.628e5	1.051e5	1.326	1.549	1.550	1474	1776	2.18e6	1.42e6	1481.5	799.1	NO	bb	bb	50.000
124679-HXCDD	33.385	0.943	1.240e5	1.119e5	1.127	1.108	1.240	2064	1909	1.71e6	1.40e6	829.1	734.3	NO	bb	bd	50.000
1234679-HPCDD	38.666	0.975	8.959e4	9.414e4	1.303	0.952	1.050	1598	1550	1.33e6	1.31e6	833.2	845.1	NO	bb	MM	50.000
Total-tetrafurans			1.249e5		0.973			873		1.87e6							30.041
Total-penta1			2.671e5					728		3.87e6							50.000
Total-pentafurans			6.376e5		0.931			2701		8.77e6							159.187
Total-hexafurans			7.351e5		1.087			2156		1.01e7							246.062
Total-heptafurans			2.244e5		1.134			2236		2.91e6							100.272
Total-Furans			2.133e6		1.053			873		2.91e7							683.290
Total-tetradioxins			1.636e5		1.129			867		2.16e6							49.715
Total-pentadioxins			5.744e5		1.548			1474		6.68e6							151.023
Total-hexadioxins			4.728e5		0.943			2064		6.54e6							201.577
Total-heptadioxins			1.756e5		1.251			1598		2.42e6							99.362
Total-Dioxins			1.517e6		1.182			867		1.91e7							595.187
Total-TEQ			3.650e6					867		4.82e7							1278.478
FUNCTION1 PFK			1.576e6					595063		2.59e7							
FUNCTION2 PFK			1.622e5					281424		5.13e6							0.000
FUNCTION3 PFK			6.816e4					308943		1.50e6							0.000
FUNCTION4 PFK			1.483e6					342383		2.05e7							
FUNCTION5 PFK			2.231e5					155278		7.98e6							
FUNCTION1 HXCD...			9.737e2					478		1.12e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			5.383e2					679		9.82e3							0.000
FUNCTION3 OCDPE			8.571e2					439		1.41e4							0.000
FUNCTION4 NCDPE			3.213e2					631		3.18e3							0.000
FUNCTION5 DCDPE			1.396e2					581		1.95e3							0.000

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	27.02	9.270e1	1.173e2	0.973	0.79	0.77	2.6	NO	NO	bb	bb	0.022
2	Total-tetrafurans	26.83	7.458e1	1.106e2	0.973	0.67	0.77	2.7	NO	NO	bb	bb	0.019
3	1289-TCDF	26.64	3.514e4	4.772e4	0.847	0.74	0.77	565.8	YES	NO	db	db	10.000
4	Total-tetrafurans	26.54	3.122e2	4.768e2	0.973	0.65	0.77	4.2	YES	NO	bd	bd	0.083
5	2378-TCDF	25.15	3.950e4	4.814e4	0.903	0.82	0.77	660.2	YES	NO	bb	bb	9.917
6	1368-TCDF	21.66	4.983e4	6.469e4	1.170	0.77	0.77	904.1	YES	NO	bb	bb	10.000

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.49	2.671e5	1.802e5	1.241	1.48	1.55	5321.4	YES	NO	bb	bb	50.000

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.30	2.038e5	1.306e5	0.923	1.56	1.55	1052.5	YES	NO	bb	bb	50.247
2	Total-pentafurans	28.15	3.570e4	2.180e4	0.931	1.64	1.55	186.8	YES	NO	bb	bb	8.746
3	12389-PECDF	31.66	1.897e5	1.273e5	0.880	1.49	1.55	916.9	YES	NO	bb	bb	50.000
4	23478-PeCDF	30.63	2.084e5	1.355e5	0.991	1.54	1.55	1090.3	YES	NO	bb	bb	50.195

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123468-HXCDF	32.59	1.625e5	1.297e5	1.206	1.25	1.24	1039.7	YES	NO	bb	bb	50.000
2	123789-HxCDF	36.35	1.152e5	9.214e4	0.988	1.25	1.24	720.9	YES	NO	bb	bb	49.981
3	234678-HxCDF	35.31	1.397e5	1.124e5	1.081	1.24	1.24	909.5	YES	NO	bb	bb	48.560
4	123678-HxCDF	34.42	1.708e5	1.326e5	1.032	1.29	1.24	1031.8	YES	NO	db	db	49.502
5	123478-HxCDF	34.29	1.471e5	1.155e5	1.128	1.27	1.24	999.7	YES	NO	bd	bd	48.019

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.38	9.773e4	8.439e4	1.104	1.16	1.05	527.4	YES	NO	bd	bb	51.965
2	1234678-HpCDF	38.22	1.266e5	1.232e5	1.164	1.03	1.05	772.6	YES	NO	bd	bd	48.307

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	27.02	9.270e1	1.173e2	0.973	0.79	0.77	2.6	NO	NO	bb	bb	0.022
2	Total-tetrafurans	26.83	7.458e1	1.106e2	0.973	0.67	0.77	2.7	NO	NO	bb	bb	0.019
3	1289-TCDF	26.64	3.514e4	4.772e4	0.847	0.74	0.77	565.8	YES	NO	db	db	10.000
4	Total-tetrafurans	26.54	3.122e2	4.768e2	0.973	0.65	0.77	4.2	YES	NO	bd	bd	0.083
5	2378-TCDF	25.15	3.950e4	4.814e4	0.903	0.82	0.77	660.2	YES	NO	bb	bb	9.917
6	1368-TCDF	21.66	4.983e4	6.469e4	1.170	0.77	0.77	904.1	YES	NO	bb	bb	10.000
7	12378-PeCDF	29.30	2.038e5	1.306e5	0.923	1.56	1.55	1052.5	YES	NO	bb	bb	50.247
8	Total-pentafurans	28.15	3.570e4	2.180e4	0.931	1.64	1.55	186.8	YES	NO	bb	bb	8.746
9	123468-HXCDF	32.59	1.625e5	1.297e5	1.206	1.25	1.24	1039.7	YES	NO	bb	bb	50.000
10	12389-PECDF	31.66	1.897e5	1.273e5	0.880	1.49	1.55	916.9	YES	NO	bb	bb	50.000
11	23478-PeCDF	30.63	2.084e5	1.355e5	0.991	1.54	1.55	1090.3	YES	NO	bb	bb	50.195
12	123789-HxCDF	36.35	1.152e5	9.214e4	0.988	1.25	1.24	720.9	YES	NO	bb	bb	49.981
13	234678-HxCDF	35.31	1.397e5	1.124e5	1.081	1.24	1.24	909.5	YES	NO	bb	bb	48.560
14	123678-HxCDF	34.42	1.708e5	1.326e5	1.032	1.29	1.24	1031.8	YES	NO	db	db	49.502
15	123478-HxCDF	34.29	1.471e5	1.155e5	1.128	1.27	1.24	999.7	YES	NO	bd	bd	48.019
16	1234789-HpCDF	40.38	9.773e4	8.439e4	1.104	1.16	1.05	527.4	YES	NO	bd	bb	51.965
17	1234678-HpCDF	38.22	1.266e5	1.232e5	1.164	1.03	1.05	772.6	YES	NO	bd	bd	48.307
18	OCDF	44.46	1.439e5	1.668e5	1.130	0.86	0.89	496.2	YES	NO	bd	bd	97.728
19	13468-PECDF	26.49	2.671e5	1.802e5	1.241	1.48	1.55	5321.4	YES	NO	bb	bb	50.000

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	22.94	3.442e4	4.124e4	1.181	0.83	0.77	623.2	YES	NO	bb	bb	10.000
2	1289-TCDD	26.38	2.831e4	3.339e4	0.963	0.85	0.77	442.0	YES	NO	bb	bb	10.000
3	2378-TCDD	25.79	3.416e4	4.089e4	1.243	0.84	0.77	557.1	YES	NO	db	bb	9.423
4	Total-tetradioxins	25.46	5.003e4	6.062e4	1.129	0.83	0.77	586.5	YES	NO	bd	bb	15.297
5	Total-tetradioxins	24.97	1.665e4	1.948e4	1.129	0.85	0.77	278.4	YES	NO	bd	bb	4.994

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.28	1.628e5	1.051e5	1.326	1.55	1.55	1481.5	YES	NO	bb	bb	50.000
2	12378-PeCDD	30.88	1.444e5	9.272e4	1.150	1.56	1.55	1355.0	YES	NO	bb	bb	51.023
3	12479-PECDD	28.18	2.672e5	1.705e5	2.166	1.57	1.55	1692.5	YES	NO	bb	bb	50.000

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.94	1.075e5	9.200e4	0.804	1.17	1.24	706.7	YES	NO	bb	bd	52.545
2	123678-HxCDD	35.53	1.368e5	1.058e5	0.883	1.29	1.24	836.6	YES	NO	db	db	52.231
3	123478-HxCDD	35.42	1.045e5	8.370e4	0.960	1.25	1.24	794.5	YES	NO	bd	bd	46.802
4	124679-HXCDD	33.38	1.240e5	1.119e5	1.127	1.11	1.24	829.1	YES	NO	bb	bd	50.000

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234679-HPCDD	38.67	8.959e4	9.414e4	1.303	0.95	1.05	833.2	YES	NO	bb	MM	50.000
2	1234678-HpCDD	39.67	8.606e4	8.097e4	1.200	1.06	1.05	679.9	YES	NO	bd	bd	49.362

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	22.94	3.442e4	4.124e4	1.181	0.83	0.77	623.2	YES	NO	bb	bb	10.000
2	1289-TCDD	26.38	2.831e4	3.339e4	0.963	0.85	0.77	442.0	YES	NO	bb	bb	10.000
3	2378-TCDD	25.79	3.416e4	4.089e4	1.243	0.84	0.77	557.1	YES	NO	db	bb	9.423
4	Total-tetradioxins	25.46	5.003e4	6.062e4	1.129	0.83	0.77	586.5	YES	NO	bd	bb	15.297
5	Total-tetradioxins	24.97	1.665e4	1.948e4	1.129	0.85	0.77	278.4	YES	NO	bd	bb	4.994
6	12389-PECDD	31.28	1.628e5	1.051e5	1.326	1.55	1.55	1481.5	YES	NO	bb	bb	50.000
7	12378-PeCDD	30.88	1.444e5	9.272e4	1.150	1.56	1.55	1355.0	YES	NO	bb	bb	51.023
8	12479-PECDD	28.18	2.672e5	1.705e5	2.166	1.57	1.55	1692.5	YES	NO	bb	bb	50.000
9	123789-HxCDD	35.94	1.075e5	9.200e4	0.804	1.17	1.24	706.7	YES	NO	bb	bd	52.545
10	123678-HxCDD	35.53	1.368e5	1.058e5	0.883	1.29	1.24	836.6	YES	NO	db	db	52.231
11	123478-HxCDD	35.42	1.045e5	8.370e4	0.960	1.25	1.24	794.5	YES	NO	bd	bd	46.802
12	124679-HXCDD	33.38	1.240e5	1.119e5	1.127	1.11	1.24	829.1	YES	NO	bb	bd	50.000
13	1234679-HPCDD	38.67	8.959e4	9.414e4	1.303	0.95	1.05	833.2	YES	NO	bb	MM	50.000
14	1234678-HpCDD	39.67	8.606e4	8.097e4	1.200	1.06	1.05	679.9	YES	NO	bd	bd	49.362
15	OCDD	44.24	1.310e5	1.474e5	1.059	0.89	0.89	533.8	YES	NO	bd	bd	93.510

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	27.02	9.270e1	1.173e2	0.973	0.79	0.77	2.6	NO	NO	bb	bb	0.022
2	Total-tetrafurans	26.83	7.458e1	1.106e2	0.973	0.67	0.77	2.7	NO	NO	bb	bb	0.019
3	1289-TCDF	26.64	3.514e4	4.772e4	0.847	0.74	0.77	565.8	YES	NO	db	db	10.000
4	Total-tetrafurans	26.54	3.122e2	4.768e2	0.973	0.65	0.77	4.2	YES	NO	bd	bd	0.083
5	2378-TCDF	25.15	3.950e4	4.814e4	0.903	0.82	0.77	660.2	YES	NO	bb	bb	9.917
6	1368-TCDF	21.66	4.983e4	6.469e4	1.170	0.77	0.77	904.1	YES	NO	bb	bb	10.000
7	12378-PeCDF	29.30	2.038e5	1.306e5	0.923	1.56	1.55	1052.5	YES	NO	bb	bb	50.247
8	Total-pentafurans	28.15	3.570e4	2.180e4	0.931	1.64	1.55	186.8	YES	NO	bb	bb	8.746
9	123468-HXCDF	32.59	1.625e5	1.297e5	1.206	1.25	1.24	1039.7	YES	NO	bb	bb	50.000
10	12389-PECDF	31.66	1.897e5	1.273e5	0.880	1.49	1.55	916.9	YES	NO	bb	bb	50.000
11	23478-PeCDF	30.63	2.084e5	1.355e5	0.991	1.54	1.55	1090.3	YES	NO	bb	bb	50.195
12	123789-HxCDF	36.35	1.152e5	9.214e4	0.988	1.25	1.24	720.9	YES	NO	bb	bb	49.981
13	234678-HxCDF	35.31	1.397e5	1.124e5	1.081	1.24	1.24	909.5	YES	NO	bb	bb	48.560
14	123678-HxCDF	34.42	1.708e5	1.326e5	1.032	1.29	1.24	1031.8	YES	NO	db	db	49.502
15	123478-HxCDF	34.29	1.471e5	1.155e5	1.128	1.27	1.24	999.7	YES	NO	bd	bd	48.019
16	1234789-HpCDF	40.38	9.773e4	8.439e4	1.104	1.16	1.05	527.4	YES	NO	bd	bb	51.965
17	1234678-HpCDF	38.22	1.266e5	1.232e5	1.164	1.03	1.05	772.6	YES	NO	bd	bd	48.307
18	OCDF	44.46	1.439e5	1.668e5	1.130	0.86	0.89	496.2	YES	NO	bd	bd	97.728
19	13468-PECDF	26.49	2.671e5	1.802e5	1.241	1.48	1.55	5321.4	YES	NO	bb	bb	50.000
20	1368-TCDD	22.94	3.442e4	4.124e4	1.181	0.83	0.77	623.2	YES	NO	bb	bb	10.000
21	1289-TCDD	26.38	2.831e4	3.339e4	0.963	0.85	0.77	442.0	YES	NO	bb	bb	10.000
22	2378-TCDD	25.79	3.416e4	4.089e4	1.243	0.84	0.77	557.1	YES	NO	db	bb	9.423
23	Total-tetradioxins	25.46	5.003e4	6.062e4	1.129	0.83	0.77	586.5	YES	NO	bd	bb	15.297
24	Total-tetradioxins	24.97	1.665e4	1.948e4	1.129	0.85	0.77	278.4	YES	NO	bd	bb	4.994
25	12389-PECDD	31.28	1.628e5	1.051e5	1.326	1.55	1.55	1481.5	YES	NO	bb	bb	50.000
26	12378-PeCDD	30.88	1.444e5	9.272e4	1.150	1.56	1.55	1355.0	YES	NO	bb	bb	51.023
27	12479-PECDD	28.18	2.672e5	1.705e5	2.166	1.57	1.55	1692.5	YES	NO	bb	bb	50.000
28	123789-HxCDD	35.94	1.075e5	9.200e4	0.804	1.17	1.24	706.7	YES	NO	bb	bd	52.545
29	123678-HxCDD	35.53	1.368e5	1.058e5	0.883	1.29	1.24	836.6	YES	NO	db	db	52.231
30	123478-HxCDD	35.42	1.045e5	8.370e4	0.960	1.25	1.24	794.5	YES	NO	bd	bd	46.802
31	124679-HXCDD	33.38	1.240e5	1.119e5	1.127	1.11	1.24	829.1	YES	NO	bb	bd	50.000
32	1234679-HPCDD	38.67	8.959e4	9.414e4	1.303	0.95	1.05	833.2	YES	NO	bb	MM	50.000
33	1234678-HpCDD	39.67	8.606e4	8.097e4	1.200	1.06	1.05	679.9	YES	NO	bd	bd	49.362
34	OCDD	44.24	1.310e5	1.474e5	1.059	0.89	0.89	533.8	YES	NO	bd	bd	93.510

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.88	2.287e4					1.1	NO		bb		
2	FUNCTION1 PFK	21.21	1.199e5					3.0	YES		db		
3	FUNCTION1 PFK	21.11	2.695e5					5.2	YES		bd		
4	FUNCTION1 PFK	24.73	3.950e4					1.7	NO		bb		
5	FUNCTION1 PFK	24.47	6.758e4					1.8	NO		bb		
6	FUNCTION1 PFK	24.01	3.389e4					1.4	NO		db		
7	FUNCTION1 PFK	23.95	6.931e4					2.0	NO		dd		
8	FUNCTION1 PFK	23.88	1.455e4					0.7	NO		bd		
9	FUNCTION1 PFK	23.68	2.296e4					1.0	NO		bb		
10	FUNCTION1 PFK	23.49	7.036e3					0.5	NO		bb		
11	FUNCTION1 PFK	23.43	2.558e4					1.1	NO		bb		
12	FUNCTION1 PFK	23.32	2.769e4					1.1	NO		bb		
13	FUNCTION1 PFK	23.08	4.539e4					1.3	NO		bb		
14	FUNCTION1 PFK	22.99	3.202e4					1.0	NO		bb		
15	FUNCTION1 PFK	22.84	2.617e4					0.9	NO		bb		
16	FUNCTION1 PFK	22.67	3.895e3					0.5	NO		bb		
17	FUNCTION1 PFK	22.53	5.474e4					1.0	NO		bb		
18	FUNCTION1 PFK	22.16	1.513e5					2.3	NO		bb		
19	FUNCTION1 PFK	21.95	2.770e4					1.0	NO		bb		
20	FUNCTION1 PFK	27.07	9.015e3					0.4	NO		bb		
21	FUNCTION1 PFK	26.93	4.581e4					1.0	NO		db		
22	FUNCTION1 PFK	26.85	1.433e4					0.8	NO		dd		
23	FUNCTION1 PFK	26.78	1.200e5					2.0	NO		bd		
24	FUNCTION1 PFK	26.28	1.708e4					0.9	NO		bb		
25	FUNCTION1 PFK	26.17	1.425e4					0.8	NO		bb		
26	FUNCTION1 PFK	25.97	8.325e4					1.9	NO		db		
27	FUNCTION1 PFK	25.89	5.720e4					1.6	NO		dd		
28	FUNCTION1 PFK	25.80	3.276e4					1.4	NO		dd		
29	FUNCTION1 PFK	25.76	1.712e4					1.1	NO		bd		
30	FUNCTION1 PFK	25.58	2.001e4					1.1	NO		bb		
31	FUNCTION1 PFK	25.00	8.396e4					1.9	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.20	6.101e3					0.9	NO		bb		0.000
2	FUNCTION2 PFK	27.72	7.538e3					1.2	NO		bb		0.000
3	FUNCTION2 PFK	27.56	7.896e3					1.5	NO		bb		0.000
4	FUNCTION2 PFK	31.61	1.118e4					1.8	NO		bb		0.000
5	FUNCTION2 PFK	31.49	2.001e3					0.6	NO		bb		0.000
6	FUNCTION2 PFK	31.33	4.573e3					0.8	NO		bb		0.000
7	FUNCTION2 PFK	30.61	3.430e3					0.7	NO		bb		0.000
8	FUNCTION2 PFK	30.38	1.955e4					1.9	NO		db		0.000
9	FUNCTION2 PFK	30.32	2.856e4					2.4	NO		dd		0.000
10	FUNCTION2 PFK	30.25	4.260e4					2.7	NO		bd		0.000
11	FUNCTION2 PFK	30.02	6.437e3					1.2	NO		bb		0.000
12	FUNCTION2 PFK	29.72	8.785e3					1.2	NO		bb		0.000
13	FUNCTION2 PFK	29.64	1.359e4					1.3	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	34.03	6.816e4					4.9	YES		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.55	4.035e5					9.6	YES		dd		
2	FUNCTION4 PFK	37.43	4.089e5					13.1	YES		dd		
3	FUNCTION4 PFK	37.37	3.953e5					15.9	YES		bd		
4	FUNCTION4 PFK	41.72	1.671e4					1.8	NO		bb		
5	FUNCTION4 PFK	41.06	1.961e3					0.5	NO		bb		
6	FUNCTION4 PFK	40.73	2.014e4					1.4	NO		db		
7	FUNCTION4 PFK	40.63	3.971e4					1.5	NO		bd		
8	FUNCTION4 PFK	40.28	1.671e4					1.7	NO		db		
9	FUNCTION4 PFK	40.24	7.359e3					0.8	NO		bd		
10	FUNCTION4 PFK	40.11	1.431e4					0.8	NO		bb		
11	FUNCTION4 PFK	39.76	1.218e4					1.3	NO		db		
12	FUNCTION4 PFK	39.71	1.469e4					1.6	NO		bd		
13	FUNCTION4 PFK	39.47	2.072e3					0.5	NO		bb		
14	FUNCTION4 PFK	39.26	3.995e3					0.7	NO		bb		
15	FUNCTION4 PFK	38.96	1.705e4					1.3	NO		bb		
16	FUNCTION4 PFK	38.87	1.236e4					1.6	NO		bb		
17	FUNCTION4 PFK	38.20	7.116e3					1.0	NO		bb		
18	FUNCTION4 PFK	38.14	9.317e3					1.1	NO		bb		
19	FUNCTION4 PFK	37.73	8.009e4					3.6	YES		db		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.08	6.313e3					2.2	NO		dd		
2	FUNCTION5 PFK	44.05	1.663e4					2.5	NO		dd		
3	FUNCTION5 PFK	43.97	7.549e3					1.6	NO		dd		
4	FUNCTION5 PFK	43.91	1.172e4					1.7	NO		bd		
5	FUNCTION5 PFK	43.73	5.981e3					1.8	NO		db		
6	FUNCTION5 PFK	43.68	8.401e3					1.9	NO		bd		
7	FUNCTION5 PFK	43.60	6.754e3					1.2	NO		db		
8	FUNCTION5 PFK	43.57	5.515e3					1.5	NO		dd		
9	FUNCTION5 PFK	43.53	3.330e3					1.0	NO		bd		
10	FUNCTION5 PFK	43.39	8.995e3					1.6	NO		db		
11	FUNCTION5 PFK	43.31	1.183e4					2.8	NO		bd		
12	FUNCTION5 PFK	43.26	7.475e3					1.3	NO		bb		
13	FUNCTION5 PFK	43.01	6.561e3					1.5	NO		bb		
14	FUNCTION5 PFK	42.95	1.254e4					3.2	YES		bb		
15	FUNCTION5 PFK	42.88	1.024e4					2.9	NO		bb		
16	FUNCTION5 PFK	45.78	4.070e3					1.1	NO		bb		
17	FUNCTION5 PFK	45.48	1.651e4					1.8	NO		bb		
18	FUNCTION5 PFK	45.43	2.652e3					1.0	NO		bb		
19	FUNCTION5 PFK	45.35	1.162e4					2.3	NO		db		
20	FUNCTION5 PFK	45.27	1.211e3					0.5	NO		bd		
21	FUNCTION5 PFK	45.02	1.216e3					0.5	NO		bb		
22	FUNCTION5 PFK	44.98	5.040e3					1.1	NO		db		
23	FUNCTION5 PFK	44.92	3.169e3					1.2	NO		bd		
24	FUNCTION5 PFK	44.74	8.901e3					1.7	NO		bb		
25	FUNCTION5 PFK	44.64	2.230e3					0.8	NO		bb		
26	FUNCTION5 PFK	44.39	4.221e3					1.4	NO		bb		
27	FUNCTION5 PFK	44.35	6.245e3					2.1	NO		db		
28	FUNCTION5 PFK	44.31	1.675e3					0.8	NO		bd		
29	FUNCTION5 PFK	44.27	3.130e3					1.3	NO		bb		
30	FUNCTION5 PFK	44.17	6.199e3					1.1	NO		db		
31	FUNCTION5 PFK	44.12	7.116e3					1.8	NO		dd		
32	FUNCTION5 PFK	45.96	6.001e3					1.3	NO		bb		
33	FUNCTION5 PFK	45.89	2.093e3					0.9	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.30	7.466e1					1.0	NO		bb		0.000
2	FUNCTION1 HXCD...	26.07	1.160e2					3.2	YES		db		0.000
3	FUNCTION1 HXCD...	26.03	8.861e1					3.1	YES		dd		0.000
4	FUNCTION1 HXCD...	25.93	1.189e2					2.9	NO		bd		0.000
5	FUNCTION1 HXCD...	25.77	1.258e2					2.8	NO		bb		0.000
6	FUNCTION1 HXCD...	25.10	1.754e2					3.6	YES		bb		0.000
7	FUNCTION1 HXCD...	24.57	7.378e1					2.0	NO		bb		0.000
8	FUNCTION1 HXCD...	23.85	1.002e2					2.1	NO		bb		0.000
9	FUNCTION1 HXCD...	21.59	1.003e2					2.5	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.18	7.496e1					2.3	NO		db		0.000
2	FUNCTION2 HPCD...	30.08	1.084e2					1.9	NO		bd		0.000
3	FUNCTION2 HPCD...	29.33	7.147e1					2.3	NO		bb		0.000
4	FUNCTION2 HPCD...	31.57	8.584e1					1.8	NO		bb		0.000
5	FUNCTION2 HPCD...	30.48	1.977e2					6.2	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.04	1.580e2					4.1	YES		db		0.000
2	FUNCTION3 OCDPE	35.91	2.583e2					6.6	YES		bd		0.000
3	FUNCTION3 OCDPE	35.41	1.273e2					4.3	YES		bb		0.000
4	FUNCTION3 OCDPE	35.18	1.247e2					3.1	YES		bb		0.000
5	FUNCTION3 OCDPE	34.94	1.056e2					10.5	YES		bb		0.000
6	FUNCTION3 OCDPE	34.43	8.328e1					3.7	YES		bb		0.000

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ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	39.67	2.033e2					2.8	NO		bb		0.000
2	FUNCTION4 NCDPE	38.63	1.180e2					2.2	NO		bb		0.000

ETHERS6

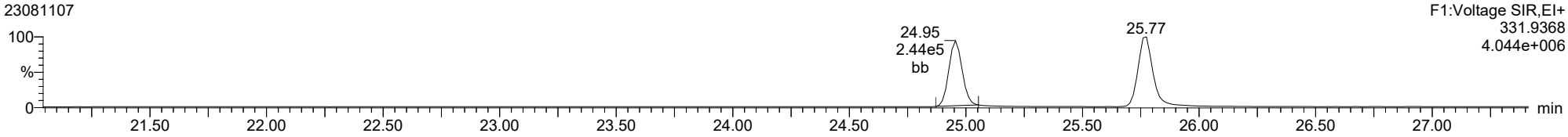
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1	FUNCTION5 DCDPE	43.93	1.396e2					3.3	YES		bb		0.000

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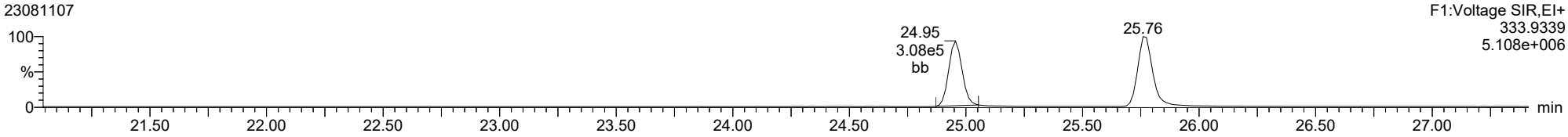
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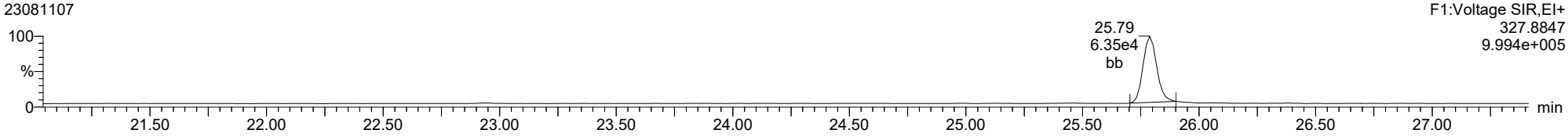
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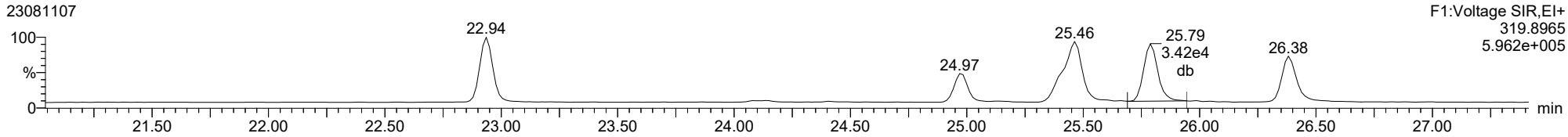


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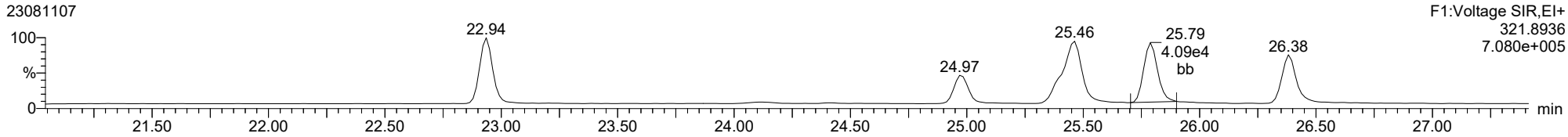


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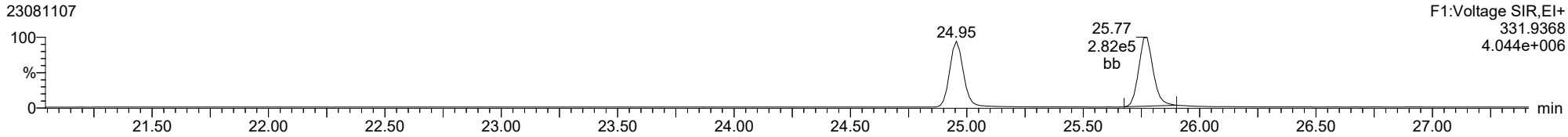
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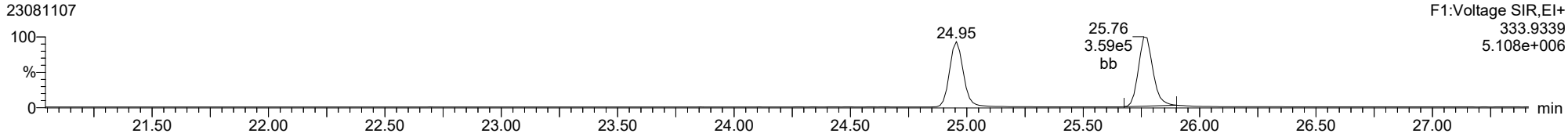
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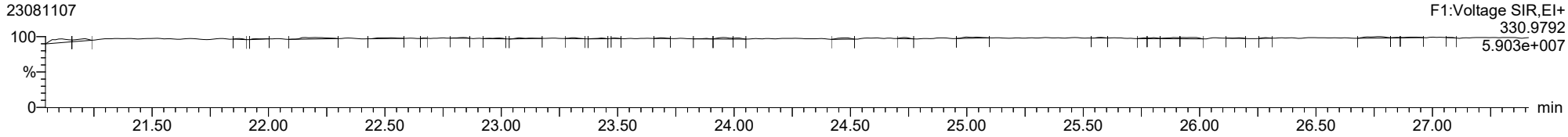
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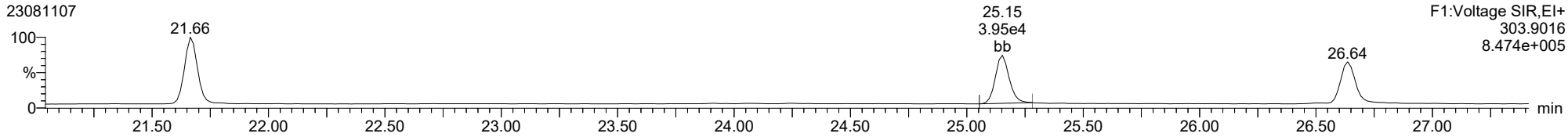


FUNCTION1 PFK

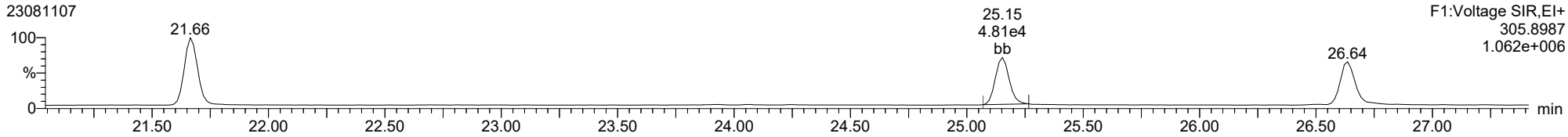


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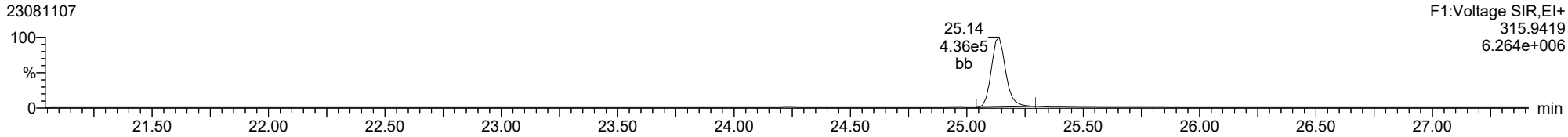
2378-TCDF



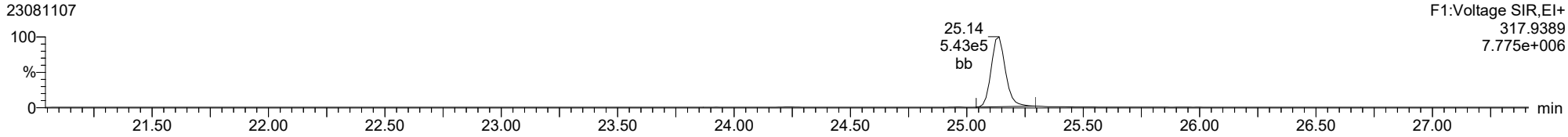
2378-TCDF



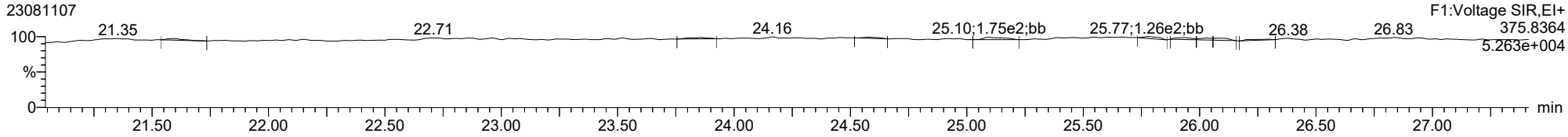
13C-2378-TCDF



13C-2378-TCDF

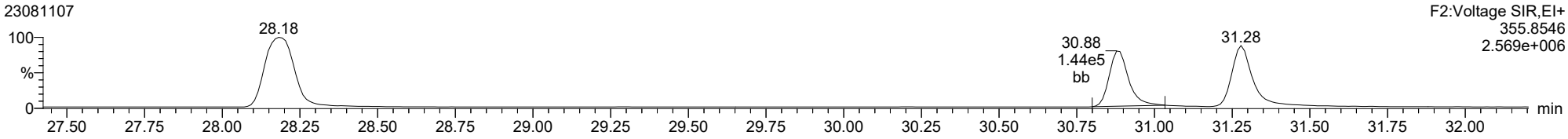


FUNCTION1 HXCDPE

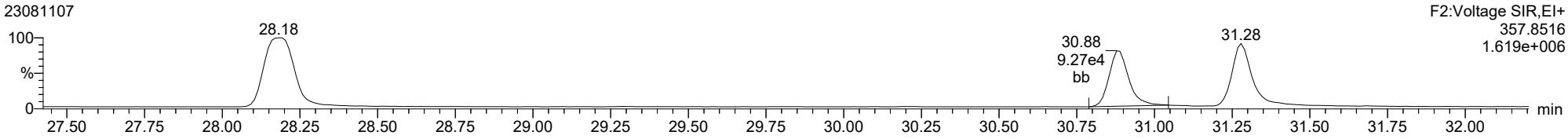


ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

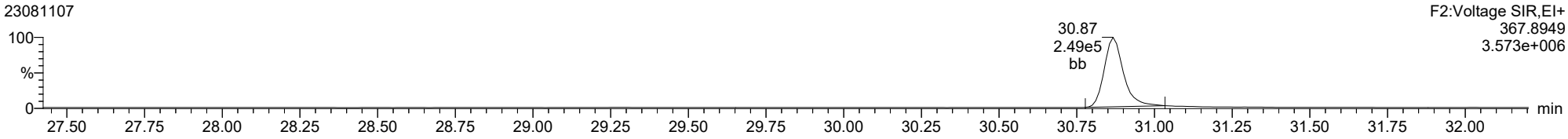
12378-PeCDD



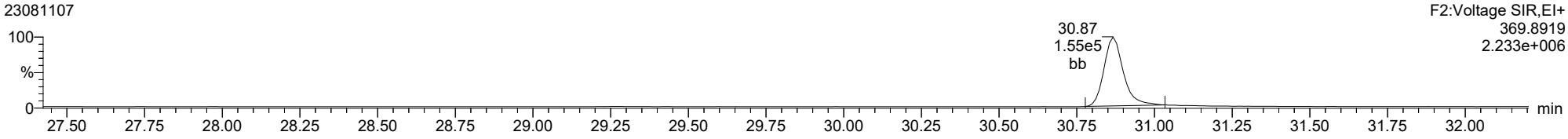
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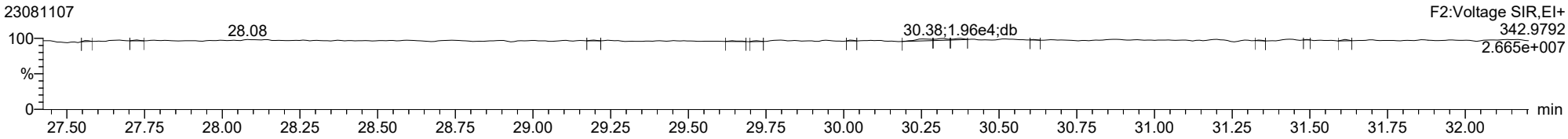
13C-12378-PeCDD



13C-12378-PeCDD

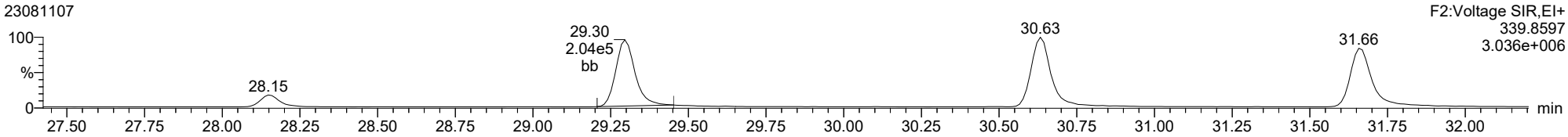


FUNCTION2 PFK

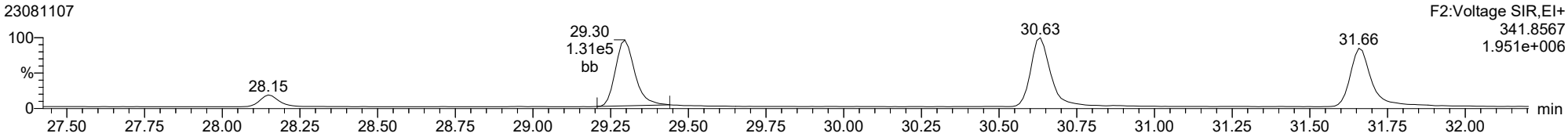


ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

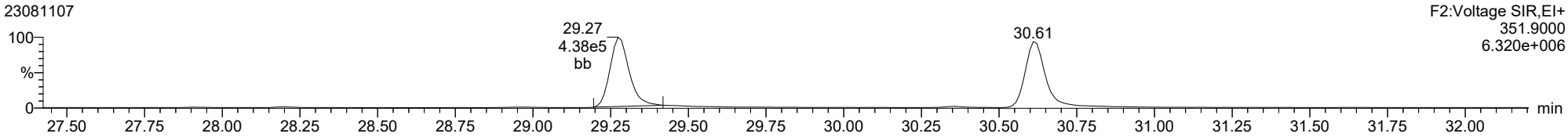
12378-PeCDF



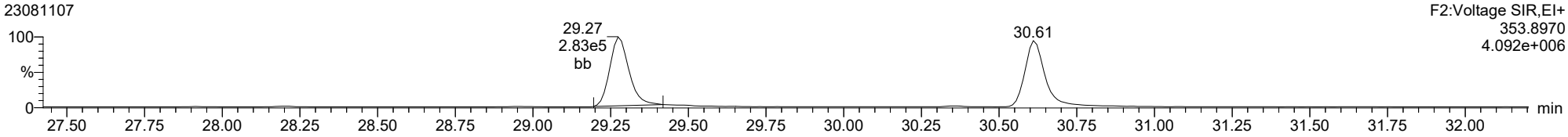
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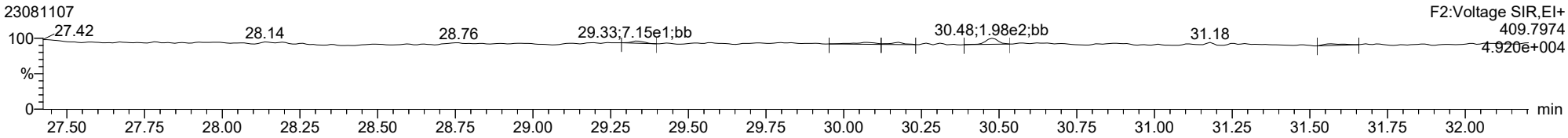
13C-12378-PeCDF



13C-12378-PeCDF

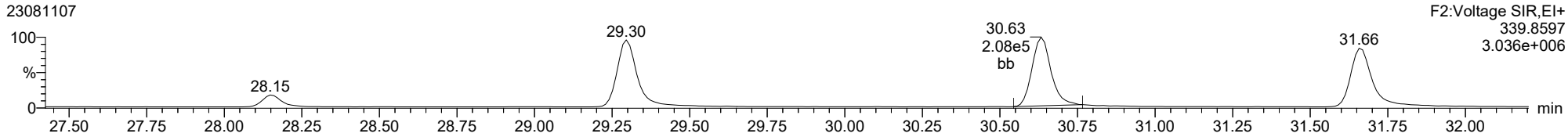


FUNCTION2 HPCDPE

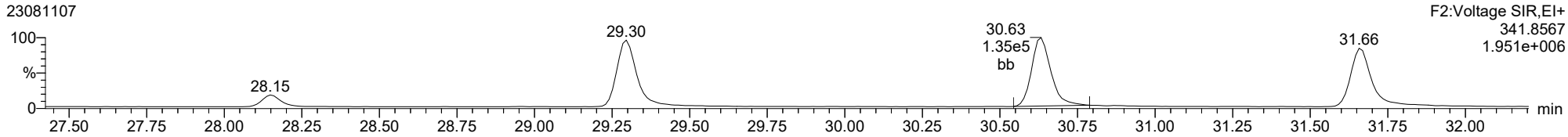


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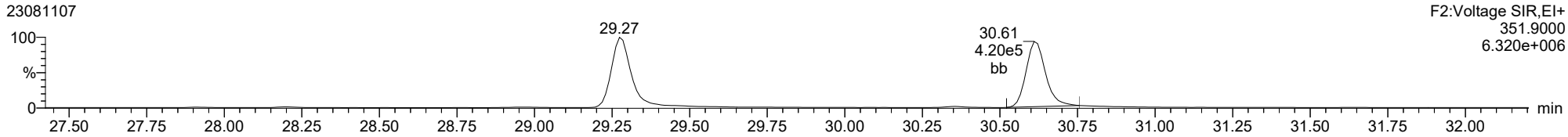
23478-PeCDF



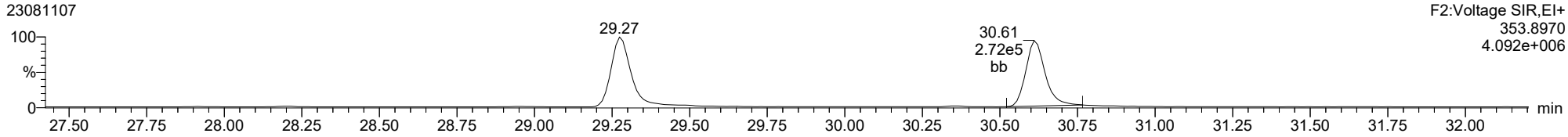
23478-PeCDF



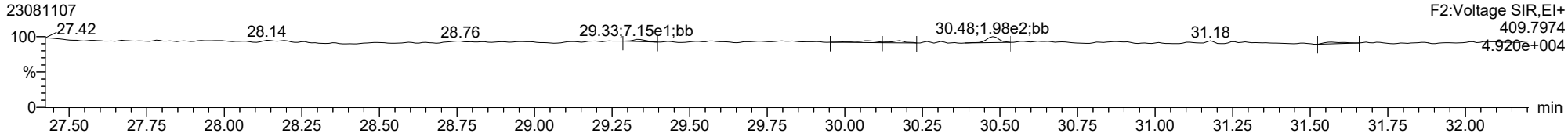
13C-23478-PeCDF



13C-23478-PeCDF

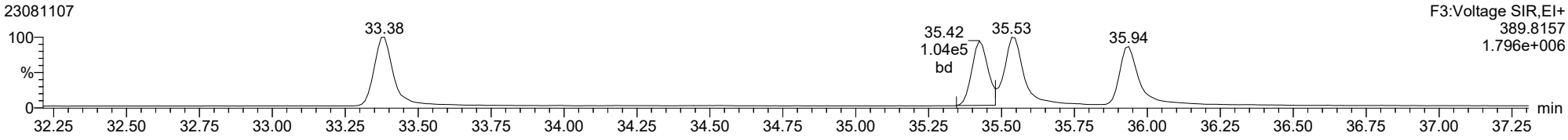


FUNCTION2 HPCDPE

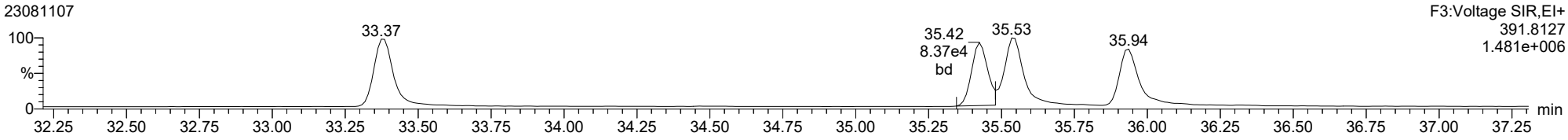


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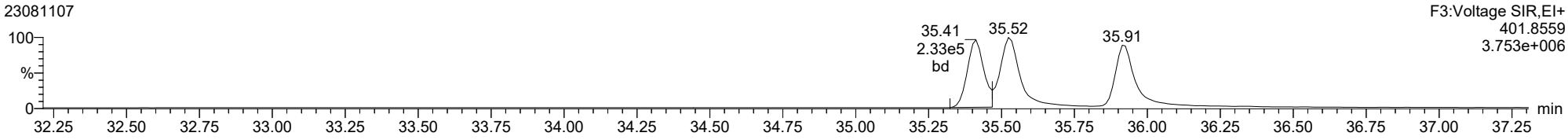
123478-HxCDD



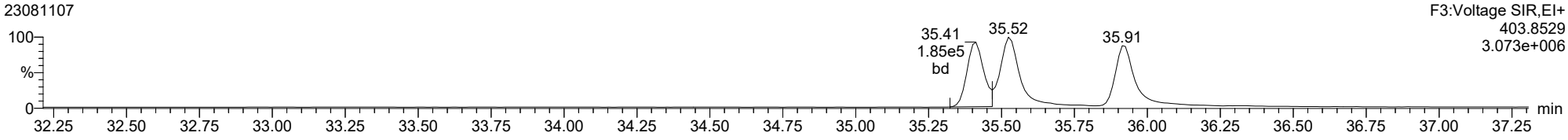
123478-HxCDD



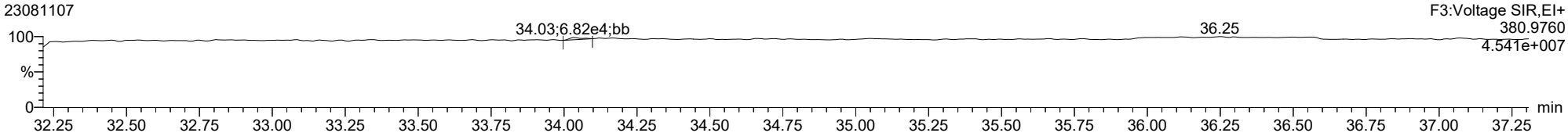
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13C-123478-HxCDD

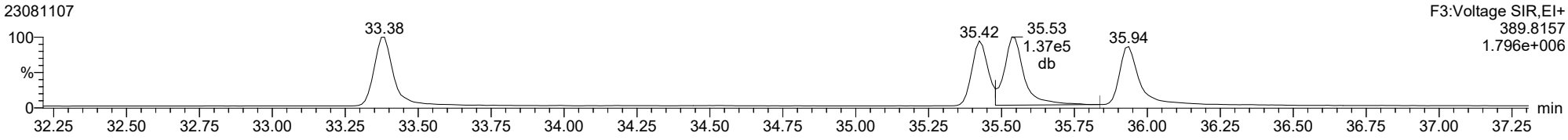


FUNCTION3 PFK

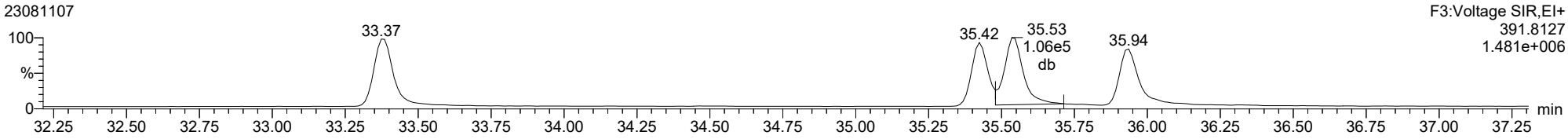


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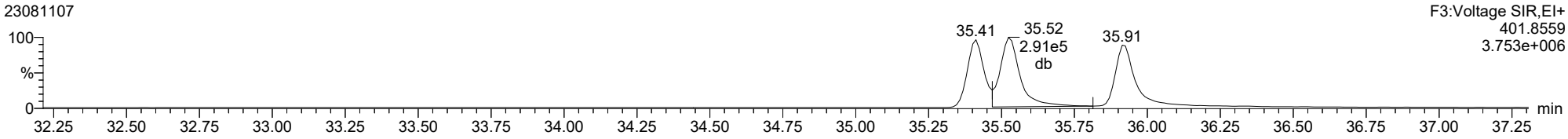
123678-HxCDD



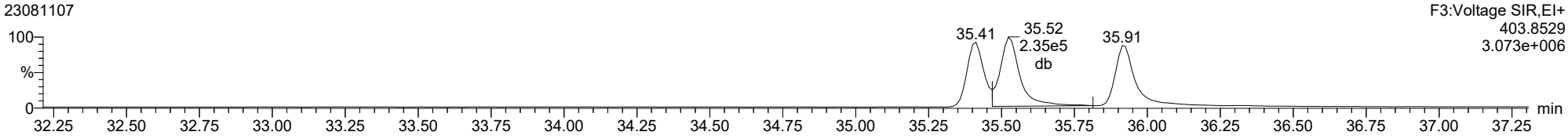
123678-HxCDD



13C-123678-HxCDD

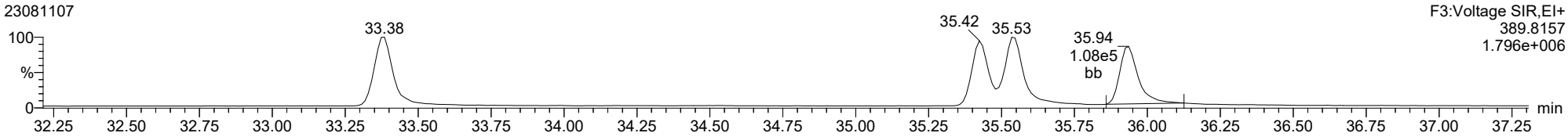


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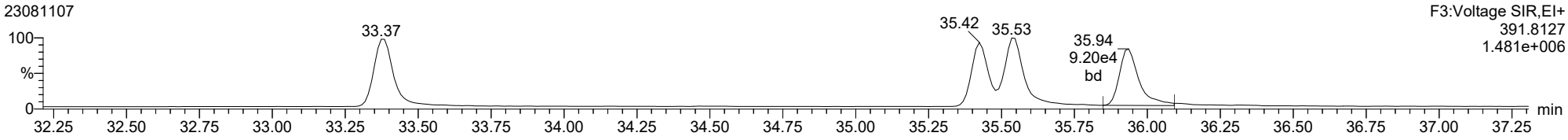


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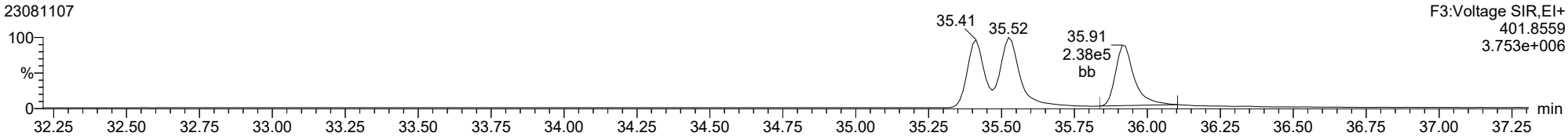
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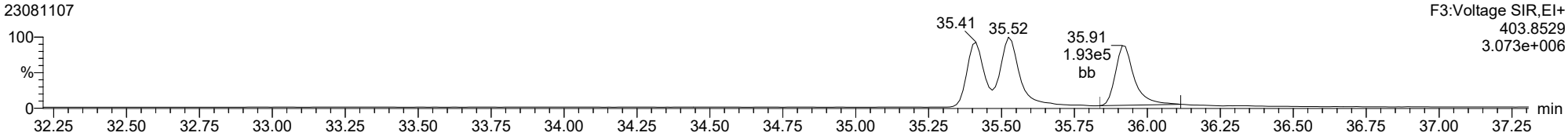
123789-HxCDD



13C-123789-HxCDD

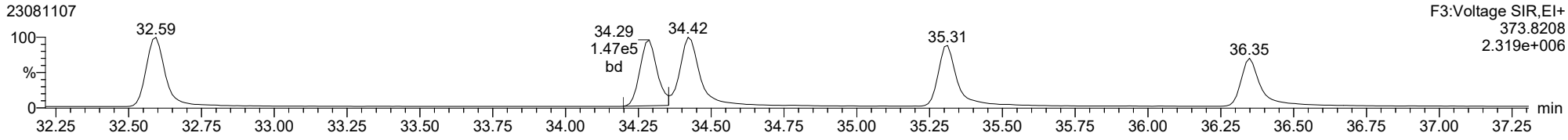


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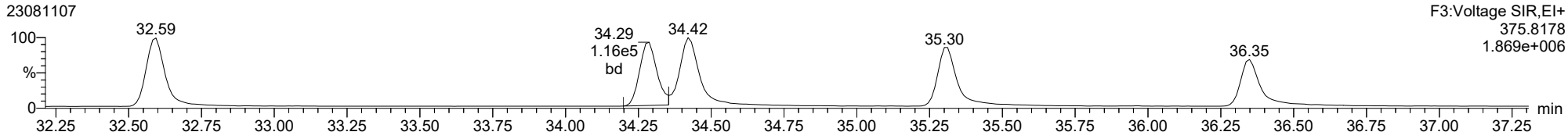


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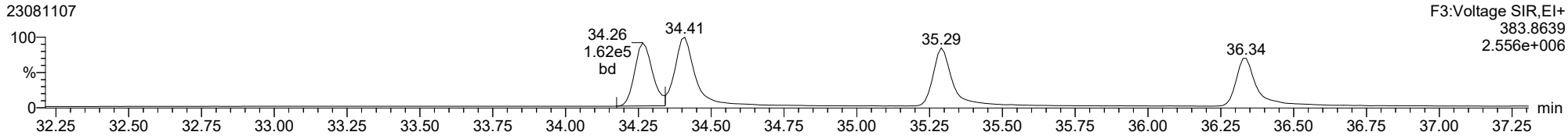
123478-HxCDF



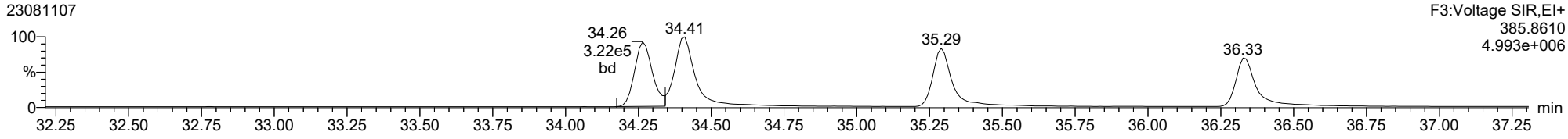
123478-HxCDF



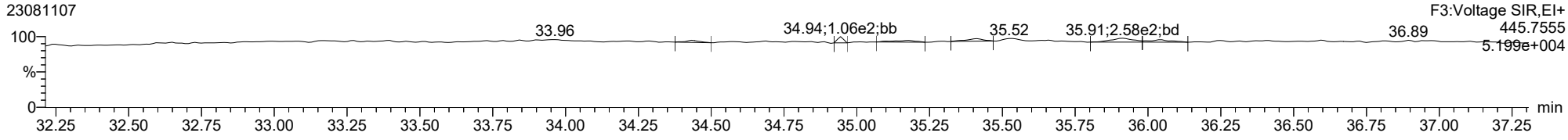
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13C-123478-HxCDF

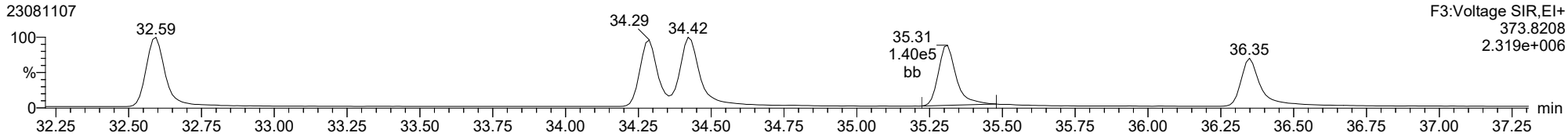


FUNCTION3 OCDPE

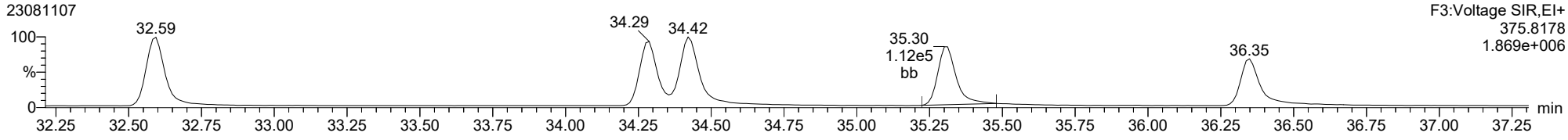


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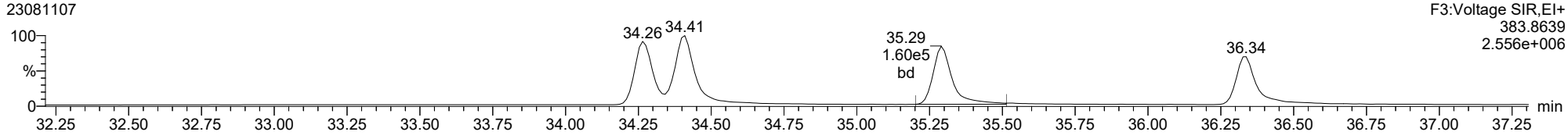
234678-HxCDF



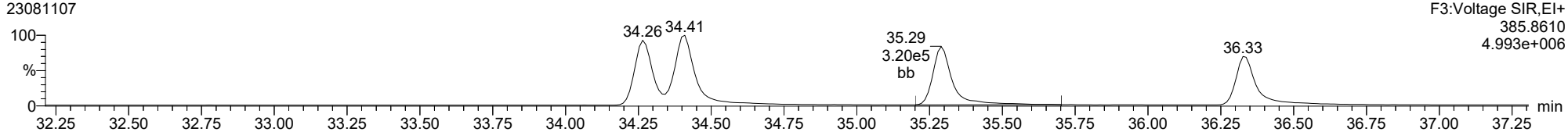
234678-HxCDF



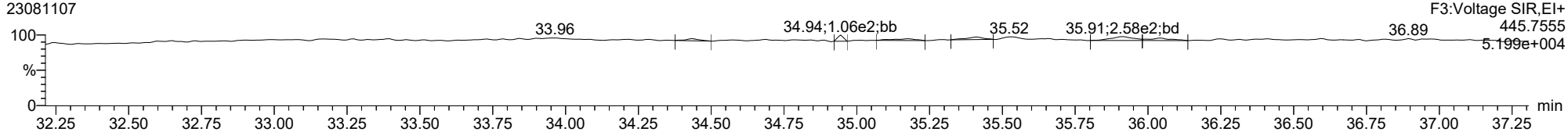
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13C-234678-HxCDF

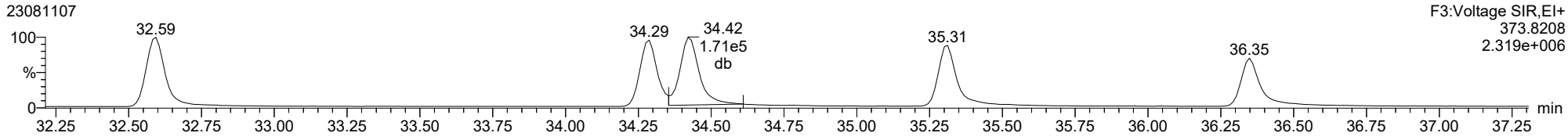


FUNCTION3 OCDPE

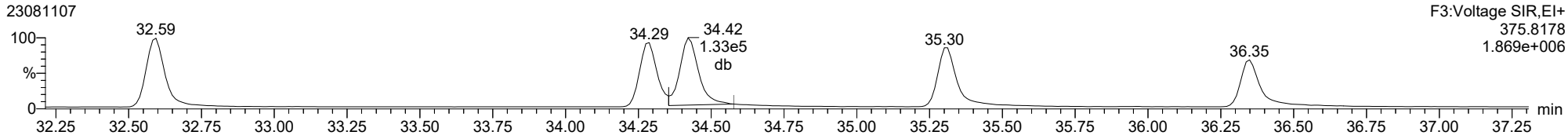


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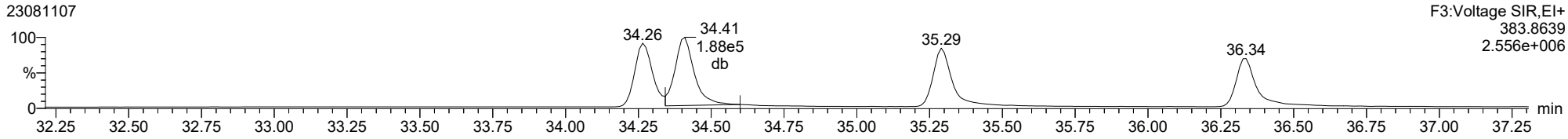
123678-HxCDF



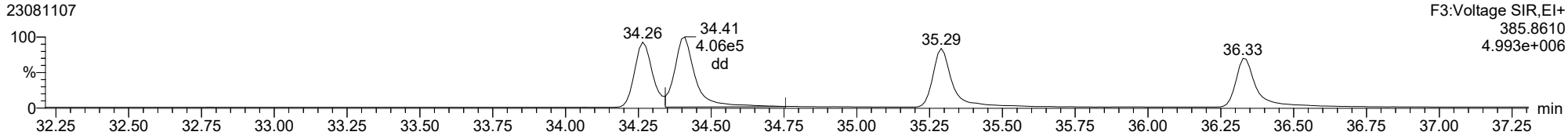
123678-HxCDF



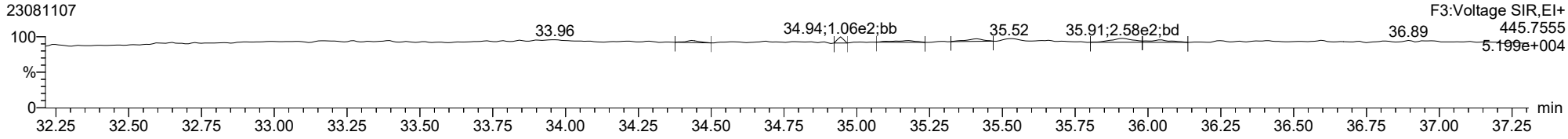
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13C-123678-HxCDF

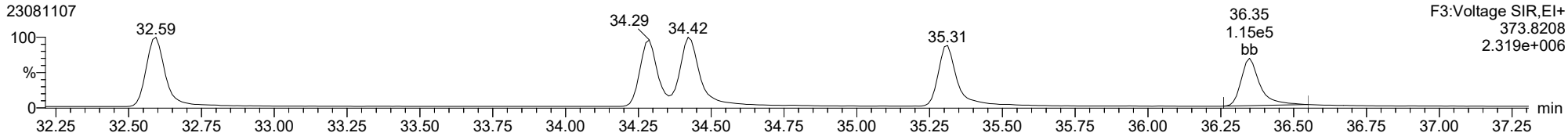


FUNCTION3 OCDPE

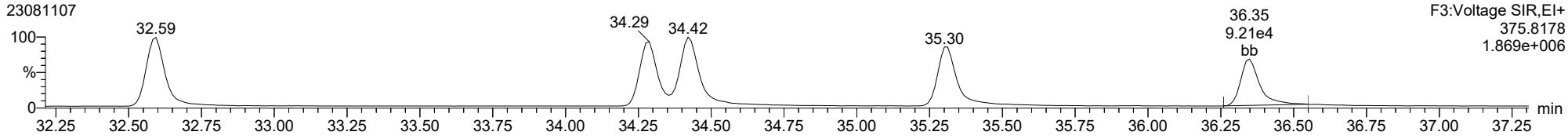


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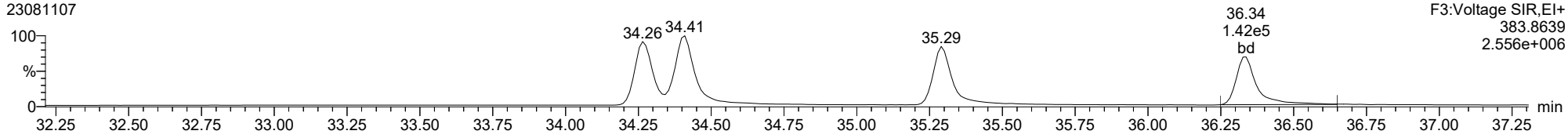
123789-HxCDF



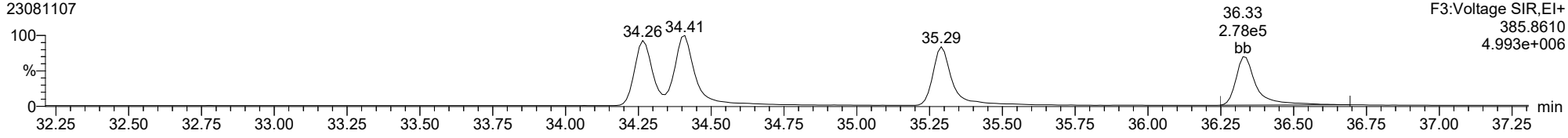
123789-HxCDF



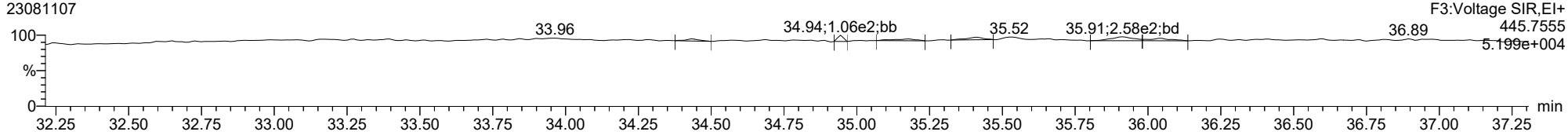
13C-123789-HxCDF



13C-123789-HxCDF

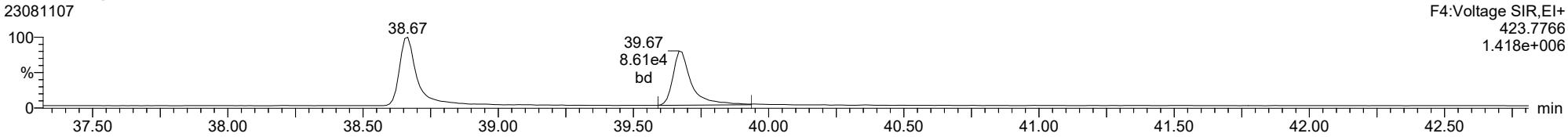


FUNCTION3 OCDPE

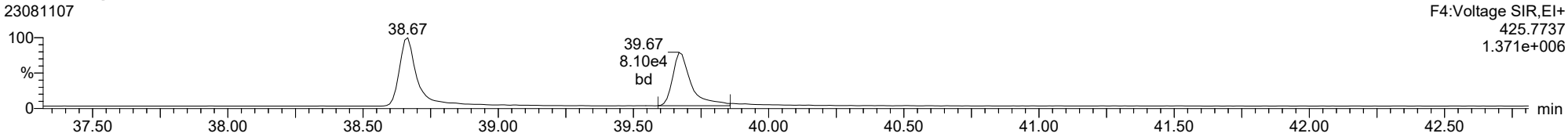


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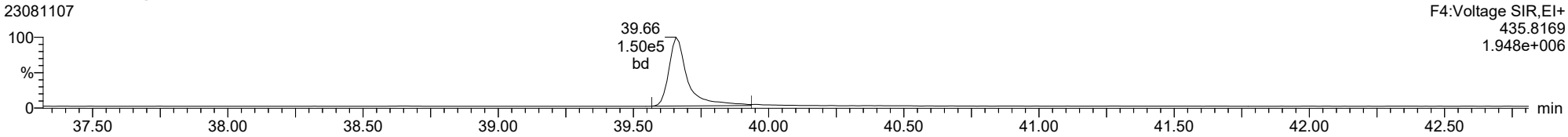
1234678-HpCDD



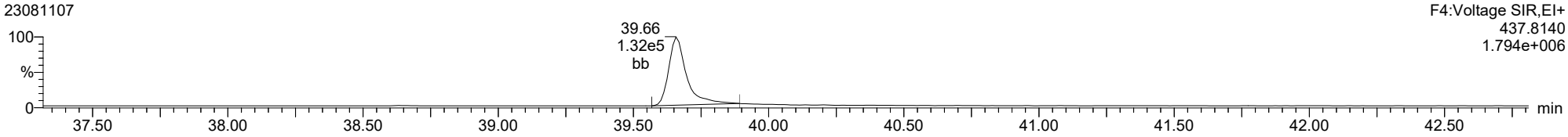
1234678-HpCDD



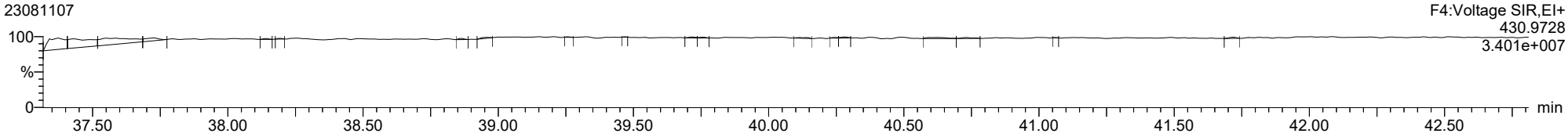
13C-1234678-HpCDD



13C-1234678-HpCDD

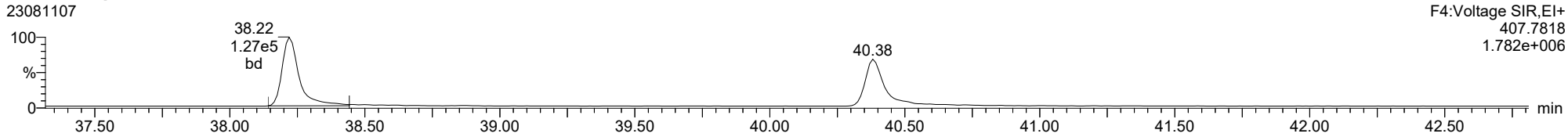


FUNCTION4 PFK

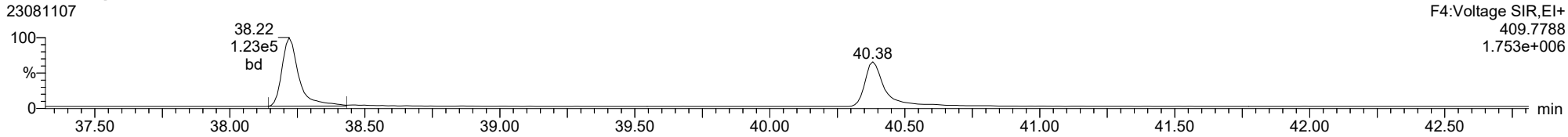


ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

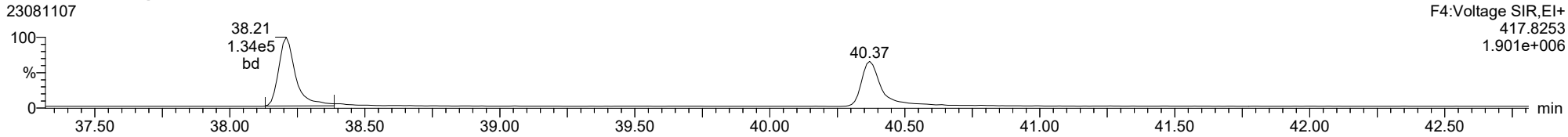
1234678-HpCDF



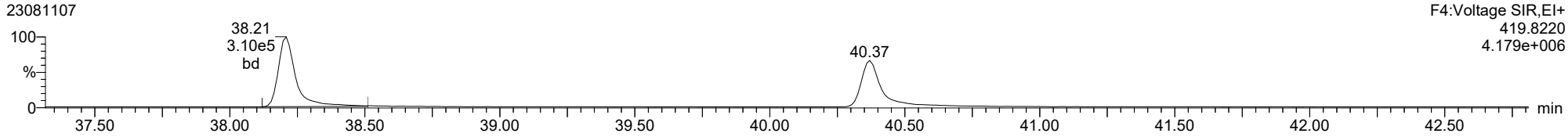
1234678-HpCDF



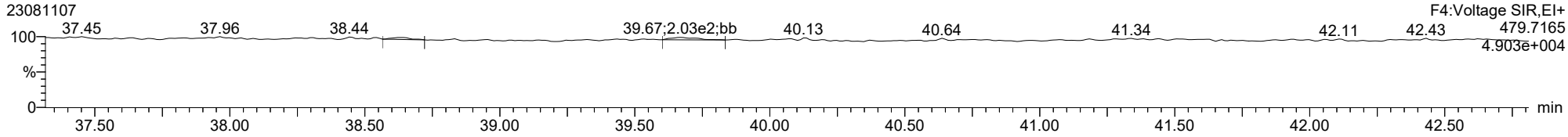
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13C-1234678-HpCDF

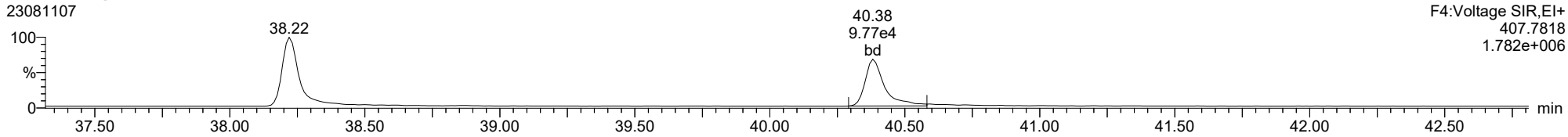


FUNCTION4 NCDPE

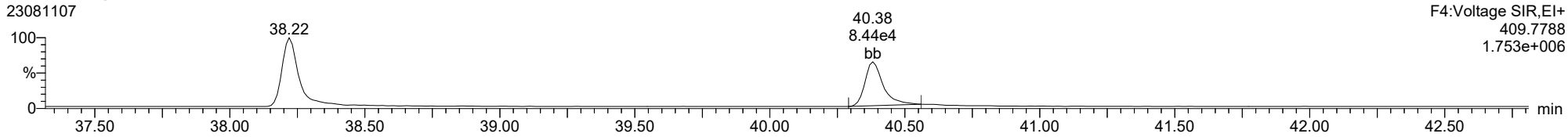


ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

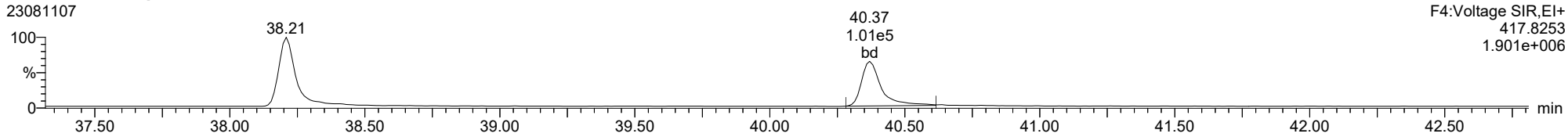
1234789-HpCDF



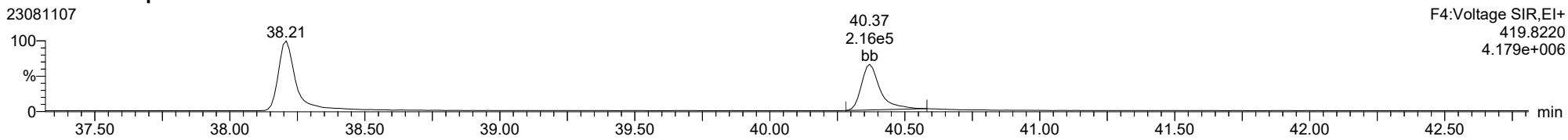
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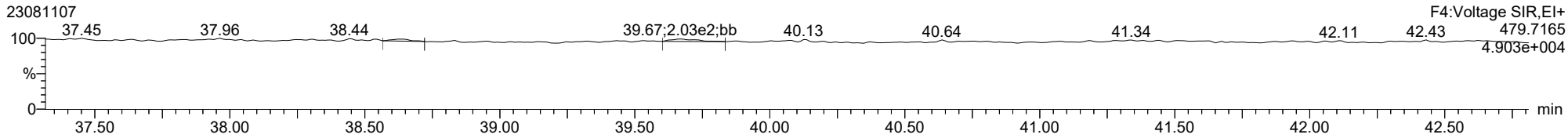
13C-1234789-HpCDF



13C-1234789-HpCDF

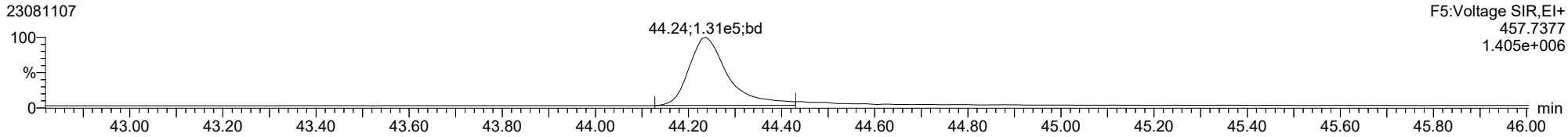


FUNCTION4 NCDPE

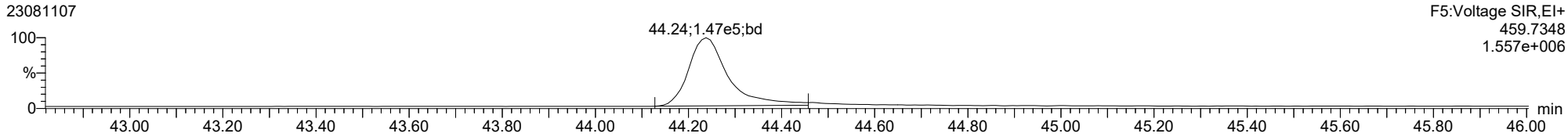


ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

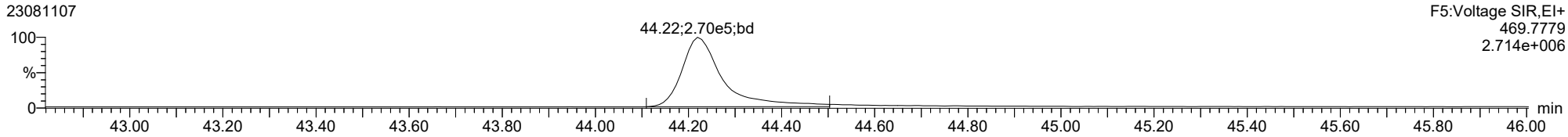
OCDD



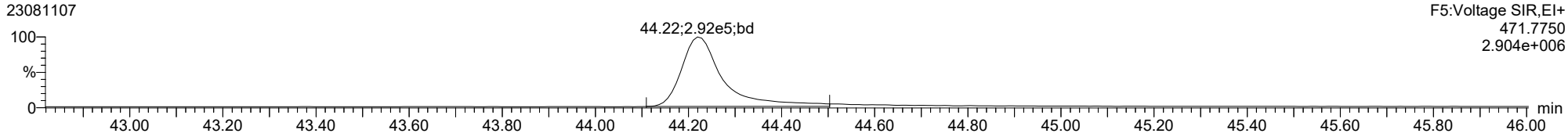
OCDD



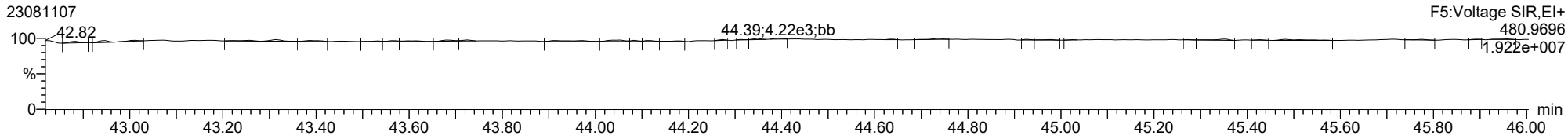
13C-OCDD



13C-OCDD

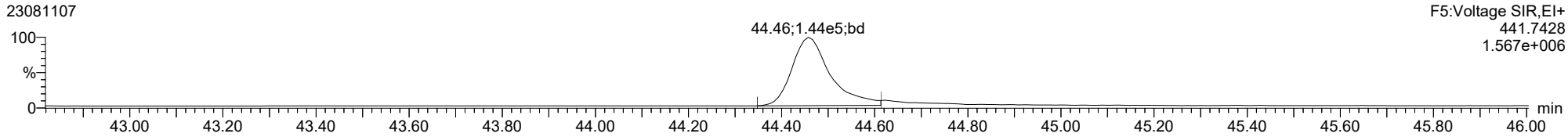


FUNCTION5 PFK

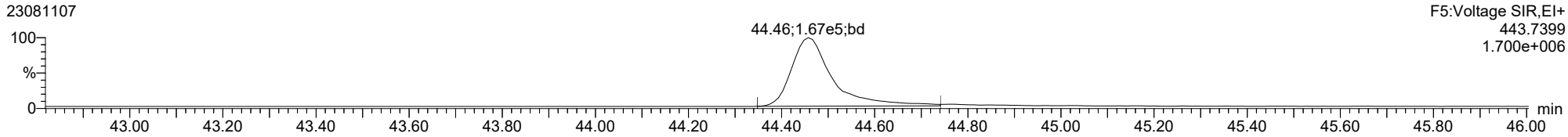


ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

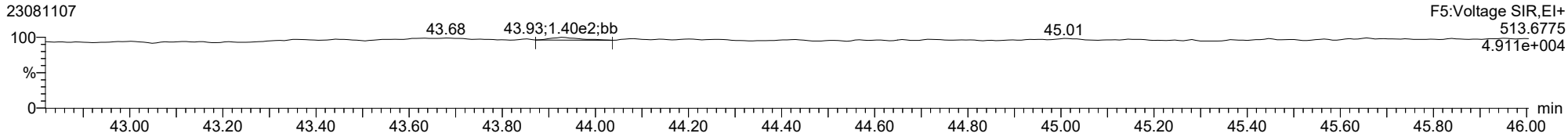
OCDF



OCDF

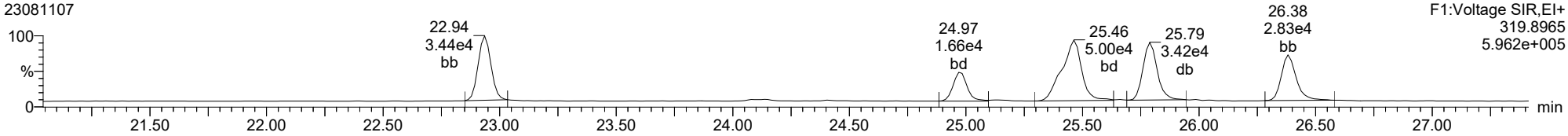


FUNCTION5 DCDPE

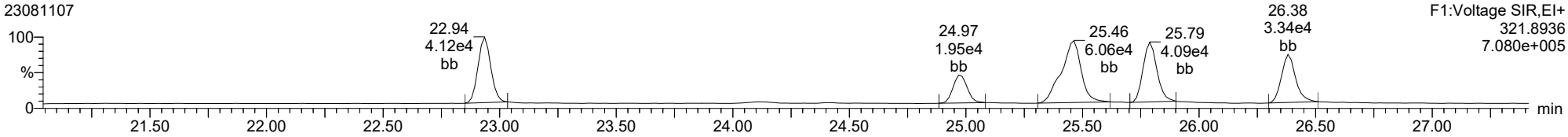


ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

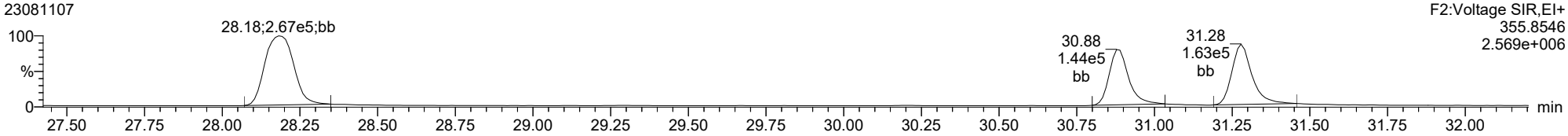
Total-tetradioxins



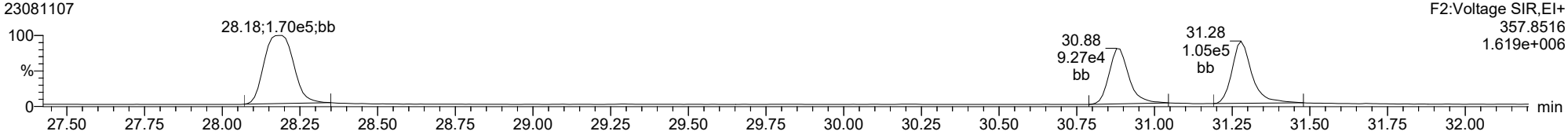
Total-tetradioxins



Total-pentadioxins

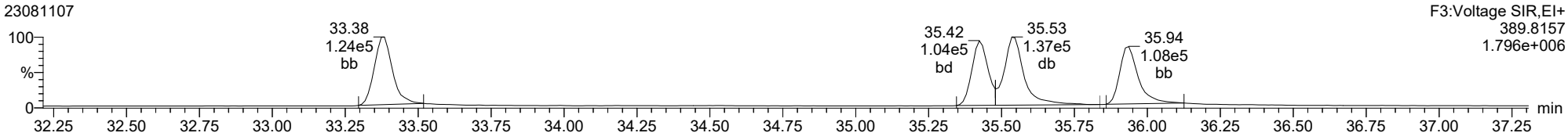


Total-pentadioxins

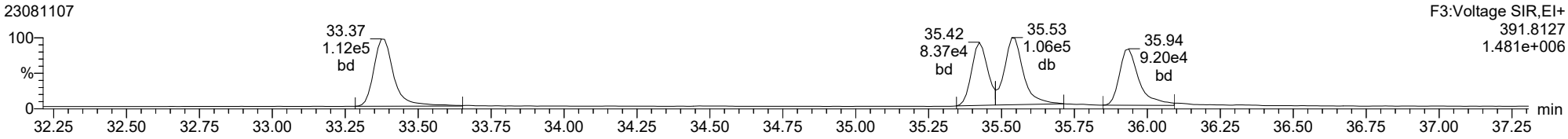


ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

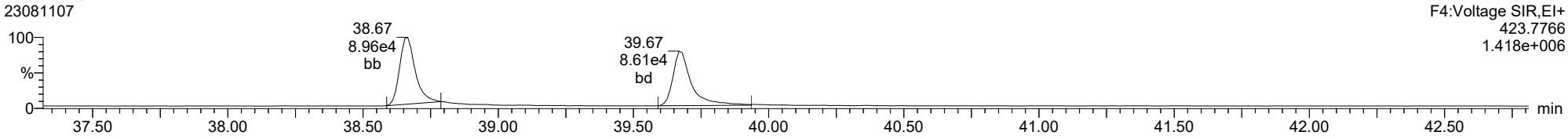
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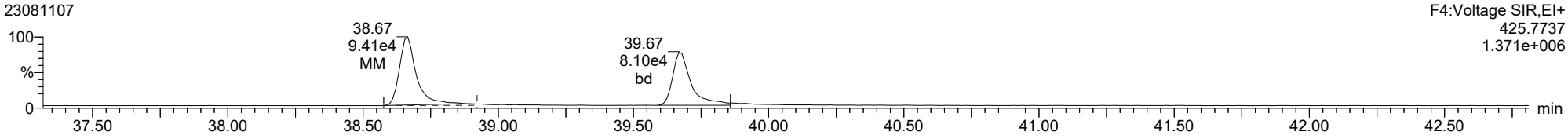
Total-hexadioxins



Total-heptadioxins

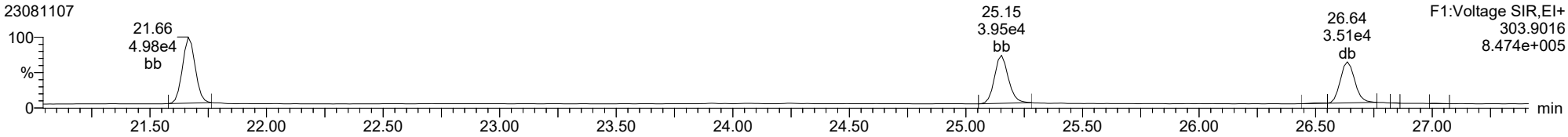


Total-heptadioxins

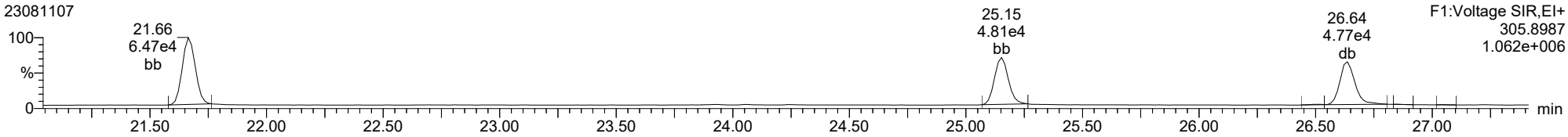


ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

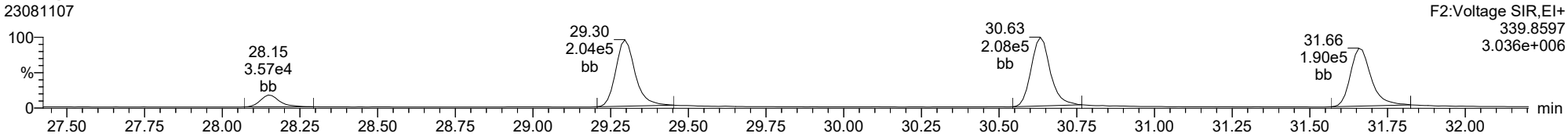
Total-tetrafurans



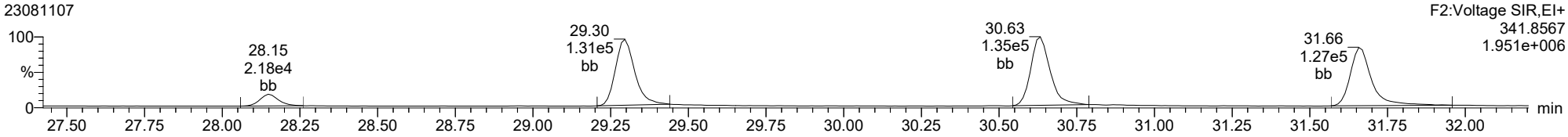
Total-tetrafurans



Total-pentafurans

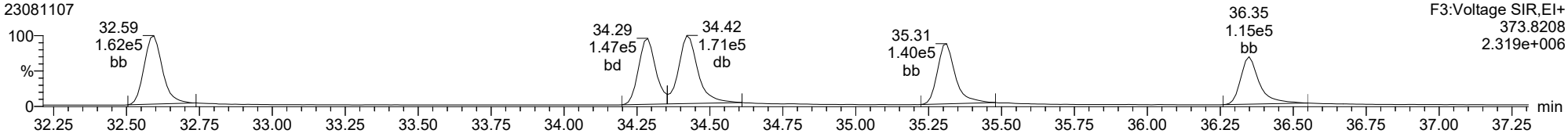


Total-pentafurans

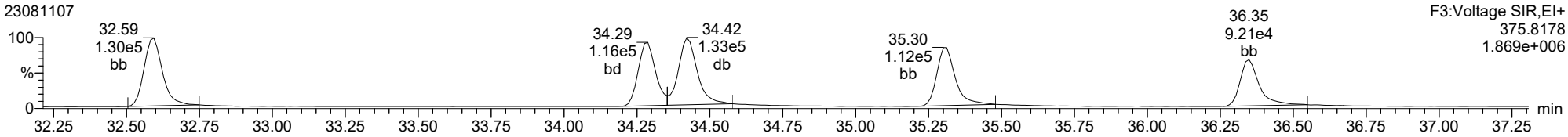


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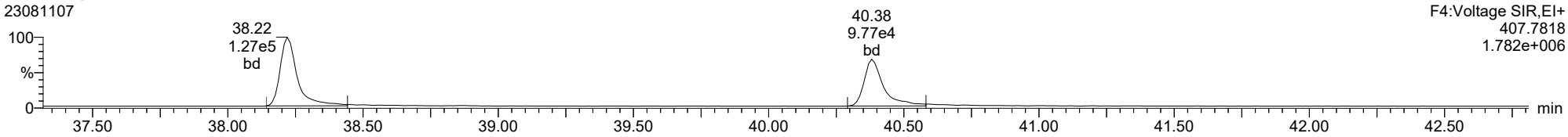
Total-hexafurans



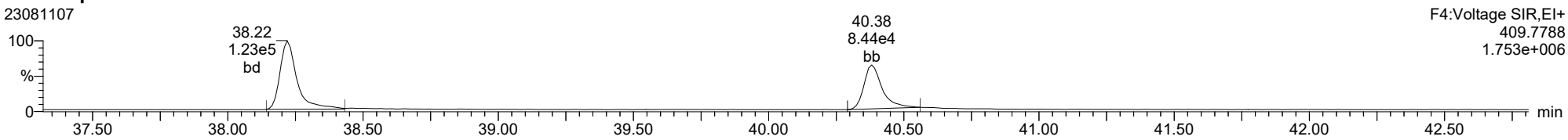
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:49 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.139	1.001	2.069e5	2.669e5	0.903	0.775	0.770	910	1408	2.99e6	3.87e6	3292.7	2749.1	NO	bb	bb	40.180
12378-PeCDF	29.285	1.001	1.012e6	6.469e5	0.923	1.564	1.550	3352	3597	1.46e7	9.36e6	4348.1	2602.0	NO	bb	bb	201.316
23478-PeCDF	30.622	1.000	1.053e6	6.665e5	0.991	1.580	1.550	3352	3597	1.49e7	9.38e6	4430.7	2608.4	NO	bb	bb	201.599
123478-HxCDF	34.276	1.000	7.120e5	5.688e5	1.128	1.252	1.240	2738	1665	1.05e7	8.28e6	3820.4	4974.4	NO	bd	bd	199.881
234678-HxCDF	35.301	1.000	6.633e5	5.283e5	1.081	1.255	1.240	2738	1665	9.44e6	7.56e6	3445.5	4543.2	NO	bb	bb	200.898
123678-HxCDF	34.421	1.001	7.823e5	6.275e5	1.032	1.247	1.240	2738	1665	1.03e7	8.32e6	3779.2	4995.7	NO	db	db	200.326
123789-HxCDF	36.337	1.000	5.937e5	4.227e5	0.988	1.404	1.240	2738	1665	7.36e6	5.84e6	2686.0	3510.6	NO	bd	bb	210.789
1234678-HpCDF	38.220	1.001	5.646e5	5.569e5	1.164	1.014	1.050	3806	3830	8.41e6	8.15e6	2209.9	2127.1	NO	bb	bb	199.621
1234789-HpCDF	40.381	1.001	4.624e5	4.643e5	1.104	0.996	1.050	3806	3830	5.85e6	5.57e6	1537.3	1455.3	NO	bb	bd	228.686
OCDF	44.457	1.005	6.808e5	7.439e5	1.130	0.915	0.890	3171	3847	7.41e6	7.99e6	2338.5	2077.7	NO	bb	bb	442.738
2378-TCDD	25.774	1.001	1.635e5	2.012e5	1.243	0.813	0.770	819	809	2.31e6	2.92e6	2817.9	3604.6	NO	bb	bb	39.976
12378-PeCDD	30.878	1.001	6.628e5	4.228e5	1.150	1.568	1.550	1616	1186	9.41e6	5.90e6	5824.4	4972.0	NO	bb	bb	202.257
123478-HxCDD	35.423	1.001	4.819e5	4.023e5	0.960	1.198	1.240	1711	1300	7.12e6	5.95e6	4159.0	4578.3	NO	bd	bd	194.509
123678-HxCDD	35.535	1.000	5.301e5	4.575e5	0.883	1.159	1.240	1711	1300	7.35e6	5.95e6	4295.5	4579.4	NO	db	db	202.344
123789-HxCDD	35.925	1.011	4.672e5	3.844e5	0.804	1.215	1.240	1711	1300	6.62e6	5.45e6	3870.9	4194.9	NO	bb	bb	206.440
1234678-HpCDD	39.668	1.000	3.489e5	3.316e5	1.200	1.052	1.050	3116	2211	5.04e6	4.70e6	1615.6	2124.9	NO	bb	bb	189.168
OCDD	44.229	1.000	6.082e5	6.853e5	1.059	0.888	0.890	1979	2870	6.17e6	6.99e6	3119.0	2435.1	NO	bd	bd	429.120
13C-2378-TCDF	25.125	1.007	5.832e5	7.224e5	1.835	0.807	0.770	2017	1746	8.33e6	1.05e7	4130.6	5989.0	NO	bb	bb	96.462
13C-12378-PeCDF	29.262	1.173	5.419e5	3.506e5	1.377	1.546	1.550	3777	2446	7.61e6	5.02e6	2013.6	2052.1	NO	bb	bb	87.917
13C-23478-PeCDF	30.610	1.227	5.239e5	3.372e5	1.301	1.554	1.550	3777	2446	7.19e6	4.70e6	1903.1	1920.3	NO	bb	bb	89.739
13C-123478-HxCDF	34.265	0.954	1.917e5	3.763e5	1.091	0.510	0.510	2847	1804	2.78e6	5.41e6	977.0	3000.2	NO	bd	bd	106.075
13C-123678-HxCDF	34.398	0.958	2.197e5	4.620e5	1.340	0.475	0.510	2847	1804	2.97e6	5.79e6	1044.1	3210.7	NO	db	dd	103.609
13C-234678-HxCDF	35.290	0.983	1.810e5	3.675e5	1.093	0.492	0.510	2847	1804	2.45e6	4.85e6	861.0	2686.1	NO	bb	bd	102.175
13C-123789-HxCDF	36.326	1.012	1.604e5	3.278e5	0.952	0.489	0.510	2847	1804	2.09e6	4.12e6	733.8	2283.2	NO	bb	bd	104.504
13C-1234678-HpCDF	38.197	1.064	1.579e5	3.249e5	0.985	0.486	0.440	2570	2841	2.12e6	4.70e6	824.9	1653.5	NO	bd	bb	99.843
13C-1234789-HpCDF	40.359	1.124	1.178e5	2.494e5	0.756	0.472	0.440	2570	2841	1.48e6	3.21e6	576.0	1129.9	NO	bd	bb	98.962
13C-1234-TCDD	24.941	0.000	3.250e5	4.124e5	1.000	0.788	0.770	1552	1233	4.97e6	6.31e6	3202.9	5112.0	NO	bb	bb	100.000
13C-2378-TCDD	25.760	1.033	3.273e5	4.068e5	1.110	0.804	0.770	1552	1233	4.73e6	5.93e6	3049.2	4804.6	NO	bb	bb	89.718
13C-12378-PeCDD	30.855	1.237	2.877e5	1.791e5	0.754	1.607	1.550	770	1010	4.08e6	2.49e6	5300.6	2467.8	NO	bb	bb	83.973
13C-123478-HxCDD	35.401	0.986	2.677e5	2.058e5	0.960	1.301	1.240	1608	1432	3.86e6	3.11e6	2400.4	2172.8	NO	bd	bd	100.482
13C-123678-HxCDD	35.523	0.989	3.023e5	2.506e5	1.159	1.206	1.240	1608	1432	3.93e6	3.13e6	2445.3	2184.5	NO	db	db	97.162
13C-1234678-HpCDD	39.657	1.104	1.557e5	1.442e5	0.629	1.080	1.050	2177	1424	2.06e6	1.90e6	946.2	1335.4	NO	bb	bb	97.070
13C-OCDD	44.219	1.231	2.717e5	2.978e5	0.635	0.912	0.890	2982	2292	2.88e6	3.17e6	966.9	1381.3	NO	bd	bd	182.623
13C-123789-HxCDD	35.914	0.000	2.757e5	2.153e5	1.000	1.281	1.240	1608	1432	3.82e6	3.03e6	2373.7	2113.6	NO	bb	bb	100.000
37CL-2378-TCDD	25.774	1.033	3.106e5		1.157			1063		4.48e6		4212.1			bb		36.391

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
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ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.170		0.770	910	1408								
1289-TCDF					0.847		0.770	910	1408								
13468-PECDF					1.241		1.550	619	771								
12389-PECDF					0.880		1.550	3352	3597								
123468-HXCDF					1.206		1.240	2738	1665								
1368-TCDD					1.181		0.770	819	809								
1289-TCDD					0.963		0.770	819	809								
12479-PECDD					2.166		1.550	1616	1186								
12389-PECDD					1.326		1.550	1616	1186								
124679-HXCDD					1.127		1.240	1711	1300								
1234679-HPCDD					1.303		1.050	3116	2211								
Total-tetrafurans			2.089e5		0.973			910		3.02e6							40.558
Total-penta1			0.000e0					619		0.00e0							
Total-pentafurans			2.066e6		0.931			3352		2.95e7							403.174
Total-hexafurans			2.752e6		1.087			2738		3.76e7							811.982
Total-heptafurans			1.027e6		1.134			3806		1.43e7							428.307
Total-Furans			6.735e6		1.053			910		9.18e7							2126.759
Total-tetradioxins			1.677e5		1.129			819		2.35e6							41.113
Total-pentadioxins			6.628e5		1.548			1616		9.41e6							202.257
Total-hexadioxins			1.479e6		0.943			1711		2.11e7							603.293
Total-heptadioxins			3.489e5		1.251			3116		5.04e6							189.168
Total-Dioxins			3.267e6		1.182			819		4.41e7							1464.951
Total-TEQ			1.000e7					819		1.36e8							3591.710
FUNCTION1 PFK			1.203e6					375179		2.06e7							
FUNCTION2 PFK			7.156e5					281683		1.61e7							0.000
FUNCTION3 PFK			1.654e5					367932		5.05e6							0.000
FUNCTION4 PFK			0.000e0					301298		0.00e0							
FUNCTION5 PFK			9.039e4					207920		4.37e6							
FUNCTION1 HXCD...			2.747e2					499		5.63e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			8.897e2					444		1.57e4							0.000
FUNCTION3 OCDPE			0.000e0					373		0.00e0							
FUNCTION4 NCDPE			3.465e2					497		5.37e3							0.000
FUNCTION5 DCDPE			8.374e1					445		7.84e2							0.000

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.14	2.069e5	2.669e5	0.903	0.78	0.77	3292.7	YES	NO	bb	bb	40.180
2	Total-tetrafurans	23.91	2.011e3	2.792e3	0.973	0.72	0.77	32.7	YES	NO	bb	bb	0.378

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.28	1.012e6	6.469e5	0.923	1.56	1.55	4348.1	YES	NO	bb	bb	201.316
2	23478-PeCDF	30.62	1.053e6	6.665e5	0.991	1.58	1.55	4430.7	YES	NO	bb	bb	201.599
3	Total-pentafurans	30.49	1.202e3	9.050e2	0.931	1.33	1.55	8.8	YES	NO	bb	bb	0.258

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDF	34.42	7.823e5	6.275e5	1.032	1.25	1.24	3779.2	YES	NO	db	db	200.326
2	123478-HxCDF	34.28	7.120e5	5.688e5	1.128	1.25	1.24	3820.4	YES	NO	bd	bd	199.881
3	123789-HxCDF	36.34	5.937e5	4.227e5	0.988	1.40	1.24	2686.0	YES	NO	bd	bb	210.789
4	234678-HxCDF	35.30	6.633e5	5.283e5	1.081	1.26	1.24	3445.5	YES	NO	bb	bb	200.898
5	Total-hexafurans	34.77	2.884e2	2.632e2	1.087	1.10	1.24	0.0	NO	NO	bb	bb	0.089

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.22	5.646e5	5.569e5	1.164	1.01	1.05	2209.9	YES	NO	bb	bb	199.621
2	1234789-HpCDF	40.38	4.624e5	4.643e5	1.104	1.00	1.05	1537.3	YES	NO	bb	bd	228.686

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.14	2.069e5	2.669e5	0.903	0.78	0.77	3292.7	YES	NO	bb	bb	40.180
2	Total-tetrafurans	23.91	2.011e3	2.792e3	0.973	0.72	0.77	32.7	YES	NO	bb	bb	0.378
3	12378-PeCDF	29.28	1.012e6	6.469e5	0.923	1.56	1.55	4348.1	YES	NO	bb	bb	201.316
4	23478-PeCDF	30.62	1.053e6	6.665e5	0.991	1.58	1.55	4430.7	YES	NO	bb	bb	201.599
5	Total-pentafurans	30.49	1.202e3	9.050e2	0.931	1.33	1.55	8.8	YES	NO	bb	bb	0.258
6	123678-HxCDF	34.42	7.823e5	6.275e5	1.032	1.25	1.24	3779.2	YES	NO	db	db	200.326
7	123478-HxCDF	34.28	7.120e5	5.688e5	1.128	1.25	1.24	3820.4	YES	NO	bd	bd	199.881
8	123789-HxCDF	36.34	5.937e5	4.227e5	0.988	1.40	1.24	2686.0	YES	NO	bd	bb	210.789
9	234678-HxCDF	35.30	6.633e5	5.283e5	1.081	1.26	1.24	3445.5	YES	NO	bb	bb	200.898
10	Total-hexafurans	34.77	2.884e2	2.632e2	1.087	1.10	1.24	0.0	NO	NO	bb	bb	0.089
11	1234678-HpCDF	38.22	5.646e5	5.569e5	1.164	1.01	1.05	2209.9	YES	NO	bb	bb	199.621
12	1234789-HpCDF	40.38	4.624e5	4.643e5	1.104	1.00	1.05	1537.3	YES	NO	bb	bd	228.686
13	OCDF	44.46	6.808e5	7.439e5	1.130	0.92	0.89	2338.5	YES	NO	bb	bb	442.738

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.77	1.635e5	2.012e5	1.243	0.81	0.77	2817.9	YES	NO	bb	bb	39.976
2	Total-tetradioxins	25.39	4.211e3	5.212e3	1.129	0.81	0.77	54.6	YES	NO	bb	bd	1.137

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.88	6.628e5	4.228e5	1.150	1.57	1.55	5824.4	YES	NO	bb	bb	202.257

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.92	4.672e5	3.844e5	0.804	1.22	1.24	3870.9	YES	NO	bb	bb	206.440
2	123678-HxCDD	35.53	5.301e5	4.575e5	0.883	1.16	1.24	4295.5	YES	NO	db	db	202.344
3	123478-HxCDD	35.42	4.819e5	4.023e5	0.960	1.20	1.24	4159.0	YES	NO	bd	bd	194.509

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.67	3.489e5	3.316e5	1.200	1.05	1.05	1615.6	YES	NO	bb	bb	189.168

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.77	1.635e5	2.012e5	1.243	0.81	0.77	2817.9	YES	NO	bb	bb	39.976
2	Total-tetradioxins	25.39	4.211e3	5.212e3	1.129	0.81	0.77	54.6	YES	NO	bb	bd	1.137
3	12378-PeCDD	30.88	6.628e5	4.228e5	1.150	1.57	1.55	5824.4	YES	NO	bb	bb	202.257
4	123789-HxCDD	35.92	4.672e5	3.844e5	0.804	1.22	1.24	3870.9	YES	NO	bb	bb	206.440
5	123678-HxCDD	35.53	5.301e5	4.575e5	0.883	1.16	1.24	4295.5	YES	NO	db	db	202.344
6	123478-HxCDD	35.42	4.819e5	4.023e5	0.960	1.20	1.24	4159.0	YES	NO	bd	bd	194.509
7	1234678-HpCDD	39.67	3.489e5	3.316e5	1.200	1.05	1.05	1615.6	YES	NO	bb	bb	189.168
8	OCDD	44.23	6.082e5	6.853e5	1.059	0.89	0.89	3119.0	YES	NO	bd	bd	429.120

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.14	2.069e5	2.669e5	0.903	0.78	0.77	3292.7	YES	NO	bb	bb	40.180
2	Total-tetrafurans	23.91	2.011e3	2.792e3	0.973	0.72	0.77	32.7	YES	NO	bb	bb	0.378
3	12378-PeCDF	29.28	1.012e6	6.469e5	0.923	1.56	1.55	4348.1	YES	NO	bb	bb	201.316
4	23478-PeCDF	30.62	1.053e6	6.665e5	0.991	1.58	1.55	4430.7	YES	NO	bb	bb	201.599
5	Total-pentafurans	30.49	1.202e3	9.050e2	0.931	1.33	1.55	8.8	YES	NO	bb	bb	0.258
6	123678-HxCDF	34.42	7.823e5	6.275e5	1.032	1.25	1.24	3779.2	YES	NO	db	db	200.326
7	123478-HxCDF	34.28	7.120e5	5.688e5	1.128	1.25	1.24	3820.4	YES	NO	bd	bd	199.881
8	123789-HxCDF	36.34	5.937e5	4.227e5	0.988	1.40	1.24	2686.0	YES	NO	bd	bb	210.789
9	234678-HxCDF	35.30	6.633e5	5.283e5	1.081	1.26	1.24	3445.5	YES	NO	bb	bb	200.898
10	Total-hexafurans	34.77	2.884e2	2.632e2	1.087	1.10	1.24	0.0	NO	NO	bb	bb	0.089
11	1234678-HpCDF	38.22	5.646e5	5.569e5	1.164	1.01	1.05	2209.9	YES	NO	bb	bb	199.621
12	1234789-HpCDF	40.38	4.624e5	4.643e5	1.104	1.00	1.05	1537.3	YES	NO	bb	bd	228.686
13	OCDF	44.46	6.808e5	7.439e5	1.130	0.92	0.89	2338.5	YES	NO	bb	bb	442.738
14	2378-TCDD	25.77	1.635e5	2.012e5	1.243	0.81	0.77	2817.9	YES	NO	bb	bb	39.976
15	Total-tetradioxins	25.39	4.211e3	5.212e3	1.129	0.81	0.77	54.6	YES	NO	bb	bd	1.137
16	12378-PeCDD	30.88	6.628e5	4.228e5	1.150	1.57	1.55	5824.4	YES	NO	bb	bb	202.257
17	123789-HxCDD	35.92	4.672e5	3.844e5	0.804	1.22	1.24	3870.9	YES	NO	bb	bb	206.440
18	123678-HxCDD	35.53	5.301e5	4.575e5	0.883	1.16	1.24	4295.5	YES	NO	db	db	202.344
19	123478-HxCDD	35.42	4.819e5	4.023e5	0.960	1.20	1.24	4159.0	YES	NO	bd	bd	194.509
20	1234678-HpCDD	39.67	3.489e5	3.316e5	1.200	1.05	1.05	1615.6	YES	NO	bb	bb	189.168
21	OCDD	44.23	6.082e5	6.853e5	1.059	0.89	0.89	3119.0	YES	NO	bd	bd	429.120

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:49 Pacific Daylight Time

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	23.51	1.636e5					3.1	YES		db		
2	FUNCTION1 PFK	23.40	8.885e4					3.5	YES		bd		
3	FUNCTION1 PFK	23.33	1.891e4					1.1	NO		bb		
4	FUNCTION1 PFK	23.19	1.938e4					1.6	NO		bb		
5	FUNCTION1 PFK	22.98	1.917e4					1.4	NO		bb		
6	FUNCTION1 PFK	22.00	9.703e3					1.0	NO		bb		
7	FUNCTION1 PFK	21.31	8.846e4					2.9	NO		db		
8	FUNCTION1 PFK	21.23	3.851e4					2.3	NO		bd		
9	FUNCTION1 PFK	21.16	6.724e3					0.8	NO		db		
10	FUNCTION1 PFK	21.11	3.691e3					0.6	NO		bd		
11	FUNCTION1 PFK	26.66	4.734e4					2.0	NO		db		
12	FUNCTION1 PFK	26.55	4.965e4					1.9	NO		bd		
13	FUNCTION1 PFK	26.24	1.589e4					1.3	NO		bb		
14	FUNCTION1 PFK	26.17	3.041e3					0.6	NO		bb		
15	FUNCTION1 PFK	26.11	9.923e3					1.2	NO		bb		
16	FUNCTION1 PFK	25.93	5.875e4					2.4	NO		bb		
17	FUNCTION1 PFK	25.79	1.786e4					1.6	NO		db		
18	FUNCTION1 PFK	25.65	8.200e4					2.7	NO		bd		
19	FUNCTION1 PFK	25.51	2.446e4					1.6	NO		db		
20	FUNCTION1 PFK	25.46	1.440e4					1.5	NO		bd		
21	FUNCTION1 PFK	25.07	2.849e4					1.4	NO		bb		
22	FUNCTION1 PFK	24.98	2.022e4					1.6	NO		db		
23	FUNCTION1 PFK	24.93	2.482e4					1.8	NO		bd		
24	FUNCTION1 PFK	24.74	1.501e4					1.3	NO		bb		
25	FUNCTION1 PFK	24.01	1.207e5					2.8	NO		db		
26	FUNCTION1 PFK	23.91	5.369e4					2.7	NO		bd		
27	FUNCTION1 PFK	27.36	1.150e4					1.0	NO		bb		
28	FUNCTION1 PFK	27.26	7.166e4					2.0	NO		db		
29	FUNCTION1 PFK	27.17	1.653e4					1.5	NO		bd		
30	FUNCTION1 PFK	26.93	3.058e4					2.2	NO		bb		
31	FUNCTION1 PFK	26.81	2.970e4					1.8	NO		bb		

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:49 Pacific Daylight Time

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.42	2.186e4					1.5	NO		bb		0.000
2	FUNCTION2 PFK	28.26	1.100e4					1.1	NO		bb		0.000
3	FUNCTION2 PFK	28.16	1.275e4					1.4	NO		db		0.000
4	FUNCTION2 PFK	28.07	2.498e4					2.4	NO		dd		0.000
5	FUNCTION2 PFK	28.03	1.292e4					1.7	NO		dd		0.000
6	FUNCTION2 PFK	27.99	3.293e3					0.8	NO		bd		0.000
7	FUNCTION2 PFK	27.91	2.012e4					1.4	NO		bb		0.000
8	FUNCTION2 PFK	27.77	1.349e5					4.5	YES		db		0.000
9	FUNCTION2 PFK	27.66	5.363e4					3.5	YES		bd		0.000
10	FUNCTION2 PFK	27.55	5.898e3					0.9	NO		bb		0.000
11	FUNCTION2 PFK	30.48	6.417e3					0.8	NO		bb		0.000
12	FUNCTION2 PFK	30.15	1.146e3					0.4	NO		bb		0.000
13	FUNCTION2 PFK	29.76	4.847e3					0.6	NO		bb		0.000
14	FUNCTION2 PFK	29.69	6.176e3					0.9	NO		db		0.000
15	FUNCTION2 PFK	29.64	7.786e3					1.1	NO		bd		0.000
16	FUNCTION2 PFK	29.49	2.327e3					0.5	NO		bb		0.000
17	FUNCTION2 PFK	29.41	2.450e3					0.5	NO		bb		0.000
18	FUNCTION2 PFK	29.31	8.292e3					0.7	NO		db		0.000
19	FUNCTION2 PFK	29.24	1.380e4					1.4	NO		dd		0.000
20	FUNCTION2 PFK	29.18	7.722e3					0.9	NO		bd		0.000
21	FUNCTION2 PFK	29.07	4.359e3					0.7	NO		bb		0.000
22	FUNCTION2 PFK	28.81	3.084e4					1.8	NO		db		0.000
23	FUNCTION2 PFK	28.77	3.219e4					2.1	NO		dd		0.000
24	FUNCTION2 PFK	28.71	2.791e4					2.6	NO		dd		0.000
25	FUNCTION2 PFK	28.66	3.309e4					3.2	YES		bd		0.000
26	FUNCTION2 PFK	28.52	1.009e4					1.1	NO		bb		0.000
27	FUNCTION2 PFK	32.06	2.803e4					1.6	NO		bb		0.000
28	FUNCTION2 PFK	31.91	4.698e3					0.8	NO		bb		0.000
29	FUNCTION2 PFK	31.74	2.099e4					2.1	NO		bb		0.000
30	FUNCTION2 PFK	31.67	1.618e4					1.5	NO		db		0.000
31	FUNCTION2 PFK	31.60	1.530e4					1.3	NO		bd		0.000
32	FUNCTION2 PFK	31.35	1.245e4					1.5	NO		bb		0.000
33	FUNCTION2 PFK	31.21	3.091e3					0.5	NO		bb		0.000
34	FUNCTION2 PFK	31.03	8.164e3					0.7	NO		db		0.000
35	FUNCTION2 PFK	31.00	6.957e3					1.1	NO		dd		0.000
36	FUNCTION2 PFK	30.97	3.081e4					1.4	NO		dd		0.000
37	FUNCTION2 PFK	30.80	3.887e4					2.2	NO		bd		0.000

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION2 PFK	30.74	9.249e3					1.3	NO		db		0.000
39	FUNCTION2 PFK	30.70	3.630e3					0.7	NO		bd		0.000
40	FUNCTION2 PFK	30.65	1.637e4					1.8	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	32.71	4.437e4					2.7	NO		bb		0.000
2	FUNCTION3 PFK	36.41	1.073e4					1.5	NO		bb		0.000
3	FUNCTION3 PFK	34.51	3.351e4					2.4	NO		bb		0.000
4	FUNCTION3 PFK	34.21	2.868e4					2.6	NO		db		0.000
5	FUNCTION3 PFK	34.16	3.198e4					2.9	NO		bd		0.000
6	FUNCTION3 PFK	34.00	1.616e4					1.7	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.61	3.745e3					1.1	NO		bb		
2	FUNCTION5 PFK	44.19	2.102e3					0.7	NO		bb		
3	FUNCTION5 PFK	44.14	3.396e3					1.0	NO		bb		
4	FUNCTION5 PFK	44.07	7.141e3					1.3	NO		bb		
5	FUNCTION5 PFK	43.48	1.067e3					0.6	NO		bb		
6	FUNCTION5 PFK	43.23	7.864e3					1.0	NO		bb		
7	FUNCTION5 PFK	43.17	8.845e3					1.9	NO		bb		
8	FUNCTION5 PFK	43.11	7.866e3					1.8	NO		bb		
9	FUNCTION5 PFK	42.93	5.675e3					1.4	NO		bb		
10	FUNCTION5 PFK	45.81	4.972e3					1.2	NO		bb		
11	FUNCTION5 PFK	45.70	3.072e3					0.9	NO		bb		
12	FUNCTION5 PFK	45.65	5.917e3					1.4	NO		bb		
13	FUNCTION5 PFK	45.47	1.270e3					0.7	NO		bb		
14	FUNCTION5 PFK	45.44	1.475e3					0.7	NO		db		
15	FUNCTION5 PFK	45.41	1.740e3					0.6	NO		bd		
16	FUNCTION5 PFK	45.35	8.796e3					1.3	NO		db		
17	FUNCTION5 PFK	45.32	1.011e4					1.8	NO		bd		
18	FUNCTION5 PFK	45.26	2.404e3					0.8	NO		bb		
19	FUNCTION5 PFK	44.77	2.934e3					0.9	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.47	1.117e2					4.4	YES		bb		0.000
2	FUNCTION1 HXCD...	25.94	8.128e1					3.8	YES		bb		0.000
3	FUNCTION1 HXCD...	24.96	8.177e1					3.1	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.48	8.897e2					35.4	YES		bb		0.000

ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.83	8.627e1					2.7	NO		bb		0.000
2	FUNCTION4 NCDPE	38.90	7.457e1					2.1	NO		db		0.000
3	FUNCTION4 NCDPE	38.72	1.037e2					2.9	NO		dd		0.000
4	FUNCTION4 NCDPE	38.65	8.197e1					3.1	YES		bd		0.000

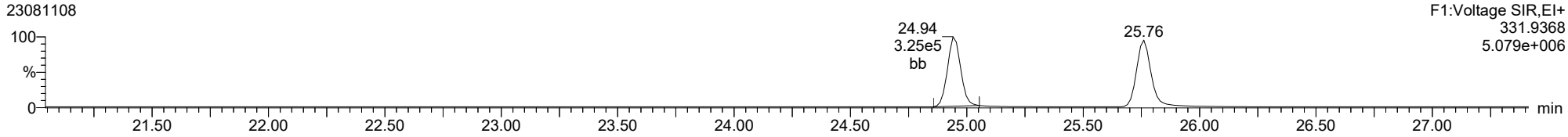
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	45.64	8.374e1					1.8	NO		bb		0.000

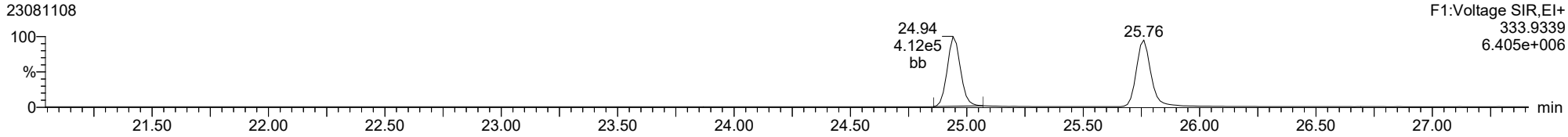
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ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

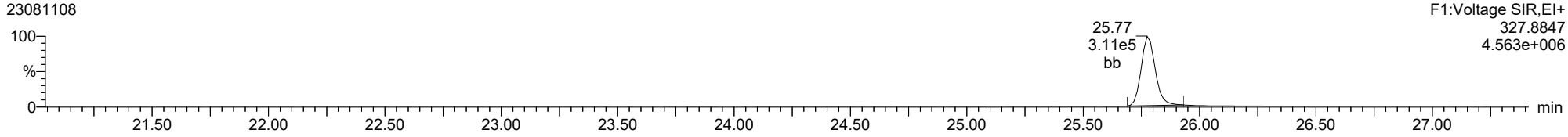
13C-1234-TCDD



13C-1234-TCDD

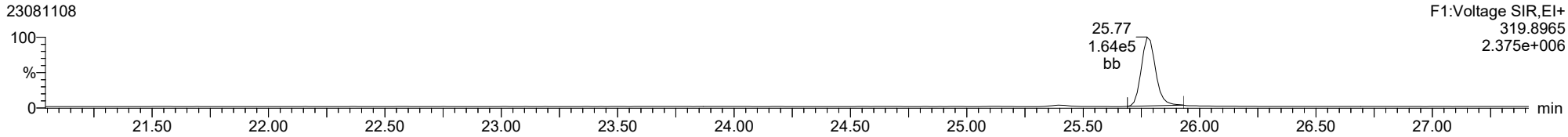


37CL-2378-TCDD

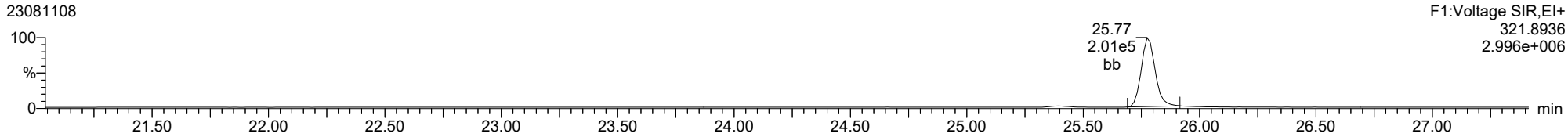


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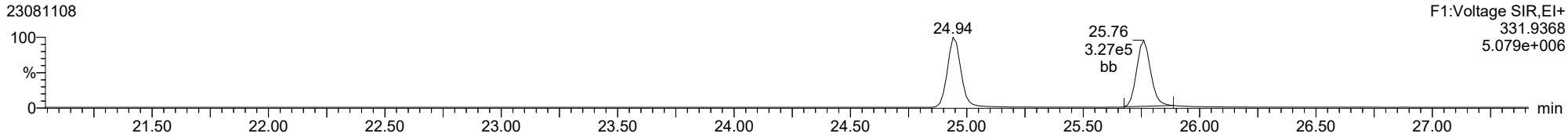
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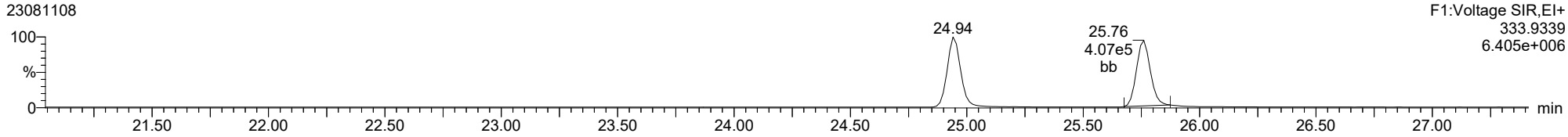
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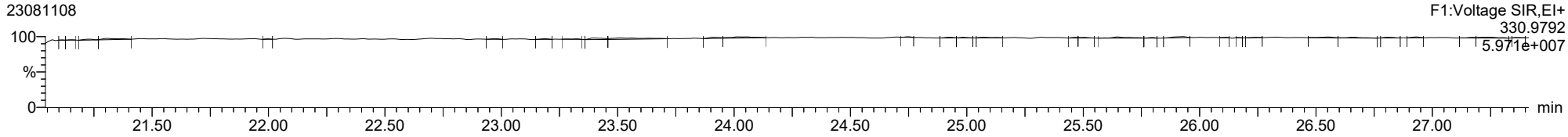
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13C-2378-TCDD

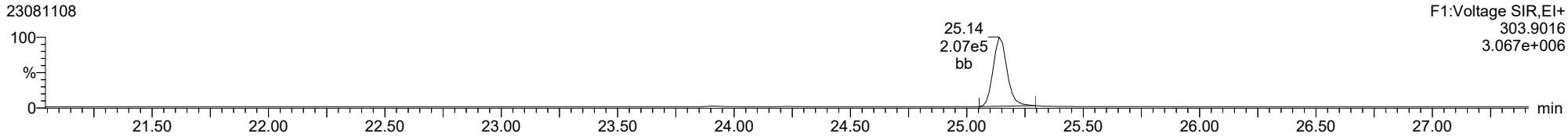


FUNCTION1 PFK

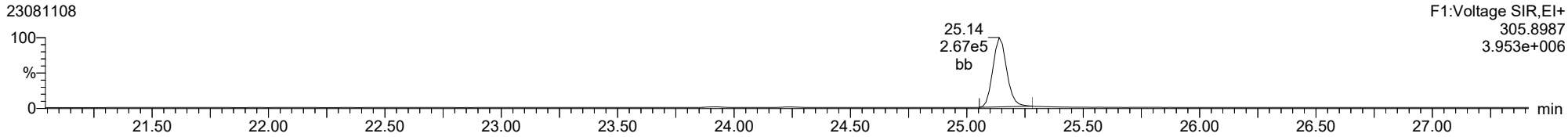


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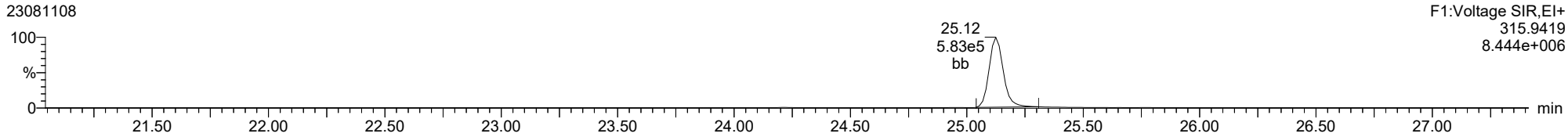
2378-TCDF



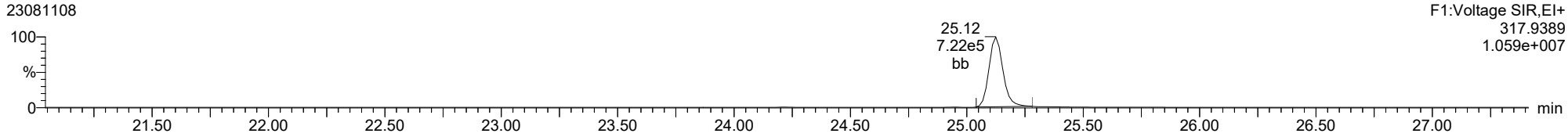
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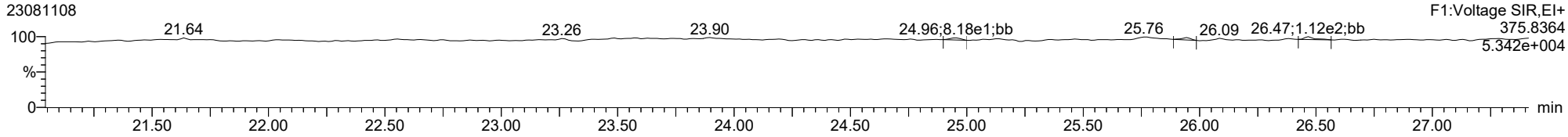
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13C-2378-TCDF

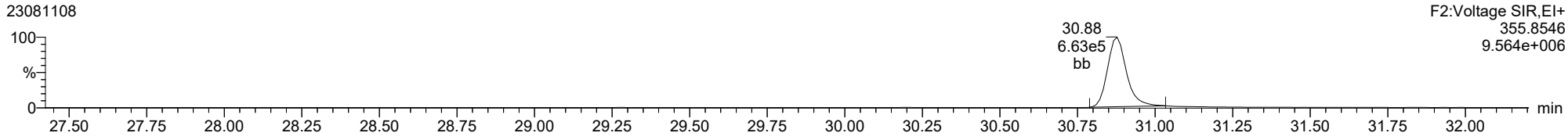


FUNCTION1 HXCDPE

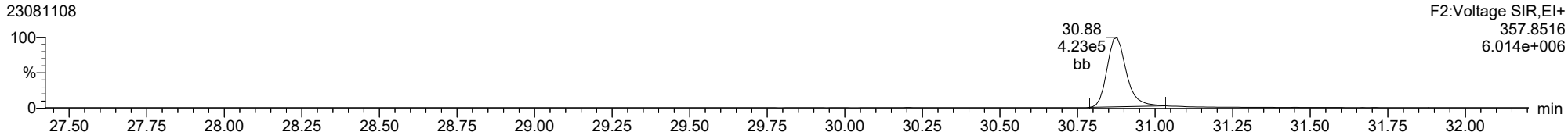


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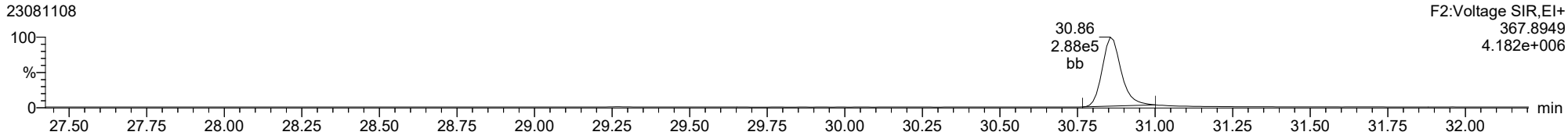
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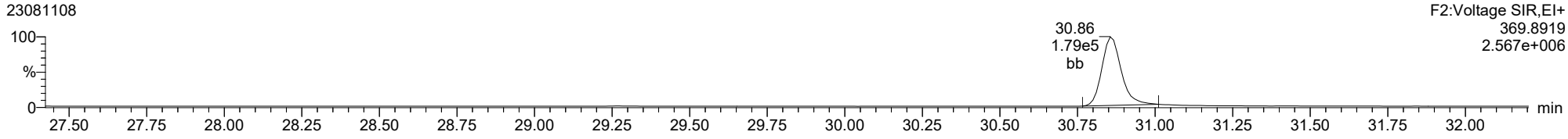
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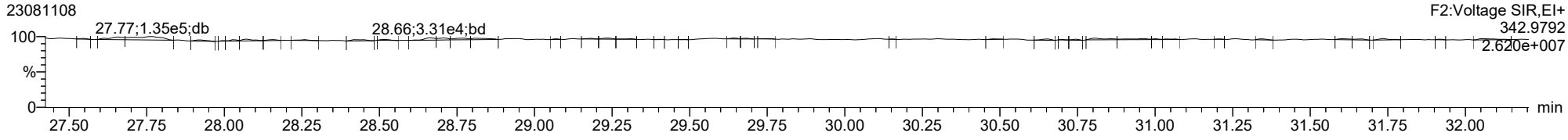
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13C-12378-PeCDD

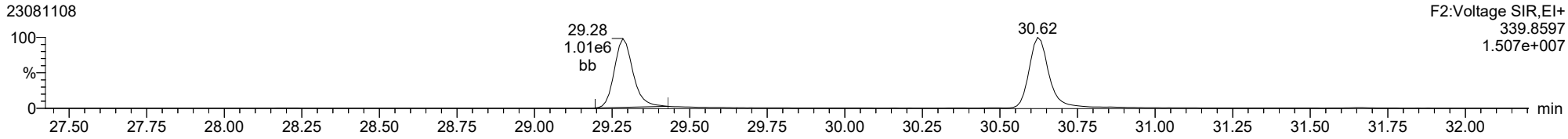


FUNCTION2 PFK

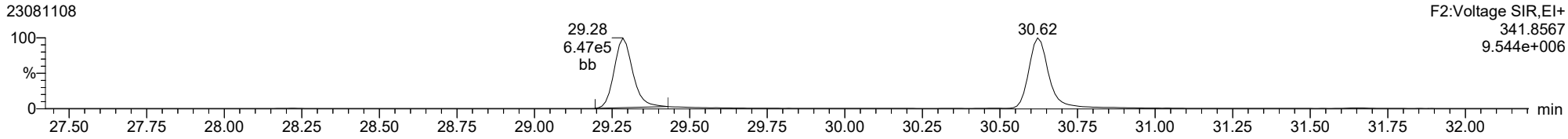


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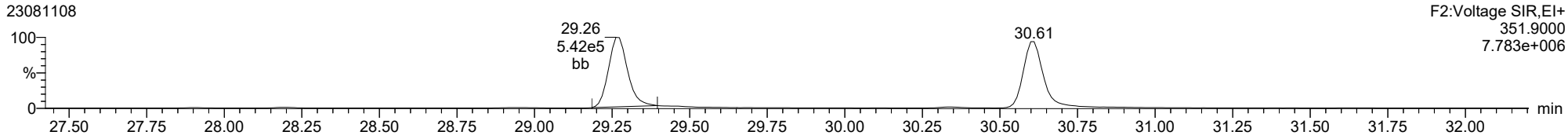
12378-PeCDF



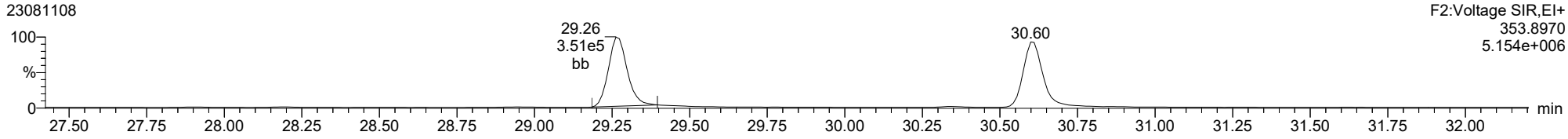
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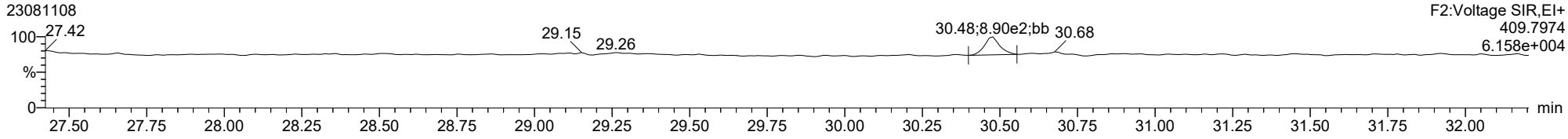
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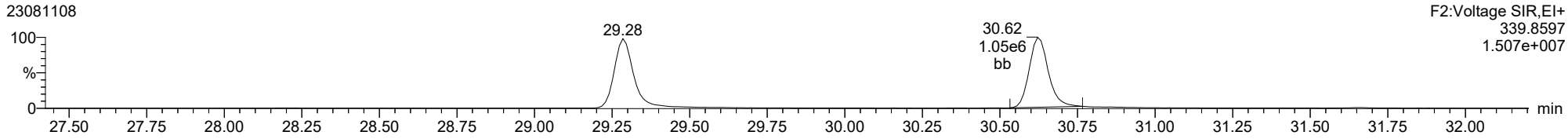


FUNCTION2 HPCDPE

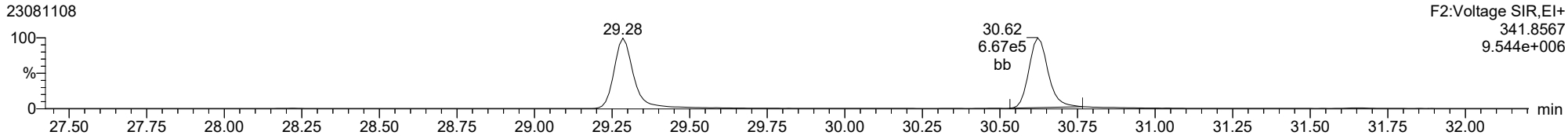


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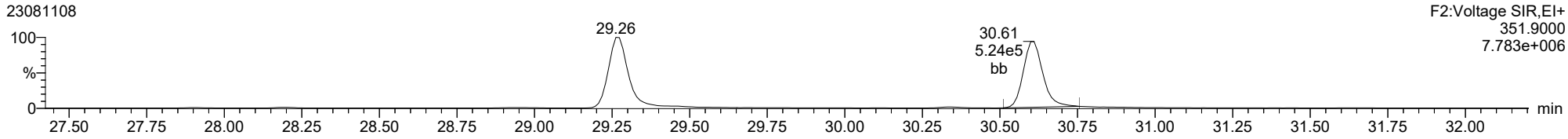
23478-PeCDF



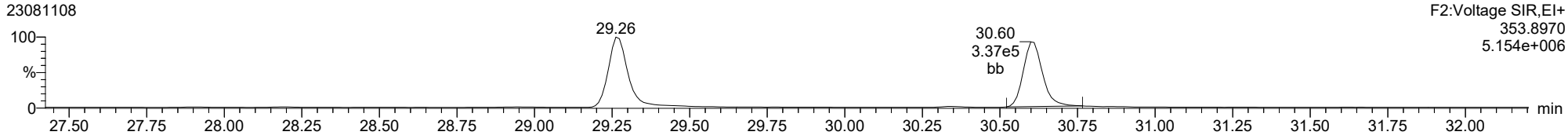
23478-PeCDF



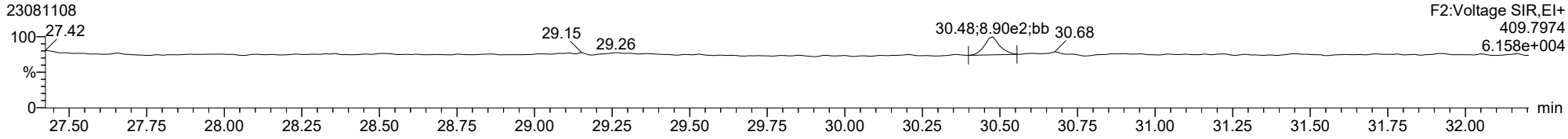
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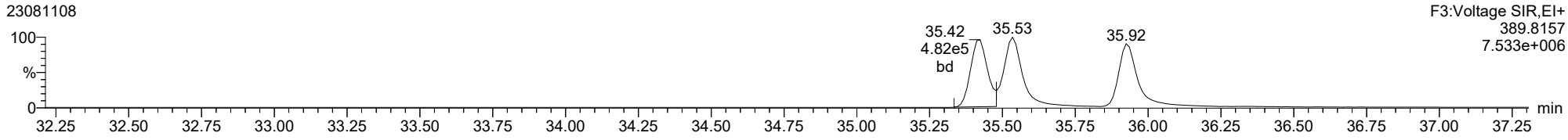
FUNCTION2 HPCDPE



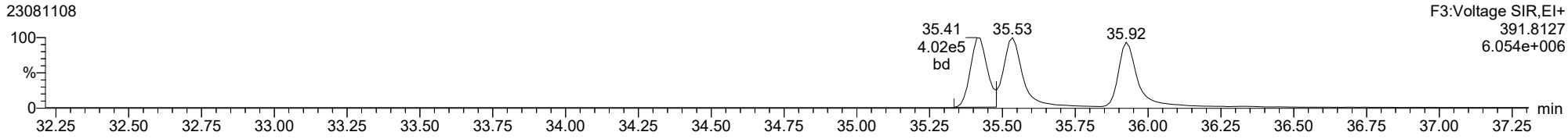
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Printed: Tuesday, August 15, 2023 12:24:49 Pacific Daylight Time

ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

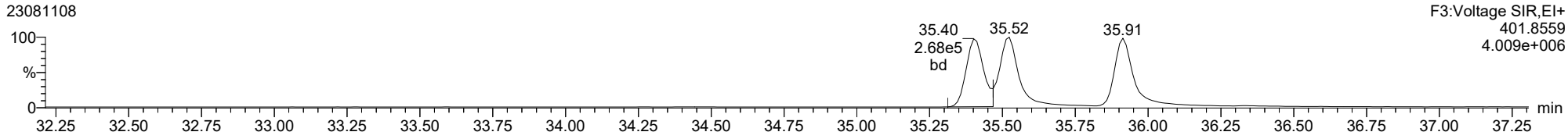
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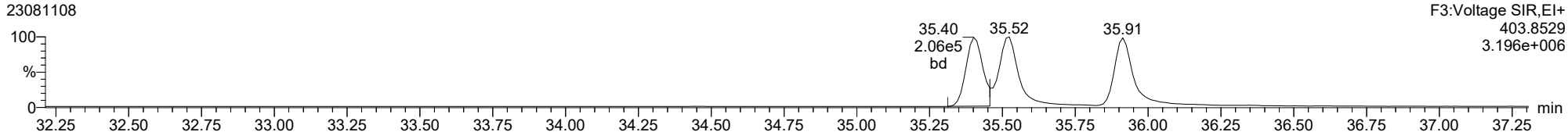
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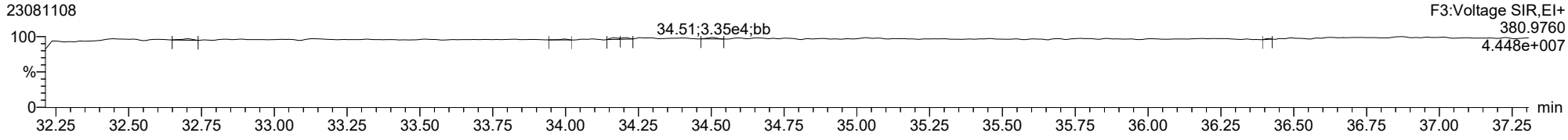
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13C-123478-HxCDD



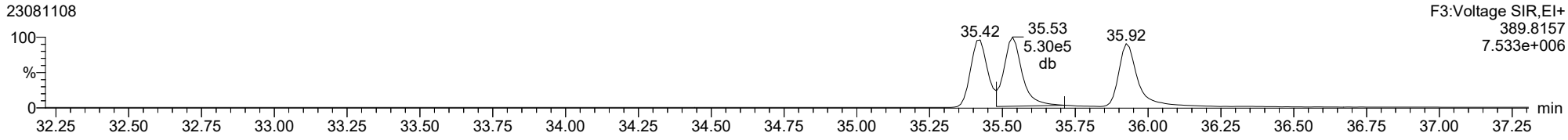
FUNCTION3 PFK



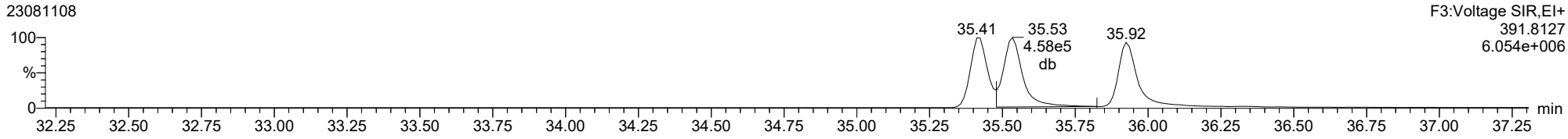
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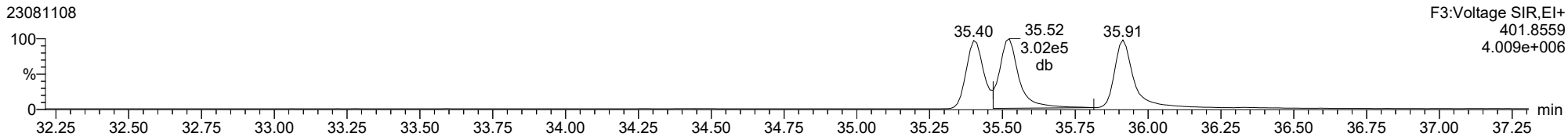
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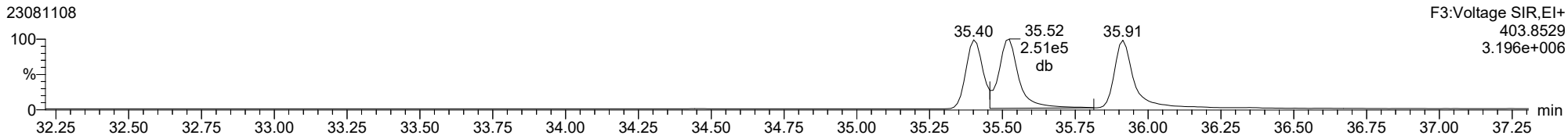
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13C-123678-HxCDD

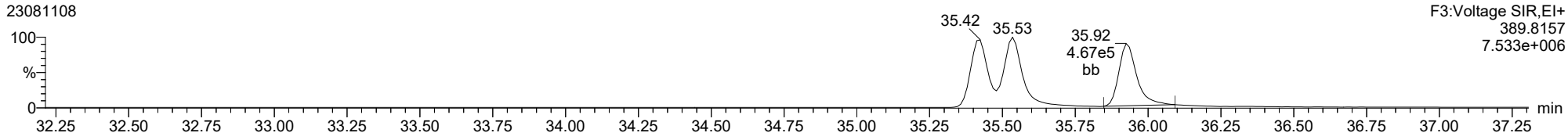


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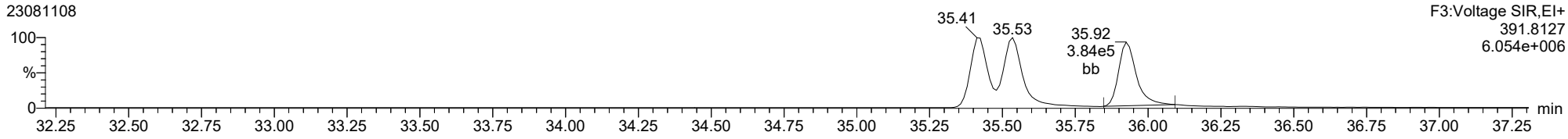


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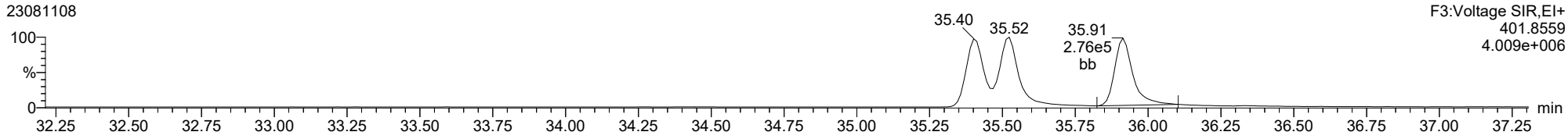
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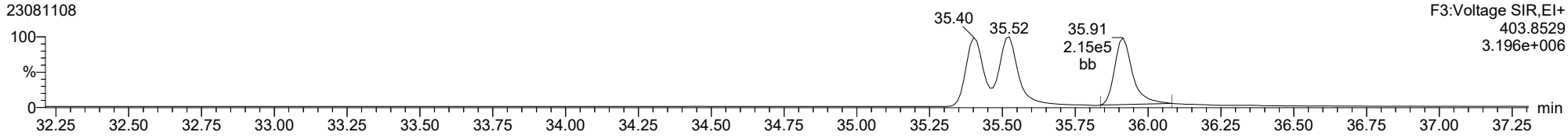
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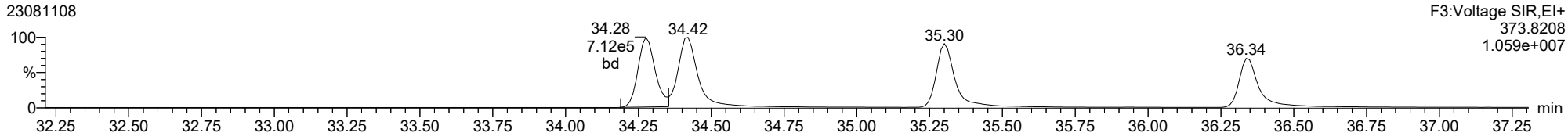


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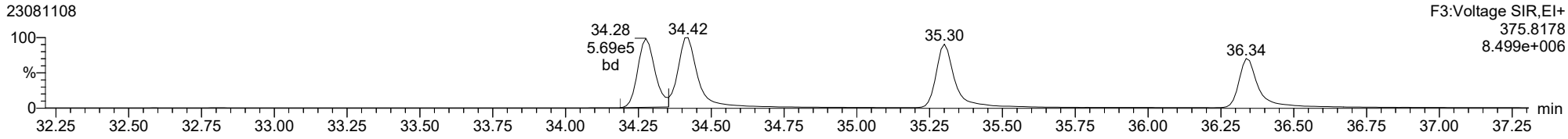


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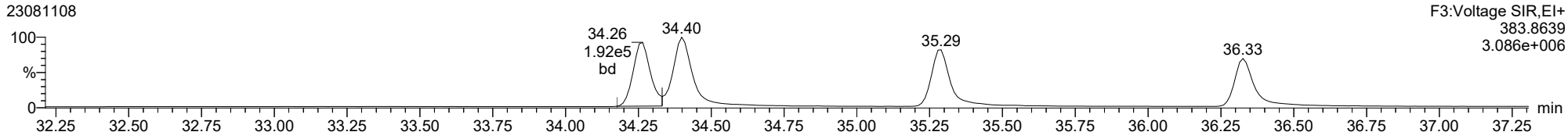
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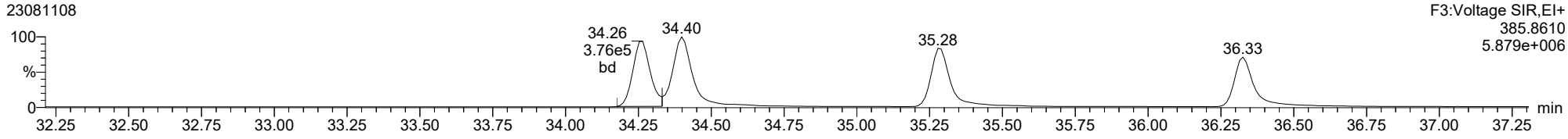
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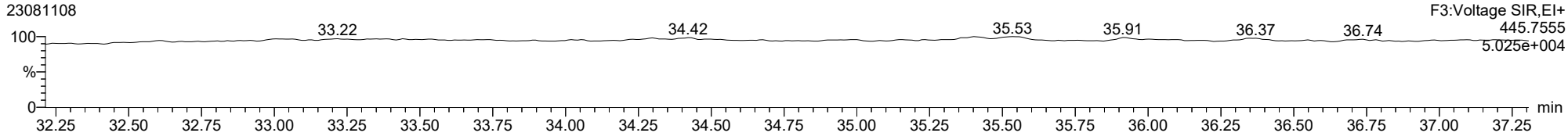
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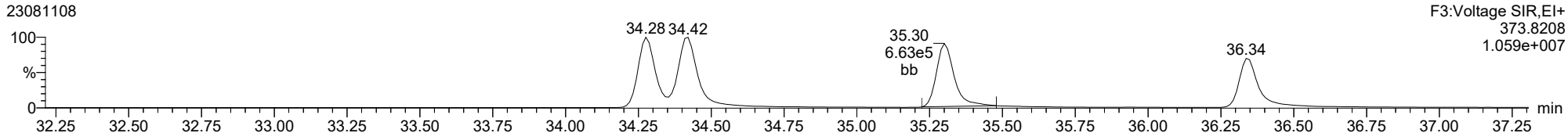


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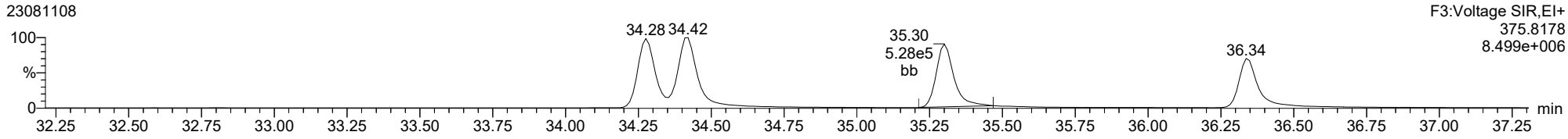


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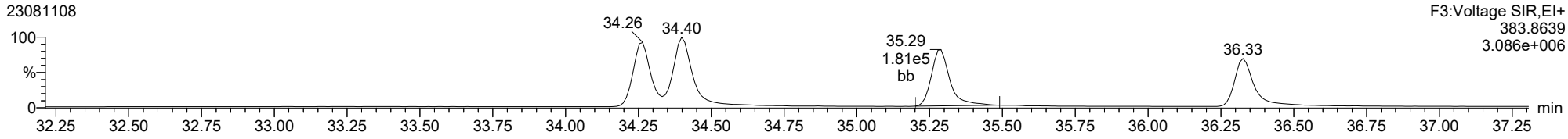
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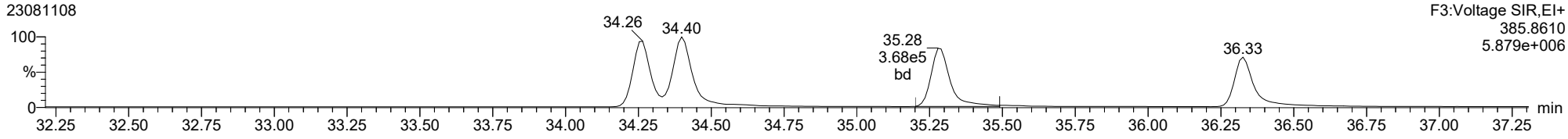
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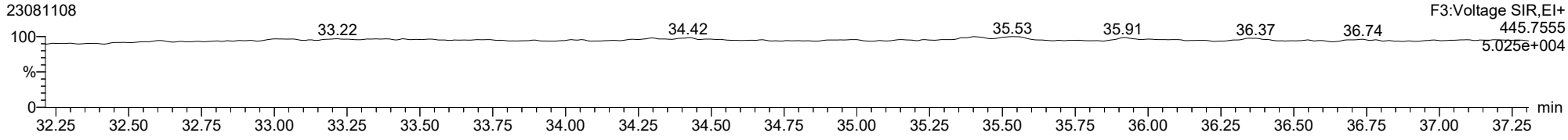
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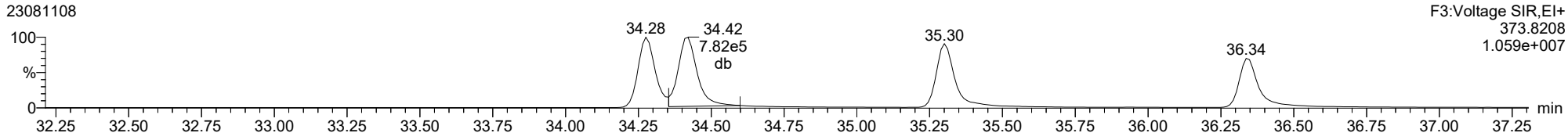


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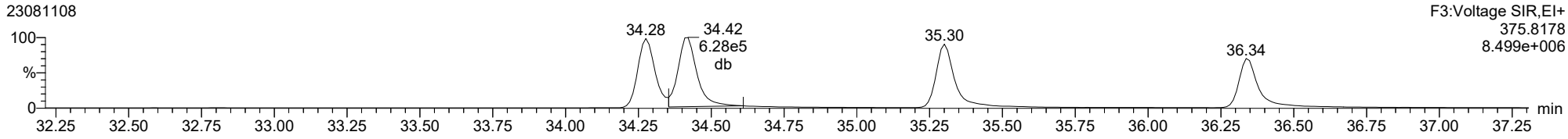


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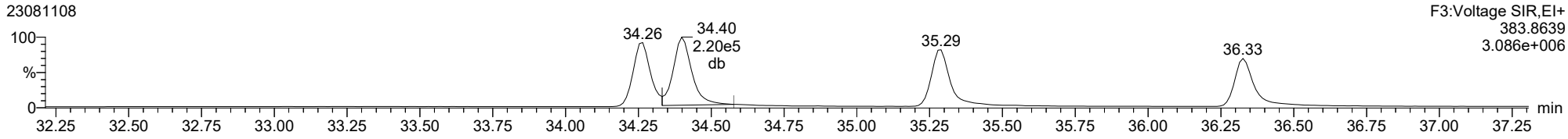
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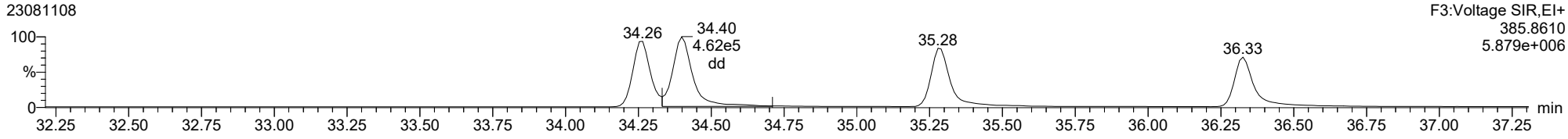
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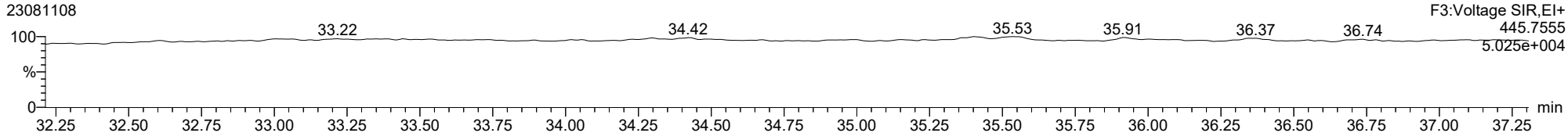
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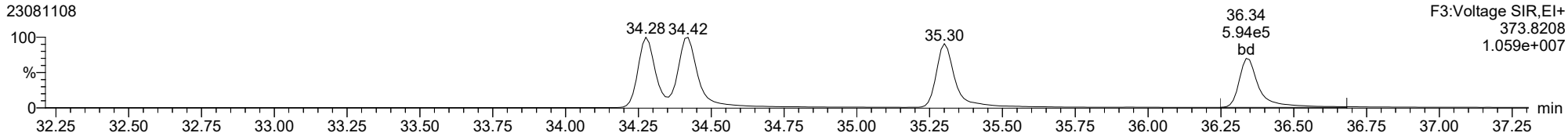


FUNCTION3 OCDPE

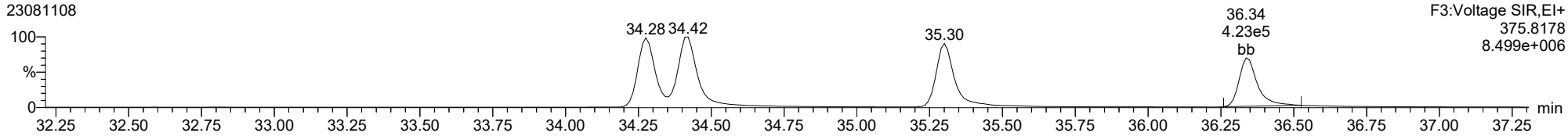


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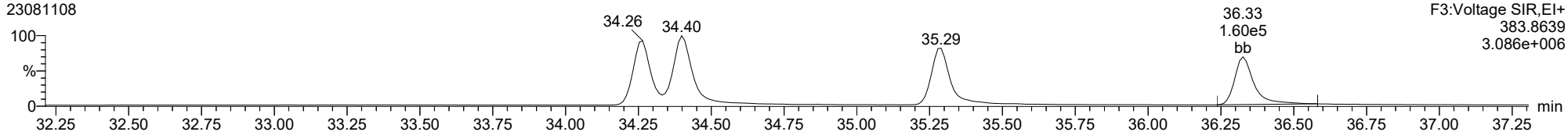
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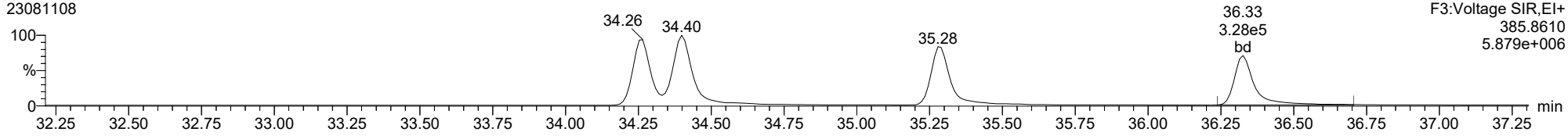
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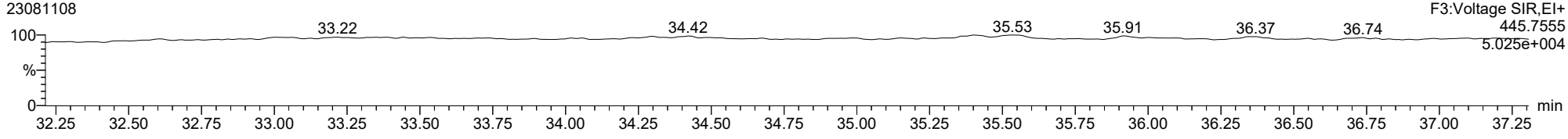
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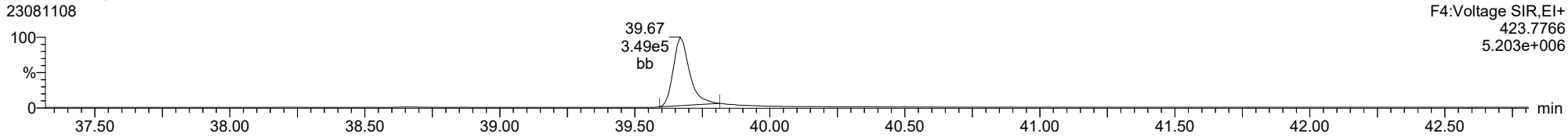


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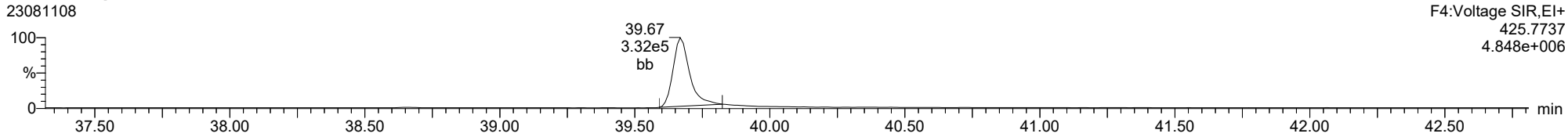


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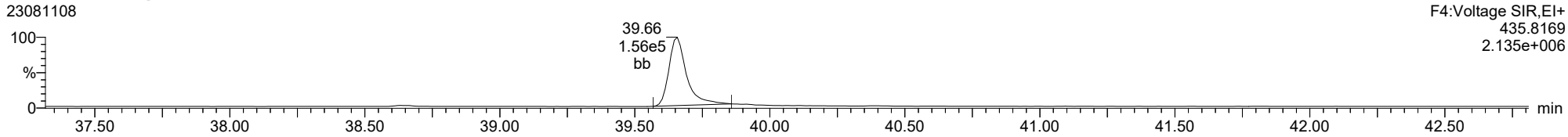
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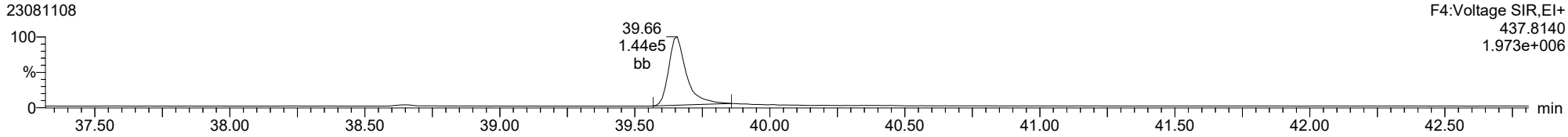
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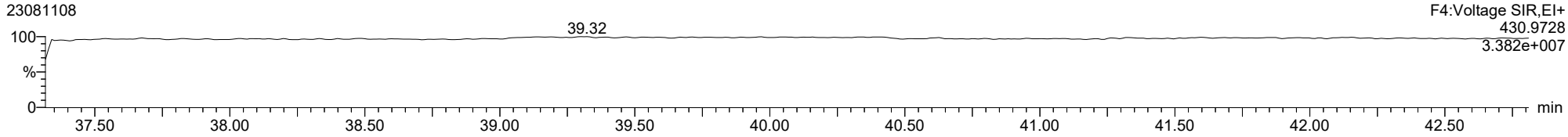
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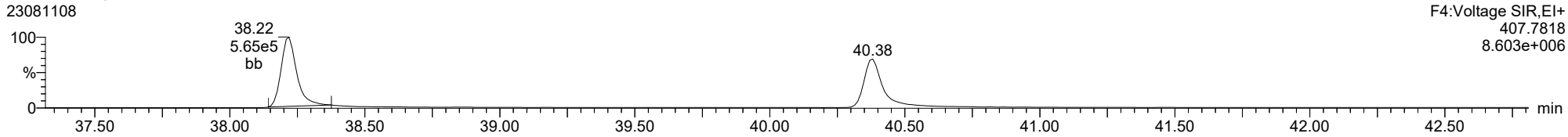


FUNCTION4 PFK

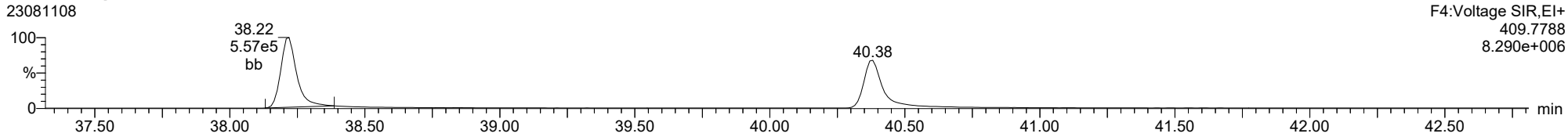


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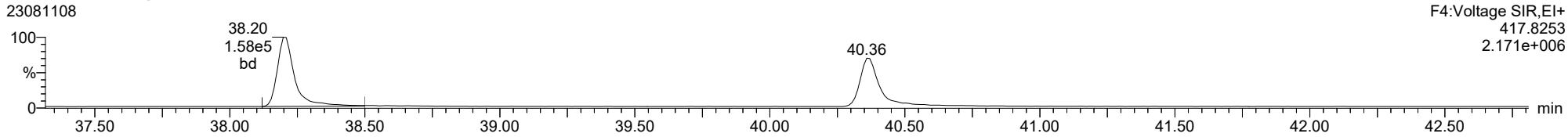
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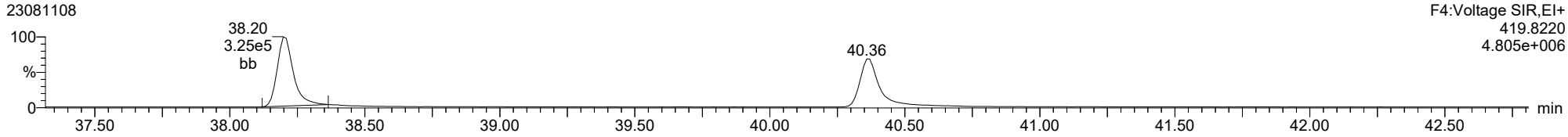
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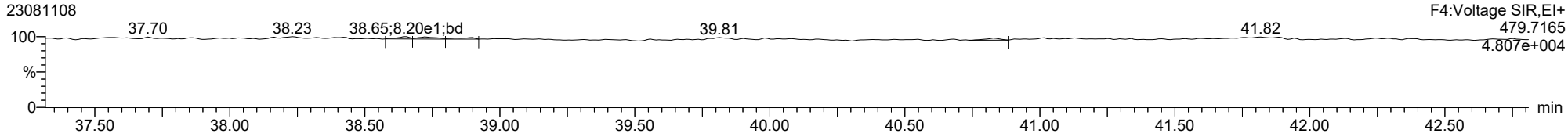
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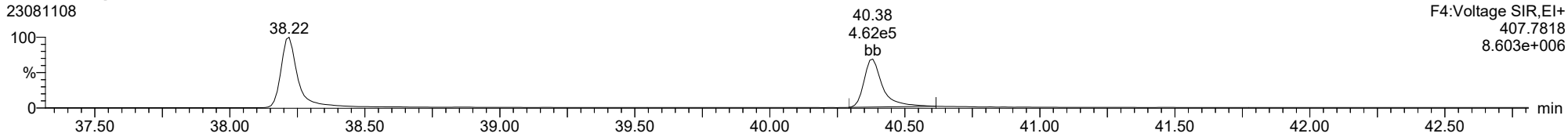


FUNCTION4 NCDPE

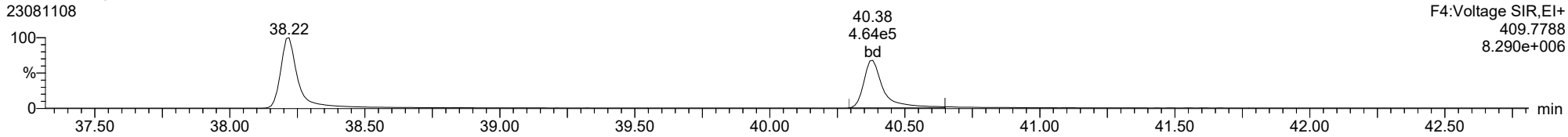


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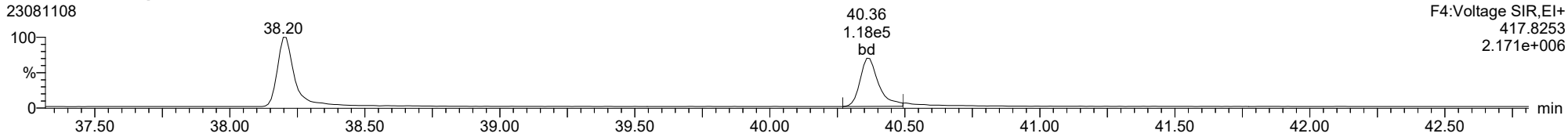
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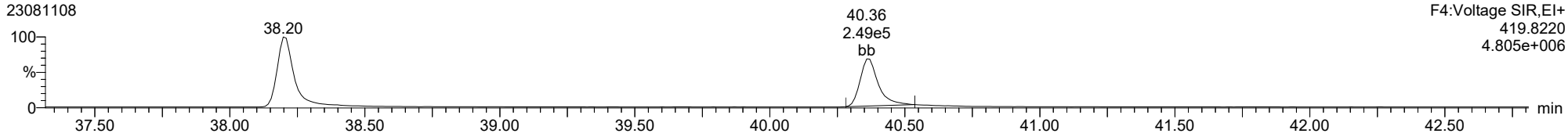
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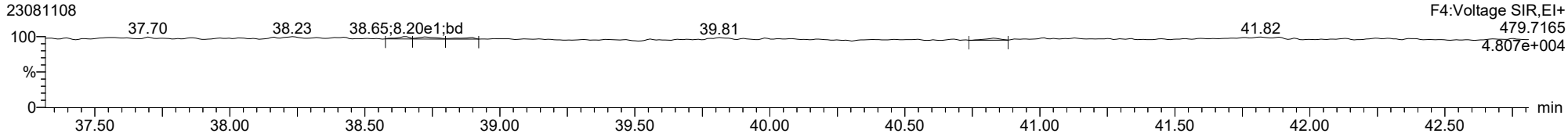
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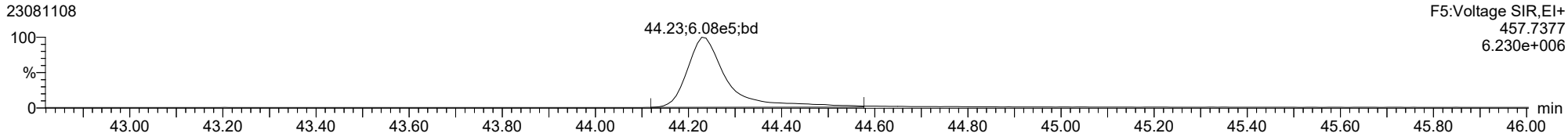


FUNCTION4 NCDPE

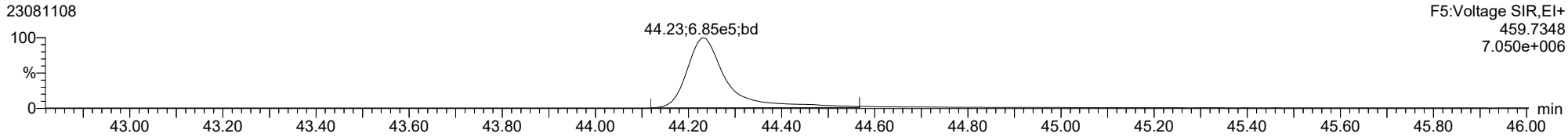


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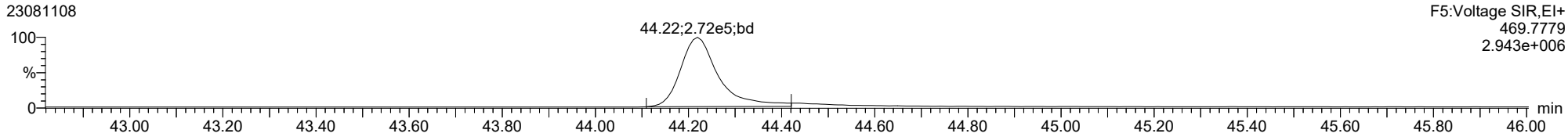
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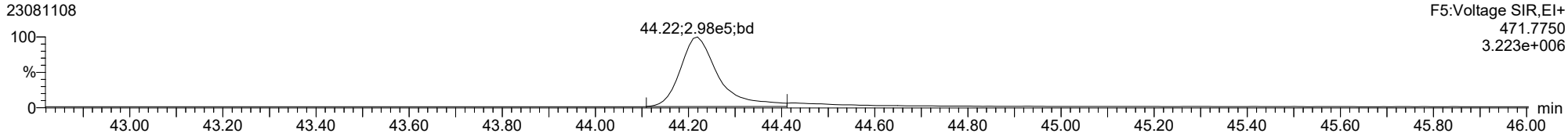
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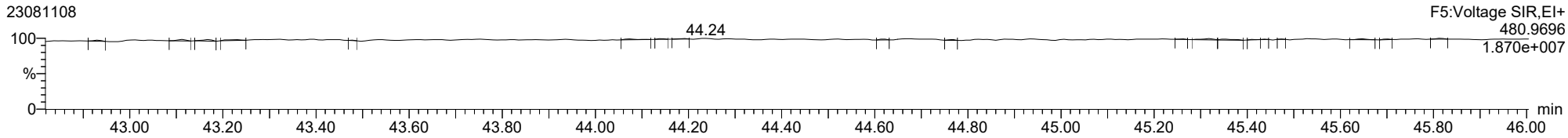
13C-OCDD



13C-OCDD

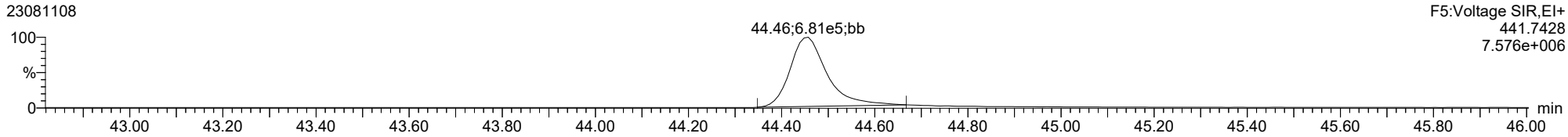


FUNCTION5 PFK

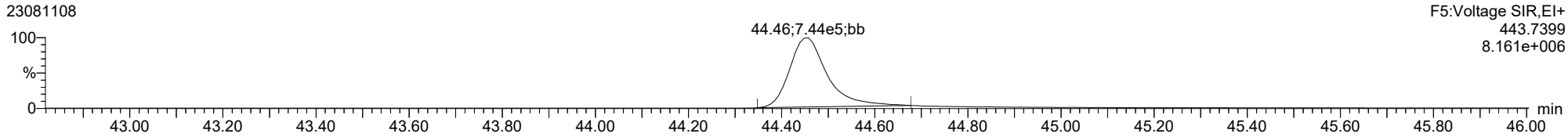


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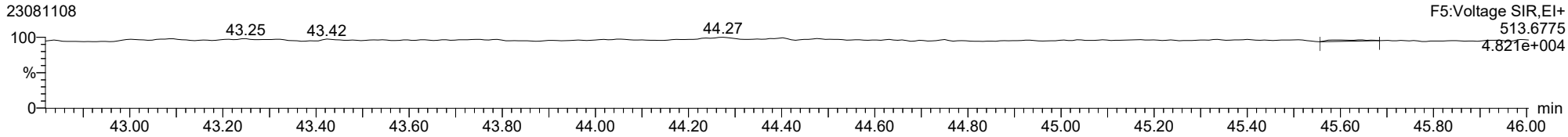
OCDF



OCDF

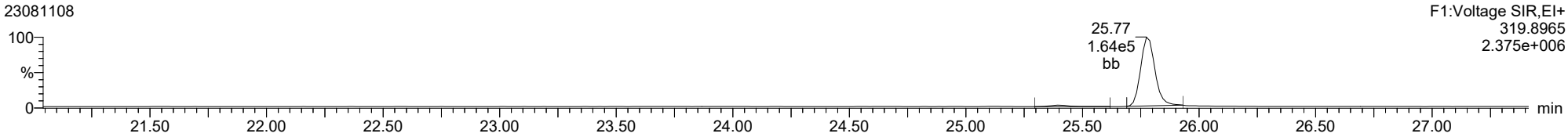


FUNCTION5 DCDPE

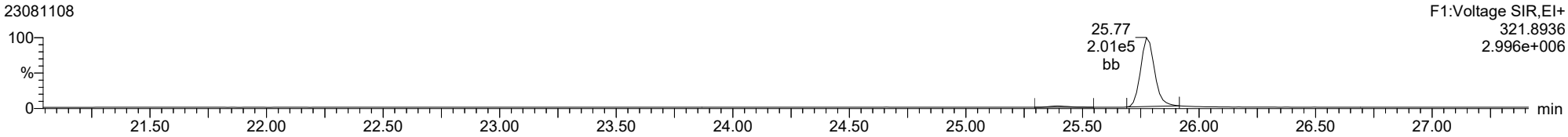


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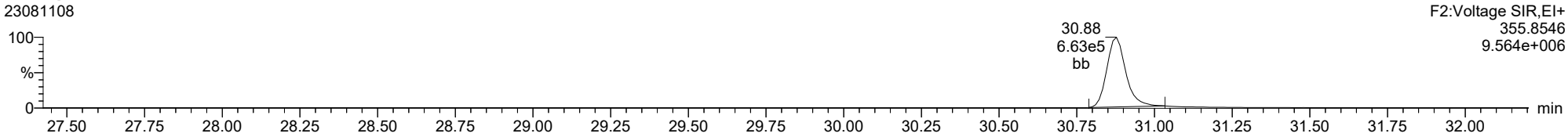
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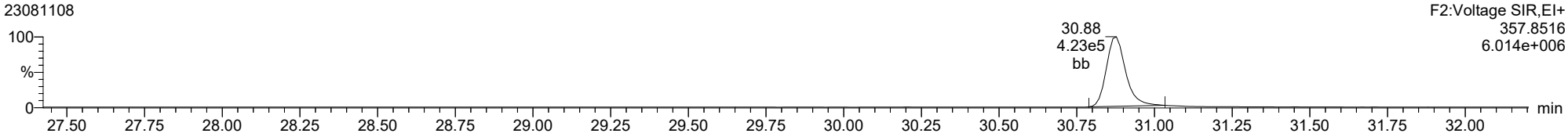
Total-tetradioxins



Total-pentadioxins

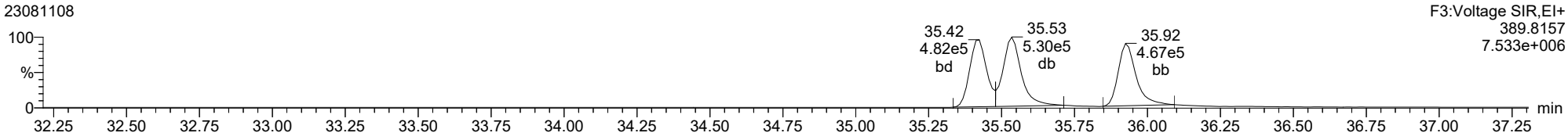


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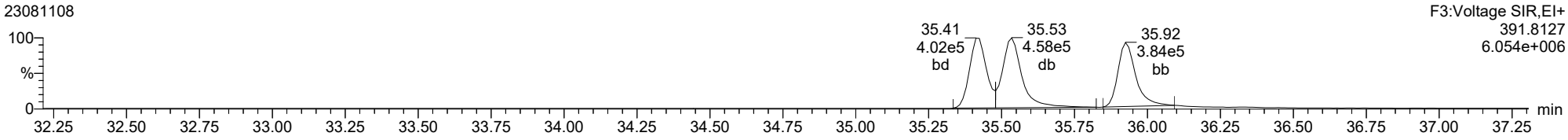


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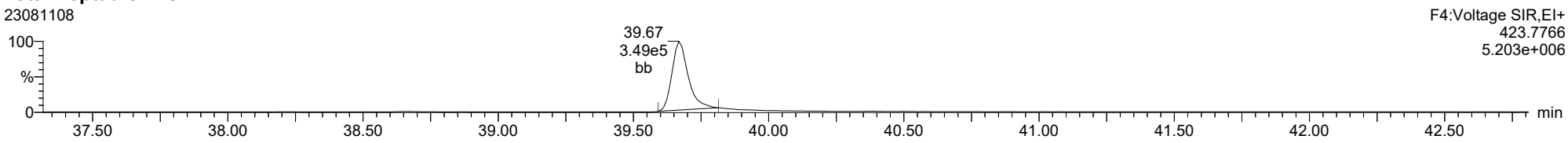
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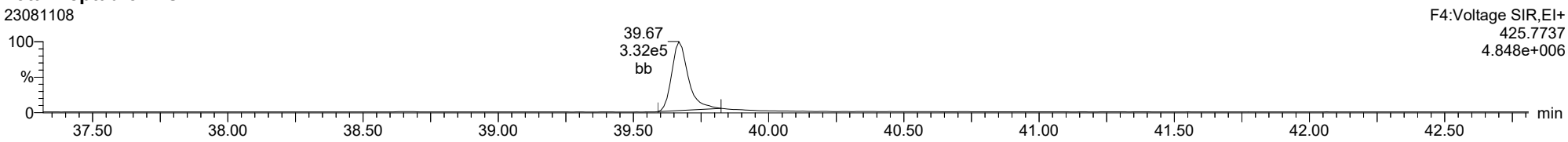
Total-hexadioxins



Total-heptadioxins

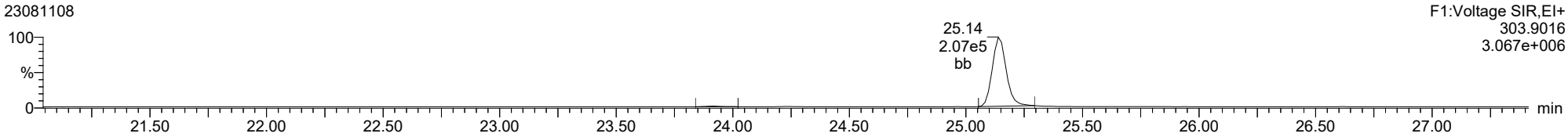


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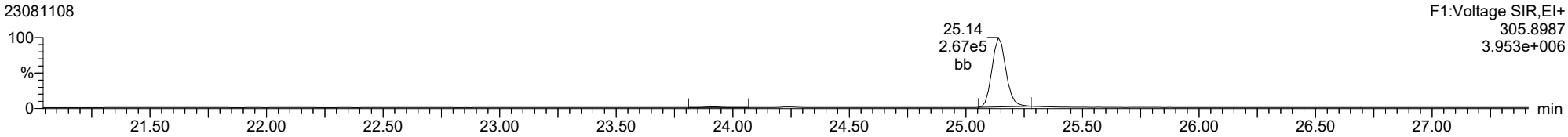


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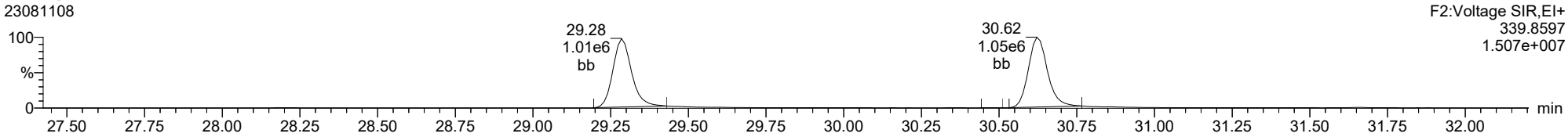
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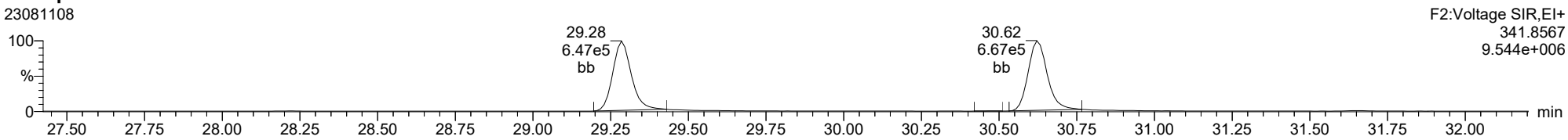
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Total-pentafurans

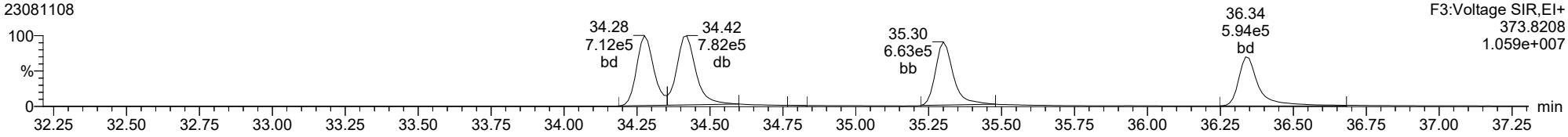


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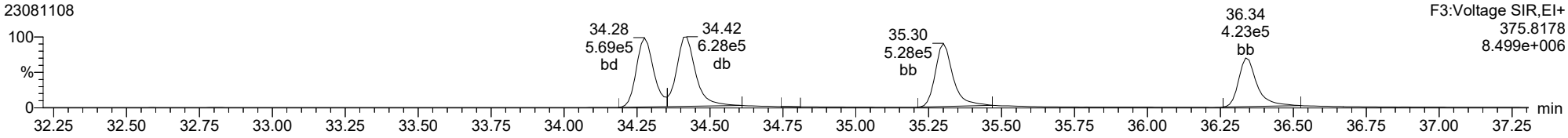


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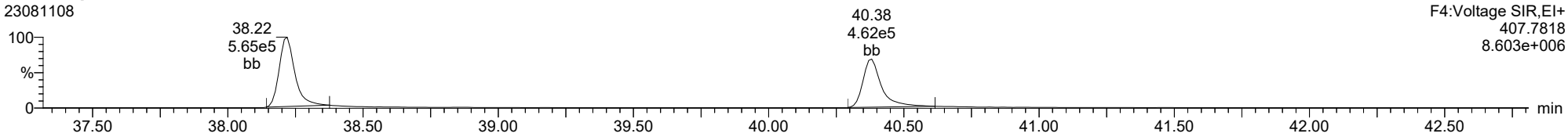
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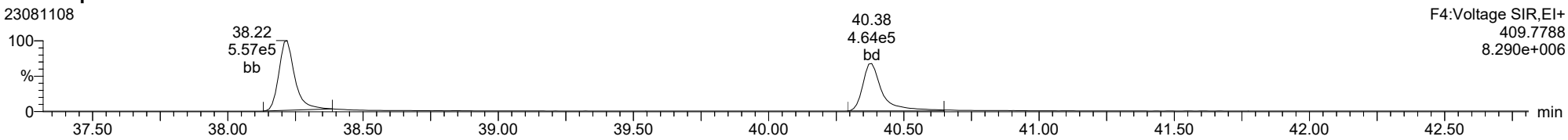
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:25:02 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.139	1.001	1.176e6	1.517e6	0.903	0.775	0.770	1838	1596	1.74e7	2.24e7	9439.9	14021.2	NO	bb	bb	200.683
12378-PeCDF	29.285	1.000	6.873e6	4.363e6	0.923	1.575	1.550	6342	5190	1.05e8	6.61e7	16593.6	12739.4	NO	bb	bb	1003.746
23478-PeCDF	30.622	1.000	7.218e6	4.643e6	0.991	1.555	1.550	6342	5190	1.13e8	7.21e7	17800.7	13902.4	NO	bb	bb	1020.400
123478-HxCDF	34.276	1.000	5.150e6	4.112e6	1.128	1.252	1.240	5119	1953	8.00e7	6.38e7	15621.4	32656.0	NO	bd	bd	1008.590
234678-HxCDF	35.301	1.000	5.220e6	4.187e6	1.081	1.247	1.240	5119	1953	7.99e7	6.42e7	15612.0	32865.0	NO	bb	bb	1036.310
123678-HxCDF	34.421	1.001	5.565e6	4.427e6	1.032	1.257	1.240	5119	1953	8.17e7	6.50e7	15950.5	33289.4	NO	db	db	1022.236
123789-HxCDF	36.337	1.000	4.314e6	3.419e6	0.988	1.262	1.240	5119	1953	6.39e7	5.10e7	12485.9	26087.4	NO	bb	bb	1056.656
1234678-HpCDF	38.220	1.000	4.651e6	4.483e6	1.164	1.037	1.050	6069	7386	7.66e7	7.36e7	12629.8	9967.1	NO	bb	bb	1032.094
1234789-HpCDF	40.381	1.000	3.737e6	3.616e6	1.104	1.033	1.050	6069	7386	5.31e7	5.10e7	8752.5	6907.0	NO	bb	bb	1044.743
OCDF	44.458	1.005	6.691e6	7.348e6	1.130	0.911	0.890	3831	4231	8.23e7	8.95e7	21469.5	21141.7	NO	bb	bb	2176.298
2378-TCDD	25.774	1.000	1.061e6	1.307e6	1.243	0.812	0.770	1257	1421	1.58e7	1.96e7	12528.1	13766.3	NO	bb	bb	205.454
12378-PeCDD	30.878	1.001	5.066e6	3.250e6	1.150	1.559	1.550	1999	1551	7.64e7	4.87e7	38189.0	31421.9	NO	bb	bb	1013.746
123478-HxCDD	35.423	1.001	4.057e6	3.319e6	0.960	1.223	1.240	1937	4756	6.49e7	5.26e7	33525.8	11070.6	NO	bd	bd	967.641
123678-HxCDD	35.535	1.000	4.425e6	3.631e6	0.883	1.219	1.240	1937	4756	6.67e7	5.48e7	34440.8	11527.4	NO	db	db	1048.787
123789-HxCDD	35.925	1.011	3.986e6	3.292e6	0.804	1.211	1.240	1937	4756	6.01e7	5.01e7	31052.7	10540.7	NO	bb	bb	1088.283
1234678-HpCDD	39.668	1.000	3.162e6	2.947e6	1.200	1.073	1.050	4823	2878	4.86e7	4.59e7	10069.1	15933.8	NO	bb	bb	982.937
OCDD	44.238	1.000	5.800e6	6.537e6	1.059	0.887	0.890	4770	6875	7.05e7	7.95e7	14784.9	11558.8	NO	bd	bd	2041.622
13C-2378-TCDF	25.125	1.007	6.605e5	8.257e5	1.835	0.800	0.770	1355	1418	9.81e6	1.21e7	7236.3	8550.4	NO	bb	bb	104.767
13C-12378-PeCDF	29.273	1.174	7.389e5	4.736e5	1.377	1.560	1.550	3865	1916	1.10e7	7.07e6	2852.7	3691.6	NO	bb	bb	113.971
13C-23478-PeCDF	30.610	1.227	7.158e5	4.576e5	1.301	1.564	1.550	3865	1916	1.08e7	6.76e6	2790.1	3529.9	NO	bb	bb	116.672
13C-123478-HxCDF	34.265	0.954	2.757e5	5.383e5	1.091	0.512	0.510	1842	2385	4.22e6	8.27e6	2289.0	3466.7	NO	bd	bd	92.231
13C-123678-HxCDF	34.398	0.958	3.323e5	6.146e5	1.340	0.541	0.510	1842	2385	4.54e6	8.80e6	2464.6	3688.5	NO	dd	db	87.307
13C-234678-HxCDF	35.290	0.983	2.846e5	5.548e5	1.093	0.513	0.510	1842	2385	4.19e6	8.16e6	2275.5	3420.3	NO	bb	bb	94.861
13C-123789-HxCDF	36.326	1.012	2.509e5	4.901e5	0.952	0.512	0.510	1842	2385	3.70e6	7.18e6	2007.2	3011.1	NO	bb	bb	96.229
13C-1234678-HpCDF	38.209	1.064	2.383e5	5.222e5	0.985	0.456	0.440	2249	3500	3.88e6	8.42e6	1723.2	2405.2	NO	bb	bb	95.414
13C-1234789-HpCDF	40.370	1.124	2.063e5	4.313e5	0.756	0.478	0.440	2249	3500	2.71e6	5.94e6	1204.3	1698.2	NO	bd	bb	104.262
13C-1234-TCDD	24.941	0.000	3.426e5	4.302e5	1.000	0.796	0.770	1437	1188	5.12e6	6.56e6	3565.4	5522.3	NO	bb	bb	100.000
13C-2378-TCDD	25.760	1.033	4.096e5	5.176e5	1.110	0.791	0.770	1437	1188	6.14e6	7.70e6	4273.1	6482.2	NO	bb	bb	108.126
13C-12378-PeCDD	30.855	1.237	4.434e5	2.699e5	0.754	1.642	1.550	1010	988	6.57e6	4.04e6	6507.7	4088.0	NO	bb	bb	122.457
13C-123478-HxCDD	35.401	0.986	4.416e5	3.523e5	0.960	1.253	1.240	1408	1550	6.91e6	5.52e6	4909.6	3563.7	NO	bd	bd	102.212
13C-123678-HxCDD	35.524	0.989	4.826e5	3.876e5	1.159	1.245	1.240	1408	1550	7.11e6	5.68e6	5046.4	3668.2	NO	db	db	92.771
13C-1234678-HpCDD	39.657	1.104	2.704e5	2.477e5	0.629	1.092	1.050	1453	1582	4.01e6	3.70e6	2762.1	2340.5	NO	bb	bb	101.737
13C-OCDD	44.229	1.232	5.451e5	5.964e5	0.635	0.914	0.890	1912	2392	6.54e6	7.08e6	3421.6	2960.5	NO	bd	bd	222.103
13C-123789-HxCDD	35.914	0.000	4.468e5	3.624e5	1.000	1.233	1.240	1408	1550	6.84e6	5.48e6	4854.1	3538.7	NO	bb	bb	100.000
37CL-2378-TCDD	25.774	1.033	2.011e6		1.157			1496		3.00e7		20074.5			bb		224.818

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ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.170		0.770	1838	1596								
1289-TCDF					0.847		0.770	1838	1596								
13468-PECDF					1.241		1.550	461	712								
12389-PECDF					0.880		1.550	6342	5190								
123468-HXCDF					1.206		1.240	5119	1953								
1368-TCDD					1.181		0.770	1257	1421								
1289-TCDD					0.963		0.770	1257	1421								
12479-PECDD					2.166		1.550	1999	1551								
12389-PECDD					1.326		1.550	1999	1551								
124679-HXCDD					1.127		1.240	1937	4756								
1234679-HPCDD					1.303		1.050	4823	2878								
Total-tetrafurans			1.194e6		0.973			1838		1.76e7							203.639
Total-penta1			0.000e0					461		0.00e0							
Total-pentafurans			1.413e7		0.931			6342		2.19e8							2029.440
Total-hexafurans			2.026e7		1.087			5119		3.06e8							4125.241
Total-heptafurans			8.398e6		1.134			6069		1.30e8							2079.518
Total-Furans			5.067e7		1.053			1838		7.54e8							10614.136
Total-tetradioxins			1.084e6		1.129			1257		1.60e7							210.516
Total-pentadioxins			5.077e6		1.548			1999		7.65e7							1015.359
Total-hexadioxins			1.249e7		0.943			1937		1.92e8							3110.180
Total-heptadioxins			3.162e6		1.251			4823		4.86e7							982.937
Total-Dioxins			2.762e7		1.182			1257		4.04e8							7360.637
Total-TEQ			7.828e7					1257		1.16e9							17974.773
FUNCTION1 PFK			3.429e4					454273		8.54e5							
FUNCTION2 PFK			8.951e5					279755		2.13e7							0.000
FUNCTION3 PFK			1.396e5					359621		2.61e6							0.000
FUNCTION4 PFK			2.686e4					287176		8.56e5							
FUNCTION5 PFK			1.797e5					200045		5.77e6							
FUNCTION1 HXCD...			7.815e2					458		1.11e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			7.618e3					592		1.15e5							0.000
FUNCTION3 OCDPE			4.956e3					644		5.21e4							0.000
FUNCTION4 NCDPE			1.915e3					637		2.00e4							0.000
FUNCTION5 DCDPE			2.784e3					452		2.35e4							0.000

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.14	1.176e6	1.517e6	0.903	0.78	0.77	9439.9	YES	NO	bb	bb	200.683
2	Total-tetrafurans	24.23	7.022e3	1.030e4	0.973	0.68	0.77	53.2	YES	NO	bb	db	1.197
3	Total-tetrafurans	23.91	1.051e4	1.448e4	0.973	0.73	0.77	86.3	YES	NO	bd	bd	1.727
4	Total-tetrafurans	22.68	1.913e2	2.601e2	0.973	0.74	0.77	1.9	NO	NO	bb	bb	0.031

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.28	6.873e6	4.363e6	0.923	1.58	1.55	16593.6	YES	NO	bb	bb	1003.7...
2	Total-pentafurans	29.01	5.252e3	3.709e3	0.931	1.42	1.55	11.1	YES	NO	dd	db	0.807
3	Total-pentafurans	28.93	2.668e3	1.651e3	0.931	1.62	1.55	8.0	YES	NO	bd	bd	0.389
4	Total-pentafurans	28.22	2.093e4	1.283e4	0.931	1.63	1.55	39.4	YES	NO	bb	bb	3.039
5	Total-pentafurans	31.87	1.086e3	7.873e2	0.931	1.38	1.55	3.1	NO	NO	dd	db	0.169
6	23478-PeCDF	30.62	7.218e6	4.643e6	0.991	1.55	1.55	17800.7	YES	NO	bb	bb	1020.4...
7	Total-pentafurans	30.49	5.363e3	4.052e3	0.931	1.32	1.55	17.9	YES	NO	bb	bb	0.848
8	Total-pentafurans	30.20	2.868e2	1.979e2	0.931	1.45	1.55	1.7	NO	NO	bb	bb	0.044

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexafurans	35.82	2.293e2	1.911e2	1.087	1.20	1.24	1.9	NO	NO	bb	db	0.046
2	234678-HxCDF	35.30	5.220e6	4.187e6	1.081	1.25	1.24	15612.0	YES	NO	bb	bb	1036.3...
3	123678-HxCDF	34.42	5.565e6	4.427e6	1.032	1.26	1.24	15950.5	YES	NO	db	db	1022.2...
4	123478-HxCDF	34.28	5.150e6	4.112e6	1.128	1.25	1.24	15621.4	YES	NO	bd	bd	1008.5...
5	Total-hexafurans	34.12	3.378e3	3.099e3	1.087	1.09	1.24	11.9	YES	NO	bb	bb	0.713
6	Total-hexafurans	32.79	3.542e3	2.725e3	1.087	1.30	1.24	9.2	YES	NO	db	bb	0.690
7	123789-HxCDF	36.34	4.314e6	3.419e6	0.988	1.26	1.24	12485.9	YES	NO	bb	bb	1056.6...

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HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.38	3.737e6	3.616e6	1.104	1.03	1.05	8752.5	YES	NO	bb	bb	1044.7...
2	Total-heptafurans	39.67	4.922e3	4.388e3	1.134	1.12	1.05	9.6	YES	NO	bb	bb	1.175
3	Total-heptafurans	38.85	6.140e3	5.800e3	1.134	1.06	1.05	14.7	YES	NO	bb	bb	1.507
4	1234678-HpCDF	38.22	4.651e6	4.483e6	1.164	1.04	1.05	12629.8	YES	NO	bb	bb	1032.0...

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.14	1.176e6	1.517e6	0.903	0.78	0.77	9439.9	YES	NO	bb	bb	200.683
2	Total-tetrafurans	24.23	7.022e3	1.030e4	0.973	0.68	0.77	53.2	YES	NO	bb	db	1.197
3	Total-tetrafurans	23.91	1.051e4	1.448e4	0.973	0.73	0.77	86.3	YES	NO	bd	bd	1.727
4	Total-tetrafurans	22.68	1.913e2	2.601e2	0.973	0.74	0.77	1.9	NO	NO	bb	bb	0.031
5	12378-PeCDF	29.28	6.873e6	4.363e6	0.923	1.58	1.55	16593.6	YES	NO	bb	bb	1003.7...
6	Total-pentafurans	29.01	5.252e3	3.709e3	0.931	1.42	1.55	11.1	YES	NO	dd	db	0.807
7	Total-pentafurans	28.93	2.668e3	1.651e3	0.931	1.62	1.55	8.0	YES	NO	bd	bd	0.389
8	Total-pentafurans	28.22	2.093e4	1.283e4	0.931	1.63	1.55	39.4	YES	NO	bb	bb	3.039
9	Total-pentafurans	31.87	1.086e3	7.873e2	0.931	1.38	1.55	3.1	NO	NO	dd	db	0.169
10	23478-PeCDF	30.62	7.218e6	4.643e6	0.991	1.55	1.55	17800.7	YES	NO	bb	bb	1020.4...
11	Total-pentafurans	30.49	5.363e3	4.052e3	0.931	1.32	1.55	17.9	YES	NO	bb	bb	0.848
12	Total-pentafurans	30.20	2.868e2	1.979e2	0.931	1.45	1.55	1.7	NO	NO	bb	bb	0.044
13	Total-hexafurans	35.82	2.293e2	1.911e2	1.087	1.20	1.24	1.9	NO	NO	bb	db	0.046
14	234678-HxCDF	35.30	5.220e6	4.187e6	1.081	1.25	1.24	15612.0	YES	NO	bb	bb	1036.3...
15	123678-HxCDF	34.42	5.565e6	4.427e6	1.032	1.26	1.24	15950.5	YES	NO	db	db	1022.2...
16	123478-HxCDF	34.28	5.150e6	4.112e6	1.128	1.25	1.24	15621.4	YES	NO	bd	bd	1008.5...
17	Total-hexafurans	34.12	3.378e3	3.099e3	1.087	1.09	1.24	11.9	YES	NO	bb	bb	0.713
18	Total-hexafurans	32.79	3.542e3	2.725e3	1.087	1.30	1.24	9.2	YES	NO	db	bb	0.690
19	123789-HxCDF	36.34	4.314e6	3.419e6	0.988	1.26	1.24	12485.9	YES	NO	bb	bb	1056.6...
20	1234789-HpCDF	40.38	3.737e6	3.616e6	1.104	1.03	1.05	8752.5	YES	NO	bb	bb	1044.7...
21	Total-heptafurans	39.67	4.922e3	4.388e3	1.134	1.12	1.05	9.6	YES	NO	bb	bb	1.175
22	Total-heptafurans	38.85	6.140e3	5.800e3	1.134	1.06	1.05	14.7	YES	NO	bb	bb	1.507
23	1234678-HpCDF	38.22	4.651e6	4.483e6	1.164	1.04	1.05	12629.8	YES	NO	bb	bb	1032.0...
24	OCDF	44.46	6.691e6	7.348e6	1.130	0.91	0.89	21469.5	YES	NO	bb	bb	2176.2...

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TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.77	1.061e6	1.307e6	1.243	0.81	0.77	12528.1	YES	NO	bb	bb	205.454
2	Total-tetradioxins	25.39	2.251e4	2.836e4	1.129	0.79	0.77	203.9	YES	NO	bd	bb	4.860
3	Total-tetradioxins	24.64	9.094e2	1.193e3	1.129	0.76	0.77	10.6	YES	NO	bb	bb	0.201

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.88	5.066e6	3.250e6	1.150	1.56	1.55	38189.0	YES	NO	bb	bb	1013.7...
2	Total-pentadioxins	30.20	5.265e3	3.663e3	1.548	1.44	1.55	36.0	YES	NO	bb	bb	0.809
3	Total-pentadioxins	29.49	8.899e2	6.316e2	1.548	1.41	1.55	6.0	YES	NO	dd	db	0.138
4	Total-pentadioxins	29.30	4.194e3	3.163e3	1.548	1.33	1.55	26.2	YES	NO	bd	bd	0.667

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDD	35.42	4.057e6	3.319e6	0.960	1.22	1.24	33525.8	YES	NO	bd	bd	967.641
2	Total-hexadioxins	34.42	1.376e3	1.250e3	0.943	1.10	1.24	6.9	NO	NO	dd	dd	0.335
3	Total-hexadioxins	36.55	2.181e2	1.928e2	0.943	1.13	1.24	4.6	NO	NO	bb	bb	0.052
4	Total-hexadioxins	36.33	2.192e4	1.798e4	0.943	1.22	1.24	137.8	YES	NO	bb	bb	5.083
5	123789-HxCDD	35.92	3.986e6	3.292e6	0.804	1.21	1.24	31052.7	YES	NO	bb	bb	1088.2...
6	123678-HxCDD	35.53	4.425e6	3.631e6	0.883	1.22	1.24	34440.8	YES	NO	db	db	1048.7...

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.67	3.162e6	2.947e6	1.200	1.07	1.05	10069.1	YES	NO	bb	bb	982.937

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.77	1.061e6	1.307e6	1.243	0.81	0.77	12528.1	YES	NO	bb	bb	205.454
2	Total-tetradioxins	25.39	2.251e4	2.836e4	1.129	0.79	0.77	203.9	YES	NO	bd	bb	4.860
3	Total-tetradioxins	24.64	9.094e2	1.193e3	1.129	0.76	0.77	10.6	YES	NO	bb	bb	0.201
4	Total-Dioxins	27.06	1.144e2	1.336e2	1.182	0.86	0.77	2.6	NO	NO	bb	db	0.023
5	12378-PeCDD	30.88	5.066e6	3.250e6	1.150	1.56	1.55	38189.0	YES	NO	bb	bb	1013.7...
6	Total-pentadioxins	30.20	5.265e3	3.663e3	1.548	1.44	1.55	36.0	YES	NO	bb	bb	0.809
7	Total-pentadioxins	29.49	8.899e2	6.316e2	1.548	1.41	1.55	6.0	YES	NO	dd	db	0.138
8	Total-pentadioxins	29.30	4.194e3	3.163e3	1.548	1.33	1.55	26.2	YES	NO	bd	bd	0.667
9	123478-HxCDD	35.42	4.057e6	3.319e6	0.960	1.22	1.24	33525.8	YES	NO	bd	bd	967.641
10	Total-hexadioxins	34.42	1.376e3	1.250e3	0.943	1.10	1.24	6.9	NO	NO	dd	dd	0.335
11	Total-hexadioxins	36.55	2.181e2	1.928e2	0.943	1.13	1.24	4.6	NO	NO	bb	bb	0.052
12	Total-hexadioxins	36.33	2.192e4	1.798e4	0.943	1.22	1.24	137.8	YES	NO	bb	bb	5.083
13	123789-HxCDD	35.92	3.986e6	3.292e6	0.804	1.21	1.24	31052.7	YES	NO	bb	bb	1088.2...
14	123678-HxCDD	35.53	4.425e6	3.631e6	0.883	1.22	1.24	34440.8	YES	NO	db	db	1048.7...
15	1234678-HpCDD	39.67	3.162e6	2.947e6	1.200	1.07	1.05	10069.1	YES	NO	bb	bb	982.937
16	OCDD	44.24	5.800e6	6.537e6	1.059	0.89	0.89	14784.9	YES	NO	bd	bd	2041.6...

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.14	1.176e6	1.517e6	0.903	0.78	0.77	9439.9	YES	NO	bb	bb	200.683
2	Total-tetrafurans	24.23	7.022e3	1.030e4	0.973	0.68	0.77	53.2	YES	NO	bb	db	1.197
3	Total-tetrafurans	23.91	1.051e4	1.448e4	0.973	0.73	0.77	86.3	YES	NO	bd	bd	1.727
4	Total-tetrafurans	22.68	1.913e2	2.601e2	0.973	0.74	0.77	1.9	NO	NO	bb	bb	0.031
5	12378-PeCDF	29.28	6.873e6	4.363e6	0.923	1.58	1.55	16593.6	YES	NO	bb	bb	1003.7...
6	Total-pentafurans	29.01	5.252e3	3.709e3	0.931	1.42	1.55	11.1	YES	NO	dd	db	0.807
7	Total-pentafurans	28.93	2.668e3	1.651e3	0.931	1.62	1.55	8.0	YES	NO	bd	bd	0.389
8	Total-pentafurans	28.22	2.093e4	1.283e4	0.931	1.63	1.55	39.4	YES	NO	bb	bb	3.039
9	Total-pentafurans	31.87	1.086e3	7.873e2	0.931	1.38	1.55	3.1	NO	NO	dd	db	0.169
10	23478-PeCDF	30.62	7.218e6	4.643e6	0.991	1.55	1.55	17800.7	YES	NO	bb	bb	1020.4...
11	Total-pentafurans	30.49	5.363e3	4.052e3	0.931	1.32	1.55	17.9	YES	NO	bb	bb	0.848
12	Total-pentafurans	30.20	2.868e2	1.979e2	0.931	1.45	1.55	1.7	NO	NO	bb	bb	0.044
13	Total-hexafurans	35.82	2.293e2	1.911e2	1.087	1.20	1.24	1.9	NO	NO	bb	db	0.046
14	234678-HxCDF	35.30	5.220e6	4.187e6	1.081	1.25	1.24	15612.0	YES	NO	bb	bb	1036.3...
15	123678-HxCDF	34.42	5.565e6	4.427e6	1.032	1.26	1.24	15950.5	YES	NO	db	db	1022.2...
16	123478-HxCDF	34.28	5.150e6	4.112e6	1.128	1.25	1.24	15621.4	YES	NO	bd	bd	1008.5...
17	Total-hexafurans	34.12	3.378e3	3.099e3	1.087	1.09	1.24	11.9	YES	NO	bb	bb	0.713
18	Total-hexafurans	32.79	3.542e3	2.725e3	1.087	1.30	1.24	9.2	YES	NO	db	bb	0.690
19	123789-HxCDF	36.34	4.314e6	3.419e6	0.988	1.26	1.24	12485.9	YES	NO	bb	bb	1056.6...
20	1234789-HpCDF	40.38	3.737e6	3.616e6	1.104	1.03	1.05	8752.5	YES	NO	bb	bb	1044.7...
21	Total-heptafurans	39.67	4.922e3	4.388e3	1.134	1.12	1.05	9.6	YES	NO	bb	bb	1.175
22	Total-heptafurans	38.85	6.140e3	5.800e3	1.134	1.06	1.05	14.7	YES	NO	bb	bb	1.507
23	1234678-HpCDF	38.22	4.651e6	4.483e6	1.164	1.04	1.05	12629.8	YES	NO	bb	bb	1032.0...
24	OCDF	44.46	6.691e6	7.348e6	1.130	0.91	0.89	21469.5	YES	NO	bb	bb	2176.2...
25	2378-TCDD	25.77	1.061e6	1.307e6	1.243	0.81	0.77	12528.1	YES	NO	bb	bb	205.454
26	Total-tetradioxins	25.39	2.251e4	2.836e4	1.129	0.79	0.77	203.9	YES	NO	bd	bb	4.860
27	Total-tetradioxins	24.64	9.094e2	1.193e3	1.129	0.76	0.77	10.6	YES	NO	bb	bb	0.201
28	Total-Dioxins	27.06	1.144e2	1.336e2	1.182	0.86	0.77	2.6	NO	NO	bb	db	0.023
29	12378-PeCDD	30.88	5.066e6	3.250e6	1.150	1.56	1.55	38189.0	YES	NO	bb	bb	1013.7...
30	Total-pentadioxins	30.20	5.265e3	3.663e3	1.548	1.44	1.55	36.0	YES	NO	bb	bb	0.809
31	Total-pentadioxins	29.49	8.899e2	6.316e2	1.548	1.41	1.55	6.0	YES	NO	dd	db	0.138
32	Total-pentadioxins	29.30	4.194e3	3.163e3	1.548	1.33	1.55	26.2	YES	NO	bd	bd	0.667
33	123478-HxCDD	35.42	4.057e6	3.319e6	0.960	1.22	1.24	33525.8	YES	NO	bd	bd	967.641
34	Total-hexadioxins	34.42	1.376e3	1.250e3	0.943	1.10	1.24	6.9	NO	NO	dd	dd	0.335
35	Total-hexadioxins	36.55	2.181e2	1.928e2	0.943	1.13	1.24	4.6	NO	NO	bb	bb	0.052
36	Total-hexadioxins	36.33	2.192e4	1.798e4	0.943	1.22	1.24	137.8	YES	NO	bb	bb	5.083
37	123789-HxCDD	35.92	3.986e6	3.292e6	0.804	1.21	1.24	31052.7	YES	NO	bb	bb	1088.2...

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	123678-HxCDD	35.53	4.425e6	3.631e6	0.883	1.22	1.24	34440.8	YES	NO	db	db	1048.7...
39	1234678-HpCDD	39.67	3.162e6	2.947e6	1.200	1.07	1.05	10069.1	YES	NO	bb	bb	982.937
40	OCDD	44.24	5.800e6	6.537e6	1.059	0.89	0.89	14784.9	YES	NO	bd	bd	2041.6...

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.34	3.429e4					1.9	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	27.50	1.980e4					1.9	NO		bd		0.000
2	FUNCTION2 PFK	28.88	9.545e3					1.5	NO		db		0.000
3	FUNCTION2 PFK	28.85	1.548e4					1.5	NO		dd		0.000
4	FUNCTION2 PFK	28.78	2.633e4					1.9	NO		dd		0.000
5	FUNCTION2 PFK	28.73	2.421e4					1.5	NO		bd		0.000
6	FUNCTION2 PFK	28.58	1.529e4					1.5	NO		bb		0.000
7	FUNCTION2 PFK	28.37	3.510e4					1.6	NO		bb		0.000
8	FUNCTION2 PFK	28.26	2.659e4					1.8	NO		bb		0.000
9	FUNCTION2 PFK	28.18	1.012e4					1.4	NO		bb		0.000
10	FUNCTION2 PFK	28.10	3.736e3					0.7	NO		db		0.000
11	FUNCTION2 PFK	28.05	1.176e4					1.3	NO		bd		0.000
12	FUNCTION2 PFK	27.96	7.873e3					0.8	NO		bb		0.000
13	FUNCTION2 PFK	27.91	5.680e3					1.0	NO		bb		0.000
14	FUNCTION2 PFK	27.79	7.217e3					1.0	NO		bb		0.000
15	FUNCTION2 PFK	27.72	3.615e4					2.3	NO		db		0.000
16	FUNCTION2 PFK	27.65	1.224e4					1.7	NO		bd		0.000
17	FUNCTION2 PFK	27.58	1.907e4					1.4	NO		db		0.000
18	FUNCTION2 PFK	30.25	1.111e4					1.6	NO		dd		0.000
19	FUNCTION2 PFK	30.21	4.748e4					3.3	YES		bd		0.000
20	FUNCTION2 PFK	30.12	1.251e4					1.0	NO		db		0.000
21	FUNCTION2 PFK	30.06	2.456e4					2.2	NO		dd		0.000
22	FUNCTION2 PFK	30.02	2.395e4					2.6	NO		dd		0.000
23	FUNCTION2 PFK	29.98	2.592e4					2.3	NO		dd		0.000
24	FUNCTION2 PFK	29.92	1.037e4					1.4	NO		dd		0.000
25	FUNCTION2 PFK	29.89	1.685e4					1.7	NO		dd		0.000
26	FUNCTION2 PFK	29.82	1.201e4					1.4	NO		dd		0.000
27	FUNCTION2 PFK	29.77	2.300e4					1.9	NO		bd		0.000
28	FUNCTION2 PFK	29.61	5.897e3					0.9	NO		bb		0.000
29	FUNCTION2 PFK	29.37	2.118e4					1.1	NO		bb		0.000
30	FUNCTION2 PFK	29.30	1.346e3					0.4	NO		bb		0.000
31	FUNCTION2 PFK	29.23	2.365e4					1.9	NO		db		0.000
32	FUNCTION2 PFK	29.20	3.160e4					1.9	NO		bd		0.000
33	FUNCTION2 PFK	28.98	1.286e4					1.1	NO		bb		0.000
34	FUNCTION2 PFK	31.76	1.305e4					1.3	NO		dd		0.000
35	FUNCTION2 PFK	31.69	2.733e4					1.7	NO		dd		0.000
36	FUNCTION2 PFK	31.66	2.111e4					1.5	NO		bd		0.000
37	FUNCTION2 PFK	31.56	1.095e3					0.4	NO		bb		0.000

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION2 PFK	31.41	8.409e3					1.2	NO		bb		0.000
39	FUNCTION2 PFK	31.22	1.297e4					1.1	NO		bb		0.000
40	FUNCTION2 PFK	31.17	3.323e3					0.7	NO		db		0.000
41	FUNCTION2 PFK	31.12	1.285e4					1.3	NO		dd		0.000
42	FUNCTION2 PFK	31.07	1.346e4					1.6	NO		dd		0.000
43	FUNCTION2 PFK	31.02	7.621e3					0.9	NO		bd		0.000
44	FUNCTION2 PFK	30.83	1.401e4					1.5	NO		db		0.000
45	FUNCTION2 PFK	30.73	5.731e4					2.9	NO		dd		0.000
46	FUNCTION2 PFK	30.68	4.117e4					2.0	NO		bd		0.000
47	FUNCTION2 PFK	30.53	1.020e4					0.7	NO		bb		0.000
48	FUNCTION2 PFK	30.34	4.679e3					0.7	NO		db		0.000
49	FUNCTION2 PFK	30.30	9.864e3					1.1	NO		dd		0.000
50	FUNCTION2 PFK	32.06	7.490e3					1.0	NO		bb		0.000
51	FUNCTION2 PFK	31.92	2.087e4					1.3	NO		db		0.000
52	FUNCTION2 PFK	31.82	1.776e4					1.5	NO		dd		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	36.72	3.336e4					2.4	NO		bb		0.000
2	FUNCTION3 PFK	34.54	1.062e5					4.9	YES		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.47	2.686e4					3.0	NO		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.16	1.278e4					2.4	NO		bb		
2	FUNCTION5 PFK	44.11	9.338e3					2.0	NO		db		
3	FUNCTION5 PFK	44.08	5.897e3					1.6	NO		bd		
4	FUNCTION5 PFK	43.56	8.573e3					2.1	NO		db		
5	FUNCTION5 PFK	43.51	7.267e3					1.7	NO		bd		
6	FUNCTION5 PFK	43.32	5.670e3					1.4	NO		bb		
7	FUNCTION5 PFK	42.88	4.903e3					1.1	NO		bb		
8	FUNCTION5 PFK	45.82	1.022e4					1.6	NO		bb		
9	FUNCTION5 PFK	45.72	1.632e4					1.6	NO		bb		
10	FUNCTION5 PFK	45.61	7.173e3					1.1	NO		bb		
11	FUNCTION5 PFK	45.44	4.649e3					1.2	NO		bb		
12	FUNCTION5 PFK	45.20	1.793e4					2.2	NO		bb		
13	FUNCTION5 PFK	45.08	2.833e4					2.2	NO		db		
14	FUNCTION5 PFK	44.97	2.164e4					2.6	NO		bd		
15	FUNCTION5 PFK	44.84	7.975e3					1.7	NO		db		
16	FUNCTION5 PFK	44.81	6.372e3					1.4	NO		bd		
17	FUNCTION5 PFK	44.20	4.690e3					1.0	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	25.15	1.614e2					3.9	YES		bb		0.000
2	FUNCTION1 HXCD...	24.66	8.600e1					3.2	YES		bb		0.000
3	FUNCTION1 HXCD...	22.13	8.877e1					5.5	YES		db		0.000
4	FUNCTION1 HXCD...	22.07	9.027e1					3.1	YES		dd		0.000
5	FUNCTION1 HXCD...	21.95	7.917e1					2.1	NO		bd		0.000
6	FUNCTION1 HXCD...	25.77	2.758e2					6.3	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.88	6.520e2					15.4	YES		bb		0.000
2	FUNCTION2 HPCD...	30.62	5.795e2					11.8	YES		bb		0.000
3	FUNCTION2 HPCD...	30.48	5.784e3					156.4	YES		bb		0.000
4	FUNCTION2 HPCD...	29.30	6.029e2					10.9	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.35	5.376e2					7.3	YES		bb		0.000
2	FUNCTION3 OCDPE	35.94	9.866e2					15.2	YES		bb		0.000
3	FUNCTION3 OCDPE	35.69	7.171e1					2.6	NO		db		0.000
4	FUNCTION3 OCDPE	35.53	1.024e3					16.7	YES		dd		0.000
5	FUNCTION3 OCDPE	35.42	8.579e2					15.4	YES		dd		0.000
6	FUNCTION3 OCDPE	35.32	4.169e2					8.2	YES		bd		0.000
7	FUNCTION3 OCDPE	34.43	5.647e2					8.6	YES		db		0.000
8	FUNCTION3 OCDPE	34.29	4.974e2					7.0	YES		bd		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.39	5.944e2					9.3	YES		bb		0.000
2	FUNCTION4 NCDPE	39.69	6.266e2					10.8	YES		bb		0.000
3	FUNCTION4 NCDPE	38.23	6.938e2					11.2	YES		bb		0.000

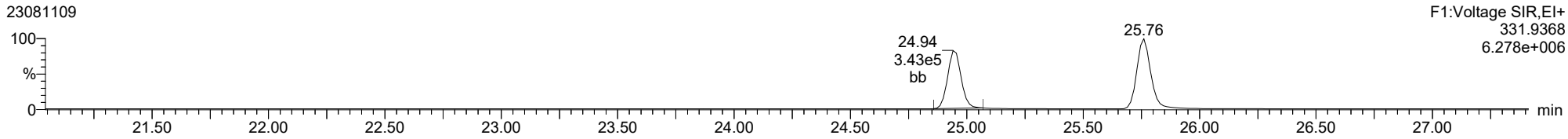
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.47	1.356e3					23.6	YES		db		0.000
2	FUNCTION5 DCDPE	44.25	1.261e3					23.3	YES		bd		0.000
3	FUNCTION5 DCDPE	43.36	1.677e2					4.9	YES		bb		0.000

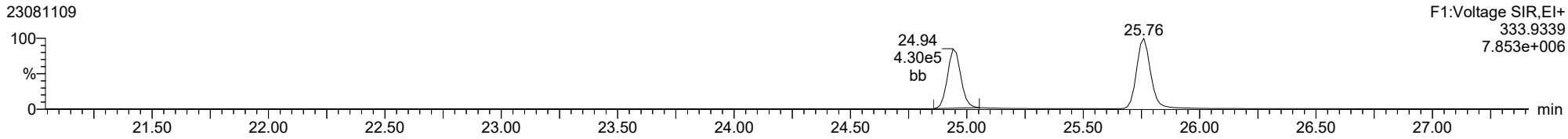
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ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

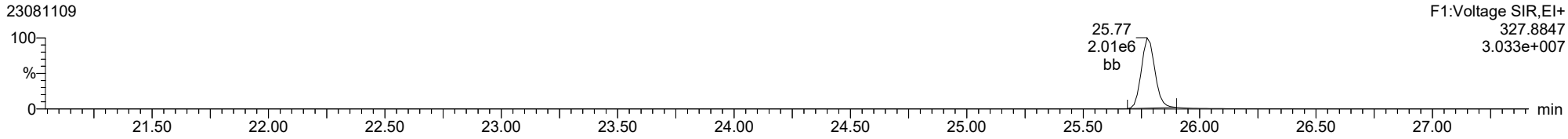
13C-1234-TCDD



13C-1234-TCDD

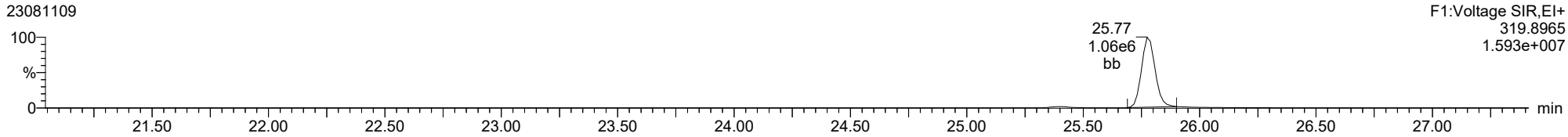


37CL-2378-TCDD

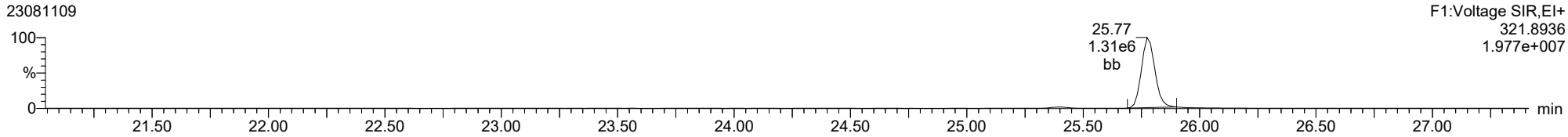


ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

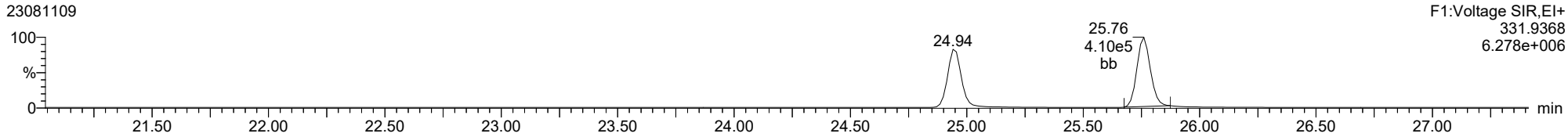
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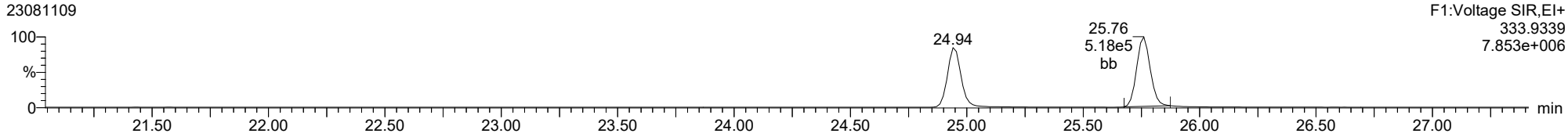
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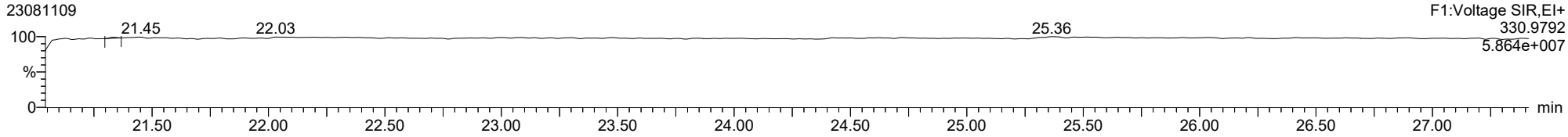
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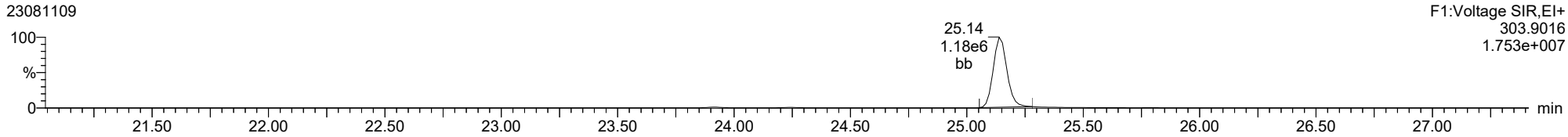


FUNCTION1 PFK

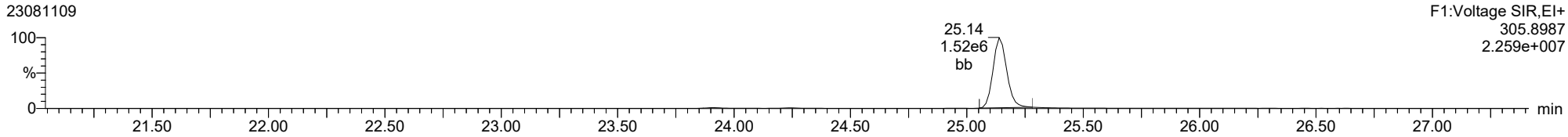


ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

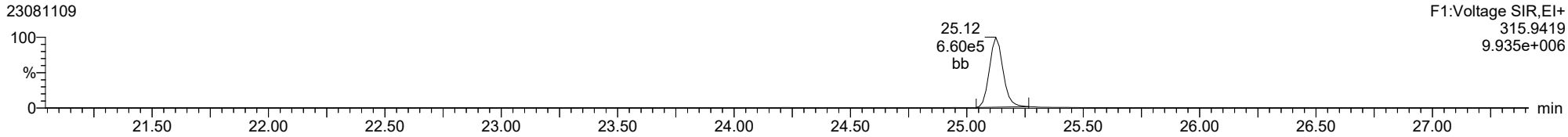
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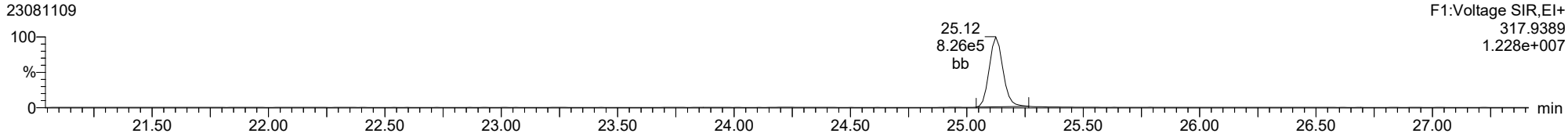
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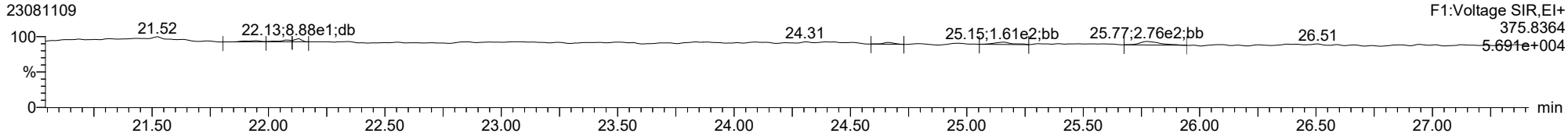
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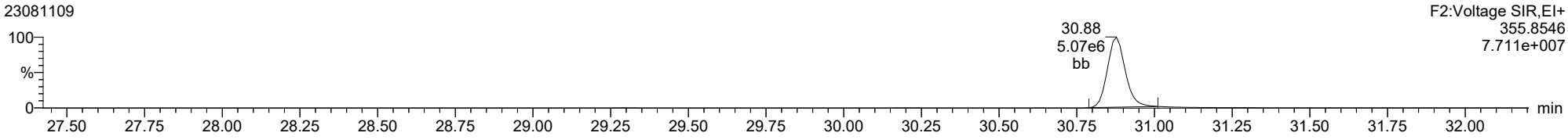


FUNCTION1 HXCDPE

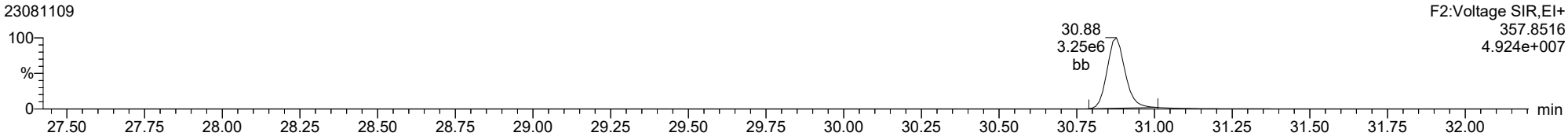


ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

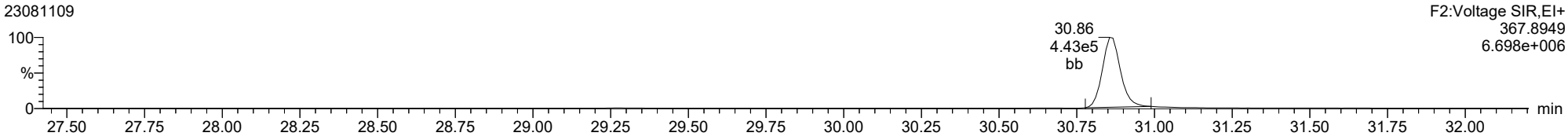
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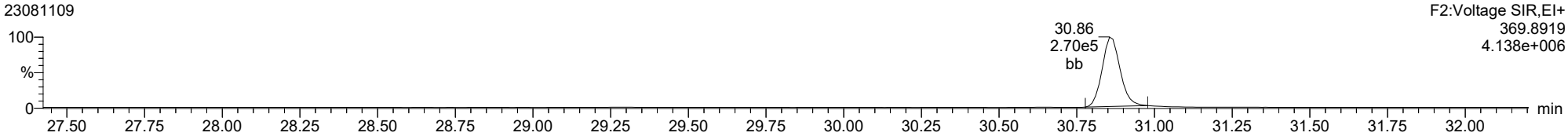
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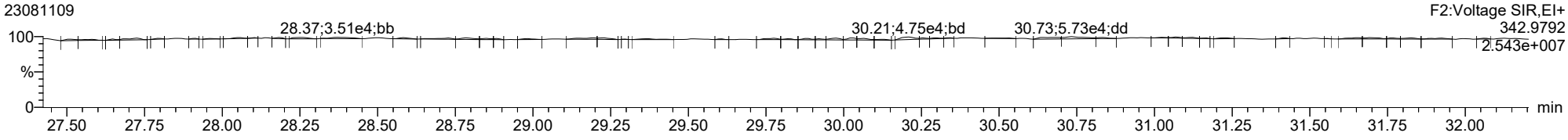
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13C-12378-PeCDD

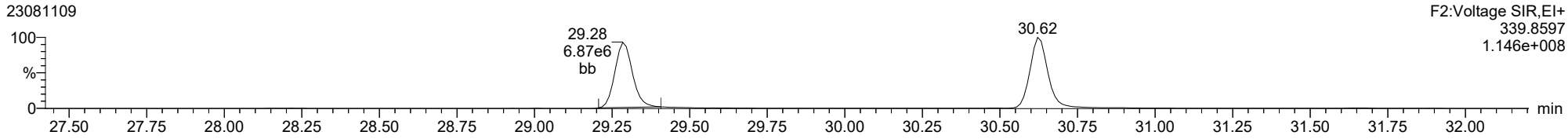


FUNCTION2 PFK

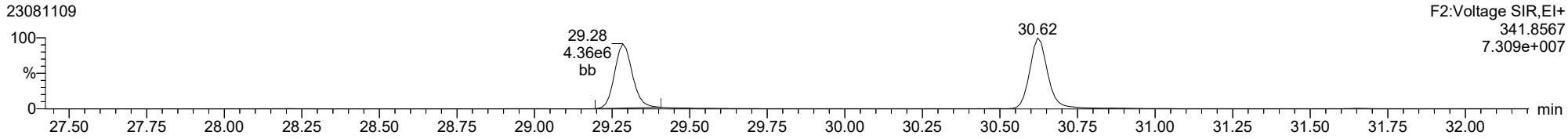


ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

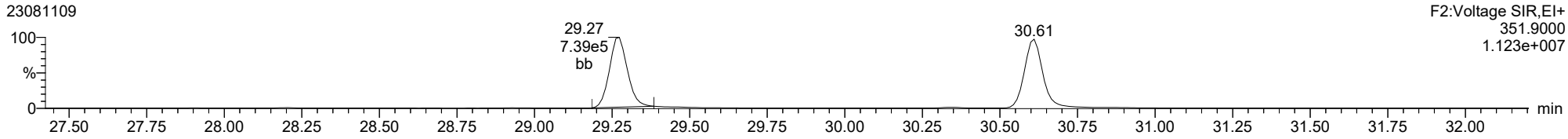
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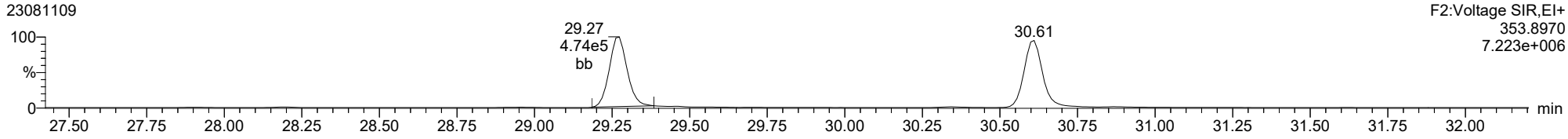
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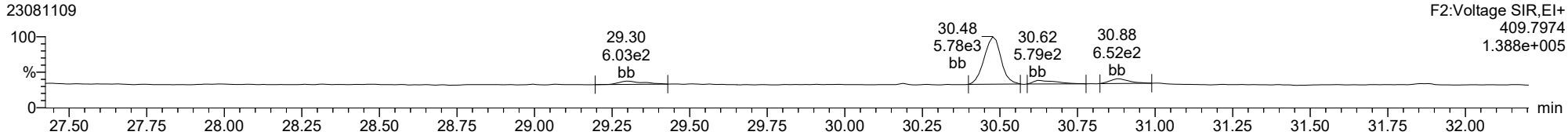
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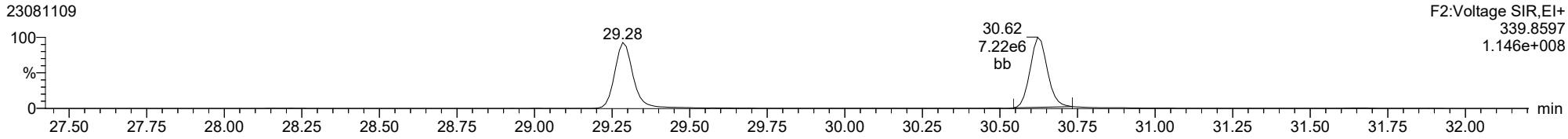


FUNCTION2 HPCDPE

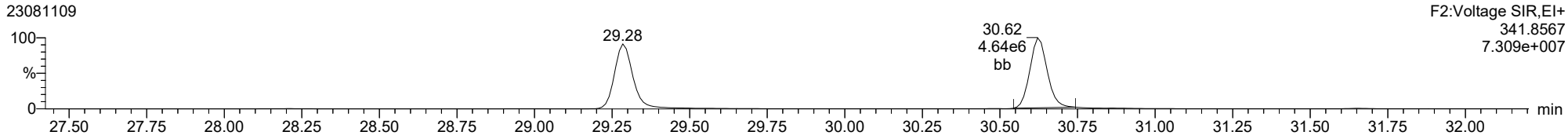


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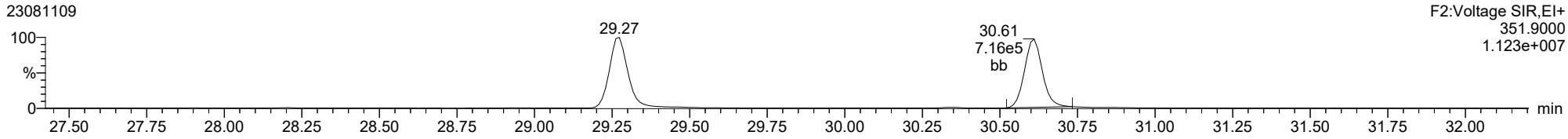
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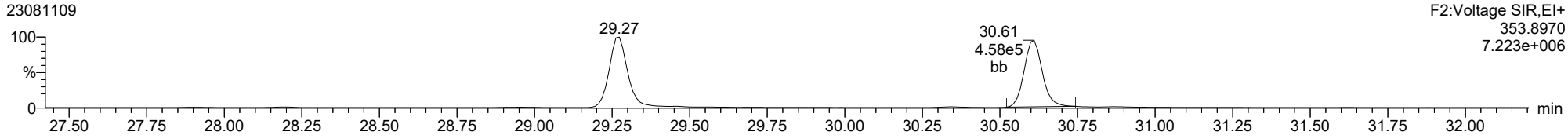
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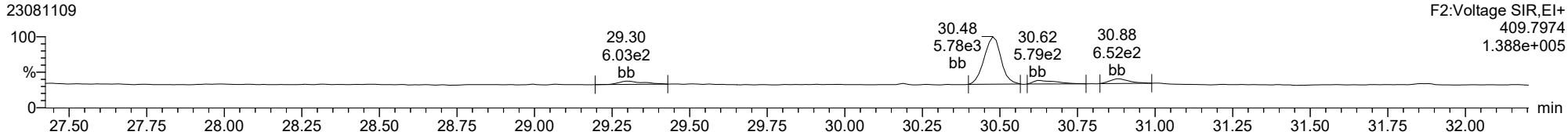
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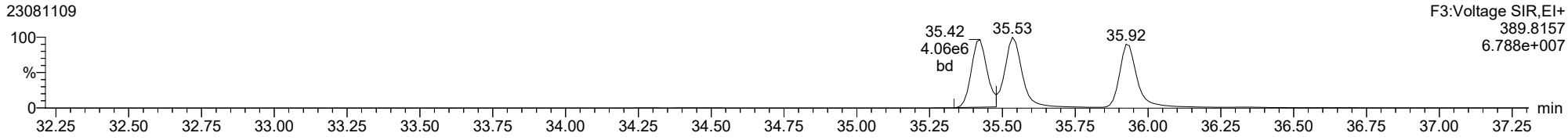


FUNCTION2 HPCDPE

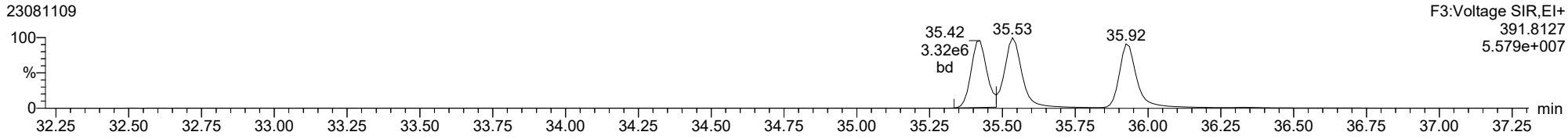


ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

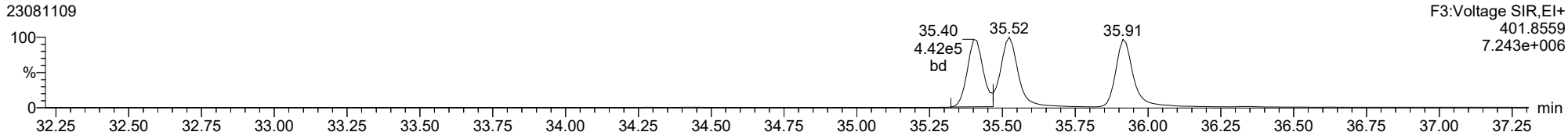
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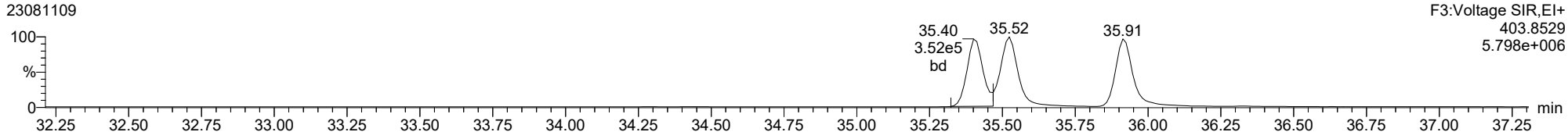
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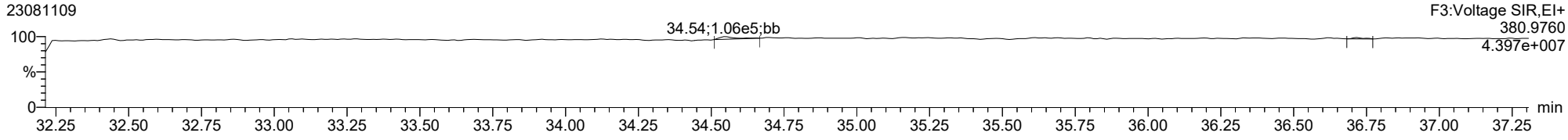
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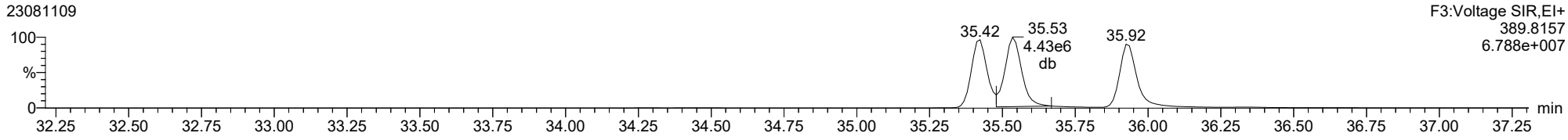


FUNCTION3 PFK

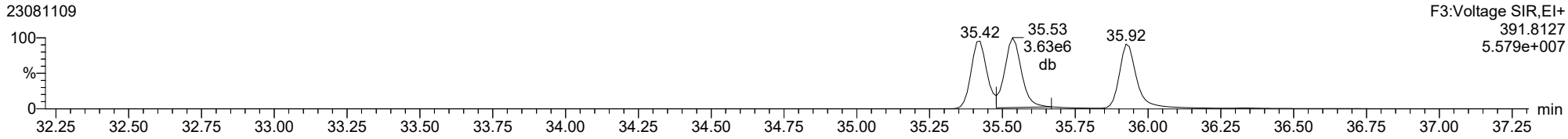


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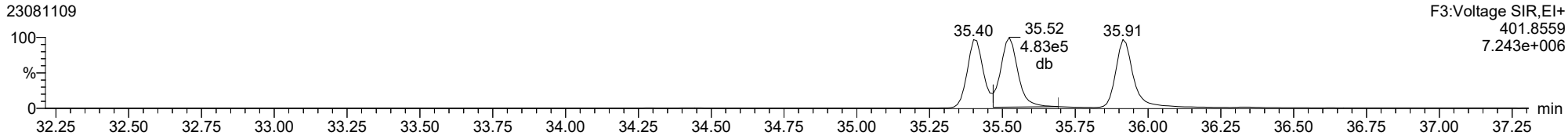
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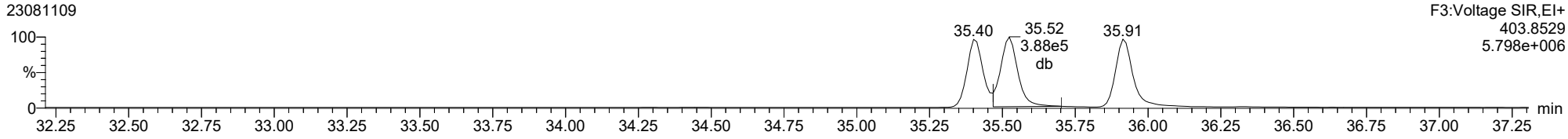
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13C-123678-HxCDD



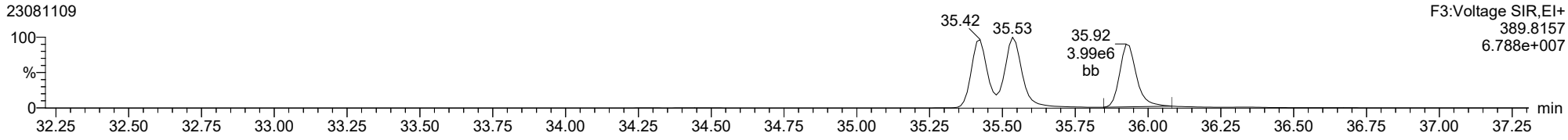
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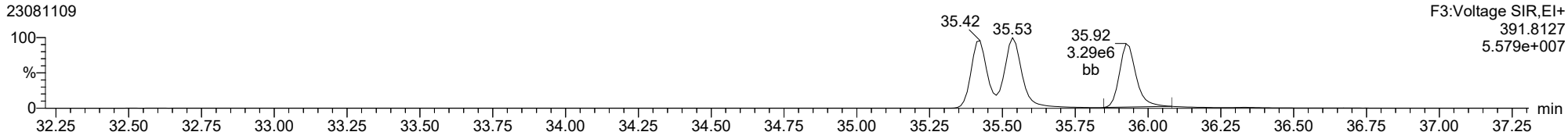
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ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

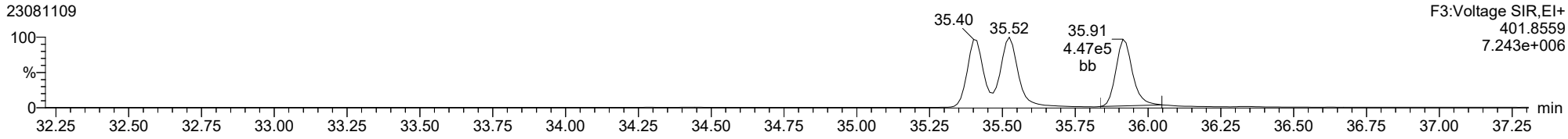
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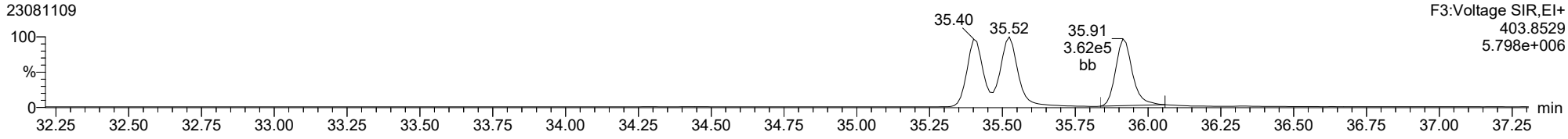
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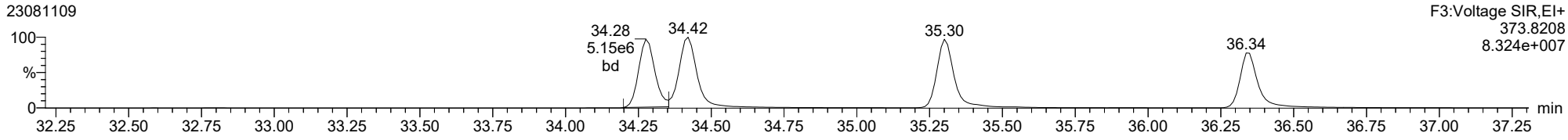


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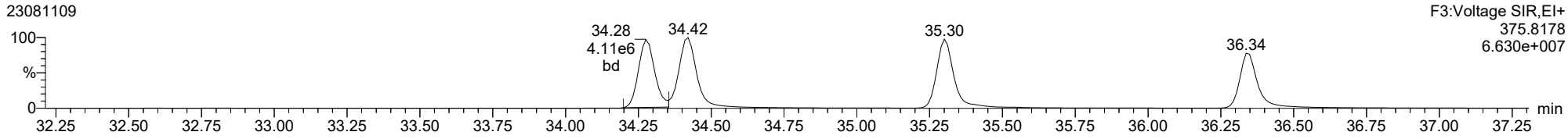


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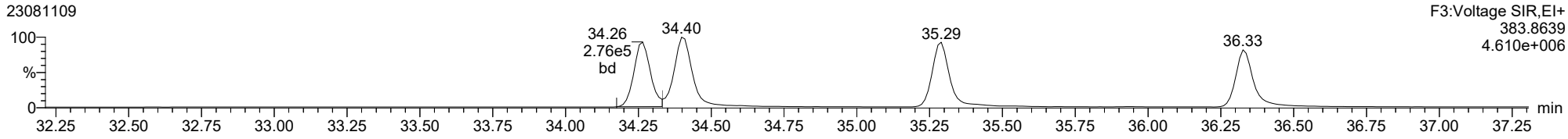
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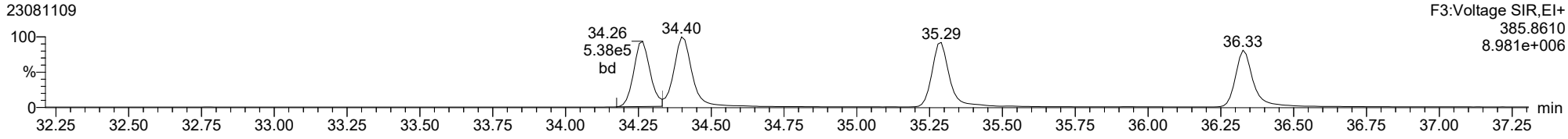
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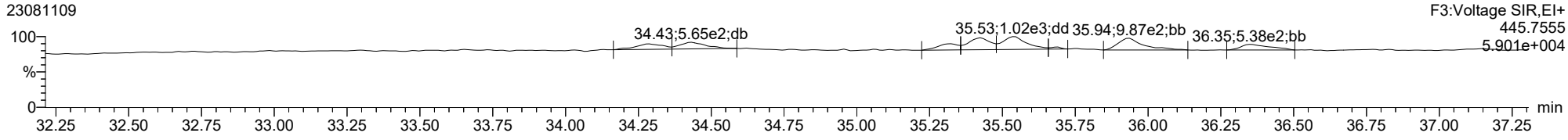
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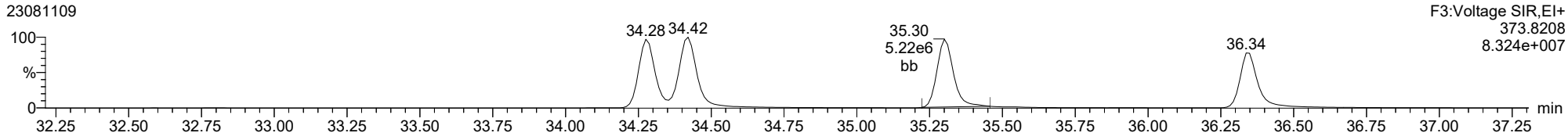


FUNCTION3 OCDPE

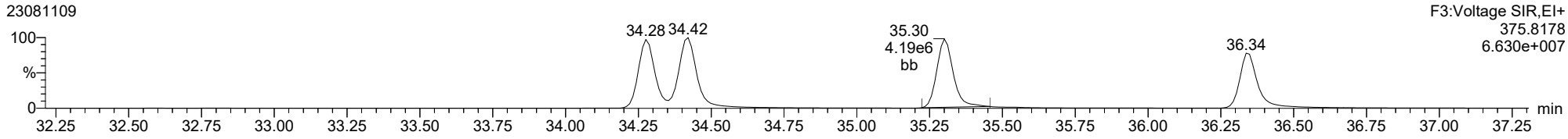


ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

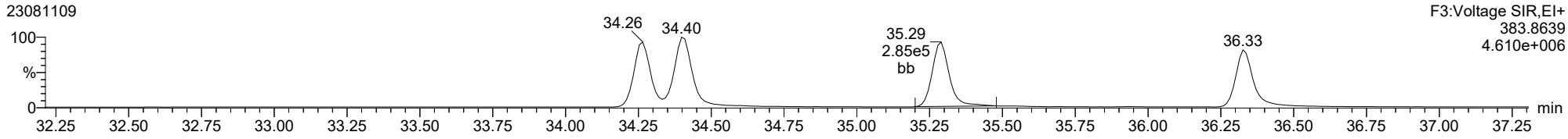
234678-HxCDF



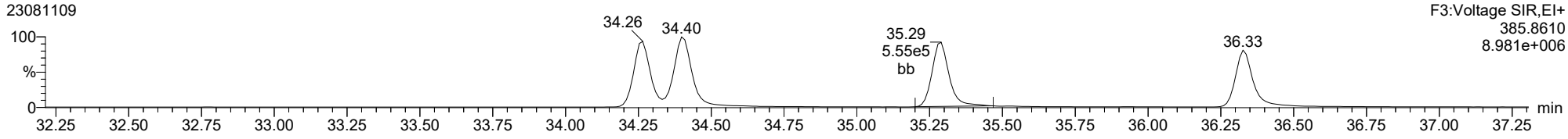
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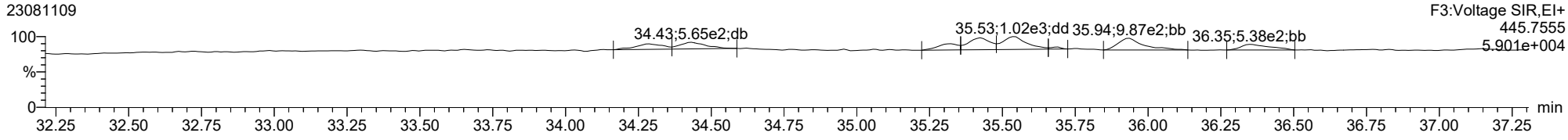
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13C-234678-HxCDF

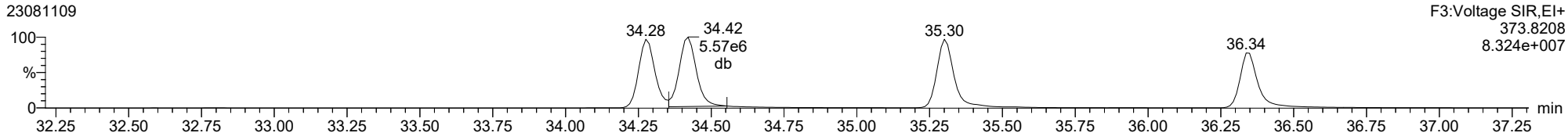


FUNCTION3 OCDPE

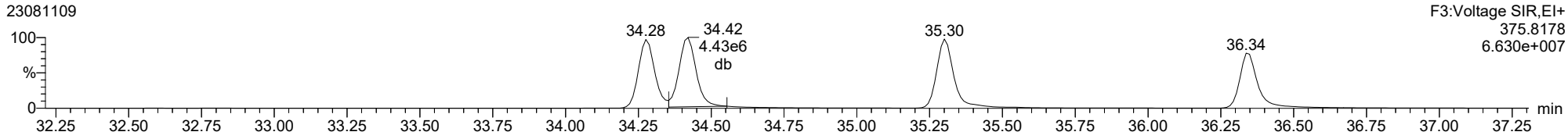


ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

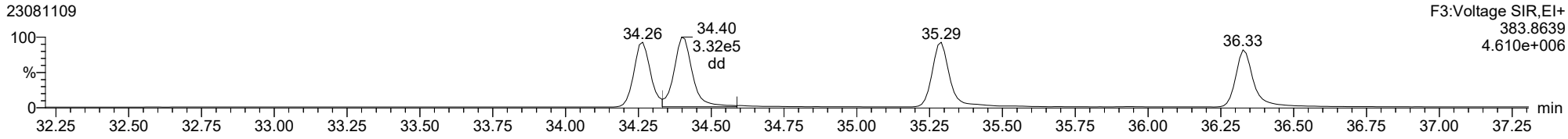
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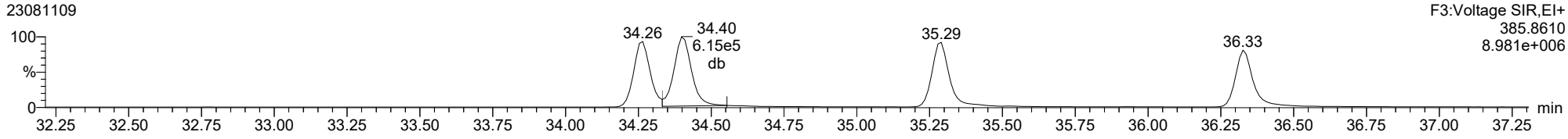
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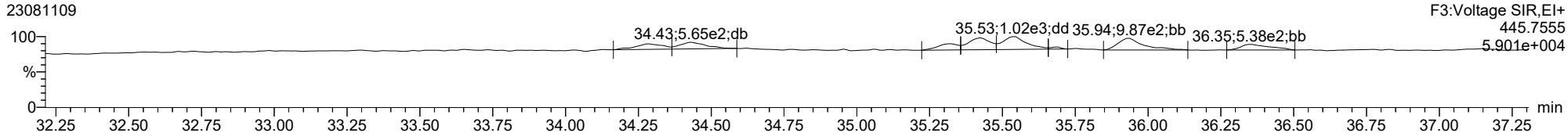
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13C-123678-HxCDF

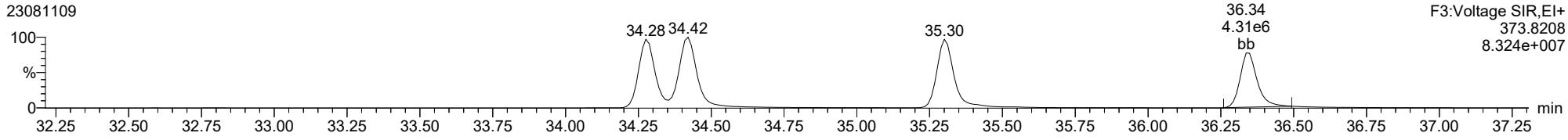


FUNCTION3 OCDPE

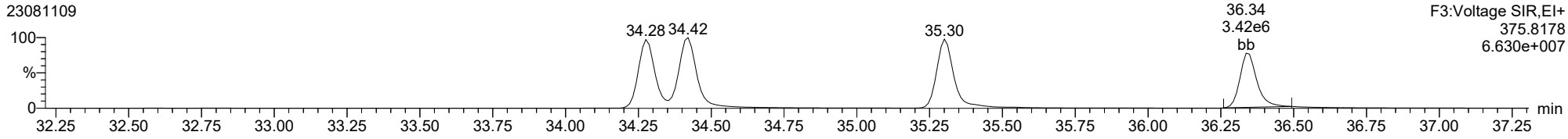


ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

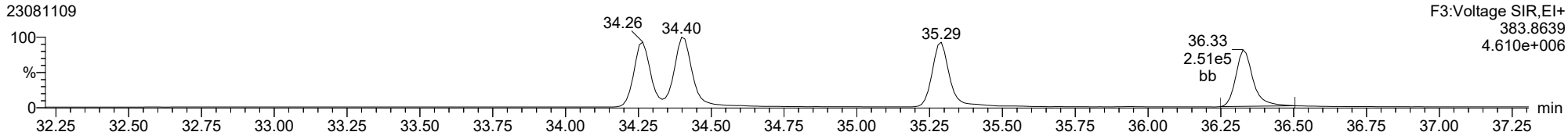
123789-HxCDF



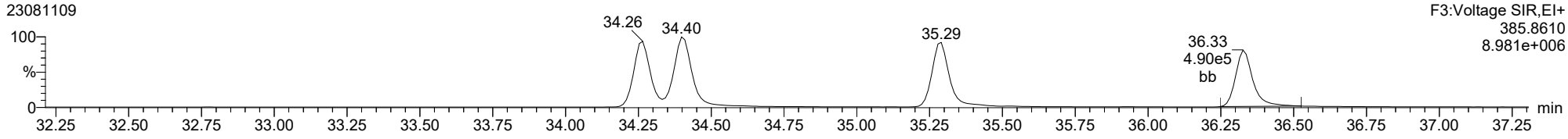
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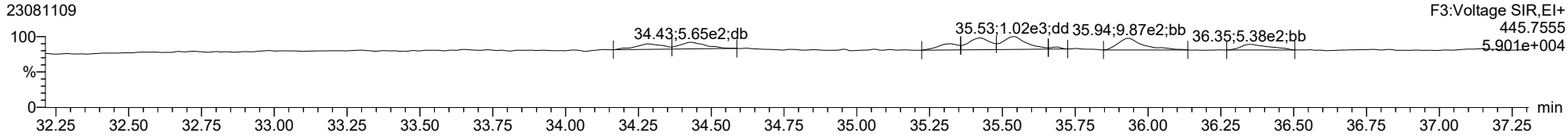
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13C-123789-HxCDF

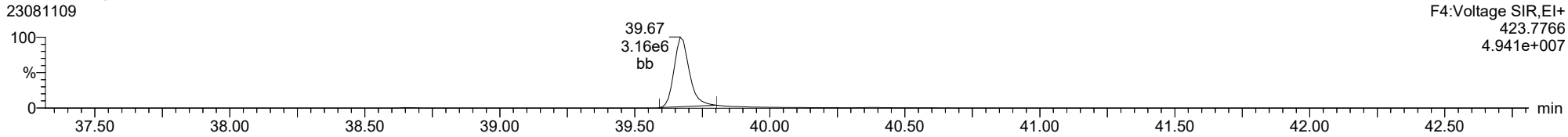


FUNCTION3 OCDPE

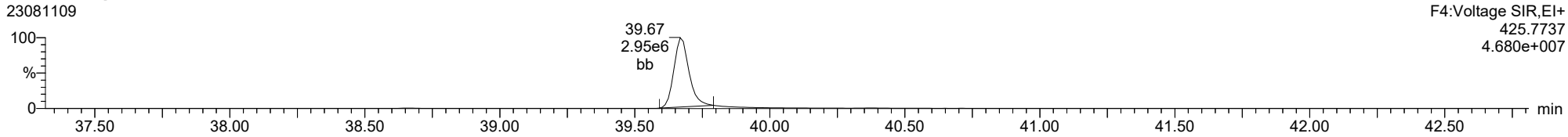


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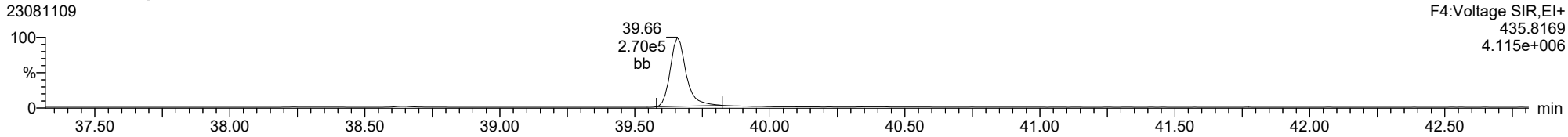
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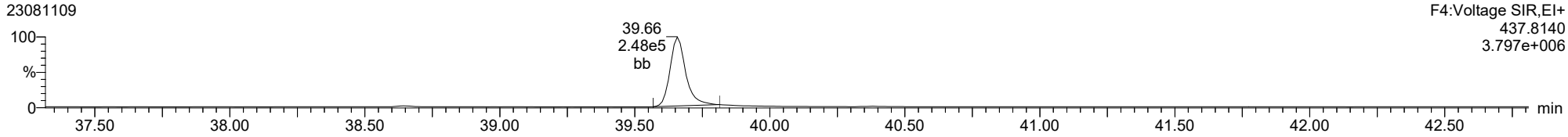
1234678-HpCDD



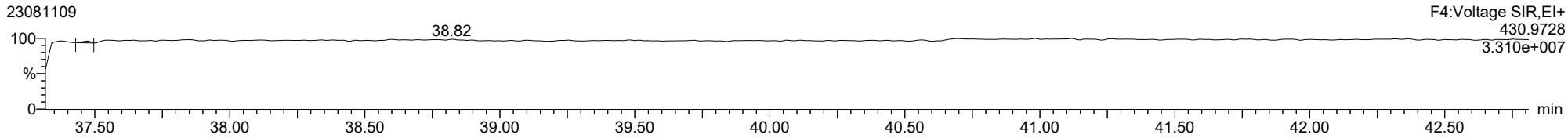
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13C-1234678-HpCDD

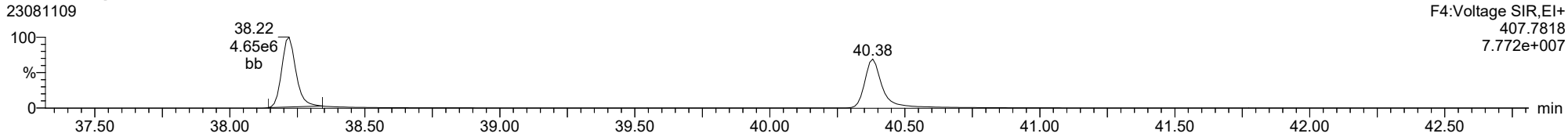


FUNCTION4 PFK

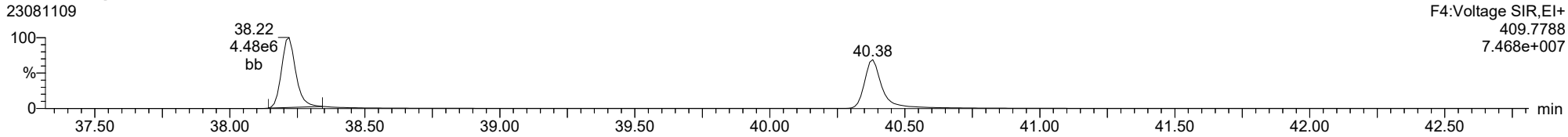


ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

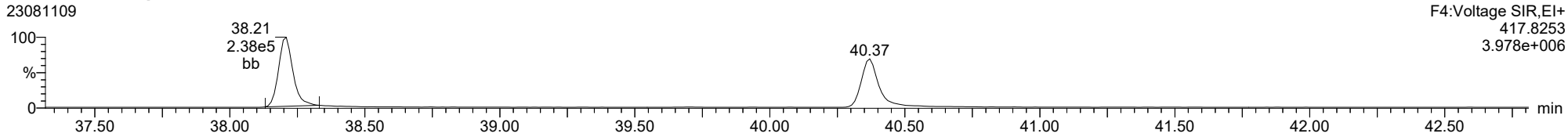
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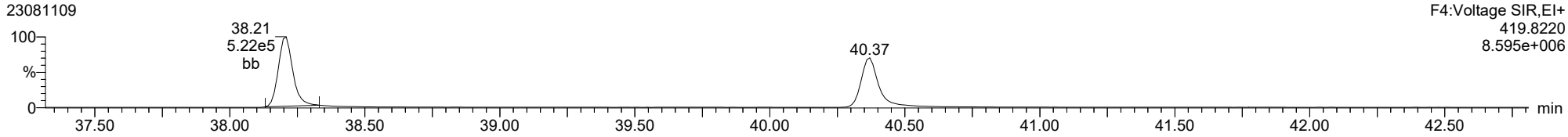
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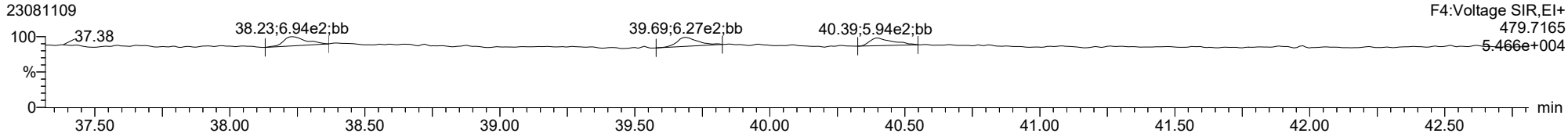
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13C-1234678-HpCDF

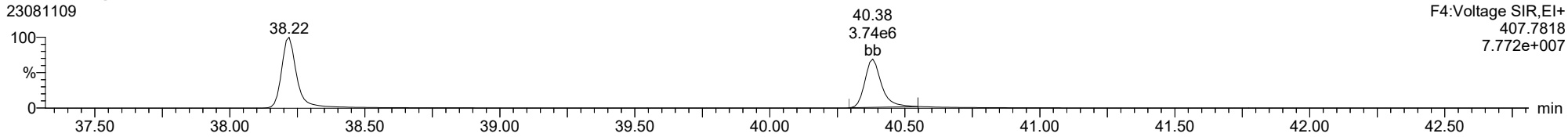


FUNCTION4 NCDPE

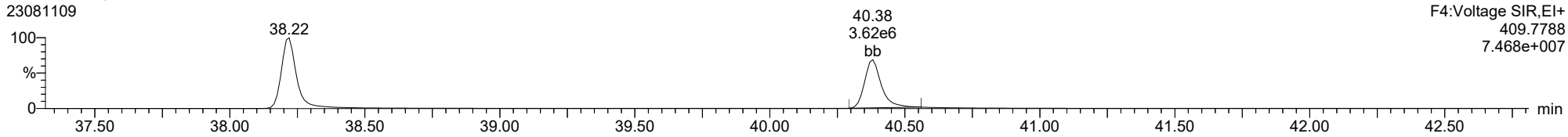


ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

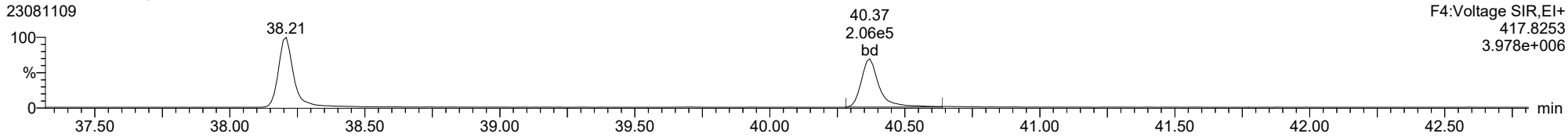
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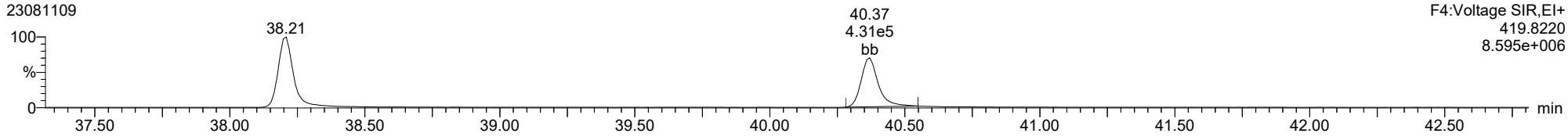
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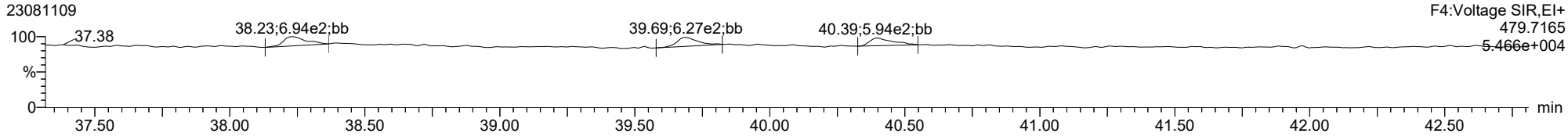
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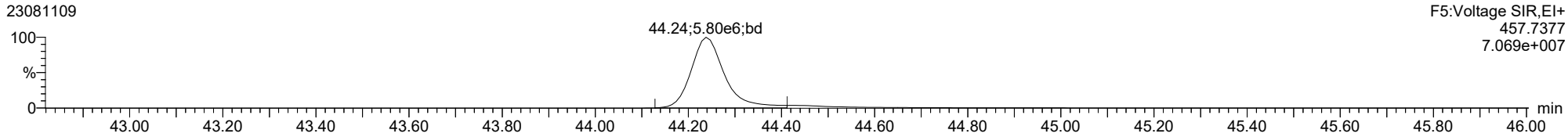


FUNCTION4 NCDPE

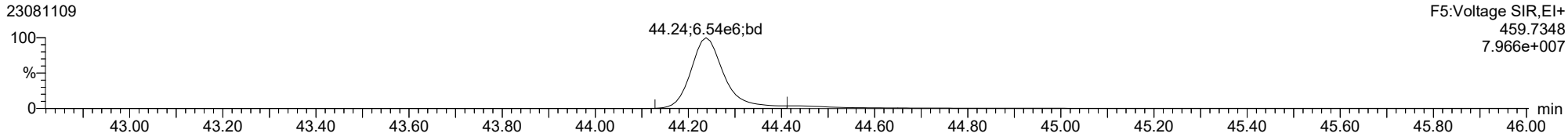


ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

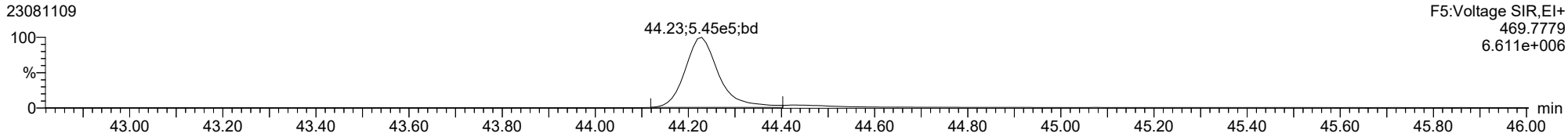
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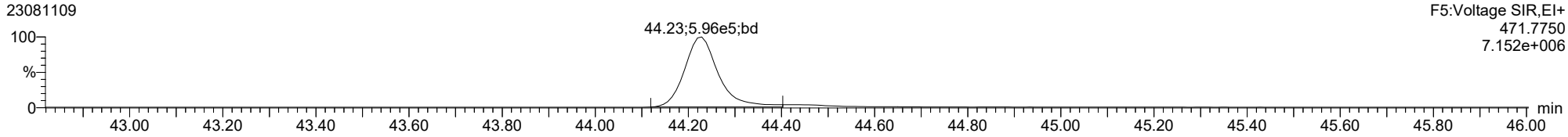
OCDD



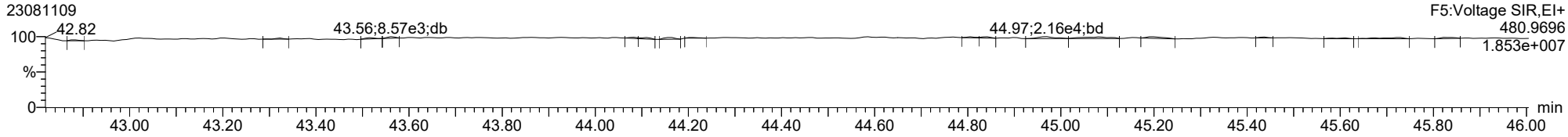
13C-OCDD



13C-OCDD

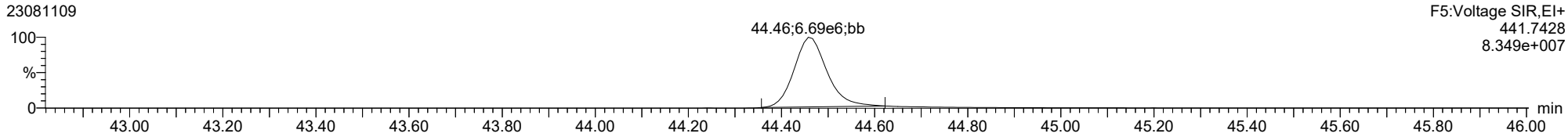


FUNCTION5 PFK

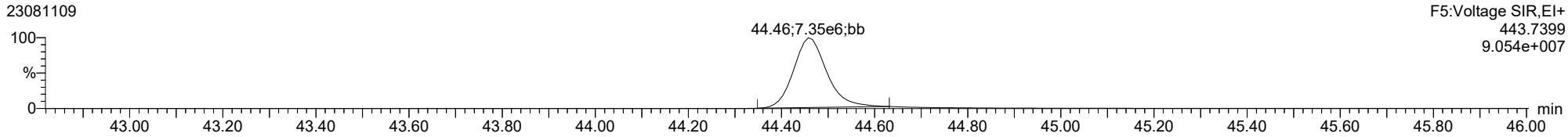


ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

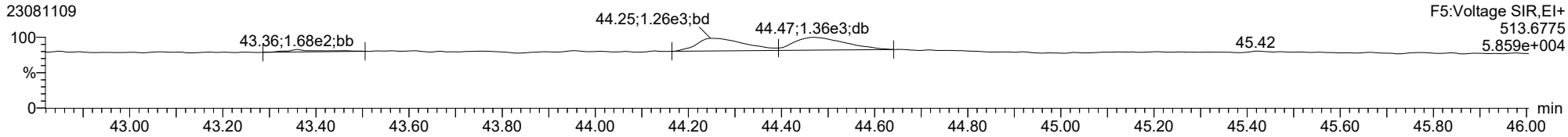
OCDF



OCDF

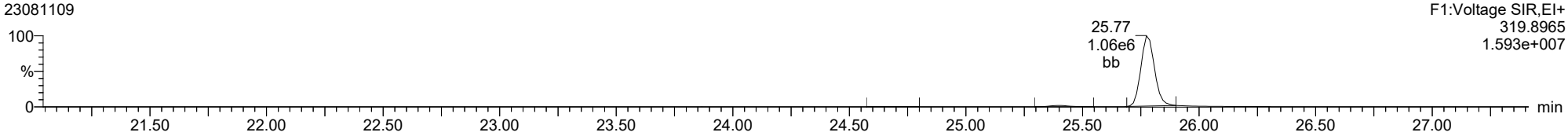


FUNCTION5 DCDPE

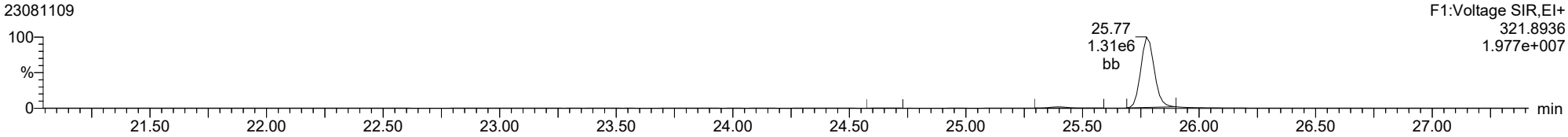


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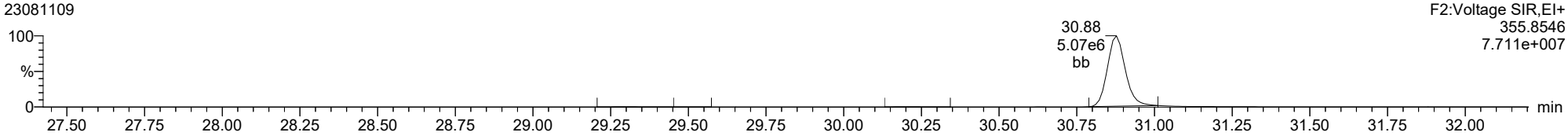
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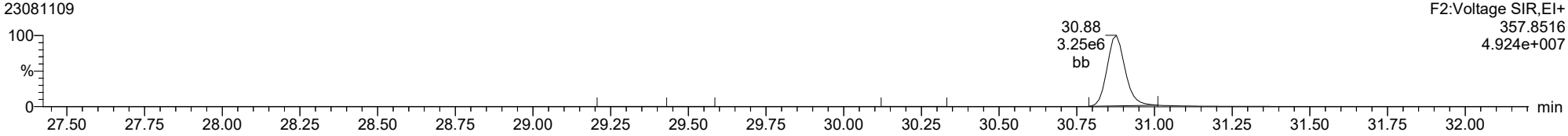
Total-tetradioxins



Total-pentadioxins



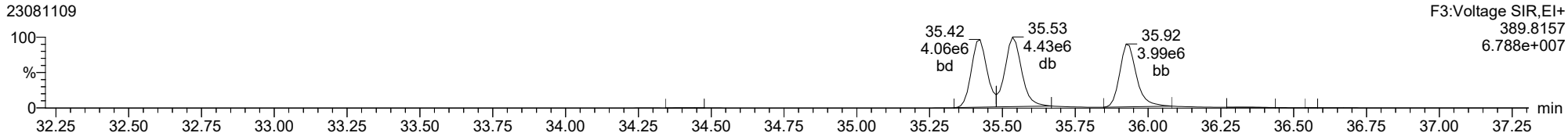
Total-pentadioxins



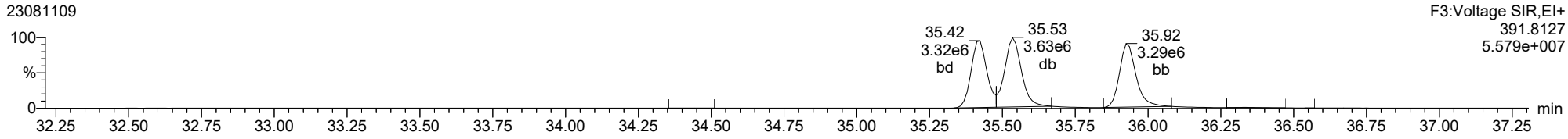
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Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:25:02 Pacific Daylight Time

ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

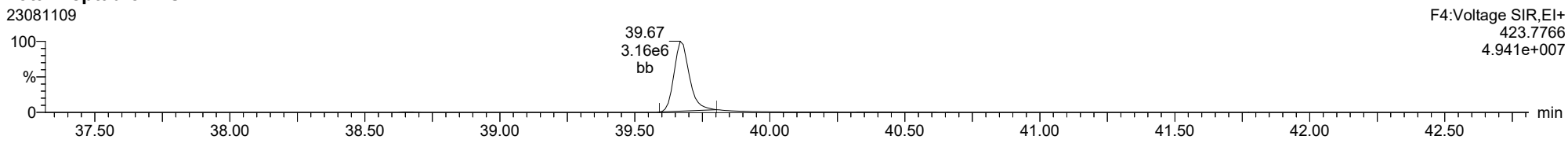
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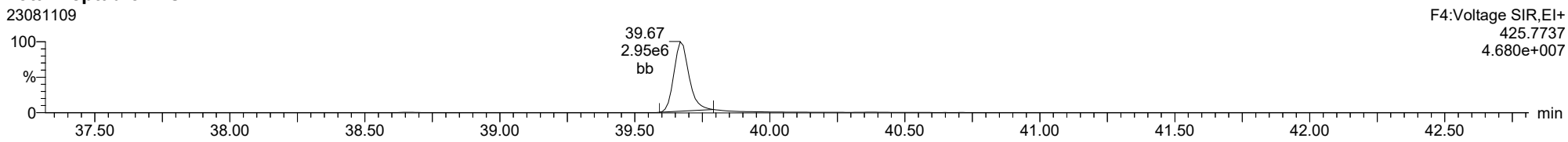
Total-hexadioxins



Total-heptadioxins

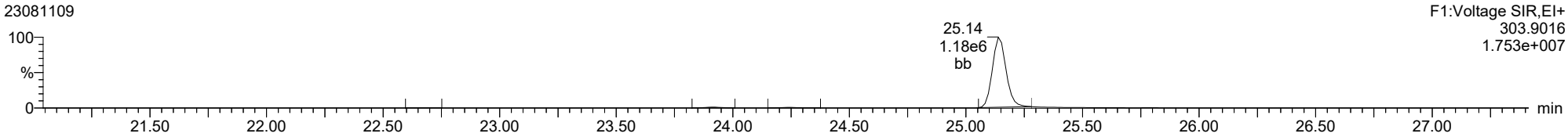


Total-heptadioxins

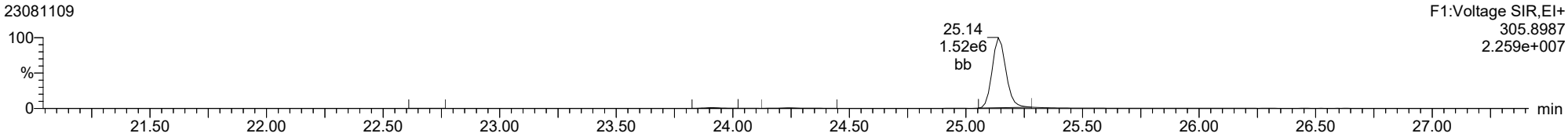


ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

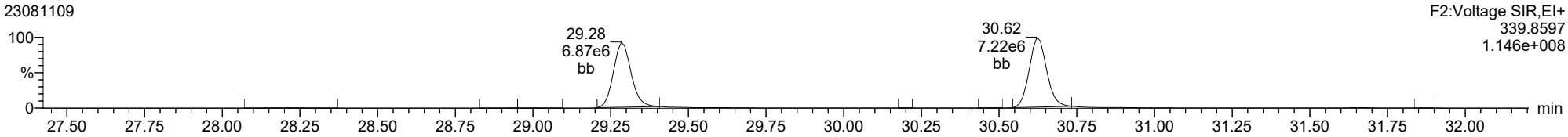
Total-tetrafurans



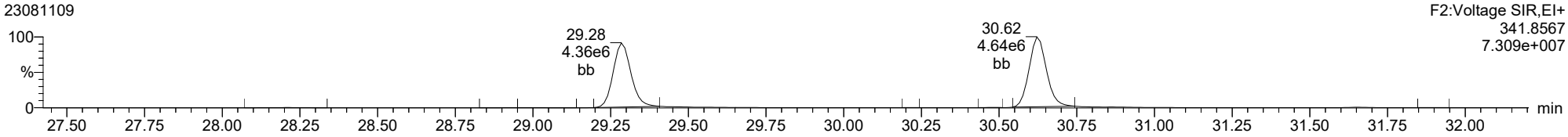
Total-tetrafurans



Total-pentafurans

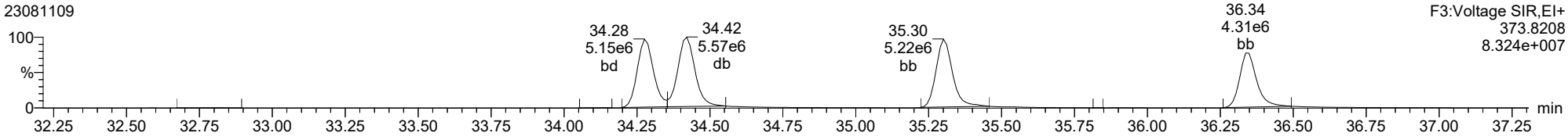


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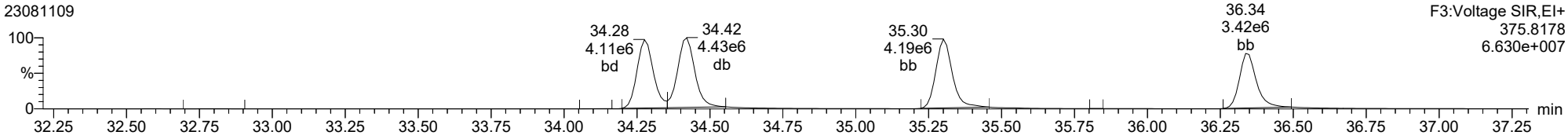


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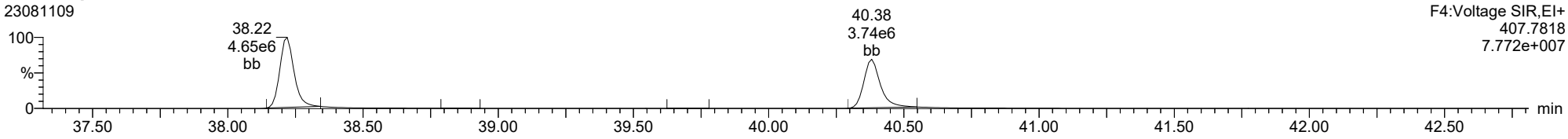
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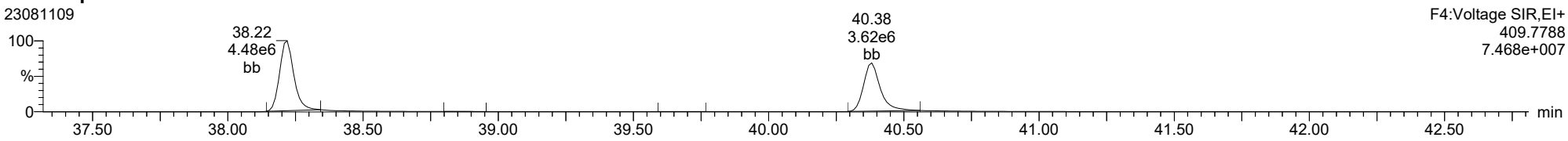
Total-hexafurans



Total-heptafurans



Total-heptafurans



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Printed: Tuesday, August 15, 2023 12:27:04 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 12 Aug 2023 10:54:09
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.139	1.001	7.423e4	9.642e4	0.903	0.770	0.770	1316	1323	1.10e6	1.40e6	835.9	1058.4	NO	bb	bb	9.781
12378-PeCDF	29.285	1.000	3.963e5	2.779e5	0.923	1.426	1.550	3241	2842	5.71e6	3.77e6	1762.0	1327.2	NO	bb	bb	49.295
23478-PeCDF	30.622	1.000	4.105e5	2.654e5	0.991	1.546	1.550	3241	2842	5.92e6	3.77e6	1825.5	1327.5	NO	bb	bb	50.524
123478-HxCDF	34.276	1.000	2.923e5	2.345e5	1.128	1.246	1.240	2958	2746	4.27e6	3.49e6	1442.8	1272.0	NO	bd	bd	50.046
234678-HxCDF	35.301	1.000	2.850e5	2.420e5	1.081	1.178	1.240	2958	2746	4.13e6	3.29e6	1395.6	1199.7	NO	bb	bd	52.928
123678-HxCDF	34.421	1.001	3.263e5	2.646e5	1.032	1.233	1.240	2958	2746	4.61e6	3.73e6	1557.6	1359.8	NO	db	db	50.926
123789-HxCDF	36.348	1.001	2.398e5	1.932e5	0.988	1.242	1.240	2958	2746	3.27e6	2.65e6	1106.6	965.1	NO	bb	bb	53.421
1234678-HpCDF	38.220	1.000	2.680e5	2.533e5	1.164	1.058	1.050	2121	2525	4.11e6	3.90e6	1936.6	1543.7	NO	bb	bb	51.933
1234789-HpCDF	40.381	1.000	2.267e5	1.989e5	1.104	1.140	1.050	2121	2525	2.82e6	2.56e6	1329.2	1014.9	NO	bd	bb	56.722
OCDF	44.458	1.005	3.318e5	3.955e5	1.130	0.839	0.890	2049	2908	3.61e6	4.04e6	1762.4	1389.6	NO	bb	bd	100.341
2378-TCDD	25.788	1.001	6.359e4	7.771e4	1.243	0.818	0.770	1854	1473	9.15e5	1.10e6	493.4	748.3	NO	bb	bb	9.852
12378-PeCDD	30.878	1.001	2.960e5	1.806e5	1.150	1.639	1.550	2737	2510	4.05e6	2.54e6	1479.9	1012.5	NO	bd	bb	52.791
123478-HxCDD	35.424	1.001	2.141e5	1.779e5	0.960	1.204	1.240	2122	2186	3.33e6	2.73e6	1570.0	1248.1	NO	bd	bd	47.771
123678-HxCDD	35.535	1.000	2.527e5	2.090e5	0.883	1.209	1.240	2122	2186	3.42e6	2.81e6	1612.0	1287.4	NO	db	db	50.765
123789-HxCDD	35.925	1.011	2.356e5	1.782e5	0.804	1.322	1.240	2122	2186	3.10e6	2.53e6	1463.2	1157.3	NO	bd	bb	54.634
1234678-HpCDD	39.668	1.000	1.732e5	1.629e5	1.200	1.063	1.050	2111	2786	2.44e6	2.37e6	1157.1	850.7	NO	bb	bb	48.260
OCDD	44.229	1.000	3.183e5	3.503e5	1.059	0.909	0.890	4632	2511	3.35e6	3.71e6	723.0	1476.0	NO	bd	bd	98.465
13C-2378-TCDF	25.125	1.007	8.531e5	1.079e6	1.835	0.791	0.770	1734	1865	1.24e7	1.58e7	7147.1	8470.2	NO	bb	bb	101.247
13C-12378-PeCDF	29.274	1.174	9.269e5	5.545e5	1.377	1.672	1.550	2784	3824	1.23e7	7.86e6	4432.1	2055.6	NO	bb	bb	103.526
13C-23478-PeCDF	30.611	1.227	8.254e5	5.250e5	1.301	1.572	1.550	2784	3824	1.18e7	7.52e6	4227.8	1966.9	NO	bb	bb	99.839
13C-123478-HxCDF	34.265	0.954	3.145e5	6.185e5	1.091	0.508	0.510	2630	3620	4.61e6	9.02e6	1752.2	2492.5	NO	bd	bd	95.308
13C-123678-HxCDF	34.398	0.958	4.041e5	7.199e5	1.340	0.561	0.510	2630	3620	5.11e6	9.77e6	1944.6	2698.4	NO	dd	db	93.428
13C-234678-HxCDF	35.290	0.983	3.107e5	6.101e5	1.093	0.509	0.510	2630	3620	4.39e6	8.59e6	1669.9	2373.8	NO	bb	bb	93.815
13C-123789-HxCDF	36.326	1.011	2.796e5	5.411e5	0.952	0.517	0.510	2630	3620	3.70e6	7.29e6	1405.3	2013.9	NO	bb	bb	96.081
13C-1234678-HpCDF	38.209	1.064	2.670e5	5.956e5	0.985	0.448	0.440	3962	3758	3.99e6	8.90e6	1008.0	2367.0	NO	bb	bb	97.565
13C-1234789-HpCDF	40.370	1.124	2.132e5	4.666e5	0.756	0.457	0.440	3962	3758	2.79e6	6.08e6	702.9	1616.6	NO	bb	bb	100.207
13C-1234-TCDD	24.941	0.000	4.631e5	5.764e5	1.000	0.803	0.770	1709	1577	6.86e6	8.64e6	4013.1	5475.2	NO	bb	bb	100.000
13C-2378-TCDD	25.760	1.033	5.173e5	6.367e5	1.110	0.812	0.770	1709	1577	7.53e6	9.46e6	4405.6	5997.8	NO	bb	bb	100.045
13C-12378-PeCDD	30.855	1.237	4.863e5	2.988e5	0.754	1.628	1.550	1036	1090	6.82e6	4.17e6	6584.7	3824.7	NO	bb	bb	100.204
13C-123478-HxCDD	35.401	0.986	4.756e5	3.789e5	0.960	1.255	1.240	1331	1854	6.97e6	5.62e6	5236.7	3029.1	NO	bd	bd	99.178
13C-123678-HxCDD	35.524	0.989	5.763e5	4.540e5	1.159	1.269	1.240	1331	1854	7.56e6	6.04e6	5683.5	3256.1	NO	db	db	99.014
13C-1234678-HpCDD	39.657	1.104	3.002e5	2.803e5	0.629	1.071	1.050	1654	2361	4.12e6	3.81e6	2488.1	1614.7	NO	bb	bb	102.767
13C-OCDD	44.220	1.231	6.178e5	6.649e5	0.635	0.929	0.890	3963	2769	6.36e6	6.86e6	1605.4	2476.0	NO	bd	bd	224.998
13C-123789-HxCDD	35.914	0.000	4.983e5	3.993e5	1.000	1.248	1.240	1331	1854	6.97e6	5.63e6	5241.4	3033.7	NO	bb	bb	100.000
37CL-2378-TCDD	25.774	1.033	1.166e5		1.157			1488		1.68e6		1126.4			bb		9.694

Dataset: T:\Autospec\Processed Data Batch\230811CCVIH.qld
Last Altered: Tuesday, August 15, 2023 12:26:06 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:27:04 Pacific Daylight Time

ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.664	0.862	9.752e4	1.225e5	1.170	0.796	0.770	1316	1323	1.51e6	1.89e6	1144.8	1427.5	NO	bb	bb	9.732
1289-TCDF	26.636	1.060	6.770e4	8.840e4	0.847	0.766	0.770	1316	1323	9.36e5	1.22e6	710.9	924.9	NO	db	bb	9.543
13468-PECDF	26.495	0.905	4.921e5	3.243e5	1.241	1.518	1.550	812	936	7.49e6	4.93e6	9225.9	5269.7	NO	bb	bb	44.409
12389-PECDF	31.658	1.081	3.855e5	2.595e5	0.880	1.486	1.550	3241	2842	5.21e6	3.30e6	1607.8	1162.2	NO	bb	bb	49.498
123468-HXCDF	32.583	0.951	3.185e5	2.569e5	1.206	1.240	1.240	2958	2746	4.47e6	3.54e6	1512.4	1287.4	NO	bb	bb	51.156
1368-TCDD	22.921	0.890	6.370e4	7.877e4	1.181	0.809	0.770	1854	1473	9.95e5	1.24e6	537.0	842.9	NO	bb	bb	10.456
1289-TCDD	26.382	1.024	5.199e4	6.302e4	0.963	0.825	0.770	1854	1473	7.14e5	8.77e5	385.3	595.0	NO	bb	bb	10.352
12479-PECDD	28.170	0.913	5.112e5	3.251e5	2.166	1.572	1.550	2737	2510	4.87e6	3.05e6	1779.7	1215.0	NO	bb	bb	49.173
12389-PECDD	31.279	1.014	3.184e5	2.148e5	1.326	1.482	1.550	2737	2510	4.32e6	2.75e6	1579.5	1093.9	NO	bb	bd	51.214
124679-HXCDD	33.374	0.943	2.500e5	2.168e5	1.127	1.153	1.240	2122	2186	3.56e6	2.93e6	1679.9	1340.1	NO	bb	bd	48.490
1234679-HPCDD	38.654	0.975	1.961e5	1.871e5	1.303	1.048	1.050	2111	2786	2.89e6	2.79e6	1368.8	999.6	NO	bb	bb	50.665
Total-tetrafurans			2.407e5		0.973			1316		3.56e6							29.212
Total-penta1			4.921e5					812		7.49e6							44.409
Total-pentafurans			1.261e6		0.931			3241		1.78e7							157.799
Total-hexafurans			1.462e6		1.087			2958		2.08e7							258.476
Total-heptafurans			4.947e5		1.134			2121		6.93e6							108.655
Total-Furans			4.282e6		1.053			1316		6.01e7							698.892
Total-tetradioxins			3.051e5		1.129			1854		4.05e6							52.353
Total-pentadioxins			1.128e6		1.548			2737		1.33e7							153.490
Total-hexadioxins			9.524e5		0.943			2122		1.34e7							201.659
Total-heptadioxins			3.692e5		1.251			2111		5.33e6							98.925
Total-Dioxins			3.073e6		1.182			1854		3.94e7							604.892
Total-TEQ			7.355e6					1854		9.96e7							1303.783
FUNCTION1 PFK			7.808e5					486759		1.68e7							
FUNCTION2 PFK			7.449e5					276212		1.82e7							0.000
FUNCTION3 PFK			8.836e5					361131		2.05e7							0.000
FUNCTION4 PFK			6.975e6					270910		2.31e7							
FUNCTION5 PFK			1.157e5					191309		4.19e6							
FUNCTION1 HXCD...			1.143e2					591		2.28e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			6.533e2					947		1.28e4							0.000
FUNCTION3 OCDPE			7.108e2					608		9.70e3							0.000
FUNCTION4 NCDPE			1.803e2					753		2.86e3							0.000
FUNCTION5 DCDPE			8.904e1					515		1.37e3							0.000

Method: T:\Autospec\Methods\Dioxin230810.mdb 12 Aug 2023 10:54:09
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	6.770e4	8.840e4	0.847	0.77	0.77	710.9	YES	NO	db	bb	9.543
2	2378-TCDF	25.14	7.423e4	9.642e4	0.903	0.77	0.77	835.9	YES	NO	bb	bb	9.781
3	Total-tetrafurans	24.07	5.766e2	7.507e2	0.973	0.77	0.77	6.9	YES	NO	db	dd	0.071
4	Total-tetrafurans	23.92	6.836e2	9.178e2	0.973	0.74	0.77	8.0	YES	NO	bd	bd	0.085
5	1368-TCDF	21.66	9.752e4	1.225e5	1.170	0.80	0.77	1144.8	YES	NO	bb	bb	9.732

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.49	4.921e5	3.243e5	1.241	1.52	1.55	9225.9	YES	NO	bb	bb	44.409

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	31.66	3.855e5	2.595e5	0.880	1.49	1.55	1607.8	YES	NO	bb	bb	49.498
2	23478-PeCDF	30.62	4.105e5	2.654e5	0.991	1.55	1.55	1825.5	YES	NO	bb	bb	50.524
3	12378-PeCDF	29.28	3.963e5	2.779e5	0.923	1.43	1.55	1762.0	YES	NO	bb	bb	49.295
4	Total-pentafurans	28.15	6.847e4	4.336e4	0.931	1.58	1.55	295.6	YES	NO	bb	bb	8.482

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.35	2.398e5	1.932e5	0.988	1.24	1.24	1106.6	YES	NO	bb	bb	53.421
2	234678-HxCDF	35.30	2.850e5	2.420e5	1.081	1.18	1.24	1395.6	YES	NO	bb	bd	52.928
3	123678-HxCDF	34.42	3.263e5	2.646e5	1.032	1.23	1.24	1557.6	YES	NO	db	db	50.926
4	123478-HxCDF	34.28	2.923e5	2.345e5	1.128	1.25	1.24	1442.8	YES	NO	bd	bd	50.046
5	123468-HXCDF	32.58	3.185e5	2.569e5	1.206	1.24	1.24	1512.4	YES	NO	bb	bb	51.156

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.38	2.267e5	1.989e5	1.104	1.14	1.05	1329.2	YES	NO	bd	bb	56.722
2	1234678-HpCDF	38.22	2.680e5	2.533e5	1.164	1.06	1.05	1936.6	YES	NO	bb	bb	51.933

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	6.770e4	8.840e4	0.847	0.77	0.77	710.9	YES	NO	db	bb	9.543
2	2378-TCDF	25.14	7.423e4	9.642e4	0.903	0.77	0.77	835.9	YES	NO	bb	bb	9.781
3	Total-tetrafurans	24.07	5.766e2	7.507e2	0.973	0.77	0.77	6.9	YES	NO	db	dd	0.071
4	Total-tetrafurans	23.92	6.836e2	9.178e2	0.973	0.74	0.77	8.0	YES	NO	bd	bd	0.085
5	1368-TCDF	21.66	9.752e4	1.225e5	1.170	0.80	0.77	1144.8	YES	NO	bb	bb	9.732
6	12389-PECDF	31.66	3.855e5	2.595e5	0.880	1.49	1.55	1607.8	YES	NO	bb	bb	49.498
7	23478-PeCDF	30.62	4.105e5	2.654e5	0.991	1.55	1.55	1825.5	YES	NO	bb	bb	50.524
8	12378-PeCDF	29.28	3.963e5	2.779e5	0.923	1.43	1.55	1762.0	YES	NO	bb	bb	49.295
9	Total-pentafurans	28.15	6.847e4	4.336e4	0.931	1.58	1.55	295.6	YES	NO	bb	bb	8.482
10	123789-HxCDF	36.35	2.398e5	1.932e5	0.988	1.24	1.24	1106.6	YES	NO	bb	bb	53.421
11	234678-HxCDF	35.30	2.850e5	2.420e5	1.081	1.18	1.24	1395.6	YES	NO	bb	bd	52.928
12	123678-HxCDF	34.42	3.263e5	2.646e5	1.032	1.23	1.24	1557.6	YES	NO	db	db	50.926
13	123478-HxCDF	34.28	2.923e5	2.345e5	1.128	1.25	1.24	1442.8	YES	NO	bd	bd	50.046
14	123468-HXCDF	32.58	3.185e5	2.569e5	1.206	1.24	1.24	1512.4	YES	NO	bb	bb	51.156
15	1234789-HpCDF	40.38	2.267e5	1.989e5	1.104	1.14	1.05	1329.2	YES	NO	bd	bb	56.722
16	1234678-HpCDF	38.22	2.680e5	2.533e5	1.164	1.06	1.05	1936.6	YES	NO	bb	bb	51.933
17	OCDF	44.46	3.318e5	3.955e5	1.130	0.84	0.89	1762.4	YES	NO	bb	bd	100.341
18	13468-PECDF	26.49	4.921e5	3.243e5	1.241	1.52	1.55	9225.9	YES	NO	bb	bb	44.409

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.38	5.199e4	6.302e4	0.963	0.82	0.77	385.3	YES	NO	bb	bb	10.352
2	2378-TCDD	25.79	6.359e4	7.771e4	1.243	0.82	0.77	493.4	YES	NO	bb	bb	9.852
3	Total-tetradioxins	25.45	9.235e4	1.156e5	1.129	0.80	0.77	502.7	YES	NO	bb	bb	15.965
4	Total-tetradioxins	24.97	3.090e4	3.807e4	1.129	0.81	0.77	253.5	YES	NO	bb	bb	5.294
5	Total-tetradioxins	24.12	2.526e3	3.134e3	1.129	0.81	0.77	12.9	YES	NO	bb	bb	0.435
6	1368-TCDD	22.92	6.370e4	7.877e4	1.181	0.81	0.77	537.0	YES	NO	bb	bb	10.456

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12479-PECDD	28.17	5.112e5	3.251e5	2.166	1.57	1.55	1779.7	YES	NO	bb	bb	49.173
2	12389-PECDD	31.28	3.184e5	2.148e5	1.326	1.48	1.55	1579.5	YES	NO	bb	bd	51.214
3	12378-PeCDD	30.88	2.960e5	1.806e5	1.150	1.64	1.55	1479.9	YES	NO	bd	bb	52.791
4	Total-pentadioxins	30.21	1.196e3	8.873e2	1.548	1.35	1.55	5.6	YES	NO	bb	bb	0.172
5	Total-pentadioxins	29.28	9.733e2	7.308e2	1.548	1.33	1.55	4.7	YES	NO	bb	bb	0.140

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDD	35.42	2.141e5	1.779e5	0.960	1.20	1.24	1570.0	YES	NO	bd	bd	47.771
2	124679-HXCDD	33.37	2.500e5	2.168e5	1.127	1.15	1.24	1679.9	YES	NO	bb	bd	48.490
3	123789-HxCDD	35.92	2.356e5	1.782e5	0.804	1.32	1.24	1463.2	YES	NO	bd	bb	54.634
4	123678-HxCDD	35.53	2.527e5	2.090e5	0.883	1.21	1.24	1612.0	YES	NO	db	db	50.765

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234679-HPCDD	38.65	1.961e5	1.871e5	1.303	1.05	1.05	1368.8	YES	NO	bb	bb	50.665
2	1234678-HpCDD	39.67	1.732e5	1.629e5	1.200	1.06	1.05	1157.1	YES	NO	bb	bb	48.260

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.38	5.199e4	6.302e4	0.963	0.82	0.77	385.3	YES	NO	bb	bb	10.352
2	2378-TCDD	25.79	6.359e4	7.771e4	1.243	0.82	0.77	493.4	YES	NO	bb	bb	9.852
3	Total-tetradioxins	25.45	9.235e4	1.156e5	1.129	0.80	0.77	502.7	YES	NO	bb	bb	15.965
4	Total-tetradioxins	24.97	3.090e4	3.807e4	1.129	0.81	0.77	253.5	YES	NO	bb	bb	5.294
5	Total-tetradioxins	24.12	2.526e3	3.134e3	1.129	0.81	0.77	12.9	YES	NO	bb	bb	0.435
6	1368-TCDD	22.92	6.370e4	7.877e4	1.181	0.81	0.77	537.0	YES	NO	bb	bb	10.456
7	12479-PECDD	28.17	5.112e5	3.251e5	2.166	1.57	1.55	1779.7	YES	NO	bb	bb	49.173
8	12389-PECDD	31.28	3.184e5	2.148e5	1.326	1.48	1.55	1579.5	YES	NO	bb	bd	51.214
9	12378-PeCDD	30.88	2.960e5	1.806e5	1.150	1.64	1.55	1479.9	YES	NO	bd	bb	52.791
10	Total-pentadioxins	30.21	1.196e3	8.873e2	1.548	1.35	1.55	5.6	YES	NO	bb	bb	0.172
11	Total-pentadioxins	29.28	9.733e2	7.308e2	1.548	1.33	1.55	4.7	YES	NO	bb	bb	0.140
12	123478-HxCDD	35.42	2.141e5	1.779e5	0.960	1.20	1.24	1570.0	YES	NO	bd	bd	47.771
13	124679-HXCDD	33.37	2.500e5	2.168e5	1.127	1.15	1.24	1679.9	YES	NO	bb	bd	48.490
14	123789-HxCDD	35.92	2.356e5	1.782e5	0.804	1.32	1.24	1463.2	YES	NO	bd	bb	54.634
15	123678-HxCDD	35.53	2.527e5	2.090e5	0.883	1.21	1.24	1612.0	YES	NO	db	db	50.765
16	1234679-HPCDD	38.65	1.961e5	1.871e5	1.303	1.05	1.05	1368.8	YES	NO	bb	bb	50.665
17	1234678-HpCDD	39.67	1.732e5	1.629e5	1.200	1.06	1.05	1157.1	YES	NO	bb	bb	48.260
18	OCDD	44.23	3.183e5	3.503e5	1.059	0.91	0.89	723.0	YES	NO	bd	bd	98.465

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	6.770e4	8.840e4	0.847	0.77	0.77	710.9	YES	NO	db	bb	9.543
2	2378-TCDF	25.14	7.423e4	9.642e4	0.903	0.77	0.77	835.9	YES	NO	bb	bb	9.781
3	Total-tetrafurans	24.07	5.766e2	7.507e2	0.973	0.77	0.77	6.9	YES	NO	db	dd	0.071
4	Total-tetrafurans	23.92	6.836e2	9.178e2	0.973	0.74	0.77	8.0	YES	NO	bd	bd	0.085
5	1368-TCDF	21.66	9.752e4	1.225e5	1.170	0.80	0.77	1144.8	YES	NO	bb	bb	9.732
6	12389-PECDF	31.66	3.855e5	2.595e5	0.880	1.49	1.55	1607.8	YES	NO	bb	bb	49.498
7	23478-PeCDF	30.62	4.105e5	2.654e5	0.991	1.55	1.55	1825.5	YES	NO	bb	bb	50.524
8	12378-PeCDF	29.28	3.963e5	2.779e5	0.923	1.43	1.55	1762.0	YES	NO	bb	bb	49.295
9	Total-pentafurans	28.15	6.847e4	4.336e4	0.931	1.58	1.55	295.6	YES	NO	bb	bb	8.482
10	123789-HxCDF	36.35	2.398e5	1.932e5	0.988	1.24	1.24	1106.6	YES	NO	bb	bb	53.421
11	234678-HxCDF	35.30	2.850e5	2.420e5	1.081	1.18	1.24	1395.6	YES	NO	bb	bd	52.928
12	123678-HxCDF	34.42	3.263e5	2.646e5	1.032	1.23	1.24	1557.6	YES	NO	db	db	50.926
13	123478-HxCDF	34.28	2.923e5	2.345e5	1.128	1.25	1.24	1442.8	YES	NO	bd	bd	50.046
14	123468-HXCDF	32.58	3.185e5	2.569e5	1.206	1.24	1.24	1512.4	YES	NO	bb	bb	51.156
15	1234789-HpCDF	40.38	2.267e5	1.989e5	1.104	1.14	1.05	1329.2	YES	NO	bd	bb	56.722
16	1234678-HpCDF	38.22	2.680e5	2.533e5	1.164	1.06	1.05	1936.6	YES	NO	bb	bb	51.933
17	OCDF	44.46	3.318e5	3.955e5	1.130	0.84	0.89	1762.4	YES	NO	bb	bd	100.341
18	13468-PECDF	26.49	4.921e5	3.243e5	1.241	1.52	1.55	9225.9	YES	NO	bb	bb	44.409
19	1289-TCDD	26.38	5.199e4	6.302e4	0.963	0.82	0.77	385.3	YES	NO	bb	bb	10.352
20	2378-TCDD	25.79	6.359e4	7.771e4	1.243	0.82	0.77	493.4	YES	NO	bb	bb	9.852
21	Total-tetradioxins	25.45	9.235e4	1.156e5	1.129	0.80	0.77	502.7	YES	NO	bb	bb	15.965
22	Total-tetradioxins	24.97	3.090e4	3.807e4	1.129	0.81	0.77	253.5	YES	NO	bb	bb	5.294
23	Total-tetradioxins	24.12	2.526e3	3.134e3	1.129	0.81	0.77	12.9	YES	NO	bb	bb	0.435
24	1368-TCDD	22.92	6.370e4	7.877e4	1.181	0.81	0.77	537.0	YES	NO	bb	bb	10.456
25	12479-PECDD	28.17	5.112e5	3.251e5	2.166	1.57	1.55	1779.7	YES	NO	bb	bb	49.173
26	12389-PECDD	31.28	3.184e5	2.148e5	1.326	1.48	1.55	1579.5	YES	NO	bb	bd	51.214
27	12378-PeCDD	30.88	2.960e5	1.806e5	1.150	1.64	1.55	1479.9	YES	NO	bd	bb	52.791
28	Total-pentadioxins	30.21	1.196e3	8.873e2	1.548	1.35	1.55	5.6	YES	NO	bb	bb	0.172
29	Total-pentadioxins	29.28	9.733e2	7.308e2	1.548	1.33	1.55	4.7	YES	NO	bb	bb	0.140
30	123478-HxCDD	35.42	2.141e5	1.779e5	0.960	1.20	1.24	1570.0	YES	NO	bd	bd	47.771
31	124679-HXCDD	33.37	2.500e5	2.168e5	1.127	1.15	1.24	1679.9	YES	NO	bb	bd	48.490
32	123789-HxCDD	35.92	2.356e5	1.782e5	0.804	1.32	1.24	1463.2	YES	NO	bd	bb	54.634
33	123678-HxCDD	35.53	2.527e5	2.090e5	0.883	1.21	1.24	1612.0	YES	NO	db	db	50.765
34	1234679-HPCDD	38.65	1.961e5	1.871e5	1.303	1.05	1.05	1368.8	YES	NO	bb	bb	50.665
35	1234678-HpCDD	39.67	1.732e5	1.629e5	1.200	1.06	1.05	1157.1	YES	NO	bb	bb	48.260
36	OCDD	44.23	3.183e5	3.503e5	1.059	0.91	0.89	723.0	YES	NO	bd	bd	98.465

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.68	1.767e4					1.1	NO		dd		
2	FUNCTION1 PFK	21.64	3.920e4					1.3	NO		bd		
3	FUNCTION1 PFK	21.35	2.555e4					1.4	NO		db		
4	FUNCTION1 PFK	21.31	1.859e4					1.2	NO		bd		
5	FUNCTION1 PFK	21.24	4.622e4					1.6	NO		db		
6	FUNCTION1 PFK	21.13	2.882e4					1.2	NO		bd		
7	FUNCTION1 PFK	26.01	2.106e4					1.1	NO		bb		
8	FUNCTION1 PFK	25.73	1.039e4					0.8	NO		bb		
9	FUNCTION1 PFK	25.51	1.076e4					0.7	NO		bb		
10	FUNCTION1 PFK	24.96	2.260e4					1.4	NO		db		
11	FUNCTION1 PFK	24.86	4.840e4					1.6	NO		bd		
12	FUNCTION1 PFK	24.46	4.994e3					0.7	NO		bb		
13	FUNCTION1 PFK	23.90	2.884e4					1.5	NO		bb		
14	FUNCTION1 PFK	23.75	1.059e4					1.0	NO		bb		
15	FUNCTION1 PFK	23.57	2.495e4					1.3	NO		bb		
16	FUNCTION1 PFK	22.55	8.571e4					1.9	NO		bb		
17	FUNCTION1 PFK	22.47	5.005e4					1.1	NO		bb		
18	FUNCTION1 PFK	22.19	9.994e3					0.8	NO		bb		
19	FUNCTION1 PFK	21.97	5.856e4					1.4	NO		bb		
20	FUNCTION1 PFK	21.83	2.649e4					1.6	NO		db		
21	FUNCTION1 PFK	21.78	2.302e4					1.3	NO		dd		
22	FUNCTION1 PFK	21.73	6.341e3					0.7	NO		dd		
23	FUNCTION1 PFK	27.24	2.681e4					1.2	NO		bb		
24	FUNCTION1 PFK	27.19	3.113e3					0.5	NO		bb		
25	FUNCTION1 PFK	27.06	7.590e3					0.6	NO		bb		
26	FUNCTION1 PFK	26.78	4.486e4					1.7	NO		bb		
27	FUNCTION1 PFK	26.66	3.174e4					1.2	NO		db		
28	FUNCTION1 PFK	26.57	3.642e4					1.7	NO		bd		
29	FUNCTION1 PFK	26.18	1.151e4					0.9	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.29	2.732e3					0.7	NO		db		0.000
2	FUNCTION2 PFK	28.26	6.938e3					1.0	NO		bd		0.000
3	FUNCTION2 PFK	28.20	9.092e3					1.2	NO		db		0.000
4	FUNCTION2 PFK	28.16	1.377e4					1.4	NO		bd		0.000
5	FUNCTION2 PFK	28.06	3.165e3					0.6	NO		bb		0.000
6	FUNCTION2 PFK	27.87	9.196e3					1.5	NO		bb		0.000
7	FUNCTION2 PFK	27.67	2.199e4					1.4	NO		bb		0.000
8	FUNCTION2 PFK	27.55	2.497e4					1.8	NO		bb		0.000
9	FUNCTION2 PFK	30.21	3.416e4					2.3	NO		db		0.000
10	FUNCTION2 PFK	30.12	2.705e4					1.9	NO		dd		0.000
11	FUNCTION2 PFK	30.06	1.914e4					1.9	NO		bd		0.000
12	FUNCTION2 PFK	29.99	8.490e3					1.3	NO		db		0.000
13	FUNCTION2 PFK	29.96	9.023e3					1.1	NO		bd		0.000
14	FUNCTION2 PFK	29.62	1.941e4					1.6	NO		db		0.000
15	FUNCTION2 PFK	29.50	2.598e4					1.4	NO		dd		0.000
16	FUNCTION2 PFK	29.43	1.158e4					1.2	NO		dd		0.000
17	FUNCTION2 PFK	29.36	1.815e4					1.7	NO		bd		0.000
18	FUNCTION2 PFK	29.32	1.971e4					1.0	NO		db		0.000
19	FUNCTION2 PFK	29.20	2.466e3					0.4	NO		bd		0.000
20	FUNCTION2 PFK	29.15	7.869e3					0.9	NO		bb		0.000
21	FUNCTION2 PFK	28.95	1.003e4					0.9	NO		bb		0.000
22	FUNCTION2 PFK	28.74	8.429e3					1.2	NO		bb		0.000
23	FUNCTION2 PFK	28.68	6.948e3					1.0	NO		bb		0.000
24	FUNCTION2 PFK	28.44	1.258e4					1.2	NO		bb		0.000
25	FUNCTION2 PFK	31.72	1.268e4					1.3	NO		db		0.000
26	FUNCTION2 PFK	31.68	2.085e4					1.9	NO		dd		0.000
27	FUNCTION2 PFK	31.58	2.676e4					1.9	NO		dd		0.000
28	FUNCTION2 PFK	31.50	3.605e4					2.3	NO		bd		0.000
29	FUNCTION2 PFK	31.45	1.724e4					1.1	NO		bb		0.000
30	FUNCTION2 PFK	31.31	1.869e4					2.0	NO		bb		0.000
31	FUNCTION2 PFK	31.21	1.453e4					1.0	NO		bb		0.000
32	FUNCTION2 PFK	31.09	1.215e4					1.1	NO		bb		0.000
33	FUNCTION2 PFK	30.96	2.108e4					1.4	NO		bb		0.000
34	FUNCTION2 PFK	30.69	1.684e4					1.1	NO		bb		0.000
35	FUNCTION2 PFK	30.61	2.085e3					0.5	NO		bb		0.000
36	FUNCTION2 PFK	30.53	1.995e4					1.4	NO		db		0.000
37	FUNCTION2 PFK	30.47	1.901e4					1.5	NO		dd		0.000

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION2 PFK	30.41	1.962e4					2.2	NO		dd		0.000
39	FUNCTION2 PFK	30.37	1.451e4					1.5	NO		dd		0.000
40	FUNCTION2 PFK	30.30	1.968e4					1.6	NO		bd		0.000
41	FUNCTION2 PFK	32.09	4.284e3					0.7	NO		bb		0.000
42	FUNCTION2 PFK	32.05	5.676e3					1.0	NO		bb		0.000
43	FUNCTION2 PFK	32.00	1.141e4					1.7	NO		db		0.000
44	FUNCTION2 PFK	31.96	1.965e4					2.7	NO		dd		0.000
45	FUNCTION2 PFK	31.90	4.123e4					2.9	NO		dd		0.000
46	FUNCTION2 PFK	31.82	3.802e4					2.4	NO		bd		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	33.24	2.228e4					2.1	NO		dd		0.000
2	FUNCTION3 PFK	33.20	3.060e4					2.0	NO		bd		0.000
3	FUNCTION3 PFK	33.12	9.100e3					1.1	NO		db		0.000
4	FUNCTION3 PFK	33.05	4.780e4					2.3	NO		bd		0.000
5	FUNCTION3 PFK	32.88	2.988e4					1.6	NO		bb		0.000
6	FUNCTION3 PFK	32.72	3.441e4					2.1	NO		bb		0.000
7	FUNCTION3 PFK	32.65	2.616e4					2.0	NO		db		0.000
8	FUNCTION3 PFK	32.55	2.560e4					1.0	NO		bd		0.000
9	FUNCTION3 PFK	32.43	2.575e4					1.7	NO		bb		0.000
10	FUNCTION3 PFK	35.61	3.327e3					0.8	NO		bb		0.000
11	FUNCTION3 PFK	35.33	6.250e3					0.8	NO		bb		0.000
12	FUNCTION3 PFK	35.17	3.885e4					2.3	NO		bb		0.000
13	FUNCTION3 PFK	35.09	1.757e4					1.6	NO		bb		0.000
14	FUNCTION3 PFK	34.63	4.442e4					2.3	NO		db		0.000
15	FUNCTION3 PFK	34.55	4.151e3					0.5	NO		bd		0.000
16	FUNCTION3 PFK	34.51	2.328e4					2.2	NO		bb		0.000
17	FUNCTION3 PFK	34.31	2.039e4					1.5	NO		bb		0.000
18	FUNCTION3 PFK	34.24	1.334e4					1.4	NO		bb		0.000
19	FUNCTION3 PFK	34.12	1.911e4					1.6	NO		bb		0.000
20	FUNCTION3 PFK	33.92	2.773e4					1.7	NO		bb		0.000
21	FUNCTION3 PFK	33.69	1.095e4					1.2	NO		bb		0.000
22	FUNCTION3 PFK	33.60	1.130e4					1.4	NO		db		0.000
23	FUNCTION3 PFK	33.51	4.163e4					2.1	NO		dd		0.000
24	FUNCTION3 PFK	33.41	7.814e4					2.3	NO		dd		0.000
25	FUNCTION3 PFK	33.31	2.554e4					1.7	NO		dd		0.000
26	FUNCTION3 PFK	37.26	1.448e3					0.4	NO		bb		0.000
27	FUNCTION3 PFK	36.98	1.246e4					1.1	NO		db		0.000
28	FUNCTION3 PFK	36.88	2.700e4					1.6	NO		dd		0.000
29	FUNCTION3 PFK	36.84	2.160e4					2.2	NO		dd		0.000
30	FUNCTION3 PFK	36.79	1.778e4					1.9	NO		dd		0.000
31	FUNCTION3 PFK	36.69	9.048e4					3.0	NO		bd		0.000
32	FUNCTION3 PFK	36.60	3.859e4					1.9	NO		bb		0.000
33	FUNCTION3 PFK	36.40	5.770e3					0.7	NO		bb		0.000
34	FUNCTION3 PFK	36.11	1.316e4					1.1	NO		bb		0.000
35	FUNCTION3 PFK	35.82	1.595e4					1.2	NO		bb		0.000
36	FUNCTION3 PFK	35.66	1.792e3					0.4	NO		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.38	2.098e3					0.7	NO		bb		
2	FUNCTION4 PFK	38.02	6.654e5					16.6	YES		db		
3	FUNCTION4 PFK	38.01	4.385e5					16.5	YES		dd		
4	FUNCTION4 PFK	37.55	5.756e6					41.2	YES		bd		
5	FUNCTION4 PFK	42.41	8.804e3					1.1	NO		bb		
6	FUNCTION4 PFK	41.94	1.287e4					0.9	NO		bb		
7	FUNCTION4 PFK	41.29	1.609e4					2.0	NO		bb		
8	FUNCTION4 PFK	41.14	3.746e4					0.8	NO		bb		
9	FUNCTION4 PFK	40.23	6.251e3					1.1	NO		bb		
10	FUNCTION4 PFK	39.90	9.302e3					1.5	NO		bb		
11	FUNCTION4 PFK	39.84	6.715e3					1.1	NO		bb		
12	FUNCTION4 PFK	38.57	1.544e4					1.6	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.68	6.792e3					1.8	NO		bb		
2	FUNCTION5 PFK	43.56	4.605e3					1.0	NO		bb		
3	FUNCTION5 PFK	43.41	3.203e3					1.2	NO		bb		
4	FUNCTION5 PFK	43.17	1.090e4					1.2	NO		bb		
5	FUNCTION5 PFK	43.08	6.047e3					1.2	NO		bb		
6	FUNCTION5 PFK	43.01	1.597e4					2.4	NO		bb		
7	FUNCTION5 PFK	42.88	7.377e3					1.3	NO		bb		
8	FUNCTION5 PFK	45.80	2.543e3					0.8	NO		bb		
9	FUNCTION5 PFK	45.67	1.019e4					1.6	NO		bb		
10	FUNCTION5 PFK	45.61	1.682e4					2.4	NO		bb		
11	FUNCTION5 PFK	45.38	4.750e3					1.2	NO		bb		
12	FUNCTION5 PFK	45.35	8.909e2					0.5	NO		bb		
13	FUNCTION5 PFK	45.23	1.909e3					0.7	NO		bb		
14	FUNCTION5 PFK	44.85	8.853e3					1.5	NO		bb		
15	FUNCTION5 PFK	44.81	6.957e2					0.4	NO		bb		
16	FUNCTION5 PFK	44.59	2.188e3					0.7	NO		bb		
17	FUNCTION5 PFK	44.47	9.128e3					1.3	NO		bb		
18	FUNCTION5 PFK	43.99	2.872e3					0.8	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.02	1.143e2					3.9	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.48	4.003e2					7.5	YES		bb		0.000
2	FUNCTION2 HPCD...	28.56	7.715e1					2.2	NO		bb		0.000
3	FUNCTION2 HPCD...	31.32	8.806e1					2.4	NO		bb		0.000
4	FUNCTION2 HPCD...	30.88	8.789e1					1.4	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.90	1.900e2					3.9	YES		bb		0.000
2	FUNCTION3 OCDPE	35.52	2.386e2					5.5	YES		db		0.000
3	FUNCTION3 OCDPE	35.40	1.857e2					4.4	YES		bd		0.000
4	FUNCTION3 OCDPE	34.29	9.642e1					2.1	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	39.09	1.090e2					1.9	NO		bb		0.000
2	FUNCTION4 NCDPE	38.45	7.125e1					1.9	NO		bb		0.000

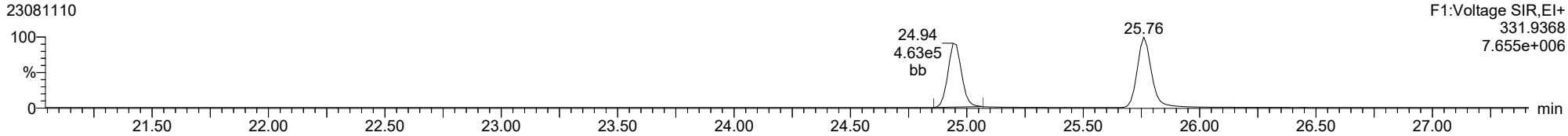
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.77	8.904e1					2.7	NO		bb		0.000

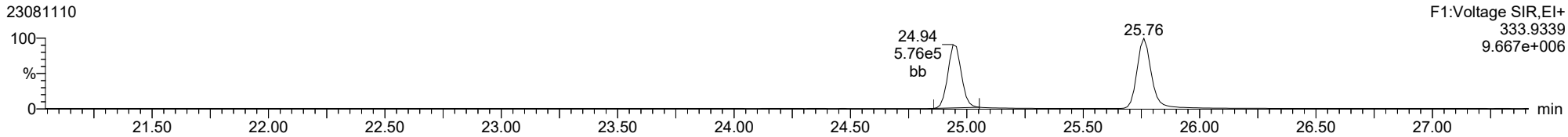
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ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

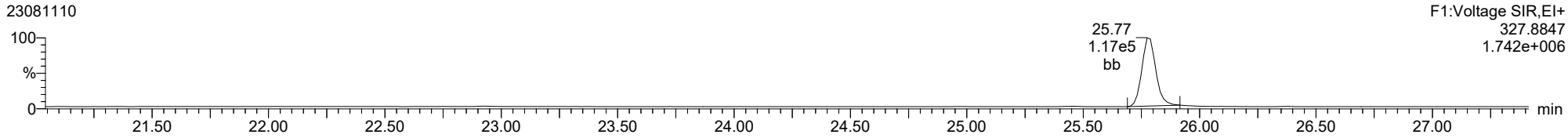
13C-1234-TCDD



13C-1234-TCDD

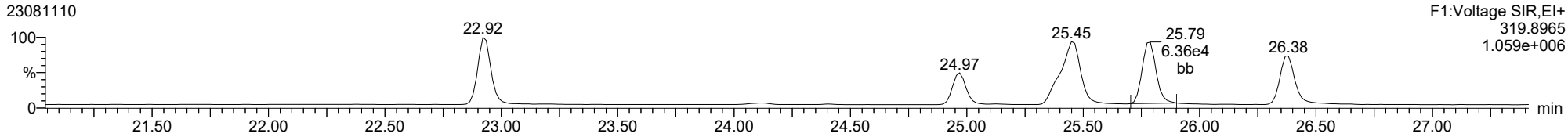


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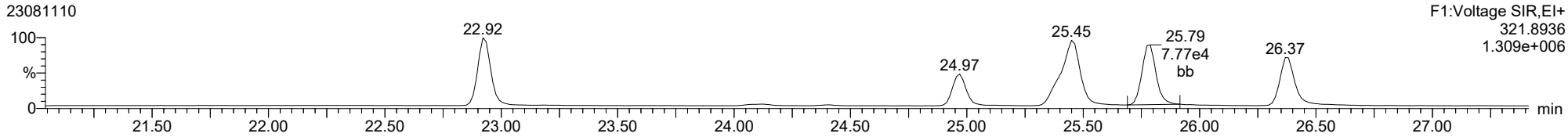


ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

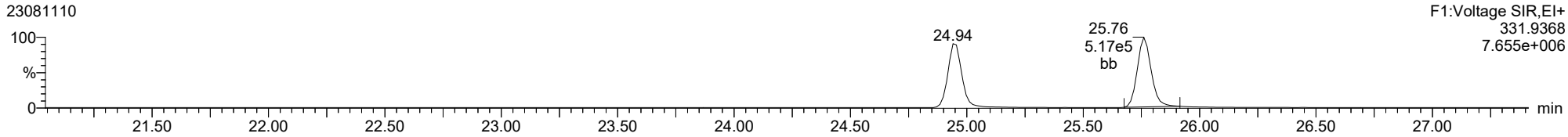
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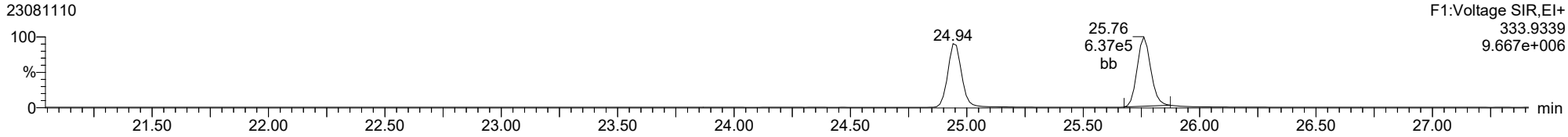
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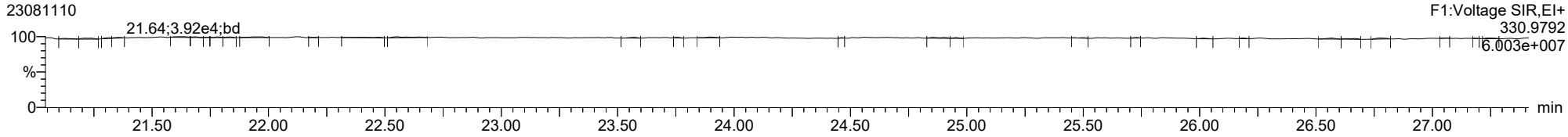
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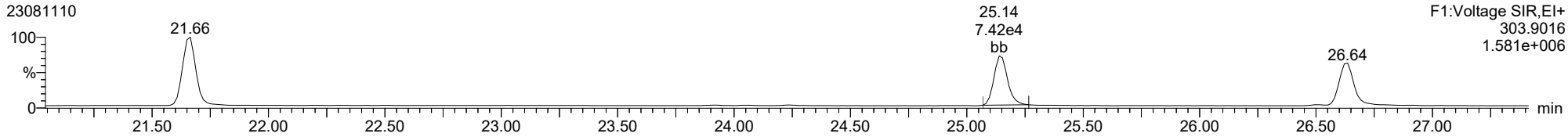


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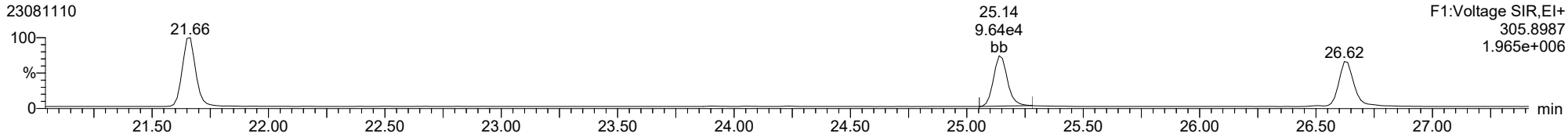


ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

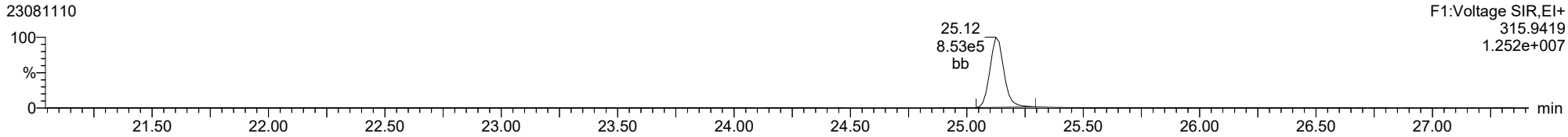
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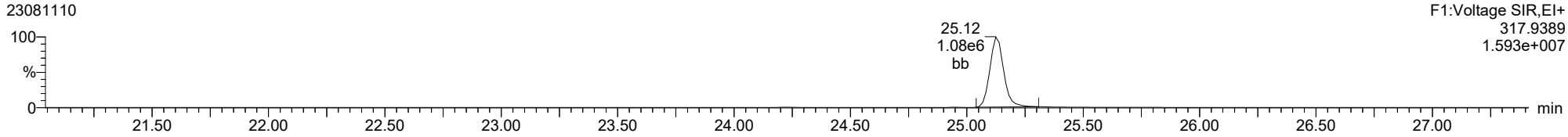
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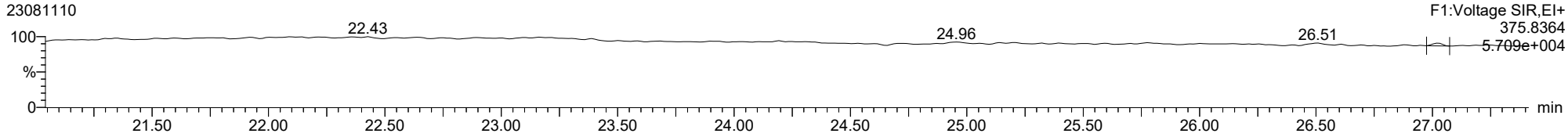
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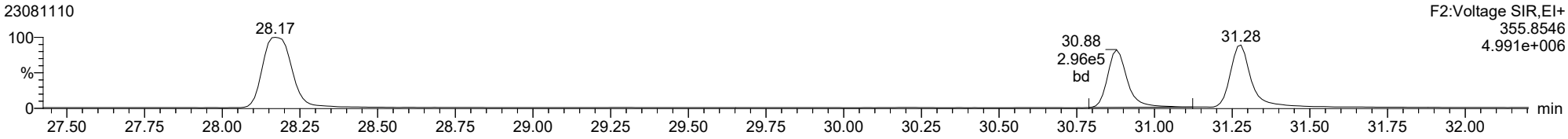


FUNCTION1 HXCDPE

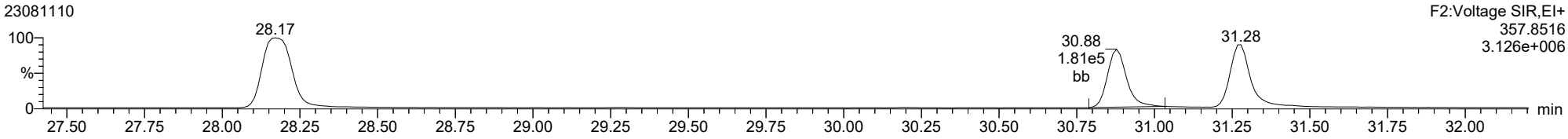


ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

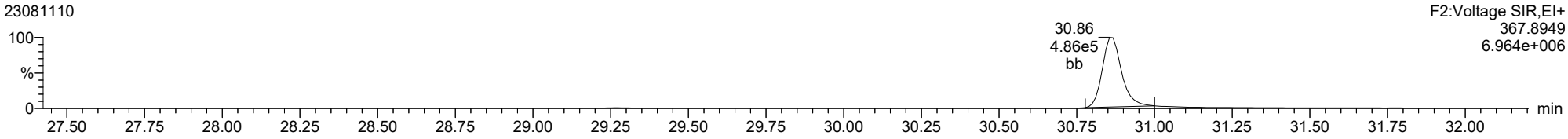
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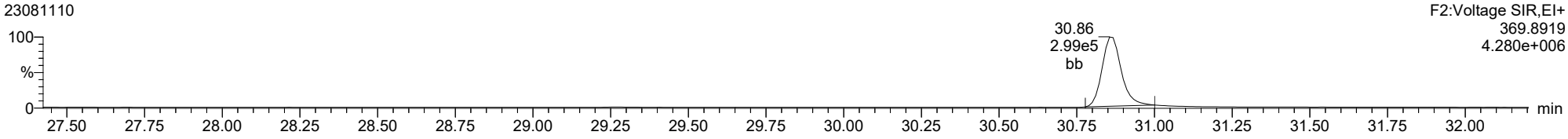
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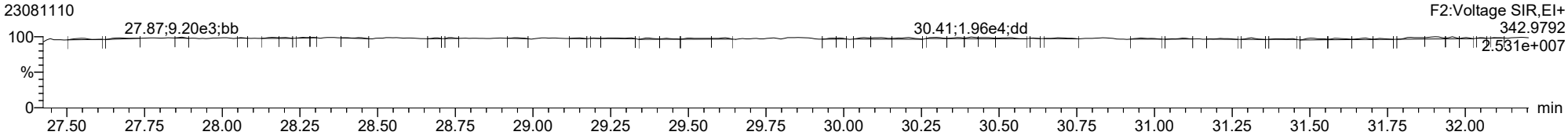
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13C-12378-PeCDD

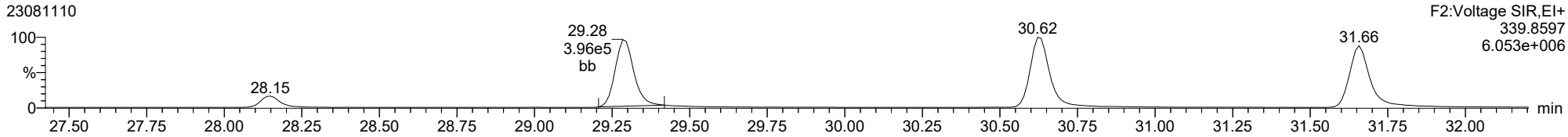


FUNCTION2 PFK

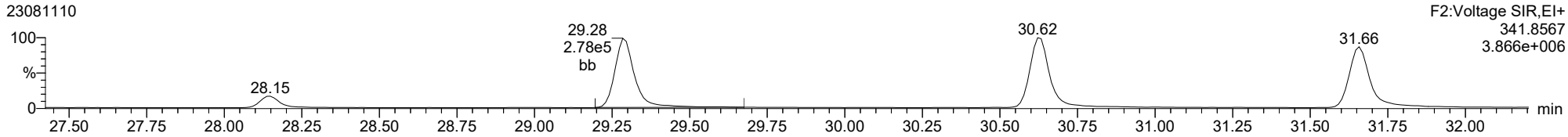


ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

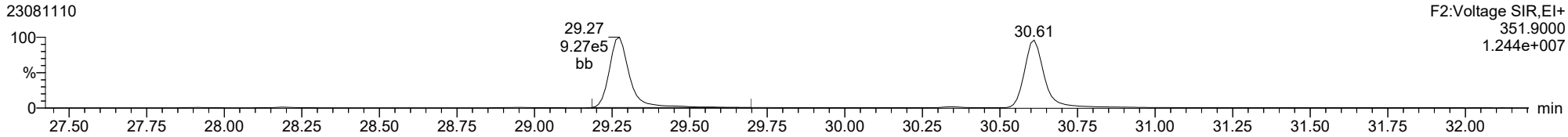
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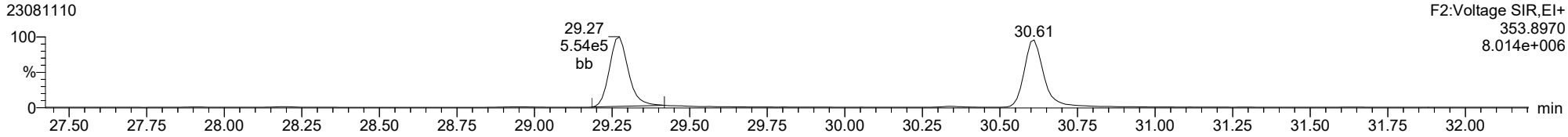
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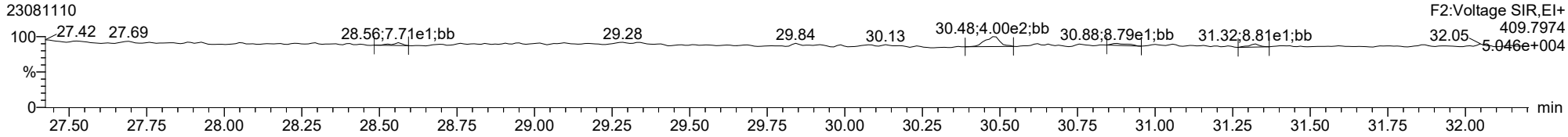
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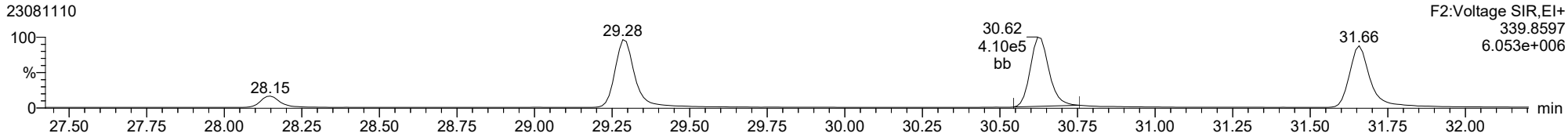


FUNCTION2 HPCDPE

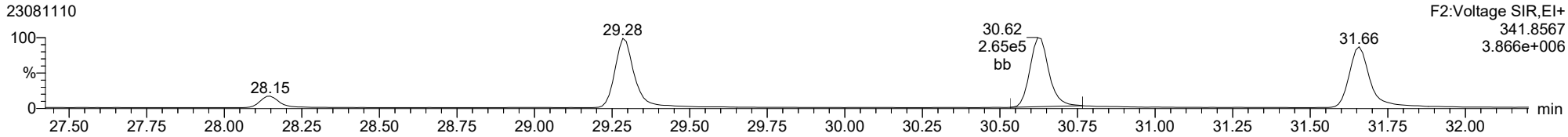


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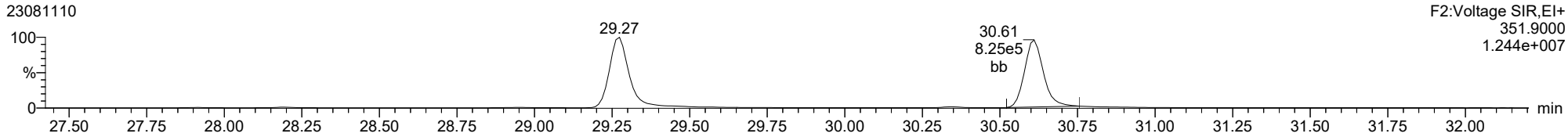
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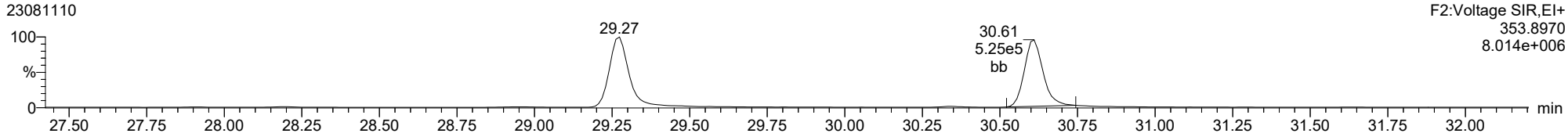
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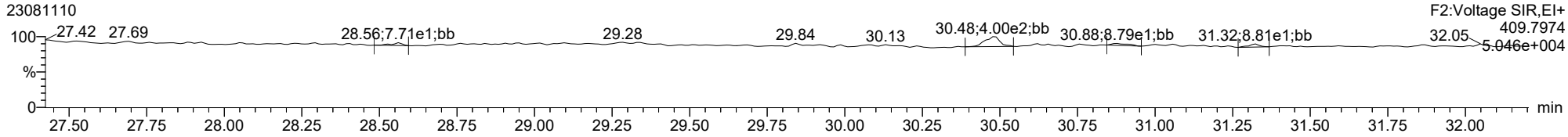
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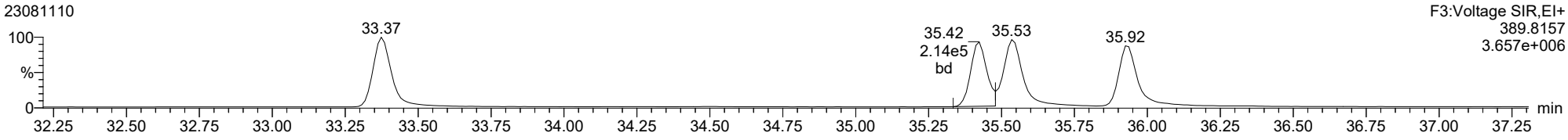


FUNCTION2 HPCDPE

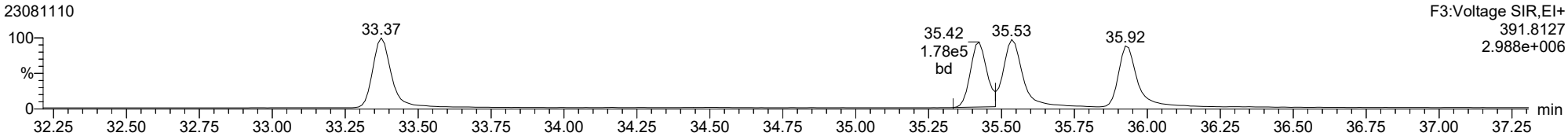


ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

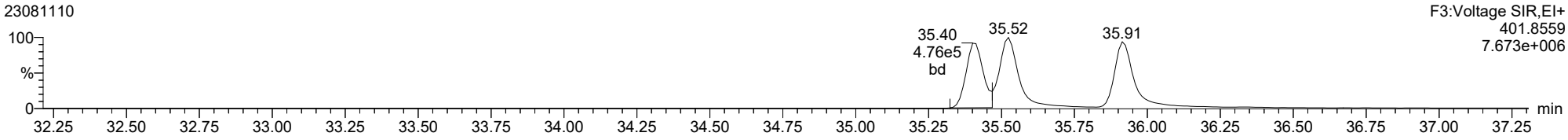
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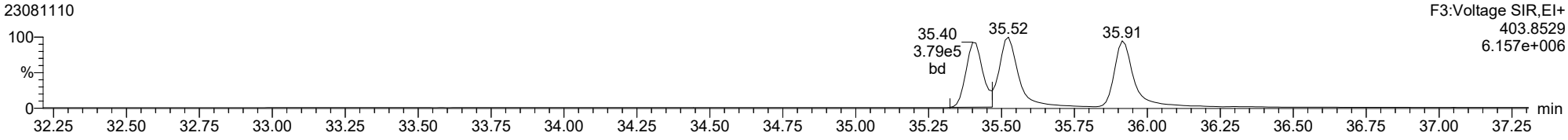
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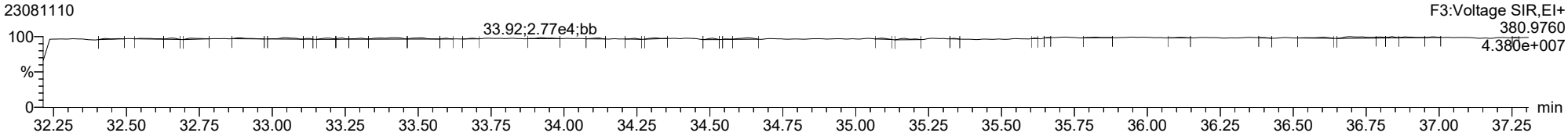
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13C-123478-HxCDD



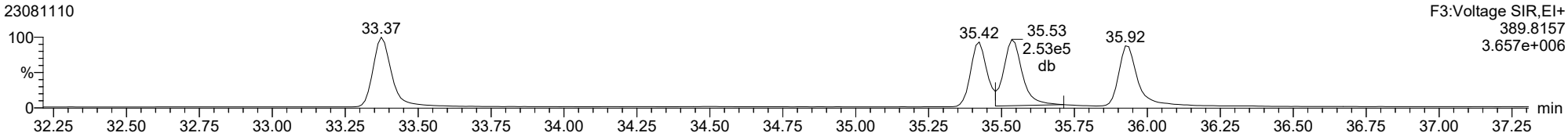
FUNCTION3 PFK



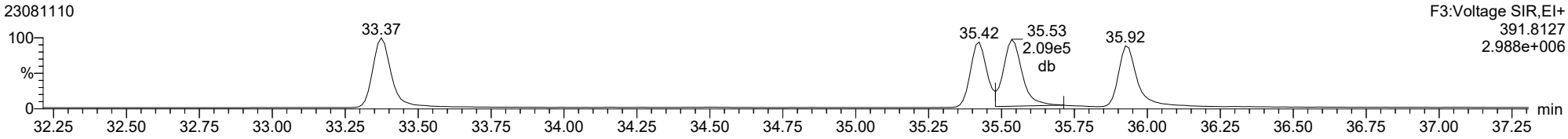
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Printed: Tuesday, August 15, 2023 12:27:04 Pacific Daylight Time

ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

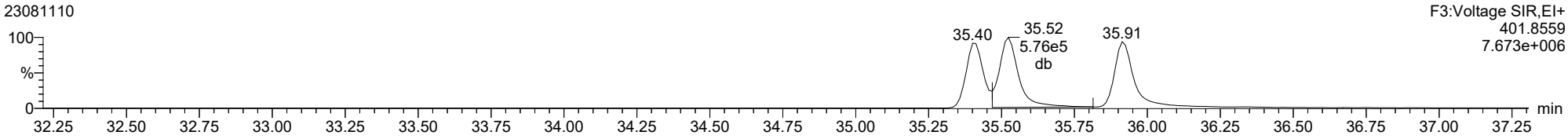
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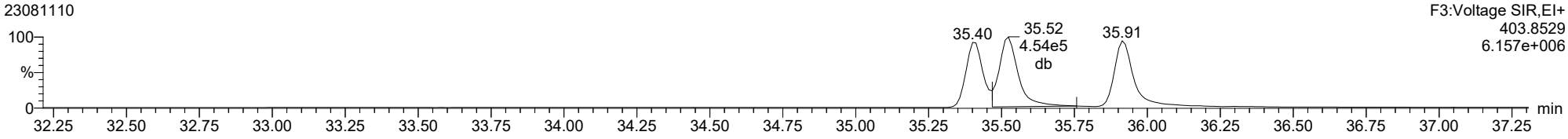
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13C-123678-HxCDD

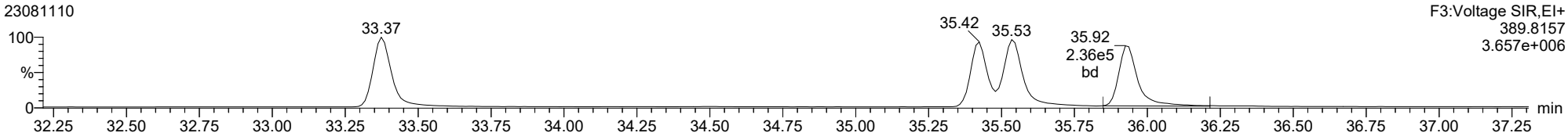


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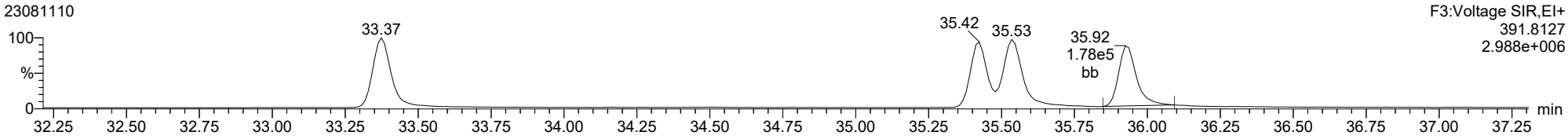


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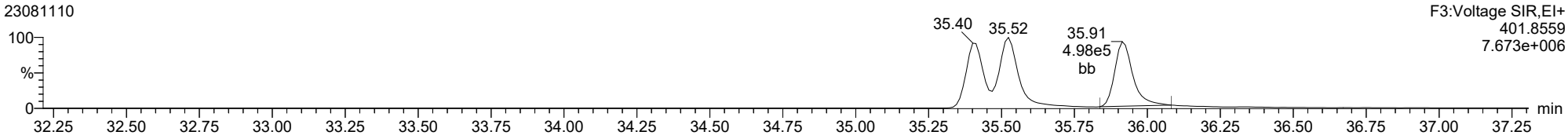
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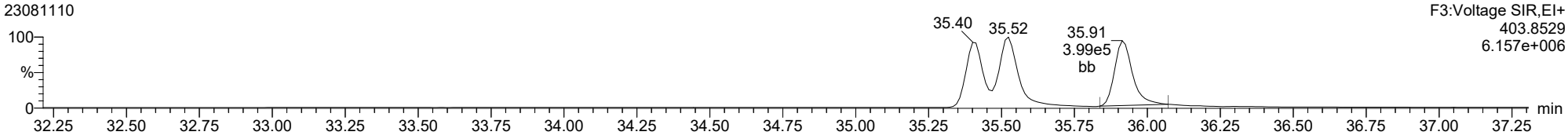
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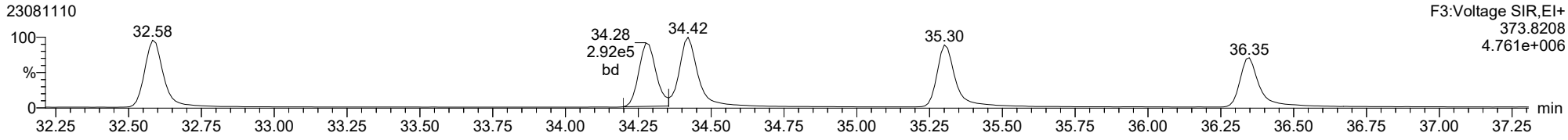


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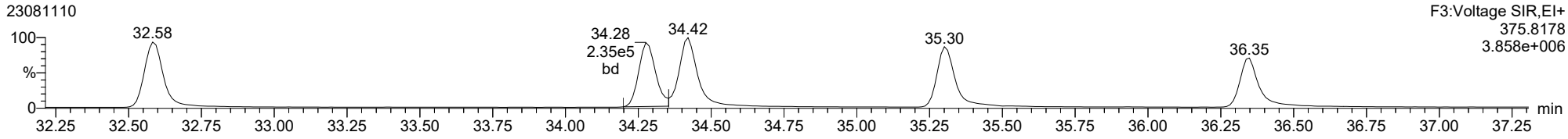


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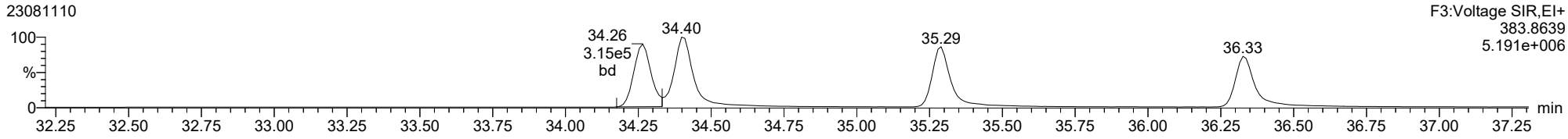
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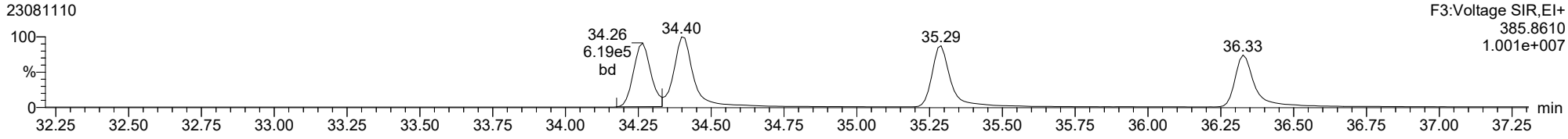
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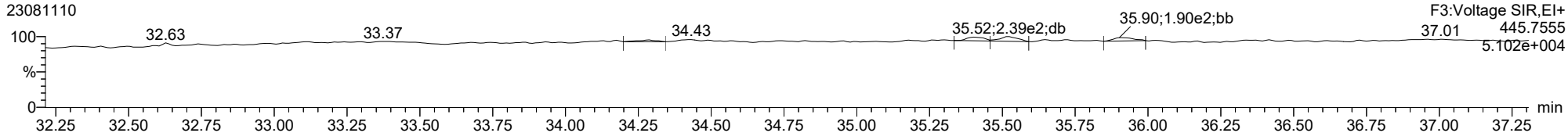
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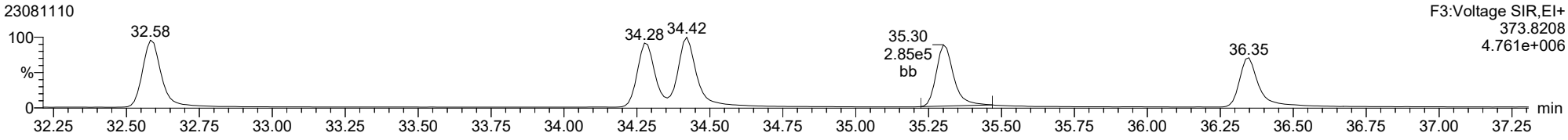


FUNCTION3 OCDPE

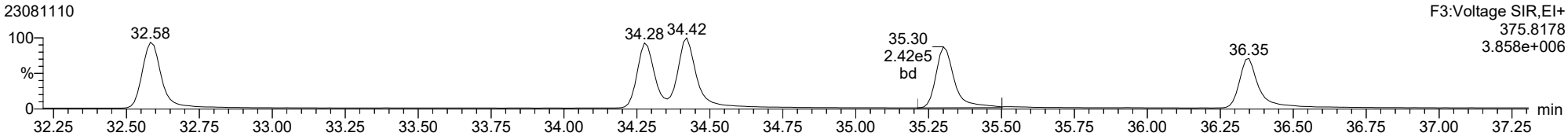


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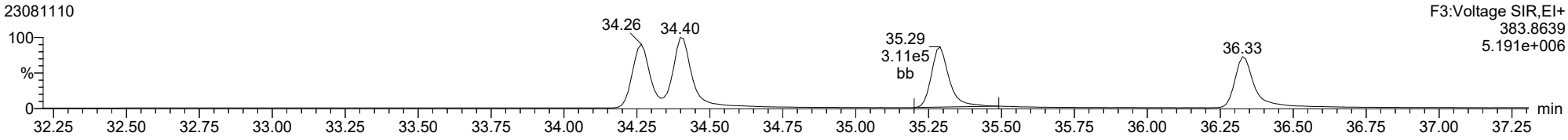
234678-HxCDF



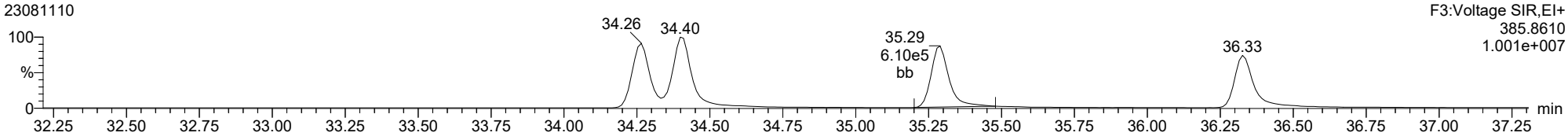
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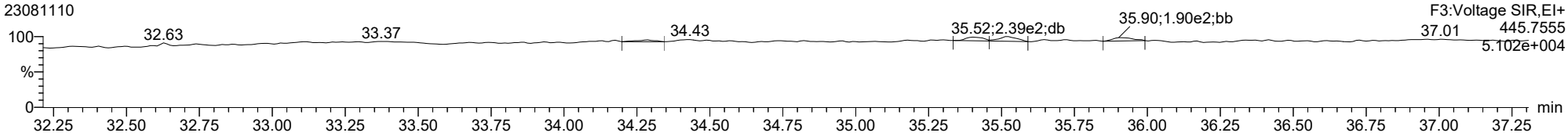
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13C-234678-HxCDF

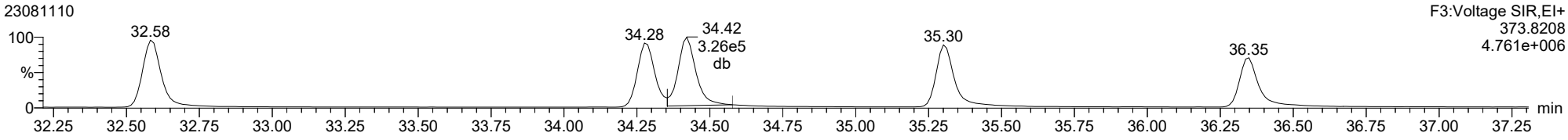


FUNCTION3 OCDPE

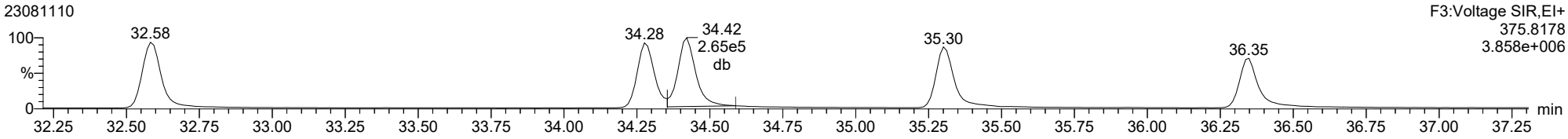


ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

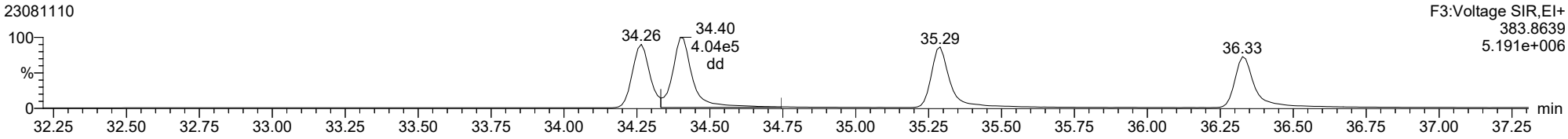
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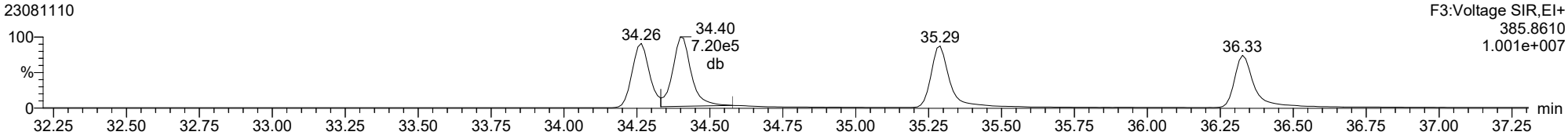
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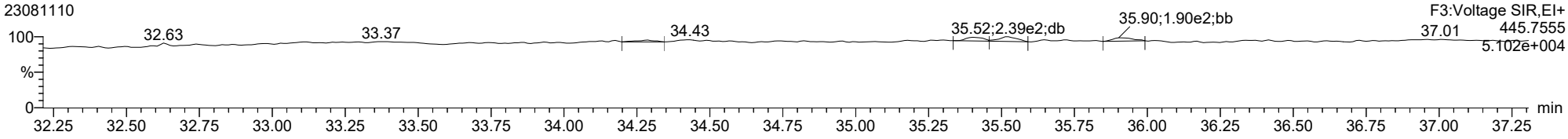
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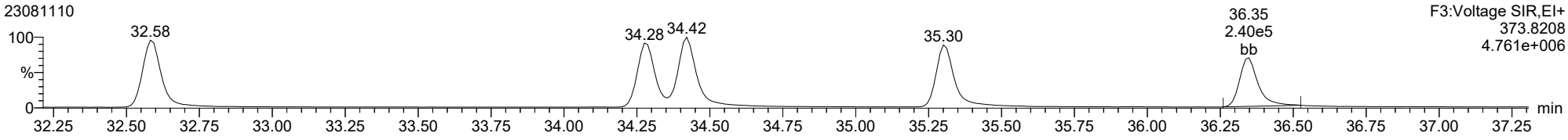


FUNCTION3 OCDPE

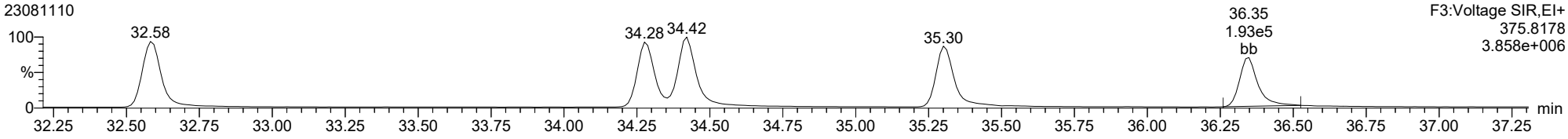


ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

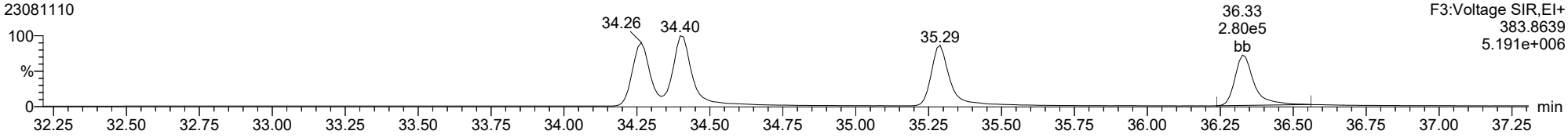
123789-HxCDF



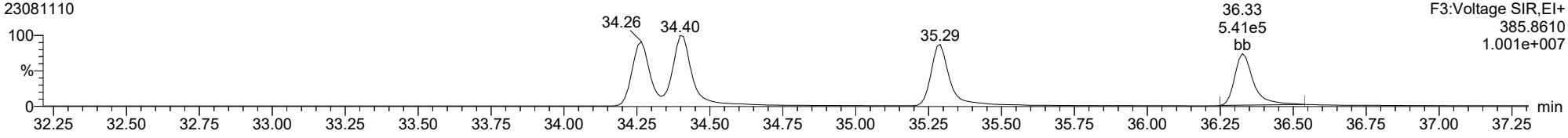
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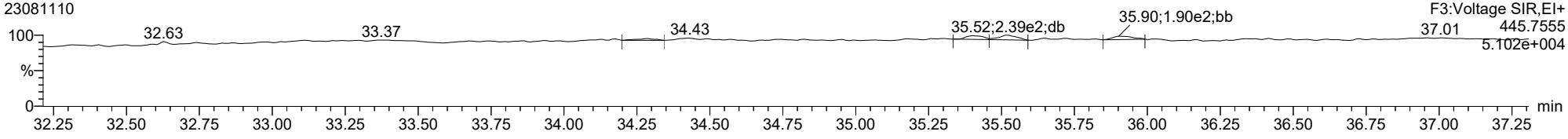
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13C-123789-HxCDF

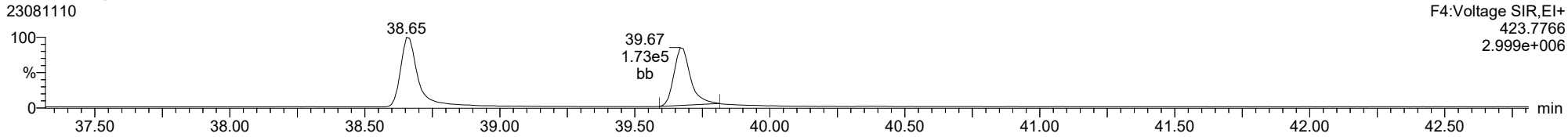


FUNCTION3 OCDPE

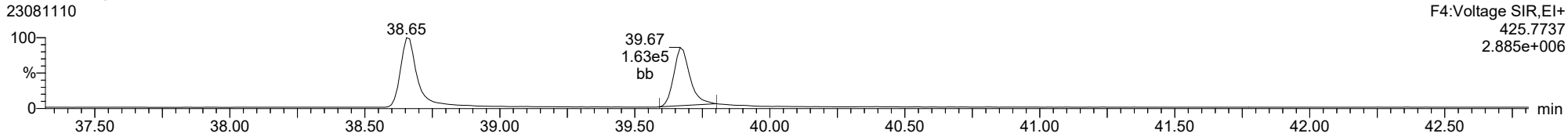


ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

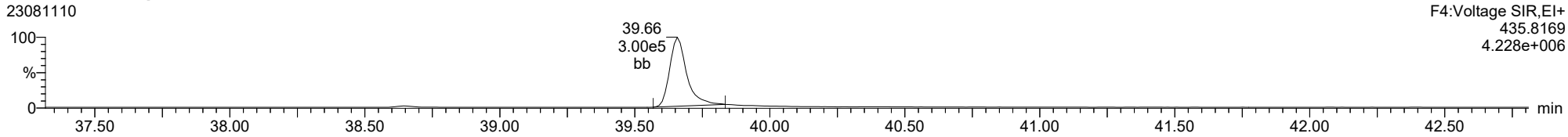
1234678-HpCDD



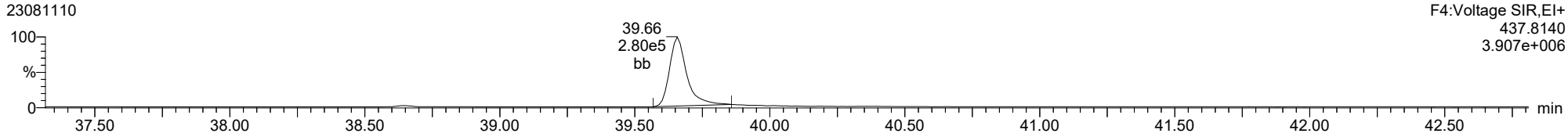
1234678-HpCDD



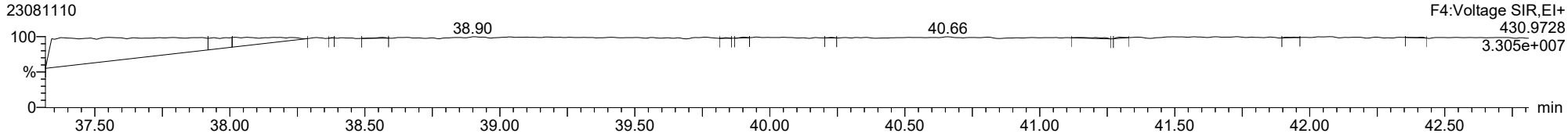
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13C-1234678-HpCDD

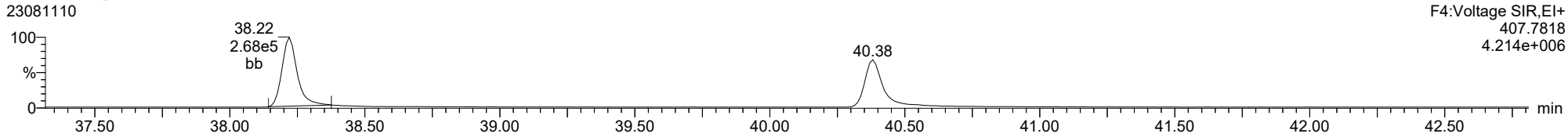


FUNCTION4 PFK

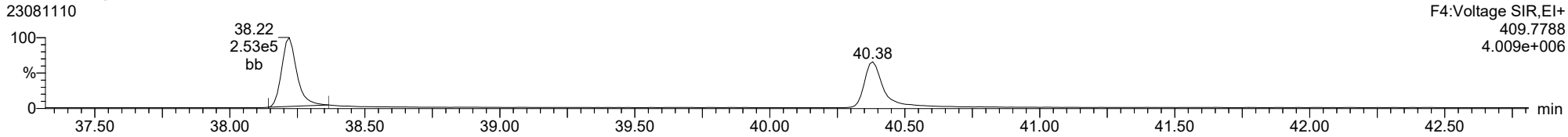


ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

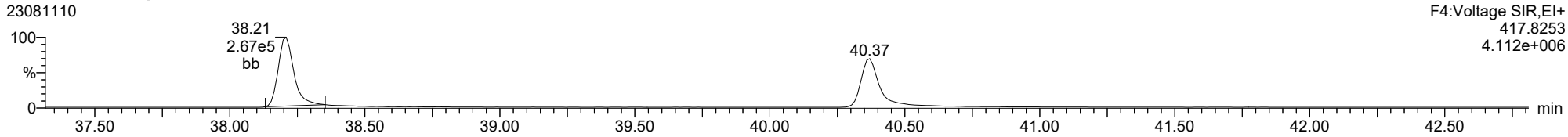
1234678-HpCDF



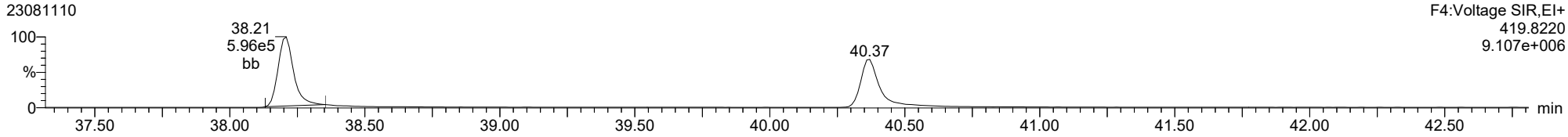
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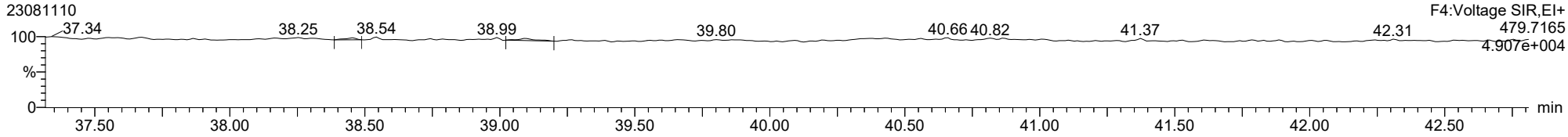
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13C-1234678-HpCDF

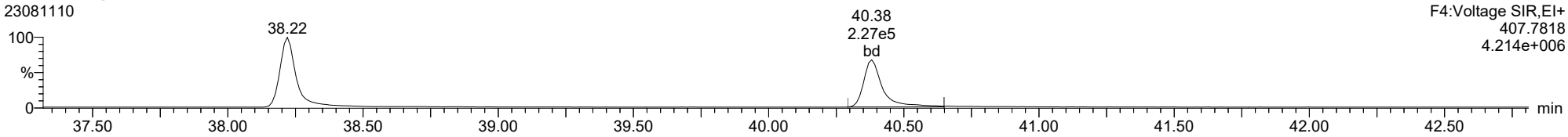


FUNCTION4 NCDPE

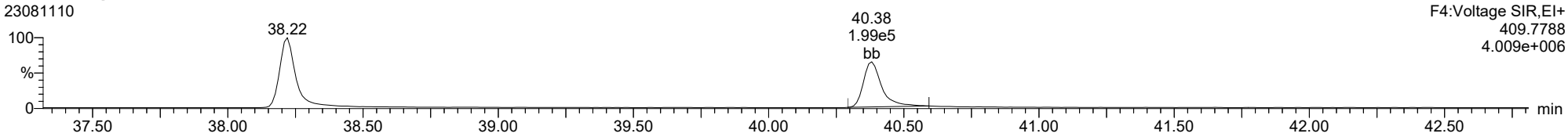


ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

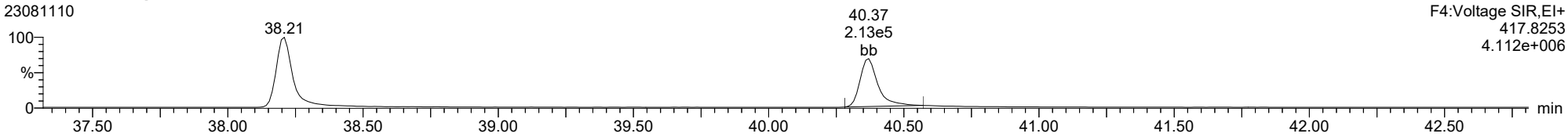
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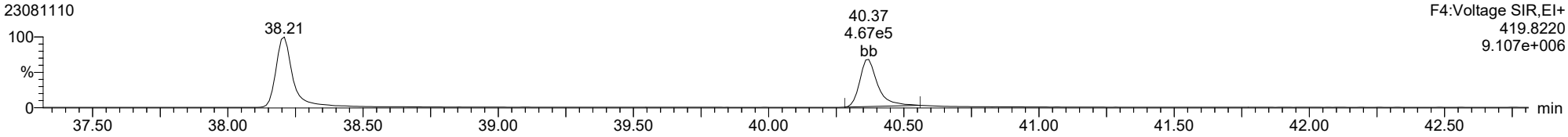
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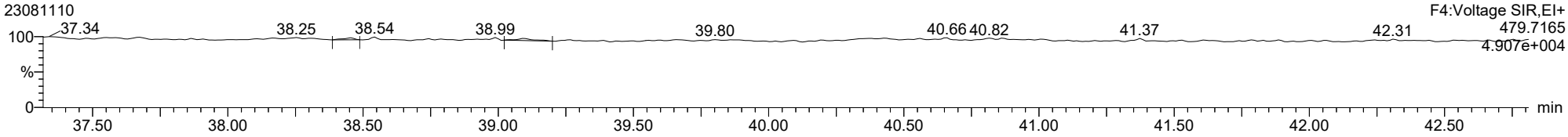
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13C-1234789-HpCDF

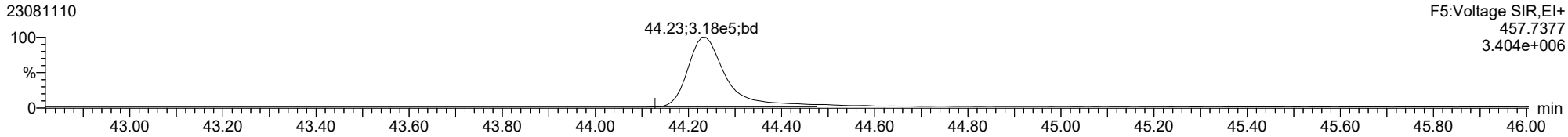


FUNCTION4 NCDPE

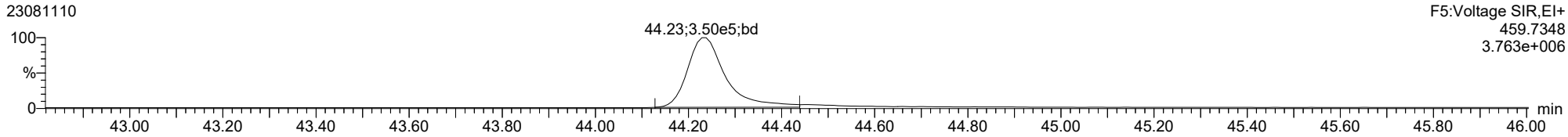


ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

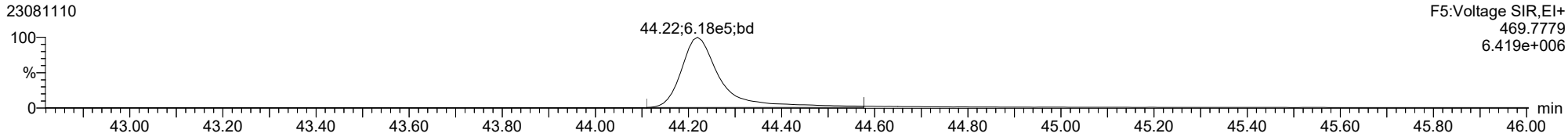
OCDD



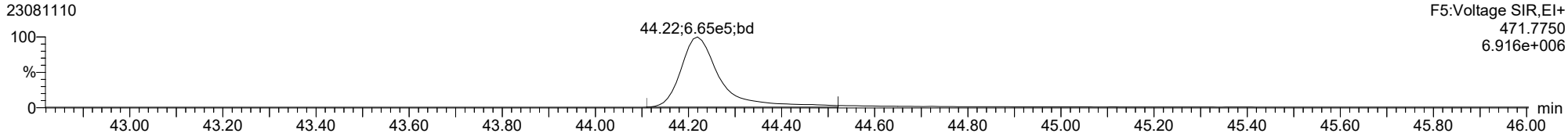
OCDD



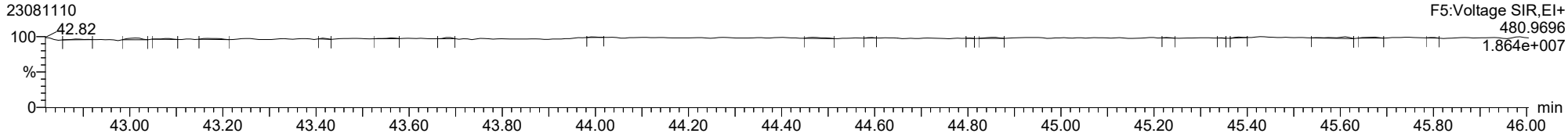
13C-OCDD



13C-OCDD

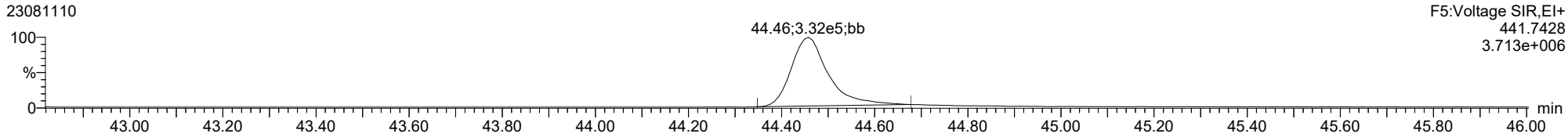


FUNCTION5 PFK

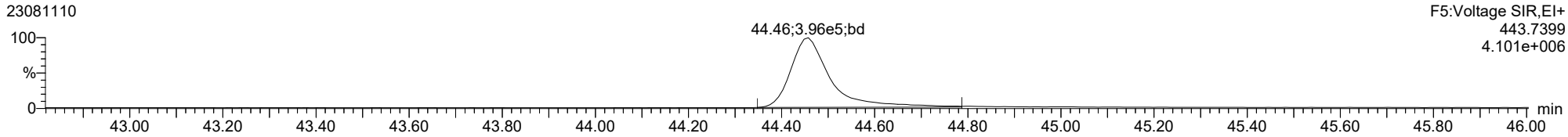


ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

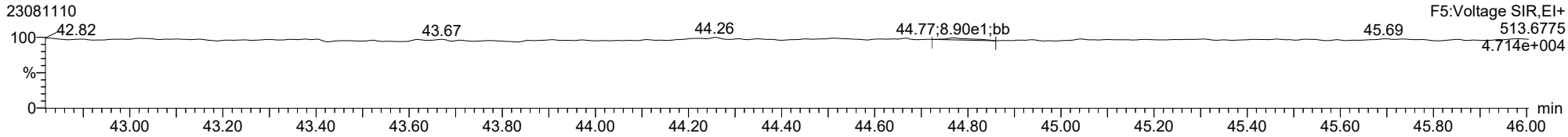
OCDF



OCDF

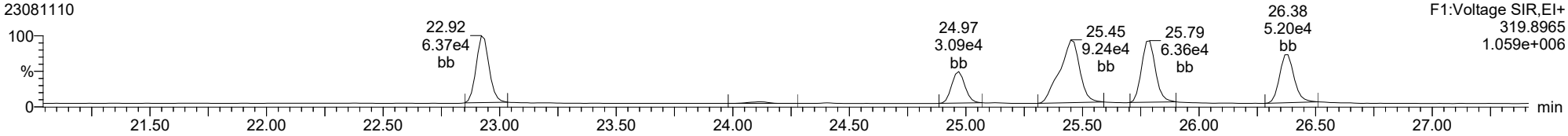


FUNCTION5 DCDPE

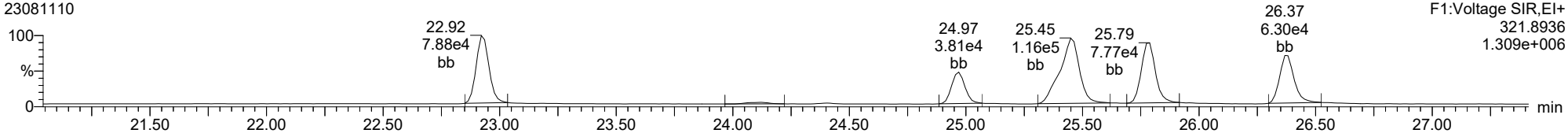


ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

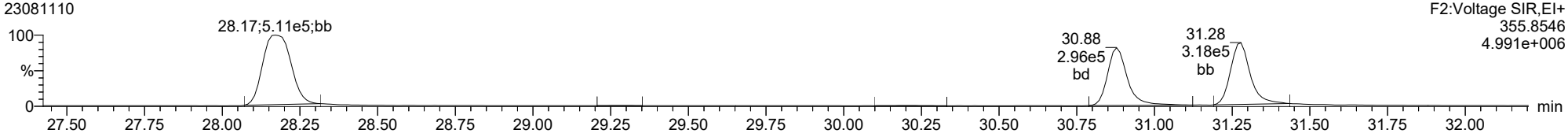
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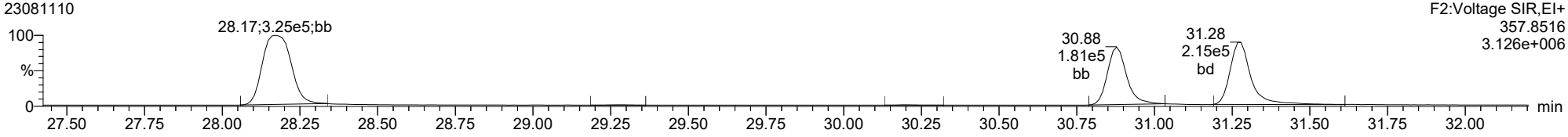
Total-tetradioxins



Total-pentadioxins

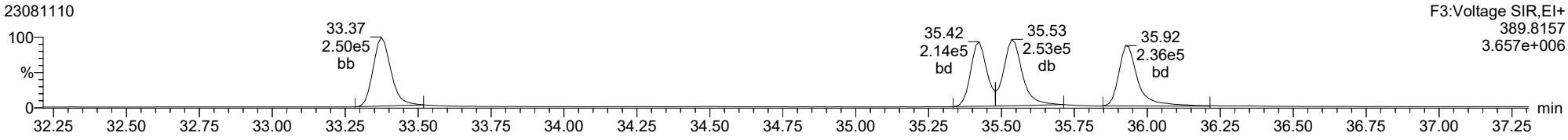


Total-pentadioxins

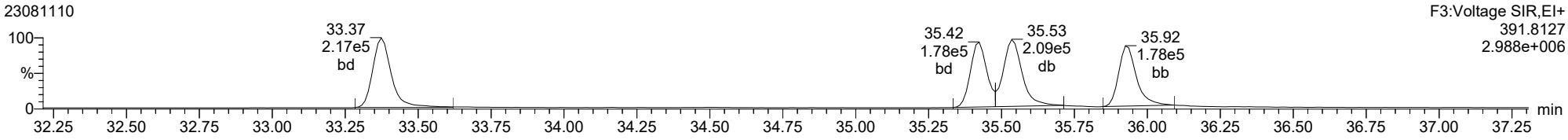


ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

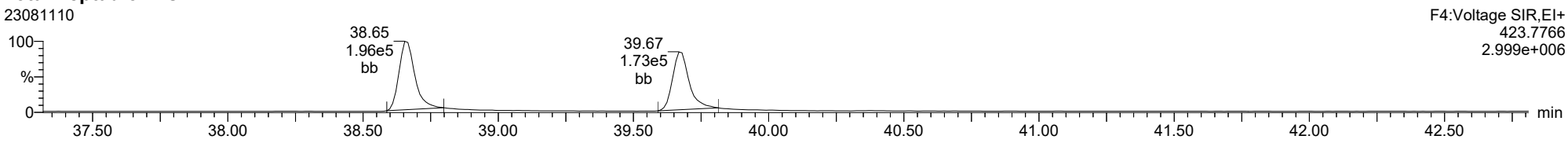
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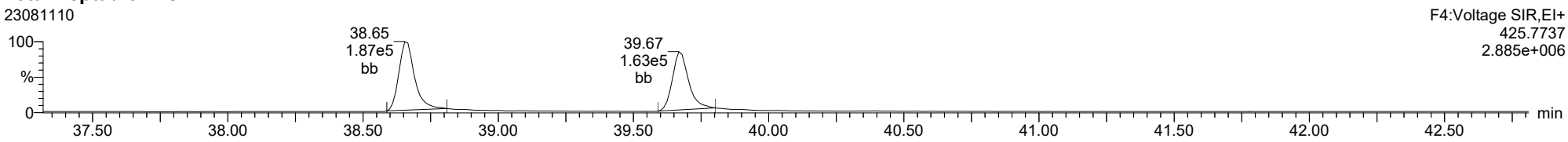
Total-hexadioxins



Total-heptadioxins



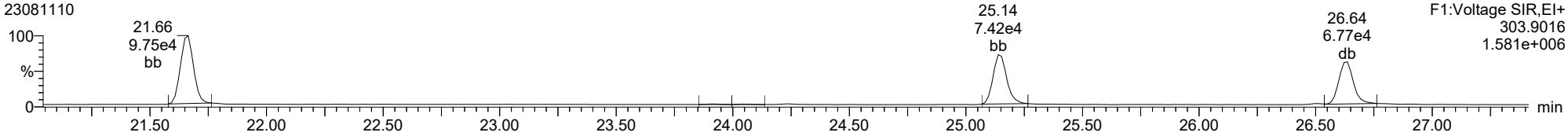
Total-heptadioxins



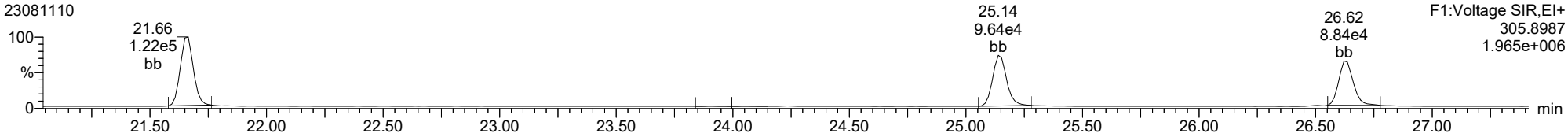
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Last Altered: Tuesday, August 15, 2023 12:26:06 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:27:04 Pacific Daylight Time

ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

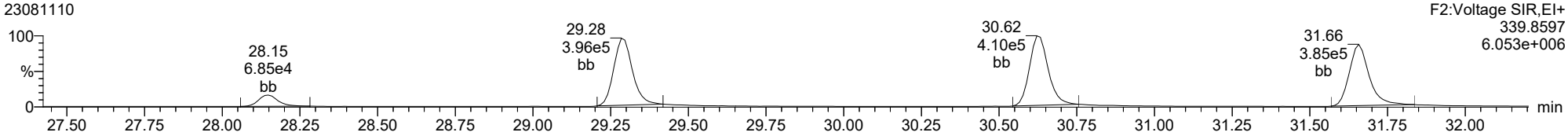
Total-tetrafurans



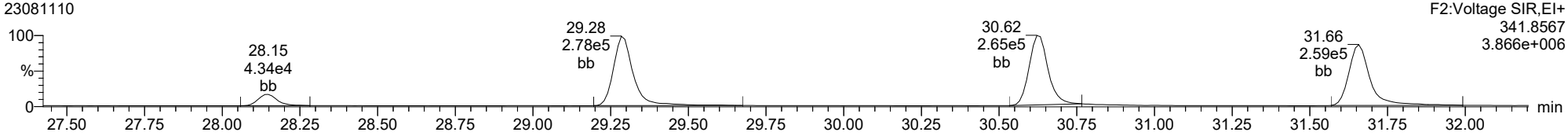
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Total-pentafurans

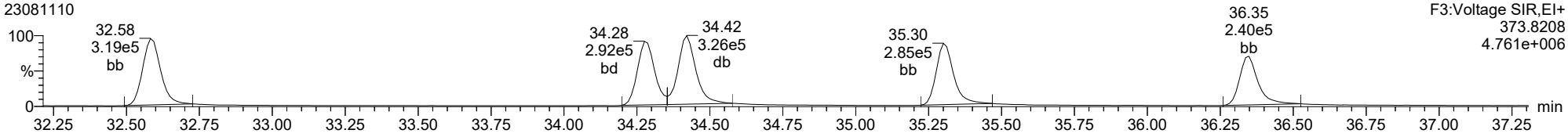


Total-pentafurans

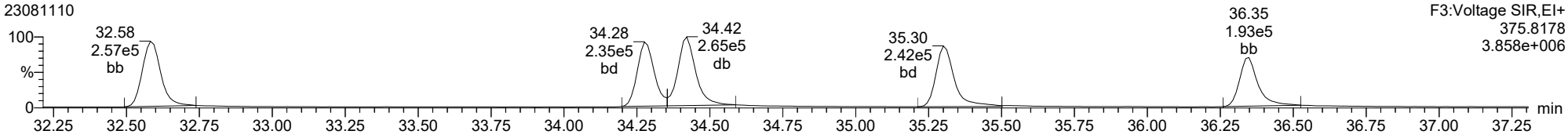


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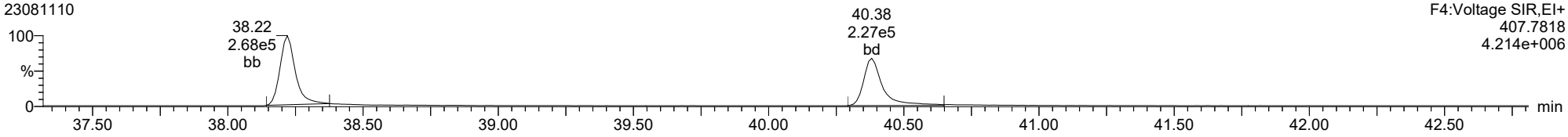
Total-hexafurans



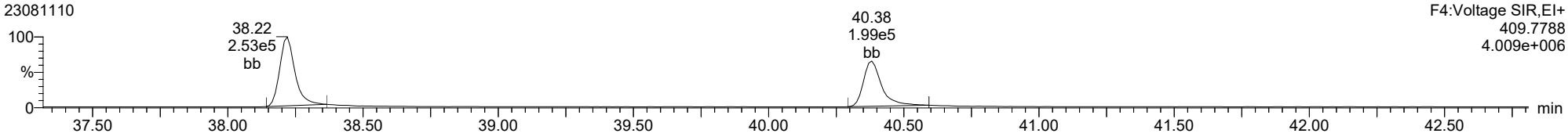
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230811CCVIH.qld
Last Altered: Tuesday, August 15, 2023 12:26:06 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:27:19 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 12 Aug 2023 10:54:09
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.153	1.001	4.331e4	5.635e4	0.903	0.769	0.770	1171	1364	6.11e5	7.81e5	521.7	572.2	NO	bb	bb	9.996
12378-PeCDF	29.296	1.001	2.300e5	1.467e5	0.923	1.568	1.550	3401	1936	3.27e6	2.10e6	960.4	1084.6	NO	bb	bb	49.821
23478-PeCDF	30.632	1.001	2.358e5	1.589e5	0.991	1.484	1.550	3401	1936	3.17e6	2.12e6	932.7	1095.3	NO	bb	bd	51.473
123478-HxCDF	34.276	1.000	1.642e5	1.293e5	1.128	1.271	1.240	2851	1900	2.31e6	1.85e6	809.4	974.2	NO	bd	bd	49.185
234678-HxCDF	35.301	1.000	1.599e5	1.364e5	1.081	1.172	1.240	2851	1900	2.25e6	1.77e6	788.4	931.0	NO	bb	bd	51.332
123678-HxCDF	34.421	1.001	1.857e5	1.474e5	1.032	1.260	1.240	2851	1900	2.46e6	1.94e6	863.3	1019.3	NO	db	db	50.681
123789-HxCDF	36.348	1.001	1.261e5	1.132e5	0.988	1.114	1.240	2851	1900	1.72e6	1.35e6	603.7	712.4	NO	bb	bb	52.524
1234678-HpCDF	38.220	1.000	1.371e5	1.434e5	1.164	0.956	1.050	2040	2251	2.02e6	1.97e6	992.2	876.4	NO	bb	bd	52.328
1234789-HpCDF	40.381	1.000	1.159e5	1.068e5	1.104	1.085	1.050	2040	2251	1.40e6	1.33e6	684.8	590.1	NO	bd	bd	52.933
OCDF	44.457	1.005	1.780e5	1.904e5	1.130	0.935	0.890	2815	2741	1.73e6	1.97e6	616.0	718.6	NO	bd	bd	100.657
2378-TCDD	25.788	1.001	3.895e4	4.595e4	1.243	0.848	0.770	1258	1191	5.44e5	6.56e5	432.3	550.5	NO	bd	bb	9.467
12378-PeCDD	30.878	1.000	1.623e5	1.061e5	1.150	1.529	1.550	2088	1452	2.21e6	1.40e6	1060.9	967.0	NO	bb	bd	51.961
123478-HxCDD	35.423	1.000	1.187e5	9.517e4	0.960	1.247	1.240	1570	2286	1.79e6	1.44e6	1140.2	631.8	NO	bd	bd	47.435
123678-HxCDD	35.535	1.000	1.604e5	1.248e5	0.883	1.285	1.240	1570	2286	1.96e6	1.60e6	1245.8	698.3	NO	dd	dd	54.545
123789-HxCDD	35.936	1.012	1.323e5	9.665e4	0.804	1.369	1.240	1570	2286	1.70e6	1.32e6	1083.8	579.5	NO	dd	bb	53.651
1234678-HpCDD	39.668	1.000	1.024e5	9.440e4	1.200	1.084	1.050	1868	1943	1.23e6	1.16e6	659.7	596.5	NO	bd	bd	50.710
OCDD	44.237	1.000	1.567e5	1.831e5	1.059	0.856	0.890	3012	2068	1.61e6	1.84e6	534.1	892.0	NO	bd	bd	99.090
13C-2378-TCDF	25.125	1.007	4.876e5	6.164e5	1.835	0.791	0.770	1728	1924	6.85e6	8.67e6	3961.1	4508.9	NO	bb	bb	98.121
13C-12378-PeCDF	29.273	1.173	4.998e5	3.192e5	1.377	1.566	1.550	3166	4107	7.06e6	4.51e6	2229.7	1096.9	NO	bb	bb	97.057
13C-23478-PeCDF	30.610	1.227	4.680e5	3.061e5	1.301	1.529	1.550	3166	4107	6.60e6	4.21e6	2084.2	1024.0	NO	bb	bb	97.039
13C-123478-HxCDF	34.265	0.954	1.804e5	3.486e5	1.091	0.517	0.510	1761	2790	2.59e6	4.96e6	1471.6	1778.9	NO	bd	bd	101.993
13C-123678-HxCDF	34.398	0.958	2.248e5	4.119e5	1.340	0.546	0.510	1761	2790	2.78e6	5.32e6	1581.4	1908.5	NO	db	db	99.908
13C-234678-HxCDF	35.290	0.983	1.679e5	3.659e5	1.093	0.459	0.510	1761	2790	2.34e6	4.72e6	1329.7	1691.9	NO	bb	bb	102.658
13C-123789-HxCDF	36.326	1.011	1.540e5	3.073e5	0.952	0.501	0.510	1761	2790	1.96e6	3.85e6	1115.2	1378.3	NO	bb	bd	101.953
13C-1234678-HpCDF	38.209	1.064	1.439e5	3.165e5	0.985	0.455	0.440	2093	3817	2.12e6	4.75e6	1011.4	1244.4	NO	bb	bb	98.323
13C-1234789-HpCDF	40.370	1.124	1.103e5	2.710e5	0.756	0.407	0.440	2093	3817	1.42e6	3.20e6	676.5	837.6	NO	bb	bb	106.094
13C-1234-TCDD	24.955	0.000	2.683e5	3.447e5	1.000	0.779	0.770	1875	1074	4.01e6	5.09e6	2141.0	4737.3	NO	bb	bb	100.000
13C-2378-TCDD	25.760	1.032	3.172e5	4.043e5	1.110	0.785	0.770	1875	1074	4.57e6	5.80e6	2440.5	5394.6	NO	bb	bb	106.068
13C-12378-PeCDD	30.867	1.237	2.730e5	1.761e5	0.754	1.550	1.550	870	984	3.71e6	2.33e6	4270.3	2363.3	NO	bb	bd	97.218
13C-123478-HxCDD	35.412	0.986	2.639e5	2.057e5	0.960	1.283	1.240	1990	2235	3.83e6	3.01e6	1927.1	1344.5	NO	bd	bd	102.882
13C-123678-HxCDD	35.523	0.989	3.306e5	2.617e5	1.159	1.264	1.240	1990	2235	4.19e6	3.34e6	2104.2	1493.8	NO	db	db	107.448
13C-1234678-HpCDD	39.657	1.104	1.755e5	1.480e5	0.629	1.186	1.050	1329	1459	2.14e6	1.98e6	1613.3	1358.5	NO	bb	bb	108.104
13C-OCDD	44.219	1.231	3.081e5	3.396e5	0.635	0.907	0.890	2918	1892	3.11e6	3.46e6	1067.4	1826.4	NO	bd	bd	214.485
13C-123789-HxCDD	35.914	0.000	2.618e5	2.137e5	1.000	1.225	1.240	1990	2235	3.52e6	2.85e6	1768.8	1273.4	NO	bb	bb	100.000
37CL-2378-TCDD	25.788	1.033	7.197e4		1.157			956		1.03e6		1082.1			bb		10.144

Dataset: T:\Autospec\Processed Data Batch\230811CCVIH.qld
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Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.664	0.862	5.587e4	7.239e4	1.170	0.772	0.770	1171	1364	8.88e5	1.11e6	758.3	815.1	NO	bb	bd	9.927
1289-TCDF	26.636	1.060	4.034e4	5.528e4	0.847	0.730	0.770	1171	1364	5.63e5	7.36e5	480.7	539.5	NO	db	db	10.229
13468-PECDF	26.495	0.905	2.957e5	1.928e5	1.241	1.534	1.550	874	914	4.38e6	2.89e6	5017.4	3159.3	NO	bb	bb	48.064
12389-PECDF	31.657	1.081	2.152e5	1.509e5	0.880	1.426	1.550	3401	1936	2.88e6	1.91e6	847.6	988.4	NO	bb	bd	50.811
123468-HXCDF	32.582	0.951	1.856e5	1.442e5	1.206	1.287	1.240	2851	1900	2.57e6	2.03e6	901.0	1070.2	NO	bb	bb	51.712
1368-TCDD	22.921	0.890	3.755e4	4.802e4	1.181	0.782	0.770	1258	1191	5.66e5	7.25e5	450.1	608.8	NO	bb	bb	10.046
1289-TCDD	26.382	1.024	2.982e4	3.935e4	0.963	0.758	0.770	1258	1191	4.24e5	5.11e5	337.3	429.0	NO	bb	bd	9.958
12479-PECDD	28.170	0.913	2.948e5	1.865e5	2.166	1.580	1.550	2088	1452	2.74e6	1.73e6	1310.2	1194.8	NO	bb	bb	49.462
12389-PECDD	31.279	1.013	1.853e5	1.220e5	1.326	1.519	1.550	2088	1452	2.47e6	1.60e6	1184.3	1101.7	NO	bb	bd	51.590
124679-HXCDD	33.373	0.942	1.421e5	1.193e5	1.127	1.191	1.240	1570	2286	2.01e6	1.64e6	1280.1	719.5	NO	bb	bb	49.407
1234679-HPCDD	38.665	0.975	1.054e5	1.006e5	1.303	1.048	1.050	1868	1943	1.56e6	1.49e6	836.7	766.1	NO	bb	bb	48.873
Total-tetrafurans			1.395e5		0.973			1171		2.06e6							30.152
Total-penta1			2.957e5					874		4.38e6							48.064
Total-pentafurans			7.213e5		0.931			3401		9.89e6							161.015
Total-hexafurans			8.216e5		1.087			2851		1.13e7							255.434
Total-heptafurans			2.571e5		1.134			2040		3.48e6							106.883
Total-Furans			2.413e6		1.053			1171		3.29e7							702.205
Total-tetradioxins			1.808e5		1.129			1258		2.36e6							49.895
Total-pentadioxins			6.424e5		1.548			2088		7.42e6							153.014
Total-hexadioxins			5.534e5		0.943			1570		7.46e6							205.039
Total-heptadioxins			2.077e5		1.251			1868		2.79e6							99.583
Total-Dioxins			1.741e6		1.182			1258		2.16e7							606.622
Total-TEQ			4.154e6					1258		5.45e7							1308.826
FUNCTION1 PFK			0.000e0					481142		0.00e0							
FUNCTION2 PFK			4.874e5					229819		1.22e7							0.000
FUNCTION3 PFK			3.763e5					413268		3.62e6							0.000
FUNCTION4 PFK			5.619e6					286001		6.99e7							
FUNCTION5 PFK			7.251e4					183835		3.22e6							
FUNCTION1 HXCD...			8.350e2					627		1.16e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			6.582e2					812		1.25e4							0.000
FUNCTION3 OCDPE			3.234e2					512		5.07e3							0.000
FUNCTION4 NCDPE			1.681e2					714		2.55e3							0.000
FUNCTION5 DCDPE			0.000e0					517		0.00e0							

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Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	4.034e4	5.528e4	0.847	0.73	0.77	480.7	YES	NO	db	db	10.229
2	2378-TCDF	25.15	4.331e4	5.635e4	0.903	0.77	0.77	521.7	YES	NO	bb	bb	9.996
3	1368-TCDF	21.66	5.587e4	7.239e4	1.170	0.77	0.77	758.3	YES	NO	bb	bd	9.927

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.49	2.957e5	1.928e5	1.241	1.53	1.55	5017.4	YES	NO	bb	bb	48.064

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.30	2.300e5	1.467e5	0.923	1.57	1.55	960.4	YES	NO	bb	bb	49.821
2	Total-pentafurans	28.15	4.032e4	2.576e4	0.931	1.57	1.55	166.0	YES	NO	bb	bb	8.910
3	12389-PECDF	31.66	2.152e5	1.509e5	0.880	1.43	1.55	847.6	YES	NO	bb	bd	50.811
4	23478-PeCDF	30.63	2.358e5	1.589e5	0.991	1.48	1.55	932.7	YES	NO	bb	bd	51.473

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.35	1.261e5	1.132e5	0.988	1.11	1.24	603.7	YES	NO	bb	bb	52.524
2	234678-HxCDF	35.30	1.599e5	1.364e5	1.081	1.17	1.24	788.4	YES	NO	bb	bd	51.332
3	123678-HxCDF	34.42	1.857e5	1.474e5	1.032	1.26	1.24	863.3	YES	NO	db	db	50.681
4	123478-HxCDF	34.28	1.642e5	1.293e5	1.128	1.27	1.24	809.4	YES	NO	bd	bd	49.185
5	123468-HXCDF	32.58	1.856e5	1.442e5	1.206	1.29	1.24	901.0	YES	NO	bb	bb	51.712

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.38	1.159e5	1.068e5	1.104	1.09	1.05	684.8	YES	NO	bd	bd	52.933
2	1234678-HpCDF	38.22	1.371e5	1.434e5	1.164	0.96	1.05	992.2	YES	NO	bb	bd	52.328
3	Total-heptafurans	41.14	2.445e2	2.274e2	1.134	1.08	1.05	3.8	NO	NO	bd	bb	0.099
4	Total-heptafurans	40.89	3.939e2	3.374e2	1.134	1.17	1.05	4.1	YES	NO	dd	dd	0.153
5	Total-heptafurans	40.65	3.498e3	3.037e3	1.134	1.15	1.05	20.1	YES	NO	dd	dd	1.370

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	4.034e4	5.528e4	0.847	0.73	0.77	480.7	YES	NO	db	db	10.229
2	2378-TCDF	25.15	4.331e4	5.635e4	0.903	0.77	0.77	521.7	YES	NO	bb	bb	9.996
3	1368-TCDF	21.66	5.587e4	7.239e4	1.170	0.77	0.77	758.3	YES	NO	bb	bd	9.927
4	12378-PeCDF	29.30	2.300e5	1.467e5	0.923	1.57	1.55	960.4	YES	NO	bb	bb	49.821
5	Total-pentafurans	28.15	4.032e4	2.576e4	0.931	1.57	1.55	166.0	YES	NO	bb	bb	8.910
6	12389-PECDF	31.66	2.152e5	1.509e5	0.880	1.43	1.55	847.6	YES	NO	bb	bd	50.811
7	23478-PeCDF	30.63	2.358e5	1.589e5	0.991	1.48	1.55	932.7	YES	NO	bb	bd	51.473
8	123789-HxCDF	36.35	1.261e5	1.132e5	0.988	1.11	1.24	603.7	YES	NO	bb	bb	52.524
9	234678-HxCDF	35.30	1.599e5	1.364e5	1.081	1.17	1.24	788.4	YES	NO	bb	bd	51.332
10	123678-HxCDF	34.42	1.857e5	1.474e5	1.032	1.26	1.24	863.3	YES	NO	db	db	50.681
11	123478-HxCDF	34.28	1.642e5	1.293e5	1.128	1.27	1.24	809.4	YES	NO	bd	bd	49.185
12	123468-HXCDF	32.58	1.856e5	1.442e5	1.206	1.29	1.24	901.0	YES	NO	bb	bb	51.712
13	1234789-HpCDF	40.38	1.159e5	1.068e5	1.104	1.09	1.05	684.8	YES	NO	bd	bd	52.933
14	1234678-HpCDF	38.22	1.371e5	1.434e5	1.164	0.96	1.05	992.2	YES	NO	bb	bd	52.328
15	Total-heptafurans	41.14	2.445e2	2.274e2	1.134	1.08	1.05	3.8	NO	NO	bd	bb	0.099
16	Total-heptafurans	40.89	3.939e2	3.374e2	1.134	1.17	1.05	4.1	YES	NO	dd	dd	0.153
17	Total-heptafurans	40.65	3.498e3	3.037e3	1.134	1.15	1.05	20.1	YES	NO	dd	dd	1.370
18	OCDF	44.46	1.780e5	1.904e5	1.130	0.93	0.89	616.0	YES	NO	bd	bd	100.657
19	13468-PECDF	26.49	2.957e5	1.928e5	1.241	1.53	1.55	5017.4	YES	NO	bb	bb	48.064

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.46	5.650e4	6.995e4	1.129	0.81	0.77	438.0	YES	NO	bb	bb	15.526
2	Total-tetradioxins	24.97	1.801e4	2.188e4	1.129	0.82	0.77	222.5	YES	NO	bb	bb	4.898
3	1368-TCDD	22.92	3.755e4	4.802e4	1.181	0.78	0.77	450.1	YES	NO	bb	bb	10.046
4	1289-TCDD	26.38	2.982e4	3.935e4	0.963	0.76	0.77	337.3	YES	NO	bb	bd	9.958
5	2378-TCDD	25.79	3.895e4	4.595e4	1.243	0.85	0.77	432.3	YES	NO	bd	bb	9.467

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.28	1.853e5	1.220e5	1.326	1.52	1.55	1184.3	YES	NO	bb	bd	51.590
2	12378-PeCDD	30.88	1.623e5	1.061e5	1.150	1.53	1.55	1060.9	YES	NO	bb	bd	51.961
3	12479-PECDD	28.17	2.948e5	1.865e5	2.166	1.58	1.55	1310.2	YES	NO	bb	bb	49.462

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.94	1.323e5	9.665e4	0.804	1.37	1.24	1083.8	YES	NO	dd	bb	53.651
2	123678-HxCDD	35.53	1.604e5	1.248e5	0.883	1.28	1.24	1245.8	YES	NO	dd	dd	54.545
3	123478-HxCDD	35.42	1.187e5	9.517e4	0.960	1.25	1.24	1140.2	YES	NO	bd	bd	47.435
4	124679-HXCDD	33.37	1.421e5	1.193e5	1.127	1.19	1.24	1280.1	YES	NO	bb	bb	49.407

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.67	1.024e5	9.440e4	1.200	1.08	1.05	659.7	YES	NO	bd	bd	50.710
2	1234679-HPCDD	38.67	1.054e5	1.006e5	1.303	1.05	1.05	836.7	YES	NO	bb	bb	48.873

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.46	5.650e4	6.995e4	1.129	0.81	0.77	438.0	YES	NO	bb	bb	15.526
2	Total-tetradioxins	24.97	1.801e4	2.188e4	1.129	0.82	0.77	222.5	YES	NO	bb	bb	4.898
3	1368-TCDD	22.92	3.755e4	4.802e4	1.181	0.78	0.77	450.1	YES	NO	bb	bb	10.046
4	1289-TCDD	26.38	2.982e4	3.935e4	0.963	0.76	0.77	337.3	YES	NO	bb	bd	9.958
5	2378-TCDD	25.79	3.895e4	4.595e4	1.243	0.85	0.77	432.3	YES	NO	bd	bb	9.467
6	12389-PECDD	31.28	1.853e5	1.220e5	1.326	1.52	1.55	1184.3	YES	NO	bb	bd	51.590
7	12378-PeCDD	30.88	1.623e5	1.061e5	1.150	1.53	1.55	1060.9	YES	NO	bb	bd	51.961
8	12479-PECDD	28.17	2.948e5	1.865e5	2.166	1.58	1.55	1310.2	YES	NO	bb	bb	49.462
9	123789-HxCDD	35.94	1.323e5	9.665e4	0.804	1.37	1.24	1083.8	YES	NO	dd	bb	53.651
10	123678-HxCDD	35.53	1.604e5	1.248e5	0.883	1.28	1.24	1245.8	YES	NO	dd	dd	54.545
11	123478-HxCDD	35.42	1.187e5	9.517e4	0.960	1.25	1.24	1140.2	YES	NO	bd	bd	47.435
12	124679-HXCDD	33.37	1.421e5	1.193e5	1.127	1.19	1.24	1280.1	YES	NO	bb	bb	49.407
13	1234678-HpCDD	39.67	1.024e5	9.440e4	1.200	1.08	1.05	659.7	YES	NO	bd	bd	50.710
14	1234679-HPCDD	38.67	1.054e5	1.006e5	1.303	1.05	1.05	836.7	YES	NO	bb	bb	48.873
15	OCDD	44.24	1.567e5	1.831e5	1.059	0.86	0.89	534.1	YES	NO	bd	bd	99.090

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	4.034e4	5.528e4	0.847	0.73	0.77	480.7	YES	NO	db	db	10.229
2	2378-TCDF	25.15	4.331e4	5.635e4	0.903	0.77	0.77	521.7	YES	NO	bb	bb	9.996
3	1368-TCDF	21.66	5.587e4	7.239e4	1.170	0.77	0.77	758.3	YES	NO	bb	bd	9.927
4	12378-PeCDF	29.30	2.300e5	1.467e5	0.923	1.57	1.55	960.4	YES	NO	bb	bb	49.821
5	Total-pentafurans	28.15	4.032e4	2.576e4	0.931	1.57	1.55	166.0	YES	NO	bb	bb	8.910
6	12389-PECDF	31.66	2.152e5	1.509e5	0.880	1.43	1.55	847.6	YES	NO	bb	bd	50.811
7	23478-PeCDF	30.63	2.358e5	1.589e5	0.991	1.48	1.55	932.7	YES	NO	bb	bd	51.473
8	123789-HxCDF	36.35	1.261e5	1.132e5	0.988	1.11	1.24	603.7	YES	NO	bb	bb	52.524
9	234678-HxCDF	35.30	1.599e5	1.364e5	1.081	1.17	1.24	788.4	YES	NO	bb	bd	51.332
10	123678-HxCDF	34.42	1.857e5	1.474e5	1.032	1.26	1.24	863.3	YES	NO	db	db	50.681
11	123478-HxCDF	34.28	1.642e5	1.293e5	1.128	1.27	1.24	809.4	YES	NO	bd	bd	49.185
12	123468-HXCDF	32.58	1.856e5	1.442e5	1.206	1.29	1.24	901.0	YES	NO	bb	bb	51.712
13	1234789-HpCDF	40.38	1.159e5	1.068e5	1.104	1.09	1.05	684.8	YES	NO	bd	bd	52.933
14	1234678-HpCDF	38.22	1.371e5	1.434e5	1.164	0.96	1.05	992.2	YES	NO	bb	bd	52.328
15	Total-heptafurans	41.14	2.445e2	2.274e2	1.134	1.08	1.05	3.8	NO	NO	bd	bb	0.099
16	Total-heptafurans	40.89	3.939e2	3.374e2	1.134	1.17	1.05	4.1	YES	NO	dd	dd	0.153
17	Total-heptafurans	40.65	3.498e3	3.037e3	1.134	1.15	1.05	20.1	YES	NO	dd	dd	1.370
18	OCDF	44.46	1.780e5	1.904e5	1.130	0.93	0.89	616.0	YES	NO	bd	bd	100.657
19	13468-PECDF	26.49	2.957e5	1.928e5	1.241	1.53	1.55	5017.4	YES	NO	bb	bb	48.064
20	Total-tetradioxins	25.46	5.650e4	6.995e4	1.129	0.81	0.77	438.0	YES	NO	bb	bb	15.526
21	Total-tetradioxins	24.97	1.801e4	2.188e4	1.129	0.82	0.77	222.5	YES	NO	bb	bb	4.898
22	1368-TCDD	22.92	3.755e4	4.802e4	1.181	0.78	0.77	450.1	YES	NO	bb	bb	10.046
23	1289-TCDD	26.38	2.982e4	3.935e4	0.963	0.76	0.77	337.3	YES	NO	bb	bd	9.958
24	2378-TCDD	25.79	3.895e4	4.595e4	1.243	0.85	0.77	432.3	YES	NO	bd	bb	9.467
25	12389-PECDD	31.28	1.853e5	1.220e5	1.326	1.52	1.55	1184.3	YES	NO	bb	bd	51.590
26	12378-PeCDD	30.88	1.623e5	1.061e5	1.150	1.53	1.55	1060.9	YES	NO	bb	bd	51.961
27	12479-PECDD	28.17	2.948e5	1.865e5	2.166	1.58	1.55	1310.2	YES	NO	bb	bb	49.462
28	123789-HxCDD	35.94	1.323e5	9.665e4	0.804	1.37	1.24	1083.8	YES	NO	dd	bb	53.651
29	123678-HxCDD	35.53	1.604e5	1.248e5	0.883	1.28	1.24	1245.8	YES	NO	dd	dd	54.545
30	123478-HxCDD	35.42	1.187e5	9.517e4	0.960	1.25	1.24	1140.2	YES	NO	bd	bd	47.435
31	124679-HXCDD	33.37	1.421e5	1.193e5	1.127	1.19	1.24	1280.1	YES	NO	bb	bb	49.407
32	1234678-HpCDD	39.67	1.024e5	9.440e4	1.200	1.08	1.05	659.7	YES	NO	bd	bd	50.710
33	1234679-HPCDD	38.67	1.054e5	1.006e5	1.303	1.05	1.05	836.7	YES	NO	bb	bb	48.873
34	OCDD	44.24	1.567e5	1.831e5	1.059	0.86	0.89	534.1	YES	NO	bd	bd	99.090

ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.97	5.006e3					0.8	NO		bb		0.000
2	FUNCTION2 PFK	28.64	1.227e3					0.5	NO		bb		0.000
3	FUNCTION2 PFK	28.59	9.247e3					1.7	NO		db		0.000
4	FUNCTION2 PFK	28.55	1.616e4					1.5	NO		dd		0.000
5	FUNCTION2 PFK	28.48	1.220e4					1.7	NO		dd		0.000
6	FUNCTION2 PFK	28.44	1.402e4					1.8	NO		bd		0.000
7	FUNCTION2 PFK	28.35	2.228e3					0.9	NO		bb		0.000
8	FUNCTION2 PFK	28.30	4.845e3					1.1	NO		bb		0.000
9	FUNCTION2 PFK	28.08	1.896e4					2.0	NO		bb		0.000
10	FUNCTION2 PFK	28.00	4.249e4					2.6	NO		db		0.000
11	FUNCTION2 PFK	27.89	2.054e4					2.4	NO		dd		0.000
12	FUNCTION2 PFK	27.84	3.689e4					4.5	YES		dd		0.000
13	FUNCTION2 PFK	27.80	5.492e4					5.0	YES		dd		0.000
14	FUNCTION2 PFK	27.72	4.091e4					2.8	NO		dd		0.000
15	FUNCTION2 PFK	27.64	1.167e4					1.8	NO		bd		0.000
16	FUNCTION2 PFK	27.57	8.795e3					1.6	NO		bb		0.000
17	FUNCTION2 PFK	31.89	9.658e3					1.4	NO		bb		0.000
18	FUNCTION2 PFK	31.40	3.647e3					0.8	NO		bb		0.000
19	FUNCTION2 PFK	31.35	4.747e4					2.1	NO		db		0.000
20	FUNCTION2 PFK	31.18	1.696e4					1.9	NO		bd		0.000
21	FUNCTION2 PFK	31.06	1.879e4					2.3	NO		bb		0.000
22	FUNCTION2 PFK	30.73	3.629e3					0.7	NO		bb		0.000
23	FUNCTION2 PFK	30.39	1.190e4					1.3	NO		bb		0.000
24	FUNCTION2 PFK	30.21	1.249e3					0.5	NO		bb		0.000
25	FUNCTION2 PFK	30.03	9.791e2					0.4	NO		bb		0.000
26	FUNCTION2 PFK	29.98	4.183e3					0.9	NO		bb		0.000
27	FUNCTION2 PFK	29.89	3.617e3					1.0	NO		bb		0.000
28	FUNCTION2 PFK	29.77	2.797e3					0.6	NO		bb		0.000
29	FUNCTION2 PFK	29.69	7.735e3					1.2	NO		bb		0.000
30	FUNCTION2 PFK	29.62	1.303e4					1.3	NO		bb		0.000
31	FUNCTION2 PFK	29.37	3.649e4					2.9	NO		bb		0.000
32	FUNCTION2 PFK	29.18	5.105e3					0.9	NO		bb		0.000

ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	32.26	3.763e5					8.8	YES		bb		0.000

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Printed: Tuesday, August 15, 2023 12:27:19 Pacific Daylight Time

ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.99	1.135e4					1.3	NO		bd		
2	FUNCTION4 PFK	38.88	5.579e3					1.1	NO		bb		
3	FUNCTION4 PFK	38.80	1.168e4					1.6	NO		bb		
4	FUNCTION4 PFK	38.69	9.737e3					1.3	NO		bb		
5	FUNCTION4 PFK	38.25	1.166e5					5.2	YES		db		
6	FUNCTION4 PFK	37.91	1.120e6					16.6	YES		dd		
7	FUNCTION4 PFK	37.84	2.215e5					18.5	YES		dd		
8	FUNCTION4 PFK	37.81	6.404e5					19.7	YES		dd		
9	FUNCTION4 PFK	37.70	2.057e5					22.0	YES		dd		
10	FUNCTION4 PFK	37.60	1.227e6					26.8	YES		dd		
11	FUNCTION4 PFK	37.48	5.511e5					29.6	YES		dd		
12	FUNCTION4 PFK	37.43	3.867e5					31.1	YES		dd		
13	FUNCTION4 PFK	37.36	7.118e5					32.6	YES		bd		
14	FUNCTION4 PFK	41.89	1.929e4					1.3	NO		bb		
15	FUNCTION4 PFK	41.74	3.622e4					1.9	NO		bb		
16	FUNCTION4 PFK	41.60	1.168e4					1.3	NO		db		
17	FUNCTION4 PFK	41.55	5.316e3					0.8	NO		bd		
18	FUNCTION4 PFK	41.50	1.097e4					1.6	NO		bb		
19	FUNCTION4 PFK	40.96	3.761e3					0.6	NO		bb		
20	FUNCTION4 PFK	40.85	1.359e3					0.4	NO		bb		
21	FUNCTION4 PFK	40.80	8.617e3					0.9	NO		bb		
22	FUNCTION4 PFK	40.60	1.895e4					1.8	NO		db		
23	FUNCTION4 PFK	40.55	2.765e4					2.2	NO		dd		
24	FUNCTION4 PFK	40.49	2.015e4					2.0	NO		dd		
25	FUNCTION4 PFK	40.45	2.099e4					2.3	NO		bd		
26	FUNCTION4 PFK	40.23	1.769e4					2.1	NO		bb		
27	FUNCTION4 PFK	39.60	3.578e4					2.8	NO		db		
28	FUNCTION4 PFK	39.55	1.128e4					1.7	NO		bd		
29	FUNCTION4 PFK	39.07	2.212e4					1.8	NO		db		
30	FUNCTION4 PFK	42.75	3.285e3					0.6	NO		bb		
31	FUNCTION4 PFK	42.70	2.754e4					1.5	NO		db		
32	FUNCTION4 PFK	42.58	1.807e4					1.7	NO		dd		
33	FUNCTION4 PFK	42.53	1.476e4					1.7	NO		dd		
34	FUNCTION4 PFK	42.46	2.480e4					2.1	NO		bd		
35	FUNCTION4 PFK	42.03	2.481e4					1.9	NO		db		
36	FUNCTION4 PFK	41.99	1.512e4					1.7	NO		bd		

ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.12	2.768e3					0.9	NO		bb		
2	FUNCTION5 PFK	43.91	6.915e3					1.3	NO		db		
3	FUNCTION5 PFK	43.87	7.246e3					1.9	NO		bd		
4	FUNCTION5 PFK	43.73	4.916e3					1.3	NO		bb		
5	FUNCTION5 PFK	43.40	4.518e3					1.3	NO		bb		
6	FUNCTION5 PFK	43.15	1.986e3					0.8	NO		bb		
7	FUNCTION5 PFK	43.00	1.071e4					1.7	NO		bb		
8	FUNCTION5 PFK	42.86	3.711e3					1.2	NO		bb		
9	FUNCTION5 PFK	45.91	1.126e4					2.2	NO		bb		
10	FUNCTION5 PFK	45.79	4.830e3					1.2	NO		bb		
11	FUNCTION5 PFK	45.73	1.131e3					0.7	NO		bb		
12	FUNCTION5 PFK	45.62	5.239e3					1.4	NO		bb		
13	FUNCTION5 PFK	45.12	4.609e3					1.0	NO		bb		
14	FUNCTION5 PFK	44.21	2.676e3					0.7	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.49	1.225e2					2.9	NO		bb		0.000
2	FUNCTION1 HXCD...	25.56	8.311e1					2.6	NO		bb		0.000
3	FUNCTION1 HXCD...	25.24	1.010e2					2.0	NO		db		0.000
4	FUNCTION1 HXCD...	25.14	1.579e2					2.7	NO		dd		0.000
5	FUNCTION1 HXCD...	25.04	1.523e2					4.4	YES		bd		0.000
6	FUNCTION1 HXCD...	24.11	1.289e2					2.1	NO		bb		0.000
7	FUNCTION1 HXCD...	21.37	8.930e1					1.9	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.49	3.116e2					7.1	YES		bb		0.000
2	FUNCTION2 HPCD...	32.15	1.442e2					3.3	YES		bb		0.000
3	FUNCTION2 HPCD...	31.01	8.310e1					3.1	YES		db		0.000
4	FUNCTION2 HPCD...	30.88	1.193e2					2.0	NO		bd		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.95	1.152e2					3.0	NO		bb		0.000
2	FUNCTION3 OCDPE	35.41	1.159e2					4.5	YES		bb		0.000
3	FUNCTION3 OCDPE	34.62	9.236e1					2.5	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.66	8.194e1					2.0	NO		bb		0.000
2	FUNCTION4 NCDPE	39.66	8.616e1					1.6	NO		bb		0.000

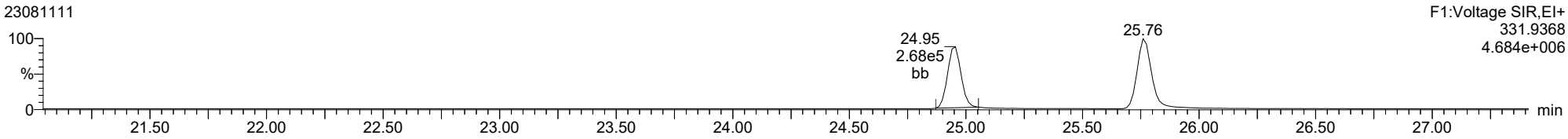
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
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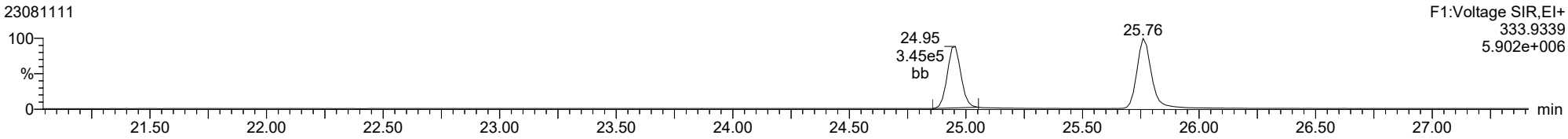
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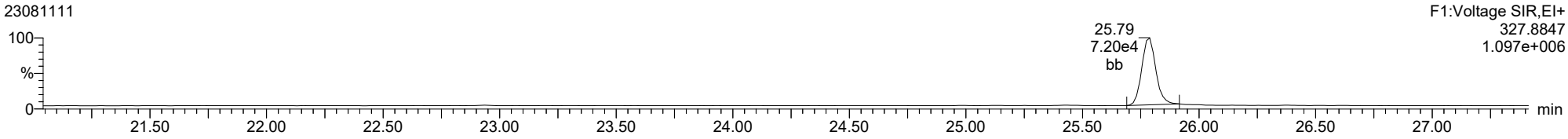
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13C-1234-TCDD

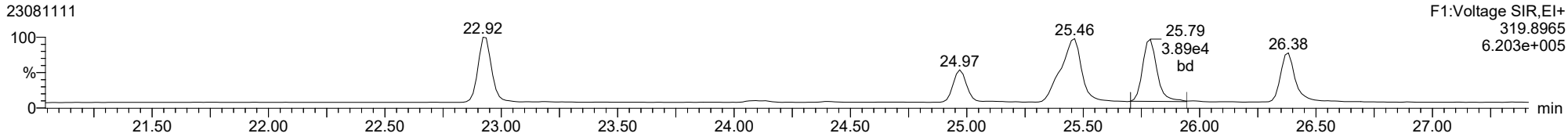


37CL-2378-TCDD

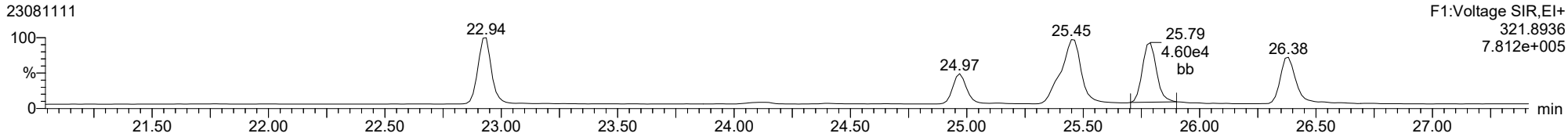


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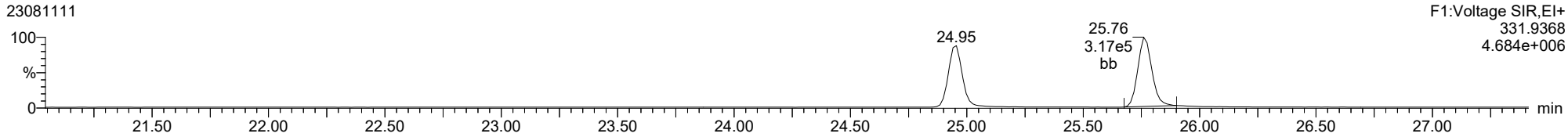
2378-TCDD



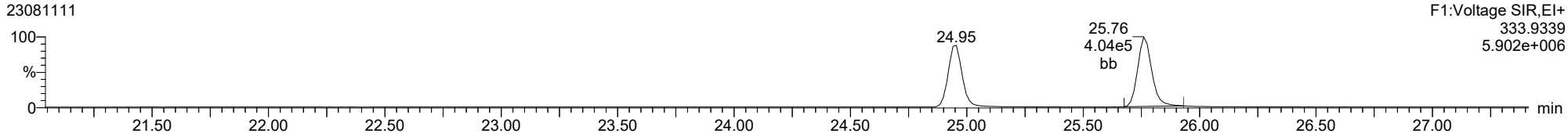
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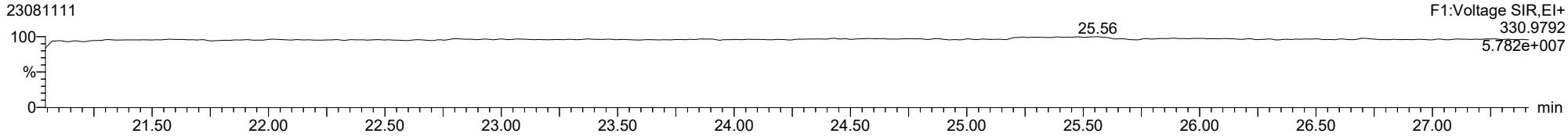
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13C-2378-TCDD

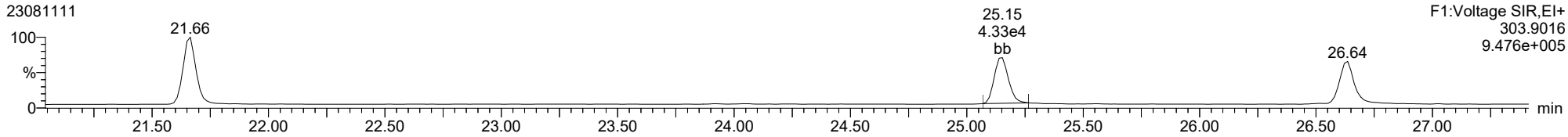


FUNCTION1 PFK

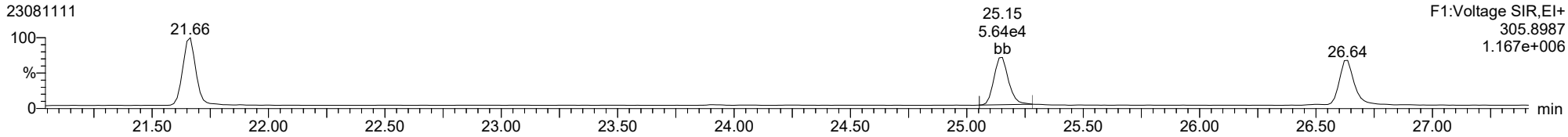


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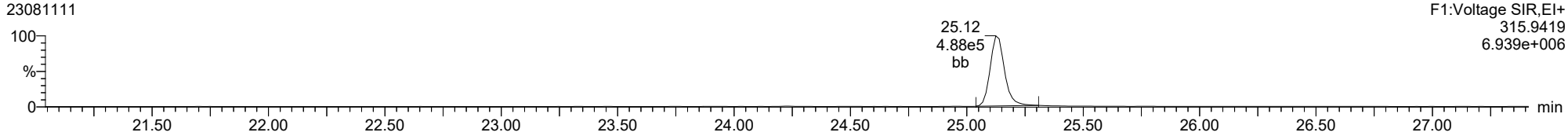
2378-TCDF



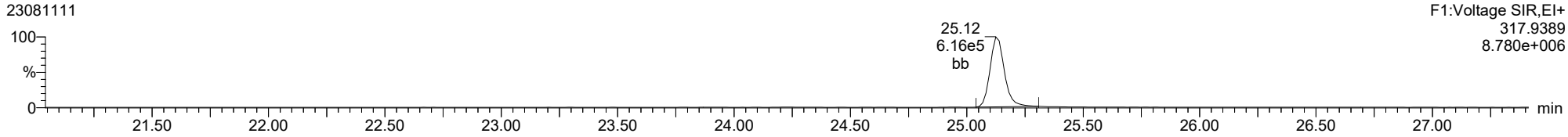
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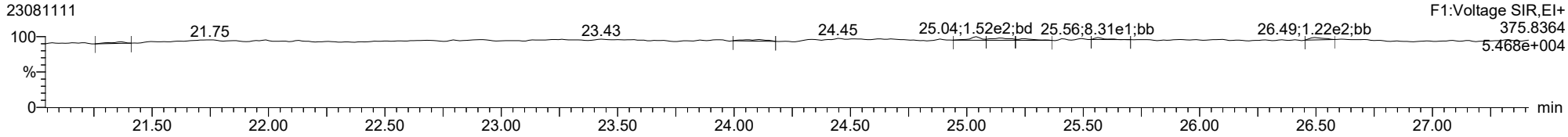
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13C-2378-TCDF

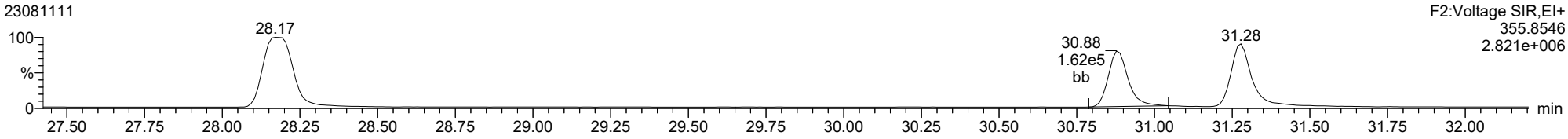


FUNCTION1 HXCDPE

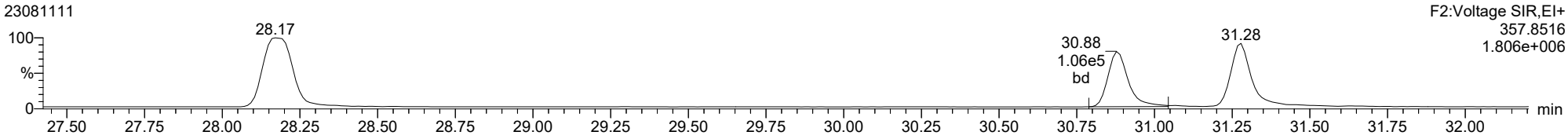


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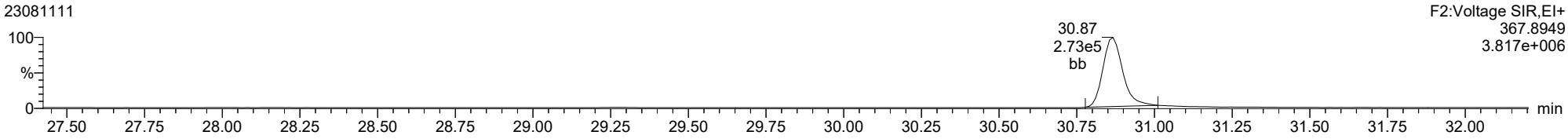
12378-PeCDD



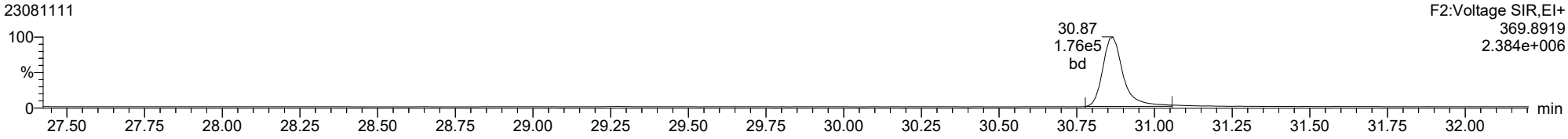
12378-PeCDD



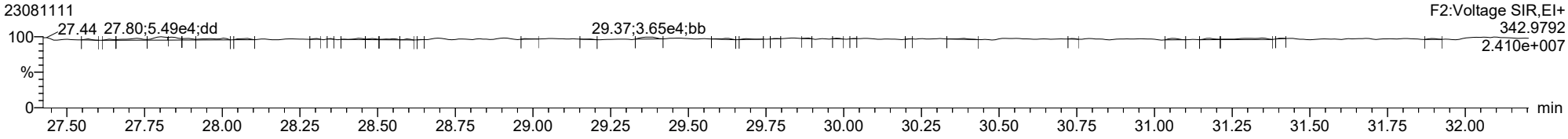
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13C-12378-PeCDD

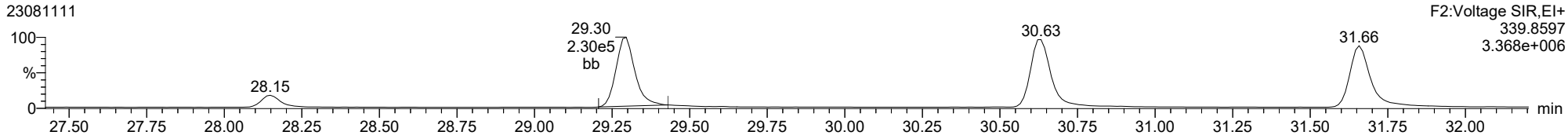


FUNCTION2 PFK

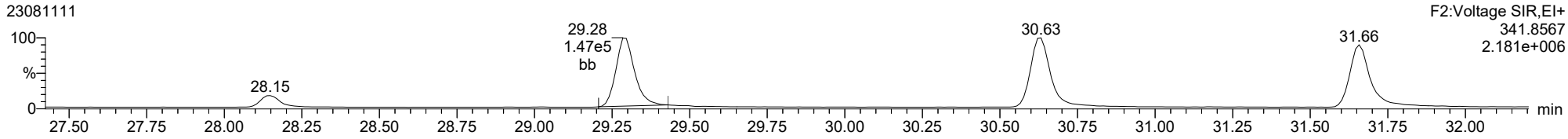


ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

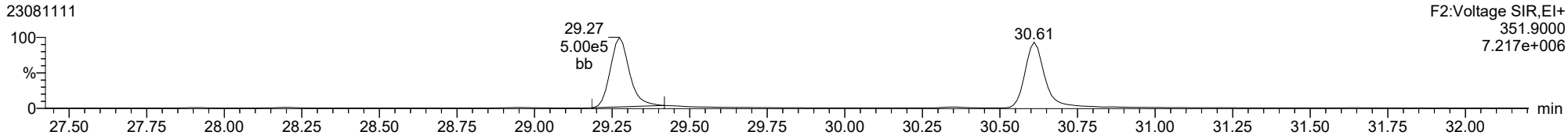
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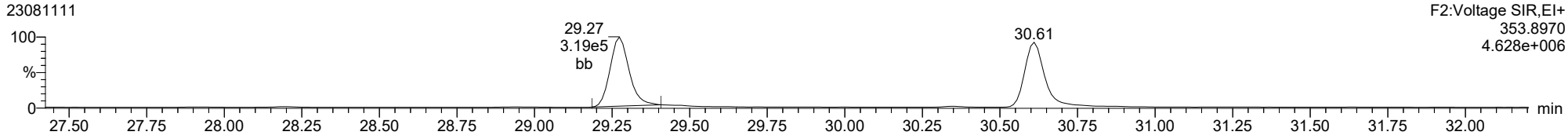
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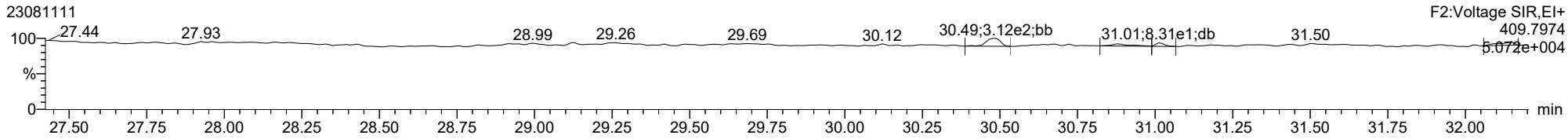
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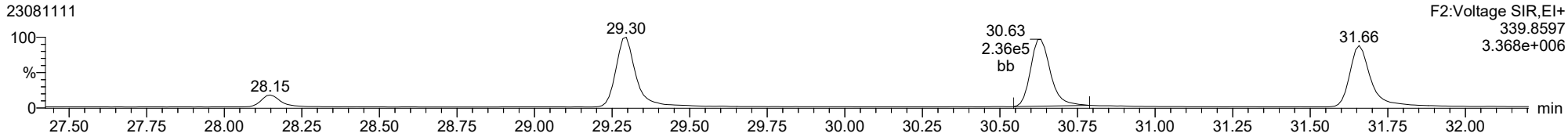


FUNCTION2 HPCDPE

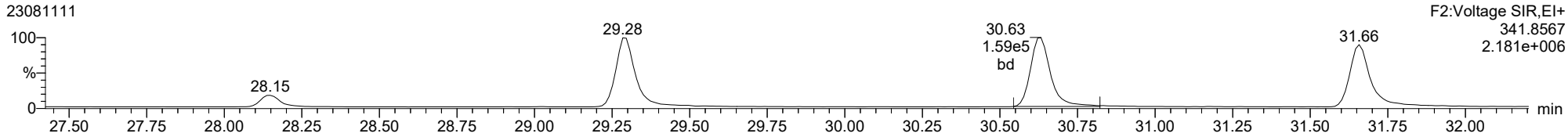


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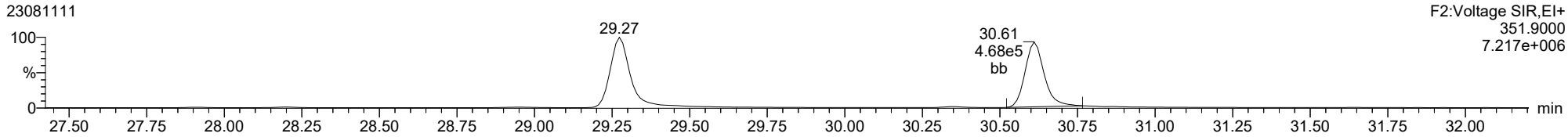
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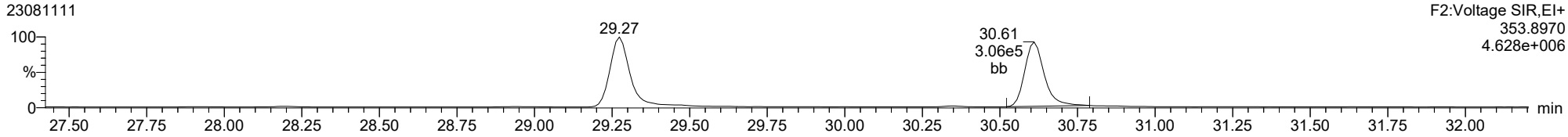
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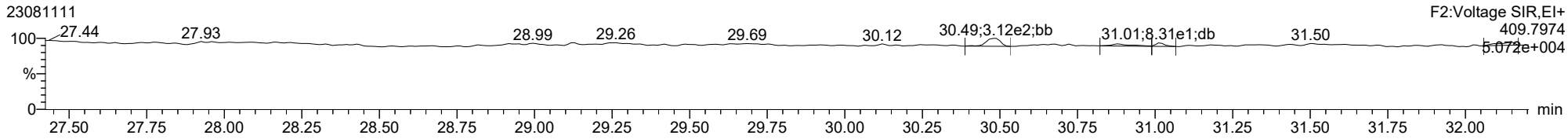
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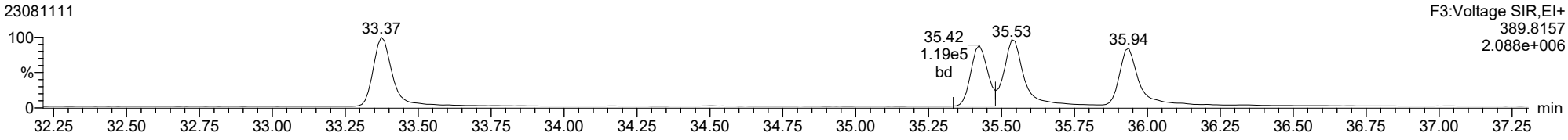


FUNCTION2 HPCDPE

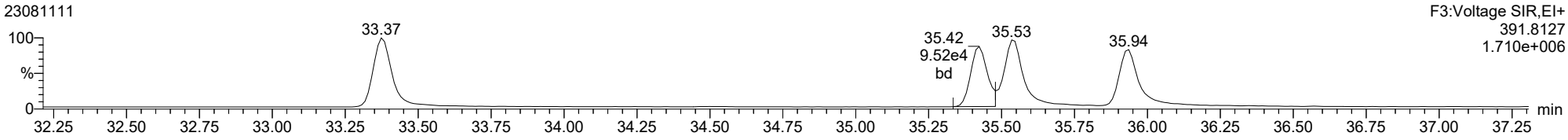


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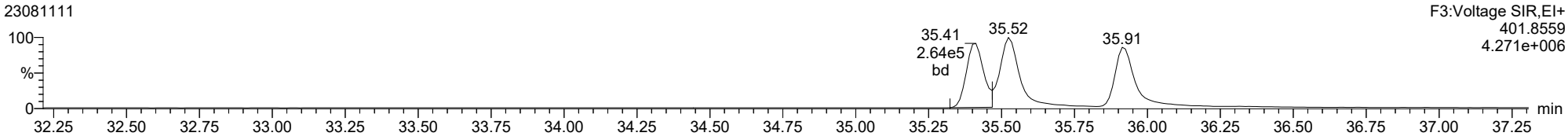
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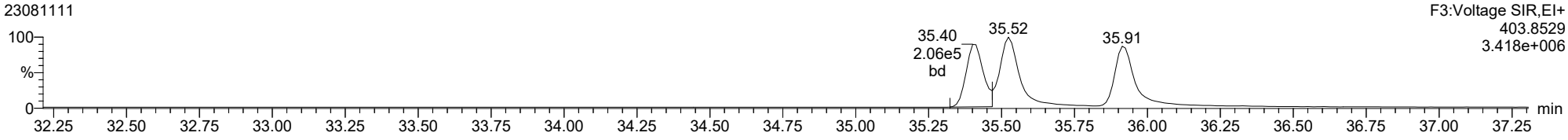
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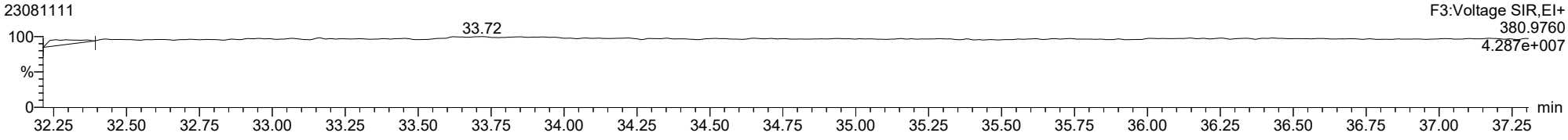
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13C-123478-HxCDD



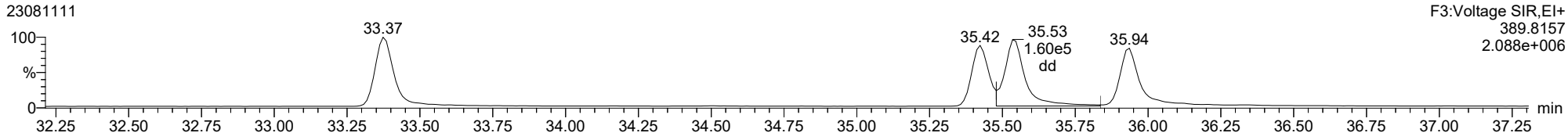
FUNCTION3 PFK



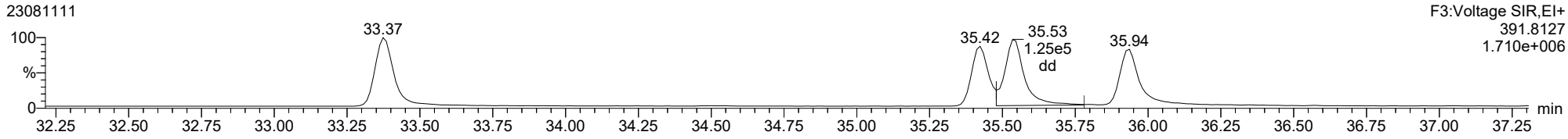
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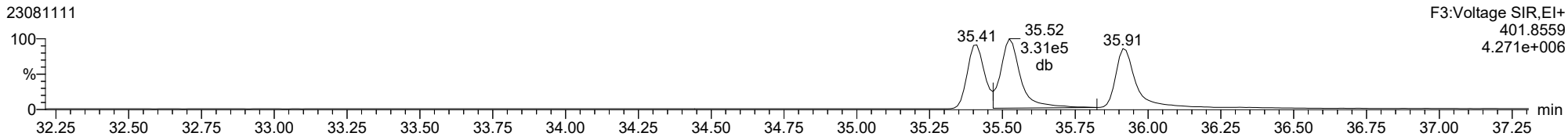
123678-HxCDD



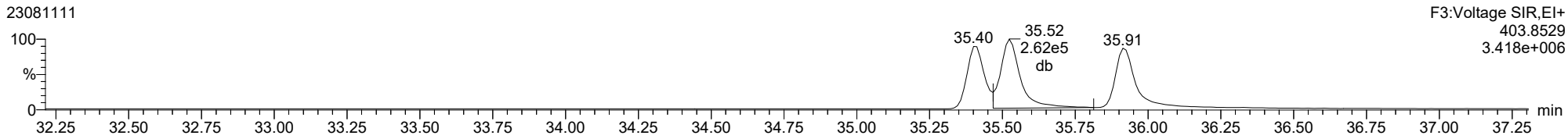
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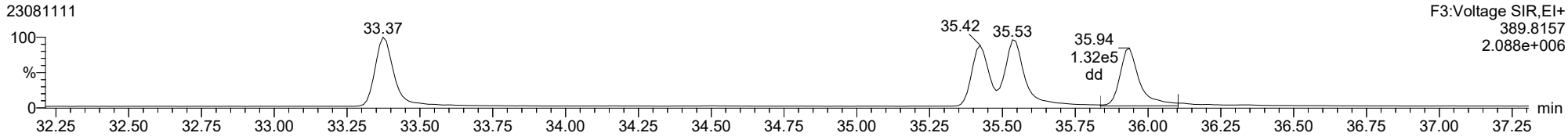


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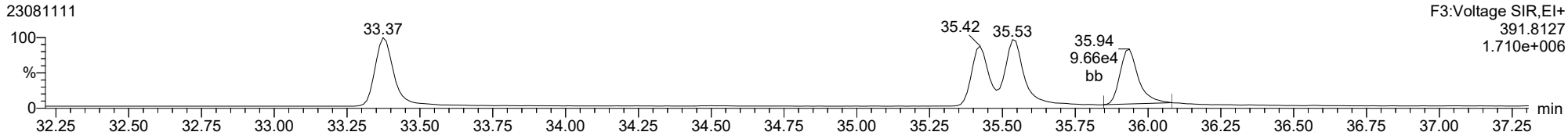


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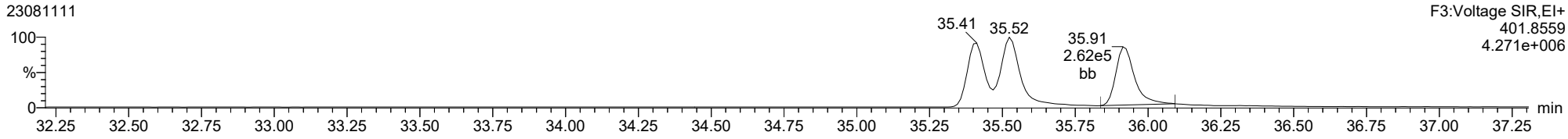
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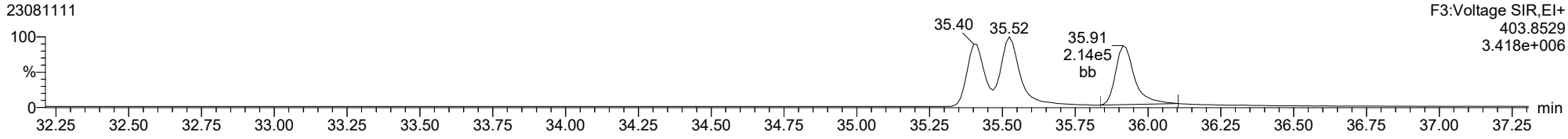
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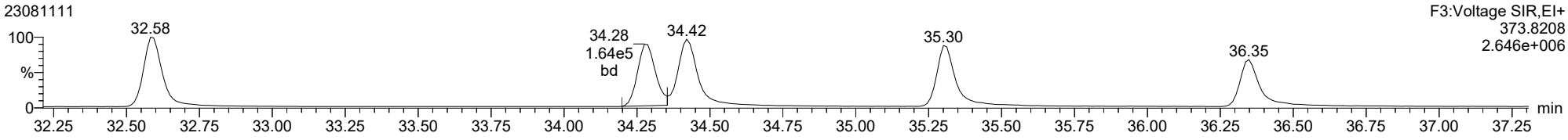
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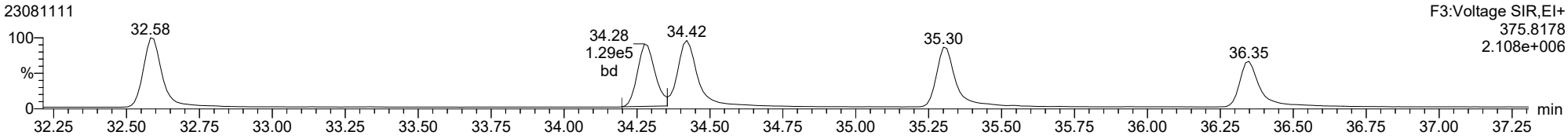
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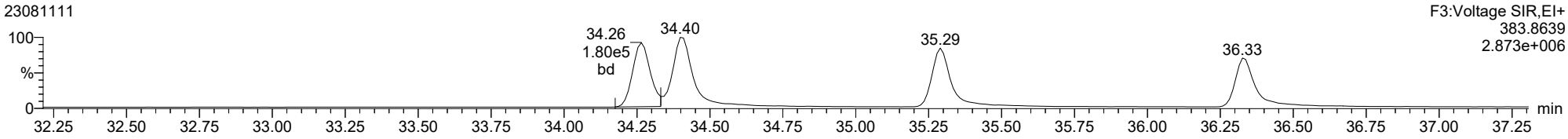
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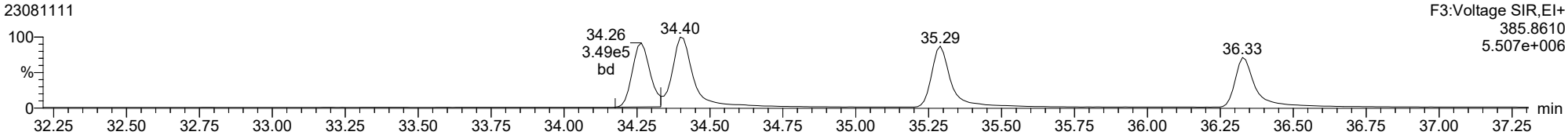
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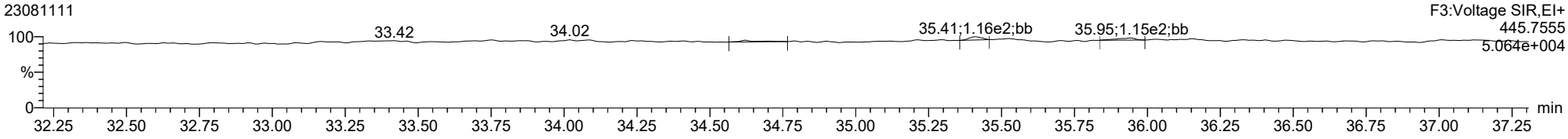
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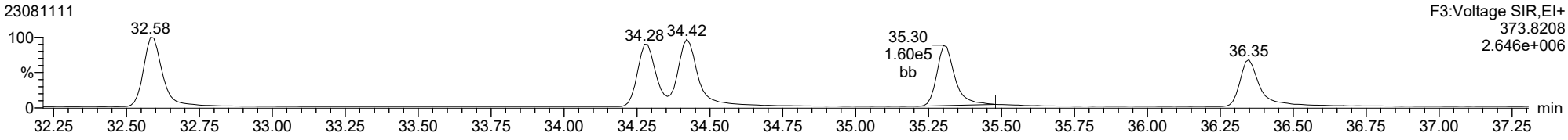


FUNCTION3 OCDPE

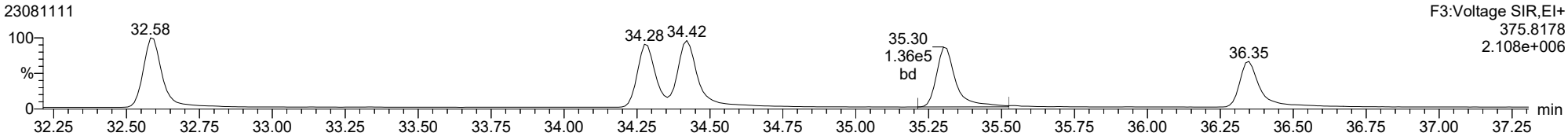


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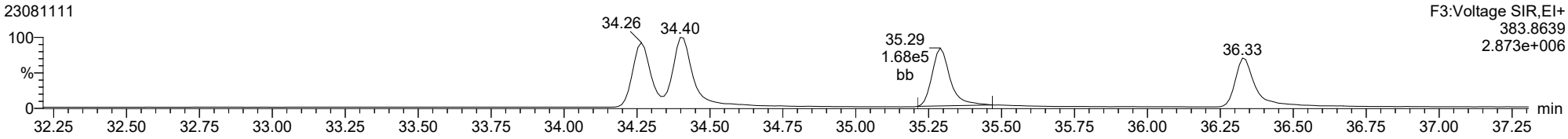
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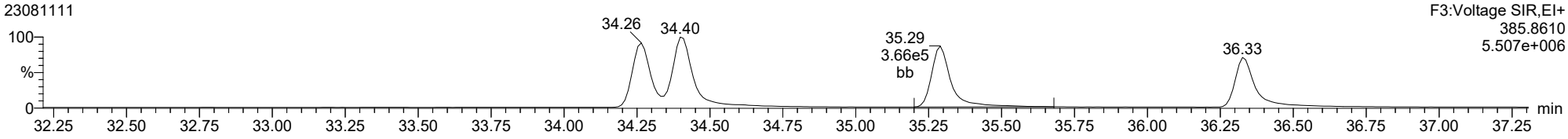
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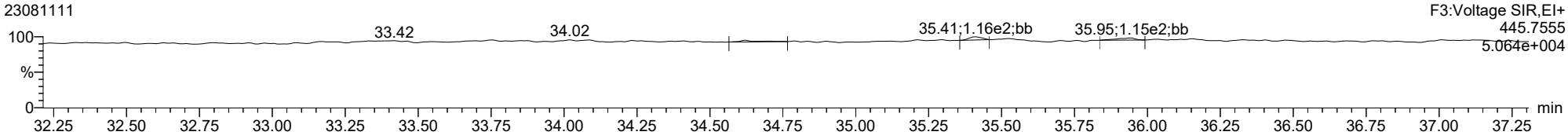
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13C-234678-HxCDF

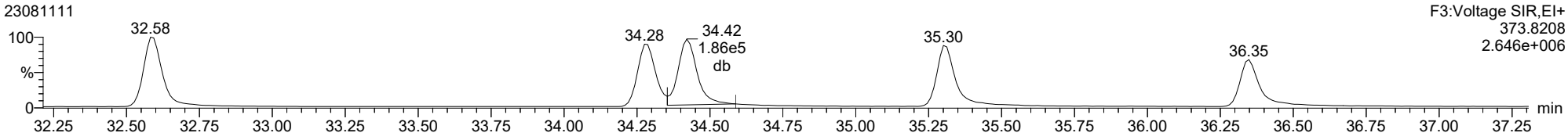


FUNCTION3 OCDPE

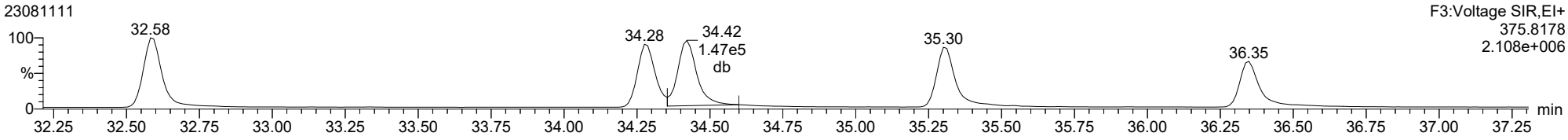


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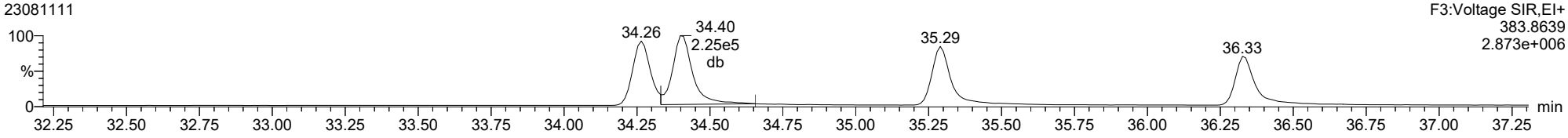
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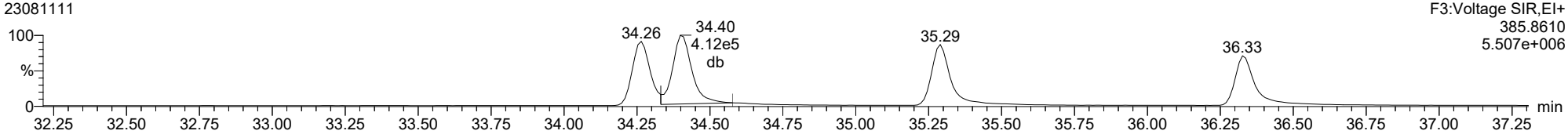
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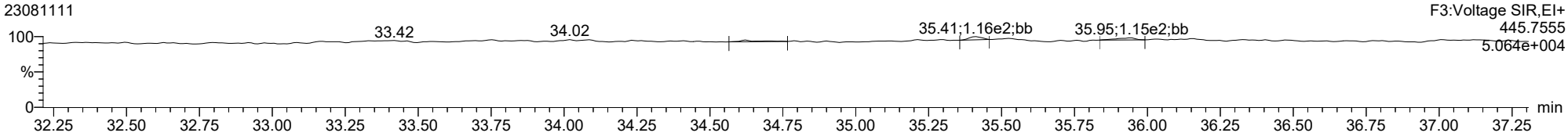
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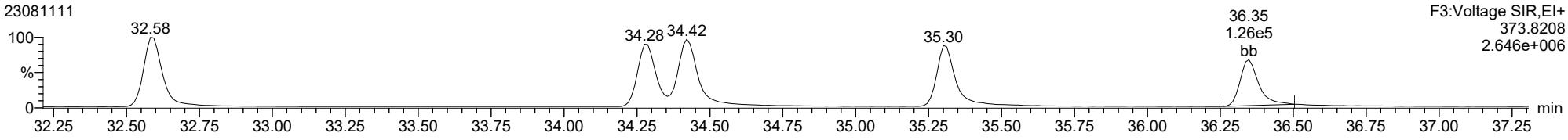


FUNCTION3 OCDPE

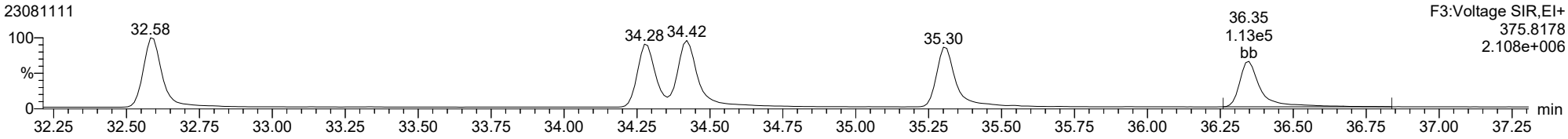


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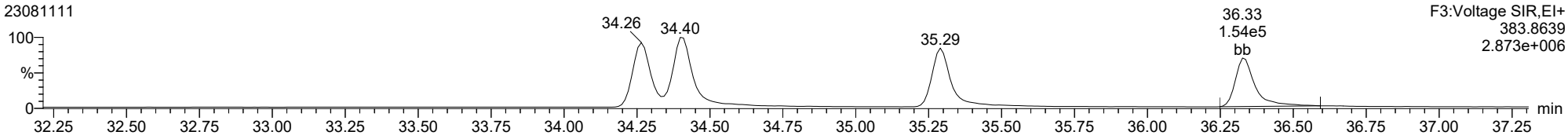
123789-HxCDF



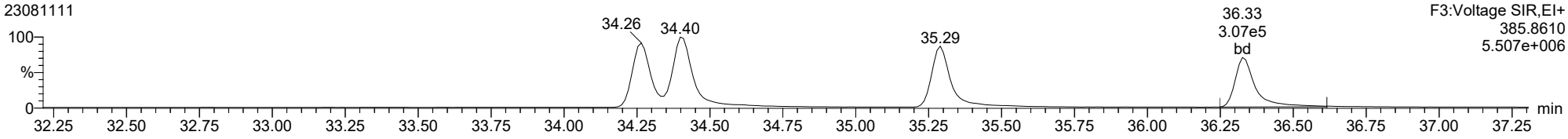
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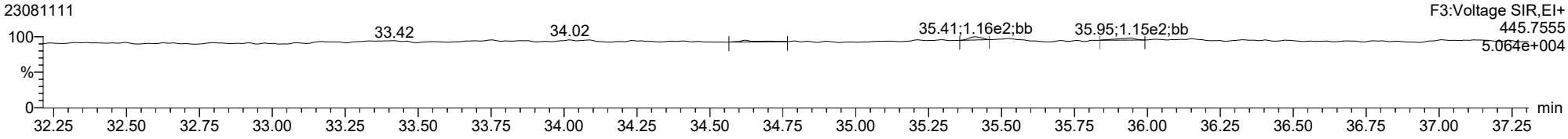
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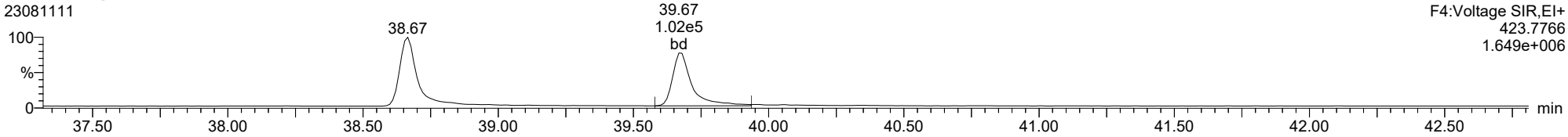


FUNCTION3 OCDPE

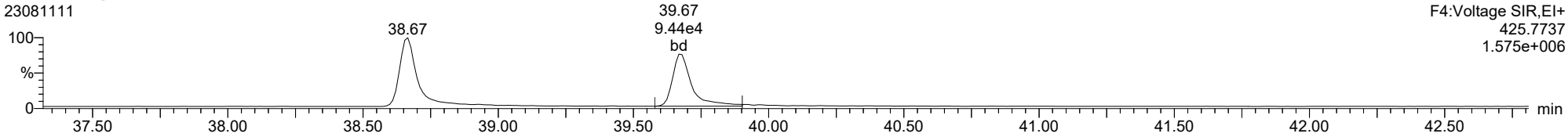


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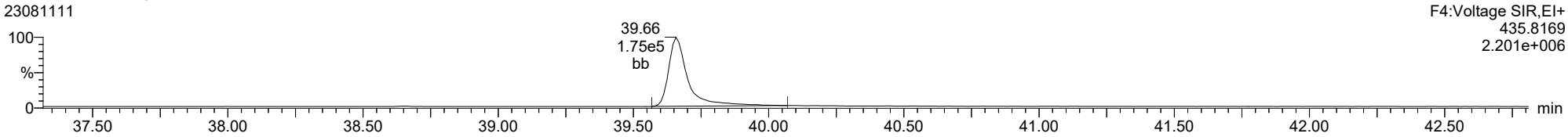
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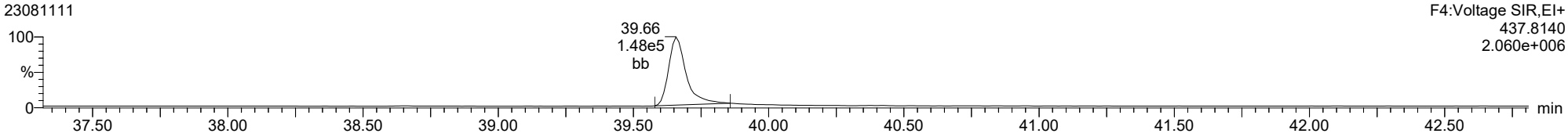
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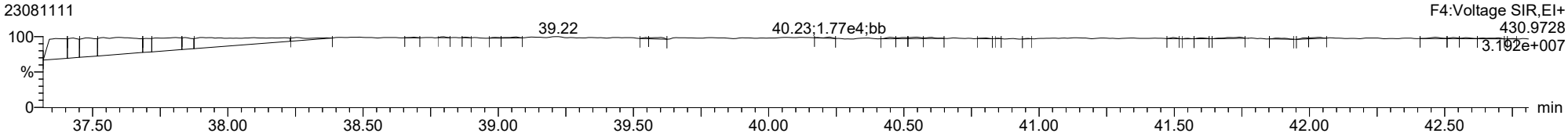
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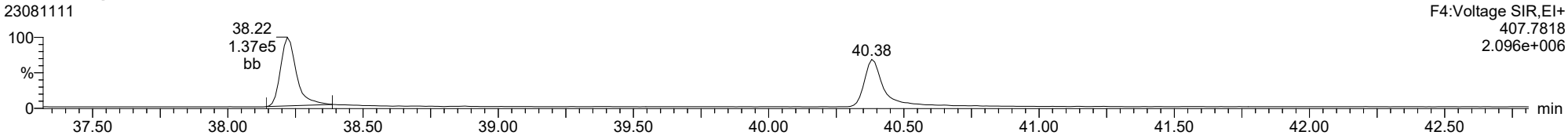


FUNCTION4 PFK

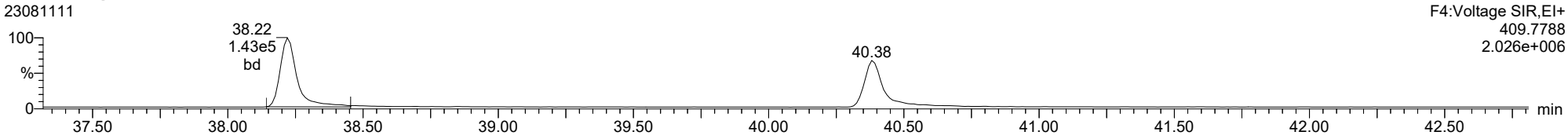


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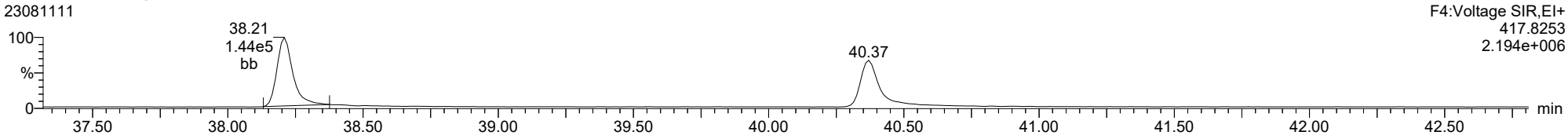
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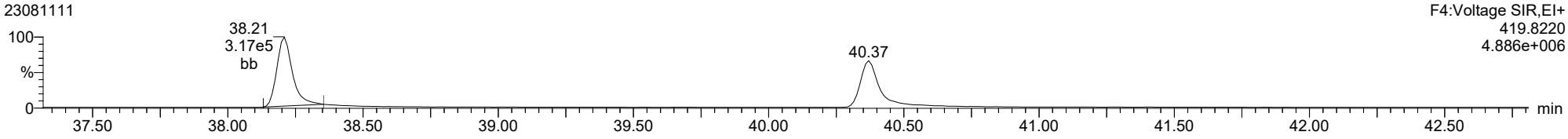
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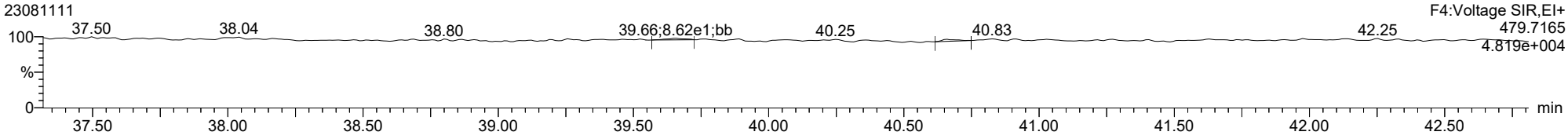
13C-1234678-HpCDF



13C-1234678-HpCDF

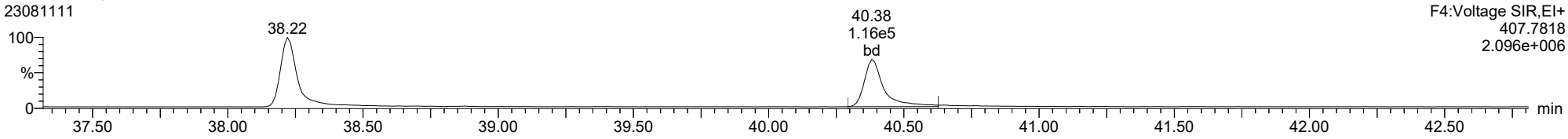


FUNCTION4 NCDPE

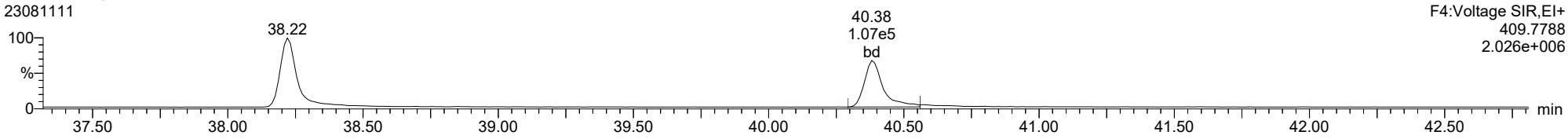


ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

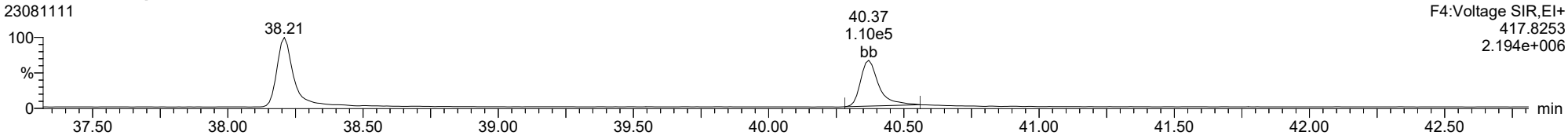
1234789-HpCDF



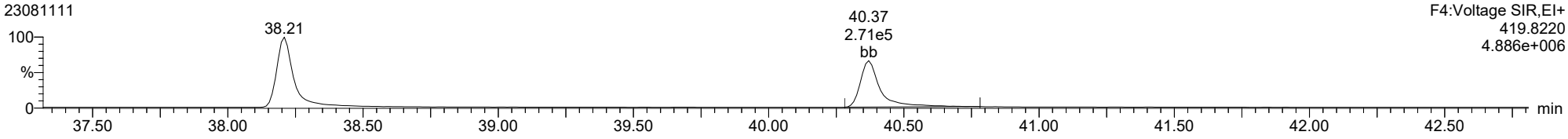
1234789-HpCDF



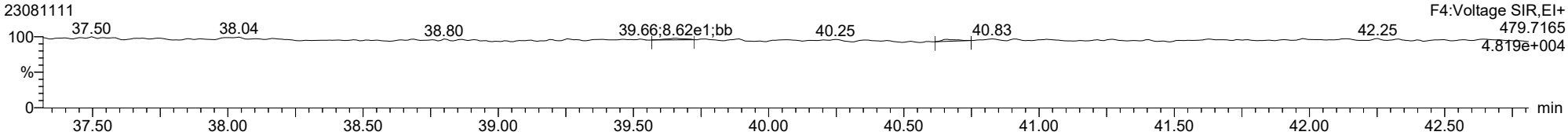
13C-1234789-HpCDF



13C-1234789-HpCDF

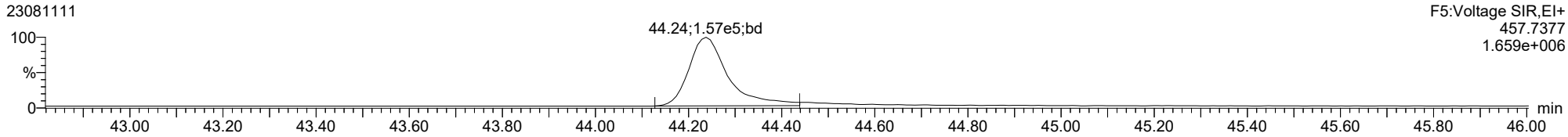


FUNCTION4 NCDPE

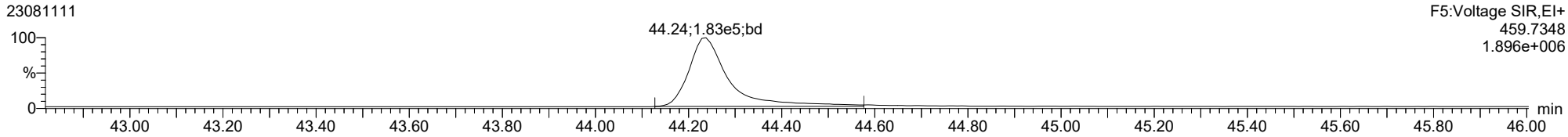


ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

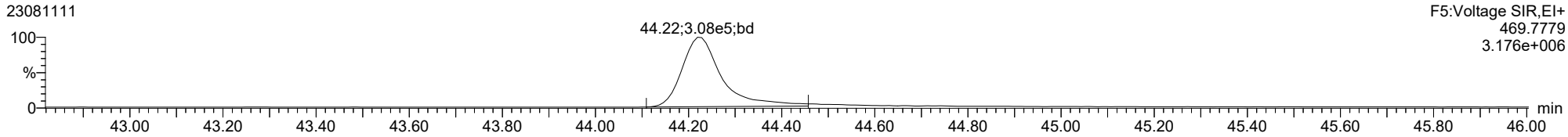
OCDD



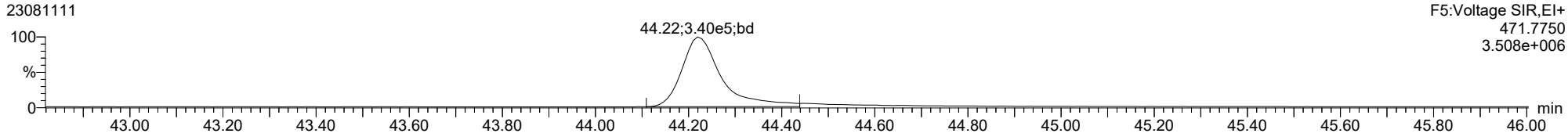
OCDD



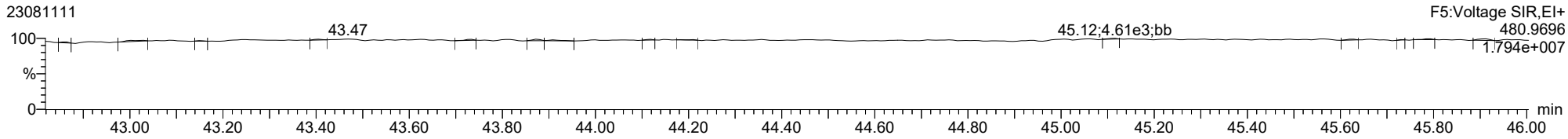
13C-OCDD



13C-OCDD

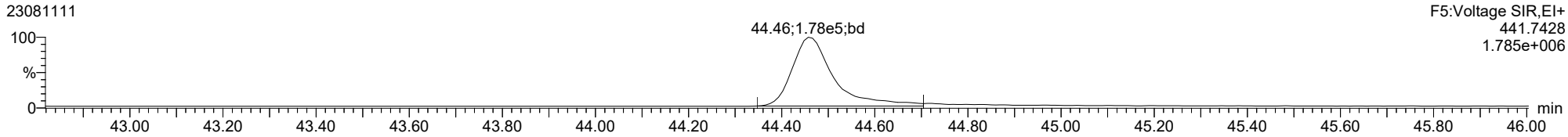


FUNCTION5 PFK

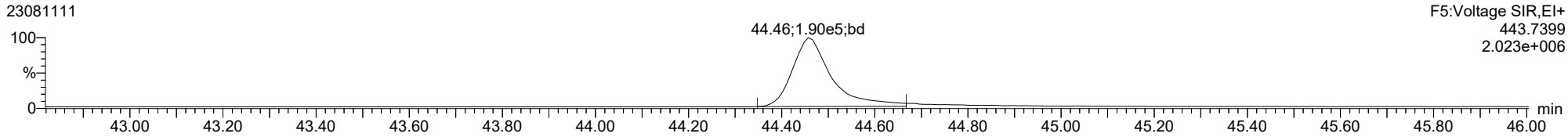


ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

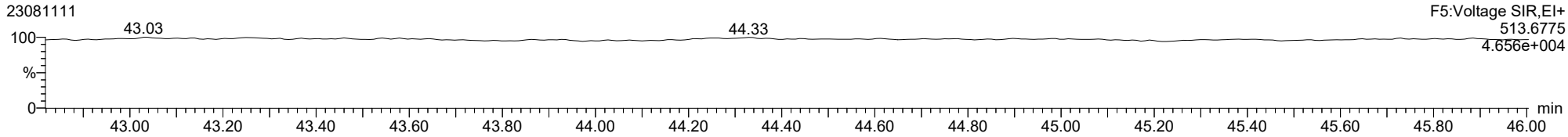
OCDF



OCDF

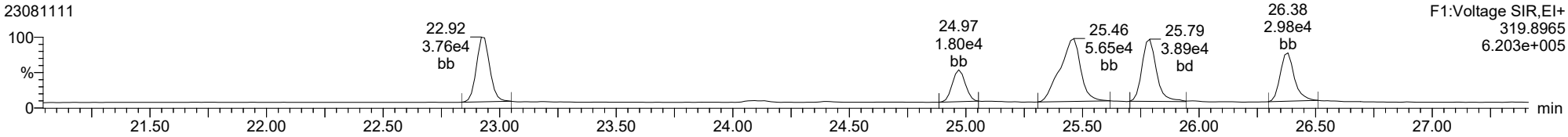


FUNCTION5 DCDPE

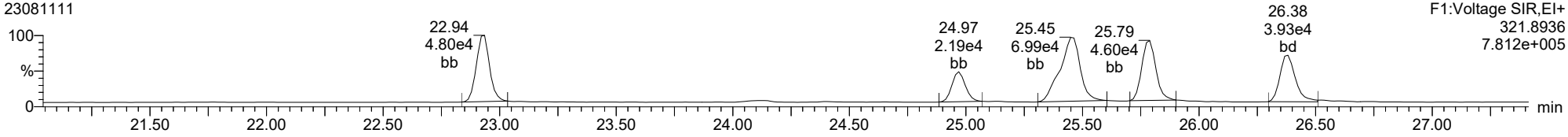


ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

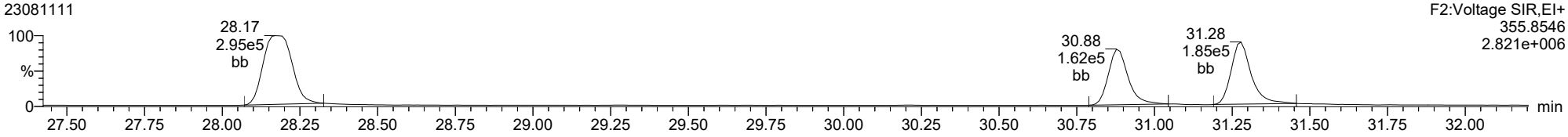
Total-tetradioxins



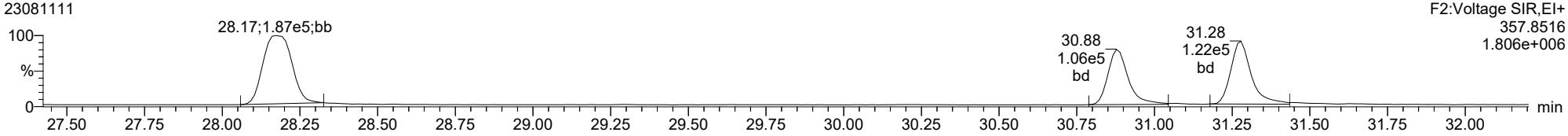
Total-tetradioxins



Total-pentadioxins

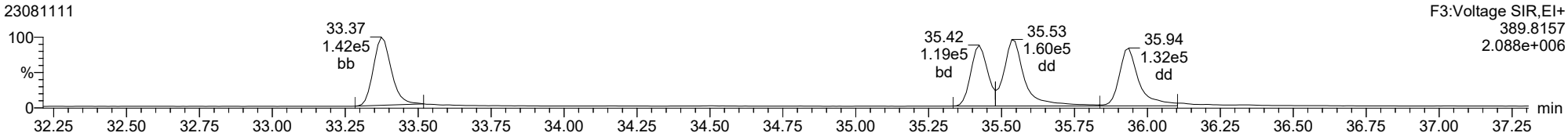


Total-pentadioxins

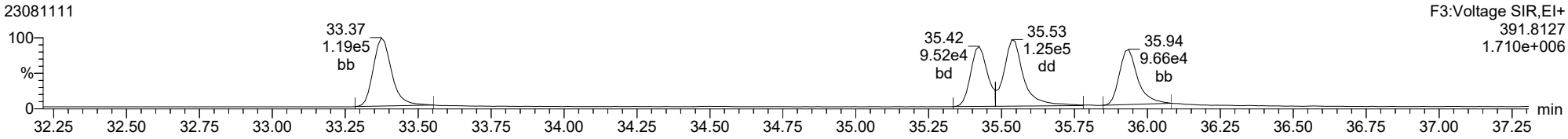


ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

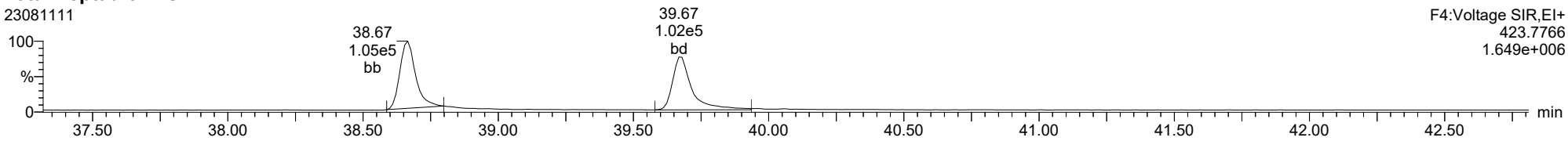
Total-hexadioxins



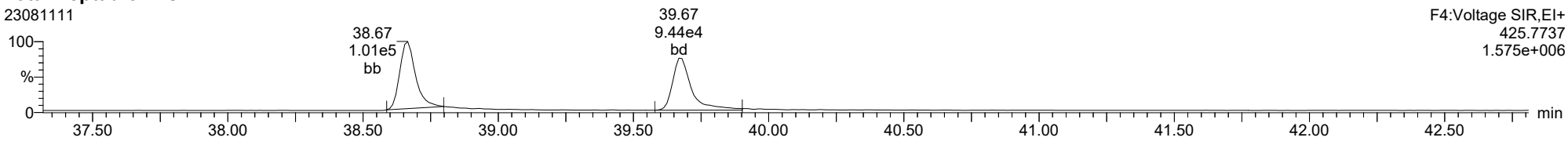
Total-hexadioxins



Total-heptadioxins

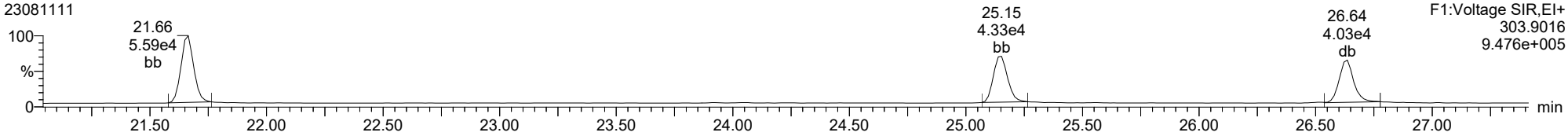


Total-heptadioxins

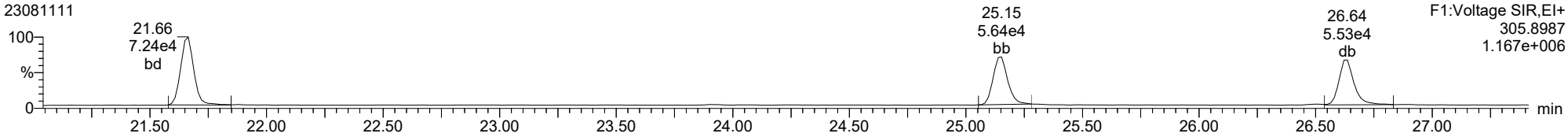


ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

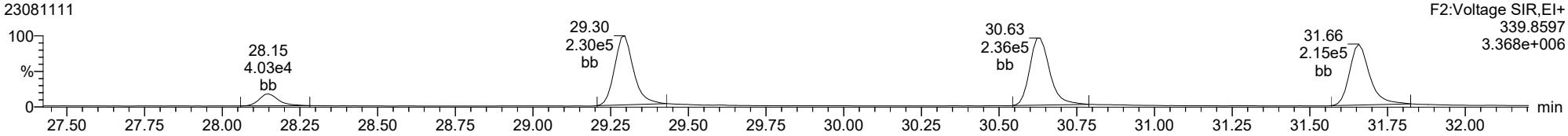
Total-tetrafurans



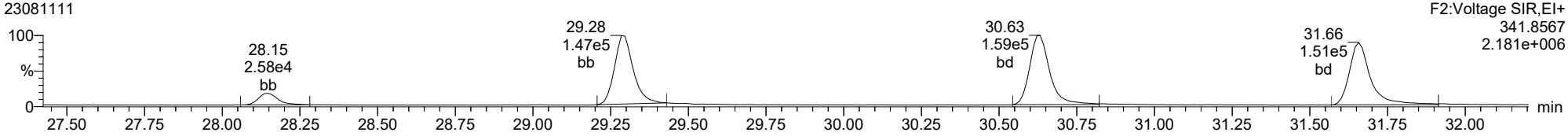
Total-tetrafurans



Total-pentafurans

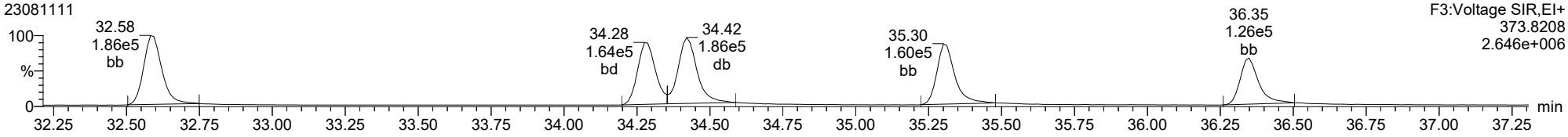


Total-pentafurans

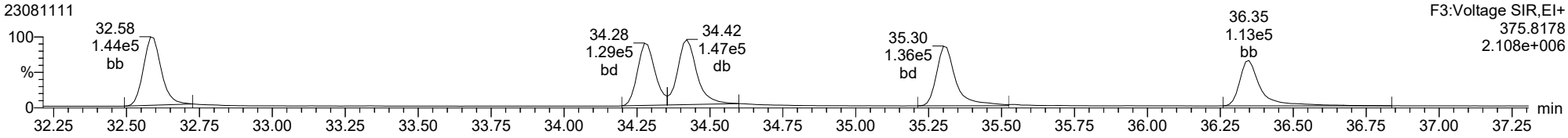


ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

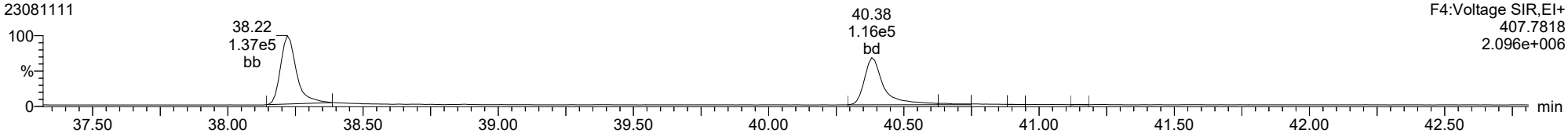
Total-hexafurans



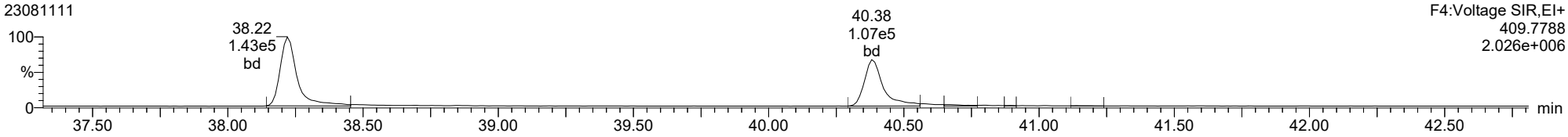
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	HB00095	Instrument:	AUTOSPEC01
Calibration Date:	02/28/2024	Column (1):	RTX-Dioxin2

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RRF	Conc	**RRF**	Conc	RRF	Conc	RRF	Conc	**RRF**	Conc	**RRF**
2,3,7,8-TCDF			0.5	0.9710019	2	1.026103	10	1.020004	40	0.8936385	200	0.9900608
2,3,7,8-TCDD			0.5	1.264353	2	1.292456	10	1.178937	40	1.202683	200	1.196142
1,2,3,7,8-PeCDF	0.5	1.000232	2.5	1.097585	10	1.100269	50	1.000386	200	1.019819	1000	1.064708
2,3,4,7,8-PeCDF	0.5	1.151564	2.5	1.128609	10	1.150406	50	1.190947	200	1.143009	1000	1.16896
1,2,3,7,8-PeCDD	0.5	0.9317274	2.5	0.9273405	10	0.9588508	50	1.020771	200	1.00266	1000	0.9453124
1,2,3,4,7,8-HxCDF	0.5	1.202785	2.5	1.225591	10	1.247073	50	1.21048	200	1.225855	1000	1.230249
1,2,3,6,7,8-HxCDF	0.5	1.066166	2.5	1.162617	10	1.325493	50	1.20196	200	1.233684	1000	1.169219
2,3,4,6,7,8-HxCDF	0.5	1.197919	2.5	1.182262	10	1.296821	50	1.261644	200	1.203983	1000	1.265179
1,2,3,7,8,9-HxCDF	0.5	0.8853008	2.5	1.178829	10	1.121803	50	1.128686	200	1.113814	1000	1.170456
1,2,3,4,7,8-HxCDD	0.5	0.8341238	2.5	0.8554008	10	0.8495533	50	0.8098436	200	0.8663064	1000	0.8294631
1,2,3,6,7,8-HxCDD	0.5	0.7706095	2.5	0.8006498	10	0.8324458	50	0.8550819	200	0.8837136	1000	0.8539355
1,2,3,7,8,9-HxCDD	0.5	0.82837	2.5	0.6832533	10	0.8106508	50	0.7351321	200	0.7723974	1000	0.7921027
1,2,3,4,6,7,8-HpCDF	0.5	1.441686	2.5	1.436101	10	1.373262	50	1.399917	200	1.307336	1000	1.396307
1,2,3,4,7,8,9-HpCDF	0.5	1.124175	2.5	1.351879	10	1.460607	50	1.595375	200	1.374139	1000	1.377315
1,2,3,4,6,7,8-HpCDD	0.5	0.9827574	2.5	0.9117369	10	0.9551259	50	0.9459153	200	1.10042	1000	1.010184
OCDF			5	1.028482	20	1.225652	100	1.088647	400	1.472008	2000	1.296685
OCDD			5	0.9138759	20	0.9344977	100	0.8453906	400	1.015198	2000	0.9786736
13C12-2,3,7,8-TCDF	100	1.633826	100	1.631286	100	1.629434	100	1.595364	100	1.765098	100	1.675377
13C12-2,3,7,8-TCDD	100	1.115961	100	1.152792	100	1.059242	100	1.178648	100	1.17631	100	1.222111
13C12-1,2,3,7,8-PeCDF	100	1.18216	100	1.092764	100	1.110407	100	1.177249	100	1.243139	100	1.36832
13C12-2,3,4,7,8-PeCDF	100	1.123513	100	1.03834	100	1.04487	100	1.033316	100	1.143675	100	1.318765
13C12-1,2,3,7,8-PeCDD	100	0.8597462	100	0.8021256	100	0.7017182	100	0.7494017	100	0.8549062	100	1.00147
13C12-1,2,3,4,7,8-HxCDF	100	0.9836838	100	1.042978	100	1.107062	100	1.059016	100	1.015123	100	0.9613253
13C12-1,2,3,6,7,8-HxCDF	100	1.230005	100	1.168573	100	1.225229	100	1.178632	100	1.142914	100	1.108966
13C12-2,3,4,6,7,8-HxCDF	100	0.9764285	100	1.041608	100	1.08899	100	0.9960644	100	1.021346	100	0.9718072
13C12-1,2,3,7,8,9-HxCDF	100	0.8552815	100	0.8657314	100	0.9684275	100	0.8716211	100	0.8909816	100	0.8230153
13C12-1,2,3,4,7,8-HxCDD	100	0.9249849	100	0.9497487	100	0.9363475	100	0.9942383	100	0.9412256	100	0.9511813
13C12-1,2,3,6,7,8-HxCDD	100	1.132722	100	1.13523	100	1.044937	100	1.17027	100	1.133672	100	1.024314

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	HB00095	Instrument:	AUTOSPEC01
Calibration Date:	02/28/2024	Column (1):	RTX-Dioxin2

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
13C12-1,2,3,4,6,7,8-HpCDF	100	0.8379976	100	0.8409681	100	0.9285684	100	0.8766399	100	0.9113421	100	0.8244663
13C12-1,2,3,4,7,8,9-HpCDF	100	0.6032419	100	0.639115	100	0.6690915	100	0.5894449	100	0.6732529	100	0.6519286
13C12-1,2,3,4,6,7,8-HpCDD	100	0.7405884	100	0.7461982	100	0.7020938	100	0.7783238	100	0.7292059	100	0.7260654
13C12-OCDD	200	0.6181526	200	0.6065898	200	0.5984722	200	0.717993	200	0.5850421	200	0.6693494
37Cl4-2,3,7,8-TCDD	0.1	1.593218	0.5	1.147767	2	1.217056	10	1.221903	40	1.311024	200	1.383173
13C12-1,2,3,4-TCDD	100	1	100	1	100	1	100	1	100	1	100	1
13C12-1,2,3,7,8,9-HxCDD	100	1	100	1	100	1	100	1	100	1	100	1

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	HB00095	Instrument:	AUTOSPEC01
Calibration Date:	02/28/2024	Column (1):	RTX-Dioxin2

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
2,3,7,8-TCDF	0.9801617	5.4			RSD ()	
2,3,7,8-TCDD	1.226914	4.0			RSD ()	
1,2,3,7,8-PeCDF	1.047166	4.4			RSD ()	
2,3,4,7,8-PeCDF	1.155582	1.9			RSD ()	
1,2,3,7,8-PeCDD	0.9644437	4.0			RSD ()	
1,2,3,4,7,8-HxCDF	1.223672	1.3			RSD ()	
1,2,3,6,7,8-HxCDF	1.19319	7.2			RSD ()	
2,3,4,6,7,8-HxCDF	1.234635	3.7			RSD ()	
1,2,3,7,8,9-HxCDF	1.099815	9.9			RSD ()	
1,2,3,4,7,8-HxCDD	0.8407818	2.4			RSD ()	
1,2,3,6,7,8-HxCDD	0.8327394	4.9			RSD ()	
1,2,3,7,8,9-HxCDD	0.7703177	6.9			RSD ()	
1,2,3,4,6,7,8-HpCDF	1.392435	3.5			RSD ()	
1,2,3,4,7,8,9-HpCDF	1.380582	11.2			RSD ()	
1,2,3,4,6,7,8-HpCDD	0.9843566	6.7			RSD ()	
OCDF	1.222295	14.4			RSD ()	
OCDD	0.9375272	6.9			RSD ()	
13C12-2,3,7,8-TCDF	1.655064	3.6			RSD ()	
13C12-2,3,7,8-TCDD	1.150844	4.9			RSD ()	
13C12-1,2,3,7,8-PeCDF	1.195673	8.4			RSD ()	
13C12-2,3,4,7,8-PeCDF	1.11708	9.8			RSD ()	
13C12-1,2,3,7,8-PeCDD	0.828228	12.6			RSD ()	
13C12-1,2,3,4,7,8-HxCDF	1.028198	5.1			RSD ()	
13C12-1,2,3,6,7,8-HxCDF	1.17572	4.0			RSD ()	
13C12-2,3,4,6,7,8-HxCDF	1.016041	4.4			RSD ()	
13C12-1,2,3,7,8,9-HxCDF	0.8791764	5.6			RSD ()	
13C12-1,2,3,4,7,8-HxCDD	0.949621	2.5			RSD ()	
13C12-1,2,3,6,7,8-HxCDD	1.106857	5.2			RSD ()	
13C12-1,2,3,4,6,7,8-HpCDF	0.8699971	4.9			RSD ()	
13C12-1,2,3,4,7,8,9-HpCDF	0.6376791	5.4			RSD ()	
13C12-1,2,3,4,6,7,8-HpCDD	0.7370793	3.4			RSD ()	

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INITIAL CALIBRATION DATA

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	HB00095	Instrument:	AUTOSPEC01
Calibration Date:	02/28/2024	Column (1):	RTX-Dioxin2

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
13C12-OCDD	0.6325999	8.0			RSD ()	
37Cl4-2,3,7,8-TCDD	1.312357	12.2			RSD ()	
13C12-1,2,3,4-TCDD	1	0.0			RSD ()	
13C12-1,2,3,7,8,9-HxCDD	1	0.0			RSD ()	

Analytical Resources, LLC
Analytical Chemists and Consultants

Printed: 2/29/2024 9:41:52AM

ANALYSIS SEQUENCE

SMB0412

Instrument: AUTOSPEC01 HRGCMS Column ID: L7621
Calibration ID: HB00095 Tune File: FEB0724_1-5
EM Voltage: 360 Resolution check times : 11:57, 21:10

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
SMB0412-ICV1	CS3Y1	QC		1	L006734		02/28/2024 11:57	24022802	PK	
SMB0412-RES1	ISCY2	QC		2	L013640		02/28/2024 13:38	24022803	PK	
SMB0412-CAL1	CSLCY	QC		3	I005460		02/28/2024 14:33	24022804	PK	
SMB0412-CAL2	CS1CY	QC		4	I005456		02/28/2024 15:26	24022805	PK	
SMB0412-CAL3	CS2CY	QC		5	I005457		02/28/2024 16:14	24022806	PK	
SMB0412-CAL4	CS3CY	QC		6	L013952		02/28/2024 17:03	24022807	PK	
SMB0412-CAL5	CS4CY	QC		7	I005458		02/28/2024 17:51	24022808	PK	
SMB0412-CAL6	CS5CY	QC		8	I005459		02/28/2024 18:40	24022809	PK	
SMB0412-SCV1	ICVCY	QC		9	H012366		02/28/2024 19:28	24022810	PK	
SMB0412-CCV1	CS3Y2	QC		10	L006734		02/28/2024 20:17	24022811	PK	
SMB0412-RES2	ISCY2	QC		11	L013640		02/28/2024 21:10	24022812	PK	

Dataset: T:\Autospec\Processed Data Batch\240228ICIH.qld
Last Altered: Thursday, February 29, 2024 08:17:31 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:19:11 Pacific Standard Time 2/29/24 PK

Event	Details	Sample ID
Process Extract		
Process Integrate		
Process Calibrate		
Process Quantify		
Dataset Created		
Pre modification peak	Sample:24022804, Compound:HD, RT:35.478	1
Peak modified	Sample:24022804, Compound:HD, RT:35.478	1
Pre modification peak	Sample:24022804, Compound:HD, RT:35.478	1
Peak modified	Sample:24022804, Compound:HD, RT:35.478	1
Peak modified	Sample:24022804, Compound:HD, RT:35.478	1
Pre modification peak	Sample:24022804, Compound:HD, RT:35.968	1
Peak modified	Sample:24022804, Compound:HD, RT:35.968	1
Peak modified	Sample:24022804, Compound:HD, RT:35.968	1
Pre modification peak	Sample:24022804, Compound:HF, RT:34.464	1
Peak modified	Sample:24022804, Compound:HF, RT:34.464	1
Pre modification peak	Sample:24022804, Compound:HF, RT:35.344	1
Peak modified	Sample:24022804, Compound:HF, RT:35.344	1
Pre modification peak	Sample:24022804, Compound:HF, RT:36.380	1
Peak modified	Sample:24022804, Compound:HF, RT:36.380	1
Peak modified	Sample:24022804, Compound:HF, RT:36.380	1
Pre modification peak	Sample:24022804, Compound:HPF, RT:40.446	1
Peak modified	Sample:24022804, Compound:HPF, RT:40.446	1
Pre modification peak	Sample:24022804, Compound:HPF, RT:40.469	1
Peak modified	Sample:24022804, Compound:HPF, RT:40.469	1
Peak modified	Sample:24022804, Compound:HPF, RT:40.469	1
Peak deleted	Sample:24022804, Compound:OD, RT:44.347	1
Peak deleted	Sample:24022804, Compound:OF, RT:44.548	1
Pre modification peak	Sample:24022804, Compound:PD, RT:30.910	1
Peak modified	Sample:24022804, Compound:PD, RT:30.910	1
Pre modification peak	Sample:24022804, Compound:PF, RT:30.664	1
Peak modified	Sample:24022804, Compound:PF, RT:30.664	1
Peak deleted	Sample:24022804, Compound:TD, RT:25.788	1
Peak deleted	Sample:24022804, Compound:TF, RT:25.153	1
Pre modification peak	Sample:24022805, Compound:HF, RT:35.344	2
Peak modified	Sample:24022805, Compound:HF, RT:35.344	2
Pre modification peak	Sample:24022805, Compound:HPD, RT:39.734	2
Peak modified	Sample:24022805, Compound:HPD, RT:39.734	2
Pre modification peak	Sample:24022805, Compound:OF, RT:44.567	2
Peak modified	Sample:24022805, Compound:OF, RT:44.567	2
Pre modification peak	Sample:24022805, Compound:TF, RT:25.139	2
Peak modified	Sample:24022805, Compound:TF, RT:25.139	2
Pre modification peak	Sample:24022805, Compound:TF, RT:25.139	2
Peak modified	Sample:24022805, Compound:TF, RT:25.139	2
Pre modification peak	Sample:24022806, Compound:13C-1234789-HpCDF, RT:40.426	3
Peak modified	Sample:24022806, Compound:13C-1234789-HpCDF, RT:40.426	3
Pre modification peak	Sample:24022806, Compound:13C-1234789-HpCDF, RT:40.426	3
Peak modified	Sample:24022806, Compound:13C-1234789-HpCDF, RT:40.426	3
Pre modification peak	Sample:24022808, Compound:13C-1234789-HpCDF, RT:40.436	5
Peak modified	Sample:24022808, Compound:13C-1234789-HpCDF, RT:40.436	5
Pre modification peak	Sample:24022808, Compound:13C-1234789-HpCDF, RT:40.436	5
Peak modified	Sample:24022808, Compound:13C-1234789-HpCDF, RT:40.436	5
Peak modified	Sample:24022808, Compound:13C-1234789-HpCDF, RT:40.436	5
Peak modified	Sample:24022808, Compound:13C-1234789-HpCDF, RT:40.436	5
Peak deleted	Sample:24022808, Compound:HPD, RT:38.720	5
Peak deleted	Sample:24022808, Compound:PF, RT:31.667	5

Dataset: T:\Autospec\Processed Data Batch\240228ICIH.qld
Last Altered: Thursday, February 29, 2024 08:17:31 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:19:11 Pacific Standard Time

Event	Details	Sample ID
Peak deleted	Sample:24022808, Compound:TD, RT:26.382	5
Peak deleted	Sample:24022808, Compound:TF, RT:26.565	5
Pre modification peak	Sample:24022809, Compound:13C-1234789-HpCDF, RT:40.438	6
Peak modified	Sample:24022809, Compound:13C-1234789-HpCDF, RT:40.438	6
Pre modification peak	Sample:24022809, Compound:13C-1234789-HpCDF, RT:40.438	6
Peak modified	Sample:24022809, Compound:13C-1234789-HpCDF, RT:40.438	6
Peak deleted	Sample:24022809, Compound:HF, RT:32.628	6
Peak deleted	Sample:24022809, Compound:HPD, RT:38.722	6
Peak deleted	Sample:24022809, Compound:PD, RT:31.247	6
Peak deleted	Sample:24022809, Compound:PF, RT:31.681	6
Peak deleted	Sample:24022809, Compound:TD, RT:26.268	6
Peak deleted	Sample:24022809, Compound:TD, RT:26.438	6
Peak deleted	Sample:24022809, Compound:TF, RT:26.509	6
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\240228ICIH.qld'	

Dataset: T:\Autospec\Processed Data Batch\240228IHOP.qld
Last Altered: Thursday, February 29, 2024 08:20:33 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:21:53 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240228.mdb 29 Feb 2024 08:04:37
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

ID: CS3Y1, Name: 24022802, Date: 28-Feb-2024, Time: 11:57:37, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.153	1.001	3.028e4	3.730e4	0.980	0.812	0.770	1054	1527	4.26e5	5.34e5	404.4	350.0	NO	bb	bb	10.507
12378-PeCDF	29.308	1.000	1.703e5	1.097e5	1.047	1.552	1.550	2604	2530	2.46e6	1.63e6	946.4	646.1	NO	bb	bb	49.347
23478-PeCDF	30.656	1.001	1.745e5	1.163e5	1.156	1.500	1.550	2604	2530	2.49e6	1.62e6	957.9	640.7	NO	bb	bb	51.954
123478-HxCDF	34.311	1.000	1.107e5	8.673e4	1.224	1.277	1.240	1991	1466	1.63e6	1.28e6	819.4	873.6	NO	bd	bd	51.344
234678-HxCDF	35.347	1.001	1.121e5	8.402e4	1.235	1.334	1.240	1991	1466	1.60e6	1.21e6	801.5	825.9	NO	bd	bb	54.791
123678-HxCDF	34.455	1.001	1.179e5	9.263e4	1.193	1.273	1.240	1991	1466	1.70e6	1.34e6	851.6	911.3	NO	db	db	51.353
123789-HxCDF	36.383	1.000	8.975e4	6.389e4	1.100	1.405	1.240	1991	1466	1.23e6	9.42e5	615.5	643.0	NO	bd	bb	55.454
1234678-HpCDF	38.266	1.000	9.577e4	9.424e4	1.392	1.016	1.050	1703	1741	1.48e6	1.46e6	871.5	836.3	NO	bb	bb	51.356
1234789-HpCDF	40.449	1.001	7.085e4	6.694e4	1.381	1.058	1.050	1703	1741	9.83e5	8.92e5	577.5	512.1	NO	bb	bb	54.699
OCDF	44.561	1.005	1.127e5	1.227e5	1.222	0.918	0.890	1685	1766	1.22e6	1.34e6	725.6	758.5	NO	bb	bb	86.317
2378-TCDD	25.788	1.001	2.384e4	3.170e4	1.227	0.752	0.770	1268	959	3.59e5	4.53e5	283.0	472.8	NO	bb	bb	9.508
12378-PeCDD	30.901	1.000	9.991e4	6.962e4	0.964	1.435	1.550	2590	1346	1.42e6	9.94e5	549.8	738.5	NO	bb	bd	53.001
123478-HxCDD	35.458	1.000	6.675e4	5.036e4	0.841	1.325	1.240	1263	1576	1.06e6	7.82e5	843.0	496.5	NO	bd	bd	47.777
123678-HxCDD	35.581	1.001	7.909e4	5.800e4	0.833	1.364	1.240	1263	1576	1.07e6	8.26e5	846.5	524.2	NO	db	db	54.648
123789-HxCDD	35.971	1.012	6.760e4	5.594e4	0.770	1.208	1.240	1263	1576	9.91e5	8.06e5	785.0	511.7	NO	bb	bd	54.108
1234678-HpCDD	39.736	1.001	6.121e4	5.948e4	0.984	1.029	1.050	1406	1243	8.72e5	8.53e5	620.4	686.3	NO	bd	bd	52.771
OCDD	44.332	1.000	9.354e4	9.849e4	0.938	0.950	0.890	1155	1409	9.91e5	1.13e6	858.0	800.1	NO	bd	bb	91.808
13C-2378-TCDF	25.139	1.007	2.789e5	3.773e5	1.655	0.739	0.770	1255	1354	4.02e6	5.46e6	3202.2	4027.8	NO	bb	bb	95.205
13C-12378-PeCDF	29.297	1.174	3.332e5	2.087e5	1.196	1.596	1.550	2069	1695	4.73e6	3.01e6	2285.1	1774.6	NO	bb	bb	108.833
13C-23478-PeCDF	30.634	1.228	2.977e5	1.866e5	1.117	1.595	1.550	2069	1695	4.30e6	2.70e6	2077.7	1590.3	NO	bb	bb	104.111
13C-123478-HxCDF	34.299	0.954	1.094e5	2.049e5	1.028	0.534	0.510	1301	2193	1.66e6	3.07e6	1272.7	1400.6	NO	bd	bd	106.919
13C-123678-HxCDF	34.433	0.958	1.206e5	2.231e5	1.176	0.540	0.510	1301	2193	1.70e6	3.16e6	1305.2	1439.2	NO	db	db	102.240
13C-234678-HxCDF	35.324	0.982	1.013e5	1.886e5	1.016	0.537	0.510	1301	2193	1.54e6	2.83e6	1182.0	1291.2	NO	bb	bb	99.797
13C-123789-HxCDF	36.371	1.011	8.642e4	1.655e5	0.879	0.522	0.510	1301	2193	1.24e6	2.35e6	953.0	1069.9	NO	bb	bb	100.228
13C-1234678-HpCDF	38.255	1.064	8.349e4	1.822e5	0.870	0.458	0.440	1557	1591	1.33e6	2.87e6	851.8	1801.2	NO	bb	bb	106.835
13C-1234789-HpCDF	40.427	1.124	5.859e4	1.239e5	0.638	0.473	0.440	1557	1591	7.95e5	1.69e6	510.3	1059.3	NO	bb	bb	100.090
13C-1234-TCDD	24.955	0.000	1.837e5	2.328e5	1.000	0.789	0.770	1988	901	2.82e6	3.56e6	1418.0	3948.4	NO	bb	bb	100.000
13C-2378-TCDD	25.774	1.033	2.101e5	2.660e5	1.151	0.790	0.770	1988	901	3.07e6	3.87e6	1544.9	4298.5	NO	bb	bb	99.330
13C-12378-PeCDD	30.890	1.238	2.058e5	1.258e5	0.828	1.636	1.550	1791	1069	2.96e6	1.75e6	1654.4	1642.0	NO	bb	bb	96.148
13C-123478-HxCDD	35.447	0.986	1.617e5	1.298e5	0.950	1.245	1.240	1243	1512	2.53e6	2.03e6	2033.4	1340.4	NO	bd	bd	107.390
13C-123678-HxCDD	35.558	0.989	1.664e5	1.348e5	1.107	1.234	1.240	1243	1512	2.43e6	1.93e6	1954.2	1275.0	NO	db	db	95.195
13C-1234678-HpCDD	39.714	1.104	1.195e5	1.128e5	0.737	1.059	1.050	1461	1166	1.70e6	1.62e6	1166.8	1388.9	NO	bb	bb	110.260
13C-OCDD	44.322	1.233	2.027e5	2.435e5	0.633	0.832	0.890	1891	1819	2.31e6	2.64e6	1222.0	1449.1	NO	bb	bd	246.725
13C-123789-HxCDD	35.959	0.000	1.595e5	1.264e5	1.000	1.262	1.240	1243	1512	2.32e6	1.86e6	1865.7	1227.5	NO	bb	bb	100.000
37CL-2378-TCDD	25.788	1.033	5.175e4		1.312			1260		7.37e5		584.8			bb		9.468

Dataset: T:\Autospec\Processed Data Batch\240228IHOP.qld
Last Altered: Thursday, February 29, 2024 08:20:33 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:21:53 Pacific Standard Time

ID: CS3Y1, Name: 24022802, Date: 28-Feb-2024, Time: 11:57:37, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.664	0.862	3.857e4	4.706e4	1.247	0.820	0.770	1054	1527	5.81e5	7.25e5	551.3	474.8	NO	bb	bb	10.464
1289-TCDF	26.636	1.060	2.791e4	3.409e4	0.916	0.819	0.770	1054	1527	3.99e5	5.03e5	378.4	329.2	NO	db	db	10.319
13468-PECDF	26.509	0.905	1.946e5	1.220e5	1.353	1.595	1.550	537	891	2.89e6	1.82e6	5391.4	2046.4	NO	bb	bb	43.163
12389-PECDF	31.681	1.081	1.727e5	1.018e5	0.925	1.698	1.550	2604	2530	2.30e6	1.43e6	882.9	567.0	NO	bd	bb	54.742
123468-HXCDF	32.617	0.951	1.184e5	9.244e4	1.335	1.281	1.240	1991	1466	1.74e6	1.38e6	875.6	944.9	NO	bb	bb	50.225
1368-TCDD	22.935	0.890	2.406e4	3.096e4	1.120	0.777	0.770	1268	959	3.81e5	4.78e5	300.8	498.7	NO	bb	bb	10.317
1289-TCDD	26.382	1.024	2.141e4	2.522e4	0.966	0.849	0.770	1268	959	3.15e5	3.74e5	248.4	390.6	NO	bb	bb	10.142
12479-PECDD	28.205	0.913	1.853e5	1.247e5	1.859	1.487	1.550	2590	1346	1.75e6	1.18e6	674.2	873.0	NO	bb	bb	50.273
12389-PECDD	31.302	1.013	1.194e5	8.072e4	1.154	1.480	1.550	2590	1346	1.64e6	1.09e6	631.7	812.5	NO	bb	bd	52.293
124679-HXCDD	33.419	0.943	7.768e4	6.185e4	1.006	1.256	1.240	1263	1576	1.14e6	9.12e5	901.9	578.6	NO	bb	bb	47.552
1234679-HPCDD	38.711	0.975	6.842e4	7.345e4	1.184	0.932	1.050	1406	1243	1.07e6	1.06e6	759.6	854.1	NO	bb	bd	51.576
Total-tetrafurans			9.760e4		1.048			1054		1.42e6							31.562
Total-penta1			1.946e5					537		2.89e6							43.163
Total-pentafurans			5.471e5		1.043			2604		7.67e6							165.212
Total-hexafurans			5.490e5		1.217			1991		7.89e6							263.214
Total-heptafurans			1.668e5		1.387			1703		2.47e6							106.157
Total-Furans			1.668e6		1.180			1054		2.36e7							695.625
Total-tetradioxins			1.179e5		1.104			1268		1.63e6							50.567
Total-pentadioxins			4.047e5		1.326			2590		4.81e6							155.567
Total-hexadioxins			2.911e5		0.863			1263		4.26e6							204.085
Total-heptadioxins			1.296e5		1.084			1406		1.94e6							104.347
Total-Dioxins			1.037e6		1.065			1268		1.36e7							606.375
Total-TEQ			2.705e6					1268		3.72e7							1301.999
FUNCTION1 PFK			1.878e6					647322		3.12e7							
FUNCTION2 PFK			5.951e5					522296		1.68e7							0.000
FUNCTION3 PFK			2.443e7					402679		1.75e8							0.000
FUNCTION4 PFK			1.713e5					314331		5.68e6							
FUNCTION5 PFK			3.208e4					237990		7.34e5							
FUNCTION1 HXCD...			3.443e2					607		5.03e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			2.341e3					740		1.18e4							0.000
FUNCTION3 OCDPE			4.510e2					547		1.66e3							0.000
FUNCTION4 NCDPE			0.000e0					799		0.00e0							
FUNCTION5 DCDPE			0.000e0					495		0.00e0							

Method: T:\Autospec\Methods\Dioxin240228.mdb 29 Feb 2024 08:04:37
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

ID: CS3Y1, Name: 24022802, Date: 28-Feb-2024, Time: 11:57:37, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	2.791e4	3.409e4	0.916	0.82	0.77	378.4	YES	NO	db	db	10.319
2	Total-tetrafurans	26.52	4.181e2	4.880e2	1.048	0.86	0.77	8.0	YES	NO	bd	bd	0.132
3	2378-TCDF	25.15	3.028e4	3.730e4	0.980	0.81	0.77	404.4	YES	NO	bb	bb	10.507
4	Total-tetrafurans	23.91	4.194e2	5.492e2	1.048	0.76	0.77	5.2	YES	NO	bb	bd	0.141
5	1368-TCDF	21.66	3.857e4	4.706e4	1.247	0.82	0.77	551.3	YES	NO	bb	bb	10.464

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.51	1.946e5	1.220e5	1.353	1.60	1.55	5391.4	YES	NO	bb	bb	43.163

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.66	1.745e5	1.163e5	1.156	1.50	1.55	957.9	YES	NO	bb	bb	51.954
2	12378-PeCDF	29.31	1.703e5	1.097e5	1.047	1.55	1.55	946.4	YES	NO	bb	bb	49.347
3	Total-pentafurans	28.16	2.954e4	1.952e4	1.043	1.51	1.55	158.1	YES	NO	bb	bb	9.169
4	12389-PECDF	31.68	1.727e5	1.018e5	0.925	1.70	1.55	882.9	YES	NO	bd	bb	54.742

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.38	8.975e4	6.389e4	1.100	1.40	1.24	615.5	YES	NO	bd	bb	55.454
2	234678-HxCDF	35.35	1.121e5	8.402e4	1.235	1.33	1.24	801.5	YES	NO	bd	bb	54.791
3	Total-hexafurans	34.77	9.204e1	7.876e1	1.217	1.17	1.24	1.8	NO	NO	bb	bb	0.047
4	123678-HxCDF	34.46	1.179e5	9.263e4	1.193	1.27	1.24	851.6	YES	NO	db	db	51.353
5	123478-HxCDF	34.31	1.107e5	8.673e4	1.224	1.28	1.24	819.4	YES	NO	bd	bd	51.344
6	123468-HXCDF	32.62	1.184e5	9.244e4	1.335	1.28	1.24	875.6	YES	NO	bb	bb	50.225

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.45	7.085e4	6.694e4	1.381	1.06	1.05	577.5	YES	NO	bb	bb	54.699
2	1234678-HpCDF	38.27	9.577e4	9.424e4	1.392	1.02	1.05	871.5	YES	NO	bb	bb	51.356
3	Total-heptafurans	40.71	1.728e2	1.452e2	1.387	1.19	1.05	2.7	NO	NO	bb	db	0.102

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	2.791e4	3.409e4	0.916	0.82	0.77	378.4	YES	NO	db	db	10.319
2	Total-tetrafurans	26.52	4.181e2	4.880e2	1.048	0.86	0.77	8.0	YES	NO	bd	bd	0.132
3	2378-TCDF	25.15	3.028e4	3.730e4	0.980	0.81	0.77	404.4	YES	NO	bb	bb	10.507
4	Total-tetrafurans	23.91	4.194e2	5.492e2	1.048	0.76	0.77	5.2	YES	NO	bb	bd	0.141
5	1368-TCDF	21.66	3.857e4	4.706e4	1.247	0.82	0.77	551.3	YES	NO	bb	bb	10.464
6	23478-PeCDF	30.66	1.745e5	1.163e5	1.156	1.50	1.55	957.9	YES	NO	bb	bb	51.954
7	12378-PeCDF	29.31	1.703e5	1.097e5	1.047	1.55	1.55	946.4	YES	NO	bb	bb	49.347
8	Total-pentafurans	28.16	2.954e4	1.952e4	1.043	1.51	1.55	158.1	YES	NO	bb	bb	9.169
9	12389-PECDF	31.68	1.727e5	1.018e5	0.925	1.70	1.55	882.9	YES	NO	bd	bb	54.742
10	123789-HxCDF	36.38	8.975e4	6.389e4	1.100	1.40	1.24	615.5	YES	NO	bd	bb	55.454
11	234678-HxCDF	35.35	1.121e5	8.402e4	1.235	1.33	1.24	801.5	YES	NO	bd	bb	54.791
12	Total-hexafurans	34.77	9.204e1	7.876e1	1.217	1.17	1.24	1.8	NO	NO	bb	bb	0.047
13	123678-HxCDF	34.46	1.179e5	9.263e4	1.193	1.27	1.24	851.6	YES	NO	db	db	51.353
14	123478-HxCDF	34.31	1.107e5	8.673e4	1.224	1.28	1.24	819.4	YES	NO	bd	bd	51.344
15	123468-HXCDF	32.62	1.184e5	9.244e4	1.335	1.28	1.24	875.6	YES	NO	bb	bb	50.225
16	1234789-HpCDF	40.45	7.085e4	6.694e4	1.381	1.06	1.05	577.5	YES	NO	bb	bb	54.699
17	1234678-HpCDF	38.27	9.577e4	9.424e4	1.392	1.02	1.05	871.5	YES	NO	bb	bb	51.356
18	Total-heptafurans	40.71	1.728e2	1.452e2	1.387	1.19	1.05	2.7	NO	NO	bb	db	0.102
19	OCDF	44.56	1.127e5	1.227e5	1.222	0.92	0.89	725.6	YES	NO	bb	bb	86.317
20	13468-PECDF	26.51	1.946e5	1.220e5	1.353	1.60	1.55	5391.4	YES	NO	bb	bb	43.163

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.38	2.141e4	2.522e4	0.966	0.85	0.77	248.4	YES	NO	bb	bb	10.142
2	2378-TCDD	25.79	2.384e4	3.170e4	1.227	0.75	0.77	283.0	YES	NO	bb	bb	9.508
3	Total-tetradioxins	25.46	3.618e4	4.492e4	1.104	0.81	0.77	308.1	YES	NO	bb	bb	15.426
4	Total-tetradioxins	24.97	1.239e4	1.481e4	1.104	0.84	0.77	141.9	YES	NO	bb	bb	5.174
5	1368-TCDD	22.93	2.406e4	3.096e4	1.120	0.78	0.77	300.8	YES	NO	bb	bb	10.317

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.30	1.194e5	8.072e4	1.154	1.48	1.55	631.7	YES	NO	bb	bd	52.293
2	12378-PeCDD	30.90	9.991e4	6.962e4	0.964	1.44	1.55	549.8	YES	NO	bb	bd	53.001
3	12479-PECDD	28.20	1.853e5	1.247e5	1.859	1.49	1.55	674.2	YES	NO	bb	bb	50.273

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	33.42	7.768e4	6.185e4	1.006	1.26	1.24	901.9	YES	NO	bb	bb	47.552
2	123789-HxCDD	35.97	6.760e4	5.594e4	0.770	1.21	1.24	785.0	YES	NO	bb	bd	54.108
3	123678-HxCDD	35.58	7.909e4	5.800e4	0.833	1.36	1.24	846.5	YES	NO	db	db	54.648
4	123478-HxCDD	35.46	6.675e4	5.036e4	0.841	1.33	1.24	843.0	YES	NO	bd	bd	47.777

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.74	6.121e4	5.948e4	0.984	1.03	1.05	620.4	YES	NO	bd	bd	52.771
2	1234679-HPCDD	38.71	6.842e4	7.345e4	1.184	0.93	1.05	759.6	YES	NO	bb	bd	51.576

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.38	2.141e4	2.522e4	0.966	0.85	0.77	248.4	YES	NO	bb	bb	10.142
2	2378-TCDD	25.79	2.384e4	3.170e4	1.227	0.75	0.77	283.0	YES	NO	bb	bb	9.508
3	Total-tetradioxins	25.46	3.618e4	4.492e4	1.104	0.81	0.77	308.1	YES	NO	bb	bb	15.426
4	Total-tetradioxins	24.97	1.239e4	1.481e4	1.104	0.84	0.77	141.9	YES	NO	bb	bb	5.174
5	1368-TCDD	22.93	2.406e4	3.096e4	1.120	0.78	0.77	300.8	YES	NO	bb	bb	10.317
6	12389-PECDD	31.30	1.194e5	8.072e4	1.154	1.48	1.55	631.7	YES	NO	bb	bd	52.293
7	12378-PeCDD	30.90	9.991e4	6.962e4	0.964	1.44	1.55	549.8	YES	NO	bb	bd	53.001
8	12479-PECDD	28.20	1.853e5	1.247e5	1.859	1.49	1.55	674.2	YES	NO	bb	bb	50.273
9	124679-HXCDD	33.42	7.768e4	6.185e4	1.006	1.26	1.24	901.9	YES	NO	bb	bb	47.552
10	123789-HxCDD	35.97	6.760e4	5.594e4	0.770	1.21	1.24	785.0	YES	NO	bb	bd	54.108
11	123678-HxCDD	35.58	7.909e4	5.800e4	0.833	1.36	1.24	846.5	YES	NO	db	db	54.648
12	123478-HxCDD	35.46	6.675e4	5.036e4	0.841	1.33	1.24	843.0	YES	NO	bd	bd	47.777
13	1234678-HpCDD	39.74	6.121e4	5.948e4	0.984	1.03	1.05	620.4	YES	NO	bd	bd	52.771
14	1234679-HPCDD	38.71	6.842e4	7.345e4	1.184	0.93	1.05	759.6	YES	NO	bb	bd	51.576
15	OCDD	44.33	9.354e4	9.849e4	0.938	0.95	0.89	858.0	YES	NO	bd	bb	91.808

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	2.791e4	3.409e4	0.916	0.82	0.77	378.4	YES	NO	db	db	10.319
2	Total-tetrafurans	26.52	4.181e2	4.880e2	1.048	0.86	0.77	8.0	YES	NO	bd	bd	0.132
3	2378-TCDF	25.15	3.028e4	3.730e4	0.980	0.81	0.77	404.4	YES	NO	bb	bb	10.507
4	Total-tetrafurans	23.91	4.194e2	5.492e2	1.048	0.76	0.77	5.2	YES	NO	bb	bd	0.141
5	1368-TCDF	21.66	3.857e4	4.706e4	1.247	0.82	0.77	551.3	YES	NO	bb	bb	10.464
6	23478-PeCDF	30.66	1.745e5	1.163e5	1.156	1.50	1.55	957.9	YES	NO	bb	bb	51.954
7	12378-PeCDF	29.31	1.703e5	1.097e5	1.047	1.55	1.55	946.4	YES	NO	bb	bb	49.347
8	Total-pentafurans	28.16	2.954e4	1.952e4	1.043	1.51	1.55	158.1	YES	NO	bb	bb	9.169
9	12389-PECDF	31.68	1.727e5	1.018e5	0.925	1.70	1.55	882.9	YES	NO	bd	bb	54.742
10	123789-HxCDF	36.38	8.975e4	6.389e4	1.100	1.40	1.24	615.5	YES	NO	bd	bb	55.454
11	234678-HxCDF	35.35	1.121e5	8.402e4	1.235	1.33	1.24	801.5	YES	NO	bd	bb	54.791
12	Total-hexafurans	34.77	9.204e1	7.876e1	1.217	1.17	1.24	1.8	NO	NO	bb	bb	0.047
13	123678-HxCDF	34.46	1.179e5	9.263e4	1.193	1.27	1.24	851.6	YES	NO	db	db	51.353
14	123478-HxCDF	34.31	1.107e5	8.673e4	1.224	1.28	1.24	819.4	YES	NO	bd	bd	51.344
15	123468-HXCDF	32.62	1.184e5	9.244e4	1.335	1.28	1.24	875.6	YES	NO	bb	bb	50.225
16	1234789-HpCDF	40.45	7.085e4	6.694e4	1.381	1.06	1.05	577.5	YES	NO	bb	bb	54.699
17	1234678-HpCDF	38.27	9.577e4	9.424e4	1.392	1.02	1.05	871.5	YES	NO	bb	bb	51.356
18	Total-heptafurans	40.71	1.728e2	1.452e2	1.387	1.19	1.05	2.7	NO	NO	bb	db	0.102
19	OCDF	44.56	1.127e5	1.227e5	1.222	0.92	0.89	725.6	YES	NO	bb	bb	86.317
20	13468-PECDF	26.51	1.946e5	1.220e5	1.353	1.60	1.55	5391.4	YES	NO	bb	bb	43.163
21	1289-TCDD	26.38	2.141e4	2.522e4	0.966	0.85	0.77	248.4	YES	NO	bb	bb	10.142
22	2378-TCDD	25.79	2.384e4	3.170e4	1.227	0.75	0.77	283.0	YES	NO	bb	bb	9.508
23	Total-tetradioxins	25.46	3.618e4	4.492e4	1.104	0.81	0.77	308.1	YES	NO	bb	bb	15.426
24	Total-tetradioxins	24.97	1.239e4	1.481e4	1.104	0.84	0.77	141.9	YES	NO	bb	bb	5.174
25	1368-TCDD	22.93	2.406e4	3.096e4	1.120	0.78	0.77	300.8	YES	NO	bb	bb	10.317
26	12389-PECDD	31.30	1.194e5	8.072e4	1.154	1.48	1.55	631.7	YES	NO	bb	bd	52.293
27	12378-PeCDD	30.90	9.991e4	6.962e4	0.964	1.44	1.55	549.8	YES	NO	bb	bd	53.001
28	12479-PECDD	28.20	1.853e5	1.247e5	1.859	1.49	1.55	674.2	YES	NO	bb	bb	50.273
29	124679-HXCDD	33.42	7.768e4	6.185e4	1.006	1.26	1.24	901.9	YES	NO	bb	bb	47.552
30	123789-HxCDD	35.97	6.760e4	5.594e4	0.770	1.21	1.24	785.0	YES	NO	bb	bd	54.108
31	123678-HxCDD	35.58	7.909e4	5.800e4	0.833	1.36	1.24	846.5	YES	NO	db	db	54.648
32	123478-HxCDD	35.46	6.675e4	5.036e4	0.841	1.33	1.24	843.0	YES	NO	bd	bd	47.777
33	1234678-HpCDD	39.74	6.121e4	5.948e4	0.984	1.03	1.05	620.4	YES	NO	bd	bd	52.771
34	1234679-HPCDD	38.71	6.842e4	7.345e4	1.184	0.93	1.05	759.6	YES	NO	bb	bd	51.576
35	OCDD	44.33	9.354e4	9.849e4	0.938	0.95	0.89	858.0	YES	NO	bd	bb	91.808

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	23.50	1.411e4					0.9	NO		bb		
2	FUNCTION1 PFK	23.42	7.123e3					0.8	NO		bb		
3	FUNCTION1 PFK	23.33	6.511e4					1.4	NO		bb		
4	FUNCTION1 PFK	22.53	6.068e4					1.3	NO		bb		
5	FUNCTION1 PFK	22.37	3.221e4					1.1	NO		bb		
6	FUNCTION1 PFK	22.23	1.728e4					0.9	NO		bb		
7	FUNCTION1 PFK	22.02	7.502e4					1.5	NO		bb		
8	FUNCTION1 PFK	21.90	3.734e3					0.4	NO		bb		
9	FUNCTION1 PFK	21.68	4.582e4					1.8	NO		db		
10	FUNCTION1 PFK	21.62	3.315e4					1.7	NO		dd		
11	FUNCTION1 PFK	21.58	5.207e4					2.2	NO		dd		
12	FUNCTION1 PFK	21.45	5.835e5					3.4	YES		bd		
13	FUNCTION1 PFK	21.17	9.144e4					3.0	YES		db		
14	FUNCTION1 PFK	21.11	1.153e4					0.8	NO		bd		
15	FUNCTION1 PFK	25.92	5.371e4					1.2	NO		dd		
16	FUNCTION1 PFK	25.77	9.995e4					2.0	NO		bd		
17	FUNCTION1 PFK	25.72	5.984e3					0.5	NO		db		
18	FUNCTION1 PFK	25.68	3.836e4					1.1	NO		bd		
19	FUNCTION1 PFK	25.55	2.926e4					1.2	NO		bb		
20	FUNCTION1 PFK	25.44	5.406e4					1.8	NO		db		
21	FUNCTION1 PFK	25.38	4.981e4					1.8	NO		bd		
22	FUNCTION1 PFK	24.95	1.340e4					0.7	NO		bb		
23	FUNCTION1 PFK	24.90	2.424e4					1.2	NO		bb		
24	FUNCTION1 PFK	24.81	2.489e4					1.4	NO		bb		
25	FUNCTION1 PFK	24.49	1.434e4					0.7	NO		bb		
26	FUNCTION1 PFK	24.18	1.761e4					0.7	NO		bb		
27	FUNCTION1 PFK	24.11	3.831e3					0.4	NO		bb		
28	FUNCTION1 PFK	24.02	5.382e4					1.4	NO		bb		
29	FUNCTION1 PFK	23.66	4.156e4					1.4	NO		bb		
30	FUNCTION1 PFK	23.56	2.210e4					0.8	NO		bb		
31	FUNCTION1 PFK	27.03	3.277e4					1.2	NO		bb		
32	FUNCTION1 PFK	26.97	1.576e4					1.0	NO		bb		
33	FUNCTION1 PFK	26.92	3.387e4					1.6	NO		bb		
34	FUNCTION1 PFK	26.44	5.371e4					1.7	NO		bb		
35	FUNCTION1 PFK	26.08	7.120e4					1.7	NO		db		
36	FUNCTION1 PFK	26.00	3.141e4					1.2	NO		dd		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.61	2.242e4					0.8	NO		bb		0.000
2	FUNCTION2 PFK	28.42	1.231e4					1.0	NO		bb		0.000
3	FUNCTION2 PFK	28.36	2.115e4					1.1	NO		bb		0.000
4	FUNCTION2 PFK	28.26	1.337e4					0.7	NO		bb		0.000
5	FUNCTION2 PFK	28.04	2.144e4					1.4	NO		db		0.000
6	FUNCTION2 PFK	28.00	1.945e4					1.4	NO		bd		0.000
7	FUNCTION2 PFK	27.75	1.822e3					0.3	NO		bb		0.000
8	FUNCTION2 PFK	27.47	3.490e3					0.6	NO		bb		0.000
9	FUNCTION2 PFK	27.41	1.312e4					1.0	NO		bb		0.000
10	FUNCTION2 PFK	30.52	2.505e4					0.9	NO		db		0.000
11	FUNCTION2 PFK	30.46	2.868e4					1.1	NO		bd		0.000
12	FUNCTION2 PFK	30.36	1.341e4					1.1	NO		bb		0.000
13	FUNCTION2 PFK	30.29	1.839e4					1.2	NO		db		0.000
14	FUNCTION2 PFK	30.26	4.611e3					0.6	NO		bd		0.000
15	FUNCTION2 PFK	30.12	3.006e4					1.4	NO		bb		0.000
16	FUNCTION2 PFK	29.93	3.292e4					1.5	NO		bb		0.000
17	FUNCTION2 PFK	29.87	1.013e4					1.0	NO		bb		0.000
18	FUNCTION2 PFK	29.63	8.739e3					0.8	NO		bb		0.000
19	FUNCTION2 PFK	29.34	1.264e4					0.8	NO		db		0.000
20	FUNCTION2 PFK	29.30	1.819e4					1.2	NO		bd		0.000
21	FUNCTION2 PFK	29.06	9.628e3					0.8	NO		db		0.000
22	FUNCTION2 PFK	29.02	3.143e4					1.0	NO		dd		0.000
23	FUNCTION2 PFK	28.92	4.996e3					0.5	NO		bd		0.000
24	FUNCTION2 PFK	28.78	5.920e3					0.5	NO		bb		0.000
25	FUNCTION2 PFK	28.65	6.935e4					1.5	NO		bb		0.000
26	FUNCTION2 PFK	31.93	1.268e4					0.9	NO		bb		0.000
27	FUNCTION2 PFK	31.57	1.281e4					1.0	NO		bb		0.000
28	FUNCTION2 PFK	31.53	9.239e3					0.8	NO		db		0.000
29	FUNCTION2 PFK	31.44	4.203e4					1.5	NO		bd		0.000
30	FUNCTION2 PFK	31.26	3.465e4					1.4	NO		bb		0.000
31	FUNCTION2 PFK	31.06	1.139e4					0.9	NO		bb		0.000
32	FUNCTION2 PFK	30.99	7.844e3					0.6	NO		bb		0.000
33	FUNCTION2 PFK	30.80	1.171e4					0.9	NO		bb		0.000

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ID: CS3Y1, Name: 24022802, Date: 28-Feb-2024, Time: 11:57:37, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	33.31	1.245e6					15.7	YES		dd		0.000
2	FUNCTION3 PFK	32.96	4.514e6					36.5	YES		dd		0.000
3	FUNCTION3 PFK	32.83	5.712e5					43.0	YES		dd		0.000
4	FUNCTION3 PFK	32.33	1.230e7					72.3	YES		dd		0.000
5	FUNCTION3 PFK	32.26	1.648e6					74.8	YES		dd		0.000
6	FUNCTION3 PFK	32.22	1.020e6					76.1	YES		dd		0.000
7	FUNCTION3 PFK	32.17	2.466e6					79.2	YES		bd		0.000
8	FUNCTION3 PFK	36.43	2.425e4					1.5	NO		bd		0.000
9	FUNCTION3 PFK	36.13	2.009e4					1.3	NO		db		0.000
10	FUNCTION3 PFK	36.01	5.339e4					2.3	NO		bd		0.000
11	FUNCTION3 PFK	35.87	3.179e4					1.6	NO		bb		0.000
12	FUNCTION3 PFK	35.74	1.421e4					1.2	NO		bb		0.000
13	FUNCTION3 PFK	35.65	6.187e4					2.3	NO		db		0.000
14	FUNCTION3 PFK	35.60	3.814e4					2.3	NO		bd		0.000
15	FUNCTION3 PFK	35.52	1.077e4					1.0	NO		bb		0.000
16	FUNCTION3 PFK	35.34	1.256e4					1.2	NO		bb		0.000
17	FUNCTION3 PFK	35.05	3.552e4					1.6	NO		bb		0.000
18	FUNCTION3 PFK	34.92	8.512e3					0.8	NO		bb		0.000
19	FUNCTION3 PFK	34.46	2.475e4					1.4	NO		db		0.000
20	FUNCTION3 PFK	34.41	1.379e4					1.3	NO		bd		0.000
21	FUNCTION3 PFK	33.80	4.199e3					0.6	NO		bb		0.000
22	FUNCTION3 PFK	33.49	1.410e5					5.6	YES		db		0.000
23	FUNCTION3 PFK	33.43	1.338e5					8.8	YES		dd		0.000
24	FUNCTION3 PFK	36.56	2.403e4					1.7	NO		bb		0.000
25	FUNCTION3 PFK	36.49	1.129e4					1.1	NO		db		0.000

ID: CS3Y1, Name: 24022802, Date: 28-Feb-2024, Time: 11:57:37, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	40.62	8.683e3					0.9	NO		bb		
2	FUNCTION4 PFK	40.22	2.403e4					2.2	NO		bb		
3	FUNCTION4 PFK	40.03	4.735e3					0.8	NO		bb		
4	FUNCTION4 PFK	39.77	3.329e3					0.9	NO		bb		
5	FUNCTION4 PFK	39.62	2.691e4					1.9	NO		bb		
6	FUNCTION4 PFK	39.52	8.920e3					1.1	NO		bb		
7	FUNCTION4 PFK	39.03	1.819e4					1.4	NO		bb		
8	FUNCTION4 PFK	38.50	1.285e4					1.5	NO		bb		
9	FUNCTION4 PFK	37.91	2.301e3					0.7	NO		bb		
10	FUNCTION4 PFK	37.86	2.790e3					0.8	NO		bb		
11	FUNCTION4 PFK	37.62	1.726e4					1.6	NO		bb		
12	FUNCTION4 PFK	37.52	1.622e4					1.6	NO		bb		
13	FUNCTION4 PFK	37.30	1.610e4					1.4	NO		bb		
14	FUNCTION4 PFK	41.05	9.006e3					1.2	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.17	3.208e4					3.1	YES		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.49	1.123e2					2.4	NO		bb		0.000
2	FUNCTION1 HXCD...	22.03	8.166e1					2.6	NO		db		0.000
3	FUNCTION1 HXCD...	21.92	1.503e2					3.3	YES		bd		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.50	3.311e2					5.7	YES		bb		0.000
2	FUNCTION2 HPCD...	29.99	1.706e3					5.7	YES		bb		0.000
3	FUNCTION2 HPCD...	29.31	3.037e2					4.4	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.97	4.510e2					3.0	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS6

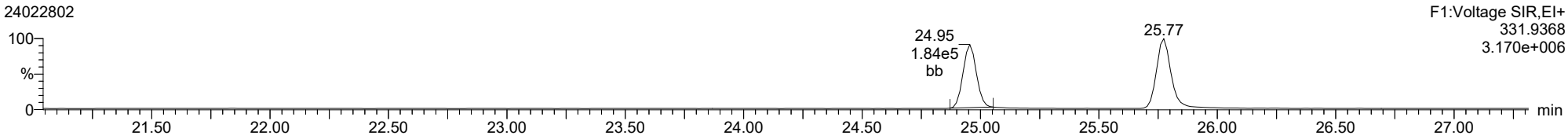
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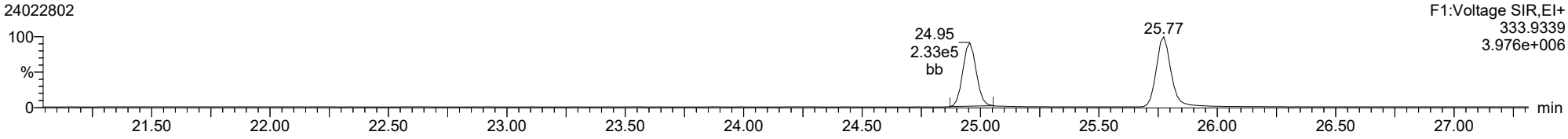
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ID: CS3Y1, Name: 24022802, Date: 28-Feb-2024, Time: 11:57:37, Conditions: AUTOSPEC01, User: pk

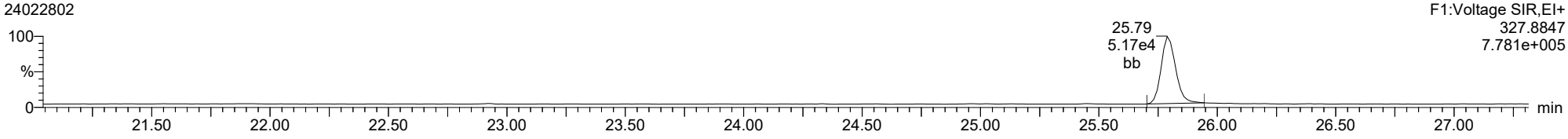
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13C-1234-TCDD

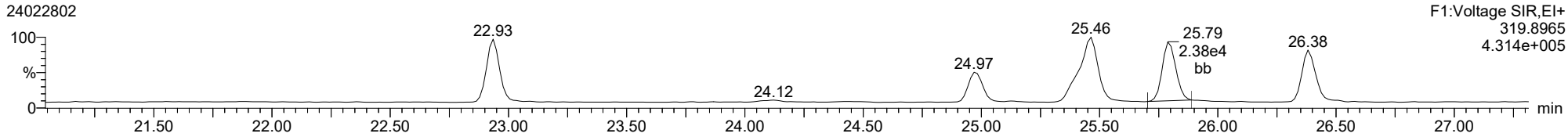


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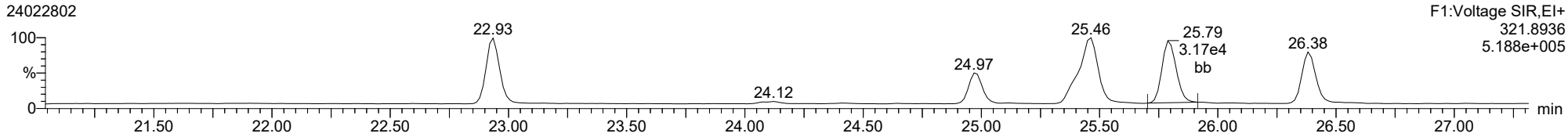


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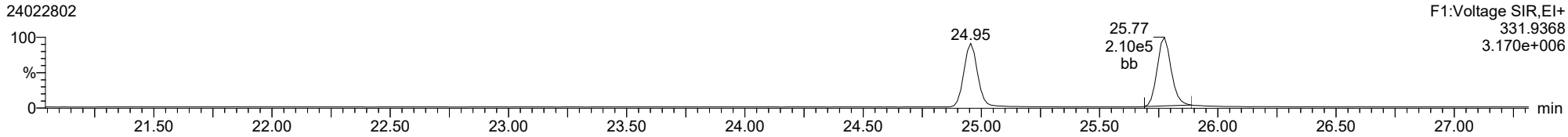
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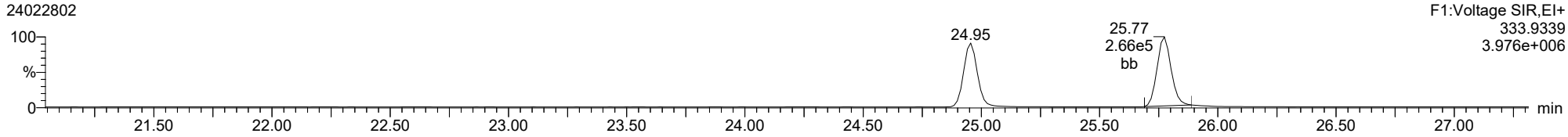
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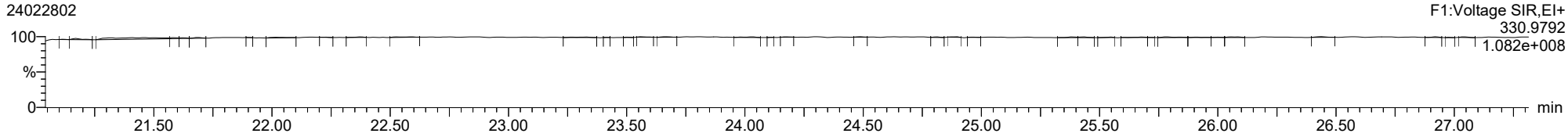
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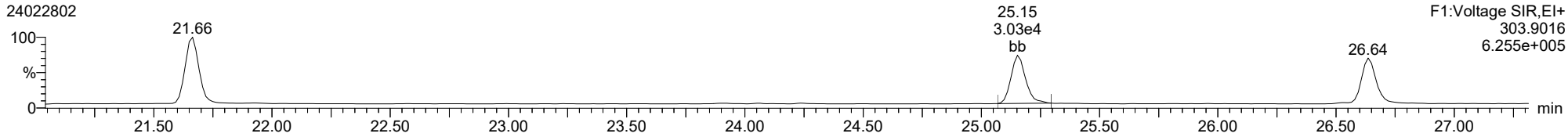


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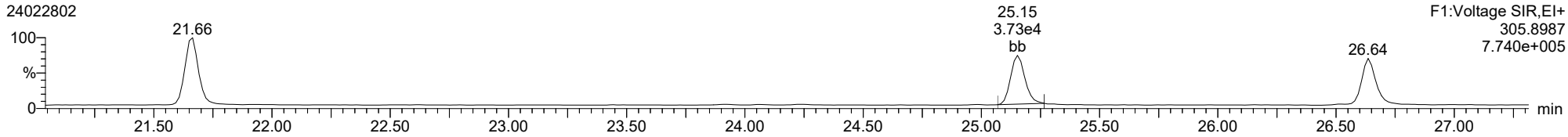


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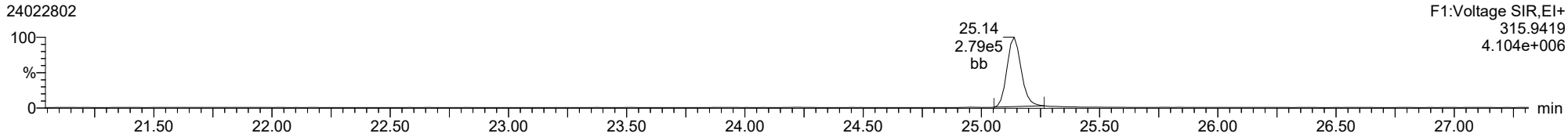
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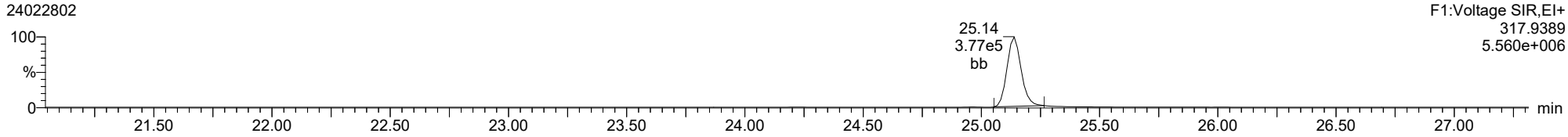
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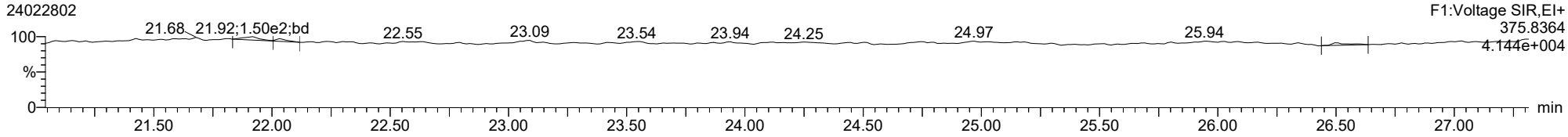
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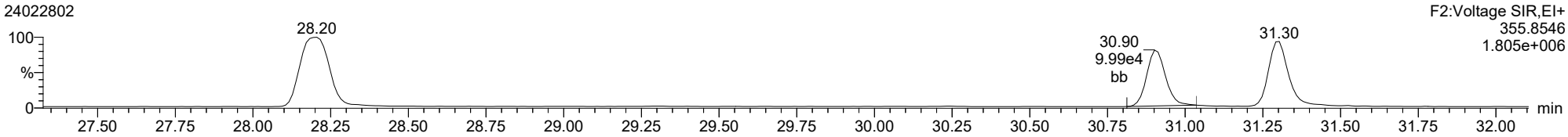


FUNCTION1 HXCDPE

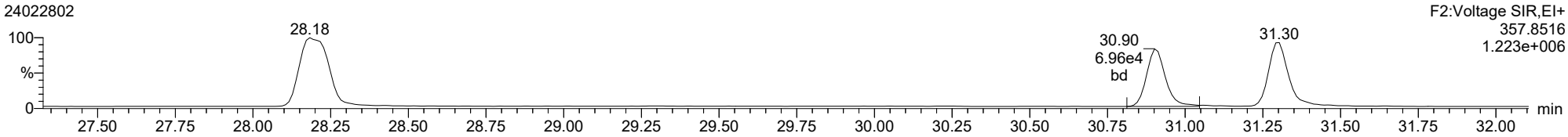


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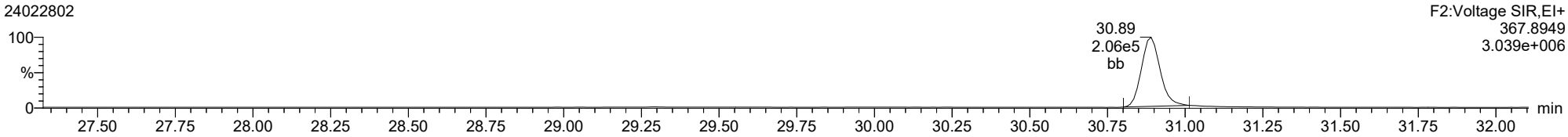
12378-PeCDD



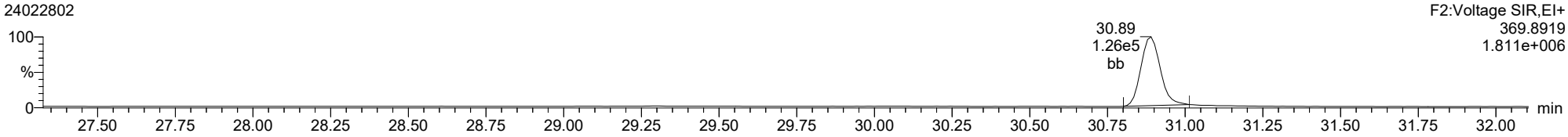
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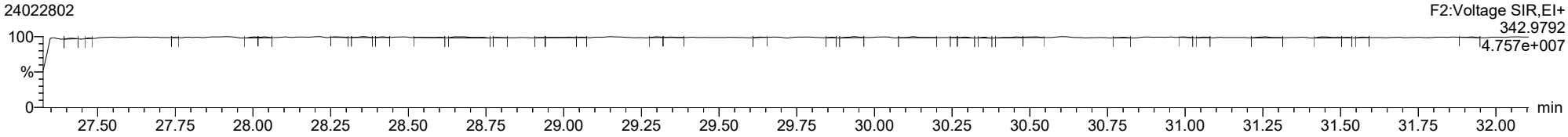
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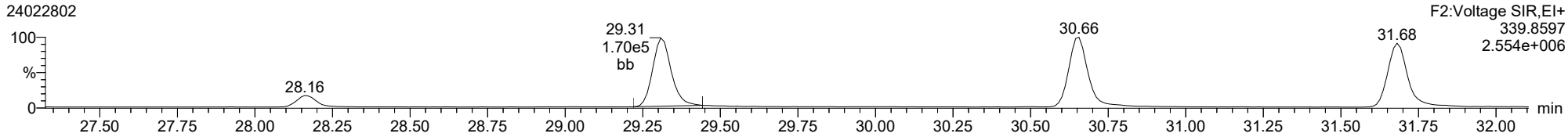


FUNCTION2 PFK

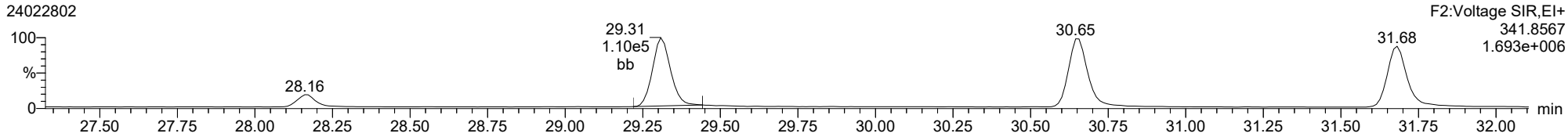


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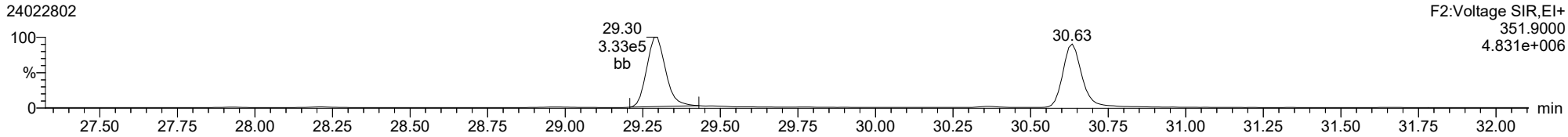
12378-PeCDF



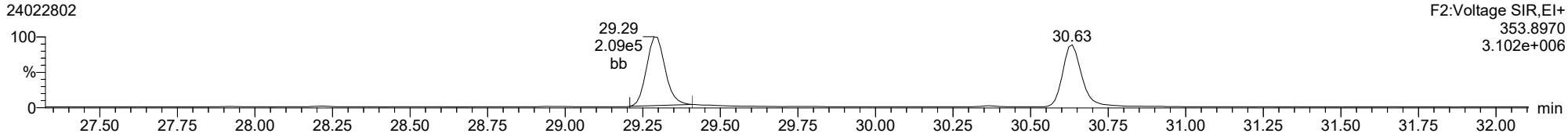
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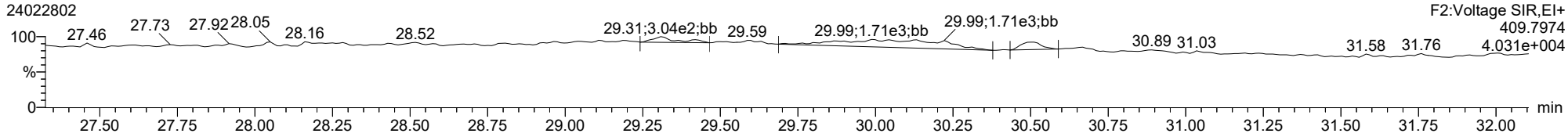
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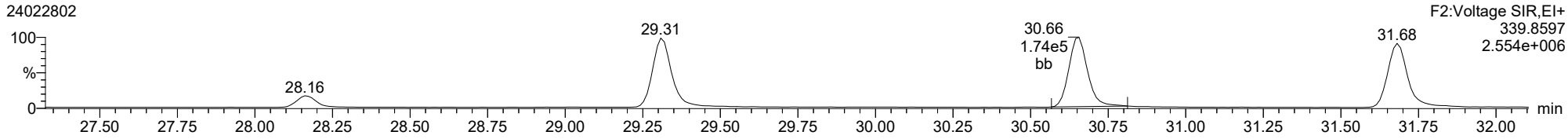


FUNCTION2 HPCDPE

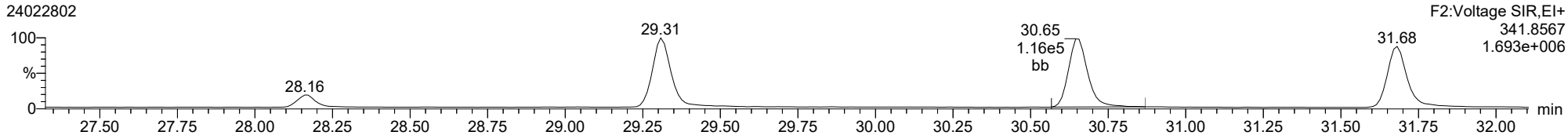


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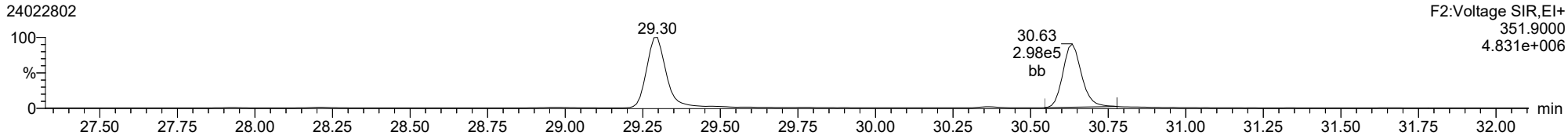
23478-PeCDF



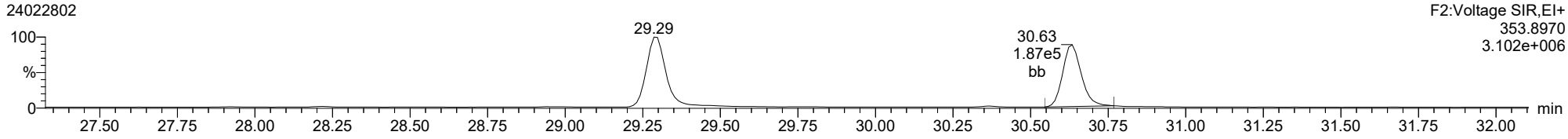
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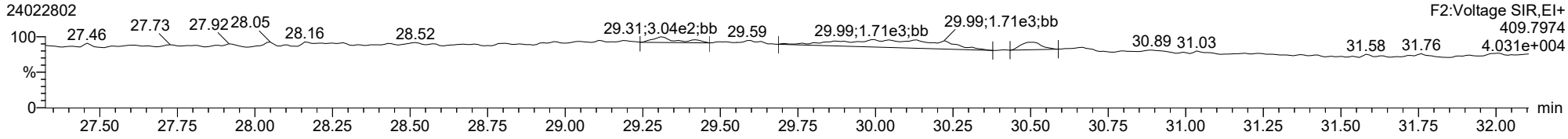
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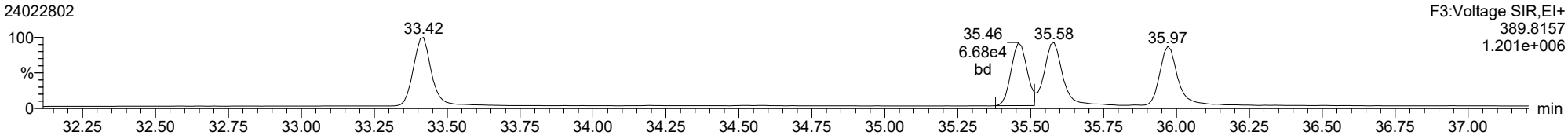


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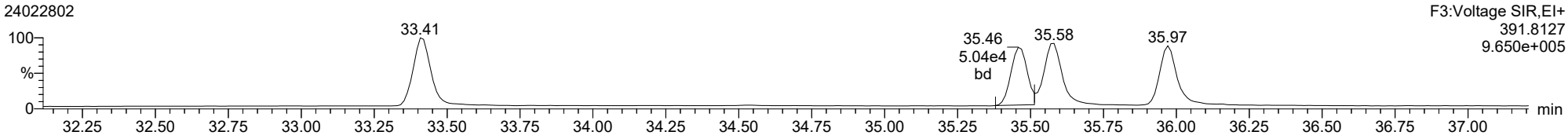


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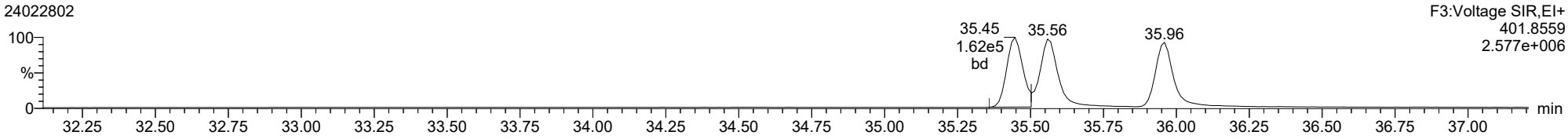
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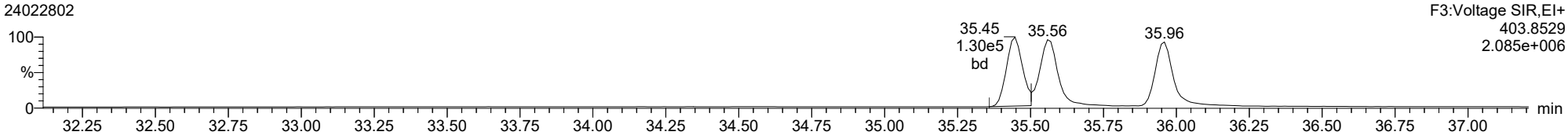
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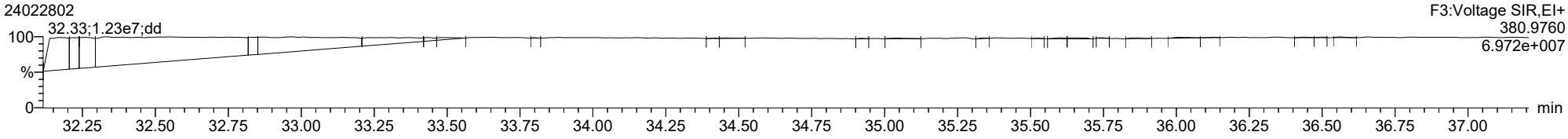
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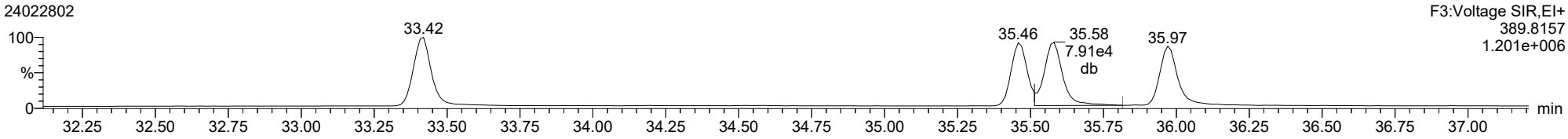
FUNCTION3 PFK



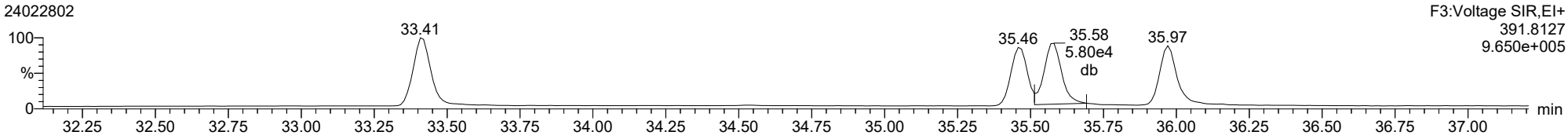
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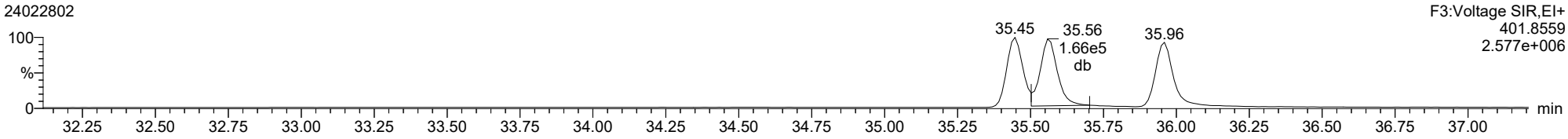
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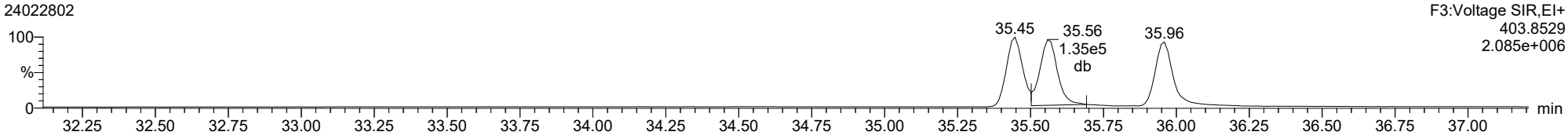
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13C-123678-HxCDD

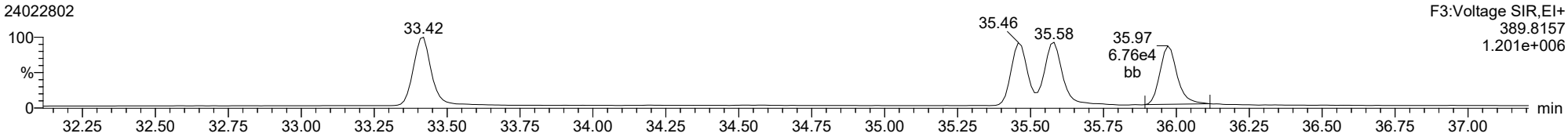


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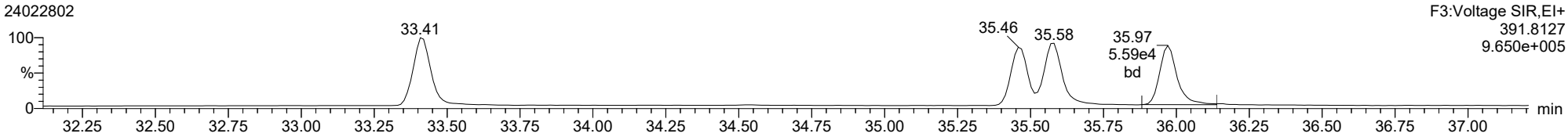


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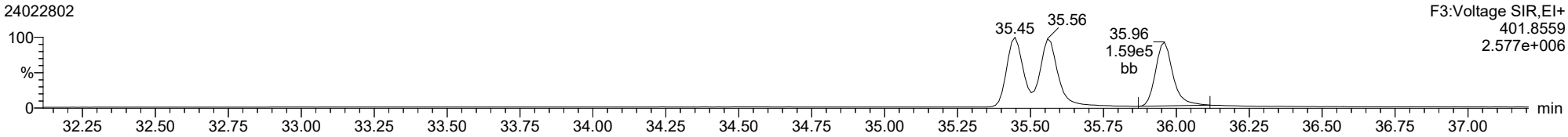
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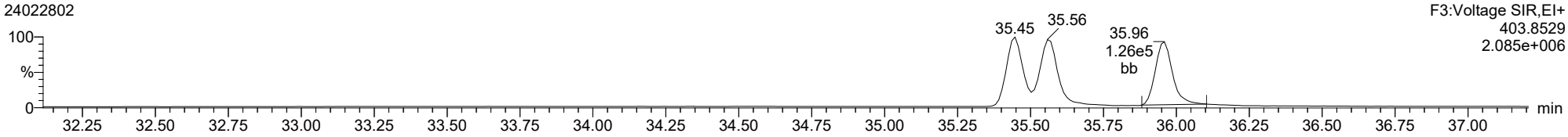
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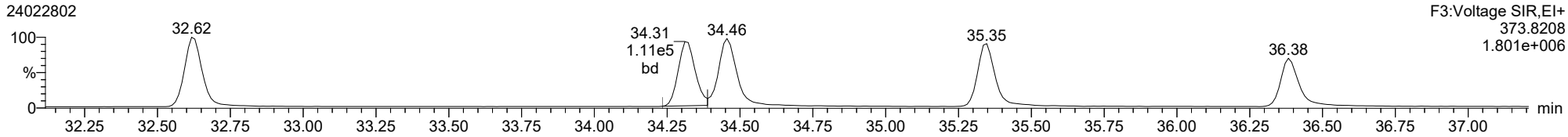


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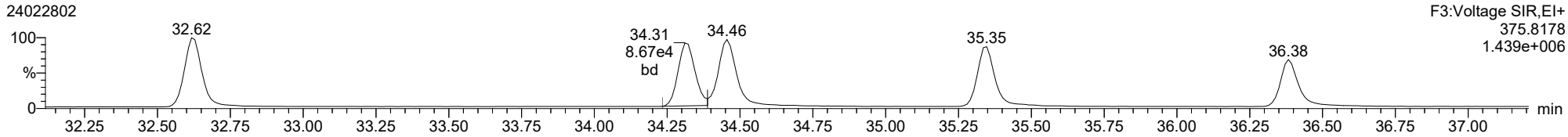


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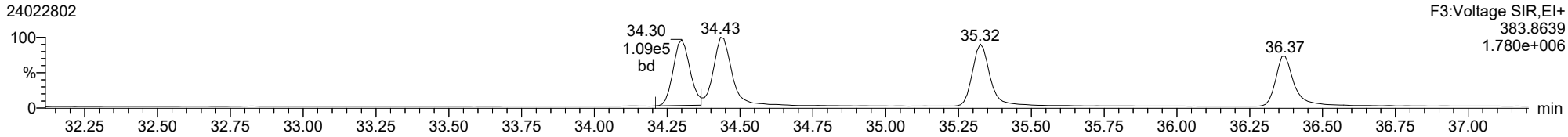
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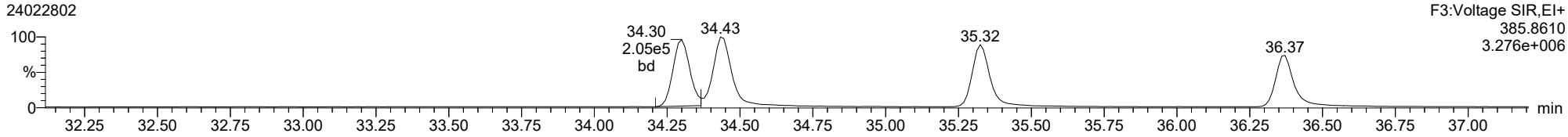
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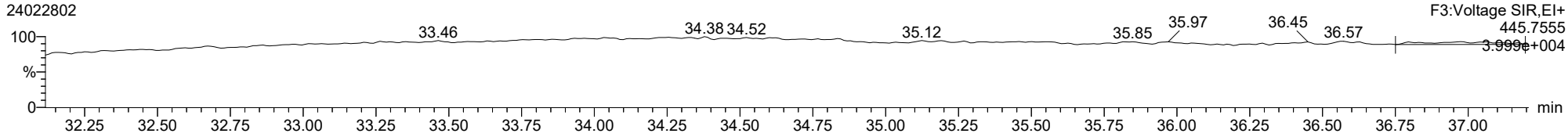
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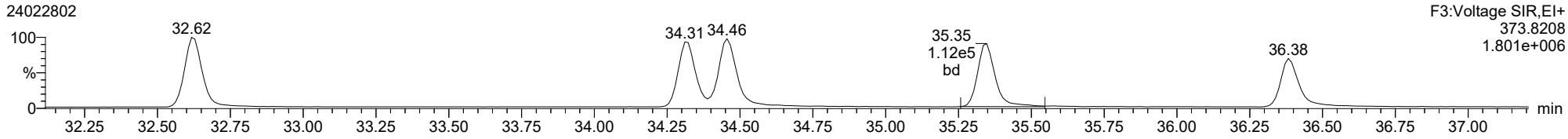


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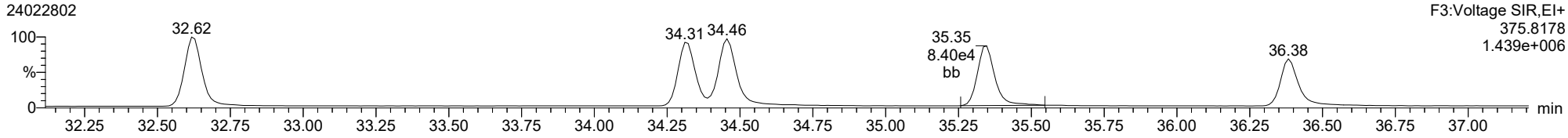


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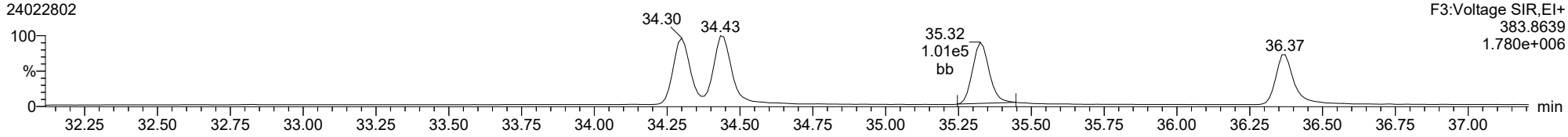
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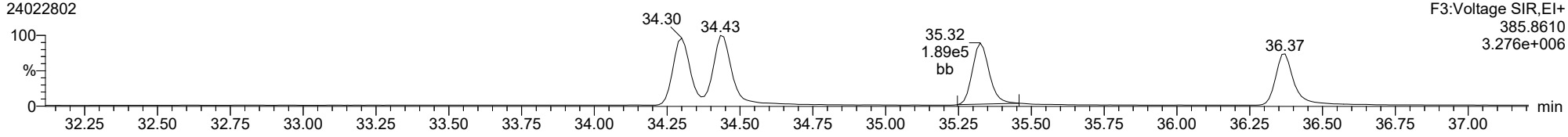
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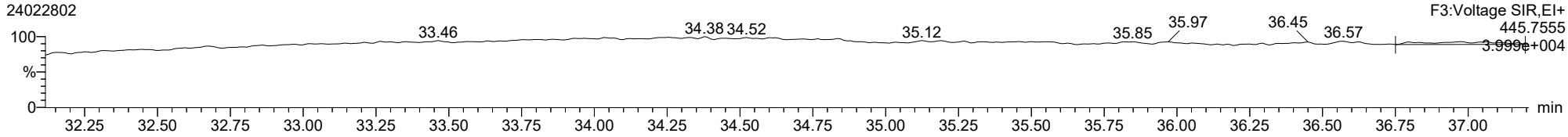
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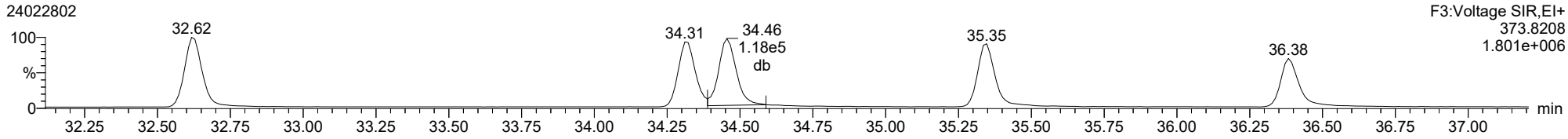


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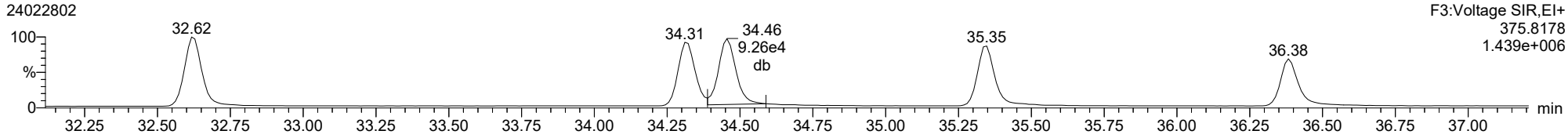


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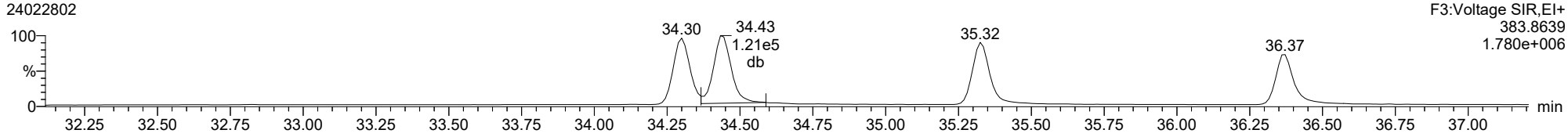
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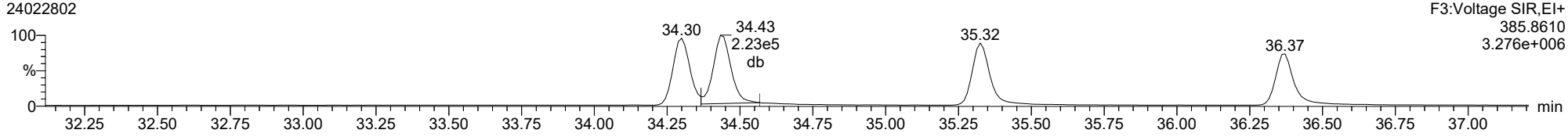
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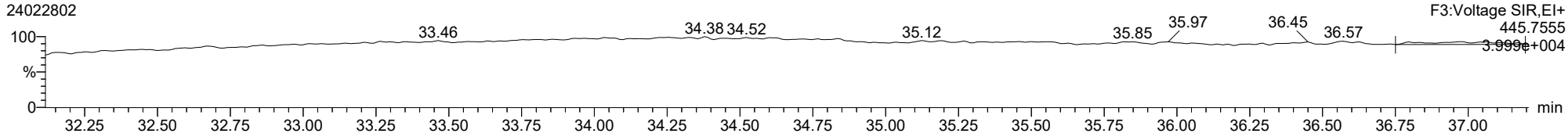
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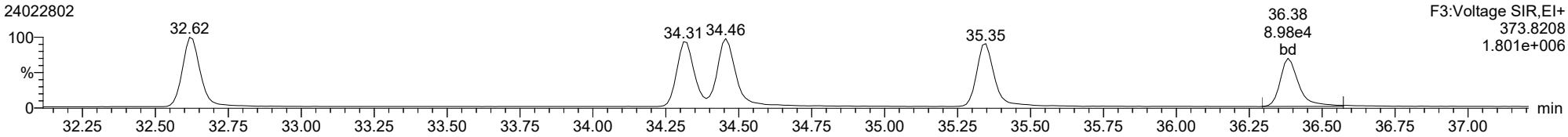


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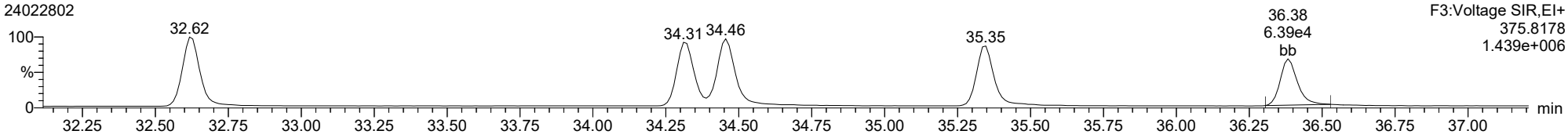


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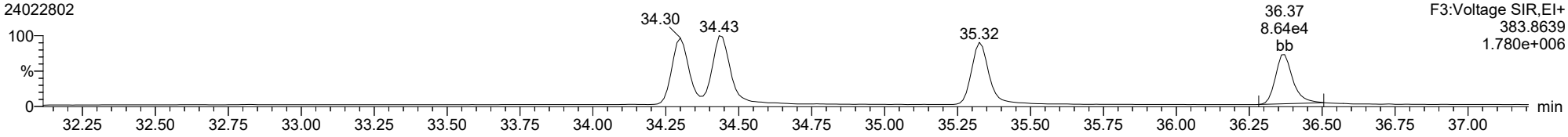
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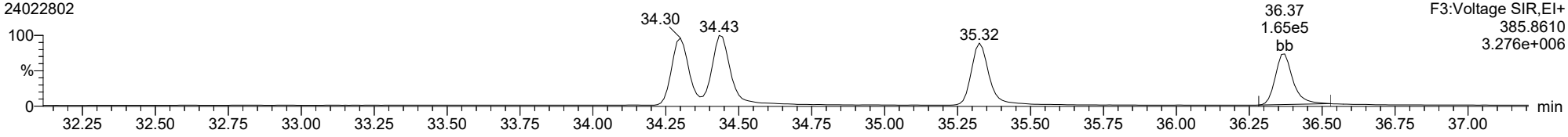
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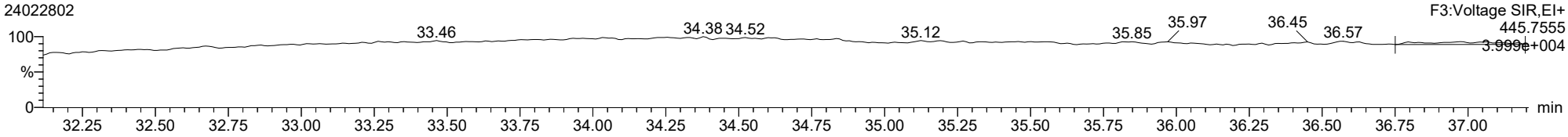
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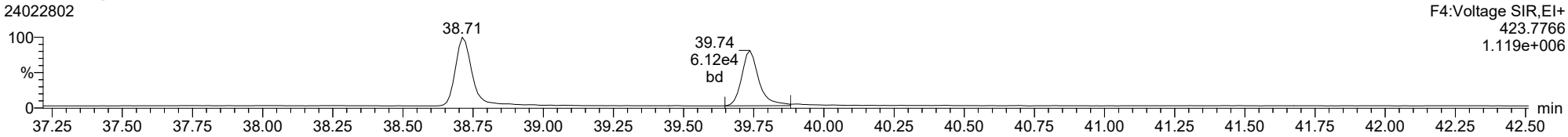


FUNCTION3 OCDPE

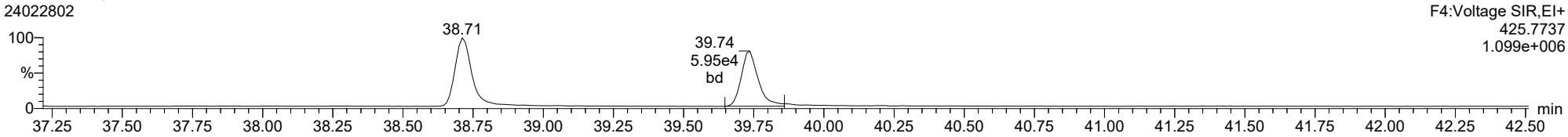


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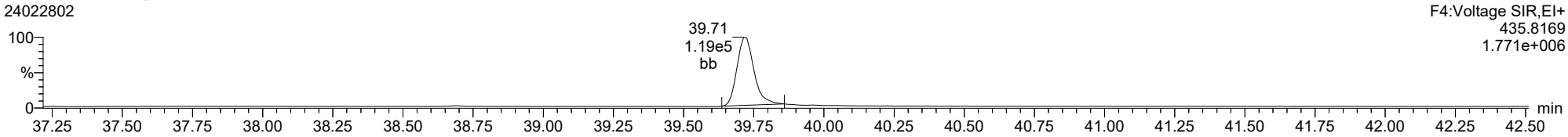
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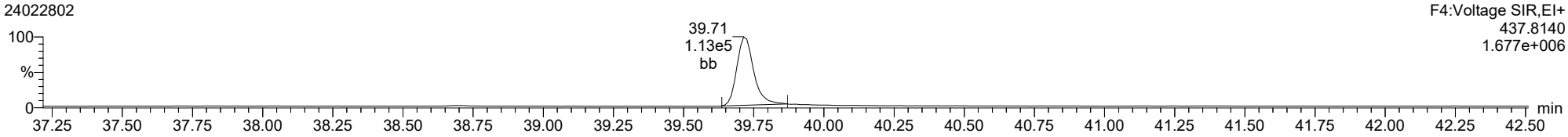
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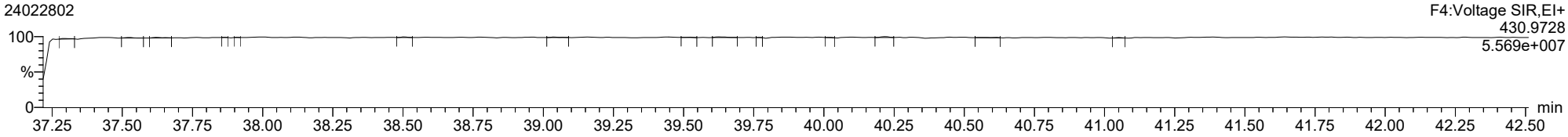
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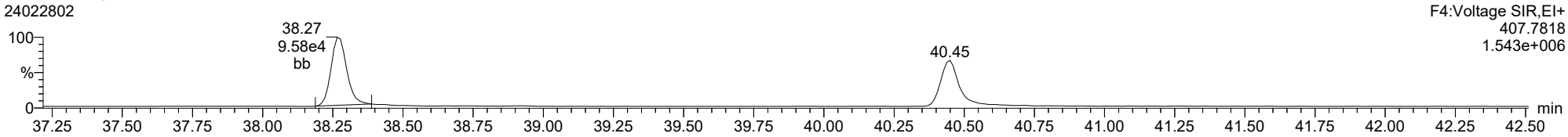


FUNCTION4 PFK

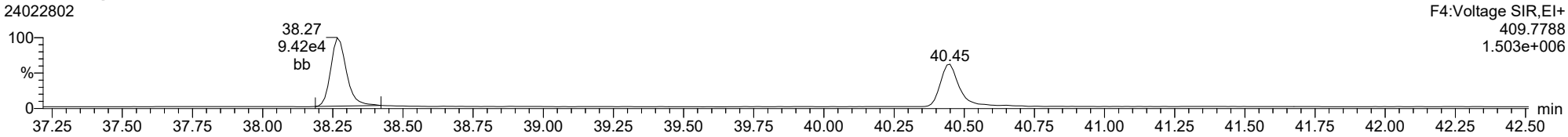


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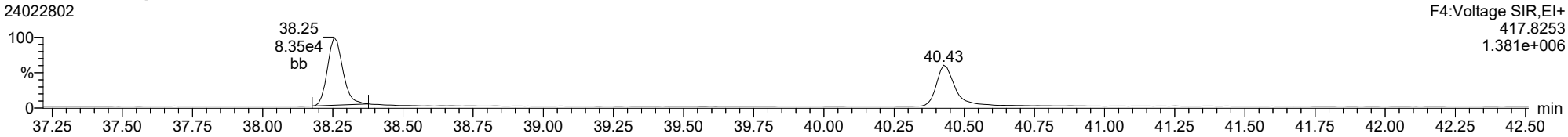
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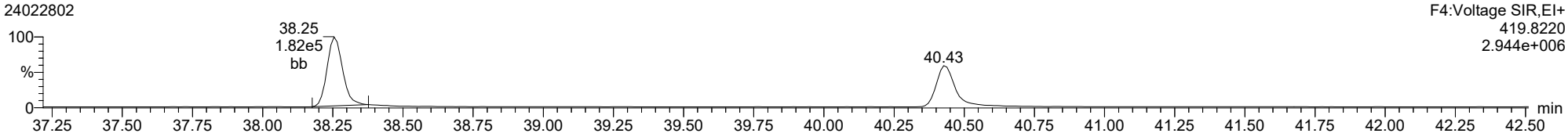
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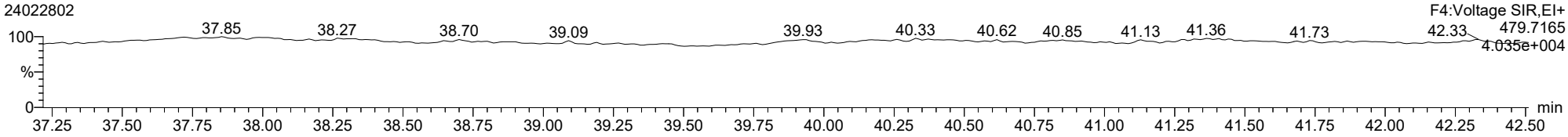
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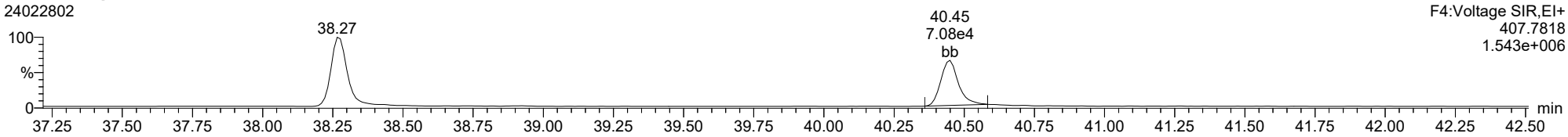


FUNCTION4 NCDPE

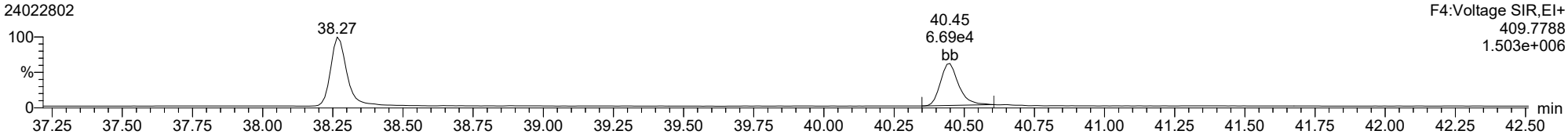


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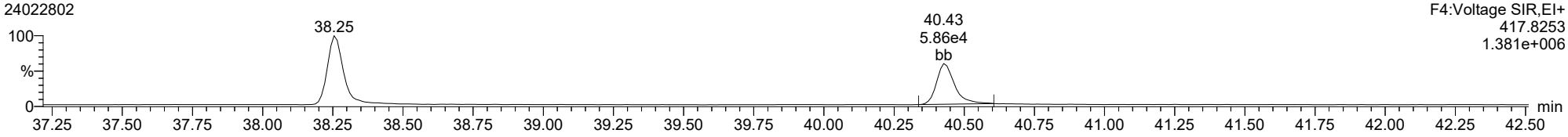
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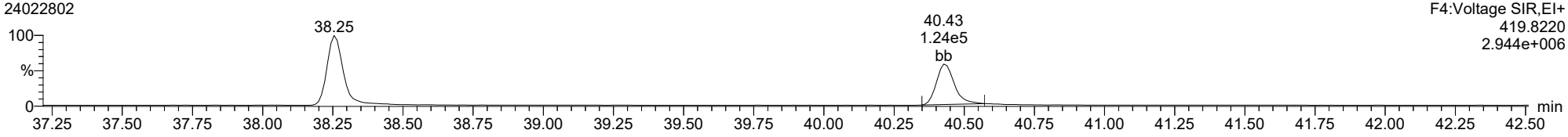
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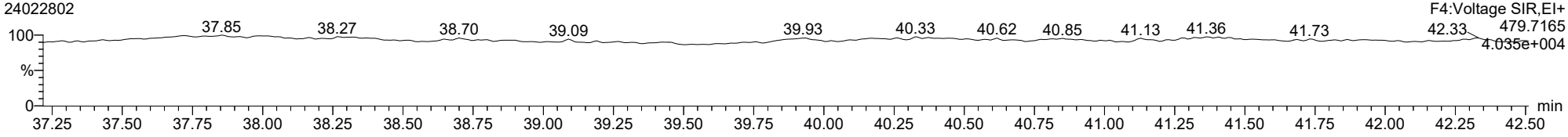
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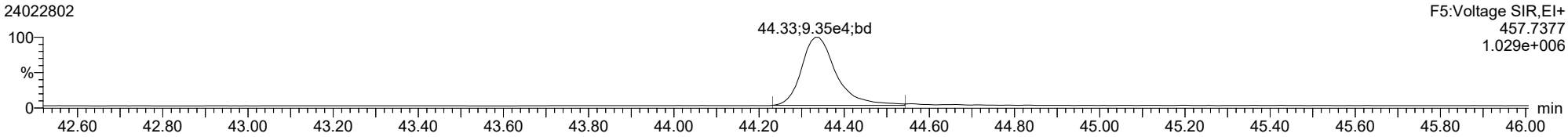


FUNCTION4 NCDPE

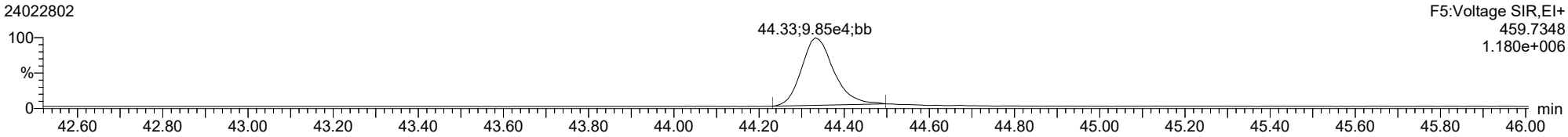


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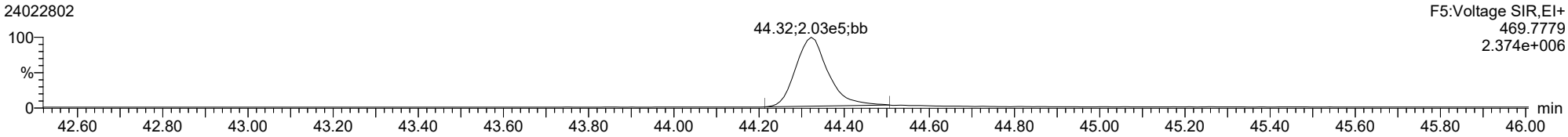
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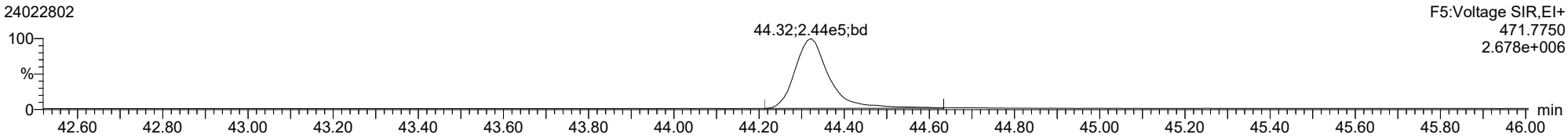
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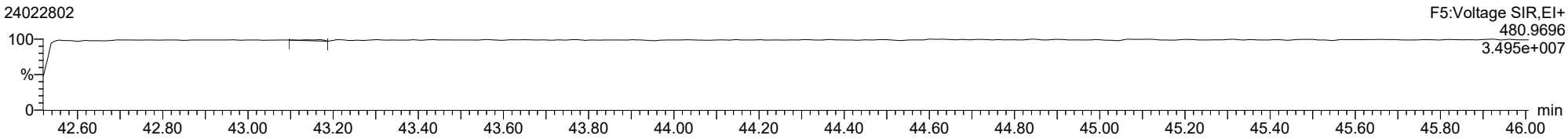
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13C-OCDD

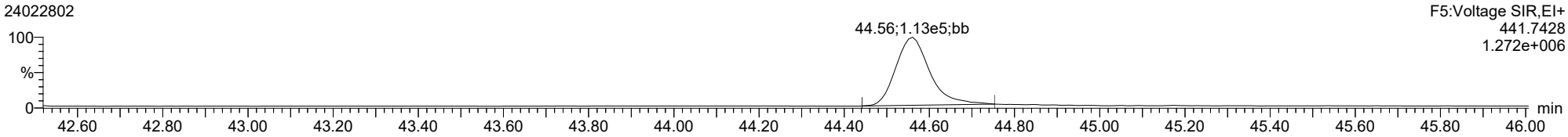


FUNCTION5 PFK

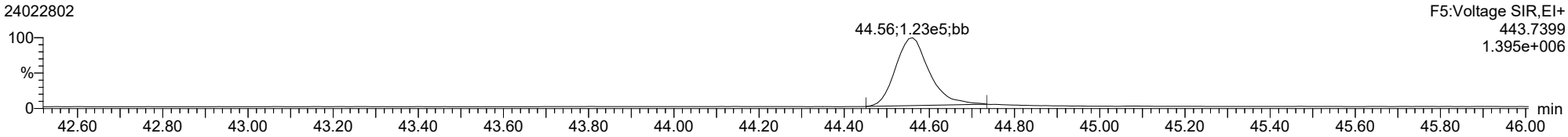


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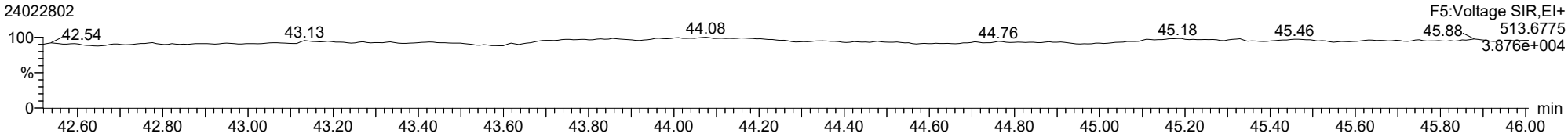
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OCDF

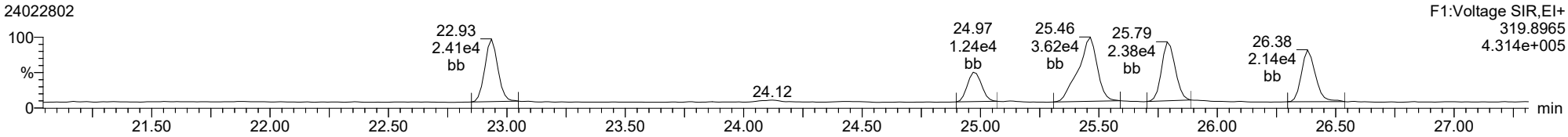


FUNCTION5 DCDPE

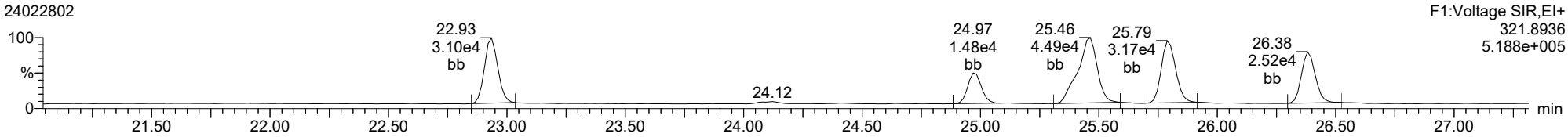


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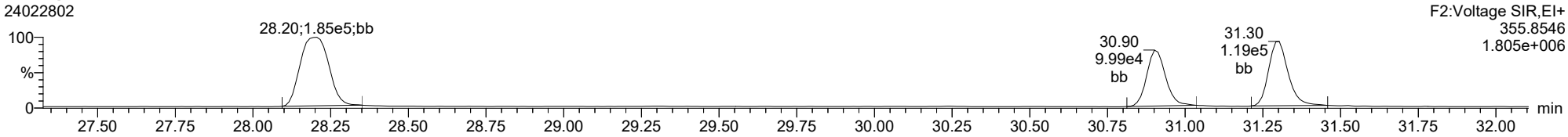
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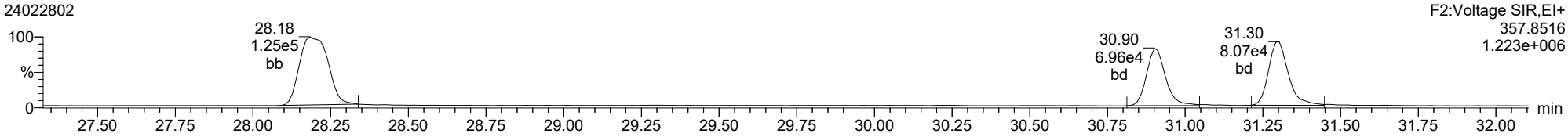
Total-tetradioxins



Total-pentadioxins

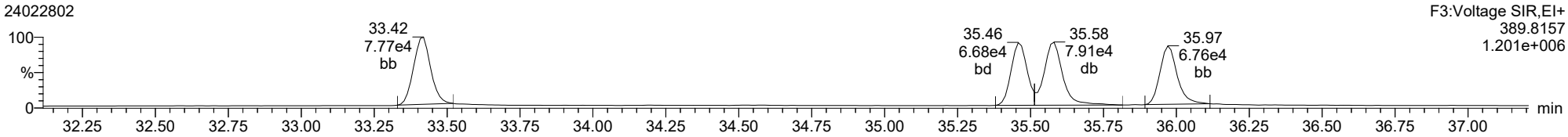


Total-pentadioxins

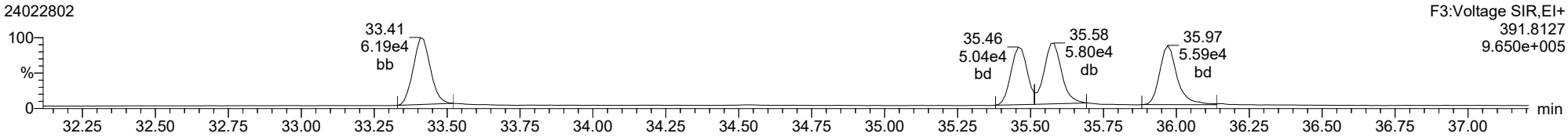


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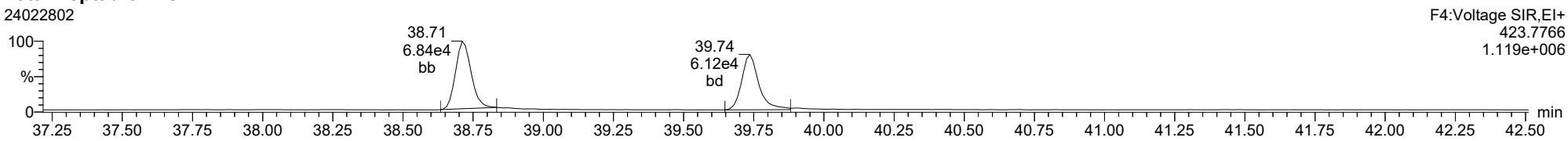
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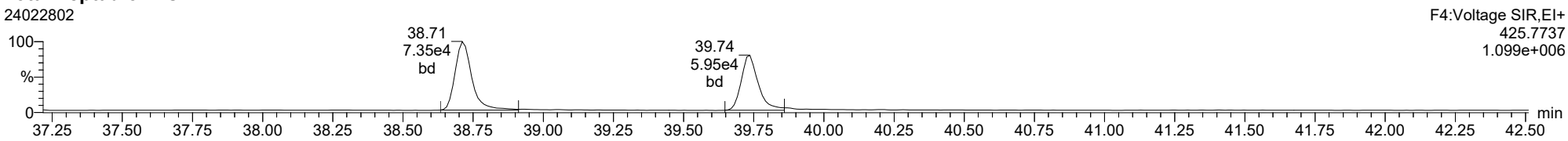
Total-hexadioxins



Total-heptadioxins



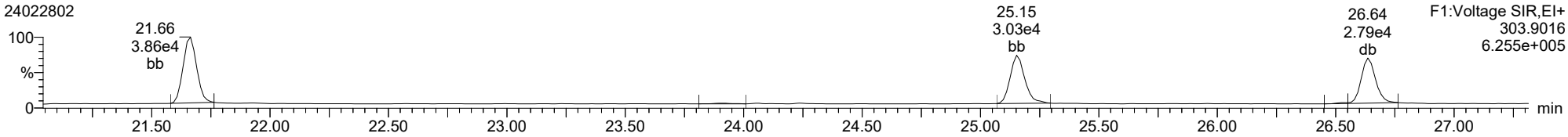
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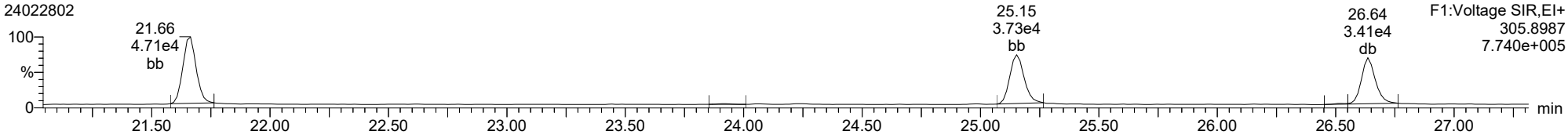
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Last Altered: Thursday, February 29, 2024 08:20:33 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:21:53 Pacific Standard Time

ID: CS3Y1, Name: 24022802, Date: 28-Feb-2024, Time: 11:57:37, Conditions: AUTOSPEC01, User: pk

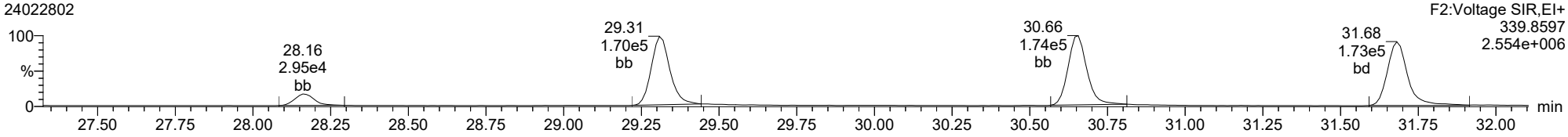
Total-tetrafurans



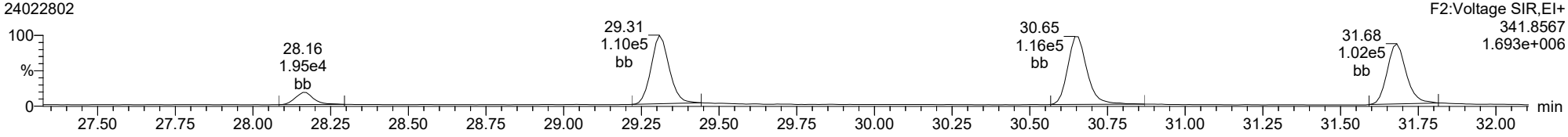
Total-tetrafurans



Total-pentafurans



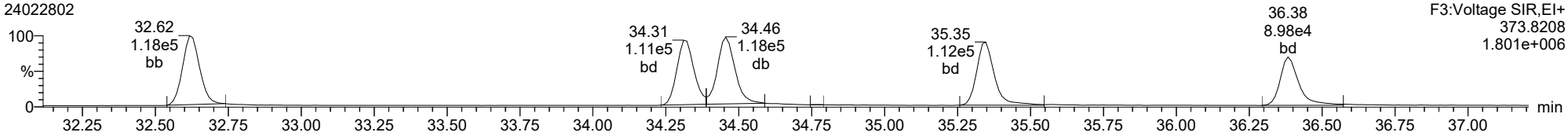
Total-pentafurans



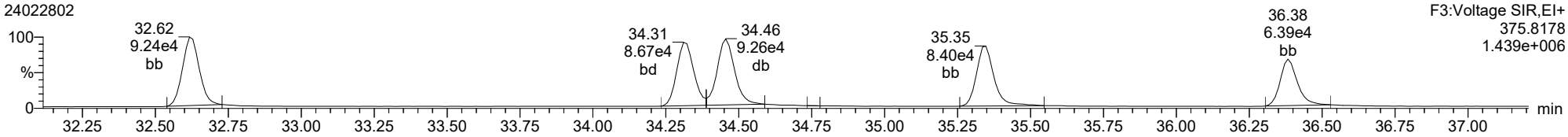
Dataset: T:\Autospec\Processed Data Batch\240228IHOP.qld
Last Altered: Thursday, February 29, 2024 08:20:33 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:21:53 Pacific Standard Time

ID: CS3Y1, Name: 24022802, Date: 28-Feb-2024, Time: 11:57:37, Conditions: AUTOSPEC01, User: pk

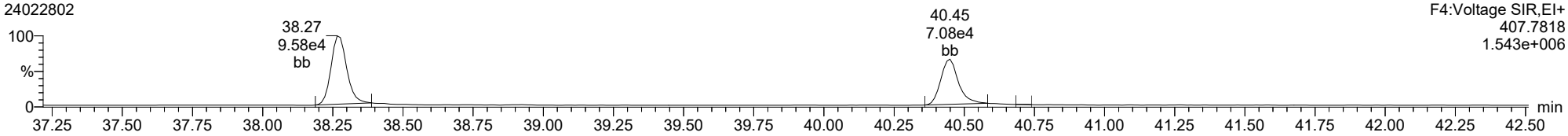
Total-hexafurans



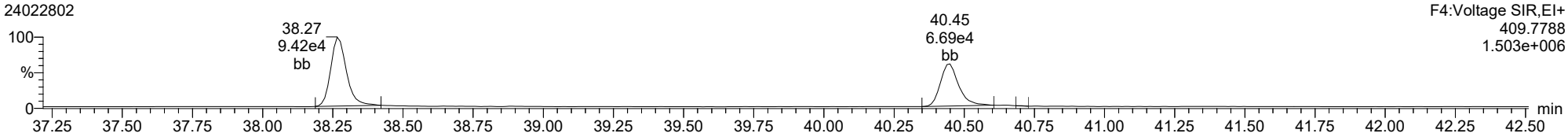
Total-hexafurans



Total-heptafurans

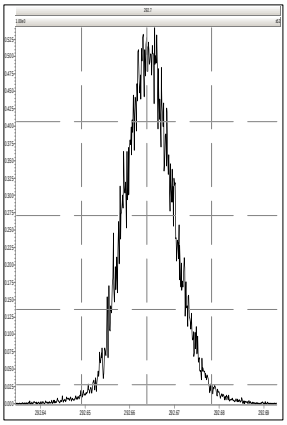


Total-heptafurans

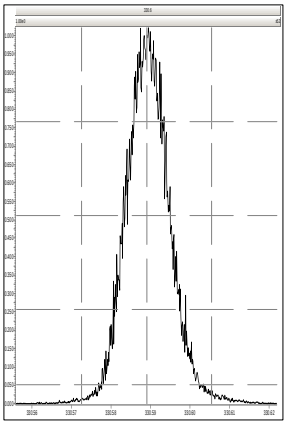


Printed: Wednesday, February 28, 2024 11:57:00 Pacific Standard Time

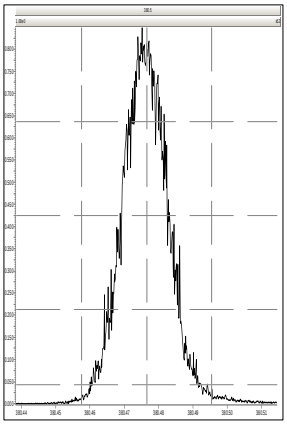
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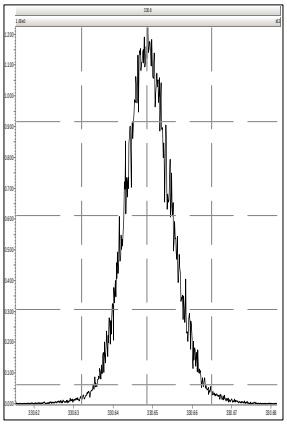
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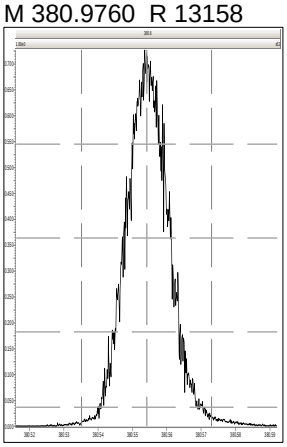
M 380.9760 R 12410



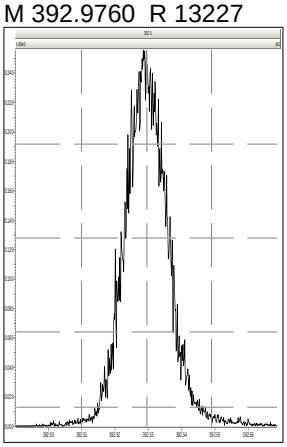
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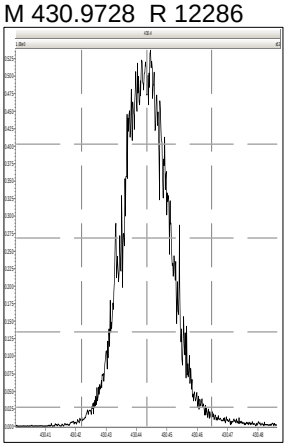
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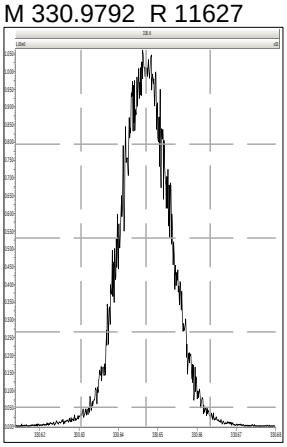
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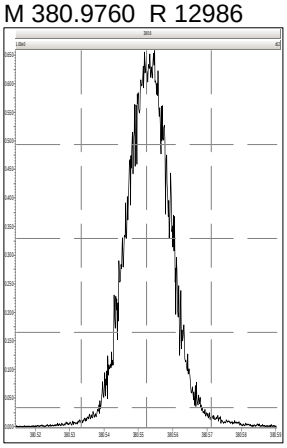
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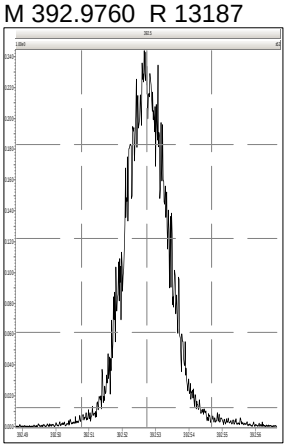
M 330.9792 R 11627



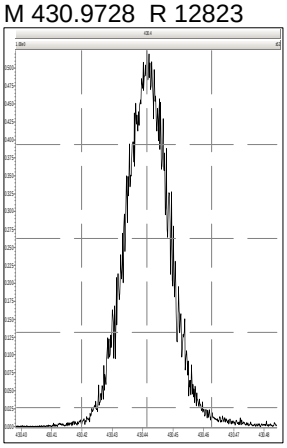
M 380.9760 R 12986



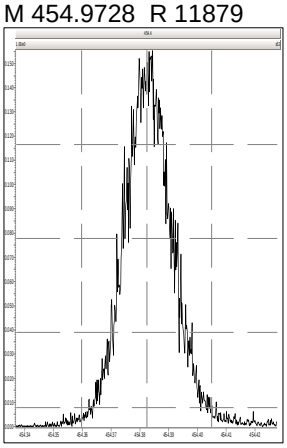
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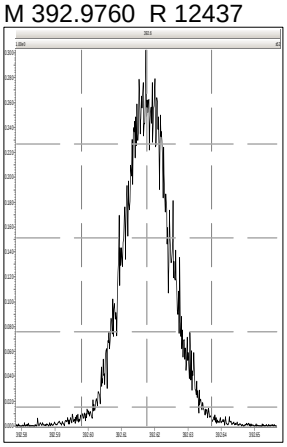
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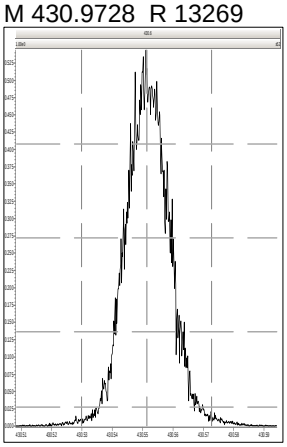
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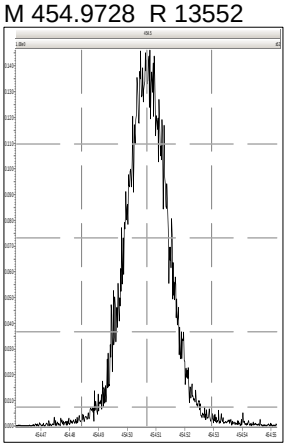
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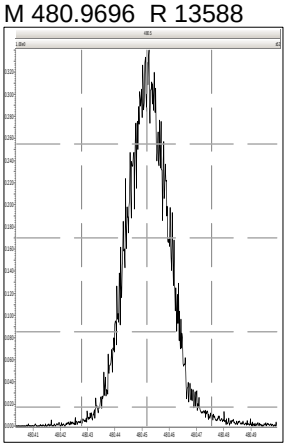
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M 454.9728 R 13552

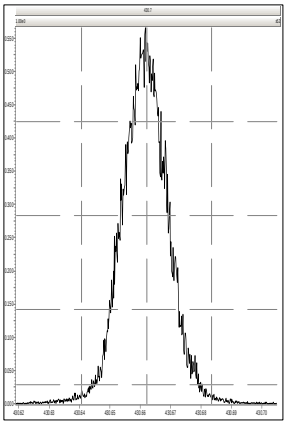


M 480.9696 R 13588

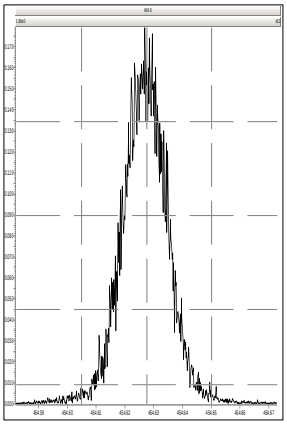


Printed: Wednesday, February 28, 2024 11:57:00 Pacific Standard Time

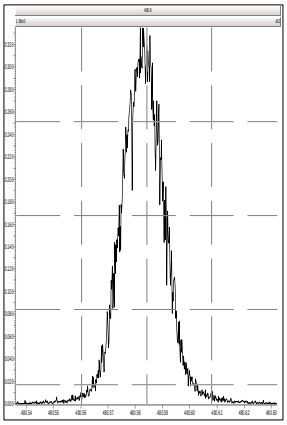
M 430.9728 R 12891



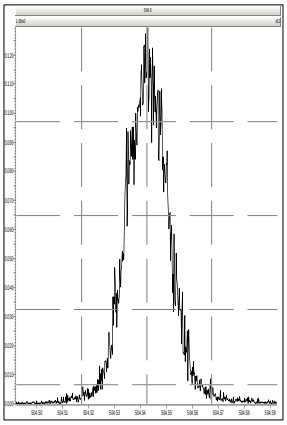
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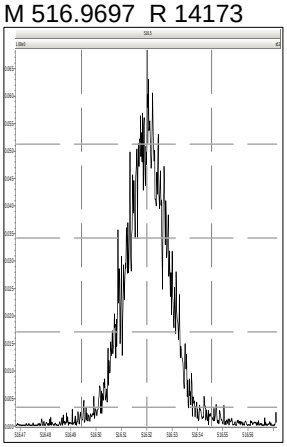
M 480.9696 R 13818

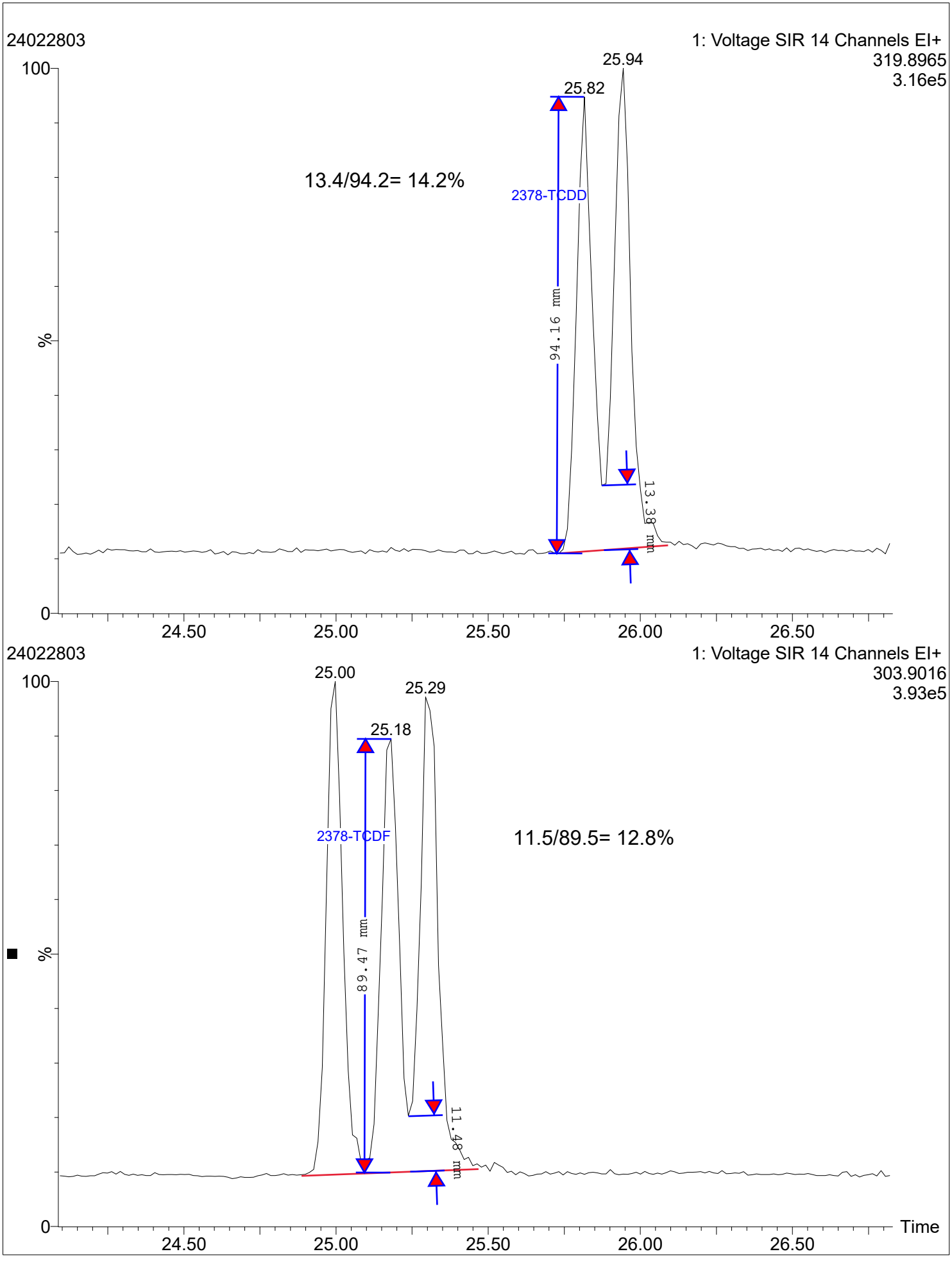


M 504.9696 R 13818



M 516.9697 R 14173




24022803
1: Voltage SIR 14 Channels EI+
319.8965
3.16e5
100
25.94
25.82
13.4/94.2= 14.2%
2378-TCDD
94.16 mm
13.38 mm
%
0
24.50
25.00
25.50
26.00
26.50
24022803
1: Voltage SIR 14 Channels EI+
303.9016
3.93e5
100
25.00
25.29
25.18
2378-TCDF
11.5/89.5= 12.8%
89.47 mm
11.48 mm
%
0
Time
24.50
25.00
25.50
26.00
26.50

Dataset: T:\Autospec\Processed Data Batch\240228ICIH.qld
Last Altered: Thursday, February 29, 2024 08:17:31 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:24:56 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240228.mdb 29 Feb 2024 08:04:37
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

ID: CSLCGY, Name: 24022804, Date: 28-Feb-2024, Time: 14:33:26, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF					0.980		0.770	770	1166								
12378-PeCDF	29.316	1.001	1.319e3	9.964e2	1.047	1.324	1.550	999	1230	2.35e4	1.78e4	23.5	14.4	NO	bb	bd	0.478
23478-PeCDF	30.653	1.000	1.458e3	1.076e3	1.156	1.355	1.550	999	1230	2.32e4	1.42e4	23.2	11.5	NO	bb	MM	0.498
123478-HxCDF	34.319	1.000	9.434e2	8.502e2	1.224	1.110	1.240	592	657	1.50e4	1.63e4	25.3	24.9	NO	bd	bd	0.491
234678-HxCDF	35.344	1.000	1.025e3	7.487e2	1.235	1.368	1.240	592	657	1.73e4	1.13e4	29.2	17.2	NO	bb	MM	0.485
123678-HxCDF	34.464	1.000	1.068e3	9.202e2	1.193	1.161	1.240	592	657	1.57e4	1.23e4	26.5	18.7	NO	db	MM	0.447
123789-HxCDF	36.380	1.000	6.594e2	4.885e2	1.100	1.350	1.240	592	657	9.50e3	8.46e3	16.0	12.9	NO	MM	bd	0.402
1234678-HpCDF	38.285	1.001	9.047e2	9.268e2	1.392	0.976	1.050	986	926	1.50e4	1.26e4	15.2	13.6	NO	bb	bb	0.518
1234789-HpCDF	40.446	1.000	5.124e2	5.157e2	1.381	0.993	1.050	986	926	1.08e4	1.01e4	11.0	10.9	NO	MM	MM	0.407
OCDF					1.222		0.890	682	1029								
2378-TCDD					1.227		0.770	1181	652								
12378-PeCDD	30.910	1.000	9.443e2	6.242e2	0.964	1.513	1.550	705	481	1.43e4	1.12e4	20.3	23.3	NO	bb	MM	0.483
123478-HxCDD	35.478	1.001	6.799e2	4.897e2	0.841	1.388	1.240	644	502	1.02e4	8.16e3	15.9	16.3	NO	MM	MM	0.496
123678-HxCDD	35.600	1.001	6.864e2	6.369e2	0.833	1.078	1.240	644	502	1.01e4	9.10e3	15.6	18.1	NO	db	db	0.463
123789-HxCDD	35.990	1.012	7.104e2	5.816e2	0.770	1.221	1.240	644	502	1.00e4	9.26e3	15.6	18.4	NO	db	MM	0.538
1234678-HpCDD	39.756	1.001	5.438e2	5.596e2	0.984	0.972	1.050	580	552	8.15e3	9.81e3	14.0	17.8	NO	bb	bb	0.499
OCDD					0.938		0.890	604	700								
13C-2378-TCDF	25.139	1.007	2.720e5	3.679e5	1.655	0.739	0.770	2023	1219	3.92e6	5.33e6	1935.2	4374.6	NO	bb	bb	98.717
13C-12378-PeCDF	29.294	1.174	2.851e5	1.779e5	1.196	1.602	1.550	2267	2798	3.98e6	2.53e6	1753.9	904.7	NO	bb	bb	98.870
13C-23478-PeCDF	30.642	1.228	2.707e5	1.693e5	1.117	1.598	1.550	2267	2798	3.79e6	2.44e6	1673.3	871.3	NO	bb	bb	100.576
13C-123478-HxCDF	34.308	0.954	1.036e5	1.946e5	1.028	0.533	0.510	2322	1954	1.56e6	2.96e6	671.4	1514.4	NO	bd	bd	95.671
13C-123678-HxCDF	34.452	0.958	1.306e5	2.424e5	1.176	0.539	0.510	2322	1954	1.63e6	2.99e6	701.8	1530.0	NO	db	db	104.617
13C-234678-HxCDF	35.333	0.982	1.077e5	1.884e5	1.016	0.571	0.510	2322	1954	1.50e6	2.82e6	647.3	1445.2	NO	bb	bb	96.101
13C-123789-HxCDF	36.380	1.012	8.905e4	1.703e5	0.879	0.523	0.510	2322	1954	1.16e6	2.19e6	501.6	1123.3	NO	bb	bb	97.282
13C-1234678-HpCDF	38.263	1.064	7.470e4	1.794e5	0.870	0.416	0.440	1741	2586	1.14e6	2.63e6	654.2	1016.4	NO	bb	bb	96.322
13C-1234789-HpCDF	40.446	1.125	6.032e4	1.226e5	0.638	0.492	0.440	1741	2586	7.47e5	1.62e6	429.2	625.8	NO	bd	bb	94.600
13C-1234-TCDD	24.955	0.000	1.737e5	2.179e5	1.000	0.797	0.770	2205	1086	2.71e6	3.36e6	1229.7	3089.6	NO	bb	bb	100.000
13C-2378-TCDD	25.774	1.033	1.901e5	2.469e5	1.151	0.770	0.770	2205	1086	2.81e6	3.58e6	1273.5	3290.9	NO	bb	bb	96.969
13C-12378-PeCDD	30.899	1.238	2.025e5	1.342e5	0.828	1.509	1.550	1224	1202	2.78e6	1.78e6	2270.4	1485.1	NO	bb	bb	103.805
13C-123478-HxCDD	35.455	0.986	1.533e5	1.271e5	0.950	1.206	1.240	1666	1727	2.42e6	1.97e6	1450.1	1138.1	NO	bd	bd	97.406
13C-123678-HxCDD	35.567	0.989	1.821e5	1.614e5	1.107	1.128	1.240	1666	1727	2.50e6	2.15e6	1502.6	1244.3	NO	db	dd	102.337
13C-1234678-HpCDD	39.733	1.105	1.140e5	1.106e5	0.737	1.031	1.050	1528	1275	1.48e6	1.43e6	970.6	1118.3	NO	bb	bd	100.476
13C-OCDD	44.329	1.232	1.785e5	1.963e5	0.633	0.909	0.890	2299	2576	1.93e6	2.12e6	840.7	822.6	NO	bd	bd	195.432
13C-123789-HxCDD	35.968	0.000	1.638e5	1.394e5	1.000	1.174	1.240	1666	1727	2.32e6	1.91e6	1394.1	1106.2	NO	bb	bb	100.000
37CL-2378-TCDD	25.803	1.034	6.240e2		1.312			1120		8.56e3		7.6			bb		0.121

Dataset: T:\Autospec\Processed Data Batch\240228ICIH.qld
Last Altered: Thursday, February 29, 2024 08:17:31 Pacific Standard Time
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ID: CSLCGY, Name: 24022804, Date: 28-Feb-2024, Time: 14:33:26, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.247		0.770	770	1166								
1289-TCDF					0.916		0.770	770	1166								
13468-PECDF					1.353		1.550	636	928								
12389-PECDF					0.925		1.550	999	1230								
123468-HXCDF					1.335		1.240	592	657								
1368-TCDD					1.120		0.770	1181	652								
1289-TCDD					0.966		0.770	1181	652								
12479-PECDD					1.859		1.550	705	481								
12389-PECDD					1.154		1.550	705	481								
124679-HXCDD					1.006		1.240	644	502								
1234679-HPCDD					1.184		1.050	580	552								
Total-tetrafurans			0.000e0		1.048			770		0.00e0							
Total-penta1			0.000e0					636		0.00e0							
Total-pentafurans			2.777e3		1.043			999		4.67e4							0.976
Total-hexafurans			3.695e3		1.217			592		5.74e4							1.826
Total-heptafurans			1.417e3		1.387			986		2.58e4							0.925
Total-Furans			7.889e3		1.180			770		1.30e5							3.727
Total-tetradioxins			0.000e0		1.104			1181		0.00e0							
Total-pentadioxins			9.443e2		1.326			705		1.43e4							0.483
Total-hexadioxins			2.077e3		0.863			644		3.03e4							1.496
Total-heptadioxins			5.438e2		1.084			580		8.15e3							0.499
Total-Dioxins			3.565e3		1.065			1181		5.28e4							2.479
Total-TEQ			1.145e4					1181		1.83e5							6.205
FUNCTION1 PFK			3.879e5					777404		7.92e6							
FUNCTION2 PFK			4.427e5					363825		1.40e7							0.000
FUNCTION3 PFK			8.536e6					496203		4.04e7							0.000
FUNCTION4 PFK			1.394e7					516647		1.50e8							
FUNCTION5 PFK			2.442e5					230973		6.85e6							
FUNCTION1 HXCD...			2.521e2					570		3.48e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			7.736e2					871		1.58e4							0.000
FUNCTION3 OCDPE			0.000e0					520		0.00e0							
FUNCTION4 NCDPE			4.072e2					593		8.52e3							0.000
FUNCTION5 DCDPE			0.000e0					657		0.00e0							

Method: T:\Autospec\Methods\Dioxin240228.mdb 29 Feb 2024 08:04:37
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.65	1.458e3	1.076e3	1.156	1.35	1.55	23.2	YES	NO	bb	MM	0.498
2	12378-PeCDF	29.32	1.319e3	9.964e2	1.047	1.32	1.55	23.5	YES	NO	bb	bd	0.478

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.38	6.594e2	4.885e2	1.100	1.35	1.24	16.0	YES	NO	MM	bd	0.402
2	234678-HxCDF	35.34	1.025e3	7.487e2	1.235	1.37	1.24	29.2	YES	NO	bb	MM	0.485
3	123678-HxCDF	34.46	1.068e3	9.202e2	1.193	1.16	1.24	26.5	YES	NO	db	MM	0.447
4	123478-HxCDF	34.32	9.434e2	8.502e2	1.224	1.11	1.24	25.3	YES	NO	bd	bd	0.491

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.45	5.124e2	5.157e2	1.381	0.99	1.05	11.0	YES	NO	MM	MM	0.407
2	1234678-HpCDF	38.28	9.047e2	9.268e2	1.392	0.98	1.05	15.2	YES	NO	bb	bb	0.518

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.65	1.458e3	1.076e3	1.156	1.35	1.55	23.2	YES	NO	bb	MM	0.498
2	12378-PeCDF	29.32	1.319e3	9.964e2	1.047	1.32	1.55	23.5	YES	NO	bb	bd	0.478
3	123789-HxCDF	36.38	6.594e2	4.885e2	1.100	1.35	1.24	16.0	YES	NO	MM	bd	0.402
4	234678-HxCDF	35.34	1.025e3	7.487e2	1.235	1.37	1.24	29.2	YES	NO	bb	MM	0.485
5	123678-HxCDF	34.46	1.068e3	9.202e2	1.193	1.16	1.24	26.5	YES	NO	db	MM	0.447
6	123478-HxCDF	34.32	9.434e2	8.502e2	1.224	1.11	1.24	25.3	YES	NO	bd	bd	0.491
7	1234789-HpCDF	40.45	5.124e2	5.157e2	1.381	0.99	1.05	11.0	YES	NO	MM	MM	0.407
8	1234678-HpCDF	38.28	9.047e2	9.268e2	1.392	0.98	1.05	15.2	YES	NO	bb	bb	0.518

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.91	9.443e2	6.242e2	0.964	1.51	1.55	20.3	YES	NO	bb	MM	0.483

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.99	7.104e2	5.816e2	0.770	1.22	1.24	15.6	YES	NO	db	MM	0.538
2	123678-HxCDD	35.60	6.864e2	6.369e2	0.833	1.08	1.24	15.6	YES	NO	db	db	0.463
3	123478-HxCDD	35.48	6.799e2	4.897e2	0.841	1.39	1.24	15.9	YES	NO	MM	MM	0.496

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.76	5.438e2	5.596e2	0.984	0.97	1.05	14.0	YES	NO	bb	bb	0.499

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.99	7.104e2	5.816e2	0.770	1.22	1.24	15.6	YES	NO	db	MM	0.538
2	123678-HxCDD	35.60	6.864e2	6.369e2	0.833	1.08	1.24	15.6	YES	NO	db	db	0.463
3	123478-HxCDD	35.48	6.799e2	4.897e2	0.841	1.39	1.24	15.9	YES	NO	MM	MM	0.496
4	12378-PeCDD	30.91	9.443e2	6.242e2	0.964	1.51	1.55	20.3	YES	NO	bb	MM	0.483
5	1234678-HpCDD	39.76	5.438e2	5.596e2	0.984	0.97	1.05	14.0	YES	NO	bb	bb	0.499

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.65	1.458e3	1.076e3	1.156	1.35	1.55	23.2	YES	NO	bb	MM	0.498
2	12378-PeCDF	29.32	1.319e3	9.964e2	1.047	1.32	1.55	23.5	YES	NO	bb	bd	0.478
3	123789-HxCDF	36.38	6.594e2	4.885e2	1.100	1.35	1.24	16.0	YES	NO	MM	bd	0.402
4	234678-HxCDF	35.34	1.025e3	7.487e2	1.235	1.37	1.24	29.2	YES	NO	bb	MM	0.485
5	123678-HxCDF	34.46	1.068e3	9.202e2	1.193	1.16	1.24	26.5	YES	NO	db	MM	0.447
6	123478-HxCDF	34.32	9.434e2	8.502e2	1.224	1.11	1.24	25.3	YES	NO	bd	bd	0.491
7	1234789-HpCDF	40.45	5.124e2	5.157e2	1.381	0.99	1.05	11.0	YES	NO	MM	MM	0.407
8	1234678-HpCDF	38.28	9.047e2	9.268e2	1.392	0.98	1.05	15.2	YES	NO	bb	bb	0.518
9	123789-HxCDD	35.99	7.104e2	5.816e2	0.770	1.22	1.24	15.6	YES	NO	db	MM	0.538
10	123678-HxCDD	35.60	6.864e2	6.369e2	0.833	1.08	1.24	15.6	YES	NO	db	db	0.463
11	123478-HxCDD	35.48	6.799e2	4.897e2	0.841	1.39	1.24	15.9	YES	NO	MM	MM	0.496
12	12378-PeCDD	30.91	9.443e2	6.242e2	0.964	1.51	1.55	20.3	YES	NO	bb	MM	0.483
13	1234678-HpCDD	39.76	5.438e2	5.596e2	0.984	0.97	1.05	14.0	YES	NO	bb	bb	0.499

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.95	2.213e4					1.1	NO		bb		
2	FUNCTION1 PFK	26.81	6.796e3					0.6	NO		bb		
3	FUNCTION1 PFK	26.49	1.325e5					2.0	NO		bb		
4	FUNCTION1 PFK	25.94	6.431e3					0.6	NO		bb		
5	FUNCTION1 PFK	24.33	8.200e4					1.7	NO		bb		
6	FUNCTION1 PFK	24.26	4.512e4					1.4	NO		db		
7	FUNCTION1 PFK	24.16	3.590e4					1.0	NO		bd		
8	FUNCTION1 PFK	22.50	5.702e4					1.9	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.46	1.101e4					1.4	NO		bb		0.000
2	FUNCTION2 PFK	28.31	3.140e3					0.6	NO		db		0.000
3	FUNCTION2 PFK	28.28	2.182e3					0.5	NO		bd		0.000
4	FUNCTION2 PFK	27.83	2.541e4					1.7	NO		bb		0.000
5	FUNCTION2 PFK	27.76	1.424e4					1.4	NO		bb		0.000
6	FUNCTION2 PFK	27.71	2.193e3					0.5	NO		bb		0.000
7	FUNCTION2 PFK	27.52	5.249e4					3.5	YES		bb		0.000
8	FUNCTION2 PFK	27.46	1.086e4					1.1	NO		bb		0.000
9	FUNCTION2 PFK	30.66	1.020e4					1.1	NO		bb		0.000
10	FUNCTION2 PFK	30.51	2.192e3					0.5	NO		bb		0.000
11	FUNCTION2 PFK	30.40	7.724e3					1.0	NO		bb		0.000
12	FUNCTION2 PFK	30.35	2.145e3					0.5	NO		bb		0.000
13	FUNCTION2 PFK	30.16	1.960e4					1.3	NO		bb		0.000
14	FUNCTION2 PFK	30.01	6.733e3					0.9	NO		bb		0.000
15	FUNCTION2 PFK	29.96	2.187e4					1.5	NO		bb		0.000
16	FUNCTION2 PFK	29.88	1.072e4					1.2	NO		bb		0.000
17	FUNCTION2 PFK	29.76	6.510e3					1.0	NO		bb		0.000
18	FUNCTION2 PFK	29.47	1.142e4					1.3	NO		bb		0.000
19	FUNCTION2 PFK	29.43	6.591e3					0.7	NO		db		0.000
20	FUNCTION2 PFK	29.36	9.846e3					1.2	NO		bd		0.000
21	FUNCTION2 PFK	29.17	1.149e4					1.4	NO		bb		0.000
22	FUNCTION2 PFK	29.05	1.309e4					1.5	NO		bb		0.000
23	FUNCTION2 PFK	28.89	3.625e4					1.6	NO		bb		0.000
24	FUNCTION2 PFK	28.79	3.045e4					1.9	NO		bb		0.000
25	FUNCTION2 PFK	32.01	3.672e3					0.7	NO		db		0.000
26	FUNCTION2 PFK	31.98	1.193e4					1.4	NO		bd		0.000
27	FUNCTION2 PFK	31.70	2.067e4					1.6	NO		bb		0.000
28	FUNCTION2 PFK	31.51	3.710e4					2.4	NO		bb		0.000
29	FUNCTION2 PFK	31.28	8.980e3					1.1	NO		bb		0.000
30	FUNCTION2 PFK	31.19	3.198e4					2.0	NO		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	34.68	1.060e4					1.2	NO		bb		0.000
2	FUNCTION3 PFK	34.42	3.477e3					0.6	NO		bb		0.000
3	FUNCTION3 PFK	33.55	2.005e4					1.6	NO		bb		0.000
4	FUNCTION3 PFK	33.08	2.443e4					0.9	NO		bb		0.000
5	FUNCTION3 PFK	32.87	1.927e5					5.7	YES		db		0.000
6	FUNCTION3 PFK	32.81	1.690e5					9.0	YES		dd		0.000
7	FUNCTION3 PFK	32.80	9.106e5					9.0	YES		dd		0.000
8	FUNCTION3 PFK	32.60	5.576e5					18.6	YES		dd		0.000
9	FUNCTION3 PFK	32.47	6.508e6					25.7	YES		bd		0.000
10	FUNCTION3 PFK	37.01	5.016e4					1.8	NO		bb		0.000
11	FUNCTION3 PFK	36.95	2.972e3					0.5	NO		bb		0.000
12	FUNCTION3 PFK	36.58	1.354e4					1.2	NO		db		0.000
13	FUNCTION3 PFK	36.54	1.281e4					1.2	NO		bd		0.000
14	FUNCTION3 PFK	36.49	8.076e3					0.8	NO		bb		0.000
15	FUNCTION3 PFK	35.34	3.647e4					2.0	NO		bb		0.000
16	FUNCTION3 PFK	34.94	7.129e3					0.8	NO		bb		0.000
17	FUNCTION3 PFK	34.72	9.048e3					1.0	NO		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.86	7.291e5					20.1	YES		dd		
2	FUNCTION4 PFK	37.76	1.336e6					25.5	YES		dd		
3	FUNCTION4 PFK	37.66	1.464e6					30.2	YES		dd		
4	FUNCTION4 PFK	37.53	2.366e6					37.0	YES		dd		
5	FUNCTION4 PFK	37.48	2.274e6					38.2	YES		dd		
6	FUNCTION4 PFK	37.37	1.216e6					42.9	YES		dd		
7	FUNCTION4 PFK	37.30	2.644e6					46.6	YES		bd		
8	FUNCTION4 PFK	40.48	2.261e4					1.5	NO		db		
9	FUNCTION4 PFK	40.45	2.374e4					1.6	NO		bd		
10	FUNCTION4 PFK	40.39	7.848e3					0.8	NO		bb		
11	FUNCTION4 PFK	40.35	6.800e3					0.7	NO		bb		
12	FUNCTION4 PFK	40.18	1.988e3					0.3	NO		bb		
13	FUNCTION4 PFK	40.15	3.543e3					0.6	NO		bb		
14	FUNCTION4 PFK	40.10	8.572e3					0.6	NO		bb		
15	FUNCTION4 PFK	39.99	2.649e4					1.1	NO		bb		
16	FUNCTION4 PFK	39.78	2.570e4					1.0	NO		bb		
17	FUNCTION4 PFK	39.67	2.033e4					1.3	NO		bb		
18	FUNCTION4 PFK	38.80	1.856e4					1.1	NO		bb		
19	FUNCTION4 PFK	38.45	4.656e4					1.7	NO		bb		
20	FUNCTION4 PFK	38.40	2.776e3					0.5	NO		bb		
21	FUNCTION4 PFK	38.20	1.439e5					4.4	YES		db		
22	FUNCTION4 PFK	38.14	9.345e4					6.1	YES		dd		
23	FUNCTION4 PFK	38.01	1.209e6					13.6	YES		dd		
24	FUNCTION4 PFK	42.30	1.649e4					1.0	NO		bb		
25	FUNCTION4 PFK	41.82	2.337e4					1.4	NO		bb		
26	FUNCTION4 PFK	41.60	3.024e3					0.5	NO		bb		
27	FUNCTION4 PFK	41.53	4.011e4					1.5	NO		bb		
28	FUNCTION4 PFK	41.33	2.085e4					1.2	NO		bb		
29	FUNCTION4 PFK	41.16	1.884e4					1.5	NO		bb		
30	FUNCTION4 PFK	41.08	2.343e4					1.2	NO		bb		
31	FUNCTION4 PFK	40.88	1.996e4					1.4	NO		db		
32	FUNCTION4 PFK	40.81	6.530e4					1.7	NO		bd		
33	FUNCTION4 PFK	40.59	1.326e4					1.1	NO		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.72	7.948e3					1.2	NO		bb		
2	FUNCTION5 PFK	43.59	1.367e4					1.6	NO		bb		
3	FUNCTION5 PFK	43.21	5.368e3					1.3	NO		bb		
4	FUNCTION5 PFK	42.90	2.738e4					1.9	NO		bb		
5	FUNCTION5 PFK	42.69	1.528e4					2.3	NO		bb		
6	FUNCTION5 PFK	45.77	1.588e4					1.3	NO		bb		
7	FUNCTION5 PFK	45.59	1.386e4					1.7	NO		bb		
8	FUNCTION5 PFK	45.38	4.540e3					1.1	NO		bb		
9	FUNCTION5 PFK	45.27	1.896e3					0.9	NO		bb		
10	FUNCTION5 PFK	45.23	2.385e3					0.8	NO		bb		
11	FUNCTION5 PFK	45.12	1.127e4					1.7	NO		db		
12	FUNCTION5 PFK	45.01	4.106e4					2.3	NO		bd		
13	FUNCTION5 PFK	44.91	2.462e4					1.7	NO		bb		
14	FUNCTION5 PFK	44.82	1.685e3					0.6	NO		bb		
15	FUNCTION5 PFK	44.69	8.116e3					1.8	NO		bb		
16	FUNCTION5 PFK	44.55	3.660e3					0.9	NO		bb		
17	FUNCTION5 PFK	44.38	3.061e3					0.8	NO		bb		
18	FUNCTION5 PFK	44.25	1.026e4					2.0	NO		db		
19	FUNCTION5 PFK	44.20	1.700e4					1.9	NO		dd		
20	FUNCTION5 PFK	44.15	4.160e3					1.1	NO		bd		
21	FUNCTION5 PFK	43.94	1.109e4					1.2	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	25.65	7.259e1					2.4	NO		bb		0.000
2	FUNCTION1 HXCD...	24.40	1.795e2					3.7	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.05	8.815e1					2.5	NO		bb		0.000
2	FUNCTION2 HPCD...	31.17	1.006e2					2.1	NO		bb		0.000
3	FUNCTION2 HPCD...	30.14	7.222e1					2.0	NO		bb		0.000
4	FUNCTION2 HPCD...	29.91	1.679e2					4.0	YES		db		0.000
5	FUNCTION2 HPCD...	29.74	1.428e2					2.8	NO		dd		0.000
6	FUNCTION2 HPCD...	29.65	1.309e2					2.3	NO		bd		0.000
7	FUNCTION2 HPCD...	27.67	7.104e1					2.5	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	38.52	8.600e1					2.2	NO		db		0.000
2	FUNCTION4 NCDPE	38.45	9.786e1					3.4	YES		bd		0.000
3	FUNCTION4 NCDPE	37.85	7.075e1					4.0	YES		bb		0.000
4	FUNCTION4 NCDPE	41.15	7.936e1					2.7	NO		bb		0.000
5	FUNCTION4 NCDPE	39.72	7.328e1					2.1	NO		bb		0.000

ETHERS6

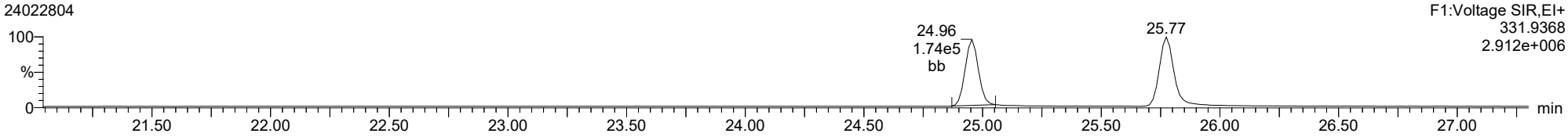
	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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Last Altered: Thursday, February 29, 2024 08:17:31 Pacific Standard Time
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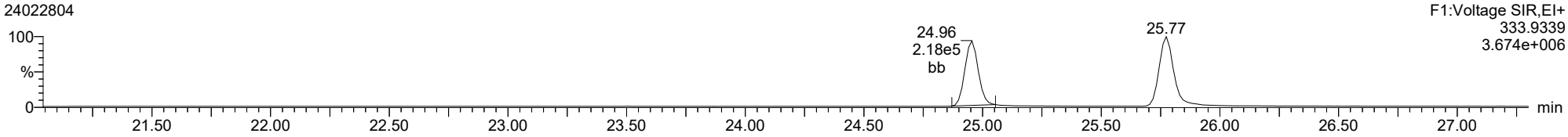
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ID: CSLCGY, Name: 24022804, Date: 28-Feb-2024, Time: 14:33:26, Conditions: AUTOSPEC01, User: pk

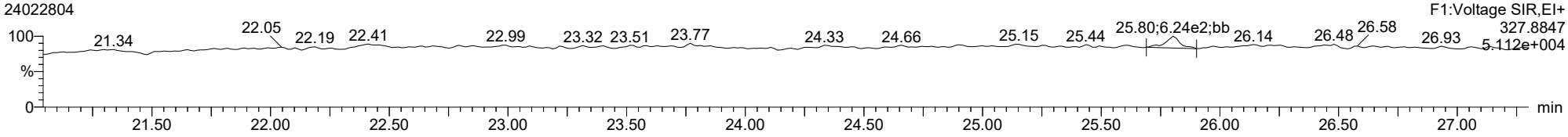
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13C-1234-TCDD

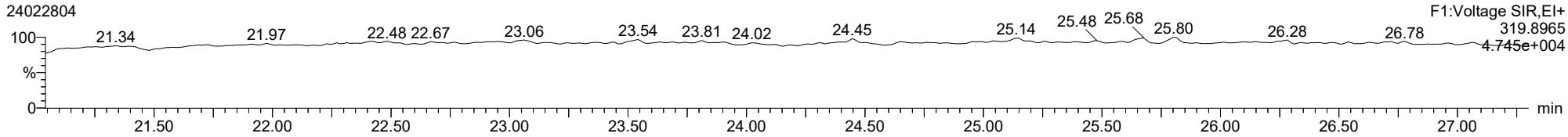


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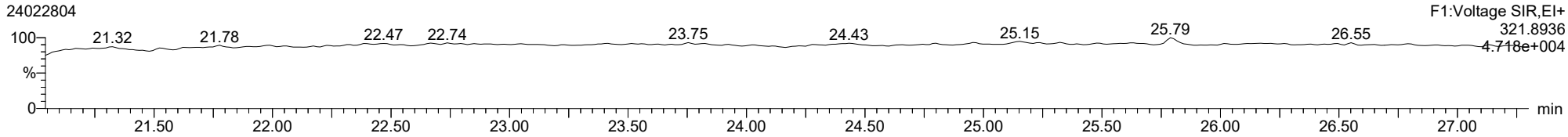


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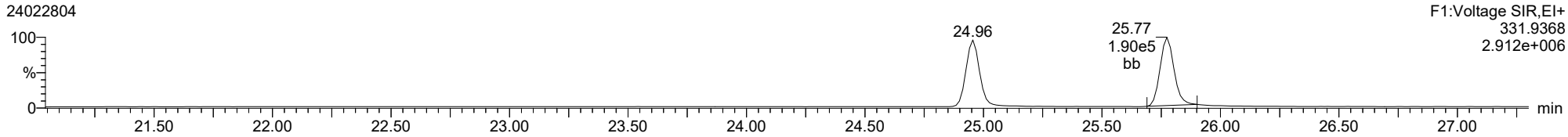
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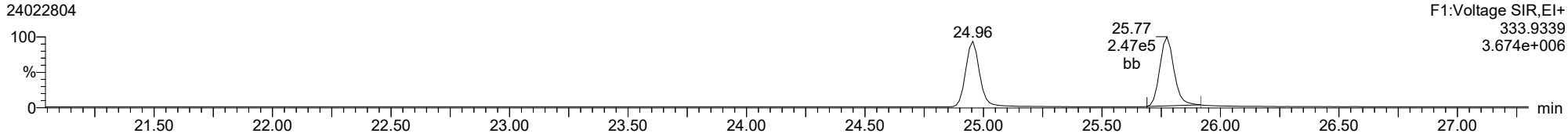
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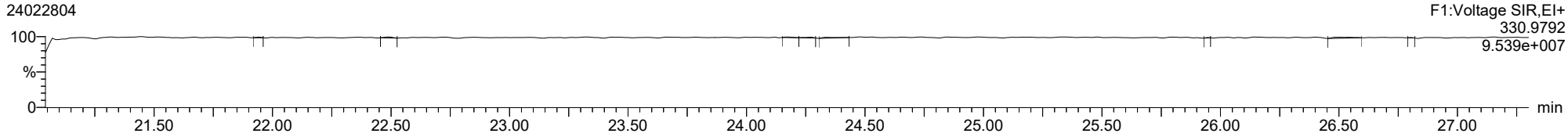
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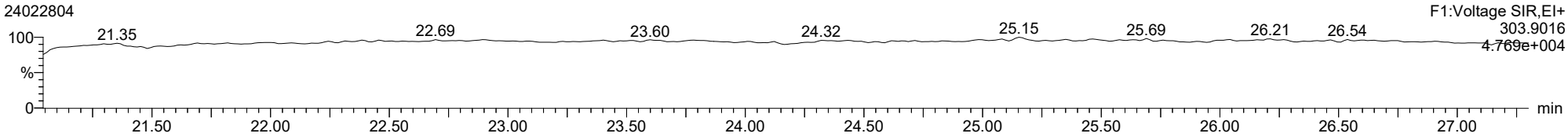


FUNCTION1 PFK

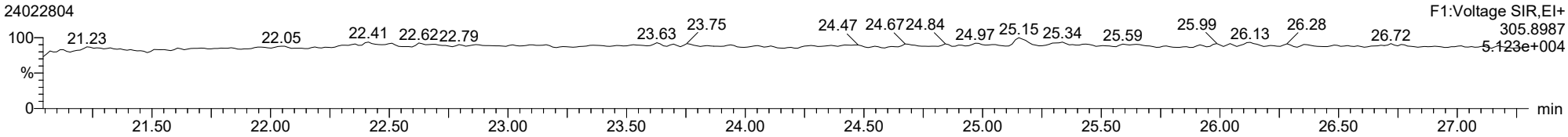


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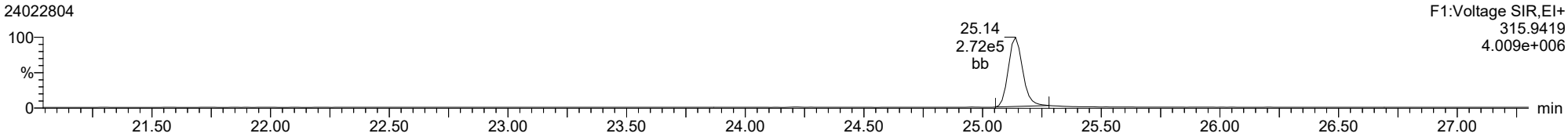
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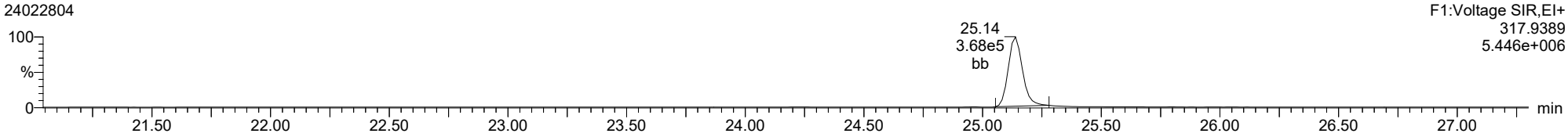
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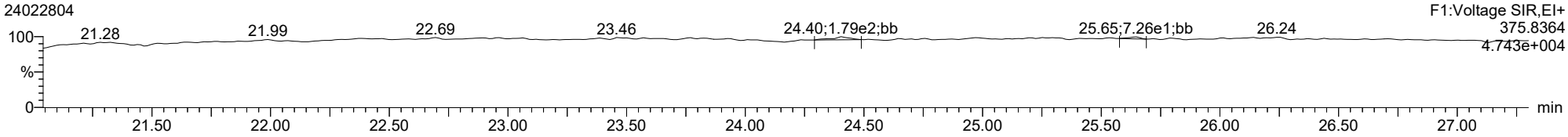
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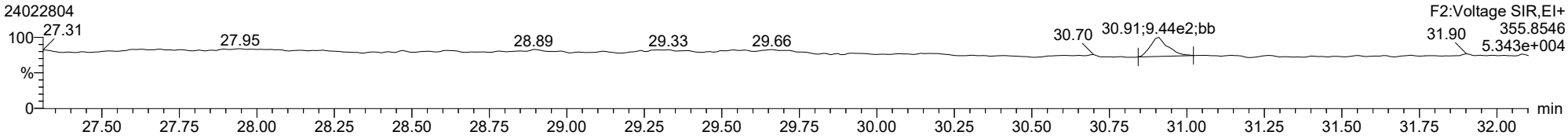


FUNCTION1 HXCDPE

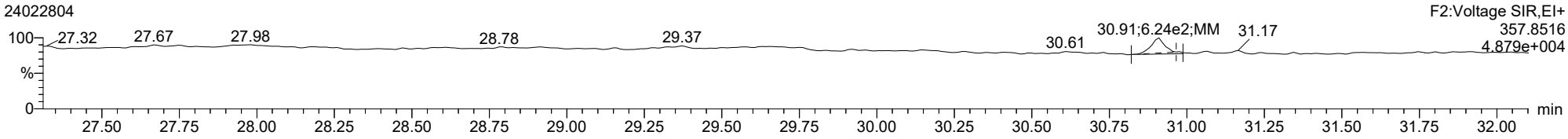


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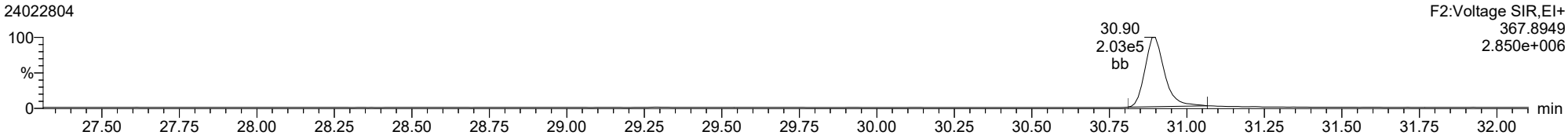
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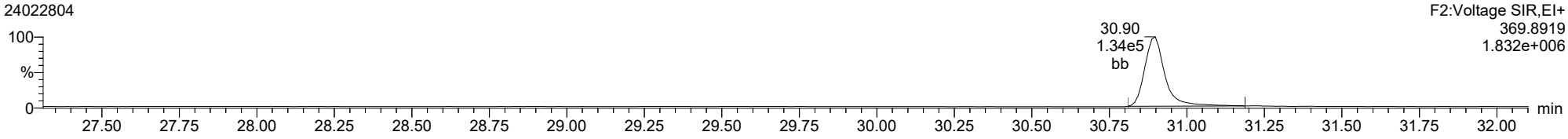
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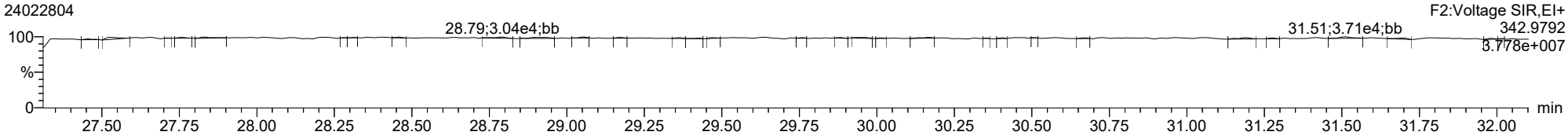
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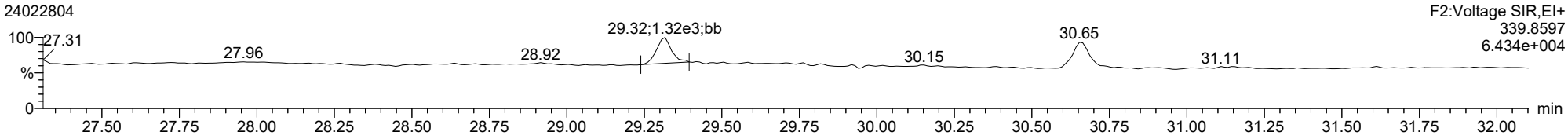


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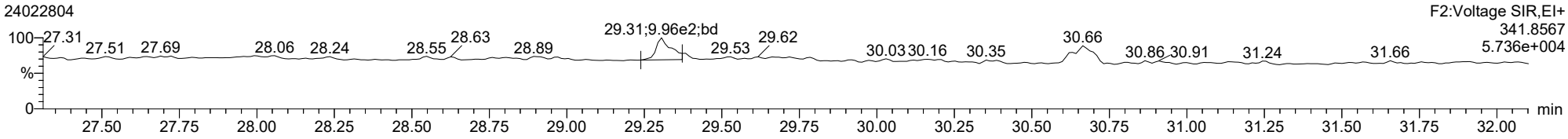


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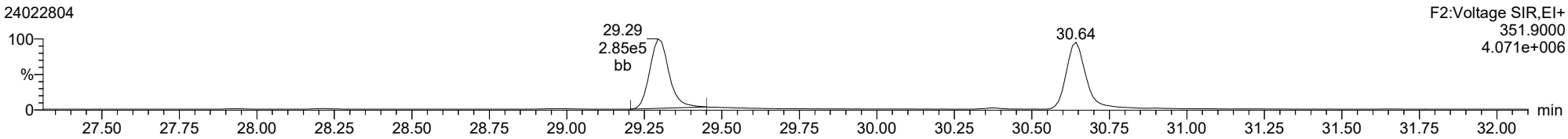
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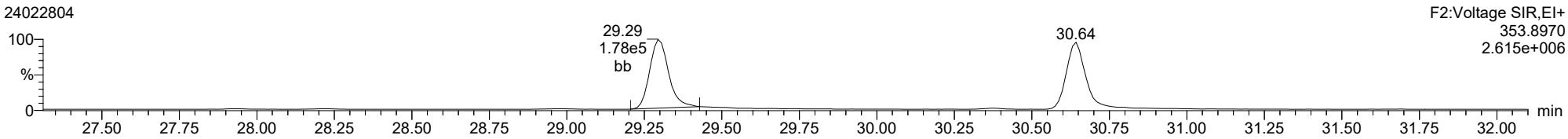
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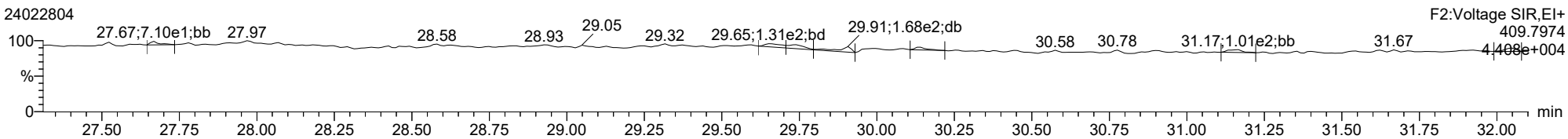
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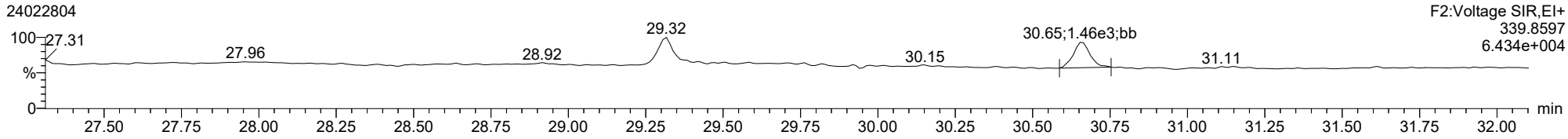


FUNCTION2 HPCDPE

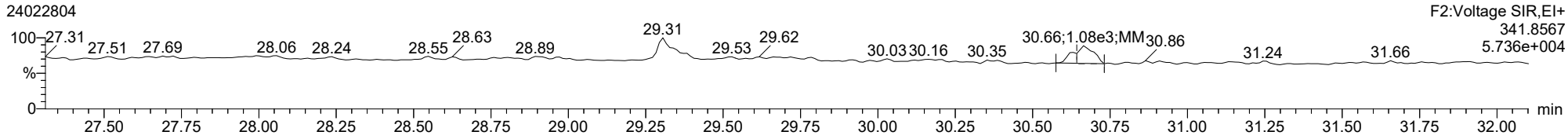


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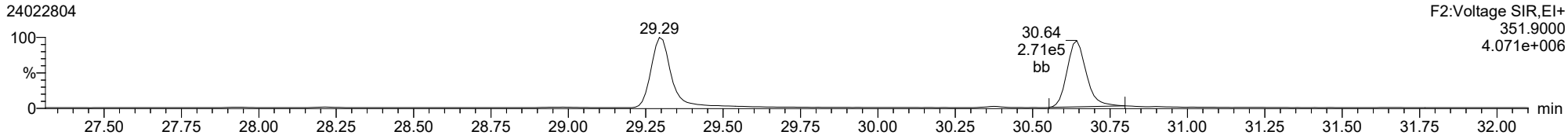
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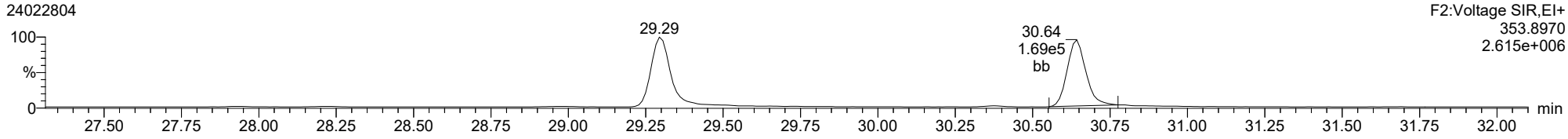
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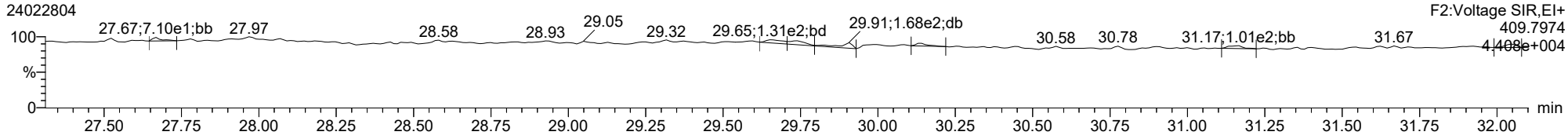
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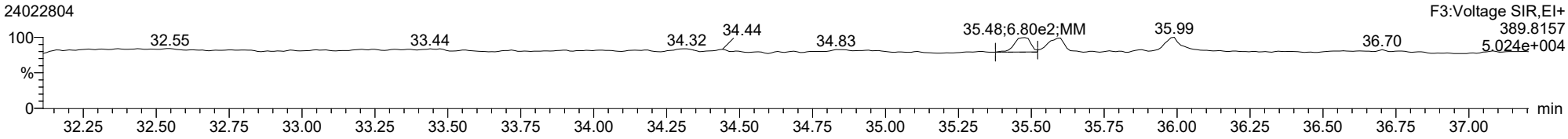


FUNCTION2 HPCDPE

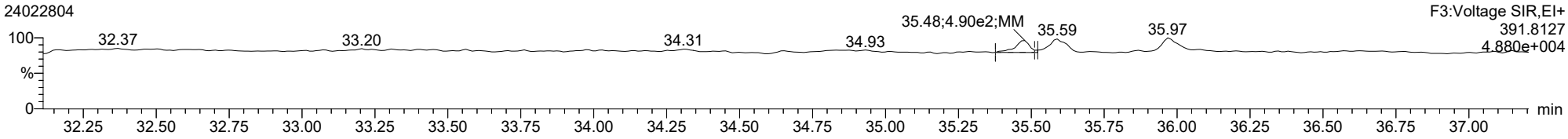


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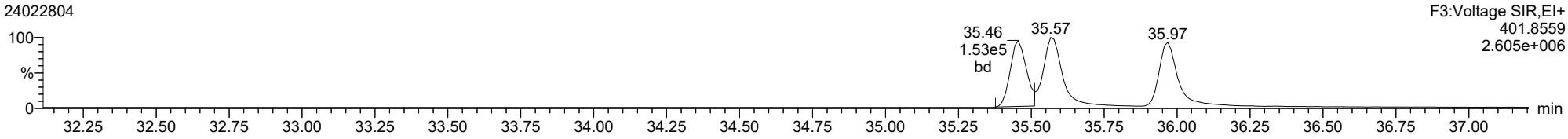
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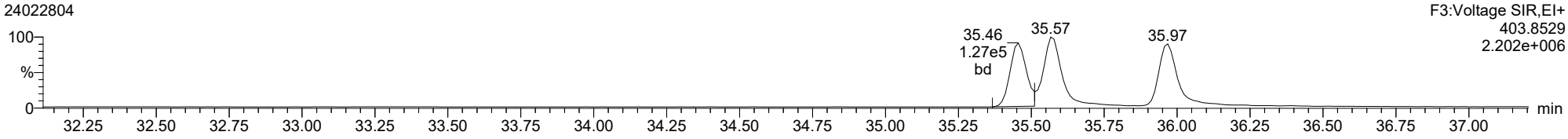
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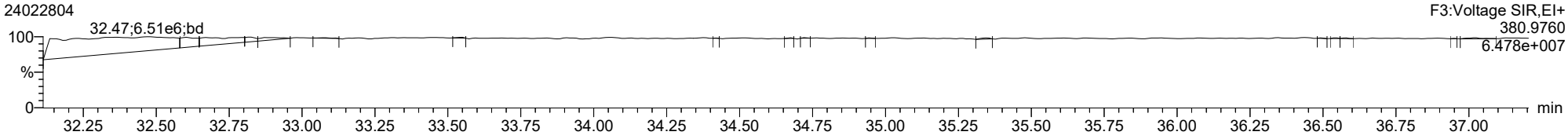
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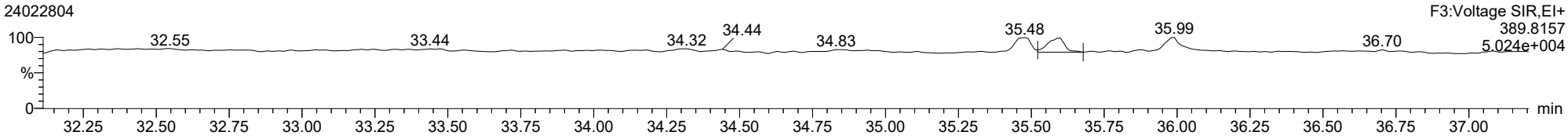


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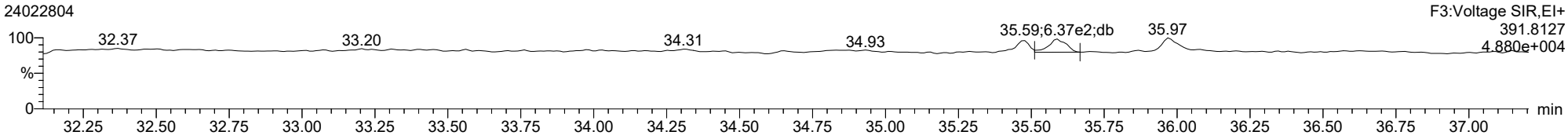


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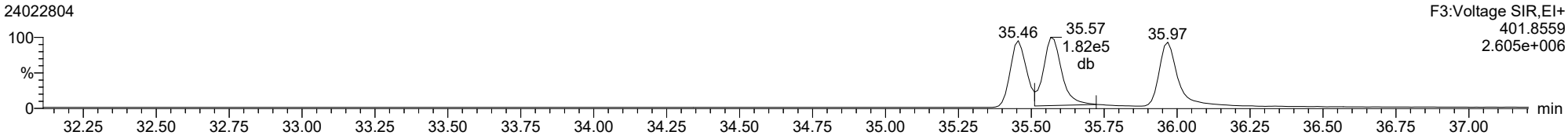
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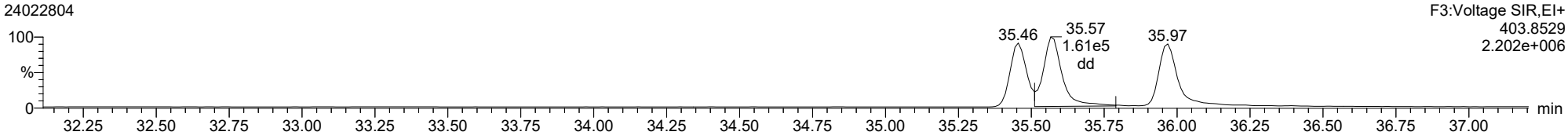
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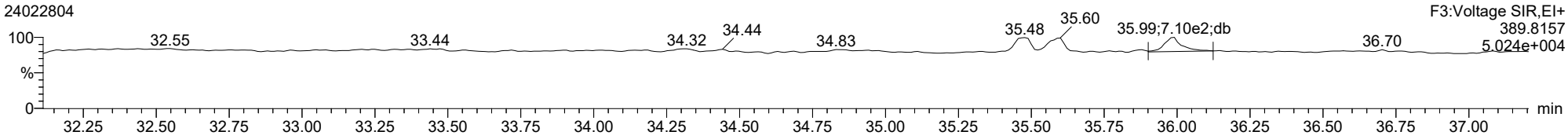


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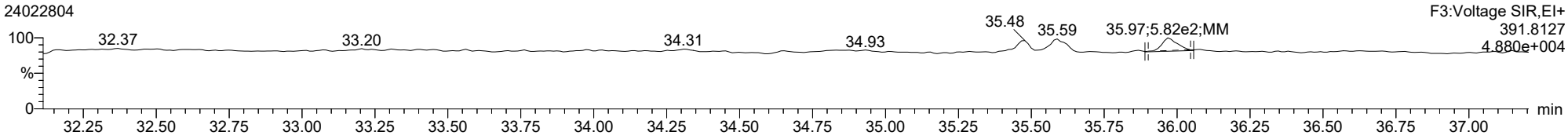


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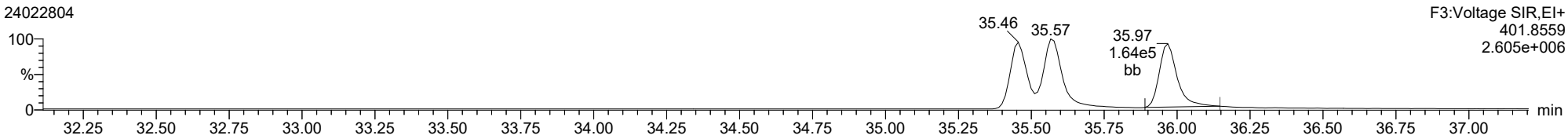
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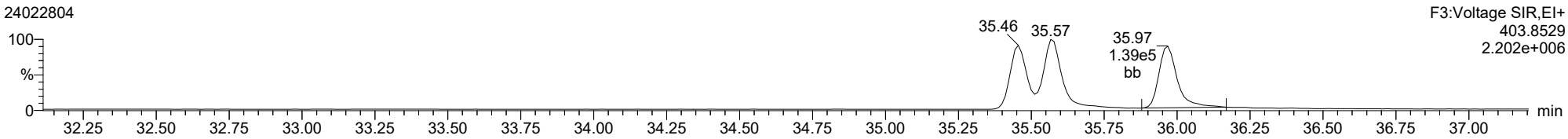
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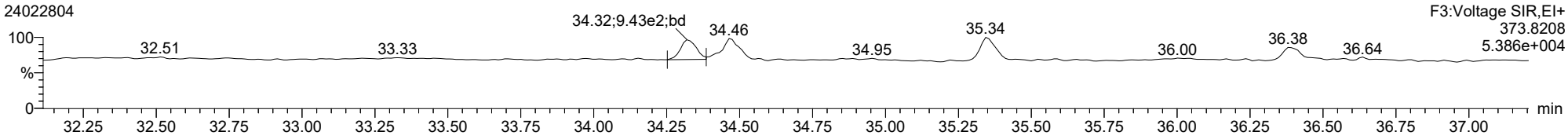


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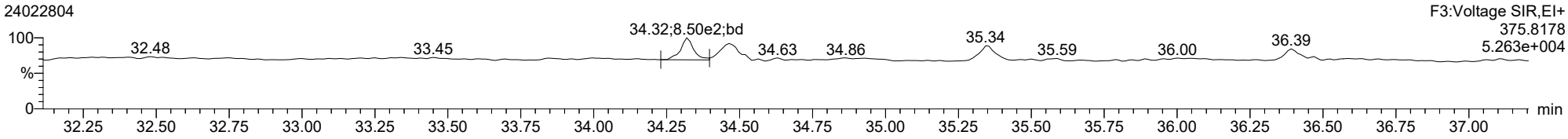


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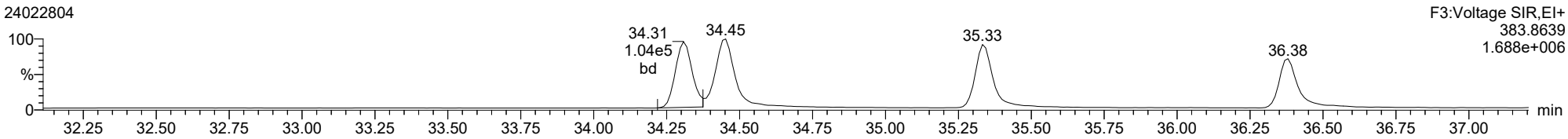
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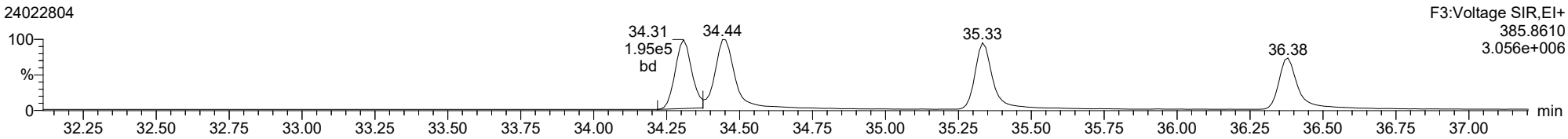
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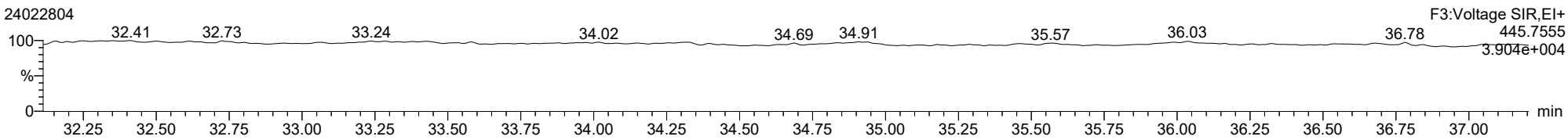
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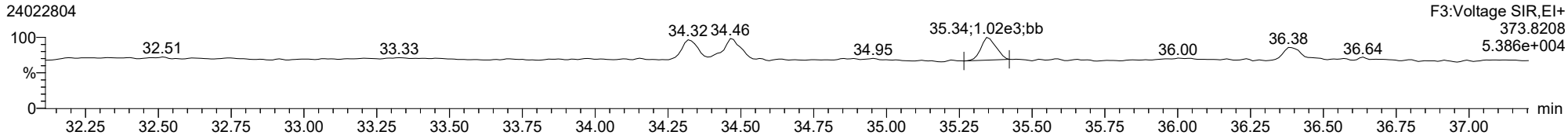


FUNCTION3 OCDPE

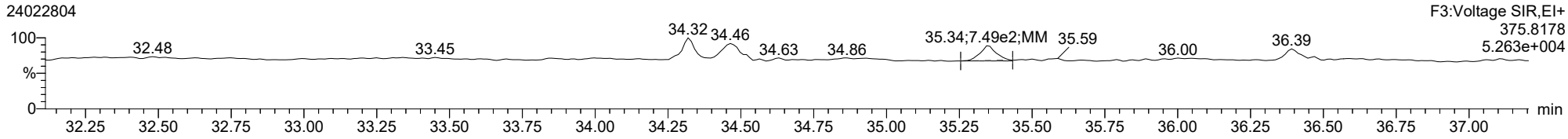


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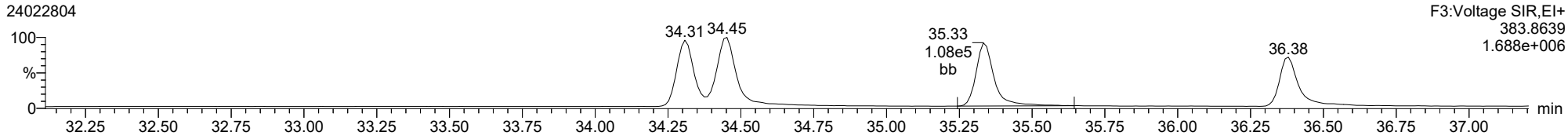
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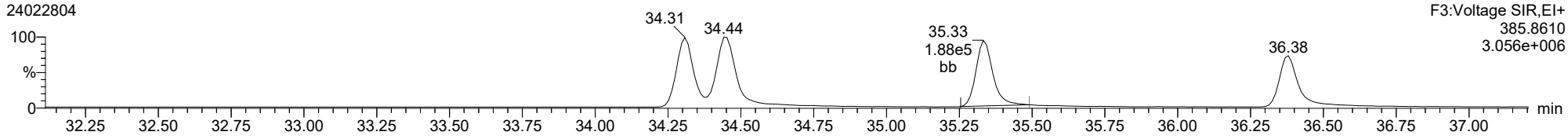
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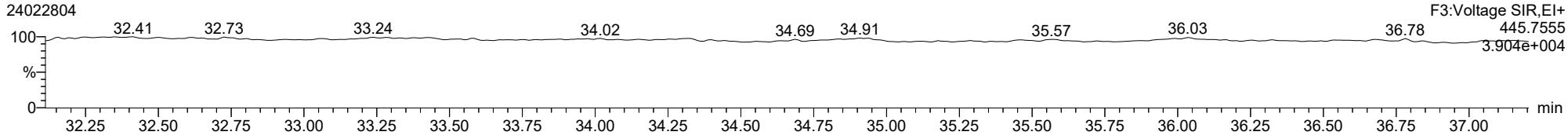
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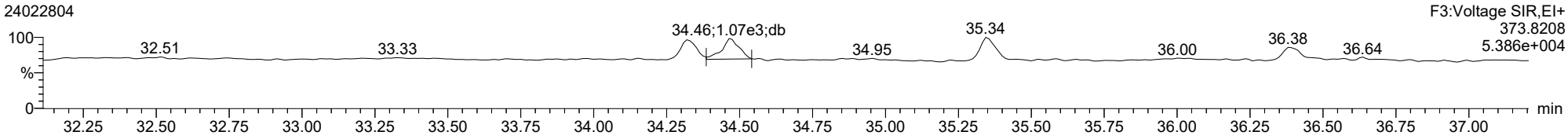


FUNCTION3 OCDPE

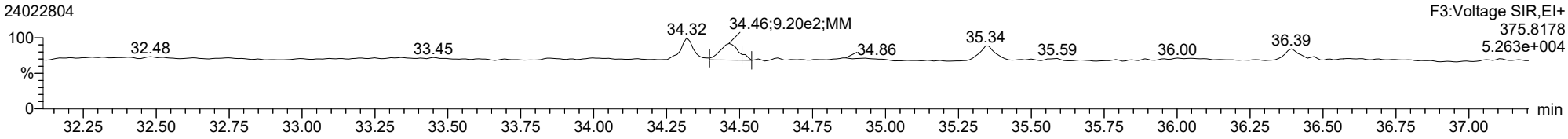


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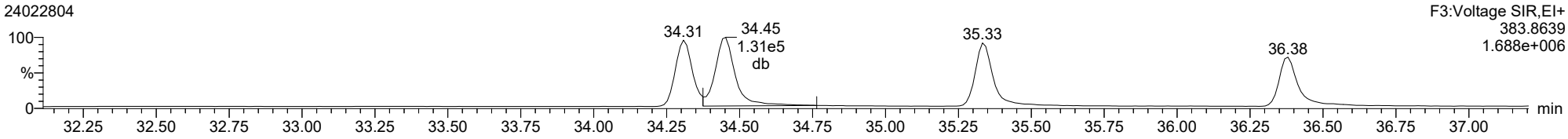
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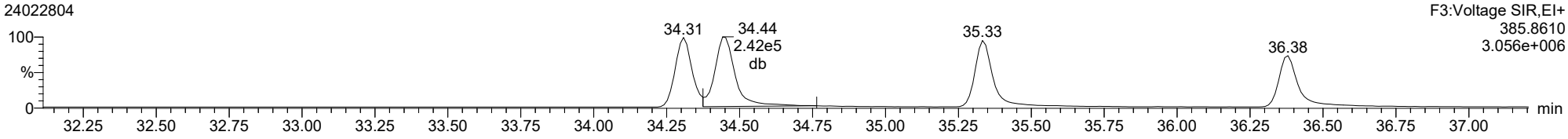
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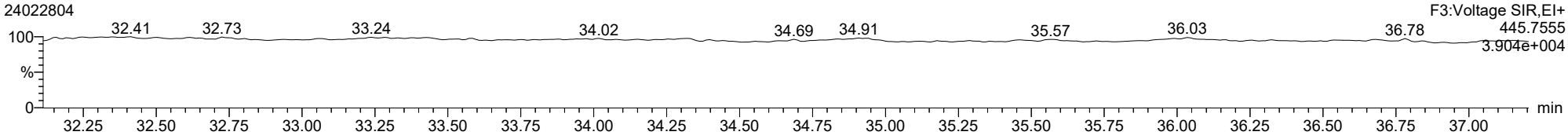
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13C-123678-HxCDF

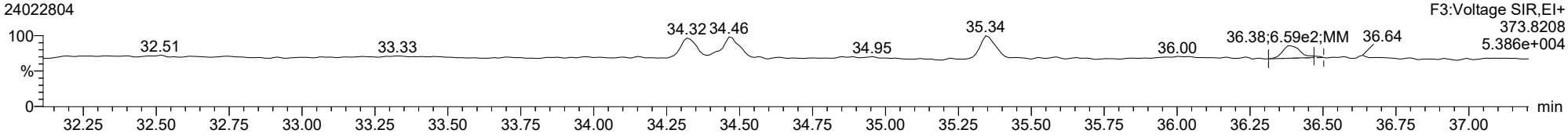


FUNCTION3 OCDPE

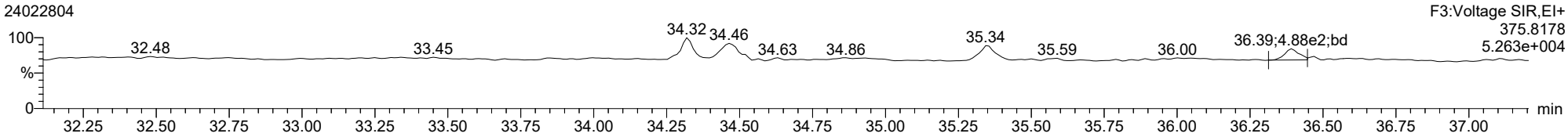


ID: CSLCGY, Name: 24022804, Date: 28-Feb-2024, Time: 14:33:26, Conditions: AUTOSPEC01, User: pk

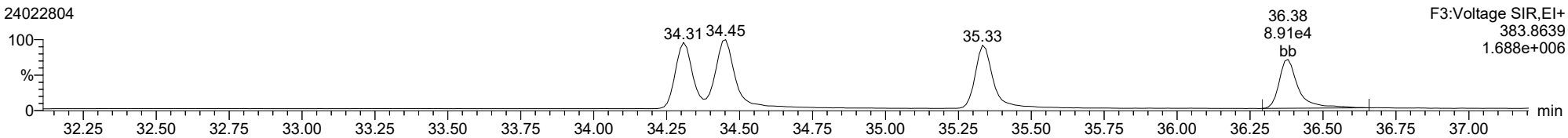
123789-HxCDF



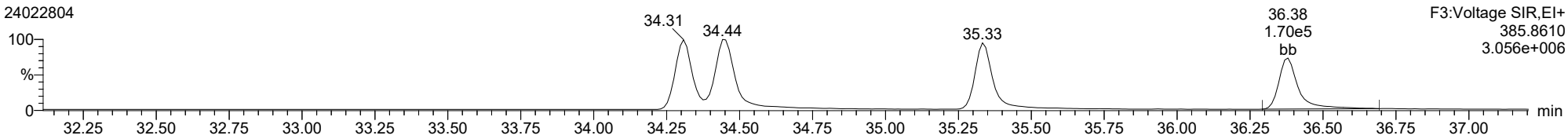
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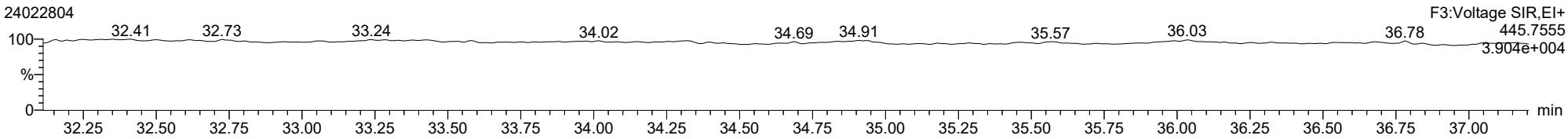
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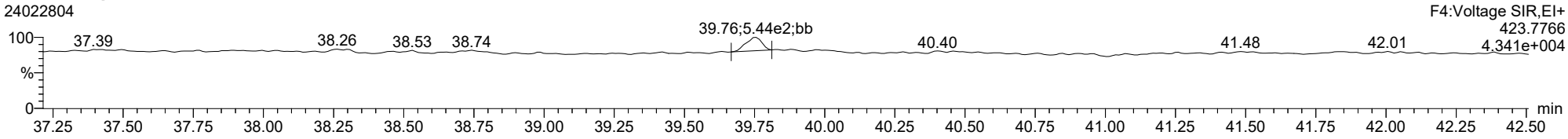


FUNCTION3 OCDPE

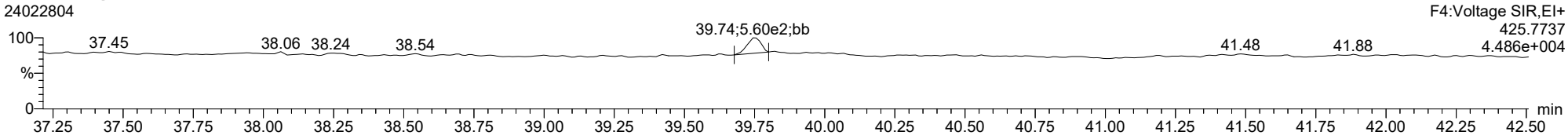


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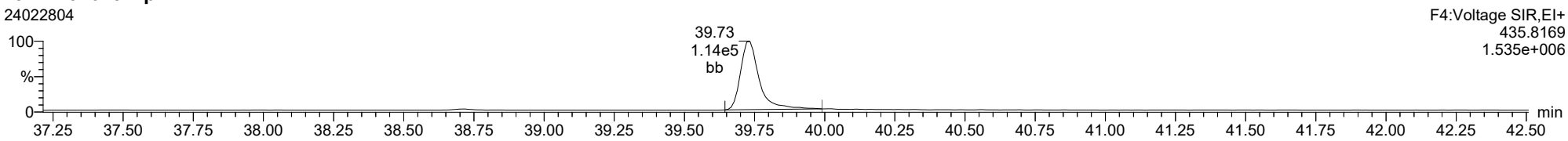
1234678-HpCDD



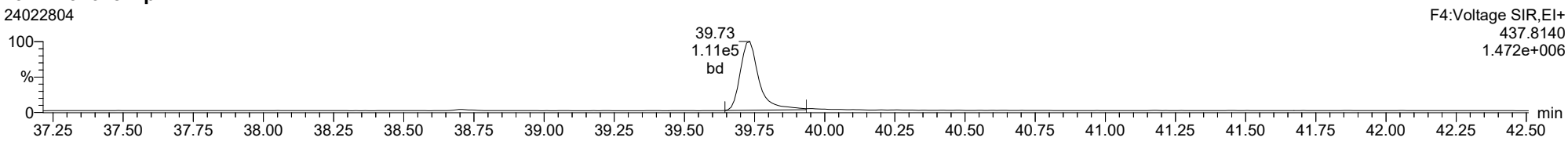
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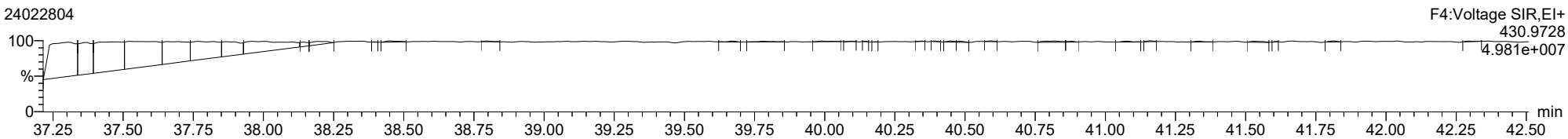
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13C-1234678-HpCDD

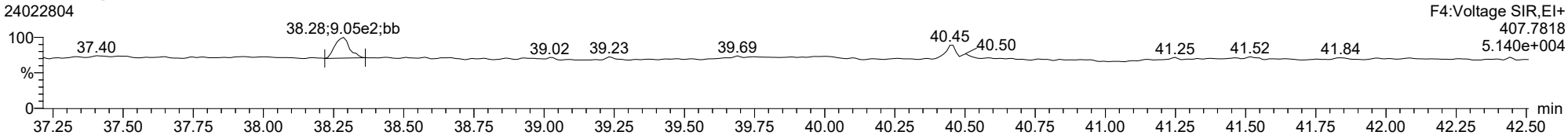


FUNCTION4 PFK

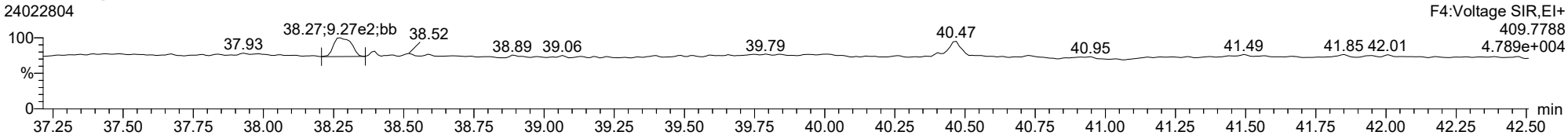


ID: CSLCGY, Name: 24022804, Date: 28-Feb-2024, Time: 14:33:26, Conditions: AUTOSPEC01, User: pk

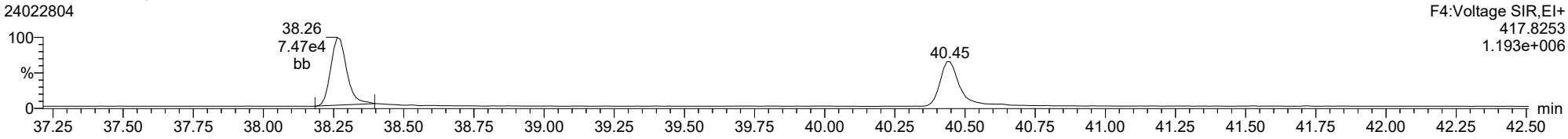
1234678-HpCDF



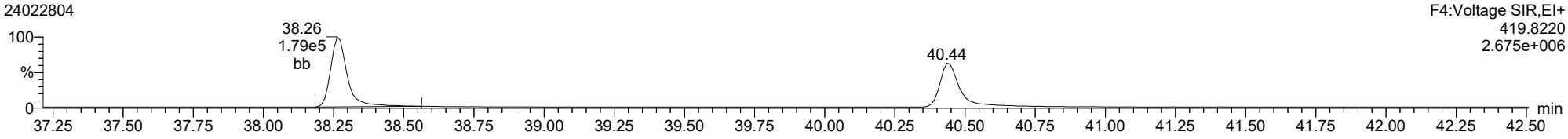
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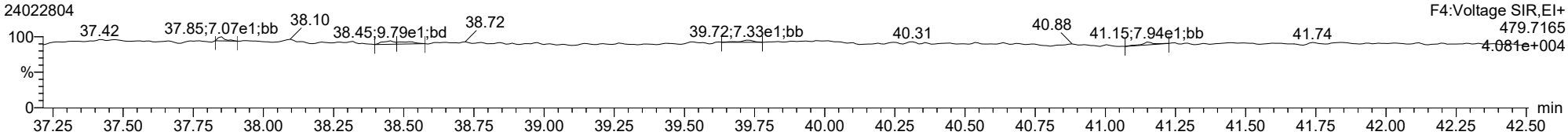
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13C-1234678-HpCDF

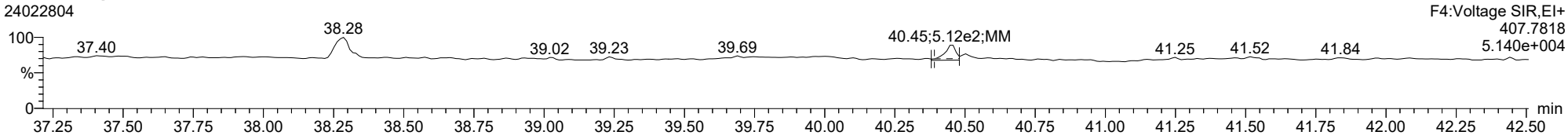


FUNCTION4 NCDPE

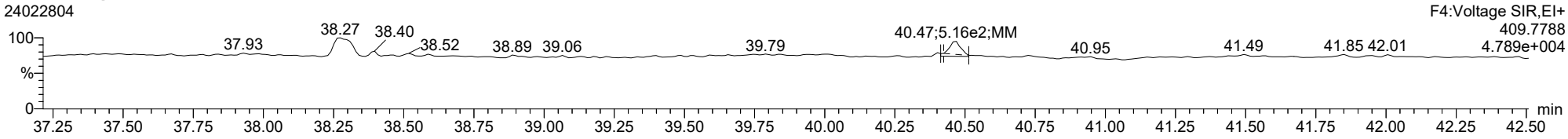


ID: CSLCGY, Name: 24022804, Date: 28-Feb-2024, Time: 14:33:26, Conditions: AUTOSPEC01, User: pk

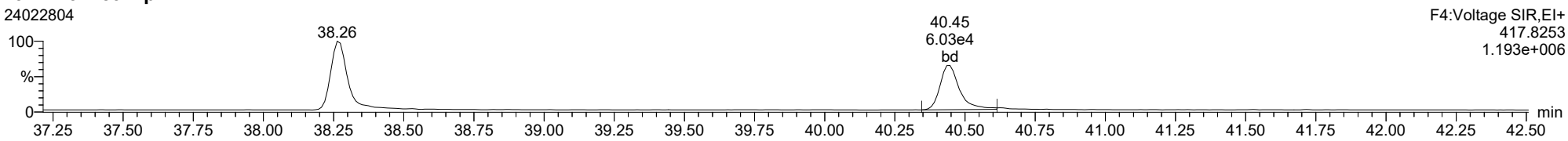
1234789-HpCDF



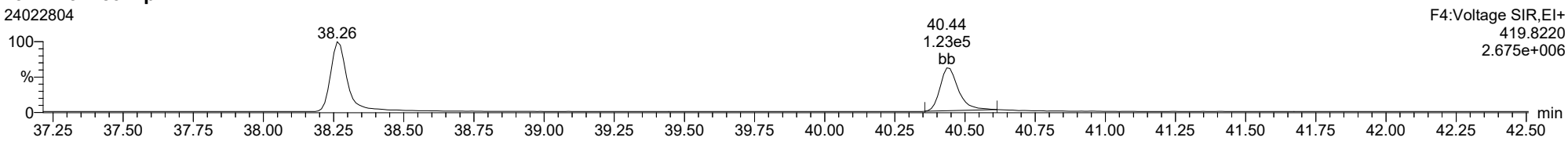
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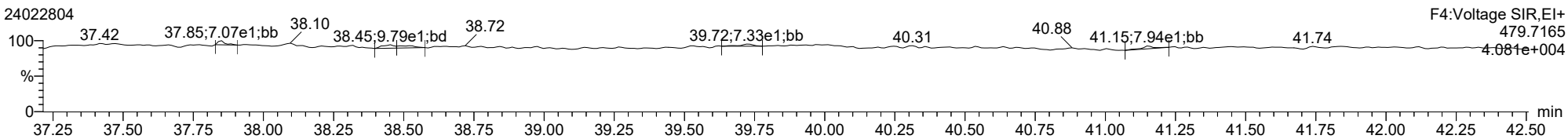
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13C-1234789-HpCDF

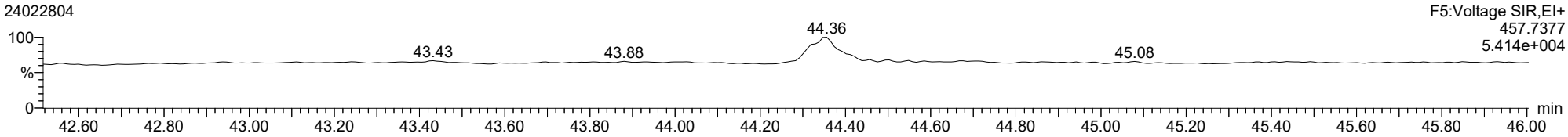


FUNCTION4 NCDPE

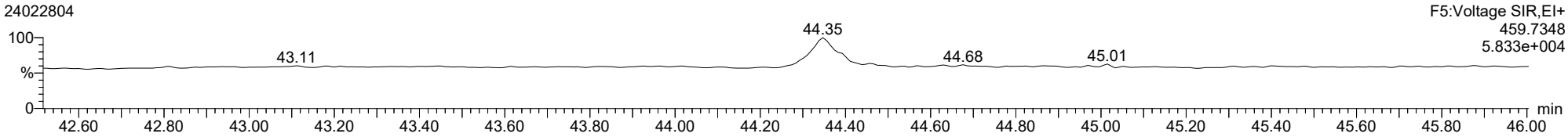


ID: CSLCGY, Name: 24022804, Date: 28-Feb-2024, Time: 14:33:26, Conditions: AUTOSPEC01, User: pk

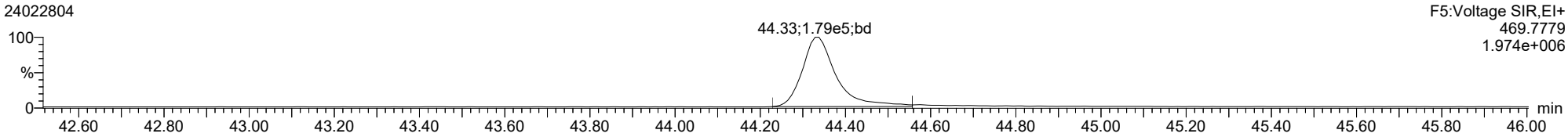
OCDD



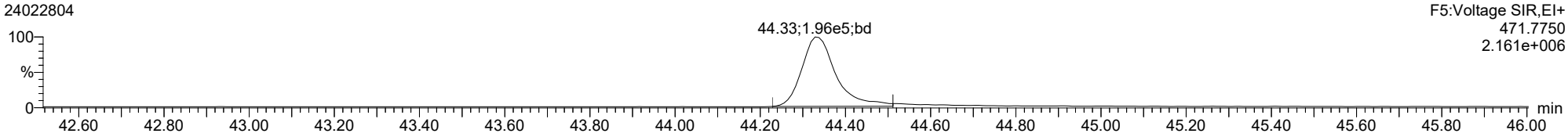
OCDD



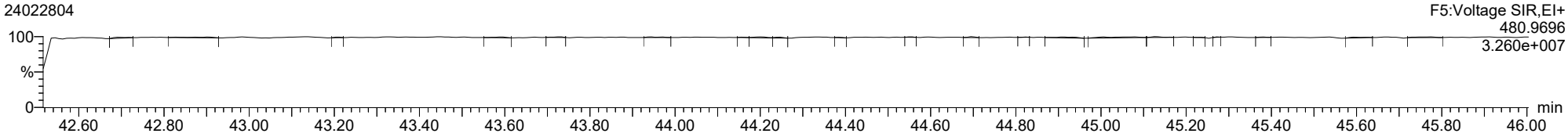
13C-OCDD



13C-OCDD

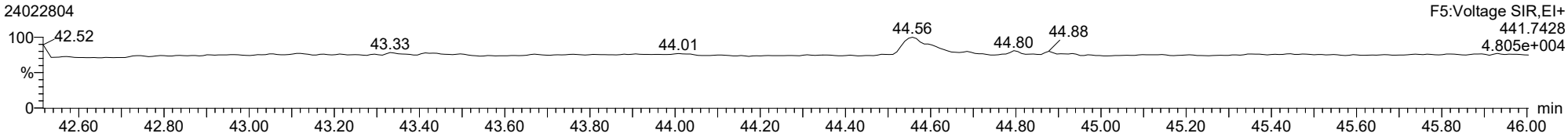


FUNCTION5 PFK

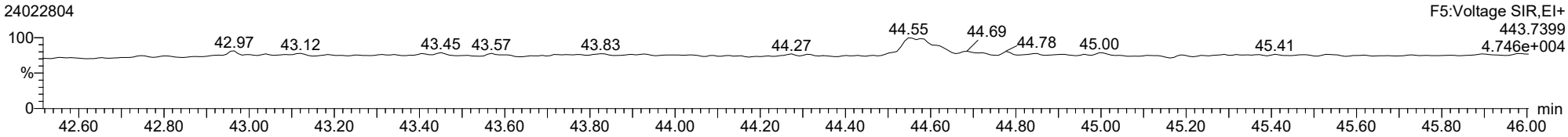


ID: CSLCGY, Name: 24022804, Date: 28-Feb-2024, Time: 14:33:26, Conditions: AUTOSPEC01, User: pk

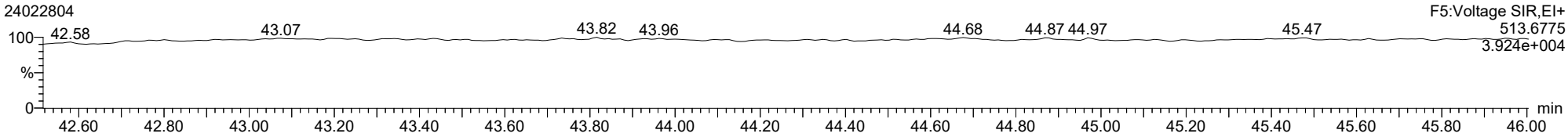
OCDF



OCDF

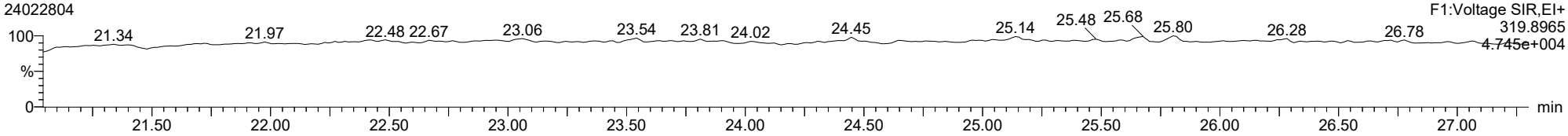


FUNCTION5 DCDPE

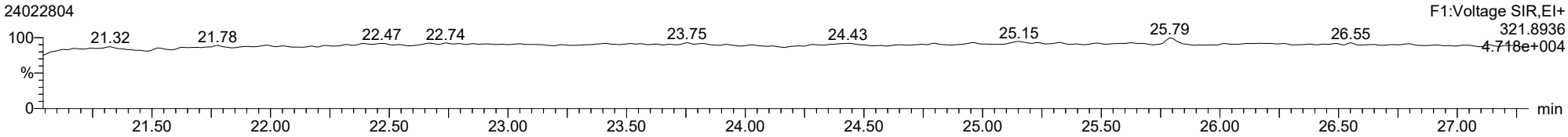


ID: CSLCGY, Name: 24022804, Date: 28-Feb-2024, Time: 14:33:26, Conditions: AUTOSPEC01, User: pk

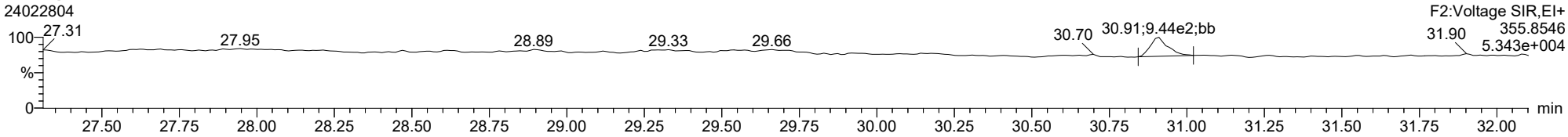
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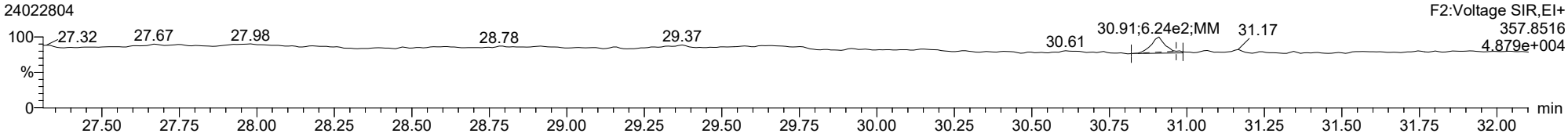
Total-tetradioxins



Total-pentadioxins

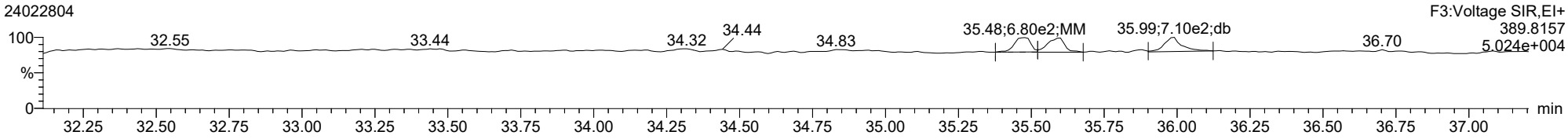


Total-pentadioxins

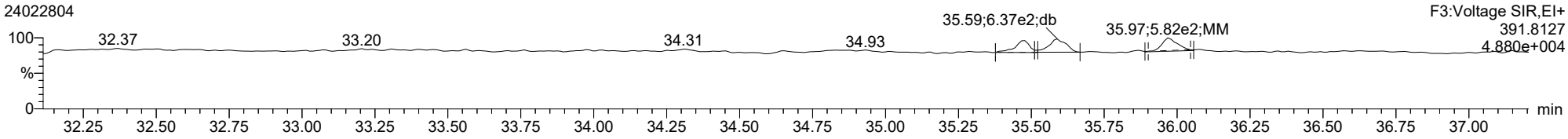


ID: CSLCGY, Name: 24022804, Date: 28-Feb-2024, Time: 14:33:26, Conditions: AUTOSPEC01, User: pk

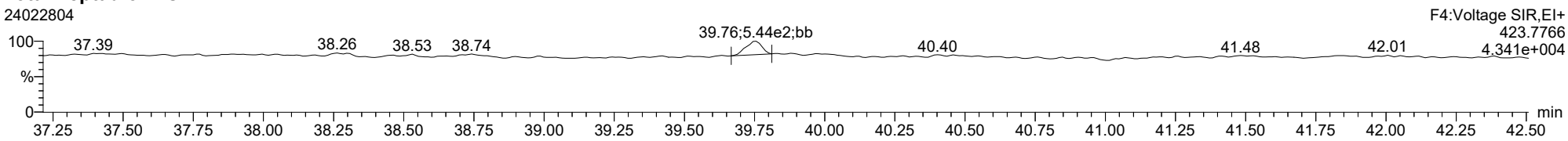
Total-hexadioxins



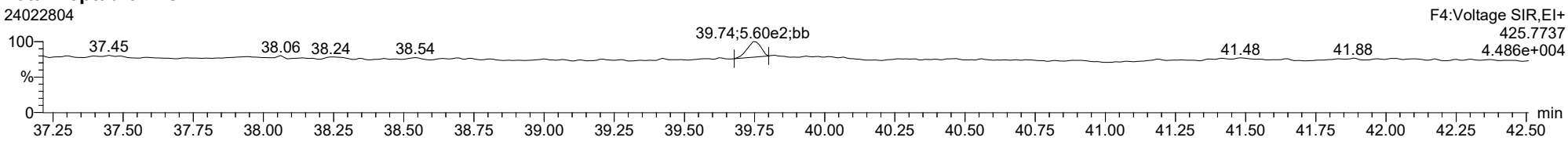
Total-hexadioxins



Total-heptadioxins



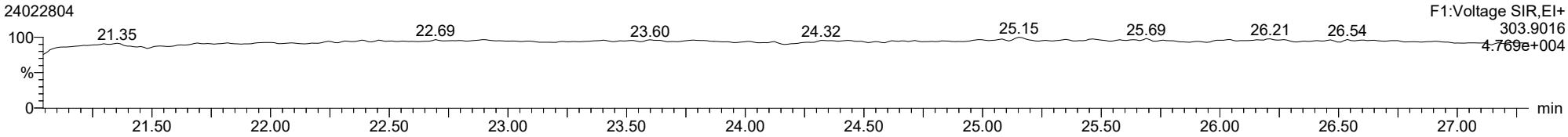
Total-heptadioxins



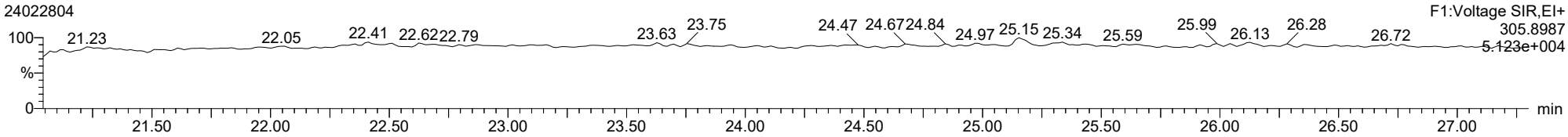
Dataset: T:\Autospec\Processed Data Batch\240228ICIH.qld
Last Altered: Thursday, February 29, 2024 08:17:31 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:24:56 Pacific Standard Time

ID: CSLCGY, Name: 24022804, Date: 28-Feb-2024, Time: 14:33:26, Conditions: AUTOSPEC01, User: pk

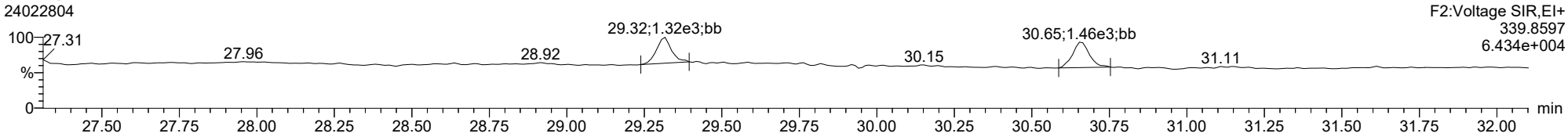
Total-tetrafurans



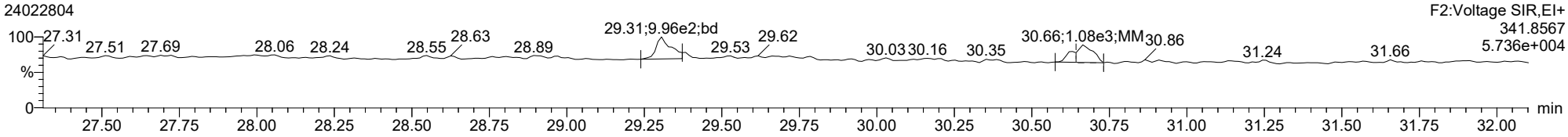
Total-tetrafurans



Total-pentafurans



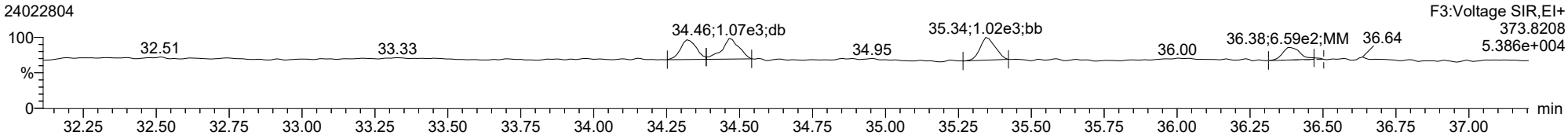
Total-pentafurans



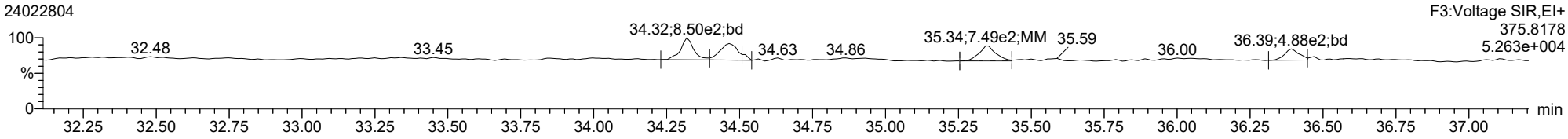
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Printed: Thursday, February 29, 2024 08:24:56 Pacific Standard Time

ID: CSLCGY, Name: 24022804, Date: 28-Feb-2024, Time: 14:33:26, Conditions: AUTOSPEC01, User: pk

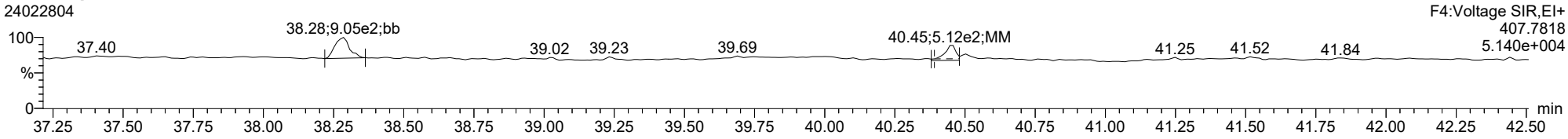
Total-hexafurans



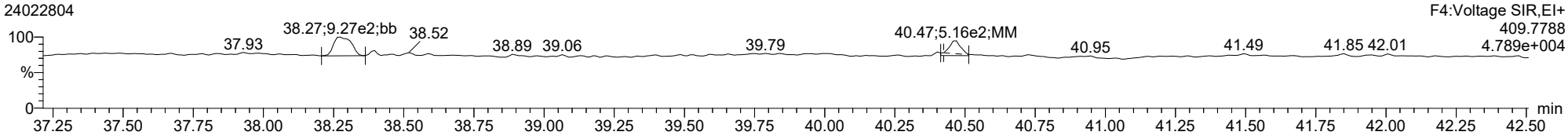
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\240228ICIH.qld
Last Altered: Thursday, February 29, 2024 08:17:31 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:25:09 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240228.mdb 29 Feb 2024 08:04:37
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

ID: CS1CY, Name: 24022805, Date: 28-Feb-2024, Time: 15:26:28, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.139	1.001	1.797e3	2.197e3	0.980	0.818	0.770	656	1521	2.29e4	2.86e4	34.9	18.8	NO	MM	MM	0.495
12378-PeCDF	29.306	1.000	9.570e3	5.554e3	1.047	1.723	1.550	998	1621	1.36e5	7.94e4	136.8	49.0	NO	bd	bb	2.620
23478-PeCDF	30.654	1.001	9.207e3	5.570e3	1.156	1.653	1.550	998	1621	1.24e5	8.61e4	124.3	53.1	NO	bb	bb	2.442
123478-HxCDF	34.308	1.000	6.390e3	5.050e3	1.224	1.265	1.240	1316	1037	9.41e4	7.10e4	71.5	68.5	NO	bd	bd	2.504
234678-HxCDF	35.344	1.001	6.307e3	4.714e3	1.235	1.338	1.240	1316	1037	9.42e4	6.76e4	71.6	65.2	NO	bb	MM	2.394
123678-HxCDF	34.453	1.000	6.547e3	5.612e3	1.193	1.167	1.240	1316	1037	9.44e4	7.80e4	71.8	75.2	NO	dd	dd	2.436
123789-HxCDF	36.391	1.001	5.172e3	3.961e3	1.100	1.306	1.240	1316	1037	7.11e4	5.23e4	54.0	50.4	NO	bd	bb	2.680
1234678-HpCDF	38.263	1.000	5.574e3	5.235e3	1.392	1.065	1.050	1088	1699	8.03e4	8.03e4	73.8	47.3	NO	bb	bb	2.578
1234789-HpCDF	40.447	1.000	3.871e3	3.862e3	1.381	1.002	1.050	1088	1699	5.27e4	4.66e4	48.4	27.5	NO	bb	bb	2.448
OCDF	44.558	1.005	5.399e3	5.768e3	1.222	0.936	0.890	938	999	6.02e4	6.25e4	64.2	62.5	NO	bb	MM	4.207
2378-TCDD	25.774	1.000	1.712e3	1.963e3	1.227	0.872	0.770	1098	640	2.62e4	2.91e4	23.9	45.5	NO	bb	bb	0.515
12378-PeCDD	30.899	1.000	5.549e3	3.830e3	0.964	1.449	1.550	932	543	7.33e4	5.24e4	78.6	96.5	NO	bd	bb	2.404
123478-HxCDD	35.466	1.001	3.913e3	3.358e3	0.841	1.166	1.240	609	804	5.99e4	5.49e4	98.4	68.3	NO	bd	bd	2.543
123678-HxCDD	35.578	1.000	4.232e3	3.903e3	0.833	1.084	1.240	609	804	6.69e4	5.88e4	109.8	73.2	NO	db	db	2.404
123789-HxCDD	35.968	1.011	3.629e3	2.746e3	0.770	1.321	1.240	609	804	5.30e4	4.25e4	86.9	52.8	NO	bb	bb	2.217
1234678-HpCDD	39.745	1.001	3.228e3	2.860e3	0.984	1.129	1.050	836	634	5.10e4	4.14e4	61.0	65.3	NO	bd	MM	2.316
OCDD	44.347	1.001	4.577e3	5.345e3	0.938	0.856	0.890	751	690	5.50e4	6.94e4	73.1	100.5	NO	bb	bd	4.874
13C-2378-TCDF	25.125	1.007	3.474e5	4.753e5	1.655	0.731	0.770	1965	2094	4.90e6	6.84e6	2495.5	3266.2	NO	bb	bb	98.563
13C-12378-PeCDF	29.294	1.174	3.429e5	2.082e5	1.196	1.647	1.550	3216	2197	4.74e6	2.99e6	1472.9	1359.4	NO	bb	bb	91.393
13C-23478-PeCDF	30.631	1.228	3.177e5	2.060e5	1.117	1.542	1.550	3216	2197	4.68e6	2.98e6	1453.7	1356.7	NO	bb	bb	92.951
13C-123478-HxCDF	34.297	0.954	1.289e5	2.445e5	1.028	0.527	0.510	2233	2490	1.93e6	3.64e6	863.3	1460.3	NO	bd	bd	101.437
13C-123678-HxCDF	34.442	0.958	1.477e5	2.706e5	1.176	0.546	0.510	2233	2490	2.07e6	3.72e6	925.7	1495.8	NO	db	db	99.392
13C-234678-HxCDF	35.322	0.982	1.289e5	2.440e5	1.016	0.528	0.510	2233	2490	1.77e6	3.34e6	794.1	1341.6	NO	bd	bd	102.516
13C-123789-HxCDF	36.369	1.012	1.075e5	2.024e5	0.879	0.531	0.510	2233	2490	1.46e6	2.74e6	653.0	1100.2	NO	bb	bb	98.471
13C-1234678-HpCDF	38.263	1.064	9.522e4	2.058e5	0.870	0.463	0.440	1820	3279	1.42e6	3.12e6	780.7	950.5	NO	bb	bb	96.663
13C-1234789-HpCDF	40.436	1.125	7.245e4	1.563e5	0.638	0.463	0.440	1820	3279	9.74e5	2.02e6	535.4	616.4	NO	bb	bb	100.225
13C-1234-TCDD	24.941	0.000	2.228e5	2.816e5	1.000	0.791	0.770	2410	1581	3.41e6	4.33e6	1413.8	2740.7	NO	bb	bb	100.000
13C-2378-TCDD	25.760	1.033	2.528e5	3.286e5	1.151	0.770	0.770	2410	1581	3.59e6	4.65e6	1491.5	2940.3	NO	bb	bb	100.169
13C-12378-PeCDD	30.888	1.238	2.559e5	1.487e5	0.828	1.721	1.550	1611	1288	3.42e6	2.10e6	2122.7	1630.1	NO	bd	bb	96.848
13C-123478-HxCDD	35.444	0.986	1.901e5	1.499e5	0.950	1.267	1.240	2140	2160	2.88e6	2.37e6	1344.4	1096.2	NO	bd	bd	100.013
13C-123678-HxCDD	35.567	0.989	2.109e5	1.955e5	1.107	1.078	1.240	2140	2160	3.01e6	2.50e6	1405.4	1157.7	NO	db	db	102.563
13C-1234678-HpCDD	39.723	1.105	1.379e5	1.292e5	0.737	1.067	1.050	1522	1389	1.83e6	1.70e6	1201.0	1222.9	NO	bb	bb	101.237
13C-OCDD	44.320	1.233	1.963e5	2.380e5	0.633	0.825	0.890	2303	2847	2.23e6	2.58e6	966.7	907.3	NO	bb	bd	191.777
13C-123789-HxCDD	35.957	0.000	1.933e5	1.646e5	1.000	1.174	1.240	2140	2160	2.75e6	2.32e6	1285.6	1075.8	NO	bb	bb	100.000
37CL-2378-TCDD	25.788	1.034	2.894e3		1.312			1407		4.39e4		31.2			bb		0.437

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Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.247		0.770	656	1521								
1289-TCDF					0.916		0.770	656	1521								
13468-PECDF					1.353		1.550	670	879								
12389-PECDF					0.925		1.550	998	1621								
123468-HXCDF					1.335		1.240	1316	1037								
1368-TCDD					1.120		0.770	1098	640								
1289-TCDD					0.966		0.770	1098	640								
12479-PECDD					1.859		1.550	932	543								
12389-PECDD					1.154		1.550	932	543								
124679-HXCDD					1.006		1.240	609	804								
1234679-HPCDD					1.184		1.050	836	634								
Total-tetrafurans			1.797e3		1.048			656		2.29e4							0.495
Total-penta1			0.000e0					670		0.00e0							
Total-pentafurans			1.878e4		1.043			998		2.60e5							5.062
Total-hexafurans			2.442e4		1.217			1316		3.54e5							10.013
Total-heptafurans			9.445e3		1.387			1088		1.33e5							5.026
Total-Furans			5.983e4		1.180			656		8.30e5							24.804
Total-tetradioxins			1.897e3		1.104			1098		2.91e4							0.587
Total-pentadioxins			5.549e3		1.326			932		7.33e4							2.404
Total-hexadioxins			1.177e4		0.863			609		1.80e5							7.165
Total-heptadioxins			3.228e3		1.084			836		5.10e4							2.316
Total-Dioxins			2.703e4		1.065			1098		3.88e5							17.345
Total-TEQ			8.686e4					1098		1.22e6							42.149
FUNCTION1 PFK			1.489e6					803529		2.81e7							
FUNCTION2 PFK			9.748e5					417143		2.50e7							0.000
FUNCTION3 PFK			1.568e7					553619		2.22e8							0.000
FUNCTION4 PFK			1.311e7					504002		2.92e7							
FUNCTION5 PFK			0.000e0					253903		0.00e0							
FUNCTION1 HXCD...			1.260e3					733		1.56e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			1.561e2					707		4.09e3							0.000
FUNCTION3 OCDPE			0.000e0					714		0.00e0							
FUNCTION4 NCDPE			8.269e1					660		2.39e3							0.000
FUNCTION5 DCDPE			0.000e0					482		0.00e0							

Method: T:\Autospec\Methods\Dioxin240228.mdb 29 Feb 2024 08:04:37
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.14	1.797e3	2.197e3	0.980	0.82	0.77	34.9	YES	NO	MM	MM	0.495

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.65	9.207e3	5.570e3	1.156	1.65	1.55	124.3	YES	NO	bb	bb	2.442
2	12378-PeCDF	29.31	9.570e3	5.554e3	1.047	1.72	1.55	136.8	YES	NO	bd	bb	2.620

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.39	5.172e3	3.961e3	1.100	1.31	1.24	54.0	YES	NO	bd	bb	2.680
2	234678-HxCDF	35.34	6.307e3	4.714e3	1.235	1.34	1.24	71.6	YES	NO	bb	MM	2.394
3	123678-HxCDF	34.45	6.547e3	5.612e3	1.193	1.17	1.24	71.8	YES	NO	dd	dd	2.436
4	123478-HxCDF	34.31	6.390e3	5.050e3	1.224	1.27	1.24	71.5	YES	NO	bd	bd	2.504

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.45	3.871e3	3.862e3	1.381	1.00	1.05	48.4	YES	NO	bb	bb	2.448
2	1234678-HpCDF	38.26	5.574e3	5.235e3	1.392	1.06	1.05	73.8	YES	NO	bb	bb	2.578

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.65	9.207e3	5.570e3	1.156	1.65	1.55	124.3	YES	NO	bb	bb	2.442
2	12378-PeCDF	29.31	9.570e3	5.554e3	1.047	1.72	1.55	136.8	YES	NO	bd	bb	2.620
3	2378-TCDF	25.14	1.797e3	2.197e3	0.980	0.82	0.77	34.9	YES	NO	MM	MM	0.495
4	123789-HxCDF	36.39	5.172e3	3.961e3	1.100	1.31	1.24	54.0	YES	NO	bd	bb	2.680
5	234678-HxCDF	35.34	6.307e3	4.714e3	1.235	1.34	1.24	71.6	YES	NO	bb	MM	2.394
6	123678-HxCDF	34.45	6.547e3	5.612e3	1.193	1.17	1.24	71.8	YES	NO	dd	dd	2.436
7	123478-HxCDF	34.31	6.390e3	5.050e3	1.224	1.27	1.24	71.5	YES	NO	bd	bd	2.504
8	1234789-HpCDF	40.45	3.871e3	3.862e3	1.381	1.00	1.05	48.4	YES	NO	bb	bb	2.448
9	1234678-HpCDF	38.26	5.574e3	5.235e3	1.392	1.06	1.05	73.8	YES	NO	bb	bb	2.578
10	OCDF	44.56	5.399e3	5.768e3	1.222	0.94	0.89	64.2	YES	NO	bb	MM	4.207

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.77	1.712e3	1.963e3	1.227	0.87	0.77	23.9	YES	NO	bb	bb	0.515
2	Total-tetradioxins	25.12	1.851e2	2.740e2	1.104	0.68	0.77	2.6	NO	NO	bb	bb	0.072

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.90	5.549e3	3.830e3	0.964	1.45	1.55	78.6	YES	NO	bd	bb	2.404

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.97	3.629e3	2.746e3	0.770	1.32	1.24	86.9	YES	NO	bb	bb	2.217
2	123678-HxCDD	35.58	4.232e3	3.903e3	0.833	1.08	1.24	109.8	YES	NO	db	db	2.404
3	123478-HxCDD	35.47	3.913e3	3.358e3	0.841	1.17	1.24	98.4	YES	NO	bd	bd	2.543

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.74	3.228e3	2.860e3	0.984	1.13	1.05	61.0	YES	NO	bd	MM	2.316

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.77	1.712e3	1.963e3	1.227	0.87	0.77	23.9	YES	NO	bb	bb	0.515
2	Total-tetradioxins	25.12	1.851e2	2.740e2	1.104	0.68	0.77	2.6	NO	NO	bb	bb	0.072
3	123789-HxCDD	35.97	3.629e3	2.746e3	0.770	1.32	1.24	86.9	YES	NO	bb	bb	2.217
4	123678-HxCDD	35.58	4.232e3	3.903e3	0.833	1.08	1.24	109.8	YES	NO	db	db	2.404
5	123478-HxCDD	35.47	3.913e3	3.358e3	0.841	1.17	1.24	98.4	YES	NO	bd	bd	2.543
6	12378-PeCDD	30.90	5.549e3	3.830e3	0.964	1.45	1.55	78.6	YES	NO	bd	bb	2.404
7	1234678-HpCDD	39.74	3.228e3	2.860e3	0.984	1.13	1.05	61.0	YES	NO	bd	MM	2.316
8	OCDD	44.35	4.577e3	5.345e3	0.938	0.86	0.89	73.1	YES	NO	bb	bd	4.874

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.65	9.207e3	5.570e3	1.156	1.65	1.55	124.3	YES	NO	bb	bb	2.442
2	12378-PeCDF	29.31	9.570e3	5.554e3	1.047	1.72	1.55	136.8	YES	NO	bd	bb	2.620
3	2378-TCDF	25.14	1.797e3	2.197e3	0.980	0.82	0.77	34.9	YES	NO	MM	MM	0.495
4	123789-HxCDF	36.39	5.172e3	3.961e3	1.100	1.31	1.24	54.0	YES	NO	bd	bb	2.680
5	234678-HxCDF	35.34	6.307e3	4.714e3	1.235	1.34	1.24	71.6	YES	NO	bb	MM	2.394
6	123678-HxCDF	34.45	6.547e3	5.612e3	1.193	1.17	1.24	71.8	YES	NO	dd	dd	2.436
7	123478-HxCDF	34.31	6.390e3	5.050e3	1.224	1.27	1.24	71.5	YES	NO	bd	bd	2.504
8	1234789-HpCDF	40.45	3.871e3	3.862e3	1.381	1.00	1.05	48.4	YES	NO	bb	bb	2.448
9	1234678-HpCDF	38.26	5.574e3	5.235e3	1.392	1.06	1.05	73.8	YES	NO	bb	bb	2.578
10	OCDF	44.56	5.399e3	5.768e3	1.222	0.94	0.89	64.2	YES	NO	bb	MM	4.207
11	2378-TCDD	25.77	1.712e3	1.963e3	1.227	0.87	0.77	23.9	YES	NO	bb	bb	0.515
12	Total-tetradioxins	25.12	1.851e2	2.740e2	1.104	0.68	0.77	2.6	NO	NO	bb	bb	0.072
13	123789-HxCDD	35.97	3.629e3	2.746e3	0.770	1.32	1.24	86.9	YES	NO	bb	bb	2.217
14	123678-HxCDD	35.58	4.232e3	3.903e3	0.833	1.08	1.24	109.8	YES	NO	db	db	2.404
15	123478-HxCDD	35.47	3.913e3	3.358e3	0.841	1.17	1.24	98.4	YES	NO	bd	bd	2.543
16	12378-PeCDD	30.90	5.549e3	3.830e3	0.964	1.45	1.55	78.6	YES	NO	bd	bb	2.404
17	1234678-HpCDD	39.74	3.228e3	2.860e3	0.984	1.13	1.05	61.0	YES	NO	bd	MM	2.316
18	OCDD	44.35	4.577e3	5.345e3	0.938	0.86	0.89	73.1	YES	NO	bb	bd	4.874

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	22.85	3.418e4					1.1	NO		db		
2	FUNCTION1 PFK	22.81	3.128e4					1.4	NO		bd		
3	FUNCTION1 PFK	22.57	4.482e4					1.3	NO		bb		
4	FUNCTION1 PFK	22.48	4.129e3					0.4	NO		bb		
5	FUNCTION1 PFK	22.31	1.306e4					0.6	NO		bb		
6	FUNCTION1 PFK	21.88	8.067e4					1.6	NO		bb		
7	FUNCTION1 PFK	21.51	1.226e5					1.5	NO		bb		
8	FUNCTION1 PFK	21.30	2.696e4					1.1	NO		db		
9	FUNCTION1 PFK	21.25	2.161e4					0.8	NO		bd		
10	FUNCTION1 PFK	21.16	2.137e5					3.6	YES		bb		
11	FUNCTION1 PFK	26.73	5.928e4					1.4	NO		bb		
12	FUNCTION1 PFK	26.41	3.528e4					0.7	NO		db		
13	FUNCTION1 PFK	26.33	4.446e4					1.4	NO		dd		
14	FUNCTION1 PFK	26.24	1.072e5					1.6	NO		dd		
15	FUNCTION1 PFK	26.13	2.815e4					1.0	NO		bd		
16	FUNCTION1 PFK	26.06	2.074e4					0.9	NO		bb		
17	FUNCTION1 PFK	25.92	3.681e4					0.9	NO		db		
18	FUNCTION1 PFK	25.86	6.416e4					2.0	NO		dd		
19	FUNCTION1 PFK	25.80	2.402e4					0.9	NO		bd		
20	FUNCTION1 PFK	25.32	6.783e4					1.7	NO		bb		
21	FUNCTION1 PFK	25.18	8.689e4					1.8	NO		db		
22	FUNCTION1 PFK	25.04	1.401e5					1.9	NO		bd		
23	FUNCTION1 PFK	24.94	5.712e4					1.6	NO		bb		
24	FUNCTION1 PFK	24.63	2.248e4					0.9	NO		bb		
25	FUNCTION1 PFK	23.30	8.498e3					0.5	NO		bb		
26	FUNCTION1 PFK	23.10	4.794e3					0.4	NO		bb		
27	FUNCTION1 PFK	27.23	3.165e4					0.9	NO		bb		
28	FUNCTION1 PFK	26.85	5.663e4					1.0	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.50	5.901e4					1.7	NO		bd		0.000
2	FUNCTION2 PFK	28.38	2.412e4					1.8	NO		bb		0.000
3	FUNCTION2 PFK	28.25	5.459e4					1.6	NO		bb		0.000
4	FUNCTION2 PFK	28.09	3.733e3					0.5	NO		db		0.000
5	FUNCTION2 PFK	28.02	1.903e4					1.4	NO		dd		0.000
6	FUNCTION2 PFK	27.94	1.909e4					1.2	NO		dd		0.000
7	FUNCTION2 PFK	27.87	7.790e3					0.8	NO		bd		0.000
8	FUNCTION2 PFK	27.81	4.784e3					0.6	NO		bb		0.000
9	FUNCTION2 PFK	27.77	7.603e3					0.9	NO		bb		0.000
10	FUNCTION2 PFK	27.68	5.917e3					0.7	NO		bb		0.000
11	FUNCTION2 PFK	27.55	4.275e4					2.2	NO		db		0.000
12	FUNCTION2 PFK	27.47	2.915e4					1.5	NO		bd		0.000
13	FUNCTION2 PFK	27.41	3.613e4					2.2	NO		bb		0.000
14	FUNCTION2 PFK	29.90	2.707e4					1.1	NO		bb		0.000
15	FUNCTION2 PFK	29.81	1.836e4					1.2	NO		db		0.000
16	FUNCTION2 PFK	29.77	1.470e4					1.3	NO		bd		0.000
17	FUNCTION2 PFK	29.44	1.982e4					1.1	NO		bb		0.000
18	FUNCTION2 PFK	29.39	8.804e3					0.6	NO		db		0.000
19	FUNCTION2 PFK	29.29	2.641e4					1.3	NO		dd		0.000
20	FUNCTION2 PFK	29.24	2.522e4					1.6	NO		bd		0.000
21	FUNCTION2 PFK	29.08	3.866e4					1.4	NO		db		0.000
22	FUNCTION2 PFK	28.99	2.127e4					1.2	NO		dd		0.000
23	FUNCTION2 PFK	28.92	4.173e4					1.7	NO		dd		0.000
24	FUNCTION2 PFK	28.87	2.330e4					1.6	NO		dd		0.000
25	FUNCTION2 PFK	28.83	1.698e4					1.0	NO		dd		0.000
26	FUNCTION2 PFK	28.76	2.340e4					1.5	NO		dd		0.000
27	FUNCTION2 PFK	28.72	2.317e4					1.6	NO		dd		0.000
28	FUNCTION2 PFK	28.67	1.416e4					1.2	NO		dd		0.000
29	FUNCTION2 PFK	28.61	3.851e4					1.9	NO		dd		0.000
30	FUNCTION2 PFK	31.34	1.280e4					0.8	NO		bb		0.000
31	FUNCTION2 PFK	31.03	5.982e3					0.6	NO		db		0.000
32	FUNCTION2 PFK	30.99	7.792e3					0.7	NO		dd		0.000
33	FUNCTION2 PFK	30.95	9.761e3					0.9	NO		bd		0.000
34	FUNCTION2 PFK	30.85	1.714e3					0.4	NO		bb		0.000
35	FUNCTION2 PFK	30.74	1.602e4					1.2	NO		bb		0.000
36	FUNCTION2 PFK	30.70	1.522e3					0.3	NO		bb		0.000
37	FUNCTION2 PFK	30.63	1.909e4					1.2	NO		db		0.000

ID: CS1CY, Name: 24022805, Date: 28-Feb-2024, Time: 15:26:28, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION2 PFK	30.59	1.292e4					1.0	NO		bd		0.000
39	FUNCTION2 PFK	30.48	7.615e3					0.8	NO		bb		0.000
40	FUNCTION2 PFK	30.42	1.004e4					0.9	NO		db		0.000
41	FUNCTION2 PFK	30.36	1.461e4					1.0	NO		bd		0.000
42	FUNCTION2 PFK	30.27	3.690e4					1.8	NO		bb		0.000
43	FUNCTION2 PFK	30.14	2.515e3					0.4	NO		bb		0.000
44	FUNCTION2 PFK	30.04	5.775e3					0.6	NO		db		0.000
45	FUNCTION2 PFK	30.01	1.043e4					0.9	NO		bd		0.000
46	FUNCTION2 PFK	32.05	2.984e4					1.7	NO		db		0.000
47	FUNCTION2 PFK	32.00	2.033e4					1.4	NO		bd		0.000
48	FUNCTION2 PFK	31.93	3.064e3					0.7	NO		bb		0.000
49	FUNCTION2 PFK	31.75	1.636e3					0.4	NO		bb		0.000
50	FUNCTION2 PFK	31.70	3.612e3					0.5	NO		bb		0.000
51	FUNCTION2 PFK	31.60	1.251e4					1.2	NO		bb		0.000
52	FUNCTION2 PFK	31.54	1.170e3					0.3	NO		bb		0.000
53	FUNCTION2 PFK	31.49	5.644e3					0.7	NO		db		0.000
54	FUNCTION2 PFK	31.44	2.621e4					1.3	NO		bd		0.000

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Printed: Thursday, February 29, 2024 08:25:09 Pacific Standard Time

ID: CS1CY, Name: 24022805, Date: 28-Feb-2024, Time: 15:26:28, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	32.55	6.106e5					25.5	YES		dd		0.000
2	FUNCTION3 PFK	32.51	6.431e5					26.4	YES		dd		0.000
3	FUNCTION3 PFK	32.43	1.385e6					29.4	YES		dd		0.000
4	FUNCTION3 PFK	32.36	1.098e6					30.3	YES		dd		0.000
5	FUNCTION3 PFK	32.31	9.437e5					30.9	YES		dd		0.000
6	FUNCTION3 PFK	32.22	2.763e6					32.4	YES		bd		0.000
7	FUNCTION3 PFK	33.94	3.811e4					1.2	NO		bb		0.000
8	FUNCTION3 PFK	33.77	3.138e4					0.9	NO		db		0.000
9	FUNCTION3 PFK	33.74	5.261e3					0.6	NO		bd		0.000
10	FUNCTION3 PFK	33.57	5.924e4					3.1	YES		db		0.000
11	FUNCTION3 PFK	33.44	4.029e5					6.1	YES		dd		0.000
12	FUNCTION3 PFK	33.33	5.896e5					8.9	YES		dd		0.000
13	FUNCTION3 PFK	33.22	5.049e5					11.5	YES		dd		0.000
14	FUNCTION3 PFK	33.10	6.853e5					13.9	YES		dd		0.000
15	FUNCTION3 PFK	33.06	3.638e5					15.4	YES		dd		0.000
16	FUNCTION3 PFK	33.02	3.746e5					15.7	YES		dd		0.000
17	FUNCTION3 PFK	32.97	1.075e6					17.2	YES		dd		0.000
18	FUNCTION3 PFK	32.88	3.434e5					18.4	YES		dd		0.000
19	FUNCTION3 PFK	32.83	4.747e5					19.5	YES		dd		0.000
20	FUNCTION3 PFK	32.74	1.020e6					21.6	YES		dd		0.000
21	FUNCTION3 PFK	32.69	5.421e5					22.2	YES		dd		0.000
22	FUNCTION3 PFK	32.60	1.176e6					25.0	YES		dd		0.000
23	FUNCTION3 PFK	35.95	1.204e4					0.8	NO		db		0.000
24	FUNCTION3 PFK	35.89	4.858e4					2.2	NO		bd		0.000
25	FUNCTION3 PFK	35.81	3.192e4					1.5	NO		bb		0.000
26	FUNCTION3 PFK	35.73	4.621e3					0.4	NO		bb		0.000
27	FUNCTION3 PFK	35.46	1.071e4					0.9	NO		bb		0.000
28	FUNCTION3 PFK	35.32	2.402e4					0.8	NO		bb		0.000
29	FUNCTION3 PFK	35.25	8.949e3					0.7	NO		bb		0.000
30	FUNCTION3 PFK	35.21	1.122e4					0.8	NO		db		0.000
31	FUNCTION3 PFK	35.15	2.093e4					1.0	NO		bd		0.000
32	FUNCTION3 PFK	34.78	1.487e4					0.9	NO		bb		0.000
33	FUNCTION3 PFK	34.72	6.612e3					0.6	NO		bb		0.000
34	FUNCTION3 PFK	34.61	1.628e4					0.9	NO		db		0.000
35	FUNCTION3 PFK	34.49	5.540e4					1.3	NO		bd		0.000
36	FUNCTION3 PFK	34.41	2.772e4					1.5	NO		bb		0.000
37	FUNCTION3 PFK	34.17	2.722e4					1.2	NO		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION3 PFK	34.08	1.855e3					0.3	NO		bb		0.000
39	FUNCTION3 PFK	37.13	2.565e4					0.8	NO		bb		0.000
40	FUNCTION3 PFK	36.99	2.136e4					0.7	NO		db		0.000
41	FUNCTION3 PFK	36.87	1.226e4					0.7	NO		bd		0.000
42	FUNCTION3 PFK	36.46	1.015e4					0.7	NO		db		0.000
43	FUNCTION3 PFK	36.37	3.639e4					1.1	NO		bd		0.000
44	FUNCTION3 PFK	36.26	4.793e4					2.0	NO		db		0.000
45	FUNCTION3 PFK	36.17	3.879e4					1.6	NO		bd		0.000
46	FUNCTION3 PFK	36.11	9.825e3					0.8	NO		db		0.000
47	FUNCTION3 PFK	36.07	2.710e4					1.4	NO		bd		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	39.47	6.073e4					2.2	NO		bd		
2	FUNCTION4 PFK	39.18	7.100e3					0.7	NO		bb		
3	FUNCTION4 PFK	39.00	7.958e3					0.6	NO		bb		
4	FUNCTION4 PFK	38.66	5.216e3					0.6	NO		bb		
5	FUNCTION4 PFK	38.10	1.072e6					9.9	YES		db		
6	FUNCTION4 PFK	37.69	1.168e7					27.8	YES		bd		
7	FUNCTION4 PFK	42.04	9.499e3					1.0	NO		bb		
8	FUNCTION4 PFK	41.58	3.767e4					1.8	NO		db		
9	FUNCTION4 PFK	41.53	2.491e4					1.8	NO		bd		
10	FUNCTION4 PFK	41.29	1.114e4					1.0	NO		bb		
11	FUNCTION4 PFK	40.99	4.916e3					0.6	NO		bb		
12	FUNCTION4 PFK	40.95	3.969e3					0.7	NO		bb		
13	FUNCTION4 PFK	40.90	8.175e3					0.7	NO		db		
14	FUNCTION4 PFK	40.86	2.220e4					1.7	NO		bd		
15	FUNCTION4 PFK	40.40	3.670e4					1.5	NO		bb		
16	FUNCTION4 PFK	40.28	1.170e4					1.0	NO		bb		
17	FUNCTION4 PFK	40.17	5.435e4					1.8	NO		bb		
18	FUNCTION4 PFK	39.82	3.392e4					1.4	NO		bb		
19	FUNCTION4 PFK	39.53	1.986e4					1.3	NO		db		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	22.84	2.082e2					2.6	NO		bb		0.000
2	FUNCTION1 HXCD...	26.95	9.962e1					2.0	NO		bb		0.000
3	FUNCTION1 HXCD...	26.71	1.059e2					2.7	NO		db		0.000
4	FUNCTION1 HXCD...	26.61	1.146e2					1.6	NO		bd		0.000
5	FUNCTION1 HXCD...	26.40	1.103e2					2.2	NO		bb		0.000
6	FUNCTION1 HXCD...	24.73	1.149e2					1.9	NO		db		0.000
7	FUNCTION1 HXCD...	24.56	1.272e2					1.3	NO		bd		0.000
8	FUNCTION1 HXCD...	24.28	9.747e1					2.6	NO		bb		0.000
9	FUNCTION1 HXCD...	23.75	2.070e2					2.9	NO		bb		0.000
10	FUNCTION1 HXCD...	23.12	7.495e1					1.5	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	28.76	7.920e1					2.5	NO		bb		0.000
2	FUNCTION2 HPCD...	28.53	7.685e1					3.3	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	38.50	8.269e1					3.6	YES		bb		0.000

ID: CS1CY, Name: 24022805, Date: 28-Feb-2024, Time: 15:26:28, Conditions: AUTOSPEC01, User: pk

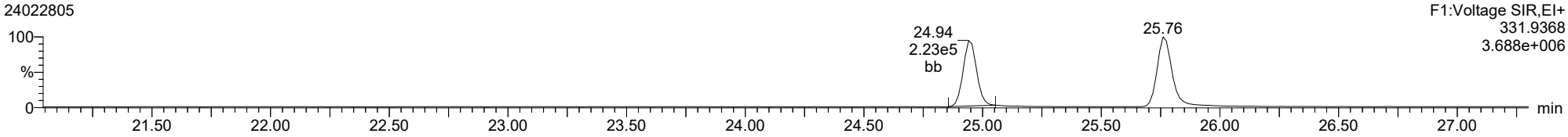
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

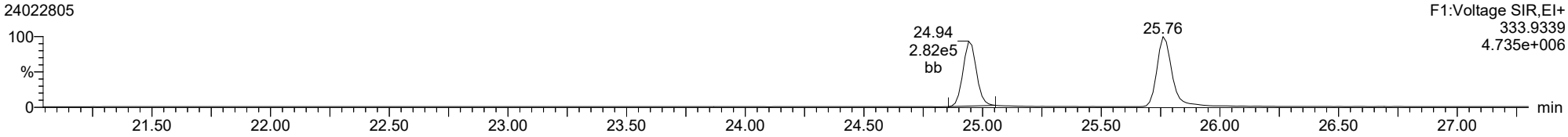
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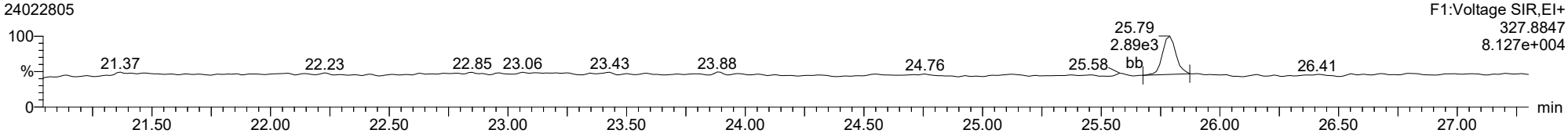
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13C-1234-TCDD

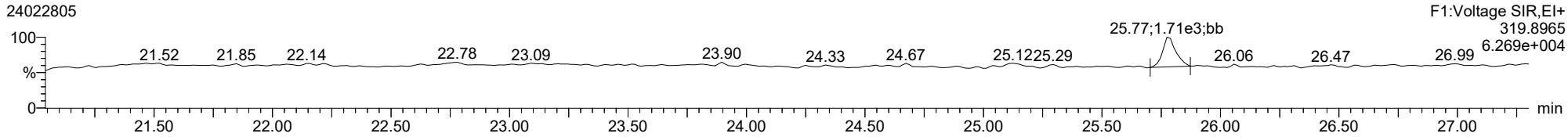


37CL-2378-TCDD

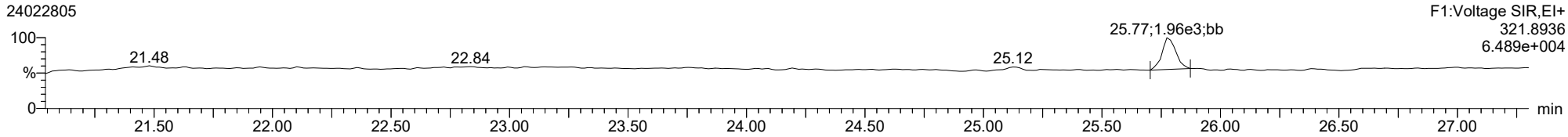


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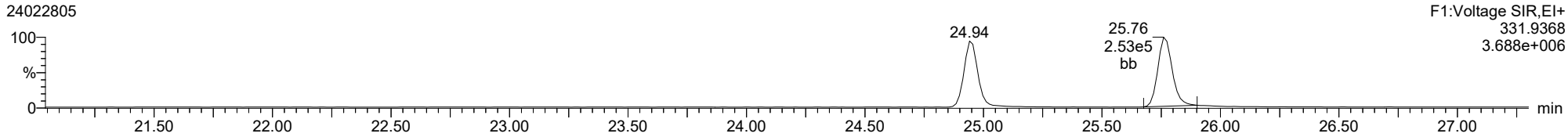
2378-TCDD



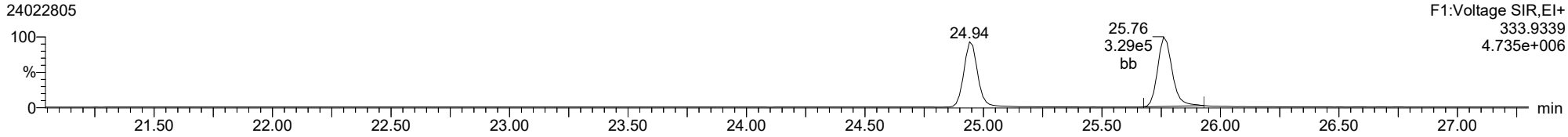
2378-TCDD



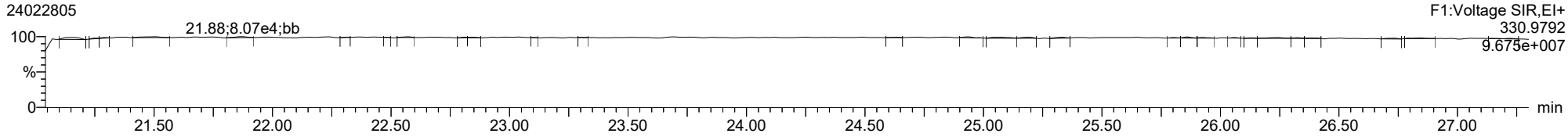
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13C-2378-TCDD

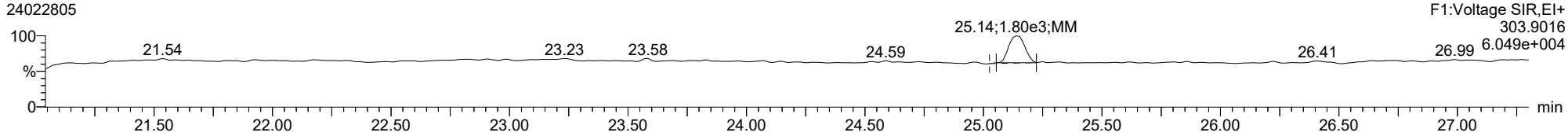


FUNCTION1 PFK

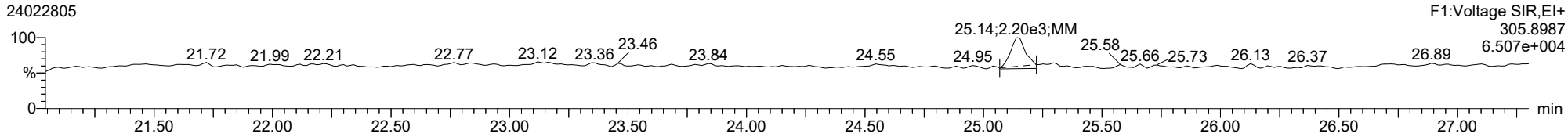


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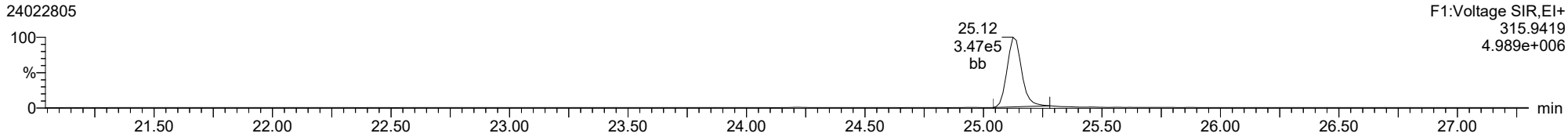
2378-TCDF



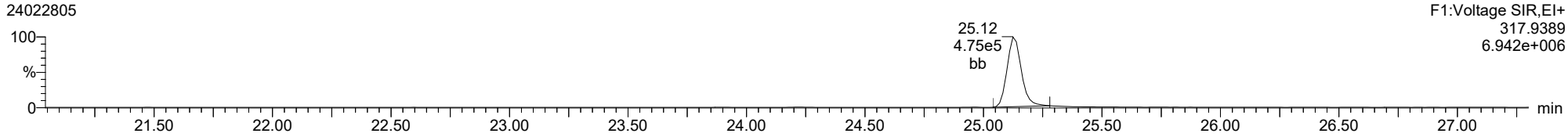
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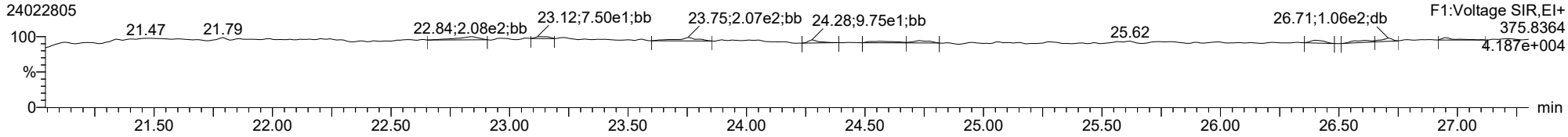
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13C-2378-TCDF

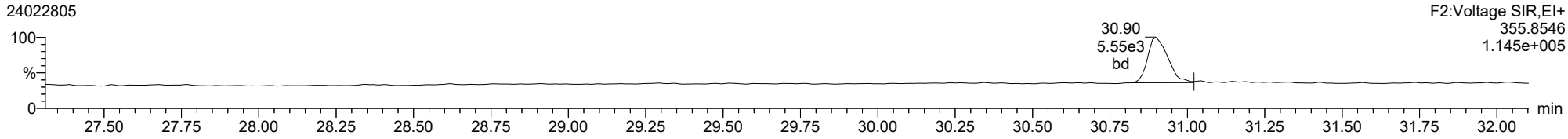


FUNCTION1 HXCDPE

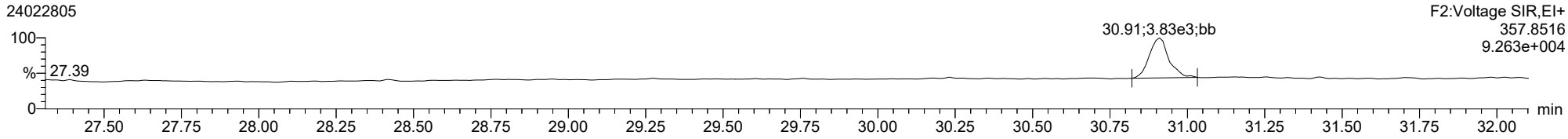


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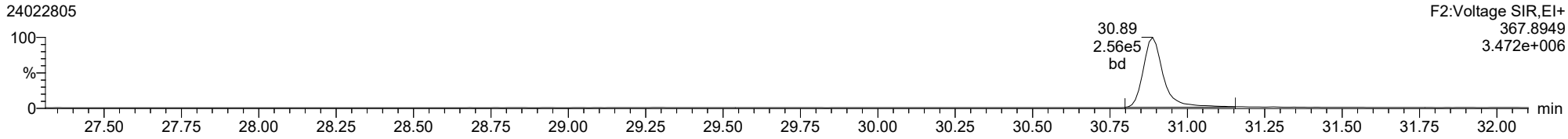
12378-PeCDD



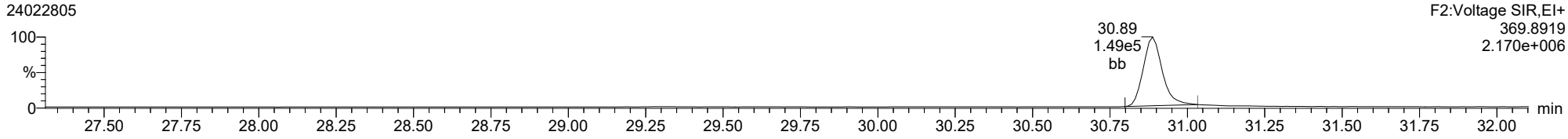
12378-PeCDD



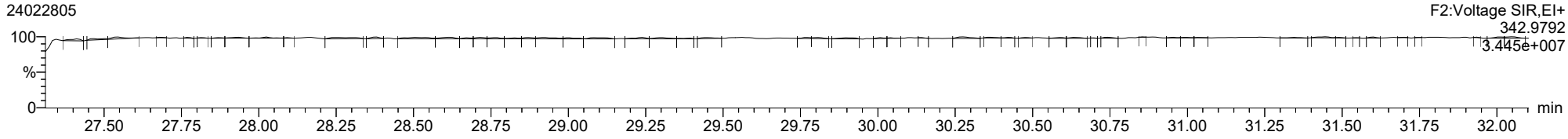
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13C-12378-PeCDD

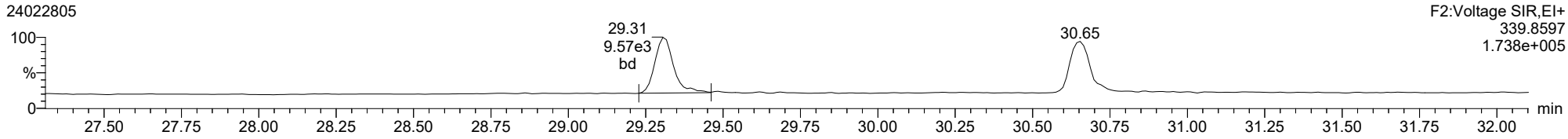


FUNCTION2 PFK

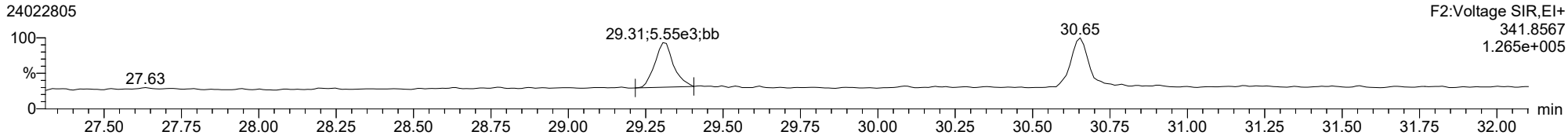


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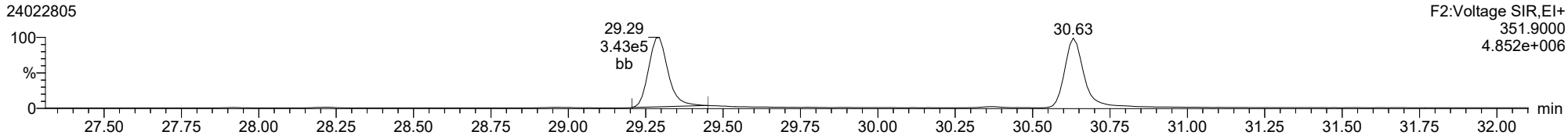
12378-PeCDF



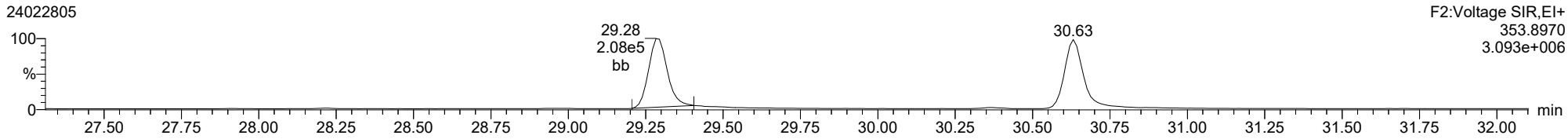
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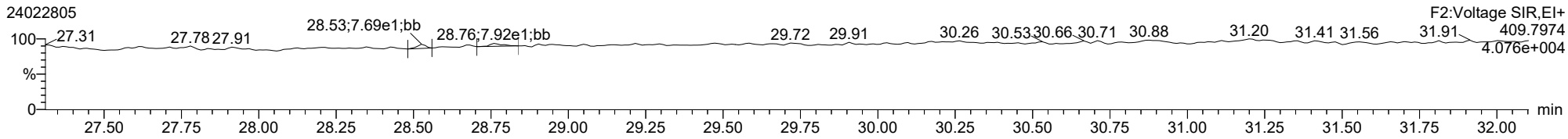
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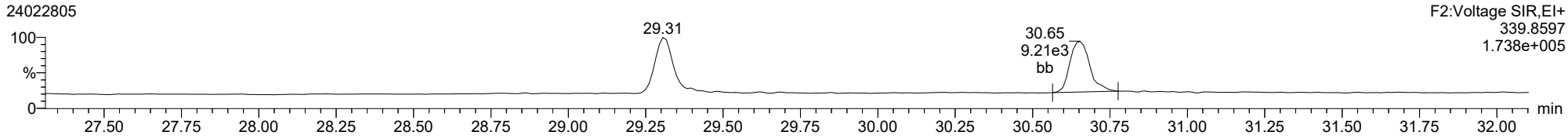


FUNCTION2 HPCDPE

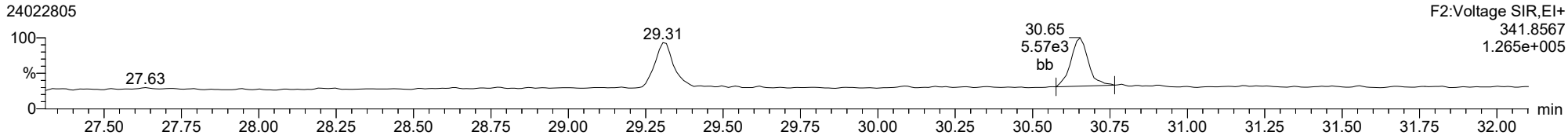


ID: CS1CY, Name: 24022805, Date: 28-Feb-2024, Time: 15:26:28, Conditions: AUTOSPEC01, User: pk

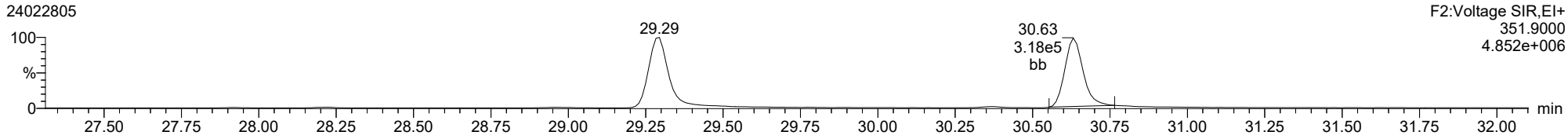
23478-PeCDF



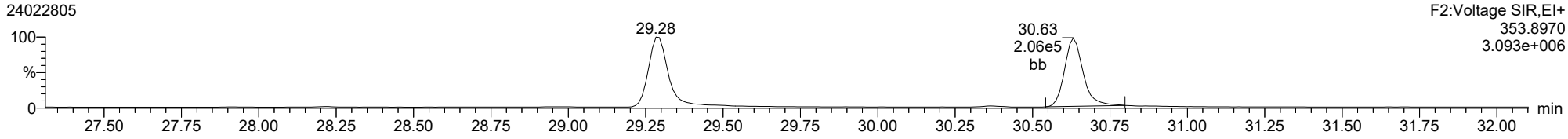
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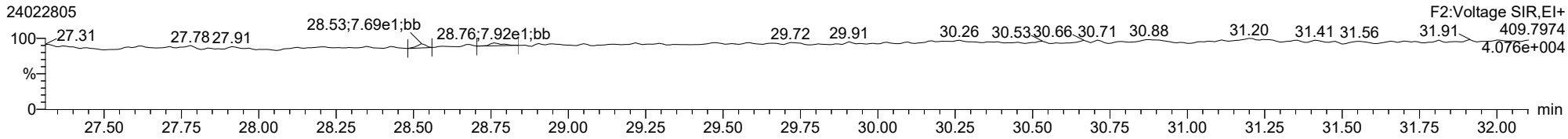
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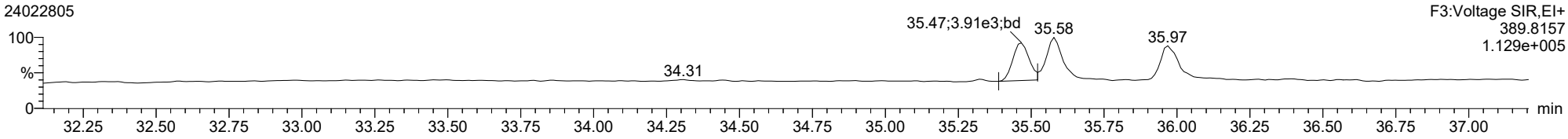


FUNCTION2 HPCDPE

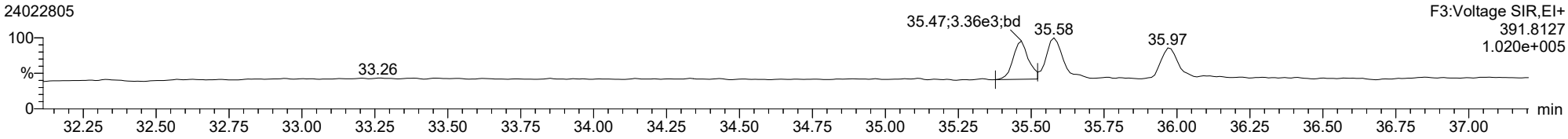


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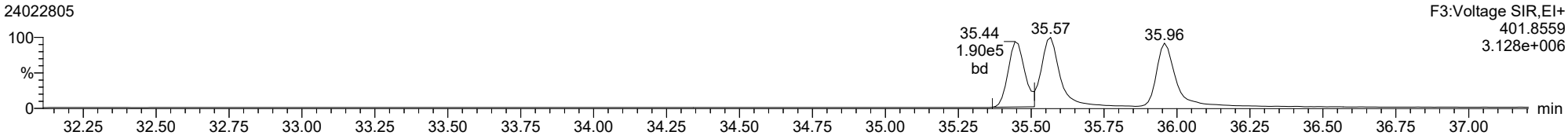
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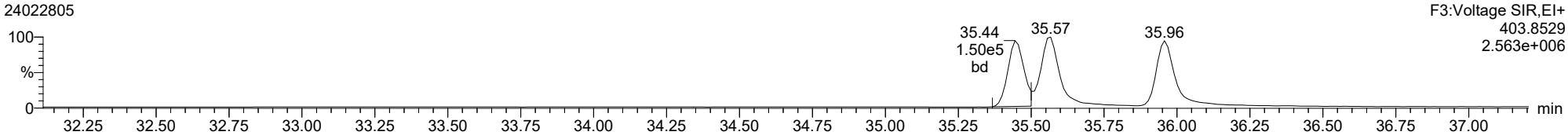
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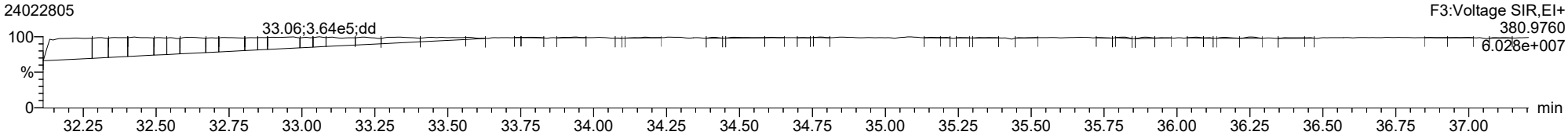
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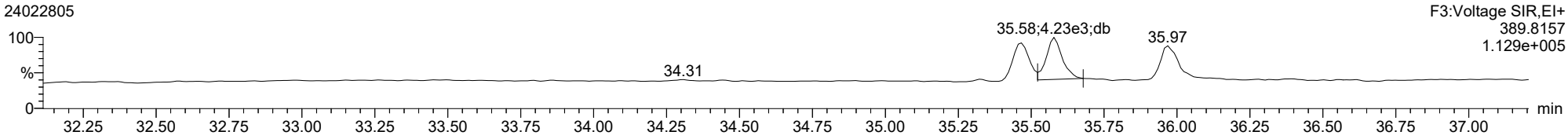


FUNCTION3 PFK

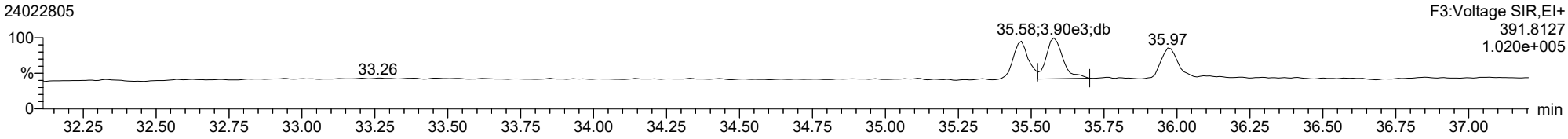


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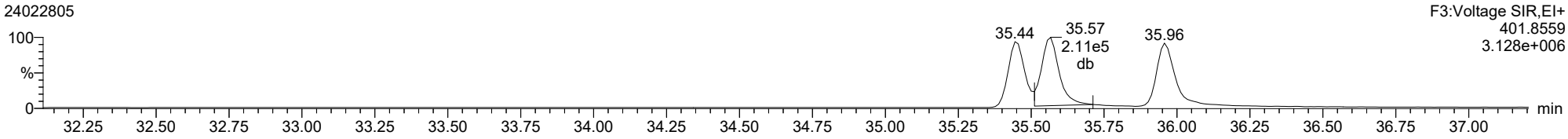
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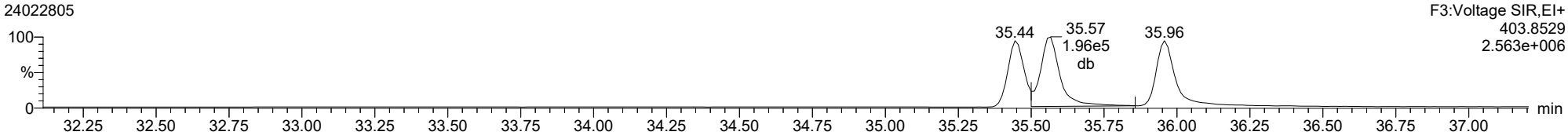
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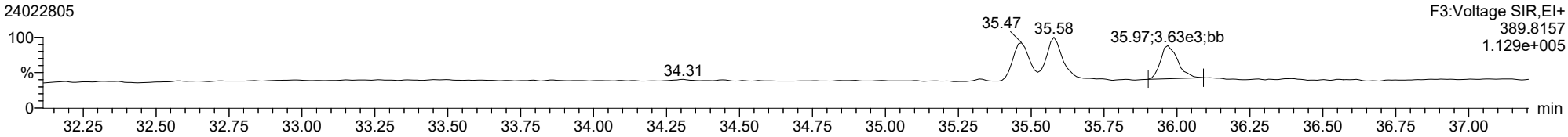


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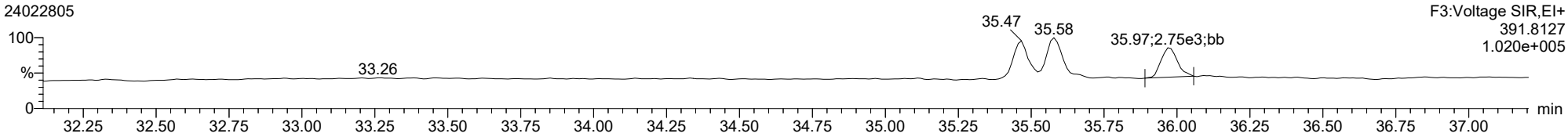


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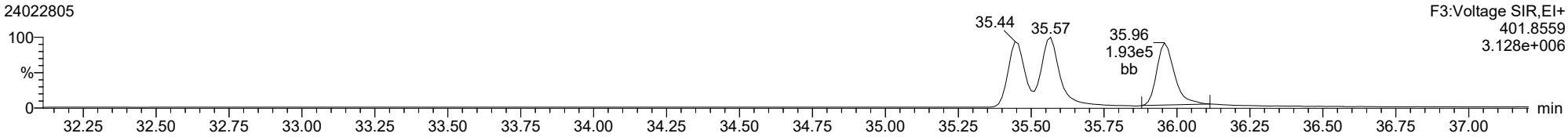
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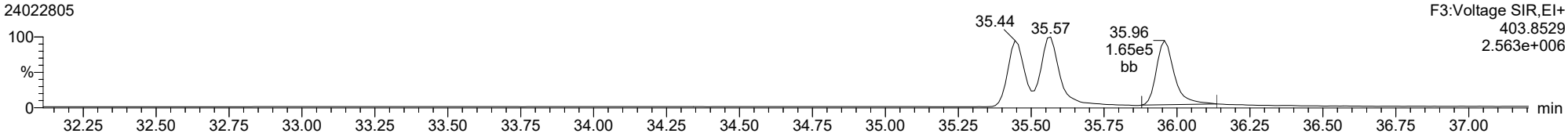
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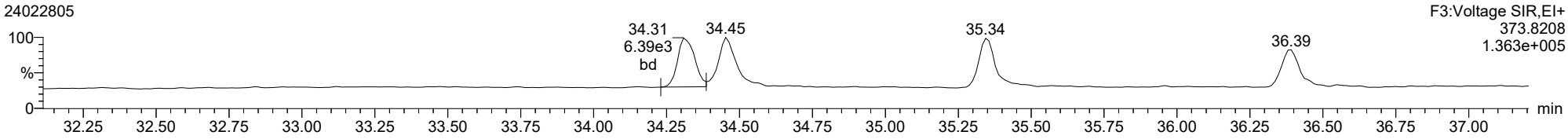


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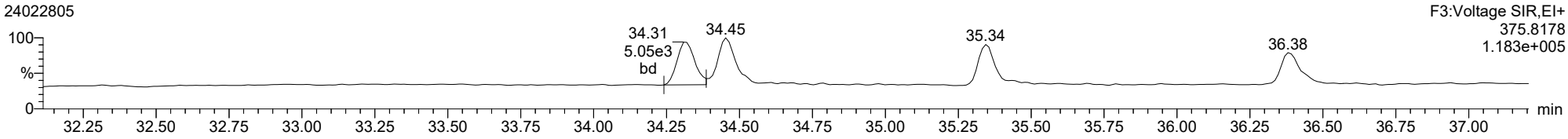


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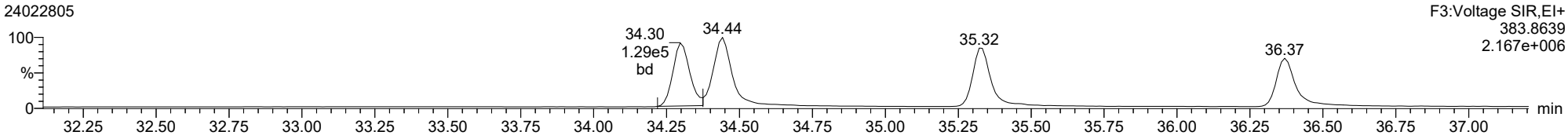
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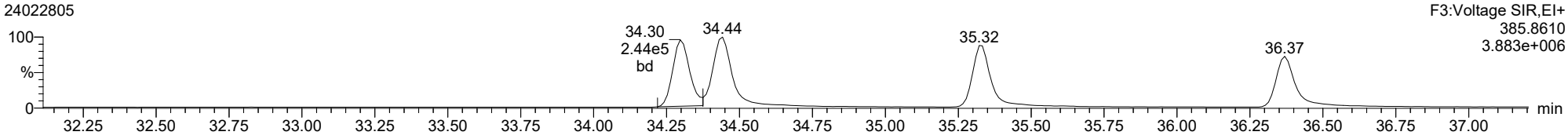
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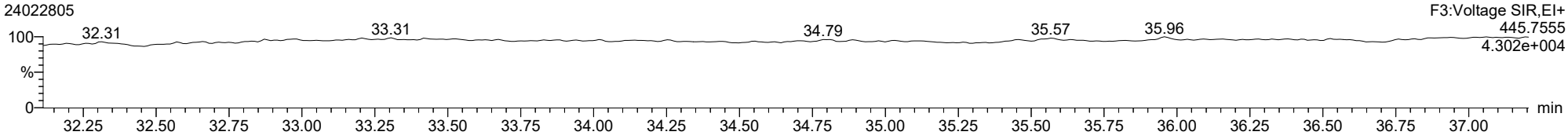
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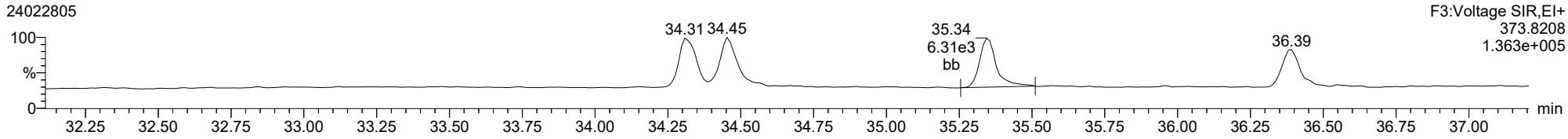


FUNCTION3 OCDPE

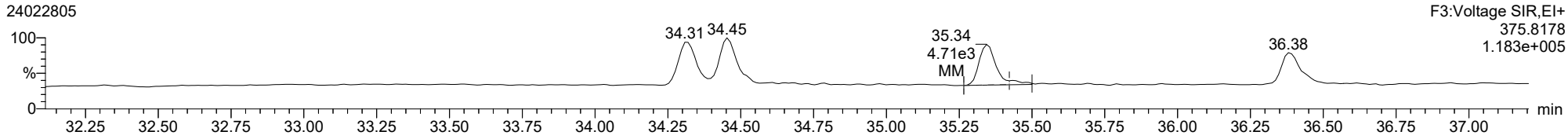


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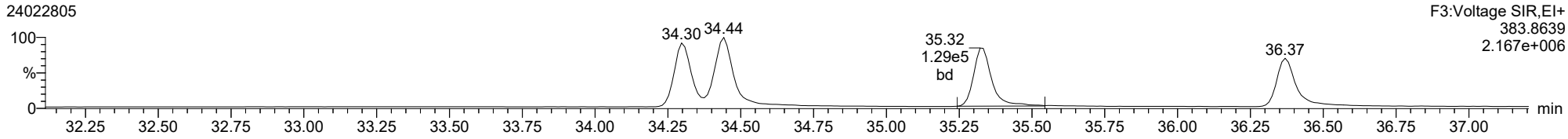
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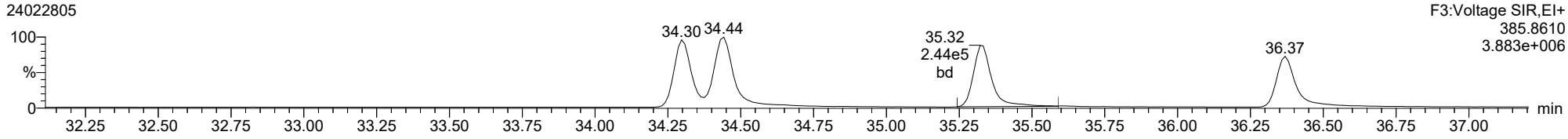
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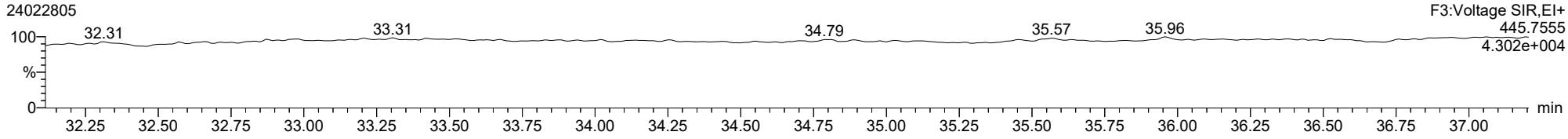
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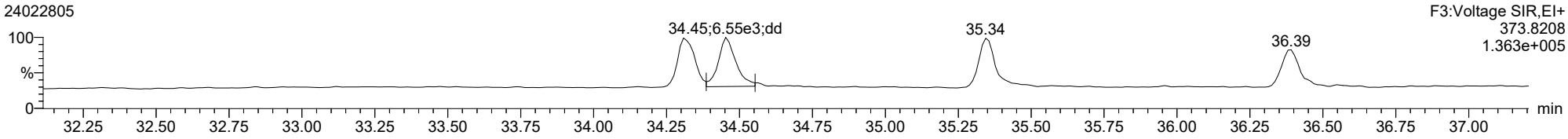


FUNCTION3 OCDPE

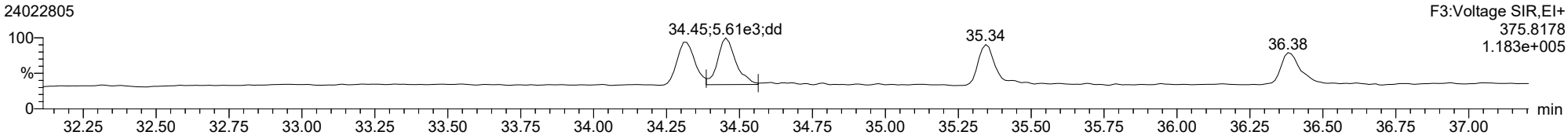


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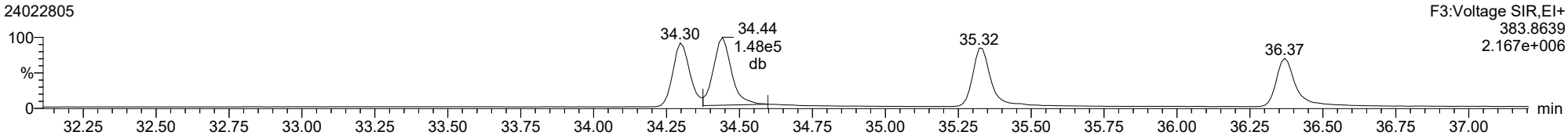
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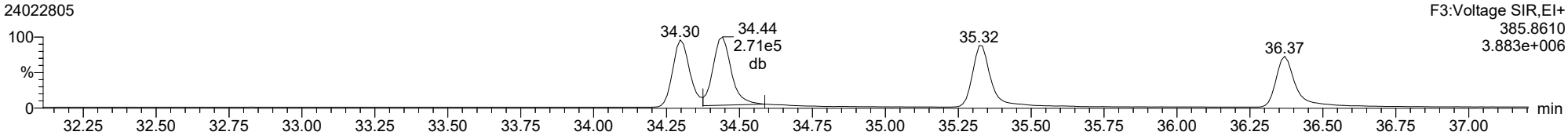
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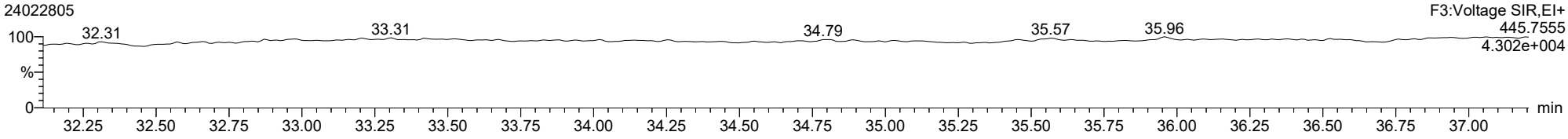
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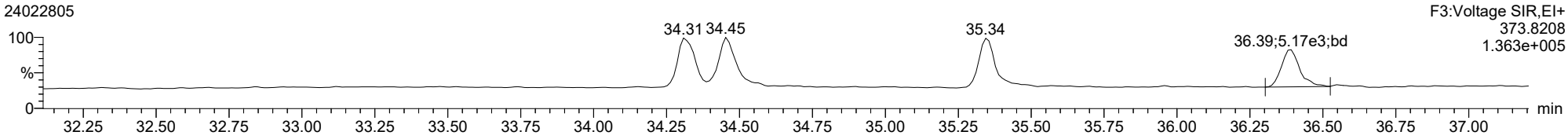


FUNCTION3 OCDPE

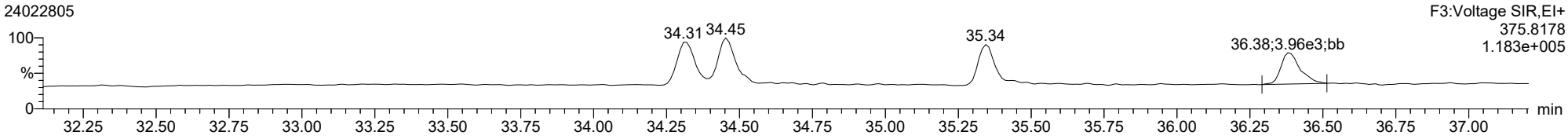


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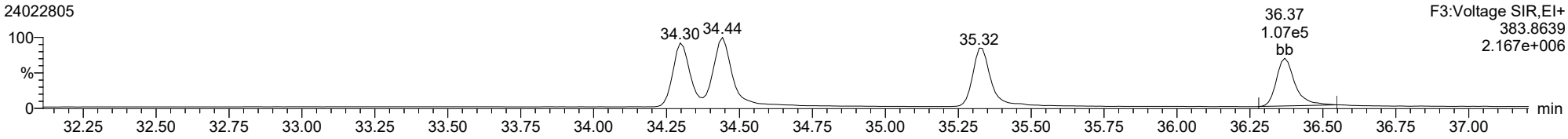
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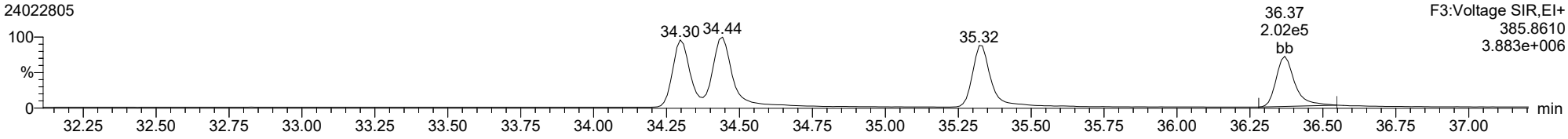
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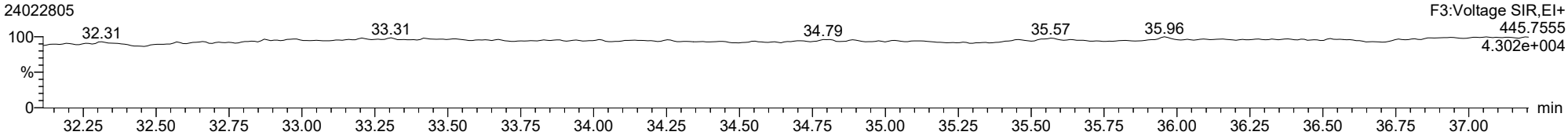
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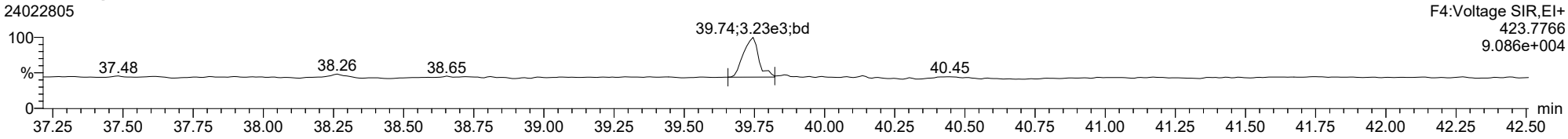


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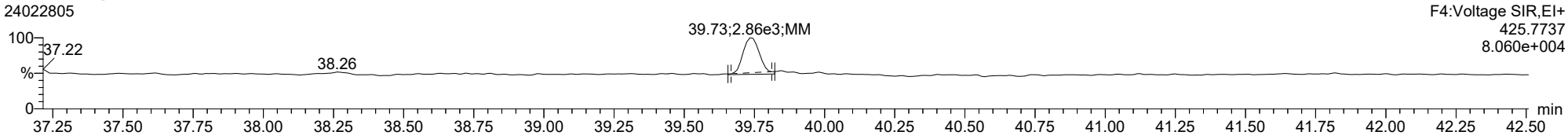


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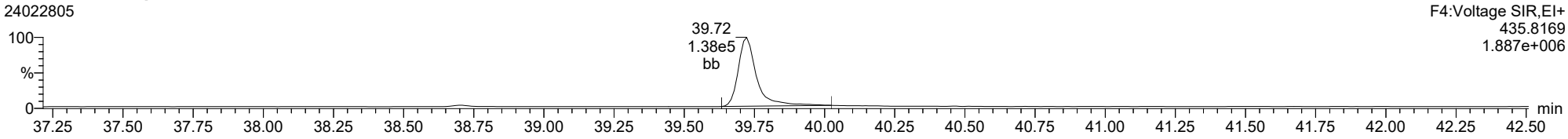
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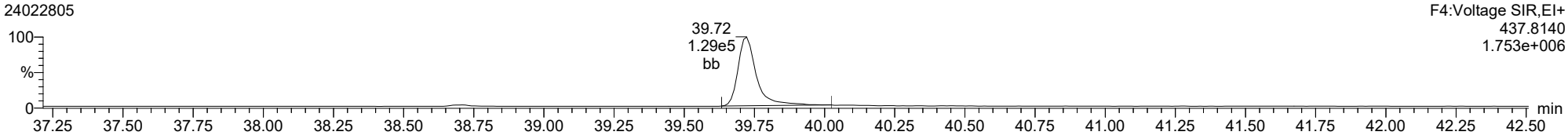
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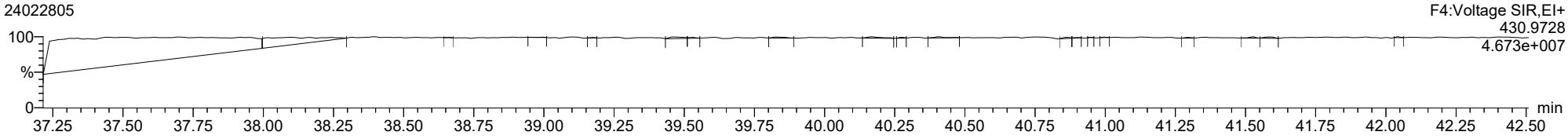
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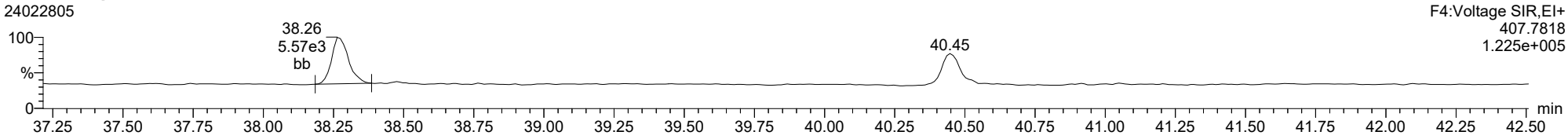


FUNCTION4 PFK

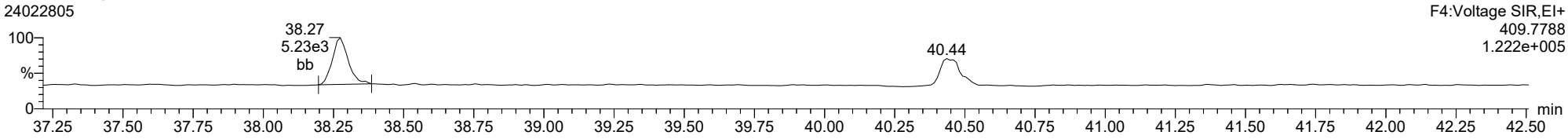


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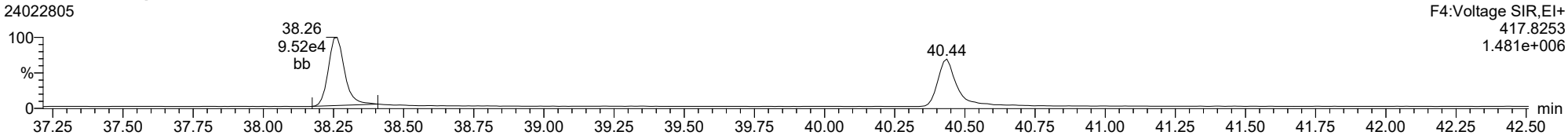
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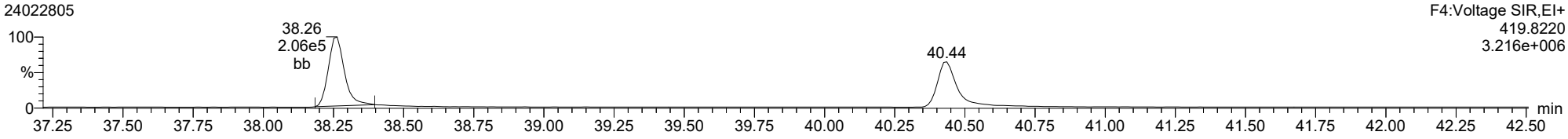
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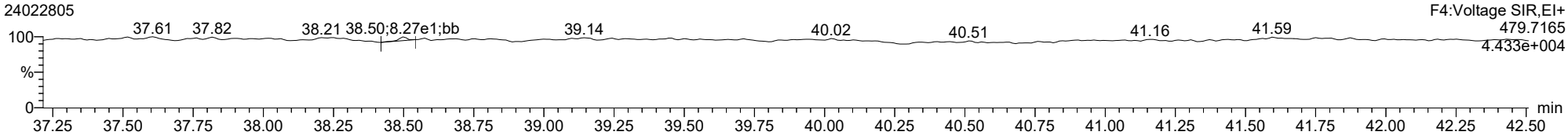
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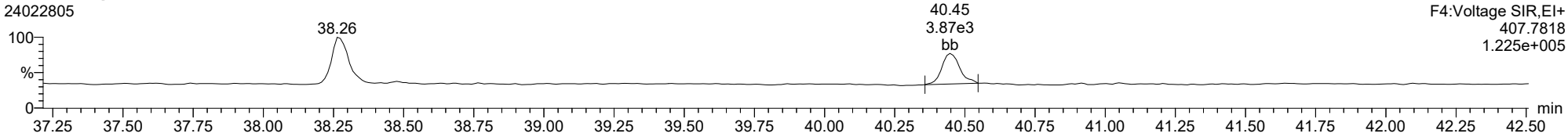


FUNCTION4 NCDPE

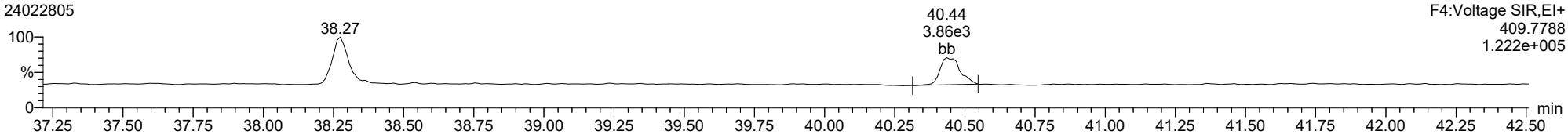


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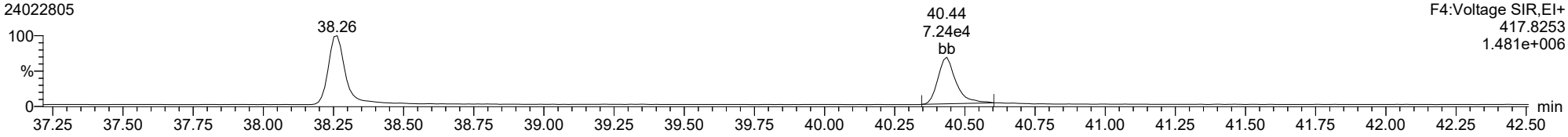
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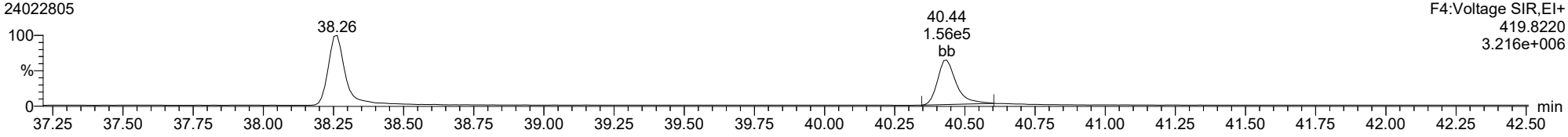
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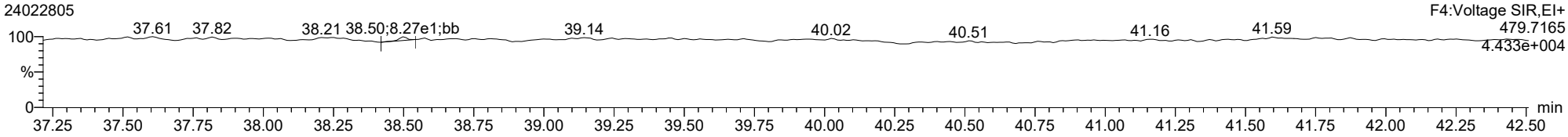
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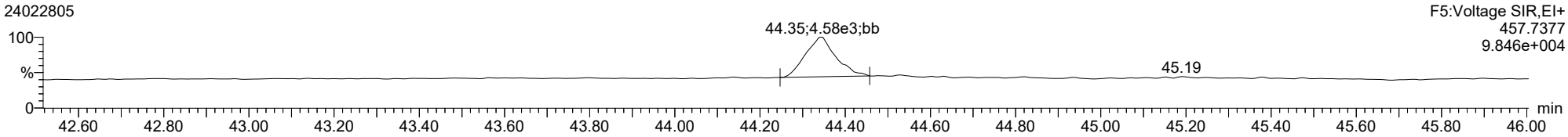


FUNCTION4 NCDPE

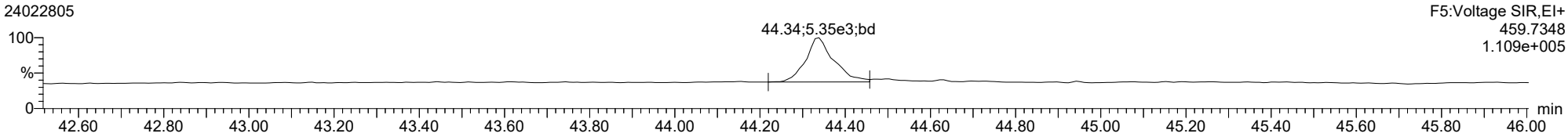


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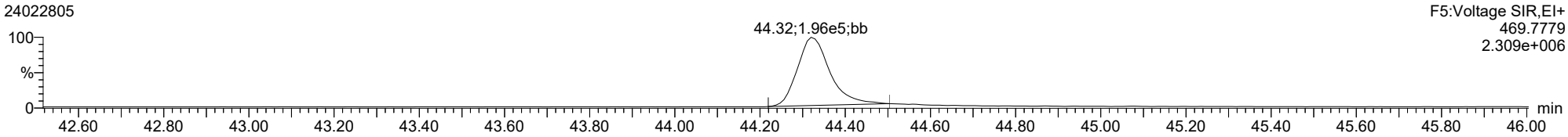
OCDD



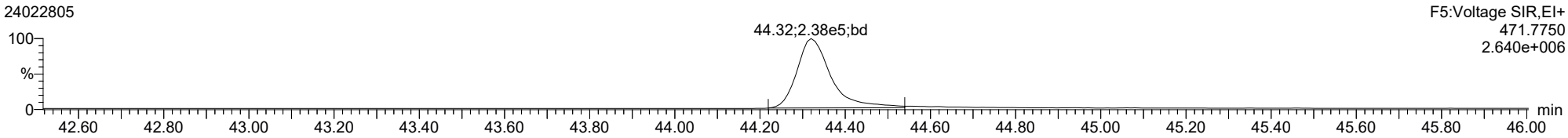
OCDD



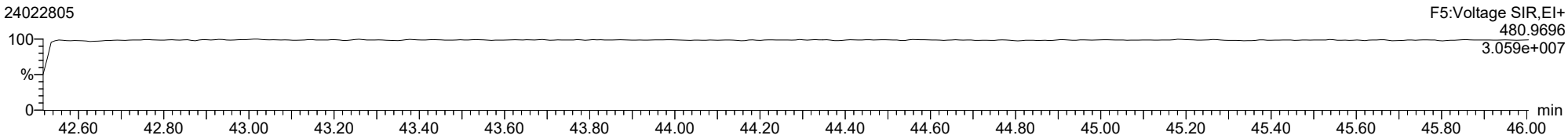
13C-OCDD



13C-OCDD



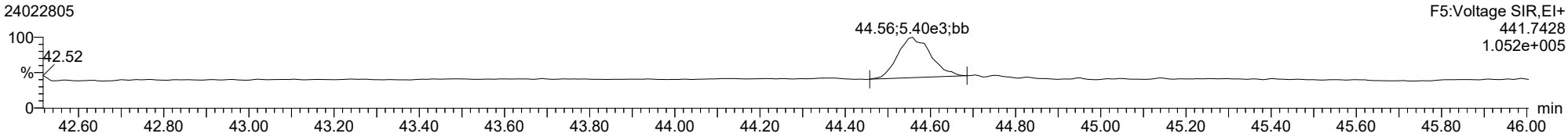
FUNCTION5 PFK



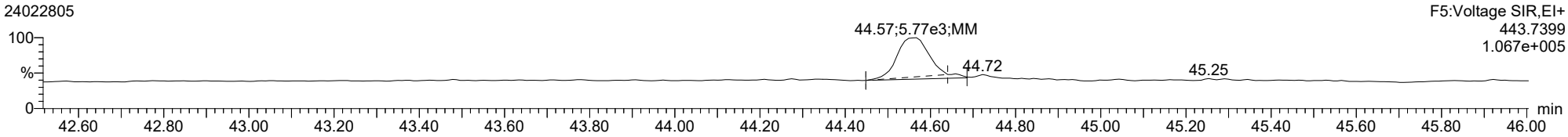
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Last Altered: Thursday, February 29, 2024 08:17:31 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:25:09 Pacific Standard Time

ID: CS1CY, Name: 24022805, Date: 28-Feb-2024, Time: 15:26:28, Conditions: AUTOSPEC01, User: pk

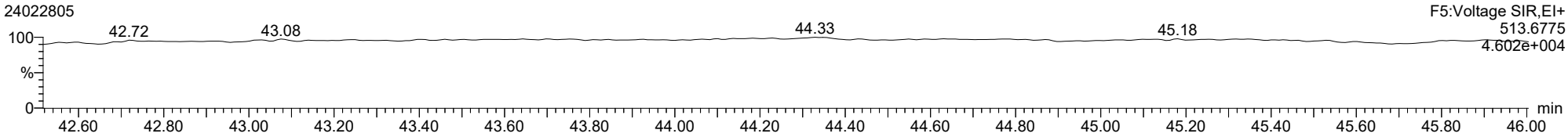
OCDF



OCDF



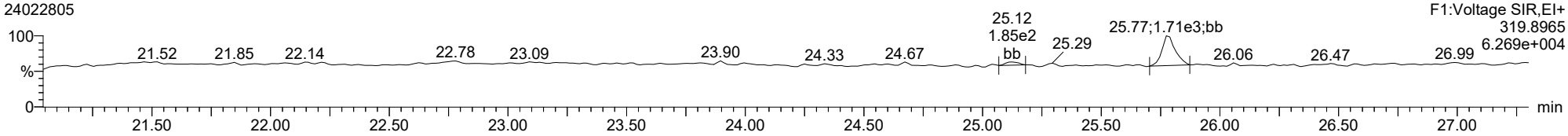
FUNCTION5 DCDPE



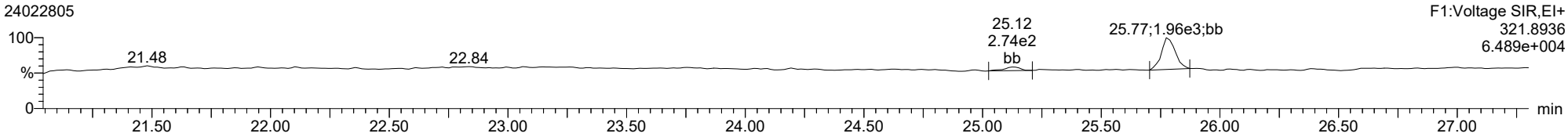
Dataset: T:\Autospec\Processed Data Batch\240228ICIH.qld
Last Altered: Thursday, February 29, 2024 08:17:31 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:25:09 Pacific Standard Time

ID: CS1CY, Name: 24022805, Date: 28-Feb-2024, Time: 15:26:28, Conditions: AUTOSPEC01, User: pk

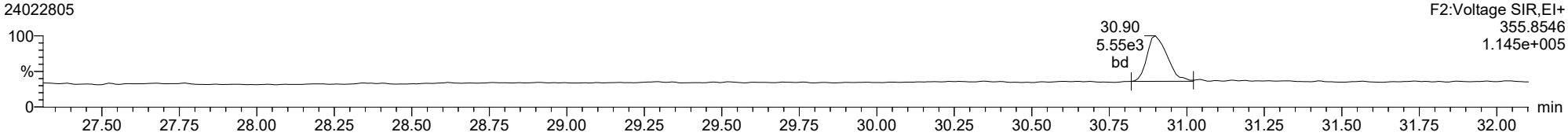
Total-tetradioxins



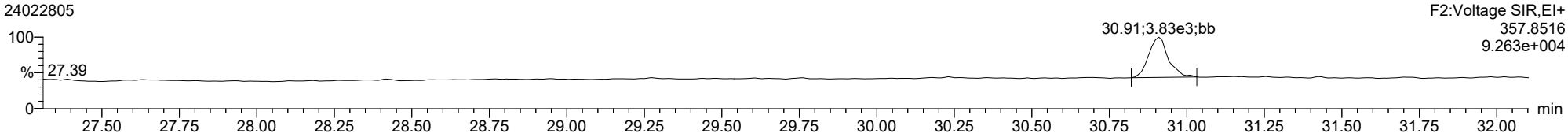
Total-tetradioxins



Total-pentadioxins

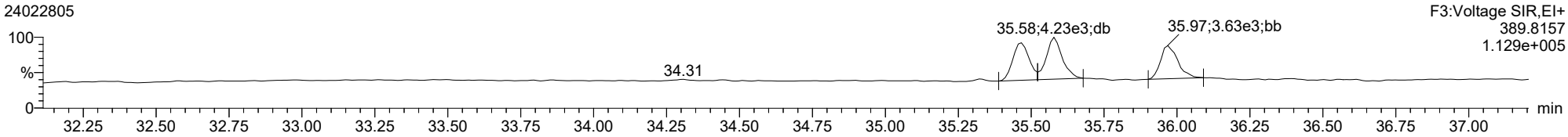


Total-pentadioxins

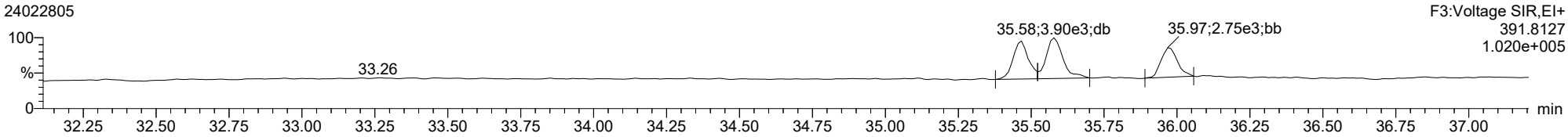


ID: CS1CY, Name: 24022805, Date: 28-Feb-2024, Time: 15:26:28, Conditions: AUTOSPEC01, User: pk

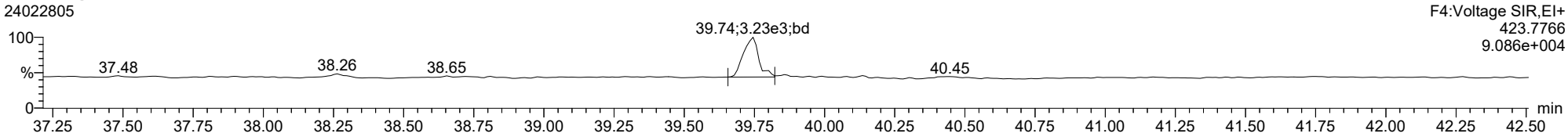
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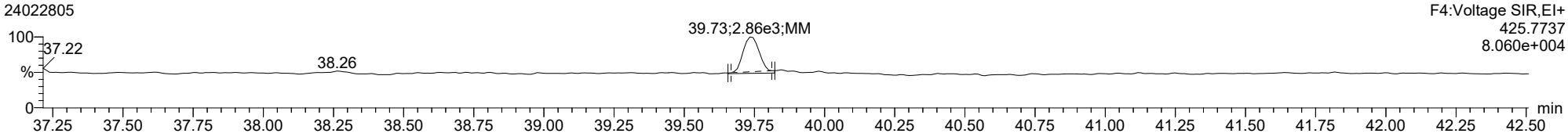
Total-hexadioxins



Total-heptadioxins

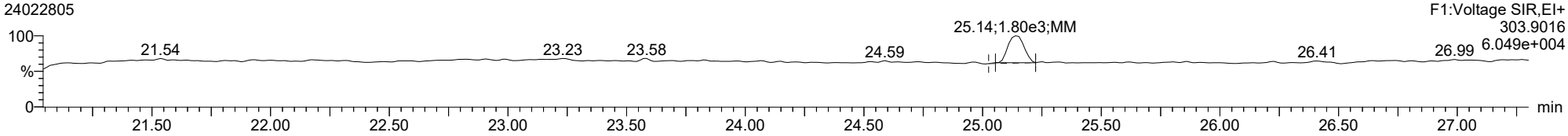


Total-heptadioxins

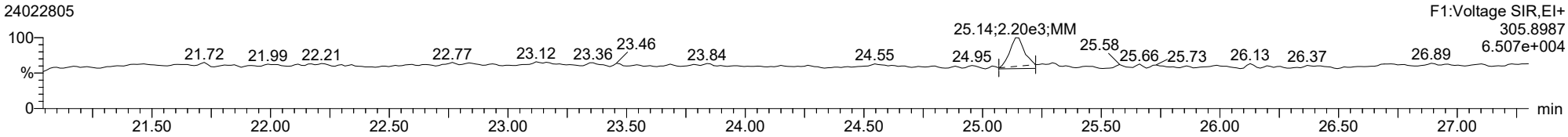


ID: CS1CY, Name: 24022805, Date: 28-Feb-2024, Time: 15:26:28, Conditions: AUTOSPEC01, User: pk

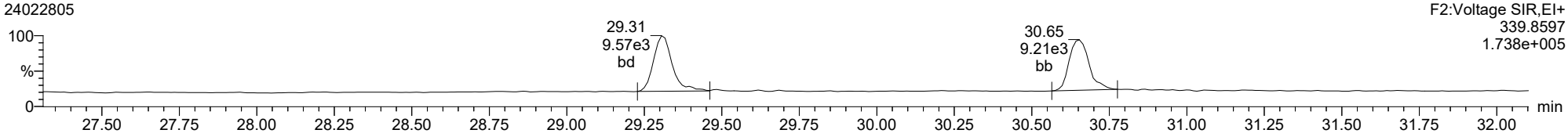
Total-tetrafurans



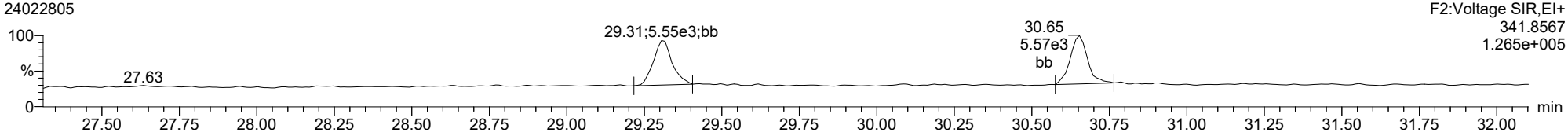
Total-tetrafurans



Total-pentafurans

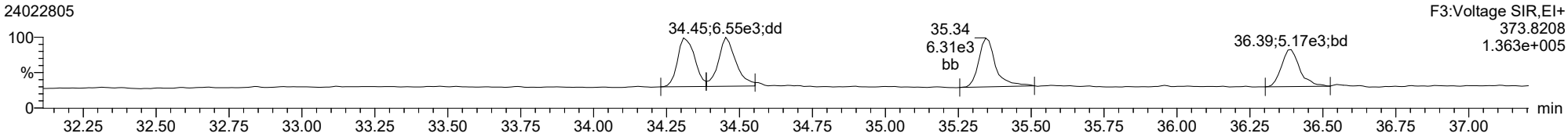


Total-pentafurans

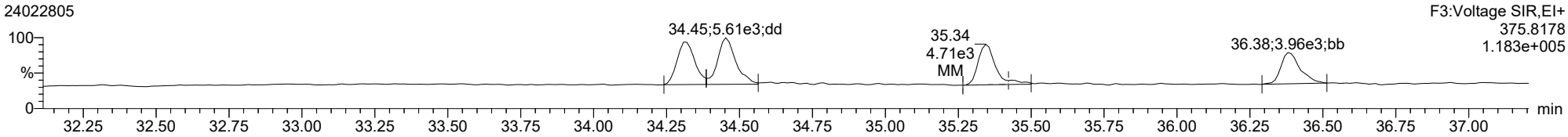


ID: CS1CY, Name: 24022805, Date: 28-Feb-2024, Time: 15:26:28, Conditions: AUTOSPEC01, User: pk

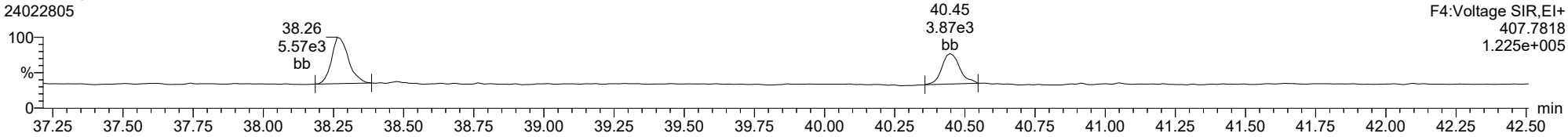
Total-hexafurans



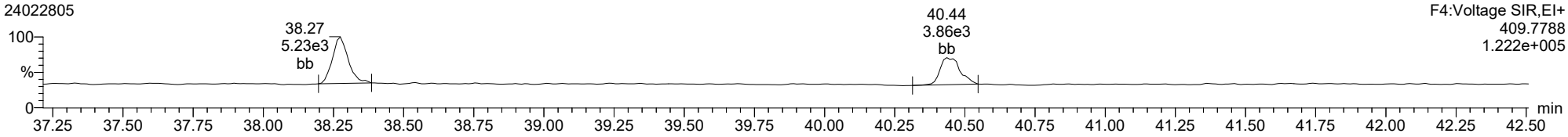
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\240228ICIH.qld
Last Altered: Thursday, February 29, 2024 08:17:31 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:25:25 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240228.mdb 29 Feb 2024 08:04:37
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

ID: CS2CY, Name: 24022806, Date: 28-Feb-2024, Time: 16:14:25, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.124	1.001	7.573e3	9.362e3	0.980	0.809	0.770	801	1718	1.11e5	1.49e5	139.1	86.6	NO	bb	dd	2.094
12378-PeCDF	29.286	1.000	3.744e4	2.443e4	1.047	1.533	1.550	2210	1387	5.29e5	3.56e5	239.5	256.3	NO	bd	bd	10.507
23478-PeCDF	30.634	1.001	3.662e4	2.425e4	1.156	1.510	1.550	2210	1387	5.32e5	3.32e5	240.6	239.0	NO	bb	bd	9.955
123478-HxCDF	34.299	1.000	2.590e4	2.068e4	1.224	1.253	1.240	1434	1194	3.86e5	2.97e5	269.5	249.0	NO	bd	bd	10.191
234678-HxCDF	35.335	1.001	2.646e4	2.118e4	1.235	1.249	1.240	1434	1194	3.76e5	2.80e5	262.0	234.6	NO	bd	bd	10.504
123678-HxCDF	34.444	1.001	3.037e4	2.442e4	1.193	1.244	1.240	1434	1194	4.07e5	3.15e5	284.1	264.1	NO	dd	db	11.109
123789-HxCDF	36.371	1.000	2.038e4	1.627e4	1.100	1.253	1.240	1434	1194	2.75e5	2.18e5	191.9	183.0	NO	bb	bd	10.200
1234678-HpCDF	38.265	1.000	2.289e4	2.013e4	1.392	1.137	1.050	1455	1134	3.57e5	3.12e5	245.1	275.4	NO	bd	bd	9.862
1234789-HpCDF	40.438	1.000	1.723e4	1.574e4	1.381	1.095	1.050	1455	1134	2.18e5	2.03e5	149.6	178.9	NO	bd	bd	10.580
OCDF	44.551	1.005	2.459e4	2.490e4	1.222	0.988	0.890	1079	1212	2.95e5	2.93e5	273.7	242.0	NO	bd	bb	20.055
2378-TCDD	25.760	1.001	5.911e3	7.955e3	1.227	0.743	0.770	969	678	8.55e4	1.15e5	88.2	169.7	NO	bd	bd	2.107
12378-PeCDD	30.890	1.001	2.050e4	1.358e4	0.964	1.509	1.550	891	728	2.86e5	1.99e5	321.3	274.1	NO	bd	bb	9.942
123478-HxCDD	35.446	1.000	1.494e4	1.189e4	0.841	1.257	1.240	822	1183	2.20e5	1.77e5	268.2	149.6	NO	bd	bd	10.104
123678-HxCDD	35.569	1.001	1.607e4	1.328e4	0.833	1.210	1.240	822	1183	2.20e5	1.81e5	268.1	153.3	NO	db	dd	9.996
123789-HxCDD	35.959	1.012	1.538e4	1.172e4	0.770	1.313	1.240	822	1183	2.05e5	1.61e5	249.0	135.9	NO	bd	bb	10.524
1234678-HpCDD	39.725	1.000	1.106e4	1.157e4	0.984	0.956	1.050	992	909	1.56e5	1.63e5	157.4	179.4	NO	bb	bd	9.703
OCDD	44.331	1.000	1.803e4	1.971e4	0.938	0.914	0.890	964	1026	2.07e5	2.24e5	214.4	218.1	NO	bd	bb	19.935
13C-2378-TCDF	25.110	1.007	3.487e5	4.765e5	1.655	0.732	0.770	1840	1650	5.18e6	6.99e6	2816.8	4234.8	NO	bb	bb	98.451
13C-12378-PeCDF	29.275	1.174	3.459e5	2.165e5	1.196	1.598	1.550	5851	2847	4.84e6	3.08e6	826.6	1081.2	NO	bb	bb	92.869
13C-23478-PeCDF	30.611	1.228	3.254e5	2.037e5	1.117	1.597	1.550	5851	2847	4.73e6	2.93e6	807.7	1029.2	NO	bb	bb	93.536
13C-123478-HxCDF	34.288	0.954	1.288e5	2.447e5	1.028	0.526	0.510	2433	2468	1.93e6	3.63e6	791.6	1471.9	NO	bd	bd	107.670
13C-123678-HxCDF	34.422	0.957	1.442e5	2.691e5	1.176	0.536	0.510	2433	2468	1.98e6	3.67e6	815.0	1486.8	NO	db	db	104.211
13C-234678-HxCDF	35.313	0.982	1.248e5	2.426e5	1.016	0.515	0.510	2433	2468	1.83e6	3.55e6	751.8	1439.7	NO	bb	bb	107.180
13C-123789-HxCDF	36.360	1.012	1.066e5	2.202e5	0.879	0.484	0.510	2433	2468	1.45e6	2.84e6	597.4	1152.0	NO	bb	bb	110.152
13C-1234678-HpCDF	38.254	1.064	9.818e4	2.151e5	0.870	0.456	0.440	2084	2244	1.51e6	3.26e6	725.2	1453.3	NO	bb	bb	106.732
13C-1234789-HpCDF	40.426	1.125	7.211e4	1.536e5	0.638	0.469	0.440	2084	2244	9.91e5	2.04e6	475.7	907.6	NO	MM	MM	104.926
13C-1234-TCDD	24.927	0.000	2.244e5	2.820e5	1.000	0.796	0.770	1747	1573	3.49e6	4.35e6	1999.6	2764.3	NO	bb	bb	100.000
13C-2378-TCDD	25.746	1.033	2.376e5	2.988e5	1.151	0.795	0.770	1747	1573	3.54e6	4.37e6	2024.8	2778.3	NO	bb	bb	92.040
13C-12378-PeCDD	30.868	1.238	2.182e5	1.372e5	0.828	1.591	1.550	1086	1136	3.08e6	1.92e6	2838.3	1687.0	NO	bb	bb	84.725
13C-123478-HxCDD	35.436	0.986	1.730e5	1.429e5	0.950	1.211	1.240	1826	1616	2.66e6	2.16e6	1457.0	1334.7	NO	bd	bd	98.602
13C-123678-HxCDD	35.547	0.989	1.843e5	1.682e5	1.107	1.096	1.240	1826	1616	2.55e6	2.15e6	1398.8	1329.4	NO	db	db	94.406
13C-1234678-HpCDD	39.714	1.105	1.192e5	1.177e5	0.737	1.013	1.050	2222	2017	1.66e6	1.50e6	747.4	744.4	NO	bd	bd	95.253
13C-OCDD	44.322	1.233	1.898e5	2.140e5	0.633	0.887	0.890	2706	3199	2.03e6	2.27e6	752.0	709.0	NO	bd	bd	189.210
13C-123789-HxCDD	35.948	0.000	1.863e5	1.511e5	1.000	1.233	1.240	1826	1616	2.65e6	2.13e6	1449.6	1315.2	NO	bb	bb	100.000
37CL-2378-TCDD	25.760	1.033	1.233e4		1.312			1241		1.73e5		139.5			bb		1.855

Dataset: T:\Autospec\Processed Data Batch\240228ICIH.qld
Last Altered: Thursday, February 29, 2024 08:17:31 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:25:25 Pacific Standard Time

ID: CS2CY, Name: 24022806, Date: 28-Feb-2024, Time: 16:14:25, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.247		0.770	801	1718								
1289-TCDF					0.916		0.770	801	1718								
13468-PECDF					1.353		1.550	596	825								
12389-PECDF					0.925		1.550	2210	1387								
123468-HXCDF					1.335		1.240	1434	1194								
1368-TCDD					1.120		0.770	969	678								
1289-TCDD					0.966		0.770	969	678								
12479-PECDD					1.859		1.550	891	728								
12389-PECDD					1.154		1.550	891	728								
124679-HXCDD					1.006		1.240	822	1183								
1234679-HPCDD					1.184		1.050	992	909								
Total-tetrafurans			7.573e3		1.048			801		1.11e5							2.094
Total-penta1			0.000e0					596		0.00e0							
Total-pentafurans			7.407e4		1.043			2210		1.06e6							20.462
Total-hexafurans			1.031e5		1.217			1434		1.44e6							42.004
Total-heptafurans			4.012e4		1.387			1455		5.74e5							20.442
Total-Furans			2.495e5		1.180			801		3.49e6							105.057
Total-tetradioxins			6.084e3		1.104			969		8.90e4							2.171
Total-pentadioxins			2.050e4		1.326			891		2.86e5							9.942
Total-hexadioxins			4.639e4		0.863			822		6.45e5							30.624
Total-heptadioxins			1.106e4		1.084			992		1.56e5							9.703
Total-Dioxins			1.021e5		1.065			969		1.38e6							72.375
Total-TEQ			3.515e5					969		4.87e6							177.432
FUNCTION1 PFK			6.532e5					709414		1.62e7							
FUNCTION2 PFK			1.897e5					379354		5.86e6							0.000
FUNCTION3 PFK			6.944e4					517240		2.18e6							0.000
FUNCTION4 PFK			1.571e7					438422		1.18e8							
FUNCTION5 PFK			7.825e6					248020		8.48e7							
FUNCTION1 HXCD...			7.360e2					574		1.07e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			7.932e2					854		1.29e4							0.000
FUNCTION3 OCDPE			0.000e0					530		0.00e0							
FUNCTION4 NCDPE			4.919e2					696		8.18e3							0.000
FUNCTION5 DCDPE			0.000e0					512		0.00e0							

Method: T:\Autospec\Methods\Dioxin240228.mdb 29 Feb 2024 08:04:37
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

ID: CS2CY, Name: 24022806, Date: 28-Feb-2024, Time: 16:14:25, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.12	7.573e3	9.362e3	0.980	0.81	0.77	139.1	YES	NO	bb	dd	2.094

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.63	3.662e4	2.425e4	1.156	1.51	1.55	240.6	YES	NO	bb	bd	9.955
2	12378-PeCDF	29.29	3.744e4	2.443e4	1.047	1.53	1.55	239.5	YES	NO	bd	bd	10.507

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.37	2.038e4	1.627e4	1.100	1.25	1.24	191.9	YES	NO	bb	bd	10.200
2	234678-HxCDF	35.34	2.646e4	2.118e4	1.235	1.25	1.24	262.0	YES	NO	bd	bd	10.504
3	123678-HxCDF	34.44	3.037e4	2.442e4	1.193	1.24	1.24	284.1	YES	NO	dd	db	11.109
4	123478-HxCDF	34.30	2.590e4	2.068e4	1.224	1.25	1.24	269.5	YES	NO	bd	bd	10.191

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.27	2.289e4	2.013e4	1.392	1.14	1.05	245.1	YES	NO	bd	bd	9.862
2	1234789-HpCDF	40.44	1.723e4	1.574e4	1.381	1.09	1.05	149.6	YES	NO	bd	bd	10.580

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.12	7.573e3	9.362e3	0.980	0.81	0.77	139.1	YES	NO	bb	dd	2.094
2	23478-PeCDF	30.63	3.662e4	2.425e4	1.156	1.51	1.55	240.6	YES	NO	bb	bd	9.955
3	12378-PeCDF	29.29	3.744e4	2.443e4	1.047	1.53	1.55	239.5	YES	NO	bd	bd	10.507
4	123789-HxCDF	36.37	2.038e4	1.627e4	1.100	1.25	1.24	191.9	YES	NO	bb	bd	10.200
5	234678-HxCDF	35.34	2.646e4	2.118e4	1.235	1.25	1.24	262.0	YES	NO	bd	bd	10.504
6	123678-HxCDF	34.44	3.037e4	2.442e4	1.193	1.24	1.24	284.1	YES	NO	dd	db	11.109
7	123478-HxCDF	34.30	2.590e4	2.068e4	1.224	1.25	1.24	269.5	YES	NO	bd	bd	10.191
8	1234678-HpCDF	38.27	2.289e4	2.013e4	1.392	1.14	1.05	245.1	YES	NO	bd	bd	9.862
9	1234789-HpCDF	40.44	1.723e4	1.574e4	1.381	1.09	1.05	149.6	YES	NO	bd	bd	10.580
10	OCDF	44.55	2.459e4	2.490e4	1.222	0.99	0.89	273.7	YES	NO	bd	bb	20.055

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.93	1.725e2	2.047e2	1.104	0.84	0.77	3.6	YES	NO	db	db	0.064
2	2378-TCDD	25.76	5.911e3	7.955e3	1.227	0.74	0.77	88.2	YES	NO	bd	bd	2.107

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.89	2.050e4	1.358e4	0.964	1.51	1.55	321.3	YES	NO	bd	bb	9.942

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.96	1.538e4	1.172e4	0.770	1.31	1.24	249.0	YES	NO	bd	bb	10.524
2	123678-HxCDD	35.57	1.607e4	1.328e4	0.833	1.21	1.24	268.1	YES	NO	db	dd	9.996
3	123478-HxCDD	35.45	1.494e4	1.189e4	0.841	1.26	1.24	268.2	YES	NO	bd	bd	10.104

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.72	1.106e4	1.157e4	0.984	0.96	1.05	157.4	YES	NO	bb	bd	9.703

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.89	2.050e4	1.358e4	0.964	1.51	1.55	321.3	YES	NO	bd	bb	9.942
2	Total-tetradioxins	25.93	1.725e2	2.047e2	1.104	0.84	0.77	3.6	YES	NO	db	db	0.064
3	2378-TCDD	25.76	5.911e3	7.955e3	1.227	0.74	0.77	88.2	YES	NO	bd	bd	2.107
4	123789-HxCDD	35.96	1.538e4	1.172e4	0.770	1.31	1.24	249.0	YES	NO	bd	bb	10.524
5	123678-HxCDD	35.57	1.607e4	1.328e4	0.833	1.21	1.24	268.1	YES	NO	db	dd	9.996
6	123478-HxCDD	35.45	1.494e4	1.189e4	0.841	1.26	1.24	268.2	YES	NO	bd	bd	10.104
7	1234678-HpCDD	39.72	1.106e4	1.157e4	0.984	0.96	1.05	157.4	YES	NO	bb	bd	9.703
8	OCDD	44.33	1.803e4	1.971e4	0.938	0.91	0.89	214.4	YES	NO	bd	bb	19.935

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.12	7.573e3	9.362e3	0.980	0.81	0.77	139.1	YES	NO	bb	dd	2.094
2	23478-PeCDF	30.63	3.662e4	2.425e4	1.156	1.51	1.55	240.6	YES	NO	bb	bd	9.955
3	12378-PeCDF	29.29	3.744e4	2.443e4	1.047	1.53	1.55	239.5	YES	NO	bd	bd	10.507
4	123789-HxCDF	36.37	2.038e4	1.627e4	1.100	1.25	1.24	191.9	YES	NO	bb	bd	10.200
5	234678-HxCDF	35.34	2.646e4	2.118e4	1.235	1.25	1.24	262.0	YES	NO	bd	bd	10.504
6	123678-HxCDF	34.44	3.037e4	2.442e4	1.193	1.24	1.24	284.1	YES	NO	dd	db	11.109
7	123478-HxCDF	34.30	2.590e4	2.068e4	1.224	1.25	1.24	269.5	YES	NO	bd	bd	10.191
8	1234678-HpCDF	38.27	2.289e4	2.013e4	1.392	1.14	1.05	245.1	YES	NO	bd	bd	9.862
9	1234789-HpCDF	40.44	1.723e4	1.574e4	1.381	1.09	1.05	149.6	YES	NO	bd	bd	10.580
10	OCDF	44.55	2.459e4	2.490e4	1.222	0.99	0.89	273.7	YES	NO	bd	bb	20.055
11	12378-PeCDD	30.89	2.050e4	1.358e4	0.964	1.51	1.55	321.3	YES	NO	bd	bb	9.942
12	Total-tetradioxins	25.93	1.725e2	2.047e2	1.104	0.84	0.77	3.6	YES	NO	db	db	0.064
13	2378-TCDD	25.76	5.911e3	7.955e3	1.227	0.74	0.77	88.2	YES	NO	bd	bd	2.107
14	123789-HxCDD	35.96	1.538e4	1.172e4	0.770	1.31	1.24	249.0	YES	NO	bd	bb	10.524
15	123678-HxCDD	35.57	1.607e4	1.328e4	0.833	1.21	1.24	268.1	YES	NO	db	dd	9.996
16	123478-HxCDD	35.45	1.494e4	1.189e4	0.841	1.26	1.24	268.2	YES	NO	bd	bd	10.104
17	1234678-HpCDD	39.72	1.106e4	1.157e4	0.984	0.96	1.05	157.4	YES	NO	bb	bd	9.703
18	OCDD	44.33	1.803e4	1.971e4	0.938	0.91	0.89	214.4	YES	NO	bd	bb	19.935

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	26.64	3.086e4					1.2	NO		dd		
2	FUNCTION1 PFK	26.59	9.435e3					0.8	NO		bd		
3	FUNCTION1 PFK	26.54	7.081e4					2.2	NO		db		
4	FUNCTION1 PFK	26.42	1.132e5					2.2	NO		bd		
5	FUNCTION1 PFK	26.28	1.885e4					0.9	NO		bb		
6	FUNCTION1 PFK	26.06	1.344e4					0.8	NO		bb		
7	FUNCTION1 PFK	25.46	2.791e4					1.1	NO		bb		
8	FUNCTION1 PFK	24.64	1.387e4					0.7	NO		bb		
9	FUNCTION1 PFK	23.80	2.304e4					0.8	NO		bb		
10	FUNCTION1 PFK	23.63	5.002e3					0.5	NO		bb		
11	FUNCTION1 PFK	22.94	5.603e3					0.6	NO		bb		
12	FUNCTION1 PFK	22.57	4.548e3					0.5	NO		bb		
13	FUNCTION1 PFK	22.48	3.713e4					1.3	NO		bb		
14	FUNCTION1 PFK	21.38	8.048e4					2.7	NO		db		
15	FUNCTION1 PFK	21.32	9.507e4					2.7	NO		bd		
16	FUNCTION1 PFK	21.24	6.778e4					1.9	NO		bb		
17	FUNCTION1 PFK	26.76	1.310e4					0.7	NO		bb		
18	FUNCTION1 PFK	26.68	2.307e4					1.2	NO		db		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	31.99	1.244e4					1.3	NO		bb		0.000
2	FUNCTION2 PFK	31.78	2.731e4					1.7	NO		bb		0.000
3	FUNCTION2 PFK	31.74	6.387e3					0.9	NO		bb		0.000
4	FUNCTION2 PFK	31.64	2.964e4					1.7	NO		bb		0.000
5	FUNCTION2 PFK	30.24	1.387e4					1.3	NO		bb		0.000
6	FUNCTION2 PFK	30.14	2.431e4					2.0	NO		bb		0.000
7	FUNCTION2 PFK	29.00	4.710e3					0.7	NO		bb		0.000
8	FUNCTION2 PFK	28.90	1.970e4					1.2	NO		bb		0.000
9	FUNCTION2 PFK	28.66	2.143e3					0.5	NO		bb		0.000
10	FUNCTION2 PFK	28.62	3.423e3					0.7	NO		db		0.000
11	FUNCTION2 PFK	28.54	3.513e4					1.9	NO		bd		0.000
12	FUNCTION2 PFK	27.46	1.068e4					1.6	NO		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	35.37	4.727e4					2.1	NO		bb		0.000
2	FUNCTION3 PFK	34.72	1.117e4					1.1	NO		bb		0.000
3	FUNCTION3 PFK	33.60	1.100e4					1.1	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	40.14	4.269e4					1.7	NO		bb		
2	FUNCTION4 PFK	39.71	2.229e3					0.5	NO		bb		
3	FUNCTION4 PFK	39.38	8.618e3					0.7	NO		bb		
4	FUNCTION4 PFK	38.86	1.969e3					0.4	NO		bb		
5	FUNCTION4 PFK	38.38	3.145e5					7.6	YES		db		
6	FUNCTION4 PFK	38.24	8.808e5					12.6	YES		dd		
7	FUNCTION4 PFK	38.03	1.355e6					22.1	YES		dd		
8	FUNCTION4 PFK	37.99	4.449e5					23.2	YES		dd		
9	FUNCTION4 PFK	37.56	6.036e6					41.9	YES		dd		
10	FUNCTION4 PFK	37.52	6.166e5					42.6	YES		dd		
11	FUNCTION4 PFK	37.45	1.964e6					45.9	YES		dd		
12	FUNCTION4 PFK	37.27	3.777e6					51.3	YES		bd		
13	FUNCTION4 PFK	42.47	8.960e3					0.8	NO		bb		
14	FUNCTION4 PFK	42.40	2.953e3					0.6	NO		bb		
15	FUNCTION4 PFK	42.35	1.102e4					1.0	NO		bb		
16	FUNCTION4 PFK	42.29	1.800e4					1.3	NO		db		
17	FUNCTION4 PFK	42.23	4.746e4					1.9	NO		dd		
18	FUNCTION4 PFK	42.14	2.012e4					1.3	NO		bd		
19	FUNCTION4 PFK	41.45	9.826e3					1.1	NO		db		
20	FUNCTION4 PFK	41.41	2.232e4					1.5	NO		bd		
21	FUNCTION4 PFK	40.99	7.948e3					0.7	NO		bb		
22	FUNCTION4 PFK	40.58	8.923e3					0.9	NO		bb		
23	FUNCTION4 PFK	40.49	2.489e4					1.5	NO		bb		
24	FUNCTION4 PFK	40.39	1.421e4					1.1	NO		db		
25	FUNCTION4 PFK	40.35	2.970e4					1.9	NO		bd		
26	FUNCTION4 PFK	40.26	3.692e4					1.8	NO		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	42.56	5.445e5					48.5	YES		bd		
2	FUNCTION5 PFK	44.94	9.834e3					1.3	NO		bd		
3	FUNCTION5 PFK	44.78	6.369e3					1.4	NO		bb		
4	FUNCTION5 PFK	44.45	4.507e3					0.9	NO		bb		
5	FUNCTION5 PFK	44.22	3.734e3					1.0	NO		db		
6	FUNCTION5 PFK	44.18	1.350e4					1.4	NO		bd		
7	FUNCTION5 PFK	43.75	8.592e3					1.3	NO		db		
8	FUNCTION5 PFK	43.71	2.411e4					3.2	YES		dd		
9	FUNCTION5 PFK	43.58	4.527e5					8.5	YES		dd		
10	FUNCTION5 PFK	43.44	8.340e4					12.9	YES		dd		
11	FUNCTION5 PFK	43.42	1.235e5					14.0	YES		dd		
12	FUNCTION5 PFK	43.22	3.538e6					23.2	YES		dd		
13	FUNCTION5 PFK	42.83	4.397e5					39.8	YES		dd		
14	FUNCTION5 PFK	42.71	1.431e6					44.2	YES		dd		
15	FUNCTION5 PFK	42.66	4.003e5					44.9	YES		dd		
16	FUNCTION5 PFK	42.62	3.091e5					46.3	YES		dd		
17	FUNCTION5 PFK	42.59	4.258e5					47.4	YES		dd		
18	FUNCTION5 PFK	45.59	2.968e3					0.8	NO		bb		
19	FUNCTION5 PFK	45.00	3.517e3					0.8	NO		db		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.72	7.055e1					2.6	NO		bb		0.000
2	FUNCTION1 HXCD...	25.56	1.055e2					3.0	YES		bb		0.000
3	FUNCTION1 HXCD...	25.00	1.185e2					3.8	YES		db		0.000
4	FUNCTION1 HXCD...	24.93	7.964e1					2.5	NO		bd		0.000
5	FUNCTION1 HXCD...	23.85	1.176e2					2.3	NO		db		0.000
6	FUNCTION1 HXCD...	23.73	8.201e1					2.1	NO		bd		0.000
7	FUNCTION1 HXCD...	22.48	1.622e2					2.3	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.56	7.252e1					1.5	NO		bb		0.000
2	FUNCTION2 HPCD...	29.75	7.876e1					2.6	NO		bb		0.000
3	FUNCTION2 HPCD...	29.26	1.740e2					3.0	YES		bb		0.000
4	FUNCTION2 HPCD...	29.04	9.079e1					1.5	NO		bb		0.000
5	FUNCTION2 HPCD...	27.71	7.769e1					1.6	NO		bb		0.000
6	FUNCTION2 HPCD...	31.00	1.812e2					2.3	NO		db		0.000
7	FUNCTION2 HPCD...	30.88	1.183e2					2.7	NO		bd		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	41.61	7.960e1					2.9	NO		bb		0.000
2	FUNCTION4 NCDPE	40.23	9.131e1					1.9	NO		bb		0.000
3	FUNCTION4 NCDPE	39.20	1.091e2					2.4	NO		bb		0.000
4	FUNCTION4 NCDPE	38.58	8.739e1					2.2	NO		bb		0.000
5	FUNCTION4 NCDPE	38.22	1.245e2					2.3	NO		bb		0.000

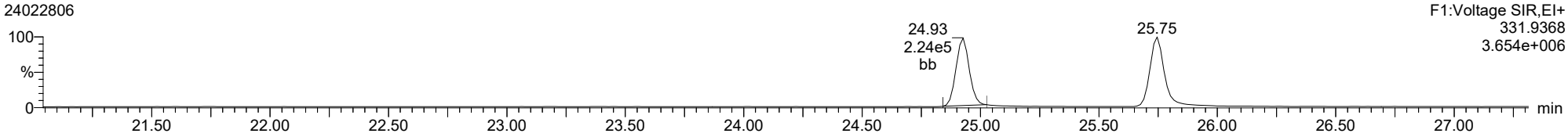
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

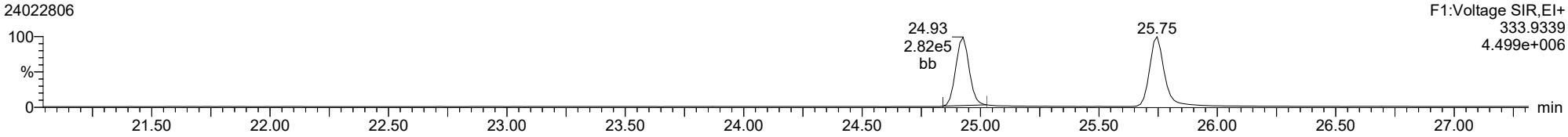
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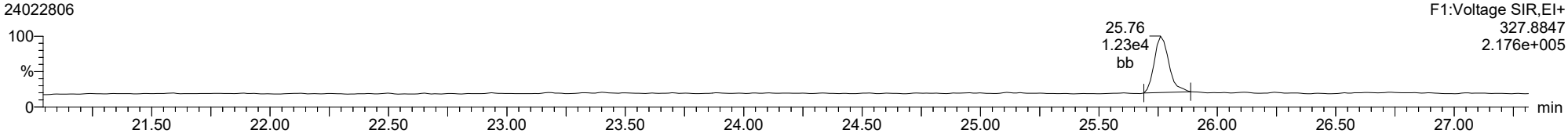
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13C-1234-TCDD

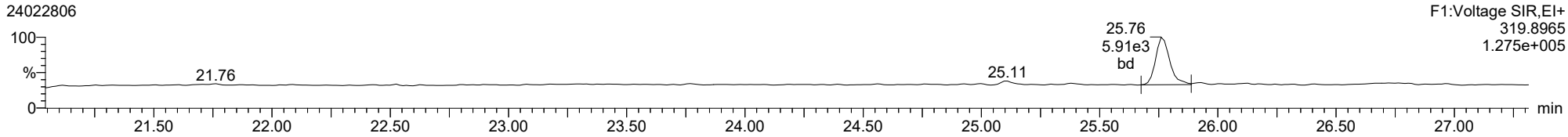


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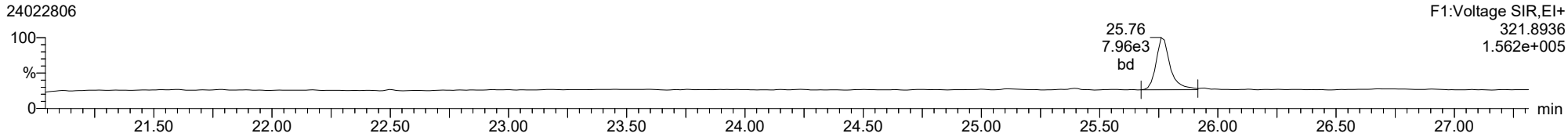


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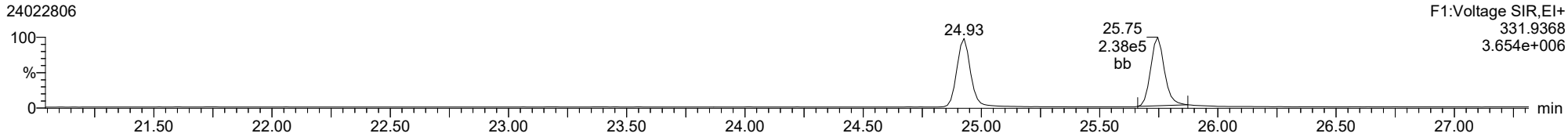
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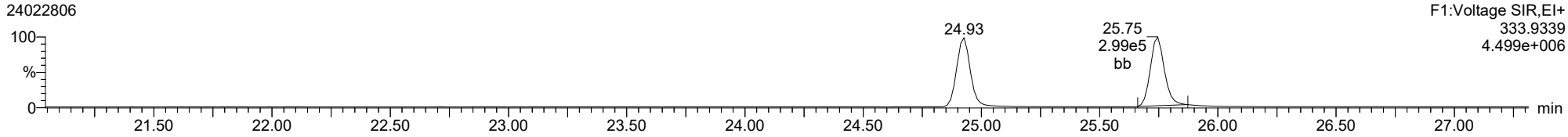
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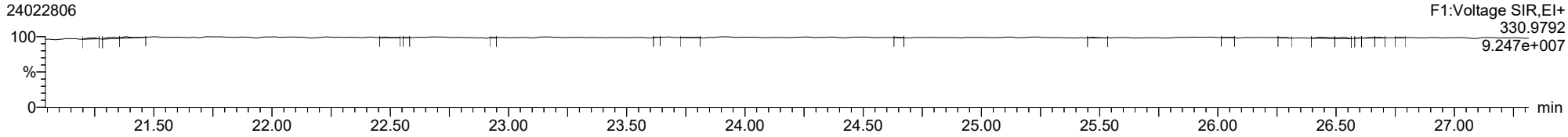
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13C-2378-TCDD

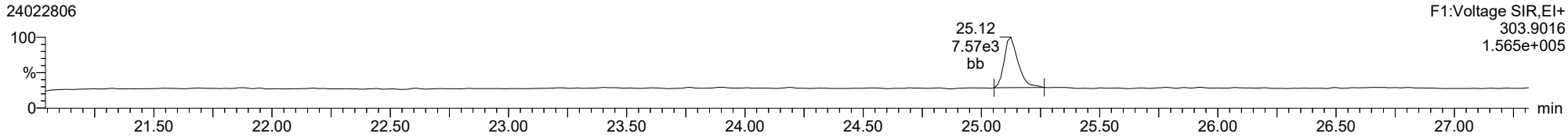


FUNCTION1 PFK

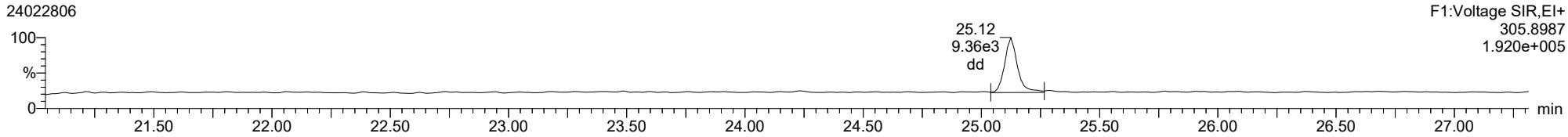


ID: CS2CY, Name: 24022806, Date: 28-Feb-2024, Time: 16:14:25, Conditions: AUTOSPEC01, User: pk

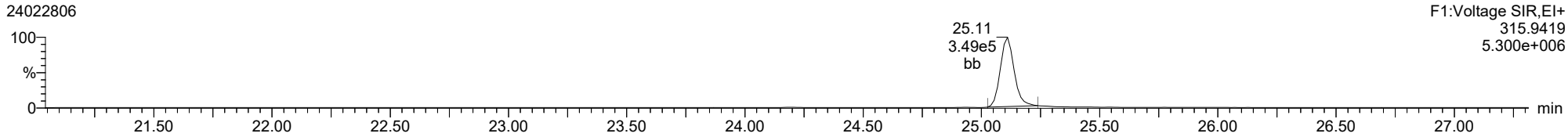
2378-TCDF



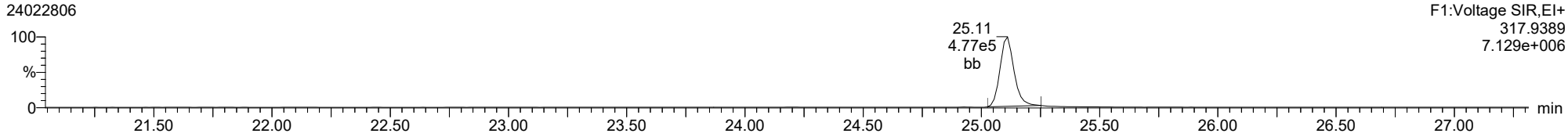
2378-TCDF



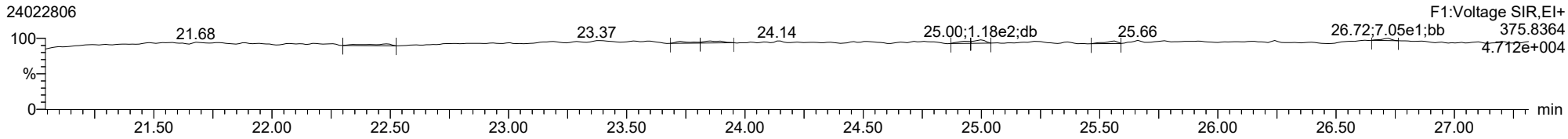
13C-2378-TCDF



13C-2378-TCDF

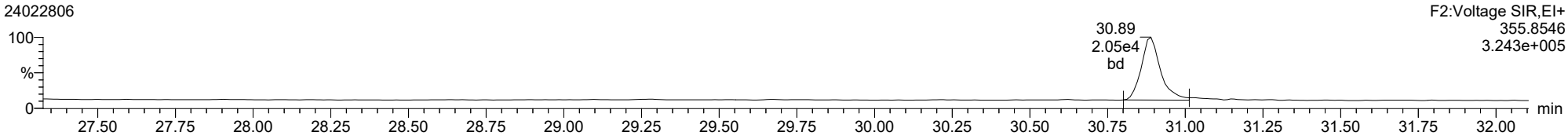


FUNCTION1 HXCDPE

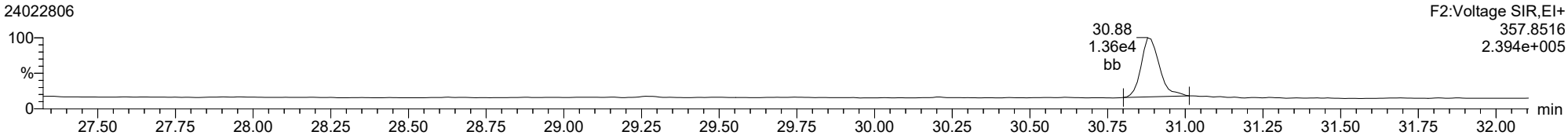


ID: CS2CY, Name: 24022806, Date: 28-Feb-2024, Time: 16:14:25, Conditions: AUTOSPEC01, User: pk

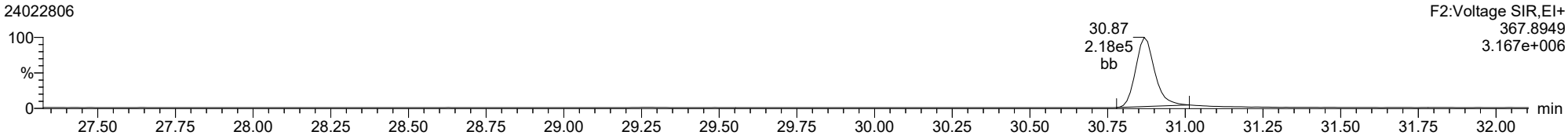
12378-PeCDD



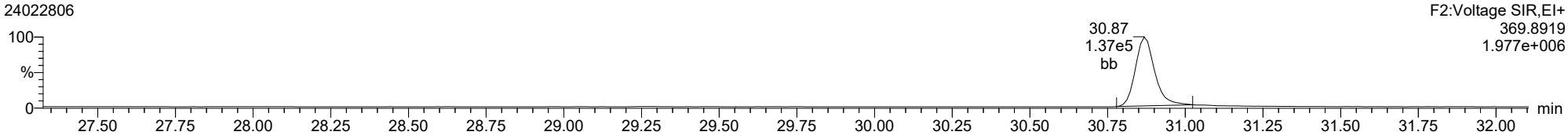
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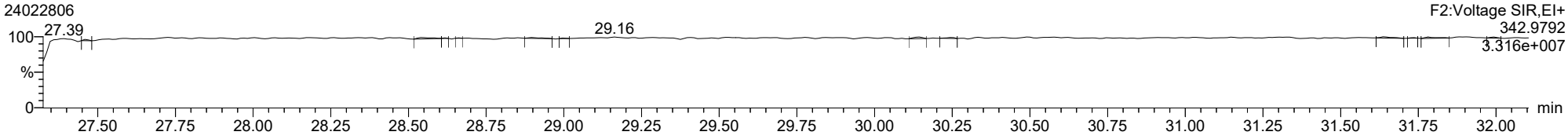
13C-12378-PeCDD



13C-12378-PeCDD

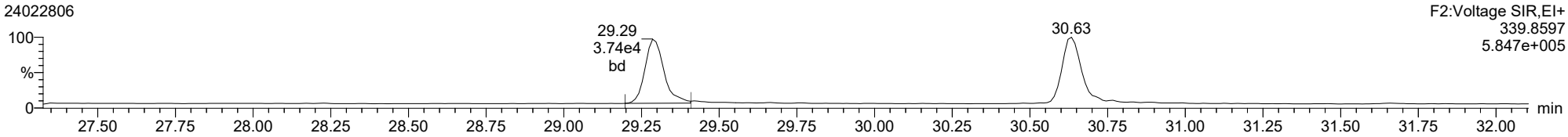


FUNCTION2 PFK

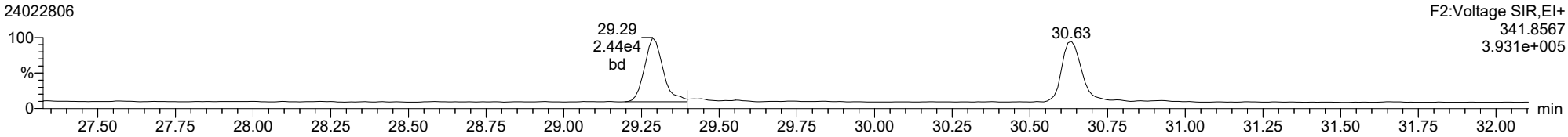


ID: CS2CY, Name: 24022806, Date: 28-Feb-2024, Time: 16:14:25, Conditions: AUTOSPEC01, User: pk

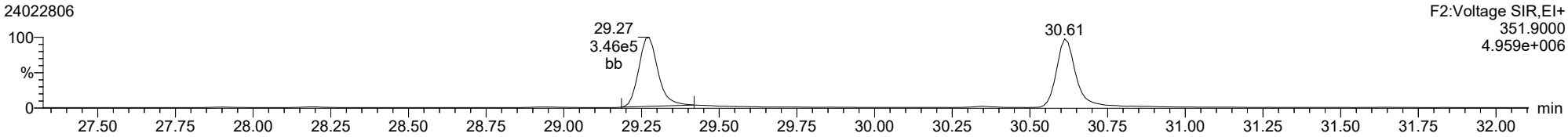
12378-PeCDF



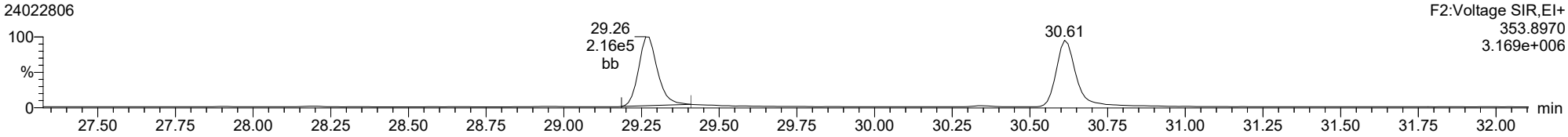
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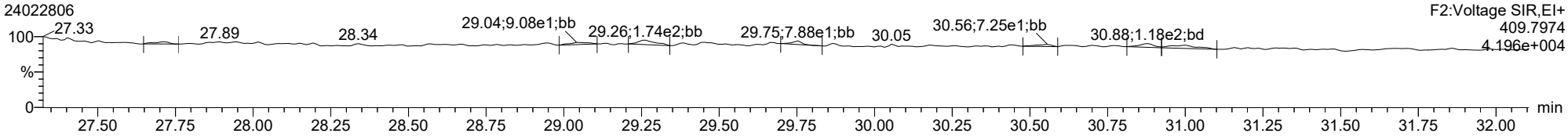
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13C-12378-PeCDF

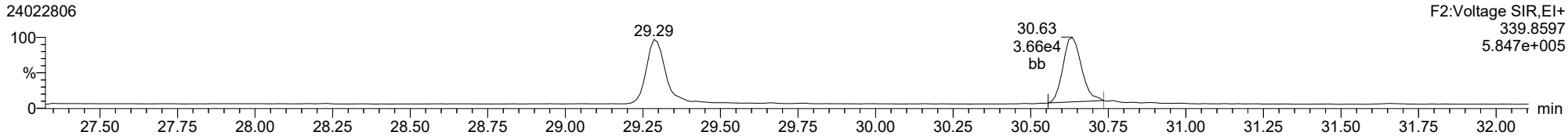


FUNCTION2 HPCDPE

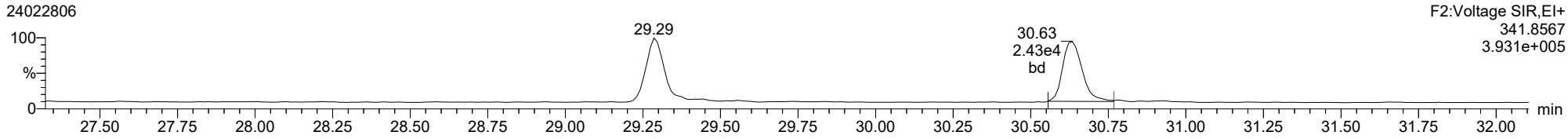


ID: CS2CY, Name: 24022806, Date: 28-Feb-2024, Time: 16:14:25, Conditions: AUTOSPEC01, User: pk

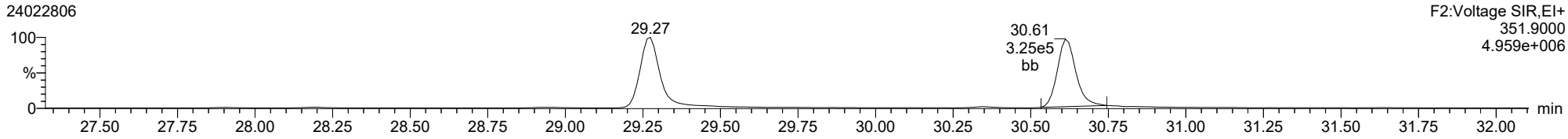
23478-PeCDF



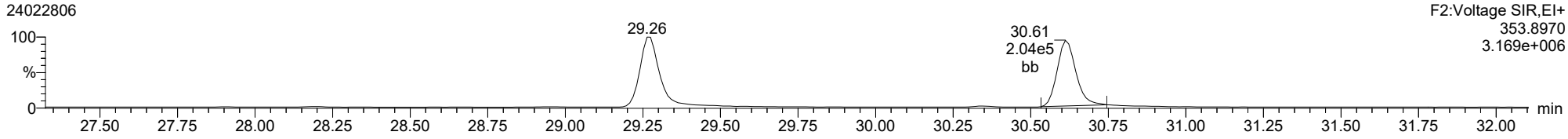
23478-PeCDF



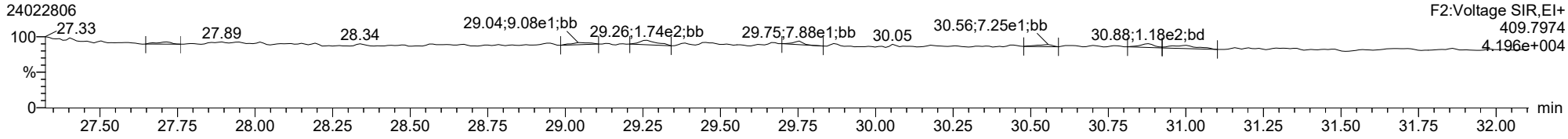
13C-23478-PeCDF



13C-23478-PeCDF

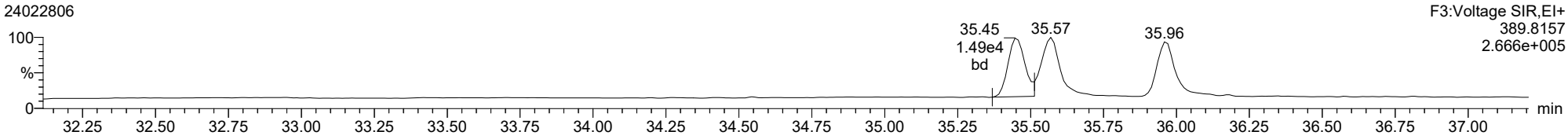


FUNCTION2 HPCDPE

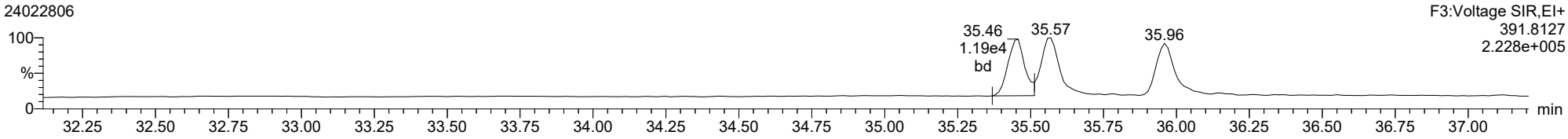


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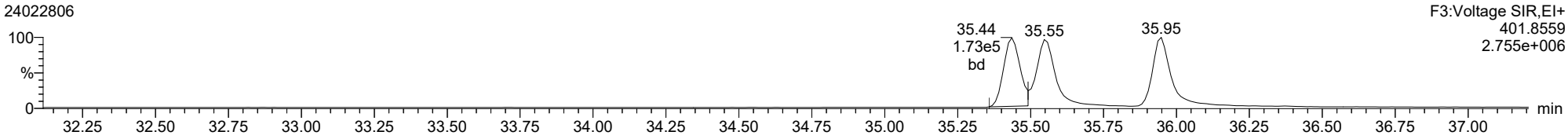
123478-HxCDD



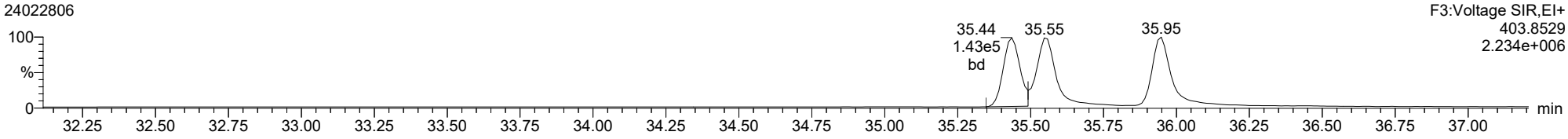
123478-HxCDD



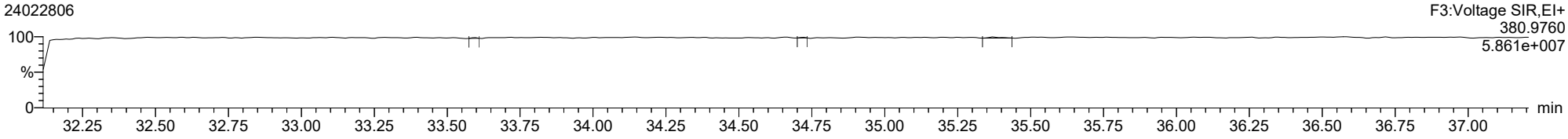
13C-123478-HxCDD



13C-123478-HxCDD



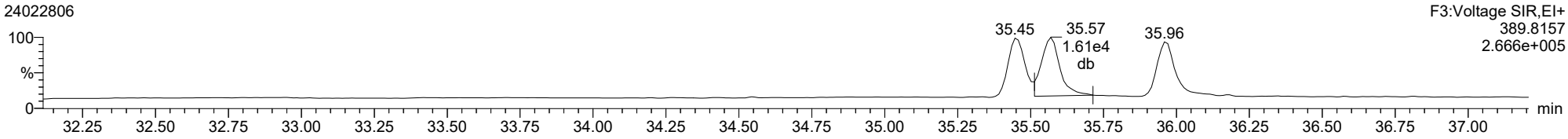
FUNCTION3 PFK



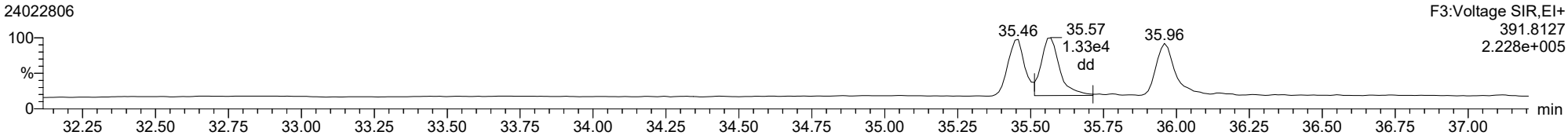
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Last Altered: Thursday, February 29, 2024 08:17:31 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:25:25 Pacific Standard Time

ID: CS2CY, Name: 24022806, Date: 28-Feb-2024, Time: 16:14:25, Conditions: AUTOSPEC01, User: pk

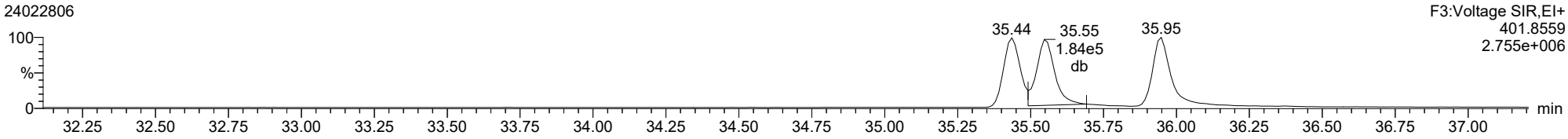
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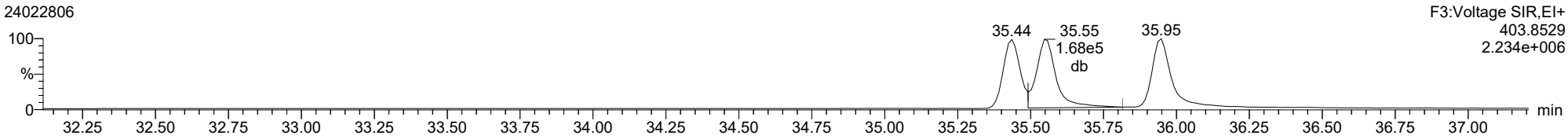
123678-HxCDD



13C-123678-HxCDD

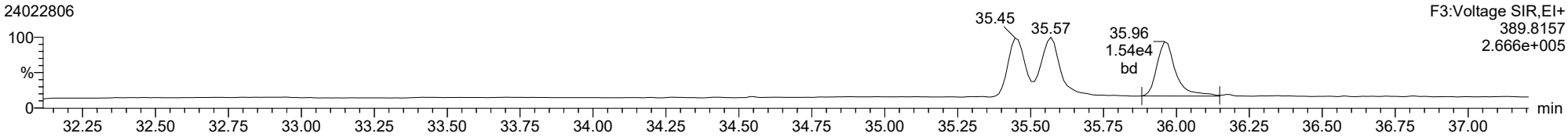


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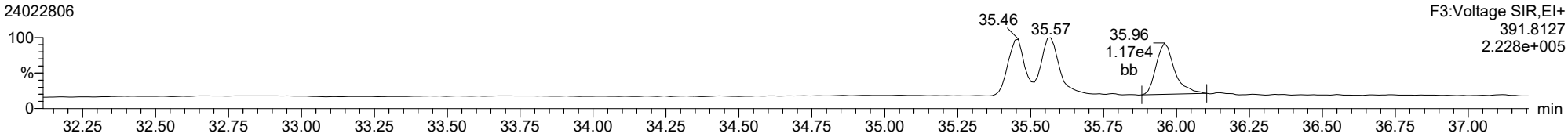


ID: CS2CY, Name: 24022806, Date: 28-Feb-2024, Time: 16:14:25, Conditions: AUTOSPEC01, User: pk

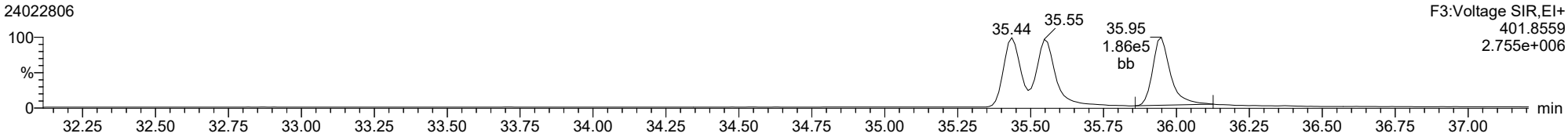
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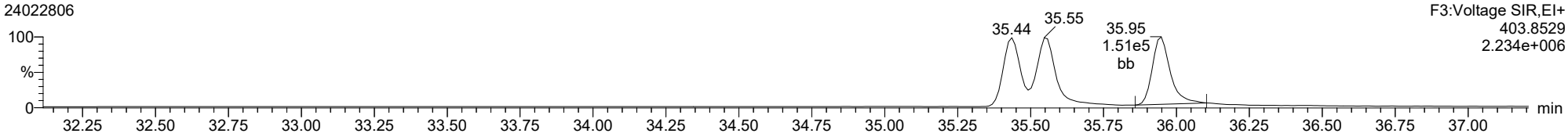
123789-HxCDD



13C-123789-HxCDD

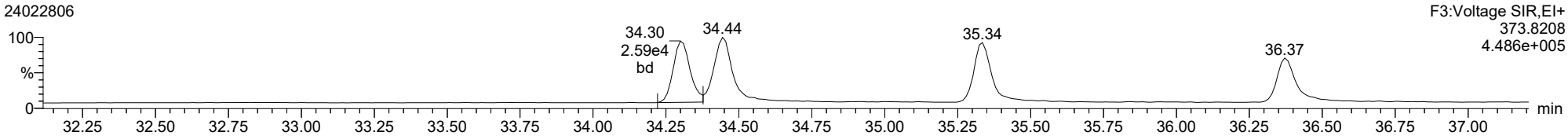


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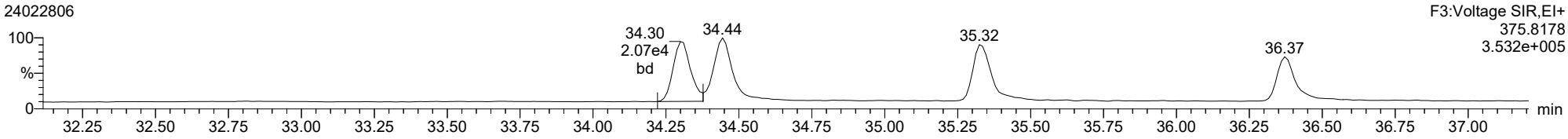


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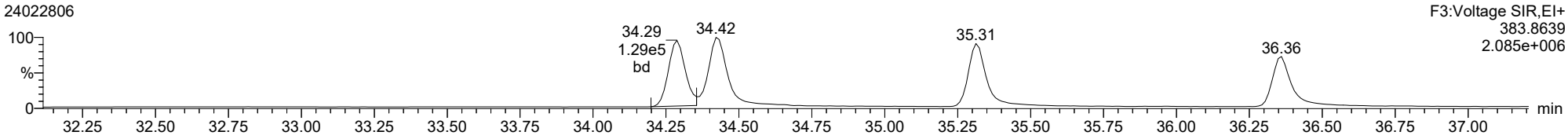
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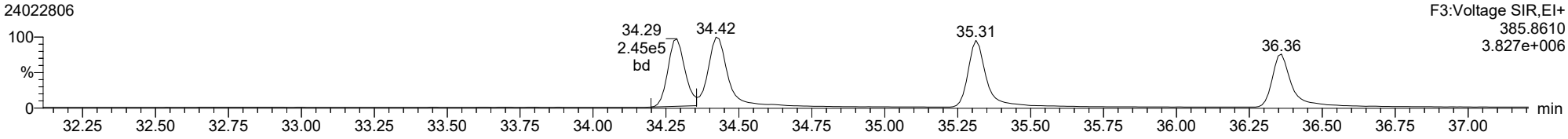
123478-HxCDF



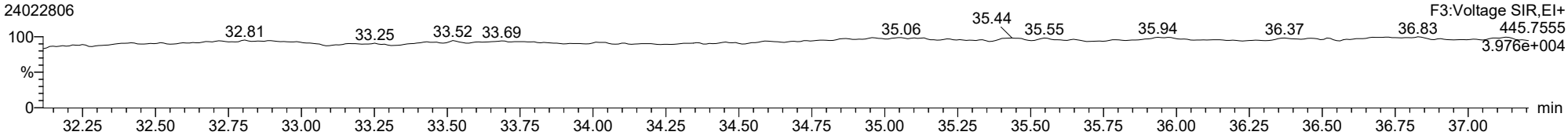
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13C-123478-HxCDF

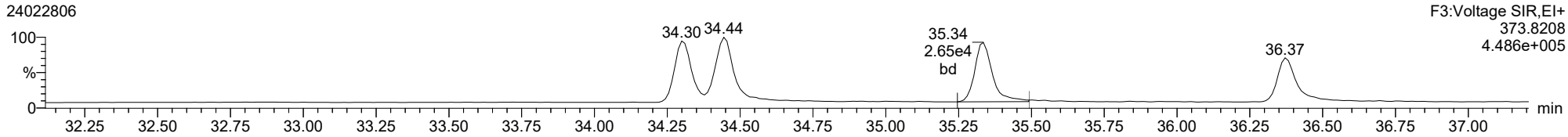


FUNCTION3 OCDPE

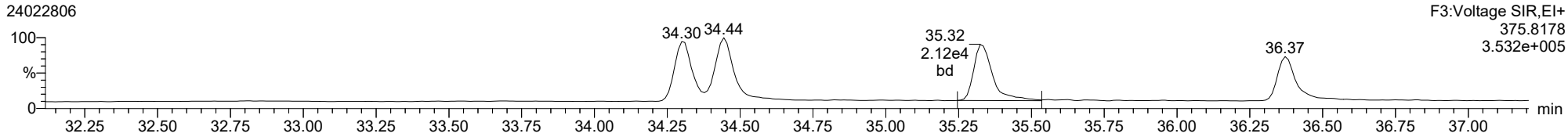


ID: CS2CY, Name: 24022806, Date: 28-Feb-2024, Time: 16:14:25, Conditions: AUTOSPEC01, User: pk

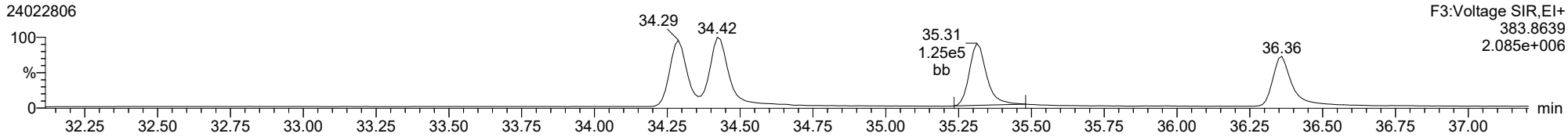
234678-HxCDF



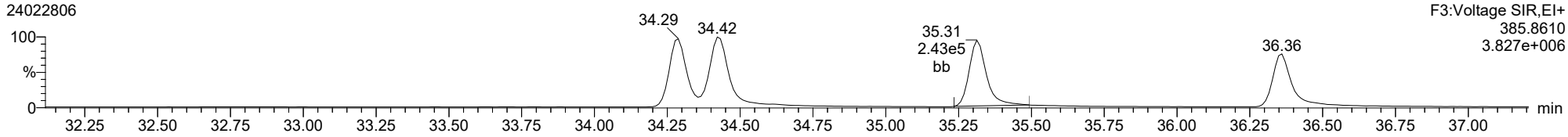
234678-HxCDF



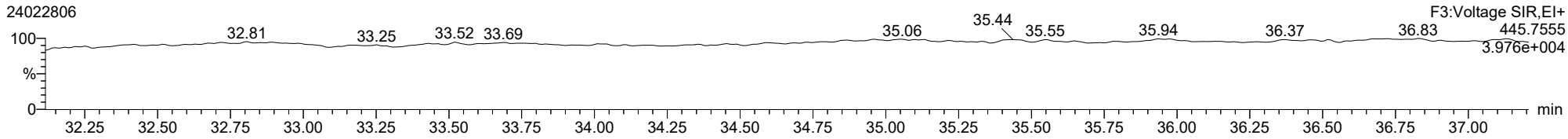
13C-234678-HxCDF



13C-234678-HxCDF

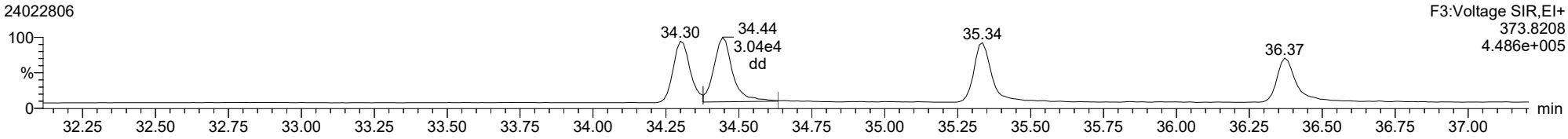


FUNCTION3 OCDPE

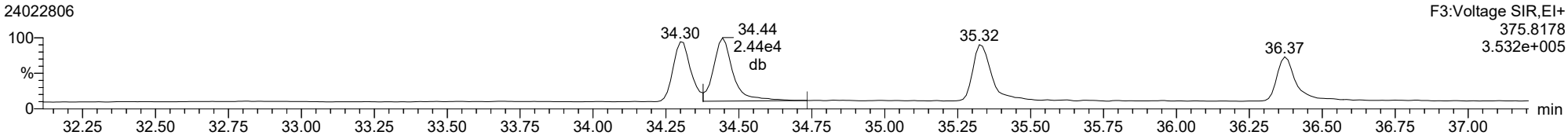


ID: CS2CY, Name: 24022806, Date: 28-Feb-2024, Time: 16:14:25, Conditions: AUTOSPEC01, User: pk

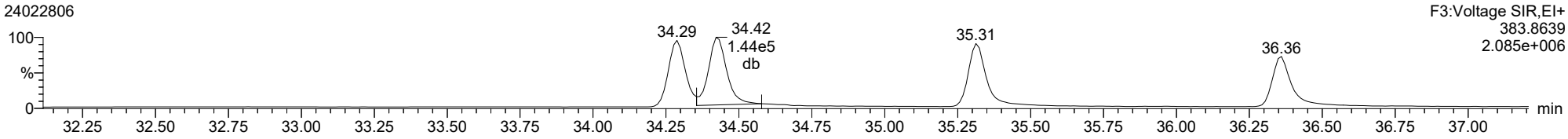
123678-HxCDF



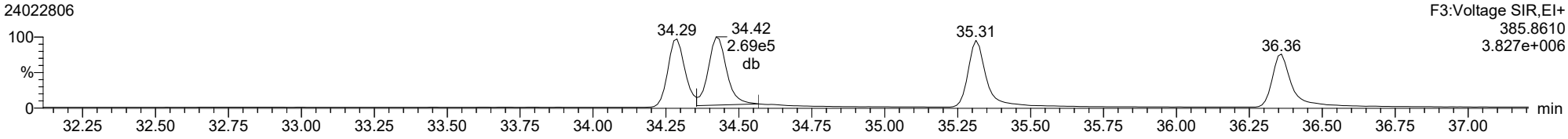
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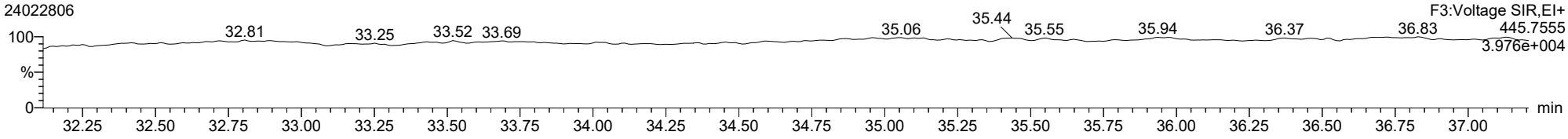
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13C-123678-HxCDF

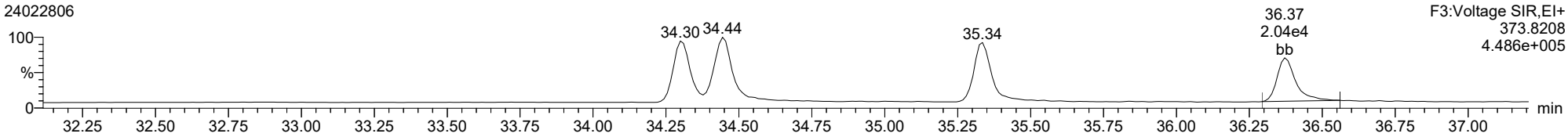


FUNCTION3 OCDPE

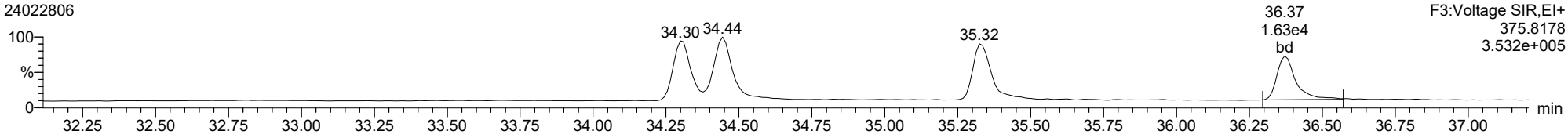


ID: CS2CY, Name: 24022806, Date: 28-Feb-2024, Time: 16:14:25, Conditions: AUTOSPEC01, User: pk

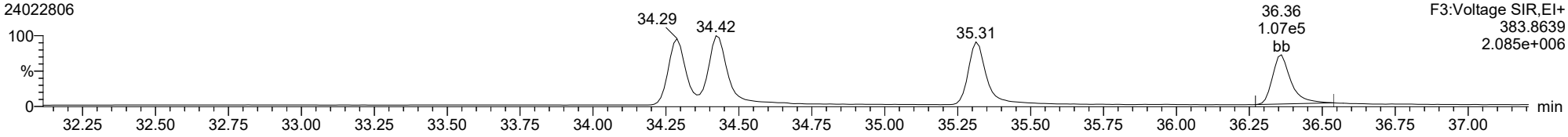
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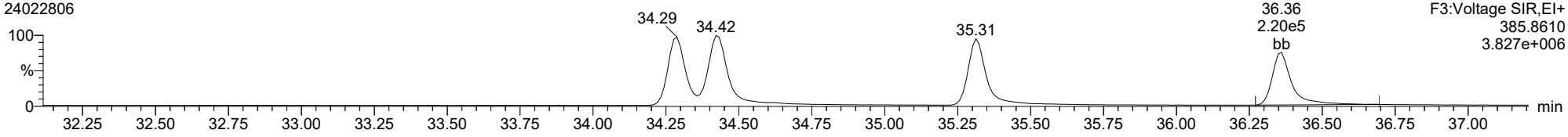
123789-HxCDF



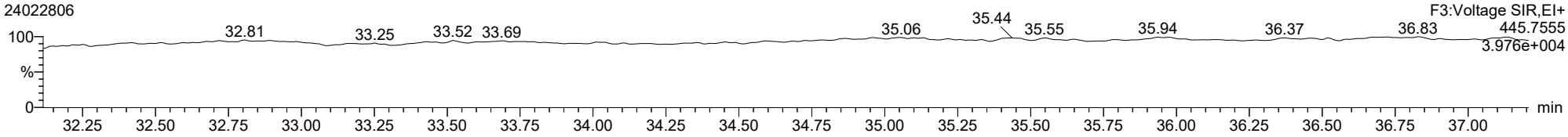
13C-123789-HxCDF



13C-123789-HxCDF

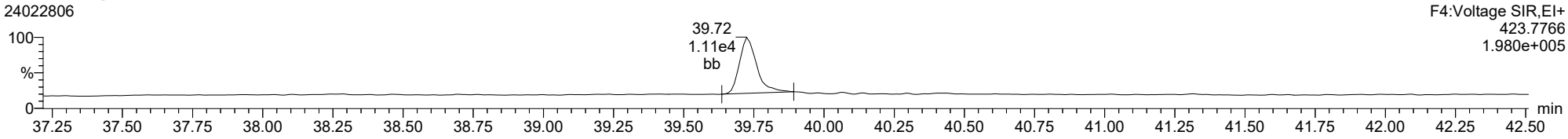


FUNCTION3 OCDPE

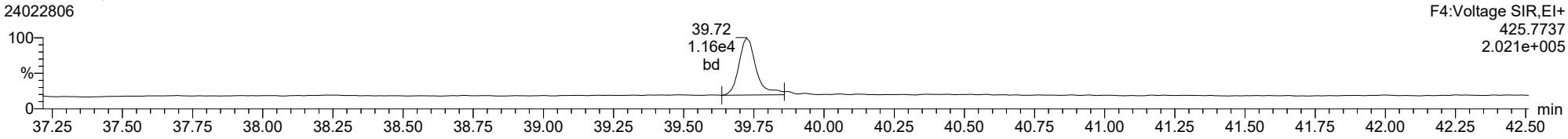


ID: CS2CY, Name: 24022806, Date: 28-Feb-2024, Time: 16:14:25, Conditions: AUTOSPEC01, User: pk

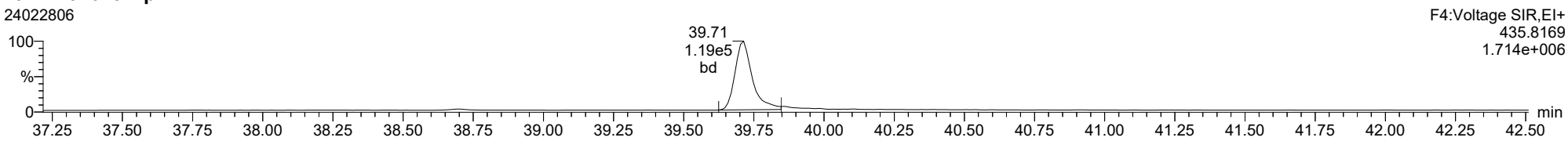
1234678-HpCDD



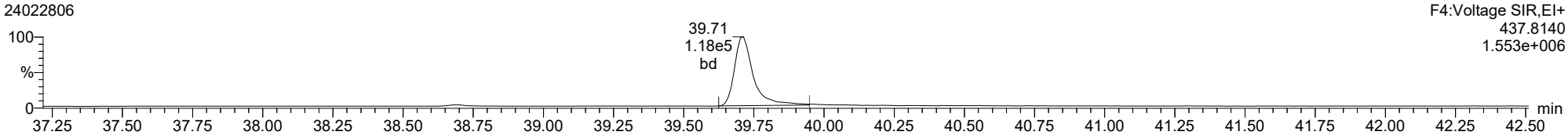
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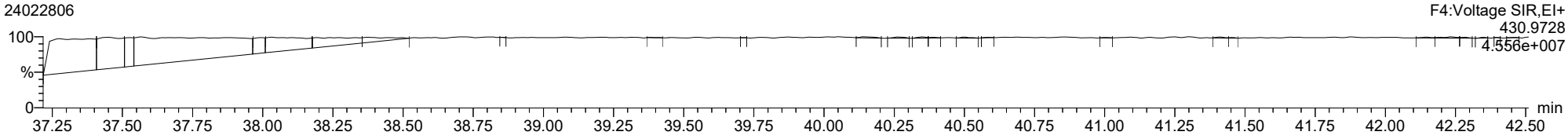
13C-1234678-HpCDD



13C-1234678-HpCDD

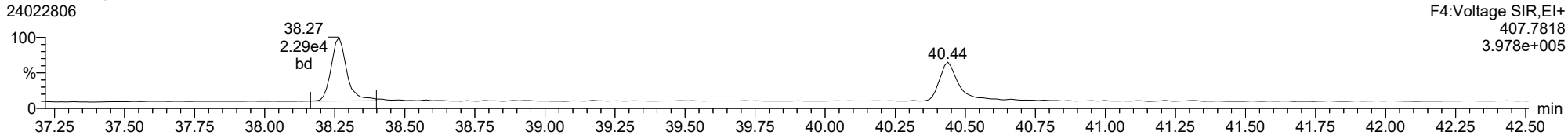


FUNCTION4 PFK

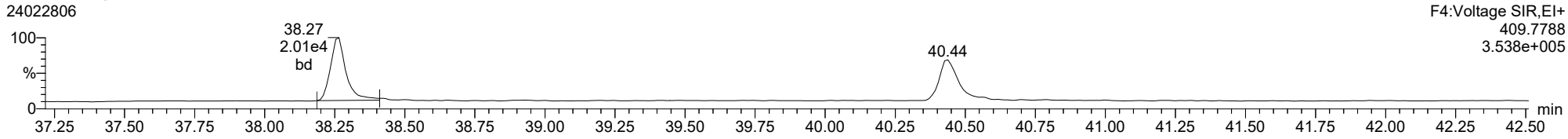


ID: CS2CY, Name: 24022806, Date: 28-Feb-2024, Time: 16:14:25, Conditions: AUTOSPEC01, User: pk

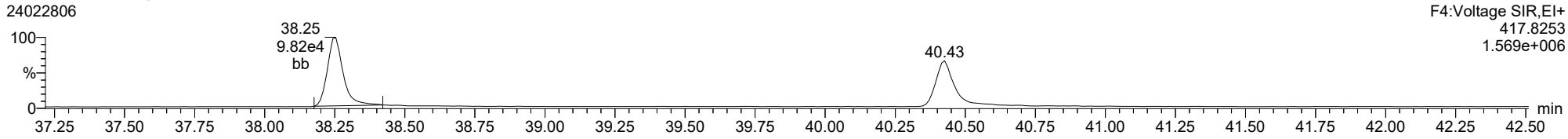
1234678-HpCDF



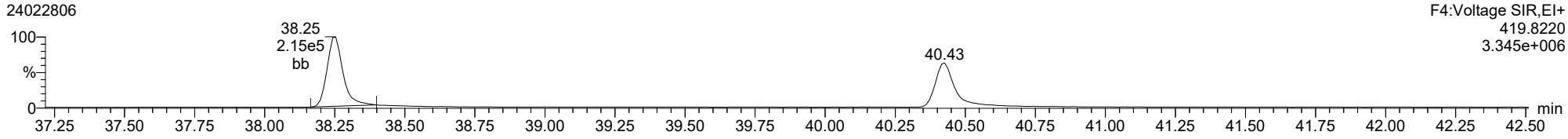
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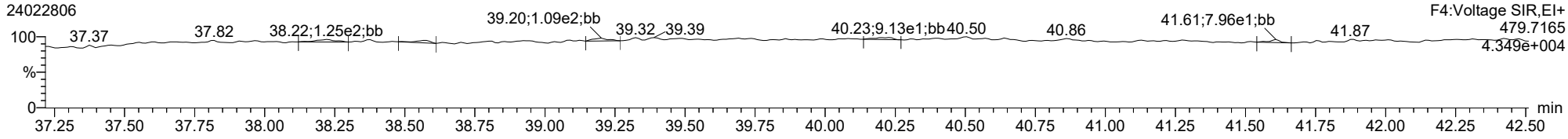
13C-1234678-HpCDF



13C-1234678-HpCDF

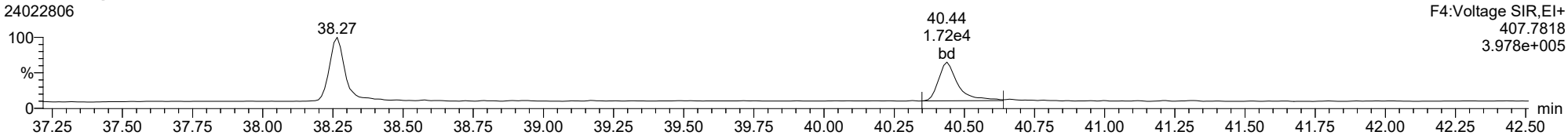


FUNCTION4 NCDPE

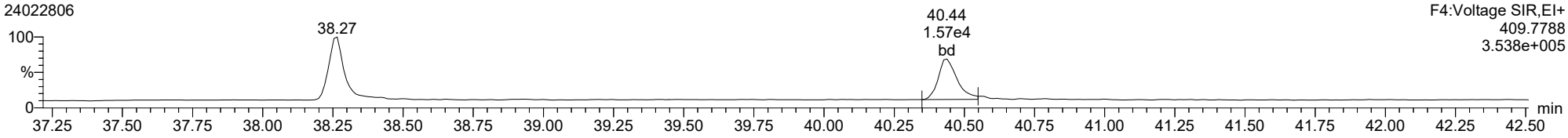


ID: CS2CY, Name: 24022806, Date: 28-Feb-2024, Time: 16:14:25, Conditions: AUTOSPEC01, User: pk

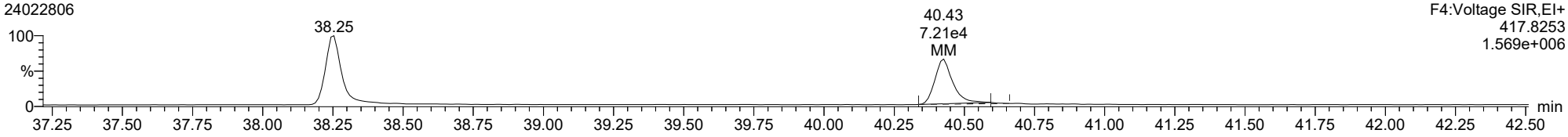
1234789-HpCDF



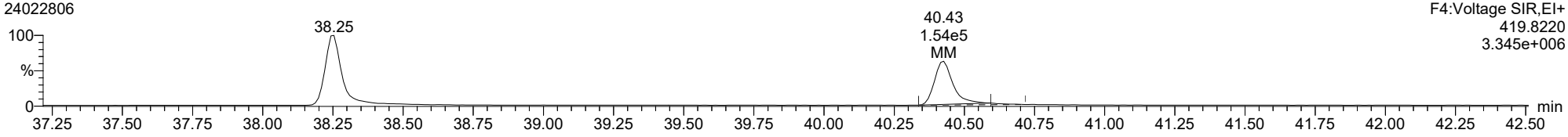
1234789-HpCDF



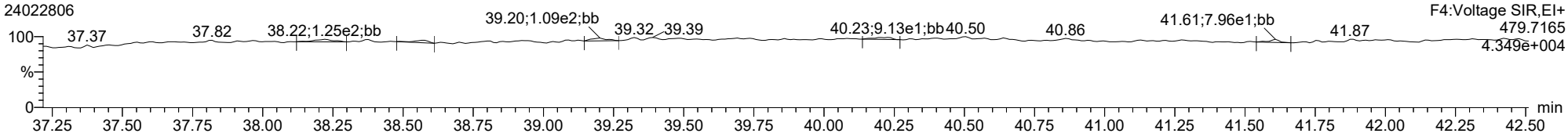
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13C-1234789-HpCDF

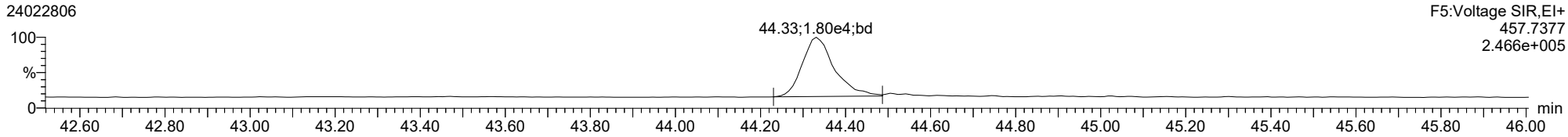


FUNCTION4 NCDPE

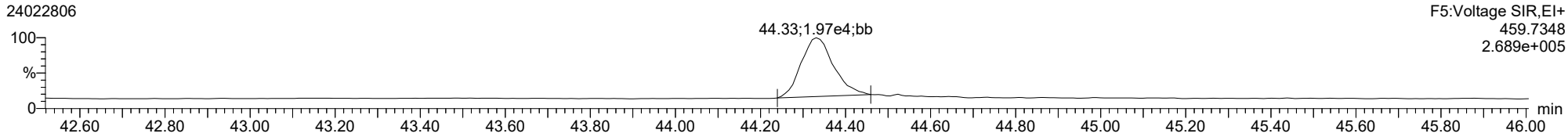


ID: CS2CY, Name: 24022806, Date: 28-Feb-2024, Time: 16:14:25, Conditions: AUTOSPEC01, User: pk

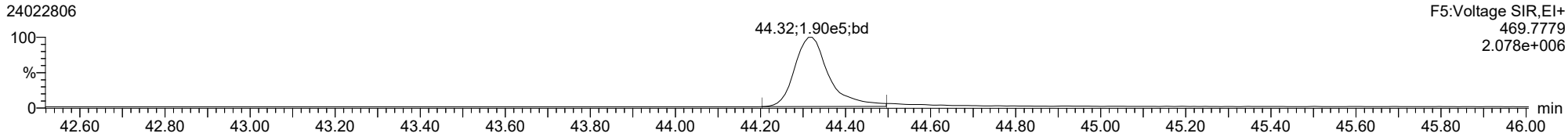
OCDD



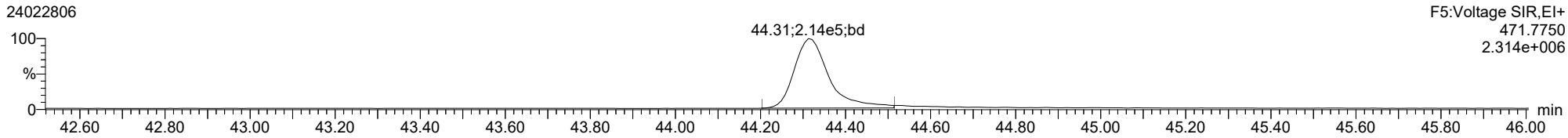
OCDD



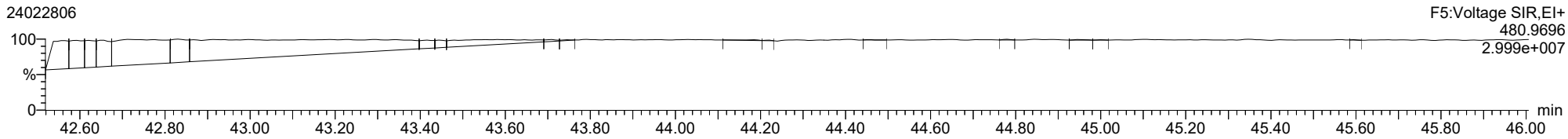
13C-OCDD



13C-OCDD



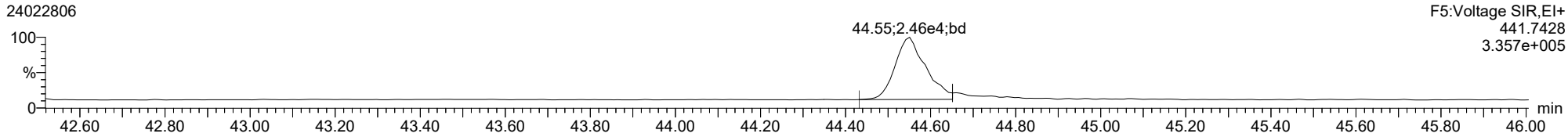
FUNCTION5 PFK



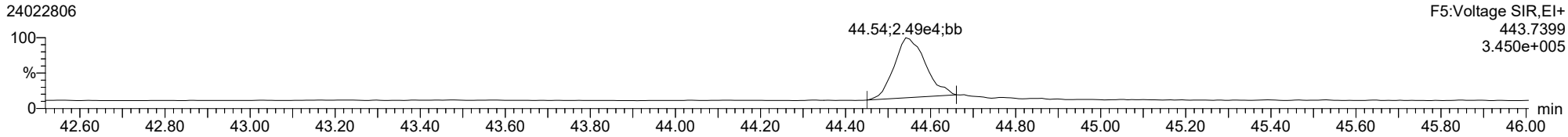
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Last Altered: Thursday, February 29, 2024 08:17:31 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:25:25 Pacific Standard Time

ID: CS2CY, Name: 24022806, Date: 28-Feb-2024, Time: 16:14:25, Conditions: AUTOSPEC01, User: pk

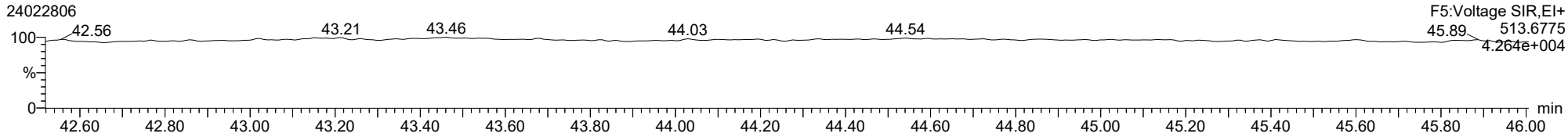
OCDF



OCDF

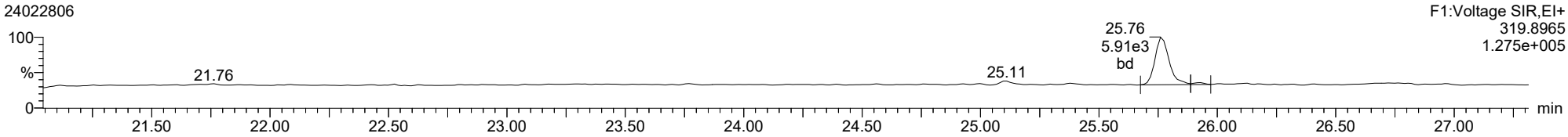


FUNCTION5 DCDPE

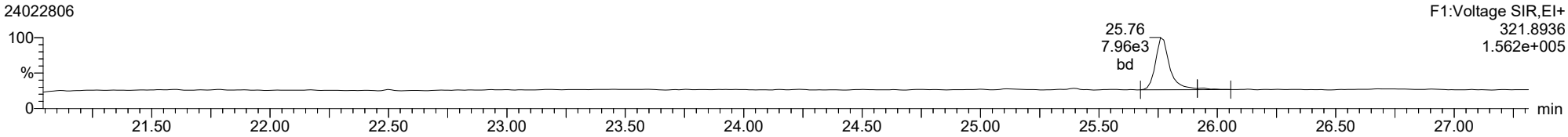


ID: CS2CY, Name: 24022806, Date: 28-Feb-2024, Time: 16:14:25, Conditions: AUTOSPEC01, User: pk

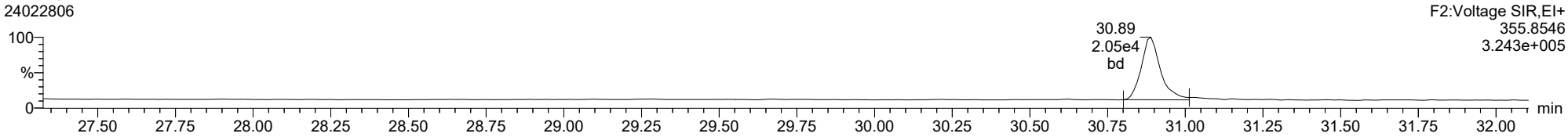
Total-tetradioxins



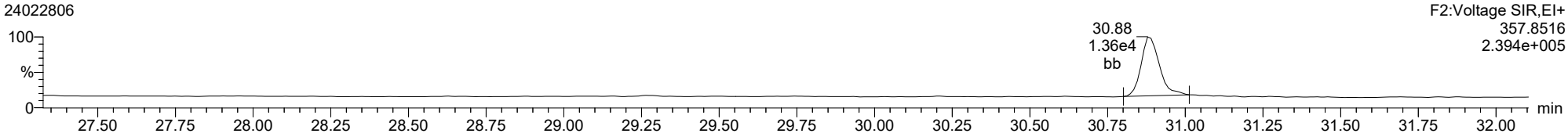
Total-tetradioxins



Total-pentadioxins

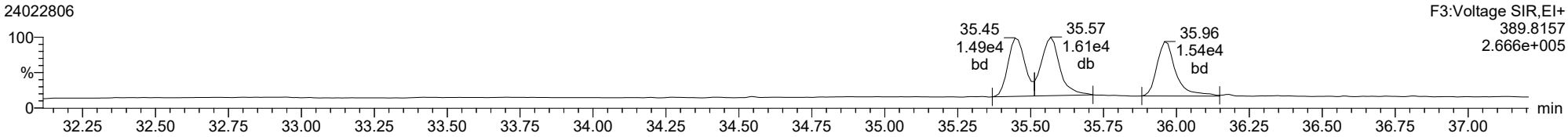


Total-pentadioxins

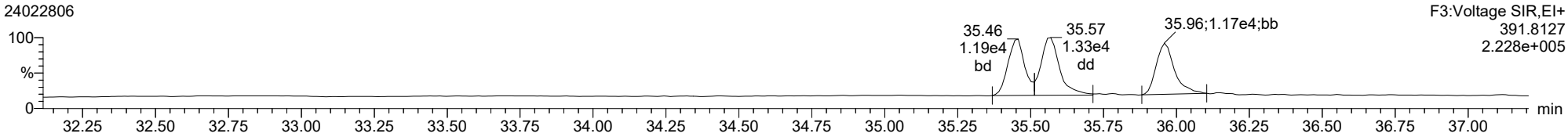


ID: CS2CY, Name: 24022806, Date: 28-Feb-2024, Time: 16:14:25, Conditions: AUTOSPEC01, User: pk

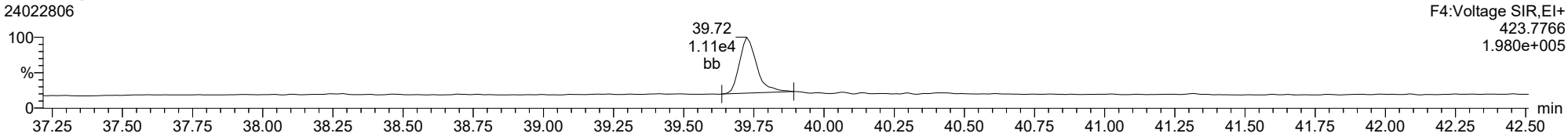
Total-hexadioxins



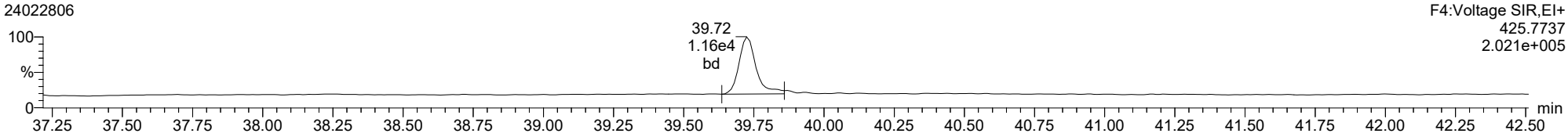
Total-hexadioxins



Total-heptadioxins



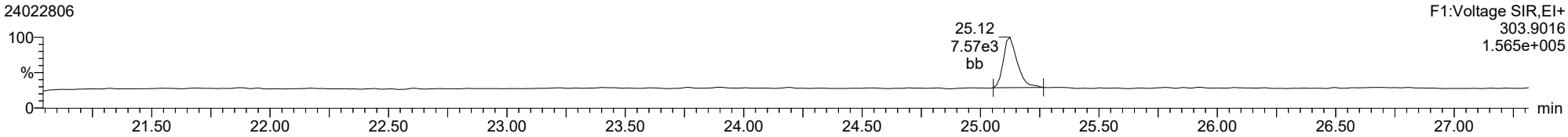
Total-heptadioxins



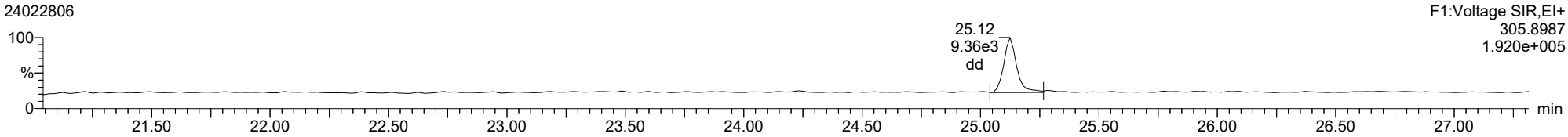
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Printed: Thursday, February 29, 2024 08:25:25 Pacific Standard Time

ID: CS2CY, Name: 24022806, Date: 28-Feb-2024, Time: 16:14:25, Conditions: AUTOSPEC01, User: pk

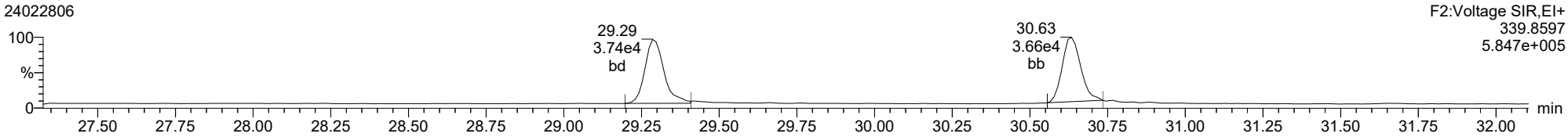
Total-tetrafurans



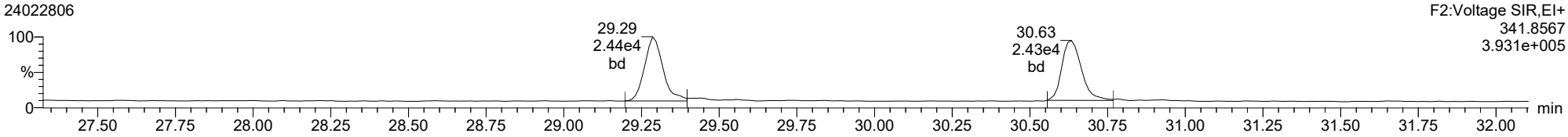
Total-tetrafurans



Total-pentafurans

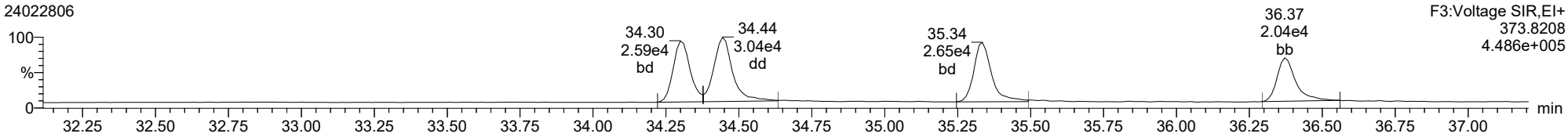


Total-pentafurans

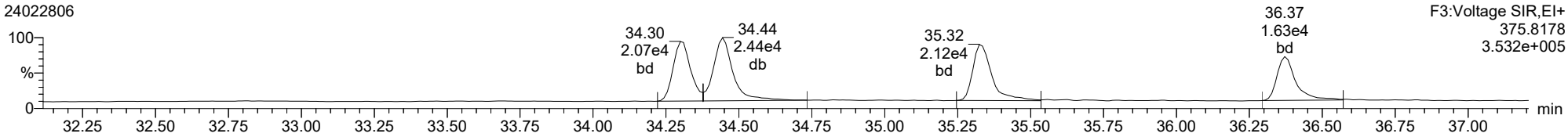


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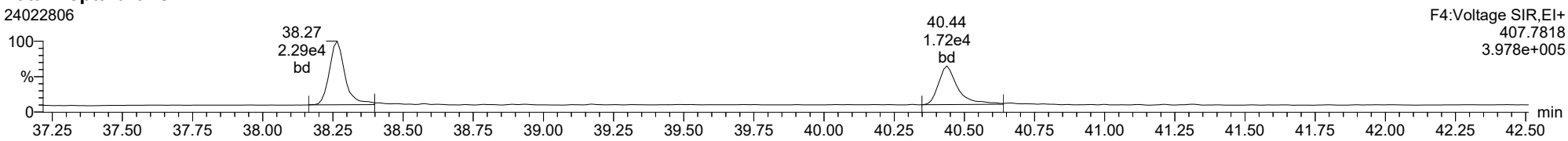
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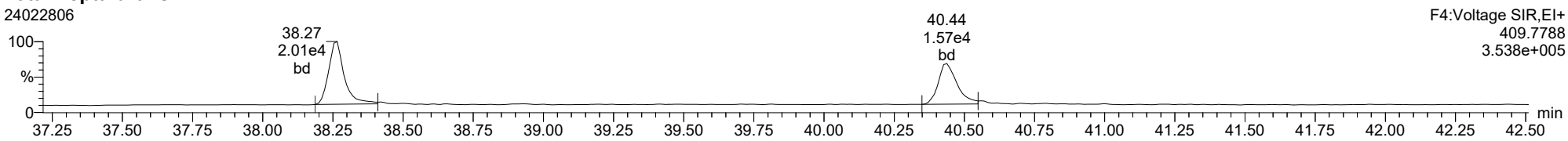
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\240228ICIH.qld
Last Altered: Thursday, February 29, 2024 08:17:31 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:25:39 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240228.mdb 29 Feb 2024 08:04:37
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

ID: CS3CY, Name: 24022807, Date: 28-Feb-2024, Time: 17:03:01, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.125	1.001	3.791e4	4.542e4	0.980	0.835	0.770	1306	1898	5.26e5	6.43e5	402.5	339.0	NO	bd	bb	10.406
12378-PeCDF	29.286	1.000	1.831e5	1.185e5	1.047	1.546	1.550	2355	2578	2.64e6	1.71e6	1120.3	664.9	NO	bb	bb	47.766
23478-PeCDF	30.634	1.001	1.917e5	1.234e5	1.156	1.554	1.550	2355	2578	2.72e6	1.76e6	1155.8	681.5	NO	bb	bb	51.530
123478-HxCDF	34.299	1.000	1.306e5	1.048e5	1.224	1.246	1.240	2597	2393	1.91e6	1.53e6	735.4	641.1	NO	bd	bd	49.461
234678-HxCDF	35.335	1.001	1.301e5	1.006e5	1.235	1.293	1.240	2597	2393	1.83e6	1.47e6	706.6	612.5	NO	bb	bb	51.094
123678-HxCDF	34.444	1.001	1.452e5	1.149e5	1.193	1.264	1.240	2597	2393	1.99e6	1.59e6	765.0	664.3	NO	db	db	50.368
123789-HxCDF	36.371	1.000	1.001e5	8.053e4	1.100	1.243	1.240	2597	2393	1.41e6	1.15e6	543.5	479.8	NO	bb	bb	51.313
1234678-HpCDF	38.265	1.001	1.140e5	1.113e5	1.392	1.024	1.050	2224	2423	1.65e6	1.60e6	742.6	660.4	NO	bd	bd	50.269
1234789-HpCDF	40.438	1.001	8.888e4	8.378e4	1.381	1.061	1.050	2224	2423	1.17e6	1.04e6	526.2	429.2	NO	bd	bd	57.779
OCDF	44.551	1.005	1.357e5	1.513e5	1.222	0.897	0.890	2168	2642	1.44e6	1.60e6	666.2	604.2	NO	bd	bd	89.066
2378-TCDD	25.760	1.001	3.103e4	4.012e4	1.227	0.773	0.770	1146	1136	4.34e5	5.49e5	379.0	483.4	NO	bd	db	9.609
12378-PeCDD	30.890	1.001	1.161e5	7.980e4	0.964	1.454	1.550	2549	2196	1.57e6	1.08e6	614.2	492.0	NO	bb	bb	52.920
123478-HxCDD	35.447	1.000	8.449e4	6.335e4	0.841	1.334	1.240	1847	1938	1.28e6	9.85e5	693.0	508.4	NO	bd	bd	48.160
123678-HxCDD	35.569	1.001	1.013e5	8.246e4	0.833	1.228	1.240	1847	1938	1.33e6	1.10e6	718.9	569.5	NO	db	dd	51.342
123789-HxCDD	35.959	1.012	8.009e4	6.599e4	0.770	1.214	1.240	1847	1938	1.18e6	9.47e5	637.1	488.8	NO	bb	bb	47.716
1234678-HpCDD	39.725	1.000	6.428e4	7.090e4	0.984	0.907	1.050	2431	1546	9.45e5	9.17e5	388.7	592.9	NO	bb	bd	48.047
OCDD	44.331	1.000	9.825e4	1.246e5	0.938	0.788	0.890	1545	2657	1.15e6	1.35e6	742.6	509.1	NO	bb	bd	90.172
13C-2378-TCDF	25.110	1.007	3.487e5	4.683e5	1.655	0.745	0.770	1727	1316	4.98e6	6.70e6	2883.2	5091.8	NO	bb	bb	96.393
13C-12378-PeCDF	29.275	1.174	3.713e5	2.315e5	1.196	1.604	1.550	2880	1897	5.19e6	3.24e6	1802.2	1706.0	NO	bb	bb	98.459
13C-23478-PeCDF	30.611	1.228	3.238e5	2.054e5	1.117	1.577	1.550	2880	1897	4.54e6	2.92e6	1574.6	1540.4	NO	bb	bb	92.502
13C-123478-HxCDF	34.288	0.954	1.339e5	2.550e5	1.028	0.525	0.510	1982	2912	1.95e6	3.75e6	986.0	1286.1	NO	bd	bd	102.997
13C-123678-HxCDF	34.422	0.957	1.479e5	2.849e5	1.176	0.519	0.510	1982	2912	2.03e6	3.88e6	1021.8	1331.4	NO	db	db	100.248
13C-234678-HxCDF	35.313	0.982	1.254e5	2.404e5	1.016	0.522	0.510	1982	2912	1.86e6	3.50e6	938.5	1202.2	NO	bb	bb	98.034
13C-123789-HxCDF	36.360	1.012	1.133e5	2.067e5	0.879	0.548	0.510	1982	2912	1.52e6	2.87e6	769.2	985.2	NO	bb	bb	99.141
13C-1234678-HpCDF	38.243	1.064	1.034e5	2.185e5	0.870	0.473	0.440	1699	2779	1.40e6	3.20e6	823.5	1151.5	NO	bd	bb	100.764
13C-1234789-HpCDF	40.416	1.124	6.615e4	1.503e5	0.638	0.440	0.440	1699	2779	8.60e5	1.93e6	506.1	696.1	NO	bb	bb	92.436
13C-1234-TCDD	24.927	0.000	2.267e5	2.853e5	1.000	0.795	0.770	2256	1072	3.47e6	4.38e6	1540.2	4082.4	NO	bb	bb	100.000
13C-2378-TCDD	25.746	1.033	2.670e5	3.365e5	1.151	0.793	0.770	2256	1072	3.87e6	4.93e6	1715.2	4598.7	NO	bb	bb	102.416
13C-12378-PeCDD	30.868	1.238	2.380e5	1.457e5	0.828	1.634	1.550	1457	1553	3.29e6	2.01e6	2261.3	1292.7	NO	bb	bb	90.483
13C-123478-HxCDD	35.436	0.986	1.985e5	1.666e5	0.950	1.191	1.240	1866	1913	3.10e6	2.56e6	1661.4	1339.4	NO	bd	bd	104.698
13C-123678-HxCDD	35.547	0.989	2.282e5	2.015e5	1.107	1.133	1.240	1866	1913	3.14e6	2.65e6	1682.4	1383.1	NO	db	db	105.729
13C-1234678-HpCDD	39.714	1.105	1.483e5	1.375e5	0.737	1.079	1.050	1821	2037	1.90e6	1.78e6	1045.6	875.4	NO	bb	bb	105.596
13C-OCDD	44.313	1.233	2.462e5	2.811e5	0.633	0.876	0.890	2566	1513	2.63e6	2.99e6	1024.9	1977.5	NO	bd	bd	226.998
13C-123789-HxCDD	35.948	0.000	2.014e5	1.658e5	1.000	1.214	1.240	1866	1913	2.85e6	2.30e6	1527.0	1203.4	NO	bb	bb	100.000
37CL-2378-TCDD	25.760	1.033	6.257e4		1.312			1409		9.10e5		645.7			bb		9.311

Dataset: T:\Autospec\Processed Data Batch\240228ICIH.qld
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Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.622	0.861	4.479e4	5.709e4	1.247	0.785	0.770	1306	1898	6.90e5	9.13e5	528.4	481.2	NO	bb	bb	10.000
1289-TCDF	26.608	1.060	3.318e4	4.162e4	0.916	0.797	0.770	1306	1898	4.67e5	5.71e5	357.5	300.9	NO	bb	db	10.000
13468-PECDF	26.480	0.905	2.478e5	1.601e5	1.353	1.548	1.550	656	793	3.68e6	2.41e6	5607.1	3044.8	NO	bb	bb	50.000
12389-PECDF	31.670	1.082	1.697e5	1.092e5	0.925	1.554	1.550	2355	2578	2.25e6	1.51e6	955.9	586.3	NO	bb	bb	50.000
123468-HXCDF	32.606	0.951	1.450e5	1.147e5	1.335	1.263	1.240	2597	2393	2.13e6	1.65e6	819.4	690.8	NO	bb	bb	50.000
1368-TCDD	22.893	0.889	3.019e4	3.742e4	1.120	0.807	0.770	1146	1136	4.61e5	5.76e5	402.3	507.5	NO	bb	bb	10.000
1289-TCDD	26.353	1.024	2.484e4	3.345e4	0.966	0.743	0.770	1146	1136	3.43e5	4.51e5	299.3	397.0	NO	bb	bd	10.000
12479-PECDD	28.160	0.912	2.170e5	1.398e5	1.859	1.552	1.550	2549	2196	1.95e6	1.29e6	764.9	585.6	NO	bd	bb	50.000
12389-PECDD	31.280	1.013	1.340e5	8.745e4	1.154	1.532	1.550	2549	2196	1.84e6	1.21e6	721.6	552.0	NO	bb	bb	50.000
124679-HXCDD	33.397	0.942	1.009e5	8.281e4	1.006	1.219	1.240	1847	1938	1.43e6	1.13e6	774.7	583.5	NO	bd	bd	50.000
1234679-HPCDD	38.711	0.975	8.865e4	8.054e4	1.184	1.101	1.050	2431	1546	1.24e6	1.19e6	510.5	769.0	NO	bd	bb	50.000
Total-tetrafurans			1.159e5		1.048			1306		1.68e6							30.406
Total-penta1			2.478e5					656		3.68e6							50.000
Total-pentafurans			5.762e5		1.043			2355		8.07e6							158.094
Total-hexafurans			6.510e5		1.217			2597		9.27e6							252.235
Total-heptafurans			2.029e5		1.387			2224		2.82e6							108.048
Total-Furans			1.929e6		1.180			1306		2.70e7							687.849
Total-tetradioxins			1.457e5		1.104			1146		1.90e6							49.849
Total-pentadioxins			4.670e5		1.326			2549		5.36e6							152.920
Total-hexadioxins			3.670e5		0.863			1847		5.22e6							197.335
Total-heptadioxins			1.531e5		1.084			2431		2.19e6							98.119
Total-Dioxins			1.231e6		1.065			1146		1.58e7							588.396
Total-TEQ			3.161e6					1146		4.28e7							1276.246
FUNCTION1 PFK			1.239e6					741034		2.36e7							
FUNCTION2 PFK			0.000e0					381859		0.00e0							
FUNCTION3 PFK			7.709e5					423137		2.27e7							0.000
FUNCTION4 PFK			7.758e5					378480		2.00e7							
FUNCTION5 PFK			2.039e5					179323		7.49e6							
FUNCTION1 HXCD...			6.804e2					558		8.60e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			7.507e2					679		1.64e4							0.000
FUNCTION3 OCDPE			3.159e2					512		5.03e3							0.000
FUNCTION4 NCDPE			7.514e1					674		1.85e3							0.000
FUNCTION5 DCDPE			1.248e2					437		1.33e3							0.000

Method: T:\Autospec\Methods\Dioxin240228.mdb 29 Feb 2024 08:04:37
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.61	3.318e4	4.162e4	0.916	0.80	0.77	357.5	YES	NO	bb	db	10.000
2	2378-TCDF	25.12	3.791e4	4.542e4	0.980	0.83	0.77	402.5	YES	NO	bd	bb	10.406
3	1368-TCDF	21.62	4.479e4	5.709e4	1.247	0.78	0.77	528.4	YES	NO	bb	bb	10.000

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.48	2.478e5	1.601e5	1.353	1.55	1.55	5607.1	YES	NO	bb	bb	50.000

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.29	1.831e5	1.185e5	1.047	1.55	1.55	1120.3	YES	NO	bb	bb	47.766
2	Total-pentafurans	28.14	3.172e4	2.020e4	1.043	1.57	1.55	197.0	YES	NO	bb	bb	8.798
3	12389-PECDF	31.67	1.697e5	1.092e5	0.925	1.55	1.55	955.9	YES	NO	bb	bb	50.000
4	23478-PeCDF	30.63	1.917e5	1.234e5	1.156	1.55	1.55	1155.8	YES	NO	bb	bb	51.530

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.37	1.001e5	8.053e4	1.100	1.24	1.24	543.5	YES	NO	bb	bb	51.313
2	234678-HxCDF	35.34	1.301e5	1.006e5	1.235	1.29	1.24	706.6	YES	NO	bb	bb	51.094
3	123678-HxCDF	34.44	1.452e5	1.149e5	1.193	1.26	1.24	765.0	YES	NO	db	db	50.368
4	123478-HxCDF	34.30	1.306e5	1.048e5	1.224	1.25	1.24	735.4	YES	NO	bd	bd	49.461
5	123468-HXCDF	32.61	1.450e5	1.147e5	1.335	1.26	1.24	819.4	YES	NO	bb	bb	50.000

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.27	1.140e5	1.113e5	1.392	1.02	1.05	742.6	YES	NO	bd	bd	50.269
2	1234789-HpCDF	40.44	8.888e4	8.378e4	1.381	1.06	1.05	526.2	YES	NO	bd	bd	57.779

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.61	3.318e4	4.162e4	0.916	0.80	0.77	357.5	YES	NO	bb	db	10.000
2	2378-TCDF	25.12	3.791e4	4.542e4	0.980	0.83	0.77	402.5	YES	NO	bd	bb	10.406
3	1368-TCDF	21.62	4.479e4	5.709e4	1.247	0.78	0.77	528.4	YES	NO	bb	bb	10.000
4	12378-PeCDF	29.29	1.831e5	1.185e5	1.047	1.55	1.55	1120.3	YES	NO	bb	bb	47.766
5	Total-pentafurans	28.14	3.172e4	2.020e4	1.043	1.57	1.55	197.0	YES	NO	bb	bb	8.798
6	12389-PECDF	31.67	1.697e5	1.092e5	0.925	1.55	1.55	955.9	YES	NO	bb	bb	50.000
7	23478-PeCDF	30.63	1.917e5	1.234e5	1.156	1.55	1.55	1155.8	YES	NO	bb	bb	51.530
8	123789-HxCDF	36.37	1.001e5	8.053e4	1.100	1.24	1.24	543.5	YES	NO	bb	bb	51.313
9	234678-HxCDF	35.34	1.301e5	1.006e5	1.235	1.29	1.24	706.6	YES	NO	bb	bb	51.094
10	123678-HxCDF	34.44	1.452e5	1.149e5	1.193	1.26	1.24	765.0	YES	NO	db	db	50.368
11	123478-HxCDF	34.30	1.306e5	1.048e5	1.224	1.25	1.24	735.4	YES	NO	bd	bd	49.461
12	123468-HXCDF	32.61	1.450e5	1.147e5	1.335	1.26	1.24	819.4	YES	NO	bb	bb	50.000
13	1234678-HpCDF	38.27	1.140e5	1.113e5	1.392	1.02	1.05	742.6	YES	NO	bd	bd	50.269
14	1234789-HpCDF	40.44	8.888e4	8.378e4	1.381	1.06	1.05	526.2	YES	NO	bd	bd	57.779
15	OCDF	44.55	1.357e5	1.513e5	1.222	0.90	0.89	666.2	YES	NO	bd	bd	89.066
16	13468-PECDF	26.48	2.478e5	1.601e5	1.353	1.55	1.55	5607.1	YES	NO	bb	bb	50.000

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.94	1.466e4	1.815e4	1.104	0.81	0.77	193.3	YES	NO	bd	bd	4.923
2	1368-TCDD	22.89	3.019e4	3.742e4	1.120	0.81	0.77	402.3	YES	NO	bb	bb	10.000
3	1289-TCDD	26.35	2.484e4	3.345e4	0.966	0.74	0.77	299.3	YES	NO	bb	bd	10.000
4	2378-TCDD	25.76	3.103e4	4.012e4	1.227	0.77	0.77	379.0	YES	NO	bd	db	9.609
5	Total-tetradioxins	25.44	4.502e4	5.707e4	1.104	0.79	0.77	385.4	YES	NO	bd	bd	15.318

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.89	1.161e5	7.980e4	0.964	1.45	1.55	614.2	YES	NO	bb	bb	52.920
2	12479-PECDD	28.16	2.170e5	1.398e5	1.859	1.55	1.55	764.9	YES	NO	bd	bb	50.000
3	12389-PECDD	31.28	1.340e5	8.745e4	1.154	1.53	1.55	721.6	YES	NO	bb	bb	50.000

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	33.40	1.009e5	8.281e4	1.006	1.22	1.24	774.7	YES	NO	bd	bd	50.000
2	Total-hexadioxins	36.20	2.350e2	1.662e2	0.863	1.41	1.24	1.7	NO	NO	bb	bb	0.117
3	123789-HxCDD	35.96	8.009e4	6.599e4	0.770	1.21	1.24	637.1	YES	NO	bb	bb	47.716
4	123678-HxCDD	35.57	1.013e5	8.246e4	0.833	1.23	1.24	718.9	YES	NO	db	dd	51.342
5	123478-HxCDD	35.45	8.449e4	6.335e4	0.841	1.33	1.24	693.0	YES	NO	bd	bd	48.160

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234679-HPCDD	38.71	8.865e4	8.054e4	1.184	1.10	1.05	510.5	YES	NO	bd	bb	50.000
2	1234678-HpCDD	39.72	6.428e4	7.090e4	0.984	0.91	1.05	388.7	YES	NO	bb	bd	48.047
3	Total-heptadioxins	39.41	1.177e2	1.053e2	1.084	1.12	1.05	1.6	NO	NO	bb	db	0.072

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.94	1.466e4	1.815e4	1.104	0.81	0.77	193.3	YES	NO	bd	bd	4.923
2	1368-TCDD	22.89	3.019e4	3.742e4	1.120	0.81	0.77	402.3	YES	NO	bb	bb	10.000
3	1289-TCDD	26.35	2.484e4	3.345e4	0.966	0.74	0.77	299.3	YES	NO	bb	bd	10.000
4	2378-TCDD	25.76	3.103e4	4.012e4	1.227	0.77	0.77	379.0	YES	NO	bd	db	9.609
5	Total-tetradioxins	25.44	4.502e4	5.707e4	1.104	0.79	0.77	385.4	YES	NO	bd	bd	15.318
6	12378-PeCDD	30.89	1.161e5	7.980e4	0.964	1.45	1.55	614.2	YES	NO	bb	bb	52.920
7	12479-PECDD	28.16	2.170e5	1.398e5	1.859	1.55	1.55	764.9	YES	NO	bd	bb	50.000
8	124679-HXCDD	33.40	1.009e5	8.281e4	1.006	1.22	1.24	774.7	YES	NO	bd	bd	50.000
9	12389-PECDD	31.28	1.340e5	8.745e4	1.154	1.53	1.55	721.6	YES	NO	bb	bb	50.000
10	Total-hexadioxins	36.20	2.350e2	1.662e2	0.863	1.41	1.24	1.7	NO	NO	bb	bb	0.117
11	123789-HxCDD	35.96	8.009e4	6.599e4	0.770	1.21	1.24	637.1	YES	NO	bb	bb	47.716
12	123678-HxCDD	35.57	1.013e5	8.246e4	0.833	1.23	1.24	718.9	YES	NO	db	dd	51.342
13	123478-HxCDD	35.45	8.449e4	6.335e4	0.841	1.33	1.24	693.0	YES	NO	bd	bd	48.160
14	1234679-HPCDD	38.71	8.865e4	8.054e4	1.184	1.10	1.05	510.5	YES	NO	bd	bb	50.000
15	1234678-HpCDD	39.72	6.428e4	7.090e4	0.984	0.91	1.05	388.7	YES	NO	bb	bd	48.047
16	Total-heptadioxins	39.41	1.177e2	1.053e2	1.084	1.12	1.05	1.6	NO	NO	bb	db	0.072
17	OCDD	44.33	9.825e4	1.246e5	0.938	0.79	0.89	742.6	YES	NO	bb	bd	90.172

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.61	3.318e4	4.162e4	0.916	0.80	0.77	357.5	YES	NO	bb	db	10.000
2	2378-TCDF	25.12	3.791e4	4.542e4	0.980	0.83	0.77	402.5	YES	NO	bd	bb	10.406
3	1368-TCDF	21.62	4.479e4	5.709e4	1.247	0.78	0.77	528.4	YES	NO	bb	bb	10.000
4	12378-PeCDF	29.29	1.831e5	1.185e5	1.047	1.55	1.55	1120.3	YES	NO	bb	bb	47.766
5	Total-pentafurans	28.14	3.172e4	2.020e4	1.043	1.57	1.55	197.0	YES	NO	bb	bb	8.798
6	12389-PECDF	31.67	1.697e5	1.092e5	0.925	1.55	1.55	955.9	YES	NO	bb	bb	50.000
7	23478-PeCDF	30.63	1.917e5	1.234e5	1.156	1.55	1.55	1155.8	YES	NO	bb	bb	51.530
8	123789-HxCDF	36.37	1.001e5	8.053e4	1.100	1.24	1.24	543.5	YES	NO	bb	bb	51.313
9	234678-HxCDF	35.34	1.301e5	1.006e5	1.235	1.29	1.24	706.6	YES	NO	bb	bb	51.094
10	123678-HxCDF	34.44	1.452e5	1.149e5	1.193	1.26	1.24	765.0	YES	NO	db	db	50.368
11	123478-HxCDF	34.30	1.306e5	1.048e5	1.224	1.25	1.24	735.4	YES	NO	bd	bd	49.461
12	123468-HXCDF	32.61	1.450e5	1.147e5	1.335	1.26	1.24	819.4	YES	NO	bb	bb	50.000
13	1234678-HpCDF	38.27	1.140e5	1.113e5	1.392	1.02	1.05	742.6	YES	NO	bd	bd	50.269
14	1234789-HpCDF	40.44	8.888e4	8.378e4	1.381	1.06	1.05	526.2	YES	NO	bd	bd	57.779
15	OCDF	44.55	1.357e5	1.513e5	1.222	0.90	0.89	666.2	YES	NO	bd	bd	89.066
16	13468-PECDF	26.48	2.478e5	1.601e5	1.353	1.55	1.55	5607.1	YES	NO	bb	bb	50.000
17	Total-tetradioxins	24.94	1.466e4	1.815e4	1.104	0.81	0.77	193.3	YES	NO	bd	bd	4.923
18	1368-TCDD	22.89	3.019e4	3.742e4	1.120	0.81	0.77	402.3	YES	NO	bb	bb	10.000
19	1289-TCDD	26.35	2.484e4	3.345e4	0.966	0.74	0.77	299.3	YES	NO	bb	bd	10.000
20	2378-TCDD	25.76	3.103e4	4.012e4	1.227	0.77	0.77	379.0	YES	NO	bd	db	9.609
21	Total-tetradioxins	25.44	4.502e4	5.707e4	1.104	0.79	0.77	385.4	YES	NO	bd	bd	15.318
22	12378-PeCDD	30.89	1.161e5	7.980e4	0.964	1.45	1.55	614.2	YES	NO	bb	bb	52.920
23	12479-PECDD	28.16	2.170e5	1.398e5	1.859	1.55	1.55	764.9	YES	NO	bd	bb	50.000
24	124679-HXCDD	33.40	1.009e5	8.281e4	1.006	1.22	1.24	774.7	YES	NO	bd	bd	50.000
25	12389-PECDD	31.28	1.340e5	8.745e4	1.154	1.53	1.55	721.6	YES	NO	bb	bb	50.000
26	Total-hexadioxins	36.20	2.350e2	1.662e2	0.863	1.41	1.24	1.7	NO	NO	bb	bb	0.117
27	123789-HxCDD	35.96	8.009e4	6.599e4	0.770	1.21	1.24	637.1	YES	NO	bb	bb	47.716
28	123678-HxCDD	35.57	1.013e5	8.246e4	0.833	1.23	1.24	718.9	YES	NO	db	dd	51.342
29	123478-HxCDD	35.45	8.449e4	6.335e4	0.841	1.33	1.24	693.0	YES	NO	bd	bd	48.160
30	1234679-HPCDD	38.71	8.865e4	8.054e4	1.184	1.10	1.05	510.5	YES	NO	bd	bb	50.000
31	1234678-HpCDD	39.72	6.428e4	7.090e4	0.984	0.91	1.05	388.7	YES	NO	bb	bd	48.047
32	Total-heptadioxins	39.41	1.177e2	1.053e2	1.084	1.12	1.05	1.6	NO	NO	bb	db	0.072
33	OCDD	44.33	9.825e4	1.246e5	0.938	0.79	0.89	742.6	YES	NO	bb	bd	90.172

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	23.06	3.984e4					1.7	NO		bb		
2	FUNCTION1 PFK	22.95	2.023e4					0.8	NO		bb		
3	FUNCTION1 PFK	22.86	3.890e4					1.1	NO		db		
4	FUNCTION1 PFK	22.78	9.874e4					1.6	NO		dd		
5	FUNCTION1 PFK	22.61	9.671e4					2.0	NO		dd		
6	FUNCTION1 PFK	22.51	8.625e4					1.7	NO		bd		
7	FUNCTION1 PFK	21.86	6.661e3					0.6	NO		bb		
8	FUNCTION1 PFK	21.76	3.890e4					1.2	NO		bb		
9	FUNCTION1 PFK	21.58	1.552e5					1.8	NO		db		
10	FUNCTION1 PFK	21.37	3.018e4					1.1	NO		bd		
11	FUNCTION1 PFK	21.18	7.559e4					2.1	NO		db		
12	FUNCTION1 PFK	21.13	5.138e4					2.0	NO		bd		
13	FUNCTION1 PFK	26.68	3.994e4					1.0	NO		bb		
14	FUNCTION1 PFK	26.61	6.035e3					0.6	NO		bb		
15	FUNCTION1 PFK	25.66	4.277e3					0.4	NO		bb		
16	FUNCTION1 PFK	25.60	5.669e3					0.5	NO		bb		
17	FUNCTION1 PFK	25.48	2.632e4					0.7	NO		bb		
18	FUNCTION1 PFK	25.39	4.441e3					0.4	NO		bb		
19	FUNCTION1 PFK	25.27	3.621e4					0.9	NO		bb		
20	FUNCTION1 PFK	24.55	4.166e4					1.4	NO		bb		
21	FUNCTION1 PFK	24.42	6.353e4					2.2	NO		db		
22	FUNCTION1 PFK	24.31	7.009e4					1.4	NO		dd		
23	FUNCTION1 PFK	24.23	7.893e4					1.8	NO		dd		
24	FUNCTION1 PFK	24.15	1.993e4					0.9	NO		bd		
25	FUNCTION1 PFK	23.94	4.182e3					0.0	NO		bb		
26	FUNCTION1 PFK	23.58	9.439e4					1.7	NO		bb		
27	FUNCTION1 PFK	23.23	4.544e3					0.4	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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Printed: Thursday, February 29, 2024 08:25:39 Pacific Standard Time

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	33.75	1.236e4					1.2	NO		bb		0.000
2	FUNCTION3 PFK	33.61	2.743e4					1.6	NO		bb		0.000
3	FUNCTION3 PFK	33.51	1.127e4					1.2	NO		db		0.000
4	FUNCTION3 PFK	33.46	8.108e3					0.8	NO		bd		0.000
5	FUNCTION3 PFK	33.17	3.352e3					0.6	NO		db		0.000
6	FUNCTION3 PFK	33.13	3.732e4					1.6	NO		bd		0.000
7	FUNCTION3 PFK	33.05	2.982e4					2.4	NO		db		0.000
8	FUNCTION3 PFK	33.02	2.154e4					1.7	NO		dd		0.000
9	FUNCTION3 PFK	32.97	6.054e3					0.7	NO		dd		0.000
10	FUNCTION3 PFK	32.91	2.371e4					1.5	NO		bd		0.000
11	FUNCTION3 PFK	32.78	1.669e4					1.1	NO		bb		0.000
12	FUNCTION3 PFK	32.59	3.096e3					0.5	NO		bb		0.000
13	FUNCTION3 PFK	32.33	1.386e4					1.3	NO		bb		0.000
14	FUNCTION3 PFK	32.23	1.151e4					1.1	NO		db		0.000
15	FUNCTION3 PFK	32.19	1.707e4					1.5	NO		bd		0.000
16	FUNCTION3 PFK	35.21	5.580e3					0.7	NO		bb		0.000
17	FUNCTION3 PFK	35.13	4.102e3					0.4	NO		bb		0.000
18	FUNCTION3 PFK	34.92	5.511e4					1.7	NO		bb		0.000
19	FUNCTION3 PFK	34.86	6.005e3					0.7	NO		db		0.000
20	FUNCTION3 PFK	34.81	6.471e3					0.7	NO		bd		0.000
21	FUNCTION3 PFK	34.73	6.512e3					0.6	NO		db		0.000
22	FUNCTION3 PFK	34.67	3.239e4					2.1	NO		bd		0.000
23	FUNCTION3 PFK	34.60	2.312e4					1.6	NO		db		0.000
24	FUNCTION3 PFK	34.56	1.362e4					1.1	NO		bd		0.000
25	FUNCTION3 PFK	34.49	4.314e3					0.6	NO		bb		0.000
26	FUNCTION3 PFK	34.39	4.778e3					0.6	NO		db		0.000
27	FUNCTION3 PFK	34.33	1.656e4					1.0	NO		bd		0.000
28	FUNCTION3 PFK	34.23	9.427e3					0.8	NO		bb		0.000
29	FUNCTION3 PFK	34.13	5.091e3					0.6	NO		db		0.000
30	FUNCTION3 PFK	34.08	3.772e3					0.6	NO		bd		0.000
31	FUNCTION3 PFK	33.99	3.290e4					1.7	NO		bb		0.000
32	FUNCTION3 PFK	37.05	4.503e3					0.7	NO		bb		0.000
33	FUNCTION3 PFK	37.01	9.057e3					1.1	NO		bb		0.000
34	FUNCTION3 PFK	36.62	1.490e4					1.2	NO		bb		0.000
35	FUNCTION3 PFK	36.49	1.030e4					0.9	NO		db		0.000
36	FUNCTION3 PFK	36.46	3.906e3					0.6	NO		bd		0.000
37	FUNCTION3 PFK	36.40	3.898e4					2.0	NO		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION3 PFK	36.32	2.550e4					1.6	NO		db		0.000
39	FUNCTION3 PFK	36.24	6.103e4					2.1	NO		dd		0.000
40	FUNCTION3 PFK	36.15	2.043e4					1.1	NO		bd		0.000
41	FUNCTION3 PFK	35.99	2.062e4					1.7	NO		bb		0.000
42	FUNCTION3 PFK	35.93	2.484e4					1.7	NO		bb		0.000
43	FUNCTION3 PFK	35.83	5.348e3					0.6	NO		bb		0.000
44	FUNCTION3 PFK	35.78	8.124e3					0.8	NO		bb		0.000
45	FUNCTION3 PFK	35.70	1.566e3					0.3	NO		bb		0.000
46	FUNCTION3 PFK	35.42	3.255e4					1.7	NO		bb		0.000
47	FUNCTION3 PFK	35.34	5.940e3					0.8	NO		bb		0.000
48	FUNCTION3 PFK	37.10	1.040e4					0.3	NO		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	39.02	2.819e4					1.7	NO		bd		
2	FUNCTION4 PFK	38.89	7.472e3					0.8	NO		bb		
3	FUNCTION4 PFK	38.84	6.193e3					0.7	NO		bb		
4	FUNCTION4 PFK	38.44	3.826e4					1.4	NO		db		
5	FUNCTION4 PFK	38.32	3.177e4					1.3	NO		bd		
6	FUNCTION4 PFK	38.18	2.603e4					1.6	NO		bb		
7	FUNCTION4 PFK	38.05	1.698e3					0.4	NO		bb		
8	FUNCTION4 PFK	37.94	2.959e4					1.7	NO		bb		
9	FUNCTION4 PFK	37.90	6.956e3					0.9	NO		bb		
10	FUNCTION4 PFK	37.81	6.459e3					0.7	NO		bb		
11	FUNCTION4 PFK	37.73	2.610e4					1.5	NO		bb		
12	FUNCTION4 PFK	37.47	9.136e4					2.9	NO		bb		
13	FUNCTION4 PFK	37.35	4.388e4					2.8	NO		bb		
14	FUNCTION4 PFK	37.31	5.918e3					0.9	NO		bb		
15	FUNCTION4 PFK	40.73	2.529e4					1.7	NO		bd		
16	FUNCTION4 PFK	40.67	8.164e3					0.9	NO		db		
17	FUNCTION4 PFK	40.64	8.181e3					0.8	NO		dd		
18	FUNCTION4 PFK	40.60	1.699e4					1.2	NO		bd		
19	FUNCTION4 PFK	40.50	9.505e3					1.0	NO		bb		
20	FUNCTION4 PFK	40.34	1.498e3					0.4	NO		bb		
21	FUNCTION4 PFK	40.19	2.671e3					0.6	NO		bb		
22	FUNCTION4 PFK	40.15	2.700e4					1.6	NO		bb		
23	FUNCTION4 PFK	39.88	4.652e4					1.6	NO		bb		
24	FUNCTION4 PFK	39.74	6.599e3					1.0	NO		bb		
25	FUNCTION4 PFK	39.69	7.329e3					1.0	NO		bb		
26	FUNCTION4 PFK	39.61	1.703e4					1.8	NO		bb		
27	FUNCTION4 PFK	39.41	1.243e4					1.0	NO		bb		
28	FUNCTION4 PFK	39.30	2.561e4					1.7	NO		db		
29	FUNCTION4 PFK	39.26	1.387e4					1.6	NO		bd		
30	FUNCTION4 PFK	39.09	1.756e4					1.8	NO		db		
31	FUNCTION4 PFK	42.32	1.702e3					0.4	NO		bb		
32	FUNCTION4 PFK	42.04	1.507e4					1.3	NO		bb		
33	FUNCTION4 PFK	41.86	1.471e4					1.0	NO		bb		
34	FUNCTION4 PFK	41.72	1.657e4					1.0	NO		bb		
35	FUNCTION4 PFK	41.60	1.775e4					1.3	NO		db		
36	FUNCTION4 PFK	41.53	2.694e4					1.5	NO		bd		
37	FUNCTION4 PFK	41.44	9.271e3					1.2	NO		db		

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION4 PFK	41.41	3.166e4					2.1	NO		bd		
39	FUNCTION4 PFK	40.99	3.411e3					0.6	NO		db		
40	FUNCTION4 PFK	40.96	1.559e4					1.3	NO		dd		
41	FUNCTION4 PFK	40.93	9.414e3					1.2	NO		bd		
42	FUNCTION4 PFK	40.84	1.753e4					1.0	NO		db		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	42.67	1.310e4					2.9	NO		dd		
2	FUNCTION5 PFK	42.63	1.502e4					2.6	NO		bd		
3	FUNCTION5 PFK	42.58	1.217e4					2.7	NO		bb		
4	FUNCTION5 PFK	45.17	1.266e4					2.4	NO		bb		
5	FUNCTION5 PFK	44.91	2.863e4					2.5	NO		bb		
6	FUNCTION5 PFK	44.61	8.969e3					2.4	NO		db		
7	FUNCTION5 PFK	44.57	1.193e4					2.0	NO		bd		
8	FUNCTION5 PFK	44.26	4.908e3					1.2	NO		bb		
9	FUNCTION5 PFK	44.22	9.289e3					2.4	NO		bb		
10	FUNCTION5 PFK	43.94	6.124e3					1.5	NO		db		
11	FUNCTION5 PFK	43.90	9.652e3					2.3	NO		bd		
12	FUNCTION5 PFK	43.86	1.592e3					1.0	NO		bb		
13	FUNCTION5 PFK	43.77	8.762e3					1.5	NO		bb		
14	FUNCTION5 PFK	43.63	5.857e3					1.9	NO		bb		
15	FUNCTION5 PFK	43.53	2.612e3					0.9	NO		bb		
16	FUNCTION5 PFK	43.15	1.098e3					0.7	NO		bb		
17	FUNCTION5 PFK	42.97	1.025e4					2.3	NO		bb		
18	FUNCTION5 PFK	42.93	5.530e3					1.6	NO		bb		
19	FUNCTION5 PFK	42.73	1.429e4					2.2	NO		db		
20	FUNCTION5 PFK	45.96	7.313e3					1.4	NO		bb		
21	FUNCTION5 PFK	45.87	1.962e3					0.7	NO		bb		
22	FUNCTION5 PFK	45.45	3.153e3					1.2	NO		bb		
23	FUNCTION5 PFK	45.34	9.076e3					1.5	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	23.42	9.591e1					2.5	NO		bb		0.000
2	FUNCTION1 HXCD...	22.40	7.684e1					2.8	NO		db		0.000
3	FUNCTION1 HXCD...	22.36	1.358e2					3.1	YES		dd		0.000
4	FUNCTION1 HXCD...	22.21	1.718e2					3.3	YES		bd		0.000
5	FUNCTION1 HXCD...	21.32	9.347e1					2.1	NO		bb		0.000
6	FUNCTION1 HXCD...	21.18	1.065e2					1.6	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	29.76	1.243e2					2.2	NO		bb		0.000
2	FUNCTION2 HPCD...	29.66	9.588e1					2.4	NO		bb		0.000
3	FUNCTION2 HPCD...	28.94	9.118e1					2.1	NO		bb		0.000
4	FUNCTION2 HPCD...	28.32	1.118e2					4.6	YES		bb		0.000
5	FUNCTION2 HPCD...	31.66	7.074e1					2.1	NO		bb		0.000
6	FUNCTION2 HPCD...	30.49	1.288e2					5.4	YES		db		0.000
7	FUNCTION2 HPCD...	30.47	1.281e2					5.3	YES		bd		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.62	7.168e1					1.7	NO		bb		0.000
2	FUNCTION3 OCDPE	36.12	7.861e1					2.7	NO		bb		0.000
3	FUNCTION3 OCDPE	35.95	8.429e1					2.4	NO		bb		0.000
4	FUNCTION3 OCDPE	35.44	8.132e1					3.0	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.34	7.514e1					2.7	NO		bb		0.000

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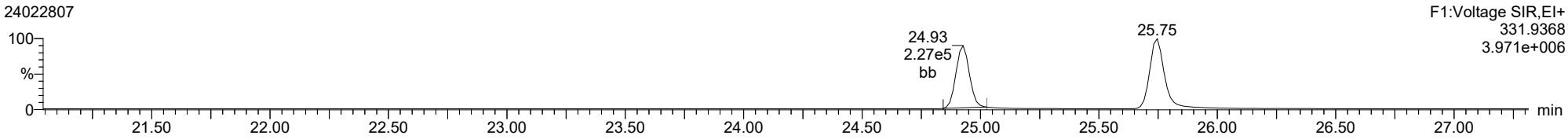
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	42.78	1.248e2					3.1	YES		bb		0.000

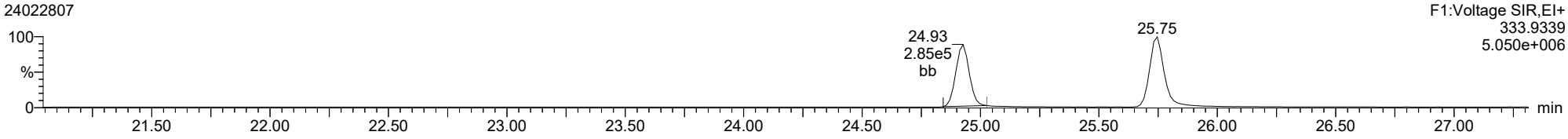
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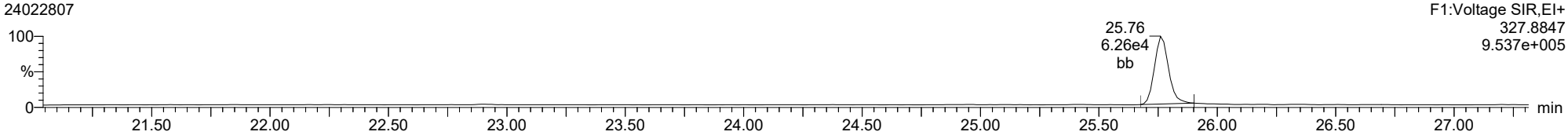
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13C-1234-TCDD

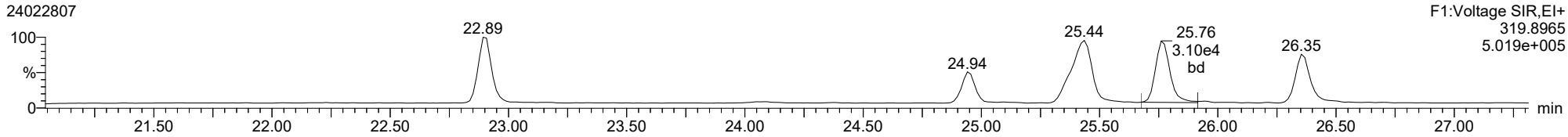


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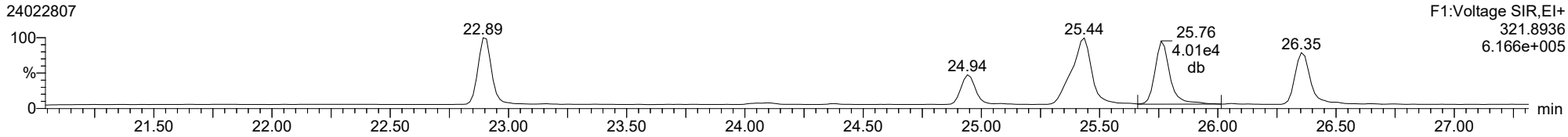


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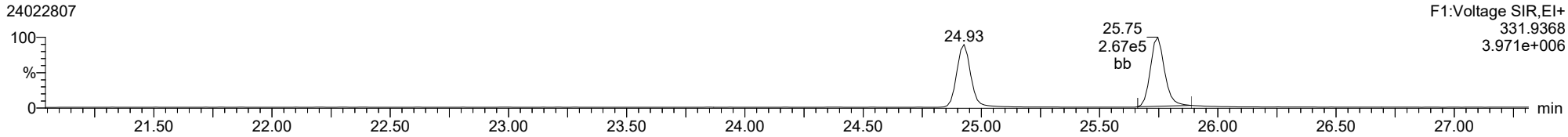
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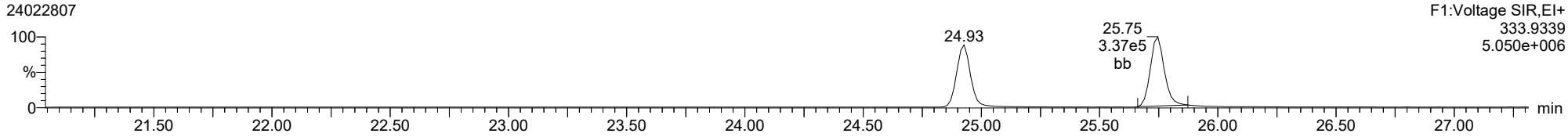
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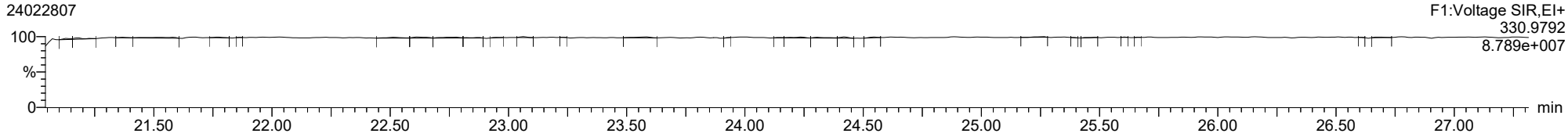
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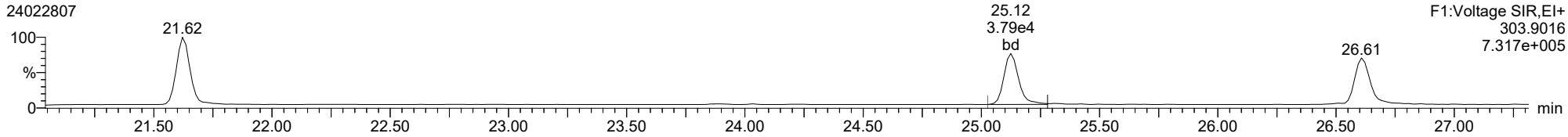


FUNCTION1 PFK

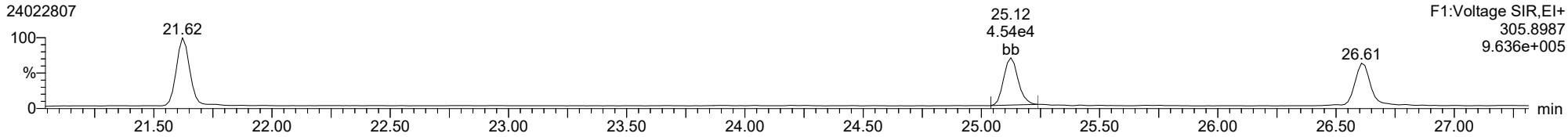


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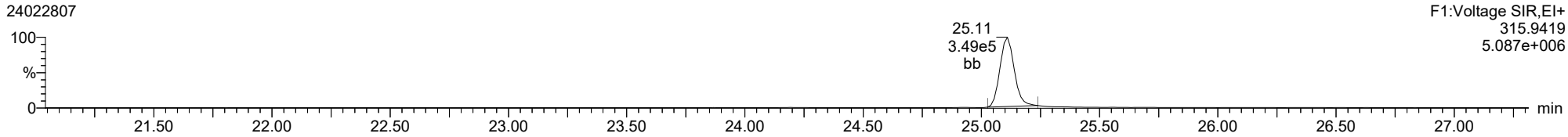
2378-TCDF



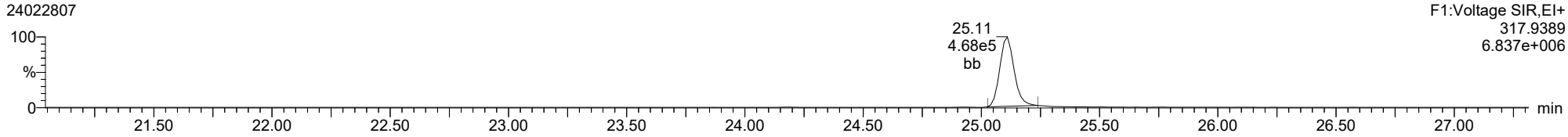
2378-TCDF



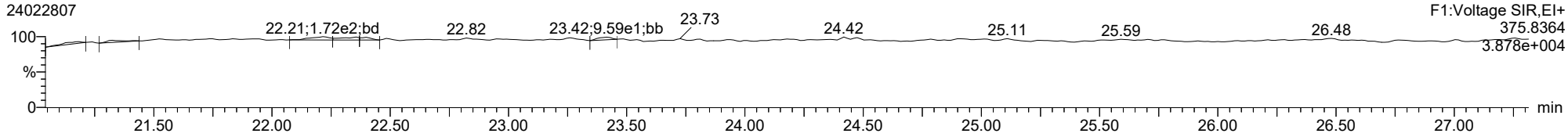
13C-2378-TCDF



13C-2378-TCDF

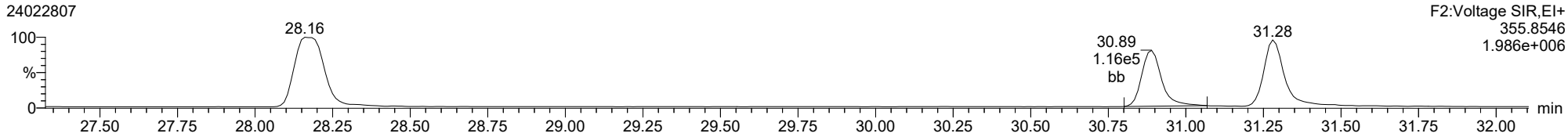


FUNCTION1 HXCDPE

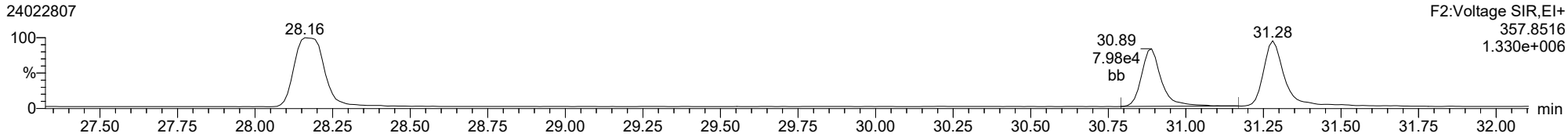


ID: CS3CY, Name: 24022807, Date: 28-Feb-2024, Time: 17:03:01, Conditions: AUTOSPEC01, User: pk

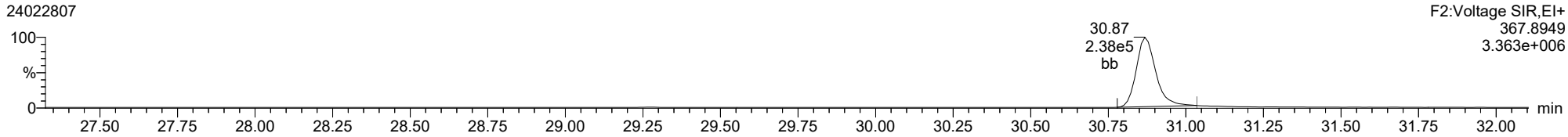
12378-PeCDD



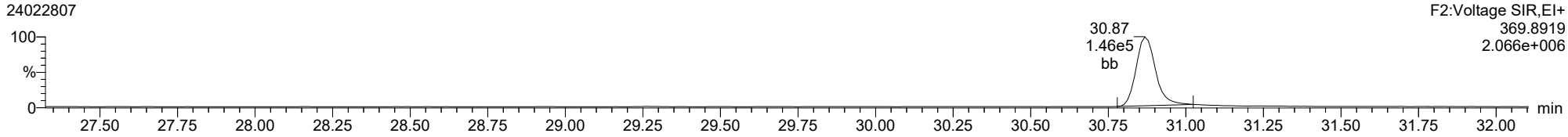
12378-PeCDD



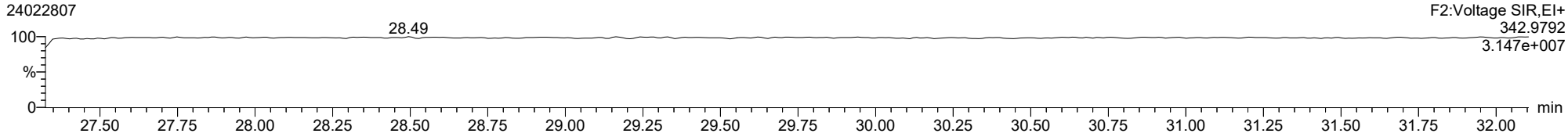
13C-12378-PeCDD



13C-12378-PeCDD

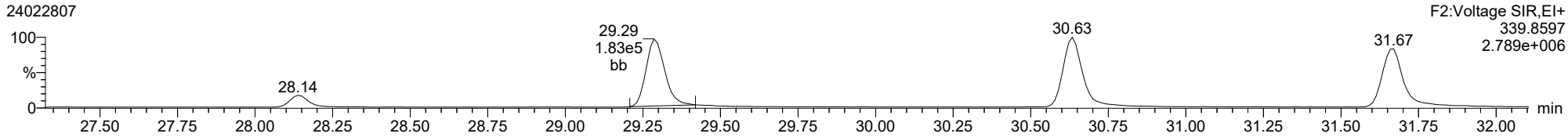


FUNCTION2 PFK

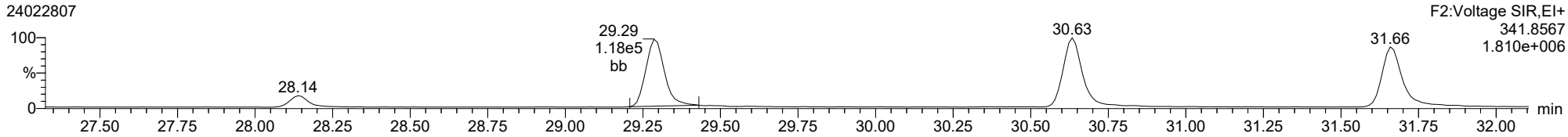


ID: CS3CY, Name: 24022807, Date: 28-Feb-2024, Time: 17:03:01, Conditions: AUTOSPEC01, User: pk

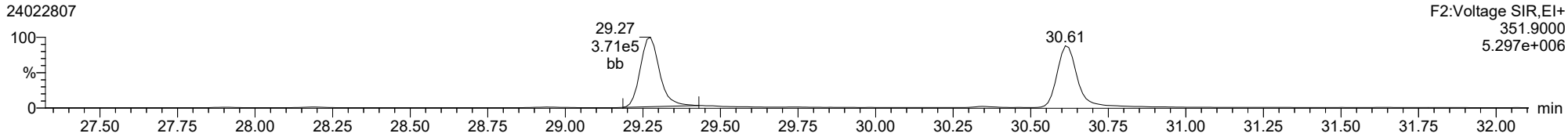
12378-PeCDF



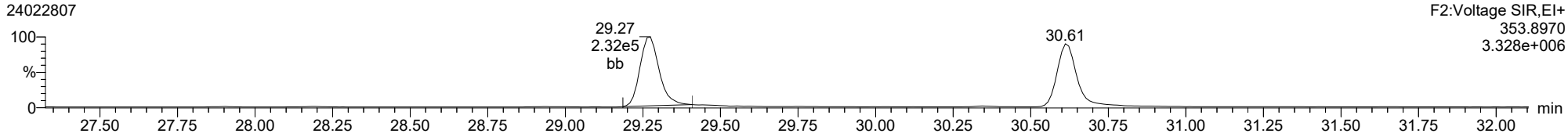
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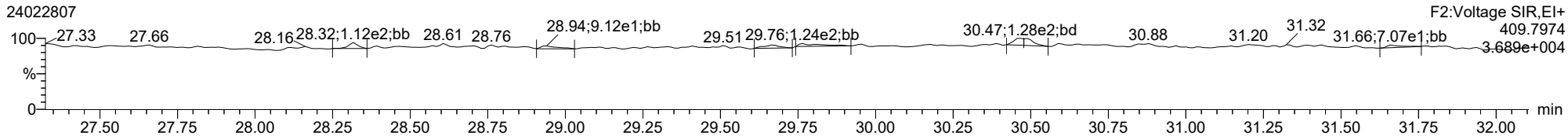
13C-12378-PeCDF



13C-12378-PeCDF

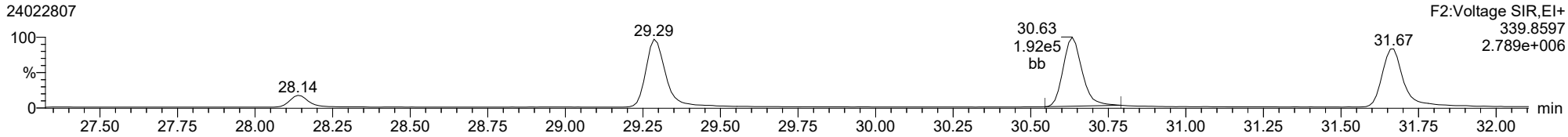


FUNCTION2 HPCDPE

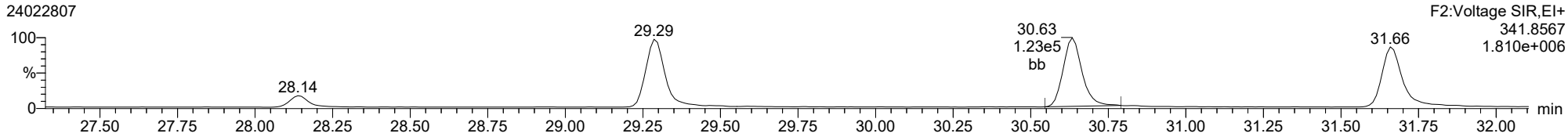


ID: CS3CY, Name: 24022807, Date: 28-Feb-2024, Time: 17:03:01, Conditions: AUTOSPEC01, User: pk

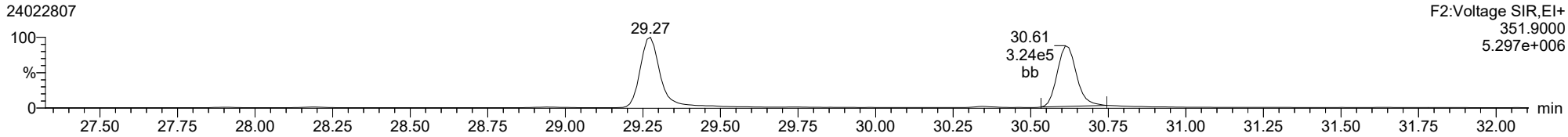
23478-PeCDF



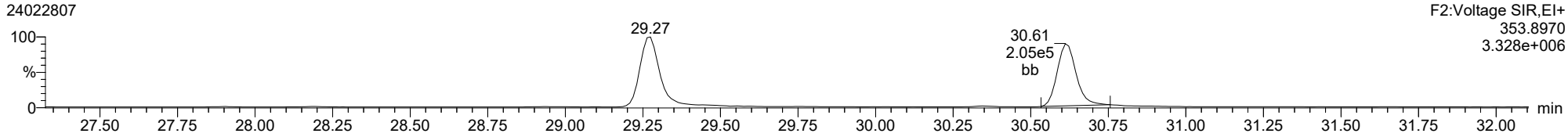
23478-PeCDF



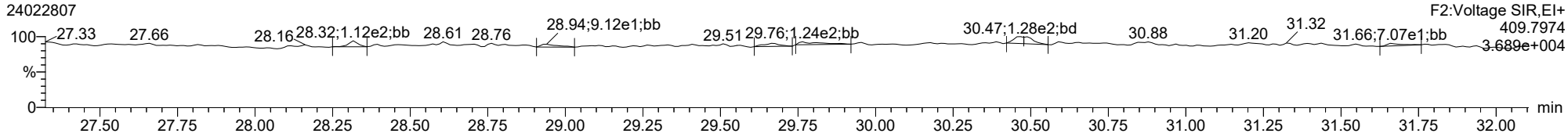
13C-23478-PeCDF



13C-23478-PeCDF

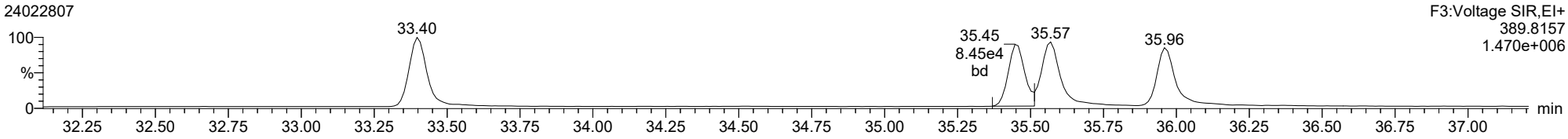


FUNCTION2 HPCDPE

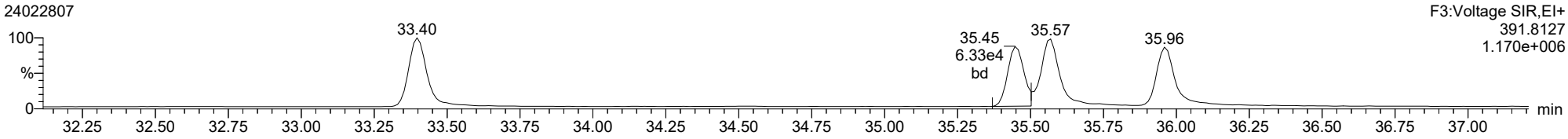


ID: CS3CY, Name: 24022807, Date: 28-Feb-2024, Time: 17:03:01, Conditions: AUTOSPEC01, User: pk

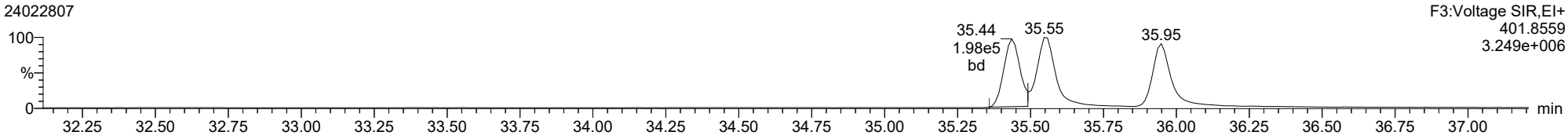
123478-HxCDD



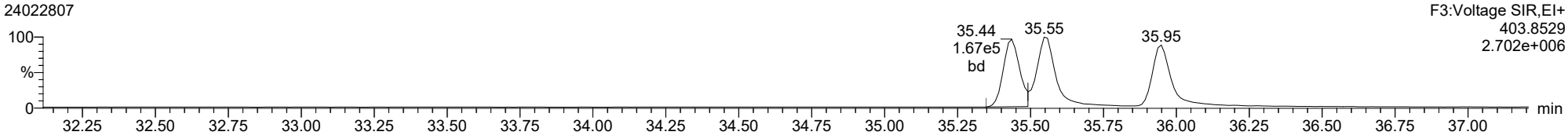
123478-HxCDD



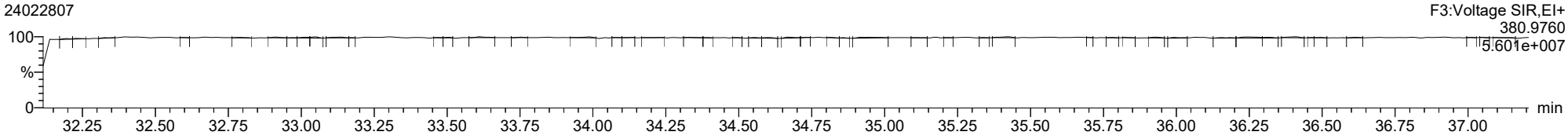
13C-123478-HxCDD



13C-123478-HxCDD

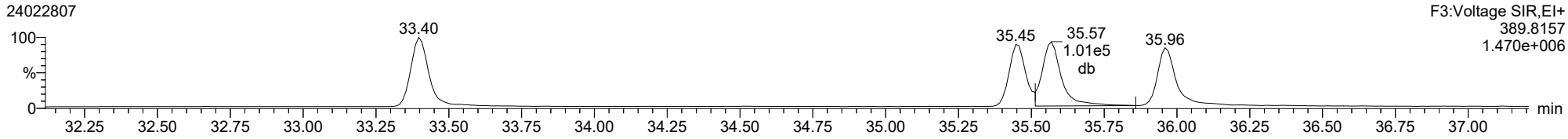


FUNCTION3 PFK

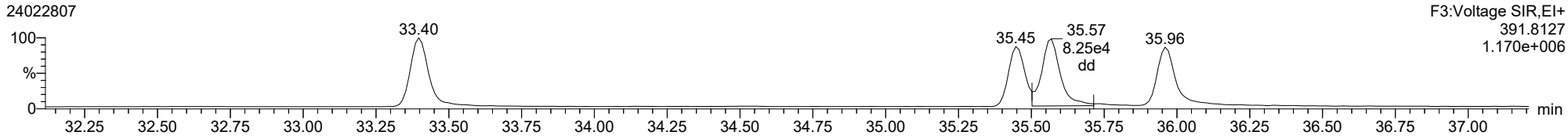


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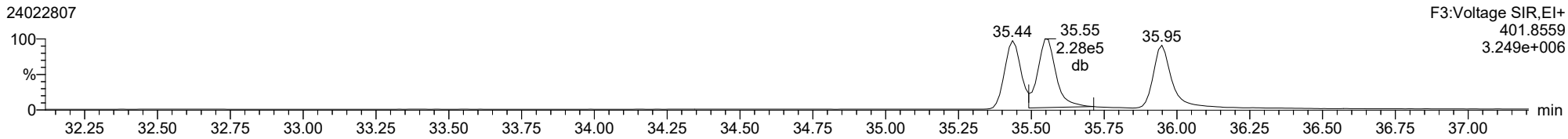
123678-HxCDD



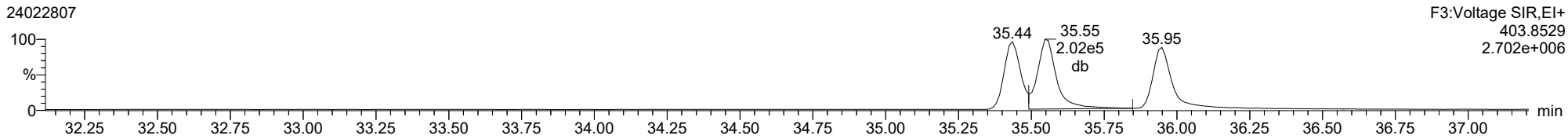
123678-HxCDD



13C-123678-HxCDD

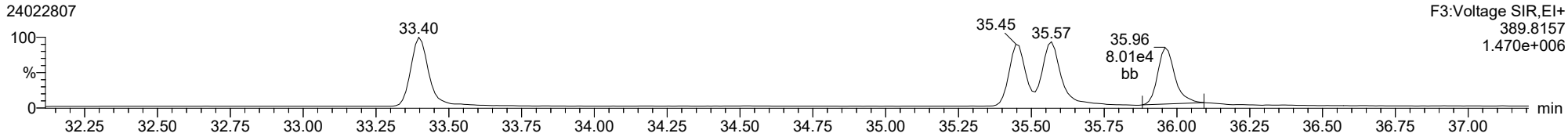


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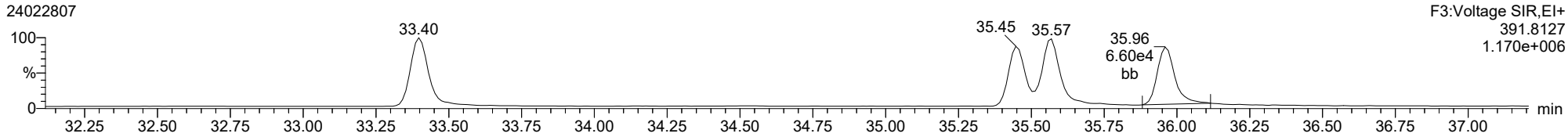


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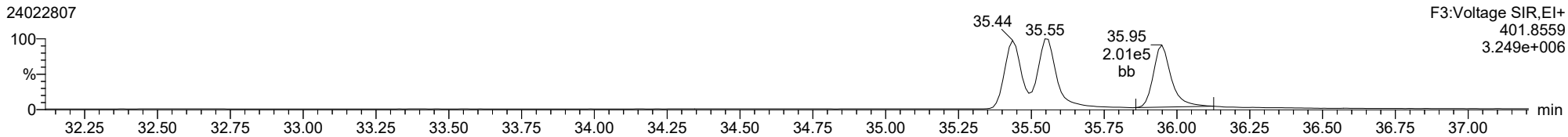
123789-HxCDD



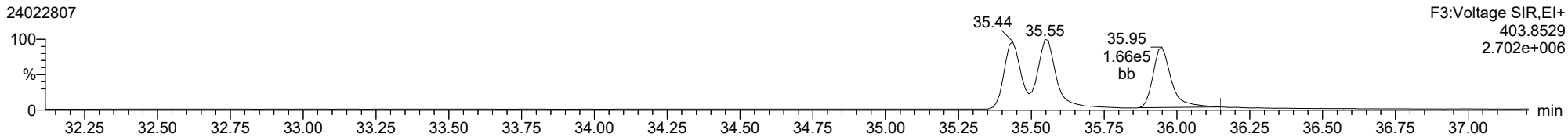
123789-HxCDD



13C-123789-HxCDD

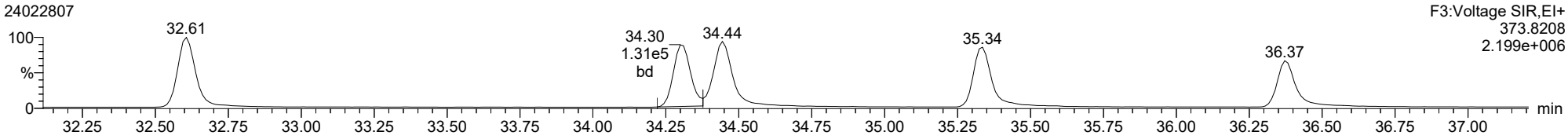


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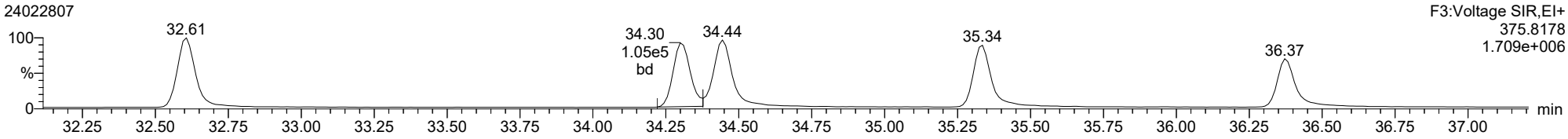


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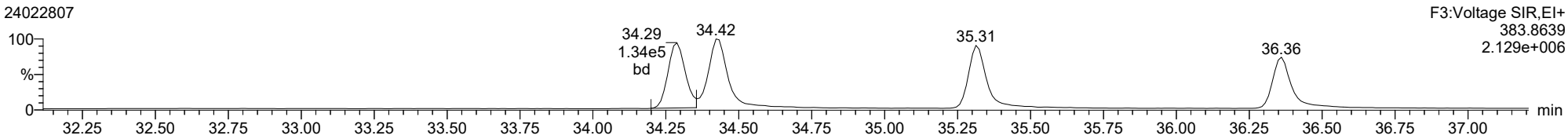
123478-HxCDF



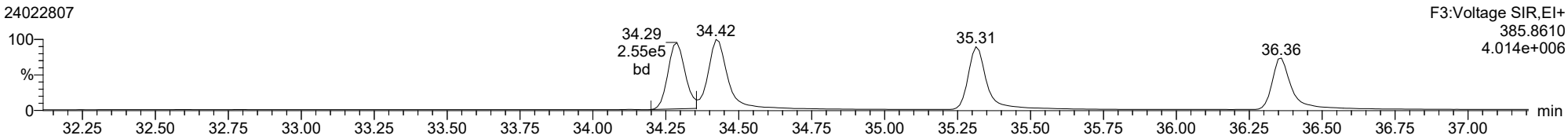
123478-HxCDF



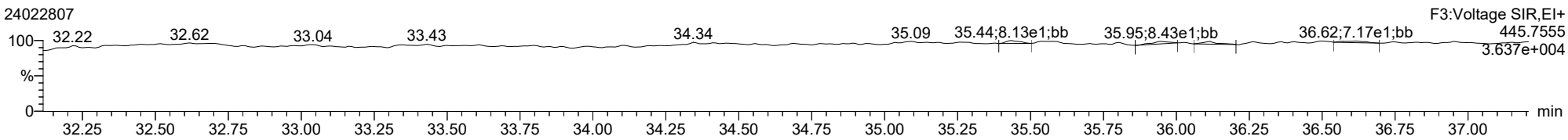
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13C-123478-HxCDF

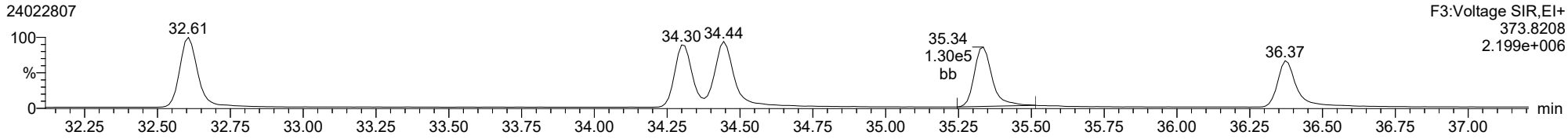


FUNCTION3 OCDPE

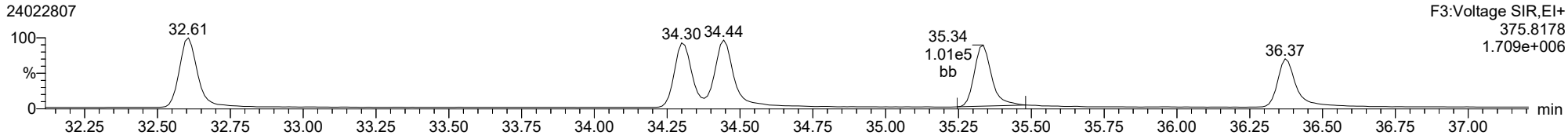


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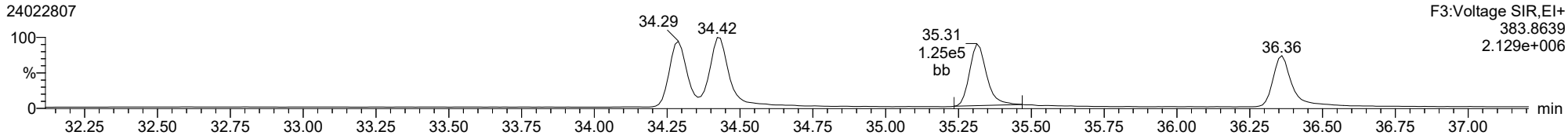
234678-HxCDF



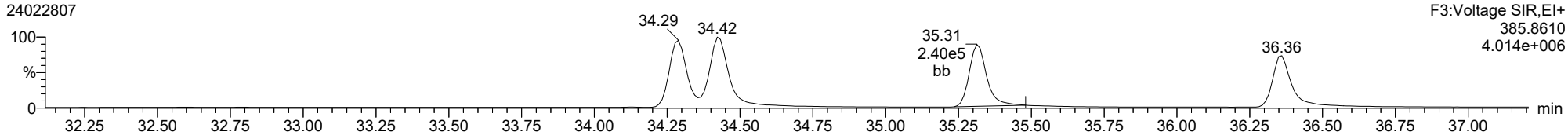
234678-HxCDF



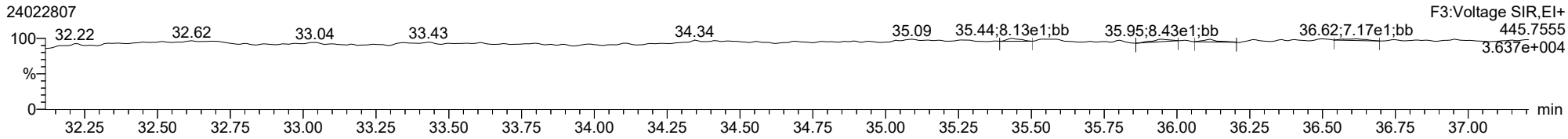
13C-234678-HxCDF



13C-234678-HxCDF

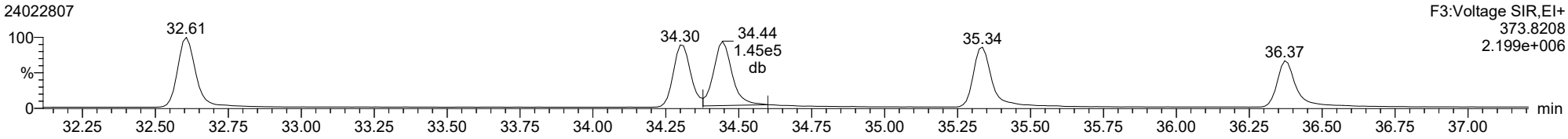


FUNCTION3 OCDPE

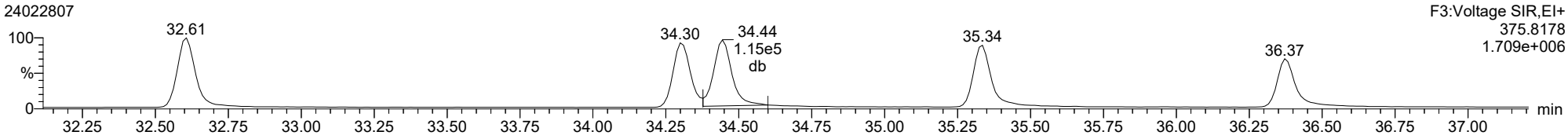


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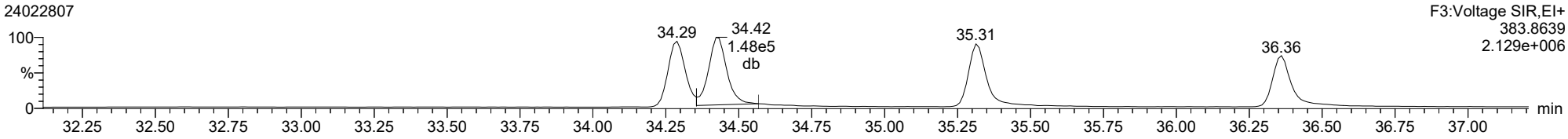
123678-HxCDF



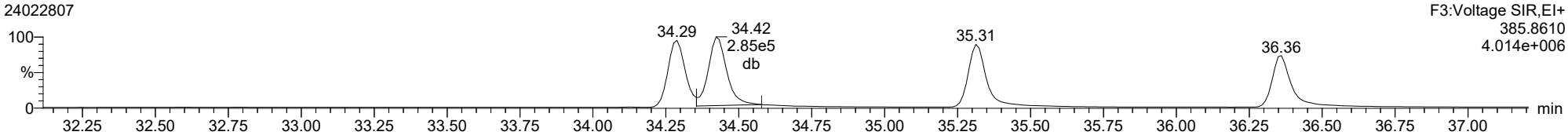
123678-HxCDF



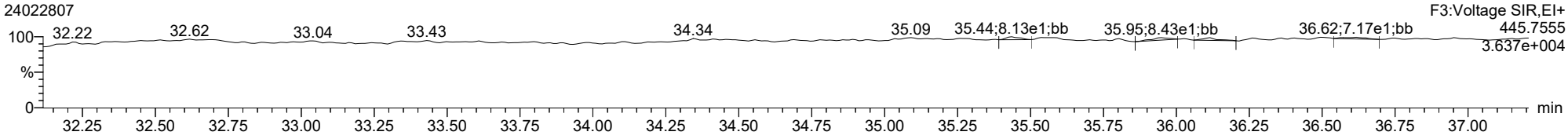
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13C-123678-HxCDF

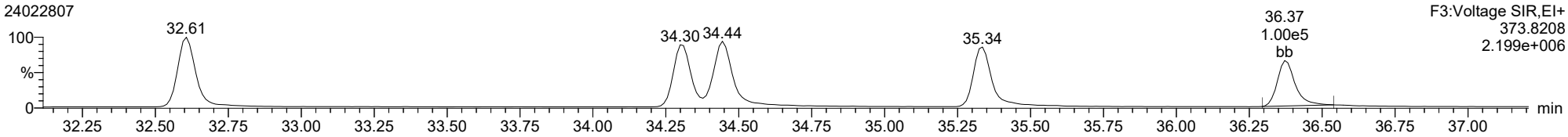


FUNCTION3 OCDPE

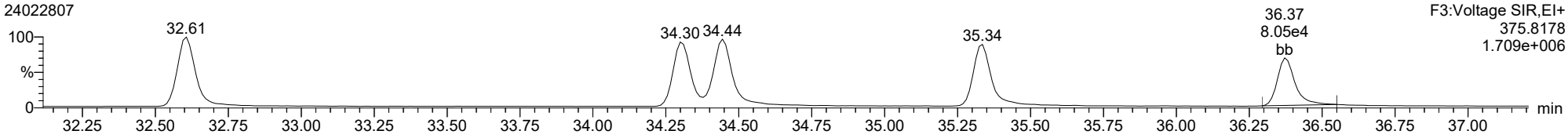


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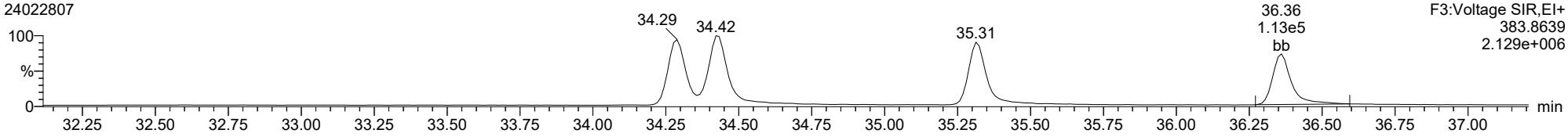
123789-HxCDF



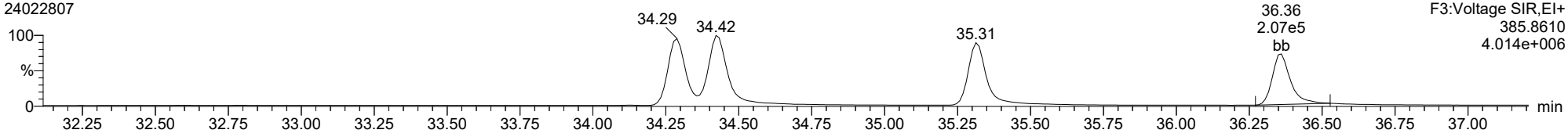
123789-HxCDF



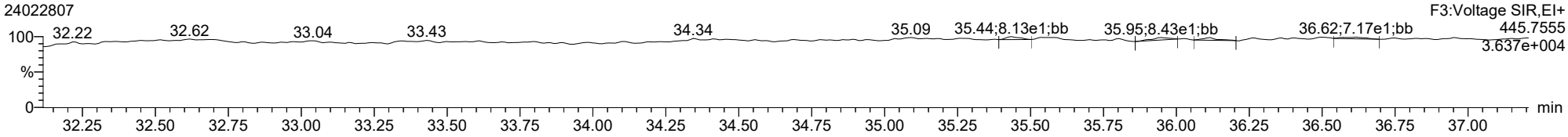
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13C-123789-HxCDF

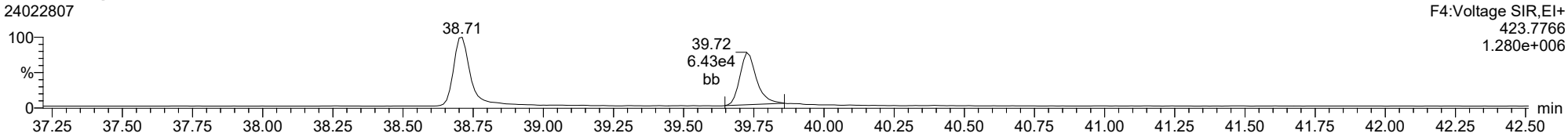


FUNCTION3 OCDPE

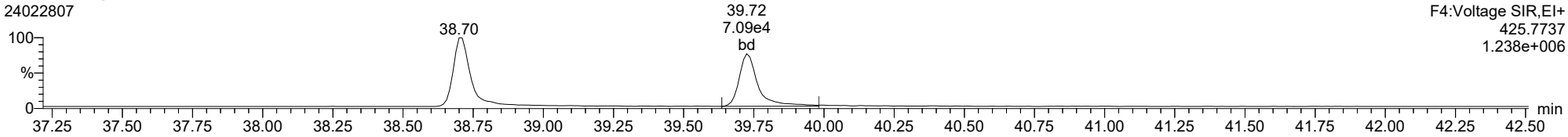


ID: CS3CY, Name: 24022807, Date: 28-Feb-2024, Time: 17:03:01, Conditions: AUTOSPEC01, User: pk

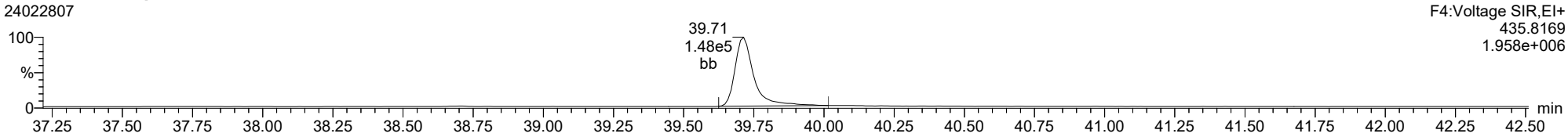
1234678-HpCDD



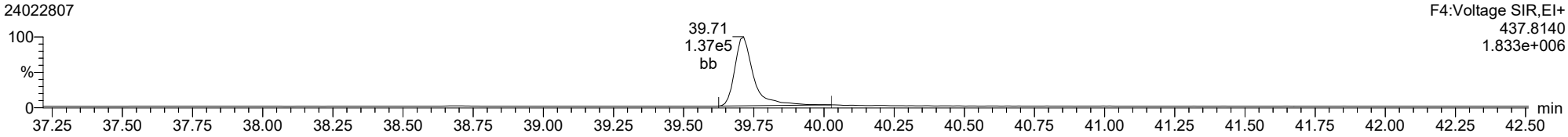
1234678-HpCDD



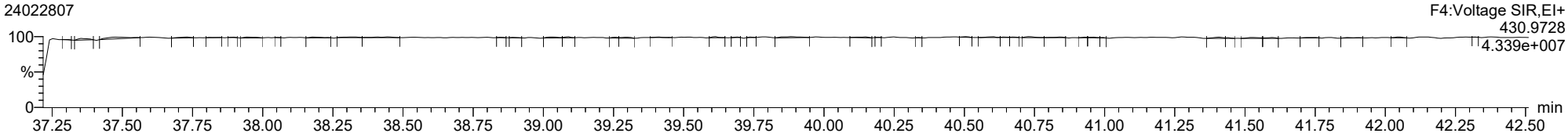
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13C-1234678-HpCDD

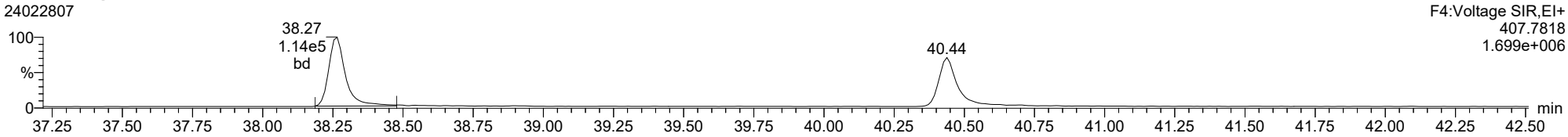


FUNCTION4 PFK

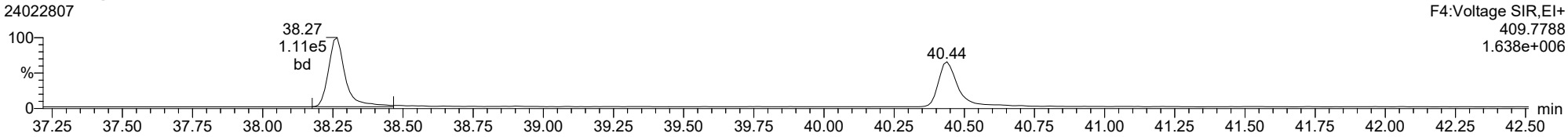


ID: CS3CY, Name: 24022807, Date: 28-Feb-2024, Time: 17:03:01, Conditions: AUTOSPEC01, User: pk

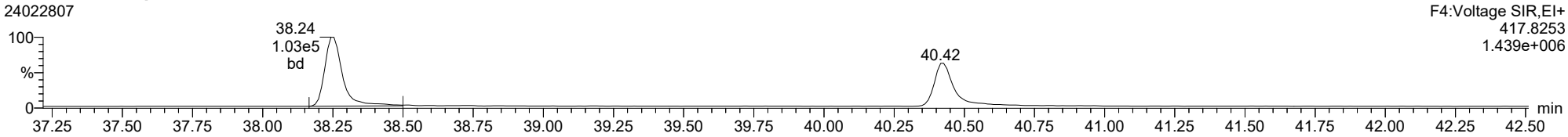
1234678-HpCDF



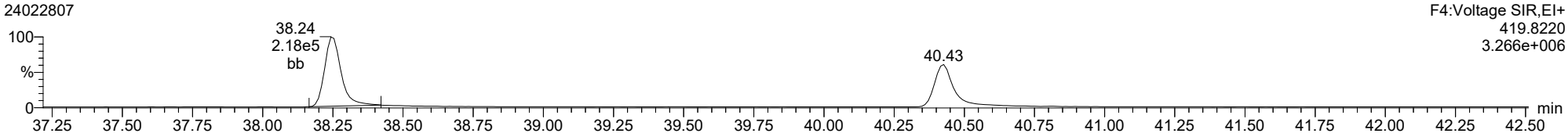
1234678-HpCDF



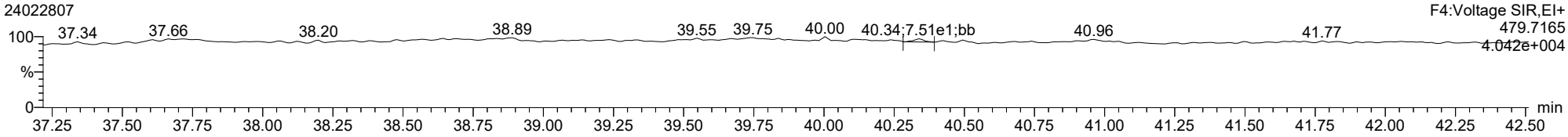
13C-1234678-HpCDF



13C-1234678-HpCDF

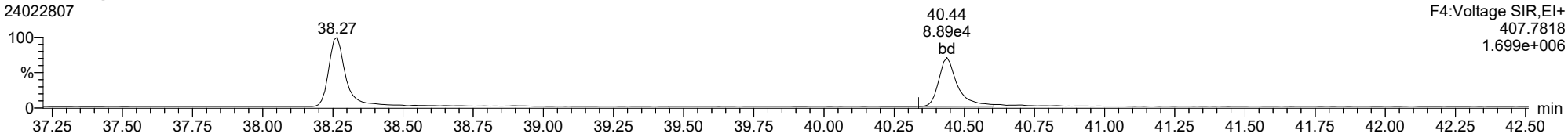


FUNCTION4 NCDPE

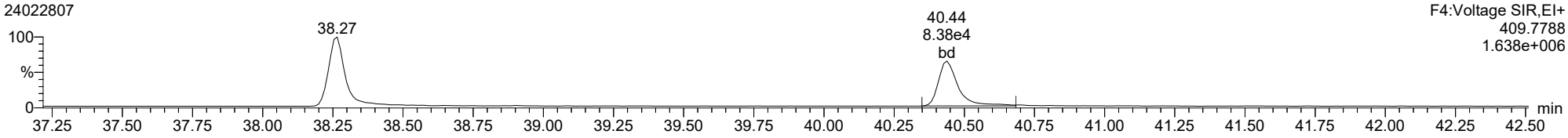


ID: CS3CY, Name: 24022807, Date: 28-Feb-2024, Time: 17:03:01, Conditions: AUTOSPEC01, User: pk

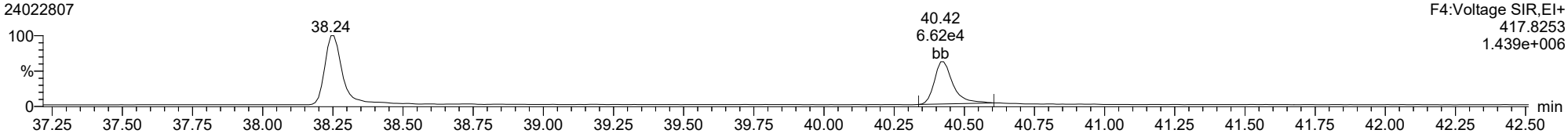
1234789-HpCDF



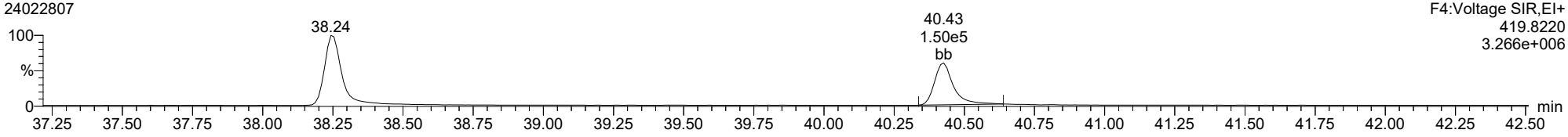
1234789-HpCDF



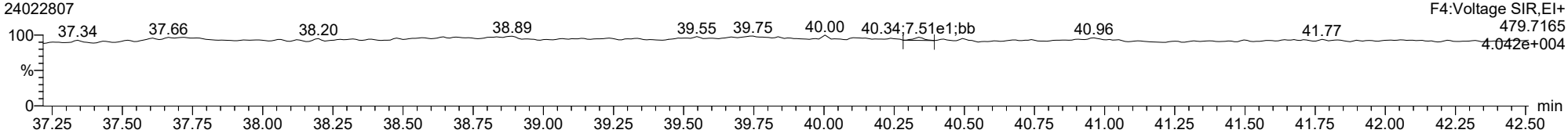
13C-1234789-HpCDF



13C-1234789-HpCDF

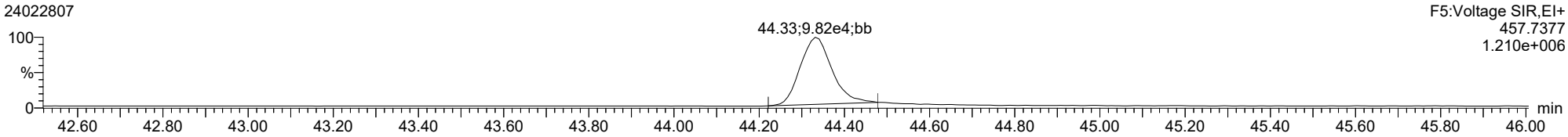


FUNCTION4 NCDPE

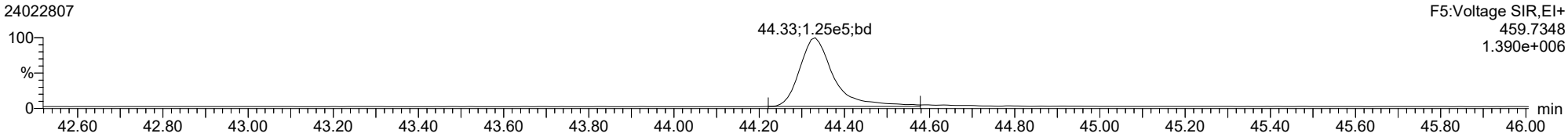


ID: CS3CY, Name: 24022807, Date: 28-Feb-2024, Time: 17:03:01, Conditions: AUTOSPEC01, User: pk

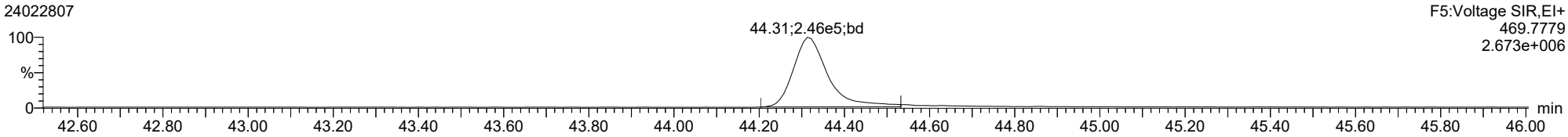
OCDD



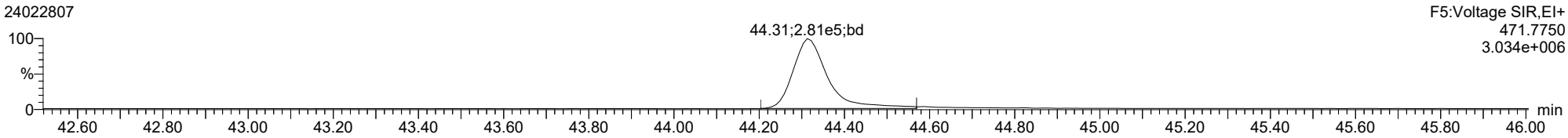
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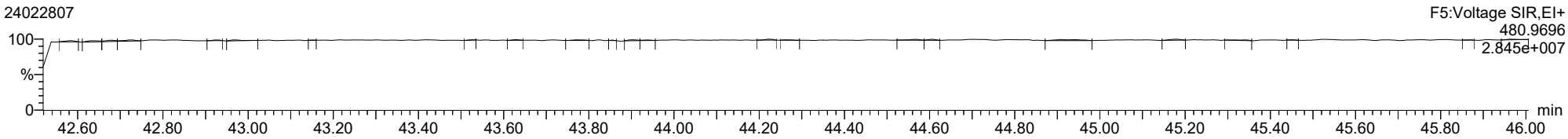
13C-OCDD



13C-OCDD



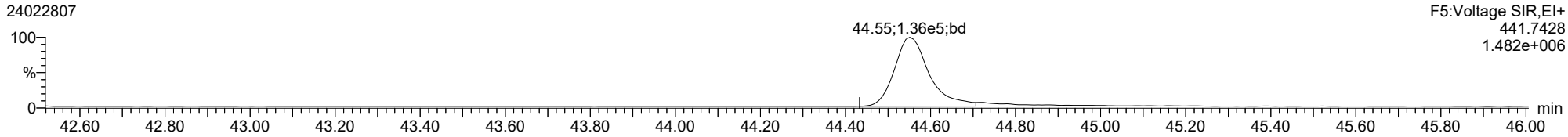
FUNCTION5 PFK



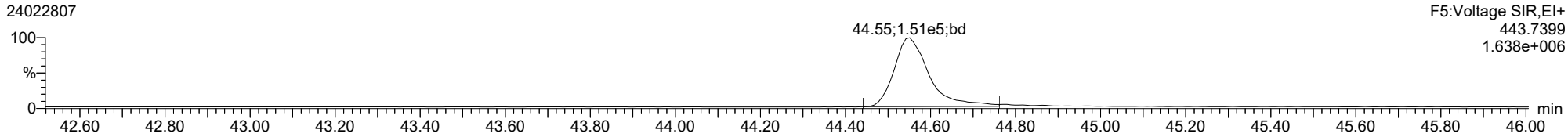
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Printed: Thursday, February 29, 2024 08:25:39 Pacific Standard Time

ID: CS3CY, Name: 24022807, Date: 28-Feb-2024, Time: 17:03:01, Conditions: AUTOSPEC01, User: pk

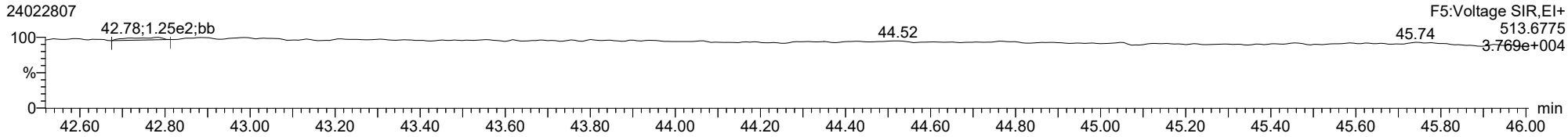
OCDF



OCDF

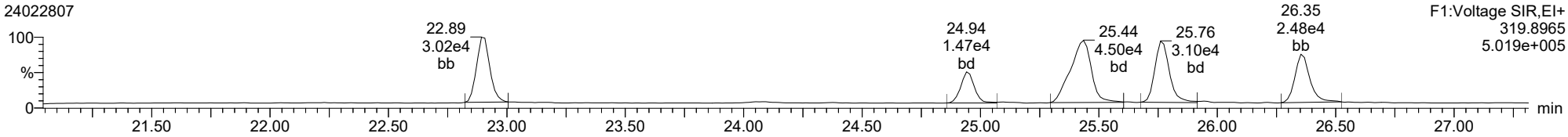


FUNCTION5 DCDPE

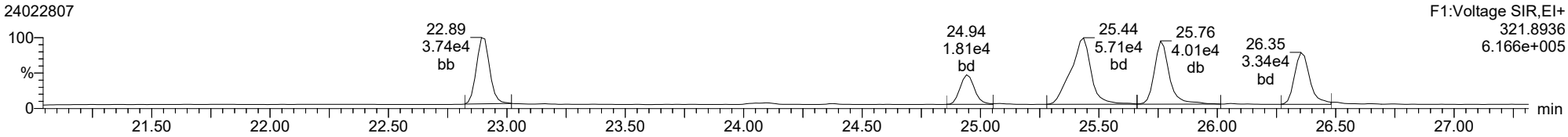


ID: CS3CY, Name: 24022807, Date: 28-Feb-2024, Time: 17:03:01, Conditions: AUTOSPEC01, User: pk

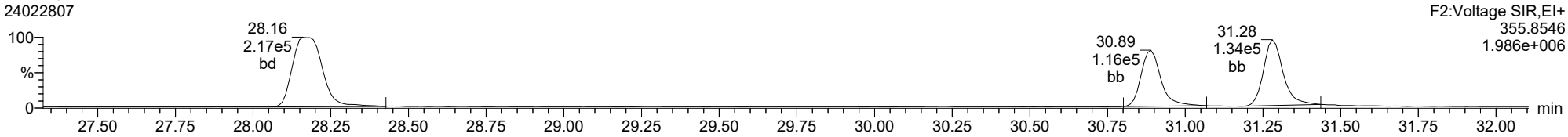
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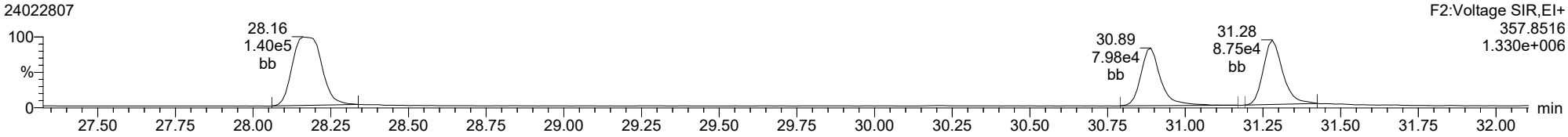
Total-tetradioxins



Total-pentadioxins

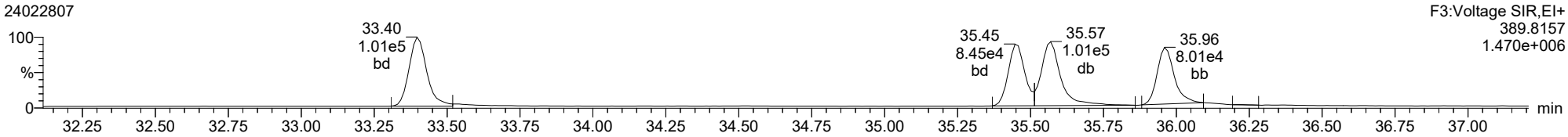


Total-pentadioxins

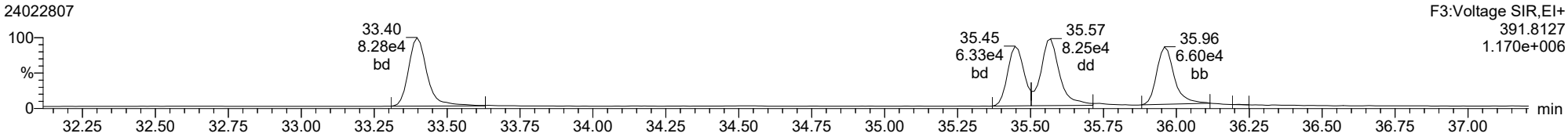


ID: CS3CY, Name: 24022807, Date: 28-Feb-2024, Time: 17:03:01, Conditions: AUTOSPEC01, User: pk

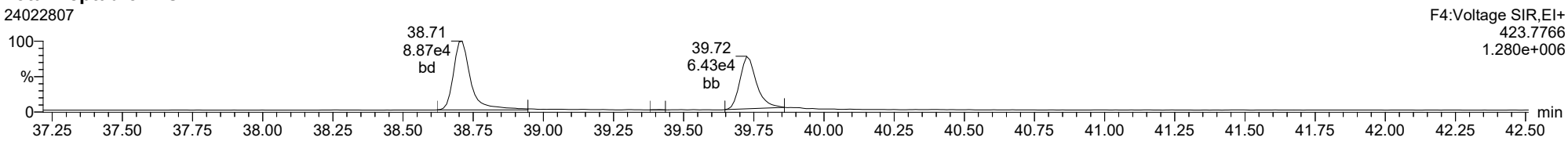
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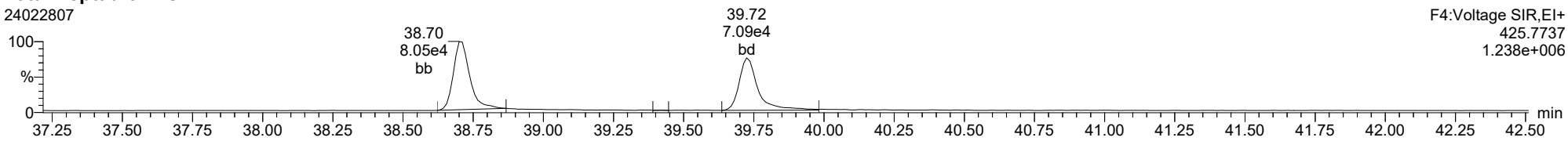
Total-hexadioxins



Total-heptadioxins



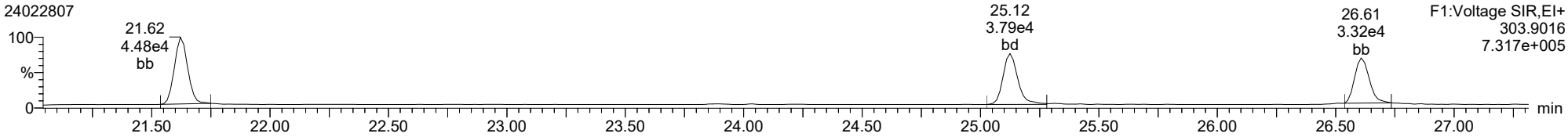
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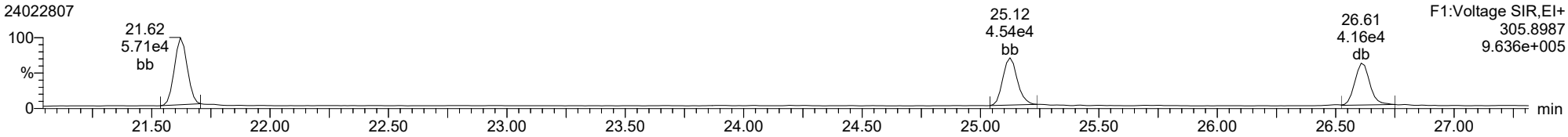
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ID: CS3CY, Name: 24022807, Date: 28-Feb-2024, Time: 17:03:01, Conditions: AUTOSPEC01, User: pk

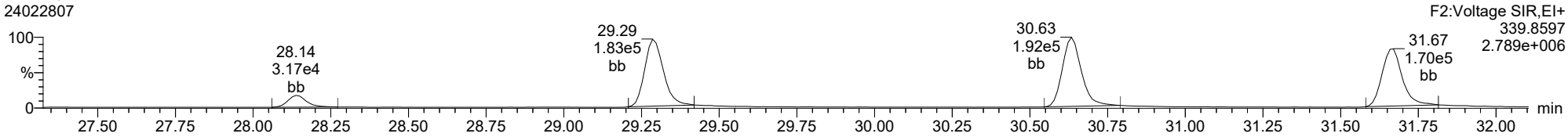
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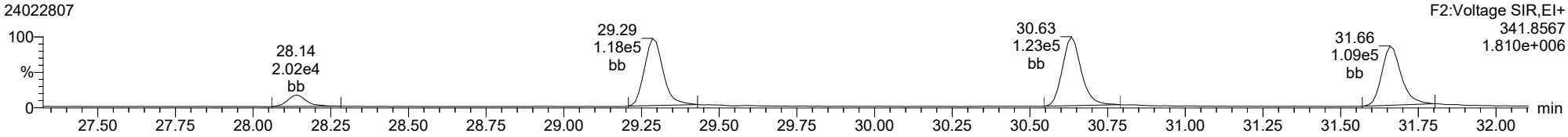
Total-tetrafurans



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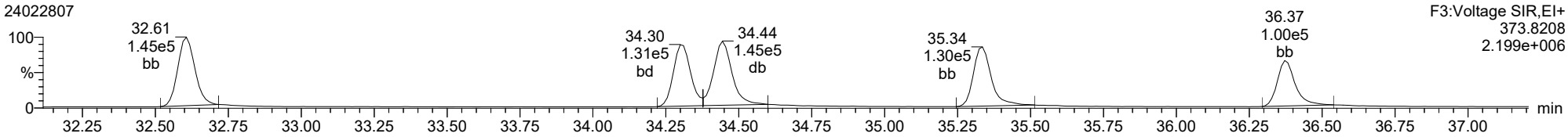


Total-pentafurans

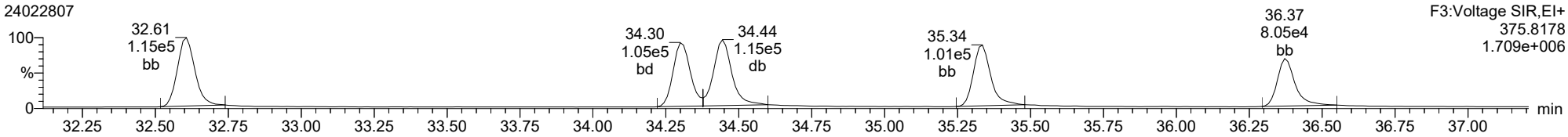


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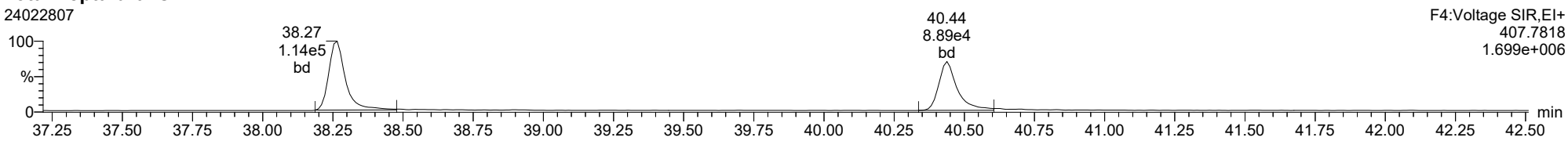
Total-hexafurans



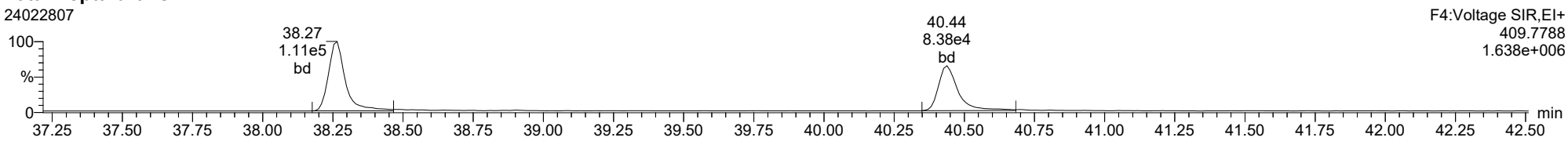
Total-hexafurans



Total-heptafurans



Total-heptafurans



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Method: T:\Autospec\Methods\Dioxin240228.mdb 29 Feb 2024 08:04:37
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

ID: CS4CY, Name: 24022808, Date: 28-Feb-2024, Time: 17:51:41, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.139	1.001	1.251e5	1.525e5	0.980	0.820	0.770	1397	1412	1.79e6	2.24e6	1280.9	1589.0	NO	bb	bb	36.469
12378-PeCDF	29.305	1.001	6.737e5	4.419e5	1.047	1.525	1.550	3469	4489	9.53e6	6.22e6	2748.5	1385.6	NO	bb	bb	194.777
23478-PeCDF	30.642	1.000	7.040e5	4.462e5	1.156	1.578	1.550	3469	4489	1.00e7	6.52e6	2891.0	1452.8	NO	bb	bb	197.824
123478-HxCDF	34.319	1.001	4.961e5	3.930e5	1.224	1.262	1.240	3535	2185	7.29e6	5.79e6	2063.3	2649.6	NO	bd	bd	200.357
234678-HxCDF	35.344	1.001	4.887e5	3.898e5	1.235	1.254	1.240	3535	2185	7.19e6	5.69e6	2033.7	2605.9	NO	bb	bb	195.035
123678-HxCDF	34.453	1.000	5.611e5	4.463e5	1.193	1.257	1.240	3535	2185	7.76e6	6.16e6	2195.3	2822.1	NO	db	db	206.788
123789-HxCDF	36.380	1.000	3.950e5	3.141e5	1.100	1.258	1.240	3535	2185	5.61e6	4.47e6	1587.6	2045.4	NO	bb	bb	202.546
1234678-HpCDF	38.275	1.000	4.391e5	4.121e5	1.392	1.066	1.050	5893	3203	6.87e6	6.47e6	1165.8	2020.2	NO	bb	bb	187.777
1234789-HpCDF	40.447	1.000	3.396e5	3.214e5	1.381	1.056	1.050	5893	3203	4.51e6	4.24e6	765.2	1323.8	NO	bb	bb	199.067
OCDF	44.558	1.005	5.824e5	6.482e5	1.222	0.899	0.890	3770	3452	6.31e6	6.93e6	1674.2	2008.2	NO	bd	bd	481.719
2378-TCDD	25.774	1.000	1.082e5	1.408e5	1.227	0.769	0.770	1195	1065	1.53e6	2.01e6	1279.5	1886.0	NO	bb	bb	39.210
12378-PeCDD	30.899	1.001	4.660e5	2.883e5	0.964	1.616	1.550	2544	904	6.23e6	4.06e6	2450.0	4489.5	NO	bd	bb	207.925
123478-HxCDD	35.456	1.000	3.259e5	2.567e5	0.841	1.270	1.240	993	1751	4.99e6	3.93e6	5028.9	2245.6	NO	bd	bd	206.072
123678-HxCDD	35.578	1.000	4.055e5	3.103e5	0.833	1.307	1.240	993	1751	5.51e6	4.51e6	5551.0	2576.4	NO	db	db	212.243
123789-HxCDD	35.968	1.011	3.176e5	2.549e5	0.770	1.246	1.240	993	1751	4.59e6	3.75e6	4619.7	2140.2	NO	bb	bb	200.540
1234678-HpCDD	39.734	1.000	2.898e5	2.836e5	0.984	1.022	1.050	2612	2332	3.80e6	3.73e6	1454.7	1600.0	NO	bd	bd	223.581
OCDD	44.339	1.000	3.944e5	4.543e5	0.938	0.868	0.890	3565	2601	4.29e6	4.89e6	1203.4	1880.9	NO	bd	bd	433.138
13C-2378-TCDF	25.125	1.007	3.200e5	4.566e5	1.655	0.701	0.770	1999	1765	4.48e6	6.08e6	2238.7	3446.5	NO	bb	bb	106.648
13C-12378-PeCDF	29.283	1.174	3.415e5	2.054e5	1.196	1.663	1.550	2693	2752	4.67e6	2.90e6	1732.2	1052.6	NO	bd	bb	103.970
13C-23478-PeCDF	30.631	1.228	3.063e5	1.969e5	1.117	1.556	1.550	2693	2752	4.25e6	2.73e6	1579.3	990.4	NO	bb	bb	102.381
13C-123478-HxCDF	34.297	0.954	1.266e5	2.361e5	1.028	0.536	0.510	1803	2374	1.84e6	3.48e6	1019.4	1466.9	NO	bd	bd	98.728
13C-123678-HxCDF	34.442	0.958	1.422e5	2.661e5	1.176	0.534	0.510	1803	2374	2.01e6	3.73e6	1117.0	1570.6	NO	db	db	97.210
13C-234678-HxCDF	35.322	0.982	1.225e5	2.424e5	1.016	0.505	0.510	1803	2374	1.74e6	3.31e6	962.4	1394.6	NO	bb	bd	100.522
13C-123789-HxCDF	36.369	1.012	1.157e5	2.026e5	0.879	0.571	0.510	1803	2374	1.55e6	2.93e6	860.8	1233.4	NO	bd	bb	101.343
13C-1234678-HpCDF	38.263	1.064	9.735e4	2.282e5	0.870	0.427	0.440	1708	2772	1.48e6	3.32e6	866.5	1197.8	NO	bb	bd	104.752
13C-1234789-HpCDF	40.436	1.125	7.486e4	1.657e5	0.638	0.452	0.440	1708	2772	1.01e6	2.16e6	590.3	780.3	NO	MM	MM	105.579
13C-1234-TCDD	24.941	0.000	1.923e5	2.477e5	1.000	0.776	0.770	1883	1521	2.87e6	3.67e6	1521.8	2412.5	NO	bb	bb	100.000
13C-2378-TCDD	25.760	1.033	2.281e5	2.894e5	1.151	0.788	0.770	1883	1521	3.26e6	4.05e6	1732.8	2659.7	NO	bb	bb	102.213
13C-12378-PeCDD	30.876	1.238	2.273e5	1.489e5	0.828	1.527	1.550	1485	975	3.22e6	2.06e6	2170.0	2107.6	NO	bb	bd	103.221
13C-123478-HxCDD	35.444	0.986	1.838e5	1.525e5	0.950	1.205	1.240	2289	1895	2.87e6	2.43e6	1252.9	1280.0	NO	bd	bd	99.116
13C-123678-HxCDD	35.567	0.989	2.228e5	1.822e5	1.107	1.223	1.240	2289	1895	3.03e6	2.61e6	1325.3	1376.9	NO	db	db	102.423
13C-1234678-HpCDD	39.723	1.105	1.309e5	1.296e5	0.737	1.011	1.050	1960	1546	1.86e6	1.75e6	949.3	1132.0	NO	bb	bb	98.932
13C-OCDD	44.329	1.233	2.046e5	2.134e5	0.633	0.959	0.890	2229	2078	2.22e6	2.48e6	996.8	1195.4	NO	bd	bb	184.964
13C-123789-HxCDD	35.957	0.000	1.942e5	1.630e5	1.000	1.192	1.240	2289	1895	2.87e6	2.38e6	1255.9	1255.5	NO	bb	bb	100.000
37CL-2378-TCDD	25.774	1.033	2.307e5		1.312			1268		3.33e6		2623.6			bb		39.959

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Last Altered: Thursday, February 29, 2024 08:17:31 Pacific Standard Time
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ID: CS4CY, Name: 24022808, Date: 28-Feb-2024, Time: 17:51:41, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.247		0.770	1397	1412								
1289-TCDF					0.916		0.770	1397	1412								
13468-PECDF					1.353		1.550	568	916								
12389-PECDF					0.925		1.550	3469	4489								
123468-HXCDF					1.335		1.240	3535	2185								
1368-TCDD					1.120		0.770	1195	1065								
1289-TCDD					0.966		0.770	1195	1065								
12479-PECDD					1.859		1.550	2544	904								
12389-PECDD					1.154		1.550	2544	904								
124679-HXCDD					1.006		1.240	993	1751								
1234679-HPCDD					1.184		1.050	2612	2332								
Total-tetrafurans			1.271e5		1.048			1397		1.82e6							37.027
Total-penta1			0.000e0					568		0.00e0							
Total-pentafurans			1.378e6		1.043			3469		1.96e7							392.842
Total-hexafurans			1.942e6		1.217			3535		2.79e7							804.959
Total-heptafurans			7.787e5		1.387			5893		1.14e7							386.844
Total-Furans			4.808e6		1.180			1397		6.70e7							2103.391
Total-tetradioxins			1.107e5		1.104			1195		1.56e6							40.318
Total-pentadioxins			4.669e5		1.326			2544		6.25e6							208.235
Total-hexadioxins			1.049e6		0.863			993		1.51e7							618.854
Total-heptadioxins			2.898e5		1.084			2612		3.80e6							223.581
Total-Dioxins			2.311e6		1.065			1195		3.10e7							1524.127
Total-TEQ			7.119e6					1195		9.79e7							3627.518
FUNCTION1 PFK			1.550e6					633002		3.19e7							
FUNCTION2 PFK			1.198e5					329777		4.50e6							0.000
FUNCTION3 PFK			4.072e5					432365		1.03e7							0.000
FUNCTION4 PFK			1.300e7					314275		1.28e7							
FUNCTION5 PFK			0.000e0					202339		0.00e0							
FUNCTION1 HXCD...			7.203e2					542		7.67e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			7.885e2					926		1.32e4							0.000
FUNCTION3 OCDPE			7.735e1					547		1.65e3							0.000
FUNCTION4 NCDPE			5.197e2					689		9.64e3							0.000
FUNCTION5 DCDPE			0.000e0					484		0.00e0							

Dataset: T:\Autospec\Processed Data Batch\240228ICIH.qld
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Method: T:\Autospec\Methods\Dioxin240228.mdb 29 Feb 2024 08:04:37
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	25.45	7.217e1	8.661e1	1.048	0.83	0.77	1.7	NO	NO	bb	bb	0.020
2	2378-TCDF	25.14	1.251e5	1.525e5	0.980	0.82	0.77	1280.9	YES	NO	bb	bb	36.469
3	Total-tetrafurans	24.22	6.629e2	9.943e2	1.048	0.67	0.77	9.0	YES	NO	bb	bb	0.204
4	Total-tetrafurans	23.90	1.274e3	1.452e3	1.048	0.88	0.77	13.5	YES	NO	bb	bb	0.335

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.31	6.737e5	4.419e5	1.047	1.52	1.55	2748.5	YES	NO	bb	bb	194.777
2	23478-PeCDF	30.64	7.040e5	4.462e5	1.156	1.58	1.55	2891.0	YES	NO	bb	bb	197.824
3	Total-pentafurans	30.51	7.585e2	5.614e2	1.043	1.35	1.55	4.2	YES	NO	bb	bb	0.241

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexafurans	34.75	1.557e2	1.256e2	1.217	1.24	1.24	0.0	NO	NO	bb	bb	0.064
2	123678-HxCDF	34.45	5.611e5	4.463e5	1.193	1.26	1.24	2195.3	YES	NO	db	db	206.788
3	123478-HxCDF	34.32	4.961e5	3.930e5	1.224	1.26	1.24	2063.3	YES	NO	bd	bd	200.357
4	Total-hexafurans	34.14	4.408e2	3.133e2	1.217	1.41	1.24	2.6	NO	NO	bb	bb	0.170
5	123789-HxCDF	36.38	3.950e5	3.141e5	1.100	1.26	1.24	1587.6	YES	NO	bb	bb	202.546
6	234678-HxCDF	35.34	4.887e5	3.898e5	1.235	1.25	1.24	2033.7	YES	NO	bb	bb	195.035

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.27	4.391e5	4.121e5	1.392	1.07	1.05	1165.8	YES	NO	bb	bb	187.777
2	1234789-HpCDF	40.45	3.396e5	3.214e5	1.381	1.06	1.05	765.2	YES	NO	bb	bb	199.067

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	25.45	7.217e1	8.661e1	1.048	0.83	0.77	1.7	NO	NO	bb	bb	0.020
2	2378-TCDF	25.14	1.251e5	1.525e5	0.980	0.82	0.77	1280.9	YES	NO	bb	bb	36.469
3	Total-tetrafurans	24.22	6.629e2	9.943e2	1.048	0.67	0.77	9.0	YES	NO	bb	bb	0.204
4	Total-tetrafurans	23.90	1.274e3	1.452e3	1.048	0.88	0.77	13.5	YES	NO	bb	bb	0.335
5	12378-PeCDF	29.31	6.737e5	4.419e5	1.047	1.52	1.55	2748.5	YES	NO	bb	bb	194.777
6	23478-PeCDF	30.64	7.040e5	4.462e5	1.156	1.58	1.55	2891.0	YES	NO	bb	bb	197.824
7	Total-pentafurans	30.51	7.585e2	5.614e2	1.043	1.35	1.55	4.2	YES	NO	bb	bb	0.241
8	Total-hexafurans	34.75	1.557e2	1.256e2	1.217	1.24	1.24	0.0	NO	NO	bb	bb	0.064
9	123678-HxCDF	34.45	5.611e5	4.463e5	1.193	1.26	1.24	2195.3	YES	NO	db	db	206.788
10	123478-HxCDF	34.32	4.961e5	3.930e5	1.224	1.26	1.24	2063.3	YES	NO	bd	bd	200.357
11	Total-hexafurans	34.14	4.408e2	3.133e2	1.217	1.41	1.24	2.6	NO	NO	bb	bb	0.170
12	123789-HxCDF	36.38	3.950e5	3.141e5	1.100	1.26	1.24	1587.6	YES	NO	bb	bb	202.546
13	234678-HxCDF	35.34	4.887e5	3.898e5	1.235	1.25	1.24	2033.7	YES	NO	bb	bb	195.035
14	1234678-HpCDF	38.27	4.391e5	4.121e5	1.392	1.07	1.05	1165.8	YES	NO	bb	bb	187.777
15	1234789-HpCDF	40.45	3.396e5	3.214e5	1.381	1.06	1.05	765.2	YES	NO	bb	bb	199.067
16	OCDF	44.56	5.824e5	6.482e5	1.222	0.90	0.89	1674.2	YES	NO	bd	bd	481.719

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.39	2.257e3	3.401e3	1.104	0.66	0.77	21.2	YES	NO	bb	bd	0.990
2	Total-tetradioxins	26.00	2.971e2	3.769e2	1.104	0.79	0.77	6.1	NO	NO	bb	bb	0.118
3	2378-TCDD	25.77	1.082e5	1.408e5	1.227	0.77	0.77	1279.5	YES	NO	bb	bb	39.210

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.90	4.660e5	2.883e5	0.964	1.62	1.55	2450.0	YES	NO	bd	bb	207.925
2	Total-pentadioxins	30.22	5.193e2	3.343e2	1.326	1.55	1.55	3.8	YES	NO	bd	bb	0.171
3	Total-pentadioxins	29.29	4.299e2	2.611e2	1.326	1.65	1.55	3.0	NO	NO	bb	bb	0.139

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.97	3.176e5	2.549e5	0.770	1.25	1.24	4619.7	YES	NO	bb	bb	200.540
2	123678-HxCDD	35.58	4.055e5	3.103e5	0.833	1.31	1.24	5551.0	YES	NO	db	db	212.243
3	123478-HxCDD	35.46	3.259e5	2.567e5	0.841	1.27	1.24	5028.9	YES	NO	bd	bd	206.072

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HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.73	2.898e5	2.836e5	0.984	1.02	1.05	1454.7	YES	NO	bd	bd	223.581

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.39	2.257e3	3.401e3	1.104	0.66	0.77	21.2	YES	NO	bb	bd	0.990
2	Total-tetradioxins	26.00	2.971e2	3.769e2	1.104	0.79	0.77	6.1	NO	NO	bb	bb	0.118
3	2378-TCDD	25.77	1.082e5	1.408e5	1.227	0.77	0.77	1279.5	YES	NO	bb	bb	39.210
4	12378-PeCDD	30.90	4.660e5	2.883e5	0.964	1.62	1.55	2450.0	YES	NO	bd	bb	207.925
5	Total-pentadioxins	30.22	5.193e2	3.343e2	1.326	1.55	1.55	3.8	YES	NO	bd	bb	0.171
6	Total-pentadioxins	29.29	4.299e2	2.611e2	1.326	1.65	1.55	3.0	NO	NO	bb	bb	0.139
7	123789-HxCDD	35.97	3.176e5	2.549e5	0.770	1.25	1.24	4619.7	YES	NO	bb	bb	200.540
8	123678-HxCDD	35.58	4.055e5	3.103e5	0.833	1.31	1.24	5551.0	YES	NO	db	db	212.243
9	123478-HxCDD	35.46	3.259e5	2.567e5	0.841	1.27	1.24	5028.9	YES	NO	bd	bd	206.072
10	1234678-HpCDD	39.73	2.898e5	2.836e5	0.984	1.02	1.05	1454.7	YES	NO	bd	bd	223.581
11	OCDD	44.34	3.944e5	4.543e5	0.938	0.87	0.89	1203.4	YES	NO	bd	bd	433.138

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	25.45	7.217e1	8.661e1	1.048	0.83	0.77	1.7	NO	NO	bb	bb	0.020
2	2378-TCDF	25.14	1.251e5	1.525e5	0.980	0.82	0.77	1280.9	YES	NO	bb	bb	36.469
3	Total-tetrafurans	24.22	6.629e2	9.943e2	1.048	0.67	0.77	9.0	YES	NO	bb	bb	0.204
4	Total-tetrafurans	23.90	1.274e3	1.452e3	1.048	0.88	0.77	13.5	YES	NO	bb	bb	0.335
5	12378-PeCDF	29.31	6.737e5	4.419e5	1.047	1.52	1.55	2748.5	YES	NO	bb	bb	194.777
6	23478-PeCDF	30.64	7.040e5	4.462e5	1.156	1.58	1.55	2891.0	YES	NO	bb	bb	197.824
7	Total-pentafurans	30.51	7.585e2	5.614e2	1.043	1.35	1.55	4.2	YES	NO	bb	bb	0.241
8	Total-hexafurans	34.75	1.557e2	1.256e2	1.217	1.24	1.24	0.0	NO	NO	bb	bb	0.064
9	123678-HxCDF	34.45	5.611e5	4.463e5	1.193	1.26	1.24	2195.3	YES	NO	db	db	206.788
10	123478-HxCDF	34.32	4.961e5	3.930e5	1.224	1.26	1.24	2063.3	YES	NO	bd	bd	200.357
11	Total-hexafurans	34.14	4.408e2	3.133e2	1.217	1.41	1.24	2.6	NO	NO	bb	bb	0.170
12	123789-HxCDF	36.38	3.950e5	3.141e5	1.100	1.26	1.24	1587.6	YES	NO	bb	bb	202.546
13	234678-HxCDF	35.34	4.887e5	3.898e5	1.235	1.25	1.24	2033.7	YES	NO	bb	bb	195.035
14	1234678-HpCDF	38.27	4.391e5	4.121e5	1.392	1.07	1.05	1165.8	YES	NO	bb	bb	187.777
15	1234789-HpCDF	40.45	3.396e5	3.214e5	1.381	1.06	1.05	765.2	YES	NO	bb	bb	199.067
16	OCDF	44.56	5.824e5	6.482e5	1.222	0.90	0.89	1674.2	YES	NO	bd	bd	481.719
17	Total-tetradioxins	25.39	2.257e3	3.401e3	1.104	0.66	0.77	21.2	YES	NO	bb	bd	0.990
18	Total-tetradioxins	26.00	2.971e2	3.769e2	1.104	0.79	0.77	6.1	NO	NO	bb	bb	0.118
19	2378-TCDD	25.77	1.082e5	1.408e5	1.227	0.77	0.77	1279.5	YES	NO	bb	bb	39.210
20	12378-PeCDD	30.90	4.660e5	2.883e5	0.964	1.62	1.55	2450.0	YES	NO	bd	bb	207.925
21	Total-pentadioxins	30.22	5.193e2	3.343e2	1.326	1.55	1.55	3.8	YES	NO	bd	bb	0.171
22	Total-pentadioxins	29.29	4.299e2	2.611e2	1.326	1.65	1.55	3.0	NO	NO	bb	bb	0.139
23	123789-HxCDD	35.97	3.176e5	2.549e5	0.770	1.25	1.24	4619.7	YES	NO	bb	bb	200.540
24	123678-HxCDD	35.58	4.055e5	3.103e5	0.833	1.31	1.24	5551.0	YES	NO	db	db	212.243
25	123478-HxCDD	35.46	3.259e5	2.567e5	0.841	1.27	1.24	5028.9	YES	NO	bd	bd	206.072
26	1234678-HpCDD	39.73	2.898e5	2.836e5	0.984	1.02	1.05	1454.7	YES	NO	bd	bd	223.581
27	OCDD	44.34	3.944e5	4.543e5	0.938	0.87	0.89	1203.4	YES	NO	bd	bd	433.138

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	24.28	1.137e4					0.6	NO		bb		
2	FUNCTION1 PFK	24.04	1.629e4					1.0	NO		bb		
3	FUNCTION1 PFK	23.67	3.553e4					0.9	NO		bb		
4	FUNCTION1 PFK	23.46	2.522e4					1.1	NO		bb		
5	FUNCTION1 PFK	23.37	3.569e4					1.2	NO		db		
6	FUNCTION1 PFK	23.30	1.990e4					0.9	NO		bd		
7	FUNCTION1 PFK	23.08	1.670e4					0.8	NO		bb		
8	FUNCTION1 PFK	22.85	4.314e4					1.1	NO		bb		
9	FUNCTION1 PFK	22.74	7.740e4					1.6	NO		bb		
10	FUNCTION1 PFK	22.57	1.044e4					0.7	NO		db		
11	FUNCTION1 PFK	22.48	7.096e4					1.8	NO		bd		
12	FUNCTION1 PFK	22.16	7.216e3					0.4	NO		bb		
13	FUNCTION1 PFK	21.96	3.533e3					0.4	NO		bb		
14	FUNCTION1 PFK	21.59	3.640e4					1.2	NO		bb		
15	FUNCTION1 PFK	21.31	8.509e4					2.1	NO		bb		
16	FUNCTION1 PFK	21.17	1.065e5					3.8	YES		bb		
17	FUNCTION1 PFK	25.68	3.230e4					1.2	NO		bb		
18	FUNCTION1 PFK	25.60	8.151e4					1.8	NO		db		
19	FUNCTION1 PFK	25.53	3.109e4					1.7	NO		dd		
20	FUNCTION1 PFK	25.48	7.767e4					2.2	NO		dd		
21	FUNCTION1 PFK	25.39	6.755e4					2.0	NO		dd		
22	FUNCTION1 PFK	25.31	7.372e4					2.7	NO		bd		
23	FUNCTION1 PFK	25.20	3.814e4					1.3	NO		bb		
24	FUNCTION1 PFK	25.07	6.872e3					0.8	NO		bb		
25	FUNCTION1 PFK	24.97	5.548e4					1.2	NO		bb		
26	FUNCTION1 PFK	24.86	4.516e4					1.5	NO		db		
27	FUNCTION1 PFK	24.79	8.638e4					1.6	NO		dd		
28	FUNCTION1 PFK	24.64	4.546e4					1.6	NO		dd		
29	FUNCTION1 PFK	24.59	4.976e3					0.4	NO		bd		
30	FUNCTION1 PFK	24.50	5.051e4					1.2	NO		db		
31	FUNCTION1 PFK	24.42	3.876e3					0.4	NO		bd		
32	FUNCTION1 PFK	24.36	3.023e4					1.6	NO		bb		
33	FUNCTION1 PFK	27.06	5.727e3					0.4	NO		bb		
34	FUNCTION1 PFK	27.00	1.625e4					0.9	NO		bb		
35	FUNCTION1 PFK	26.78	4.281e4					0.9	NO		db		
36	FUNCTION1 PFK	26.65	5.643e4					1.7	NO		bd		
37	FUNCTION1 PFK	26.03	1.714e4					0.9	NO		bb		

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION1 PFK	25.93	4.089e4					1.7	NO		bb		
39	FUNCTION1 PFK	25.82	3.852e4					1.1	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.03	7.865e3					1.2	NO		bb		0.000
2	FUNCTION2 PFK	28.70	2.005e4					1.5	NO		bb		0.000
3	FUNCTION2 PFK	28.64	2.067e4					1.3	NO		bb		0.000
4	FUNCTION2 PFK	28.07	5.231e3					0.8	NO		bb		0.000
5	FUNCTION2 PFK	27.87	8.790e3					0.5	NO		bb		0.000
6	FUNCTION2 PFK	27.80	2.214e3					0.6	NO		bb		0.000
7	FUNCTION2 PFK	27.48	1.089e4					1.4	NO		bb		0.000
8	FUNCTION2 PFK	27.42	7.969e3					1.2	NO		bb		0.000
9	FUNCTION2 PFK	31.13	3.916e3					0.7	NO		bb		0.000
10	FUNCTION2 PFK	30.24	1.304e4					1.8	NO		bb		0.000
11	FUNCTION2 PFK	30.17	5.840e3					0.9	NO		bb		0.000
12	FUNCTION2 PFK	29.82	1.329e4					1.8	NO		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	34.40	1.401e4					1.0	NO		bb		0.000
2	FUNCTION3 PFK	34.29	3.873e4					2.0	NO		bb		0.000
3	FUNCTION3 PFK	34.04	3.562e4					1.2	NO		bb		0.000
4	FUNCTION3 PFK	33.96	2.142e3					0.4	NO		bb		0.000
5	FUNCTION3 PFK	33.23	1.933e4					1.3	NO		bb		0.000
6	FUNCTION3 PFK	33.17	7.633e3					0.8	NO		bb		0.000
7	FUNCTION3 PFK	33.00	1.880e4					1.2	NO		db		0.000
8	FUNCTION3 PFK	32.94	2.923e4					1.6	NO		bd		0.000
9	FUNCTION3 PFK	32.78	2.108e4					1.5	NO		db		0.000
10	FUNCTION3 PFK	32.71	1.200e4					1.3	NO		bd		0.000
11	FUNCTION3 PFK	32.21	3.616e4					2.5	NO		bb		0.000
12	FUNCTION3 PFK	36.83	5.292e3					0.7	NO		bb		0.000
13	FUNCTION3 PFK	36.69	2.182e3					0.5	NO		bb		0.000
14	FUNCTION3 PFK	36.63	7.008e3					0.9	NO		bb		0.000
15	FUNCTION3 PFK	36.16	2.541e3					0.5	NO		bb		0.000
16	FUNCTION3 PFK	35.82	8.477e4					2.2	NO		bb		0.000
17	FUNCTION3 PFK	35.72	2.060e4					1.5	NO		bb		0.000
18	FUNCTION3 PFK	35.38	3.033e4					1.3	NO		bb		0.000
19	FUNCTION3 PFK	35.03	1.971e4					1.4	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	42.00	2.430e4					2.2	NO		bb		
2	FUNCTION4 PFK	41.12	2.175e4					2.5	NO		bb		
3	FUNCTION4 PFK	40.64	4.895e4					1.9	NO		bb		
4	FUNCTION4 PFK	38.60	9.955e3					1.4	NO		bb		
5	FUNCTION4 PFK	37.88	1.290e7					32.8	YES		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.20	1.206e2					1.6	NO		bb		0.000
2	FUNCTION1 HXCD...	26.85	9.535e1					1.0	NO		bb		0.000
3	FUNCTION1 HXCD...	24.94	1.284e2					2.4	NO		bb		0.000
4	FUNCTION1 HXCD...	24.72	1.106e2					2.2	NO		db		0.000
5	FUNCTION1 HXCD...	24.59	9.839e1					2.4	NO		bd		0.000
6	FUNCTION1 HXCD...	22.13	7.714e1					2.0	NO		bb		0.000
7	FUNCTION1 HXCD...	21.13	8.984e1					2.5	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.86	8.602e1					2.3	NO		bb		0.000
2	FUNCTION2 HPCD...	31.50	7.866e1					1.8	NO		bb		0.000
3	FUNCTION2 HPCD...	30.48	6.238e2					10.2	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.96	7.735e1					3.0	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	37.82	7.447e1					2.3	NO		db		0.000
2	FUNCTION4 NCDPE	37.67	1.215e2					1.8	NO		bd		0.000
3	FUNCTION4 NCDPE	40.99	7.985e1					2.2	NO		bb		0.000
4	FUNCTION4 NCDPE	40.70	7.301e1					2.8	NO		bb		0.000
5	FUNCTION4 NCDPE	39.61	7.964e1					1.9	NO		bb		0.000
6	FUNCTION4 NCDPE	38.63	9.131e1					3.1	YES		bb		0.000

ID: CS4CY, Name: 24022808, Date: 28-Feb-2024, Time: 17:51:41, Conditions: AUTOSPEC01, User: pk

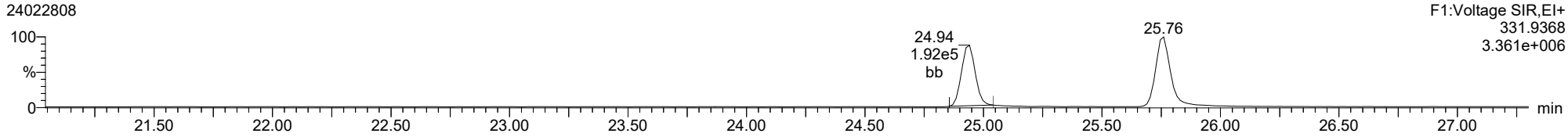
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

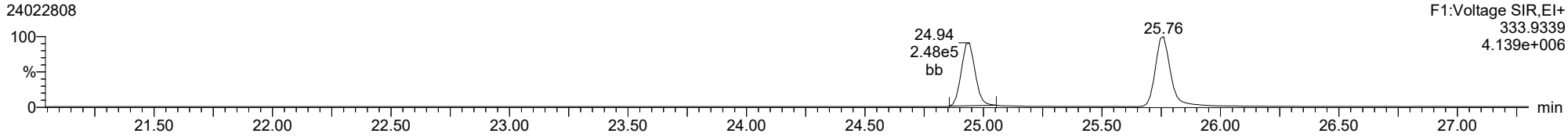
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ID: CS4CY, Name: 24022808, Date: 28-Feb-2024, Time: 17:51:41, Conditions: AUTOSPEC01, User: pk

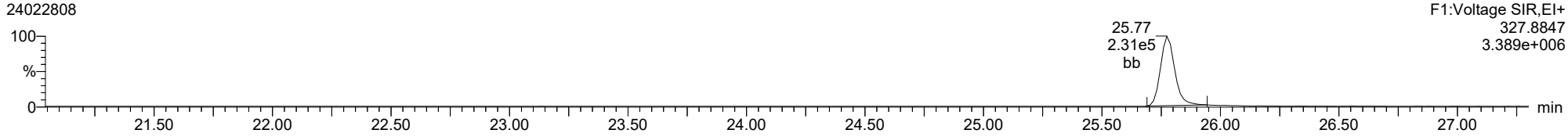
13C-1234-TCDD



13C-1234-TCDD

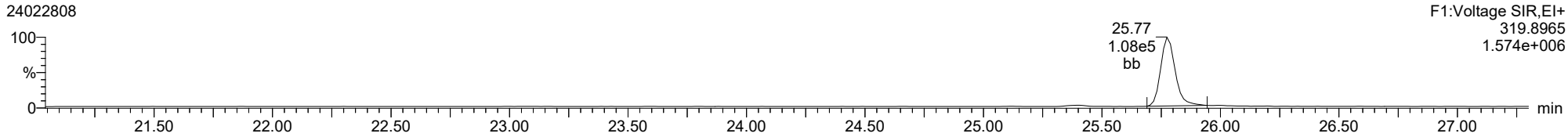


37CL-2378-TCDD

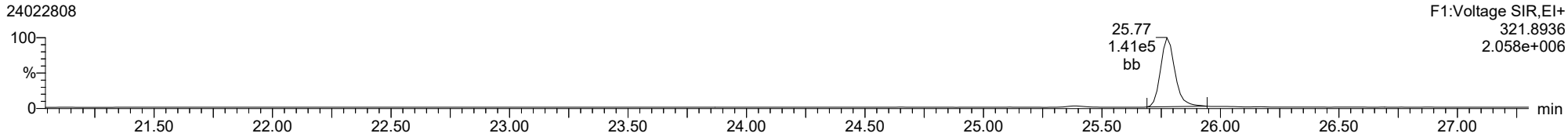


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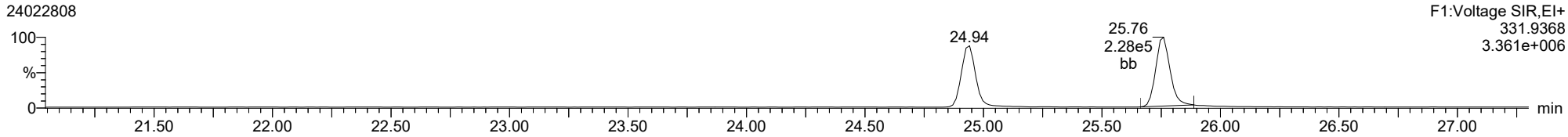
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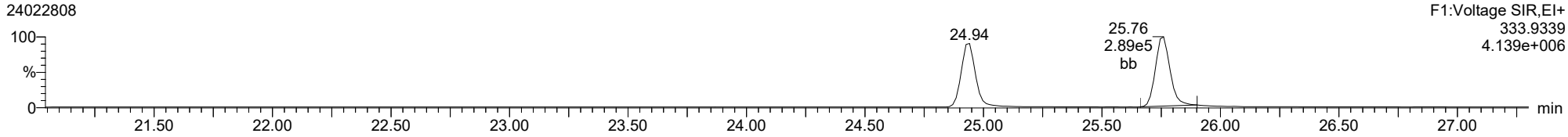
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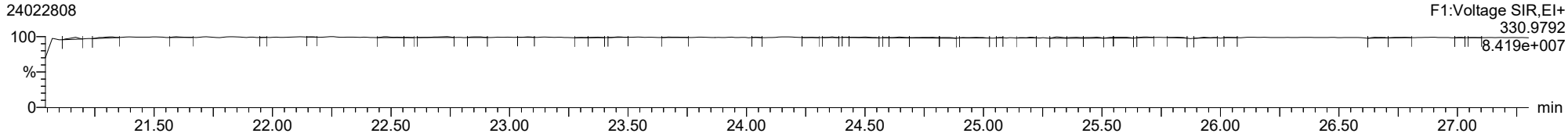
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13C-2378-TCDD

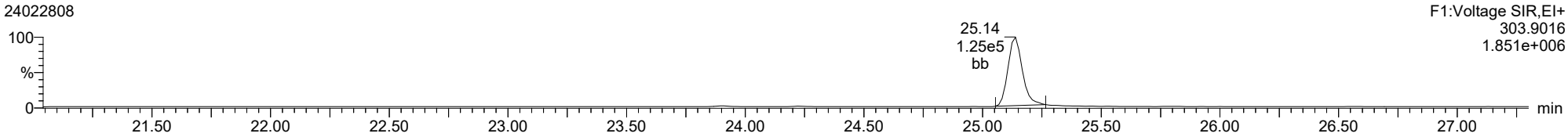


FUNCTION1 PFK

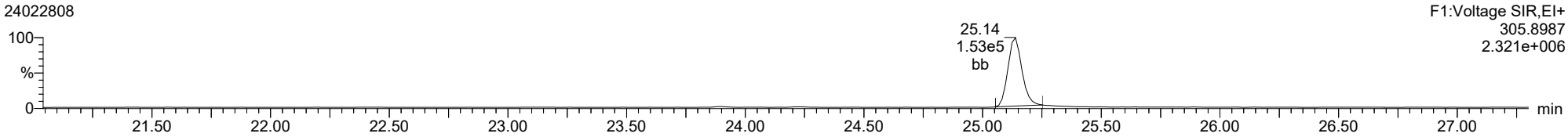


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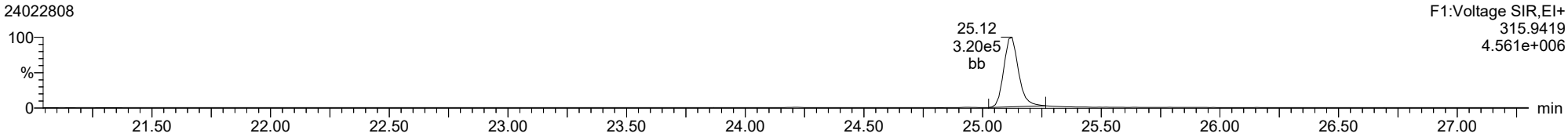
2378-TCDF



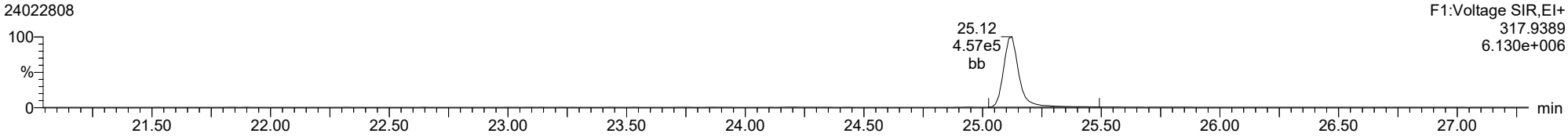
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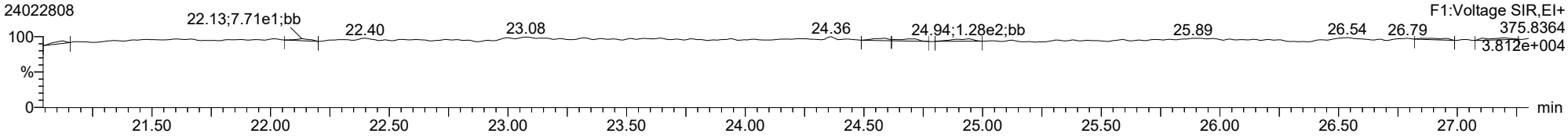
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13C-2378-TCDF

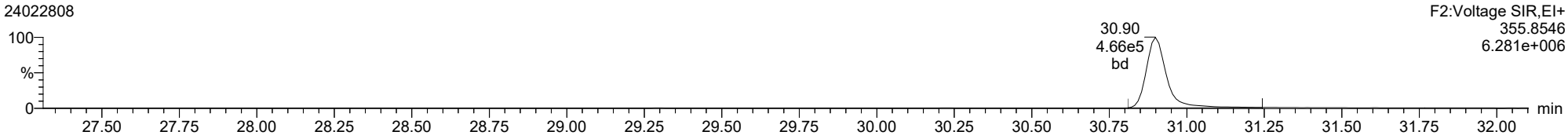


FUNCTION1 HXCDPE

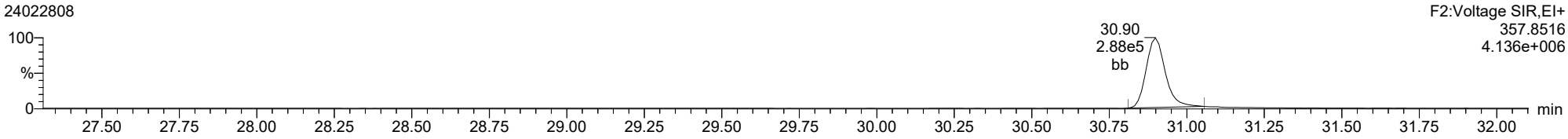


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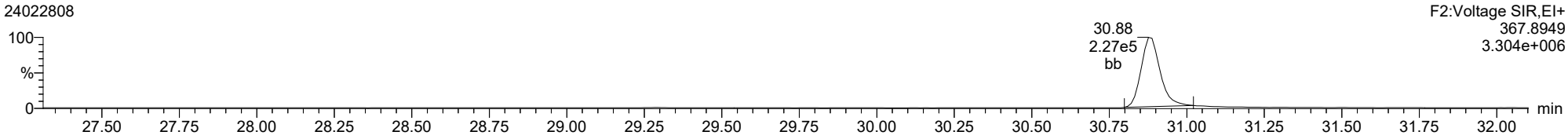
12378-PeCDD



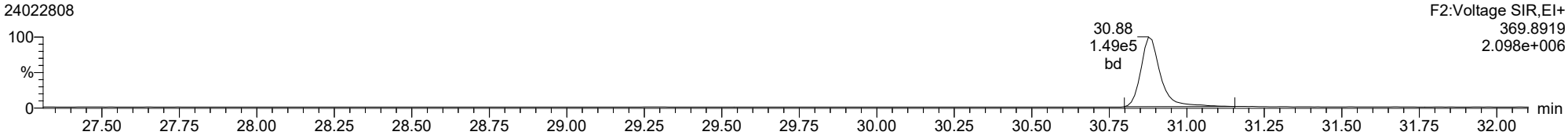
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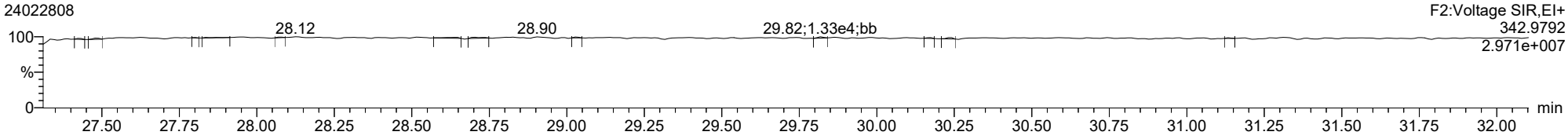
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13C-12378-PeCDD

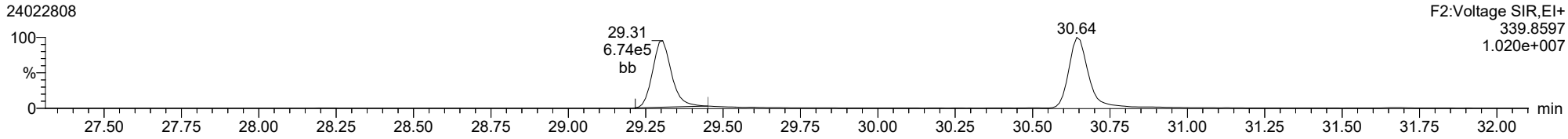


FUNCTION2 PFK

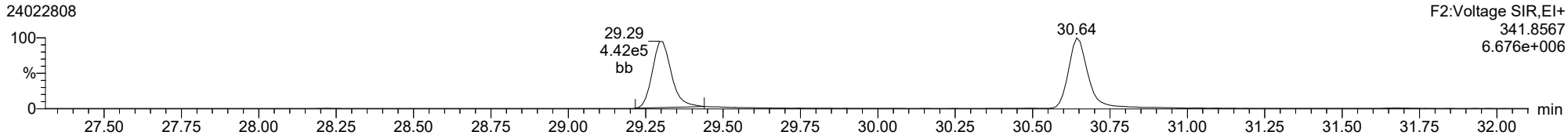


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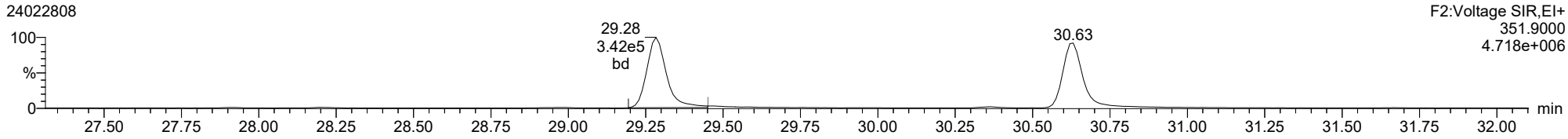
12378-PeCDF



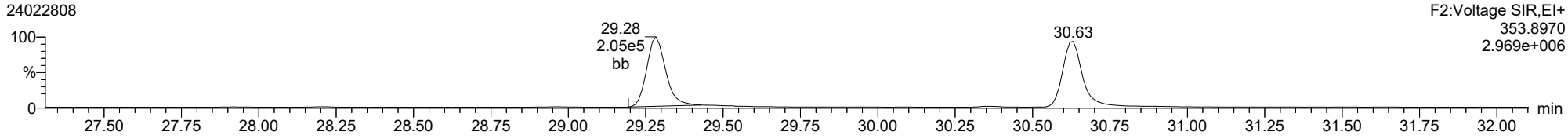
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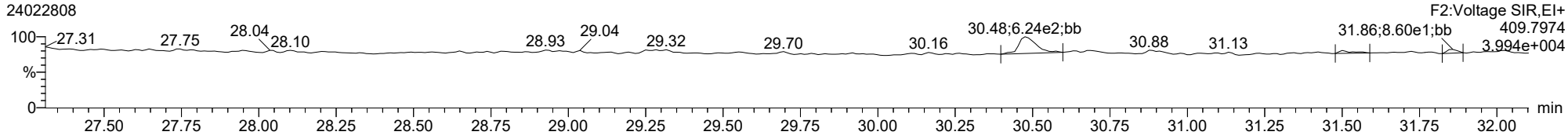
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13C-12378-PeCDF

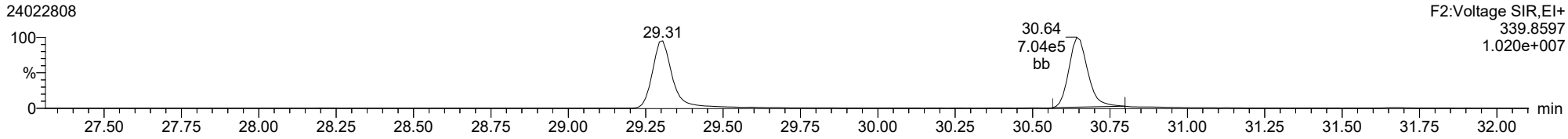


FUNCTION2 HPCDPE

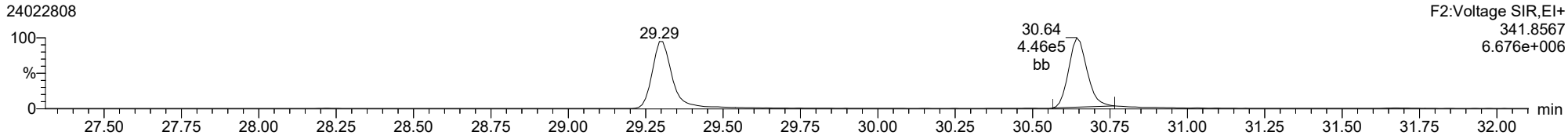


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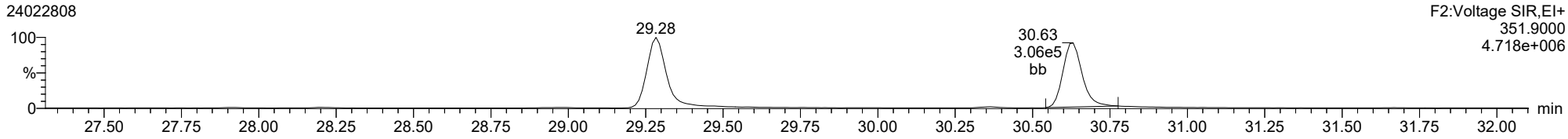
23478-PeCDF



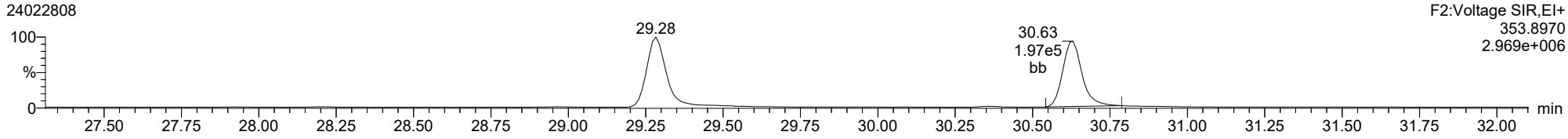
23478-PeCDF



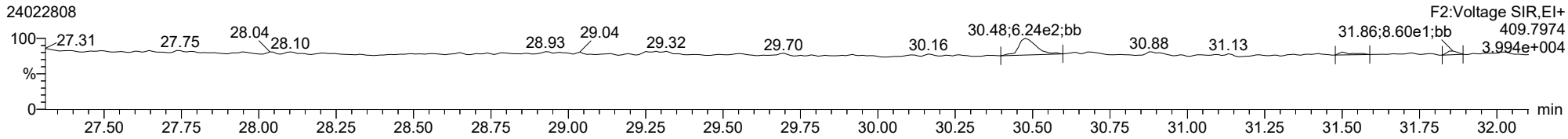
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13C-23478-PeCDF

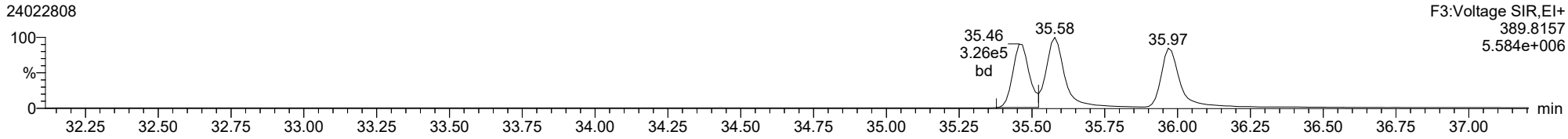


FUNCTION2 HPCDPE

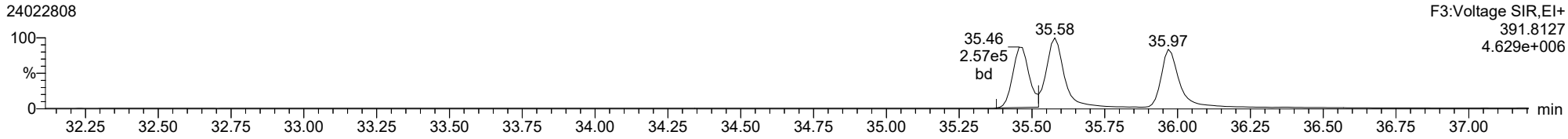


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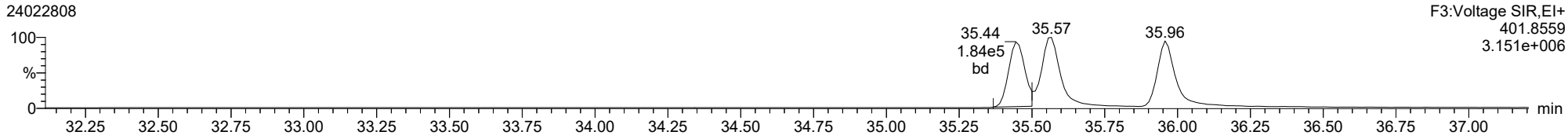
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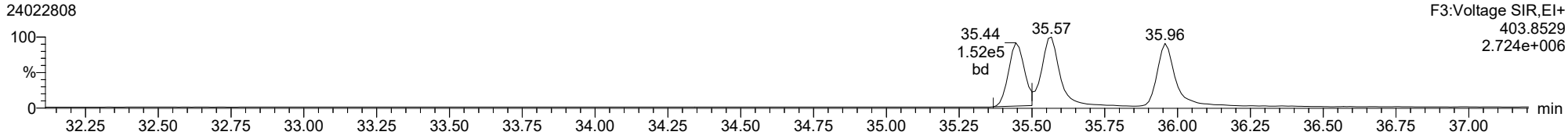
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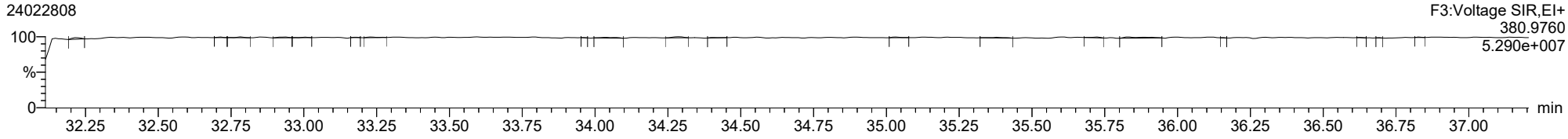
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13C-123478-HxCDD

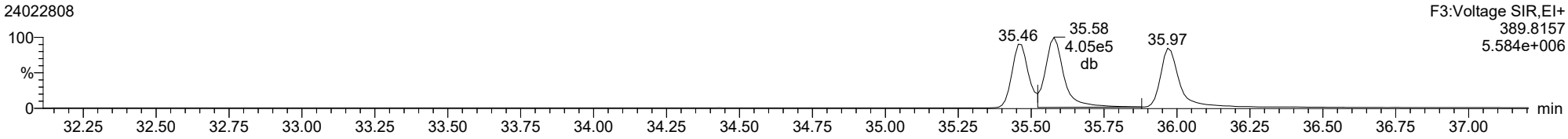


FUNCTION3 PFK

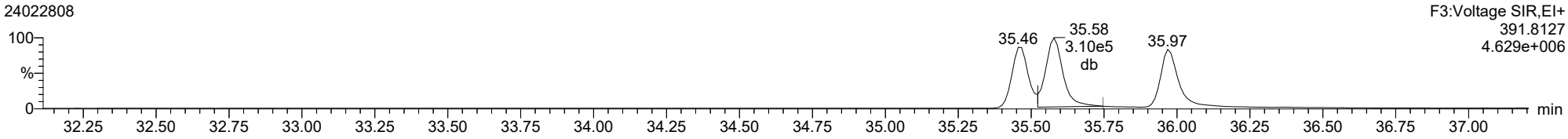


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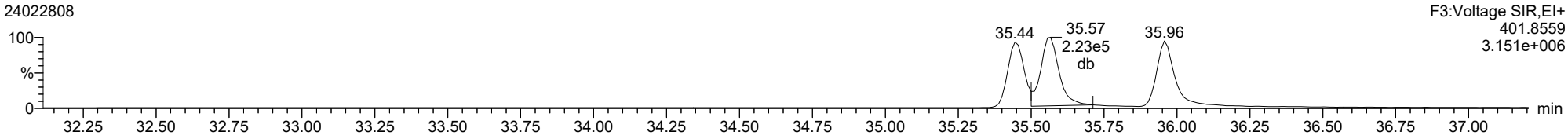
123678-HxCDD



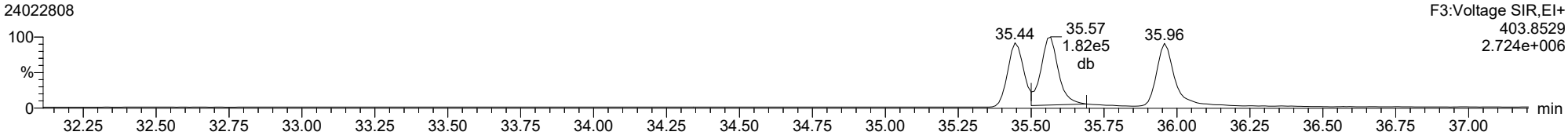
123678-HxCDD



13C-123678-HxCDD

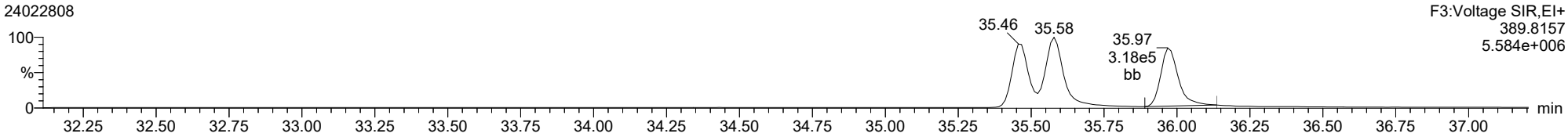


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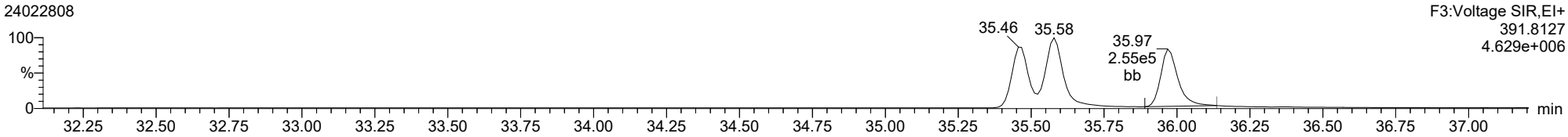


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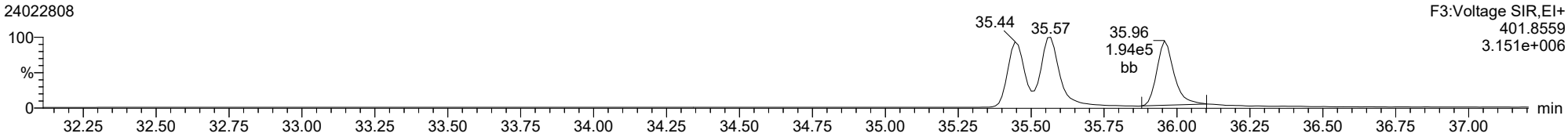
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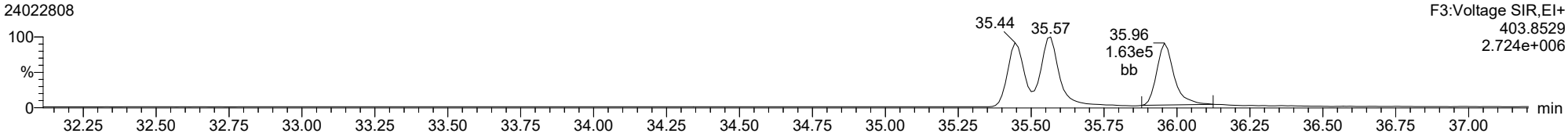
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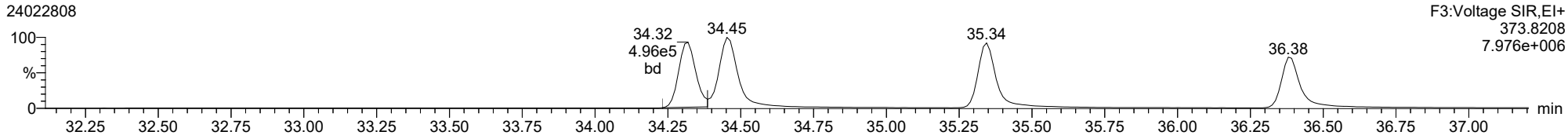


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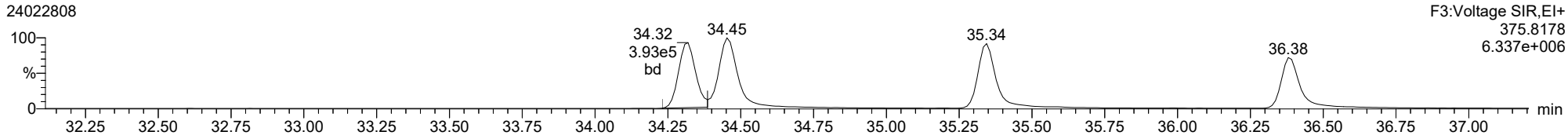


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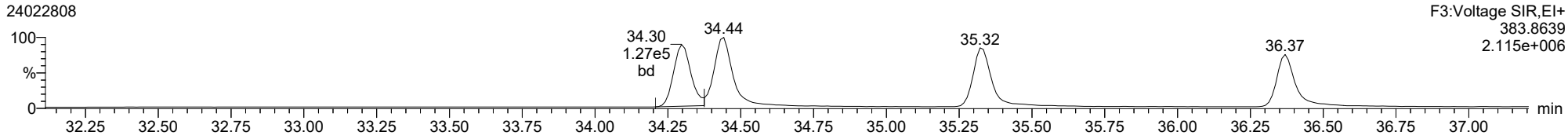
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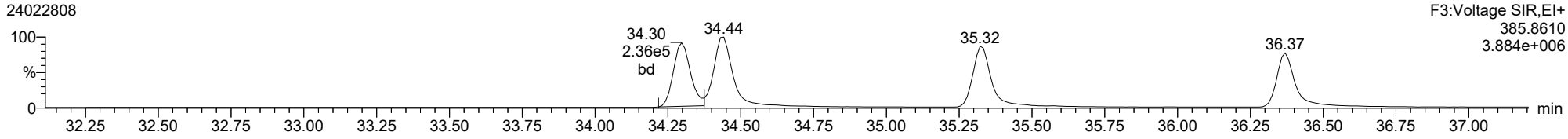
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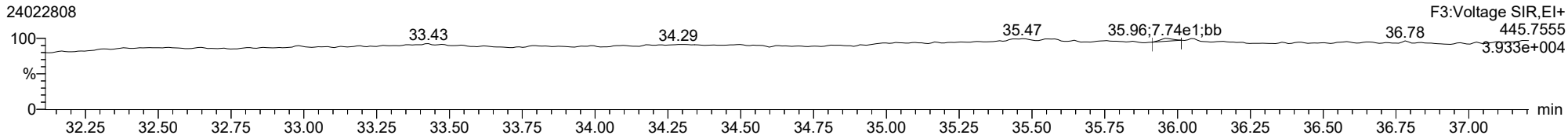
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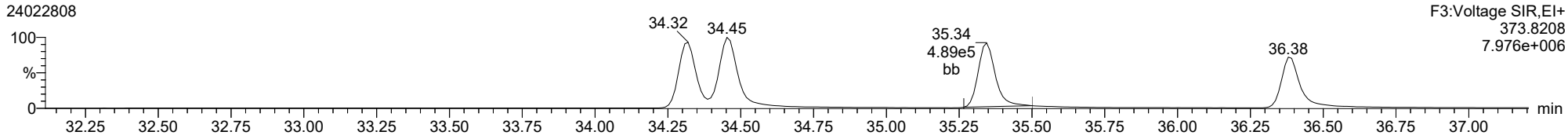


FUNCTION3 OCDPE

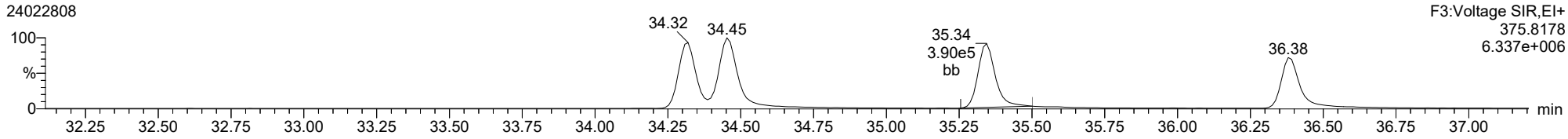


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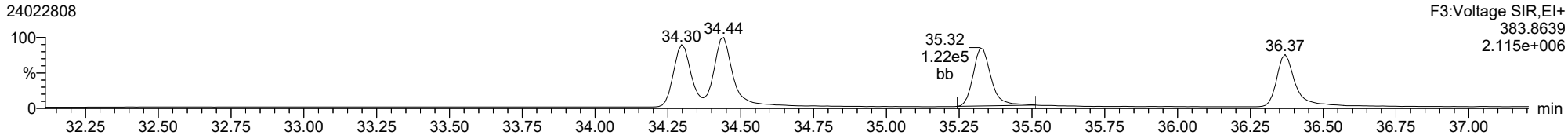
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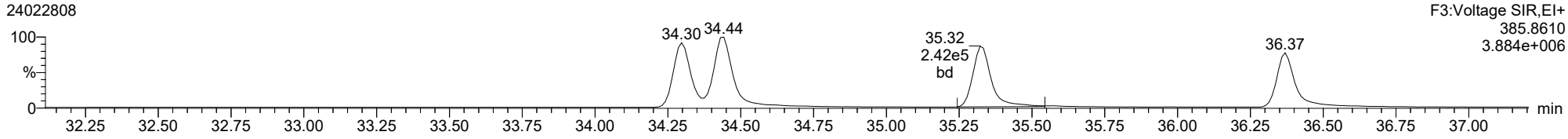
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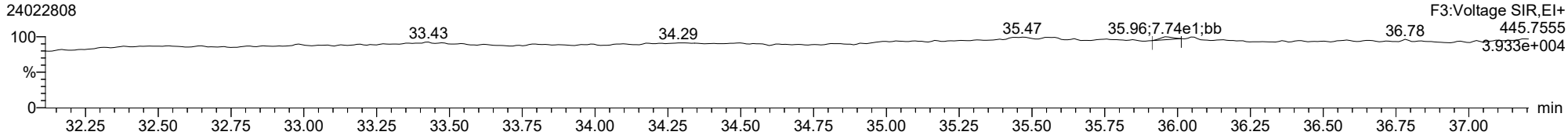
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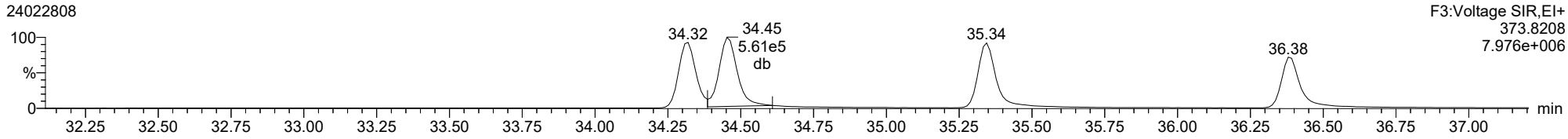


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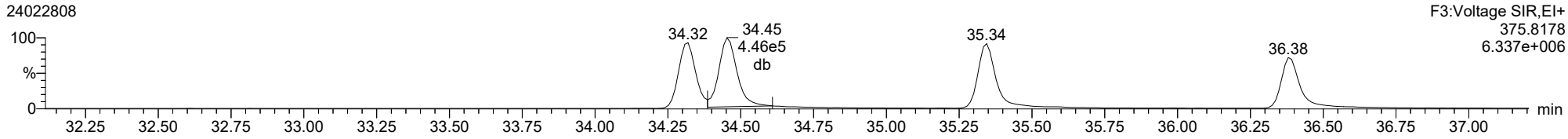


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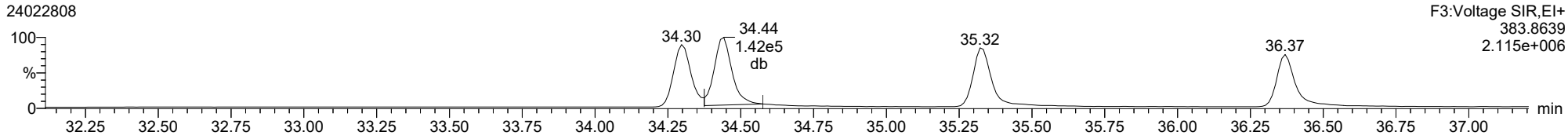
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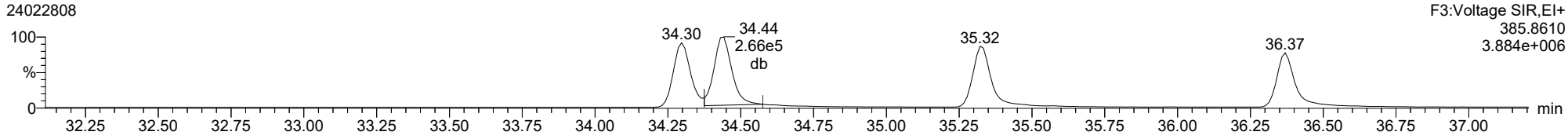
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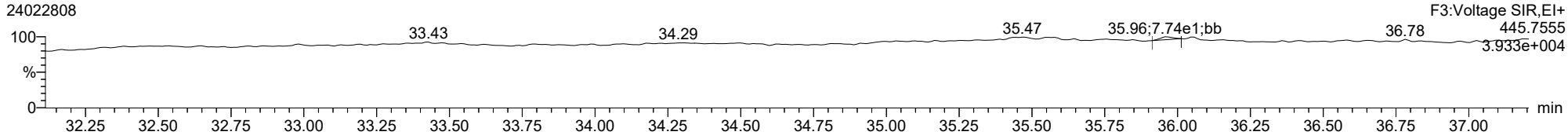
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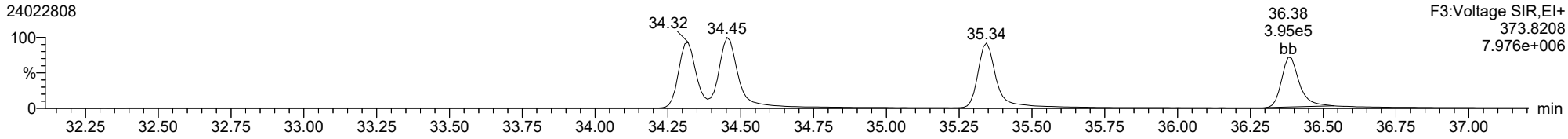


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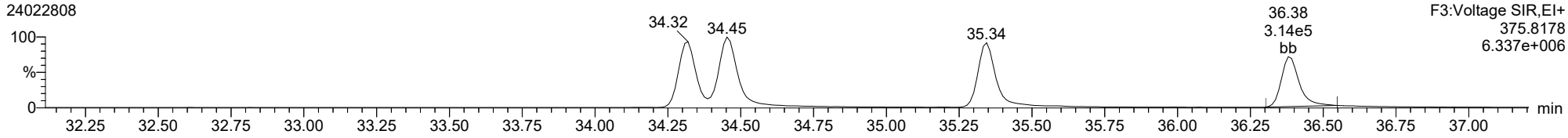


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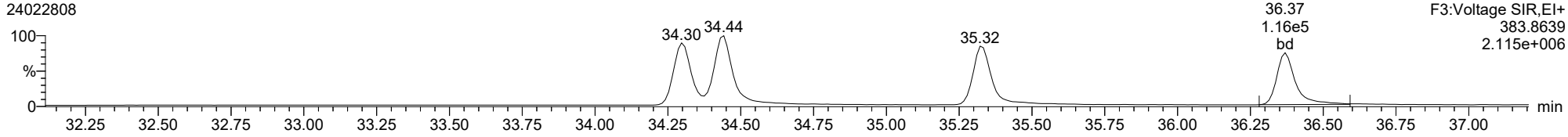
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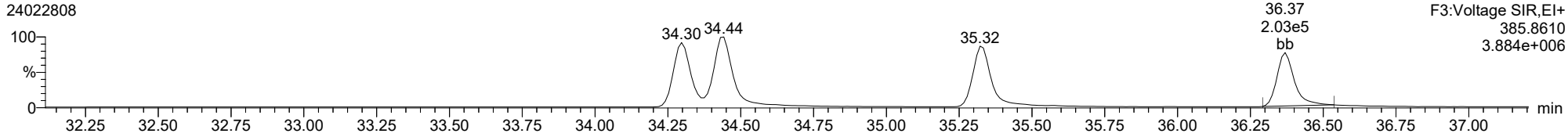
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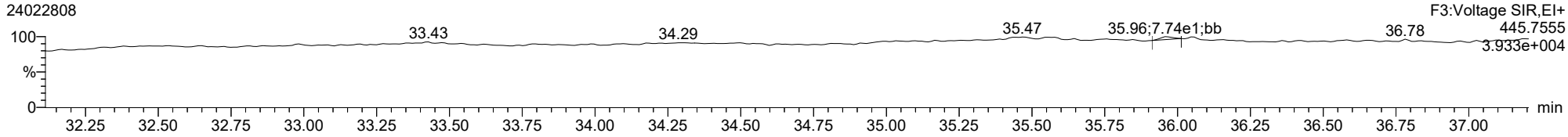
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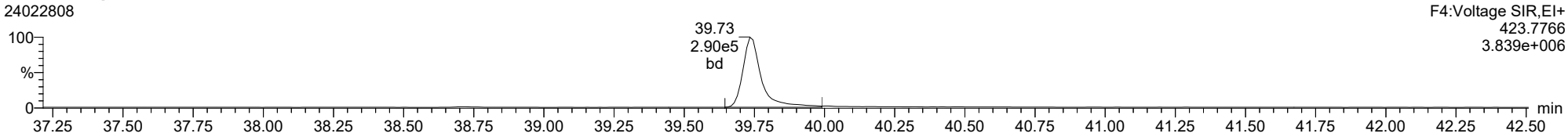


FUNCTION3 OCDPE

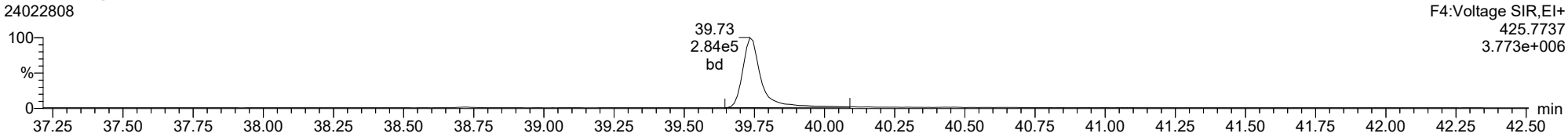


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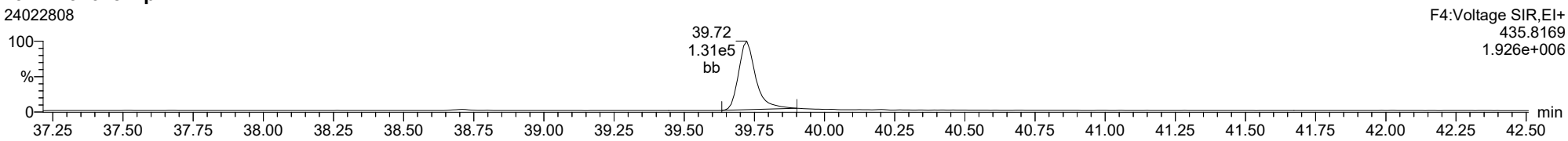
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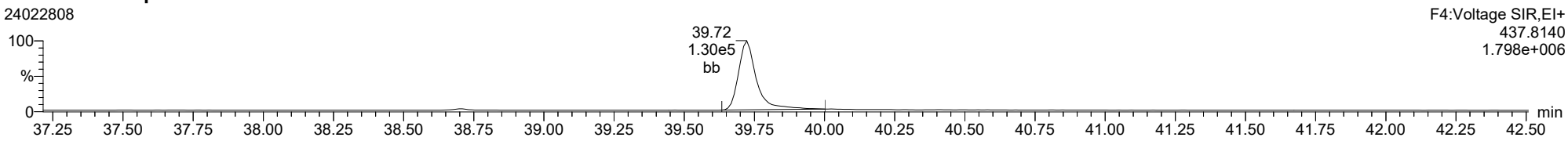
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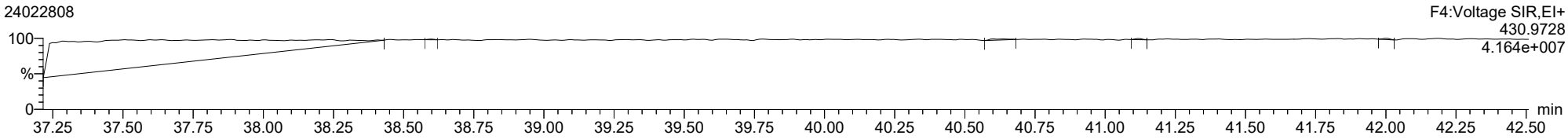
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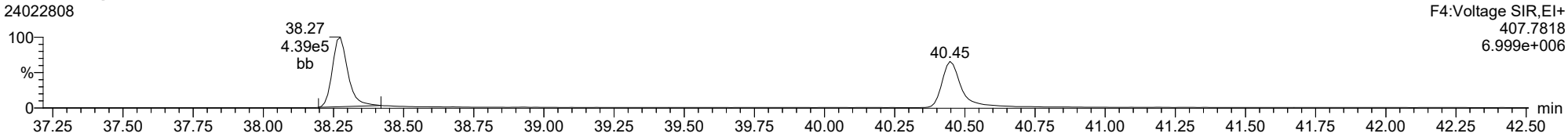


FUNCTION4 PFK

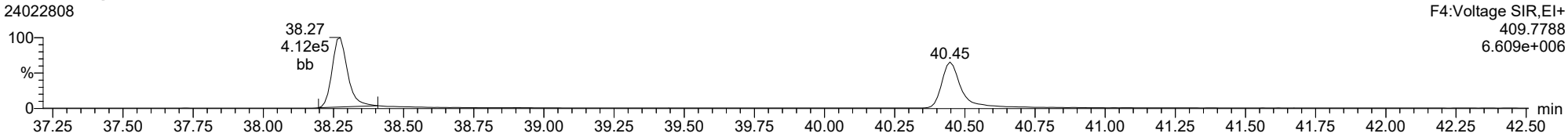


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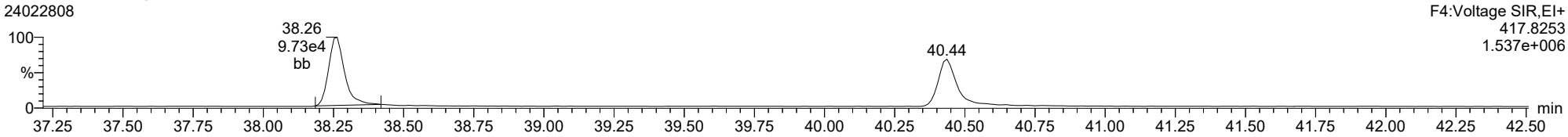
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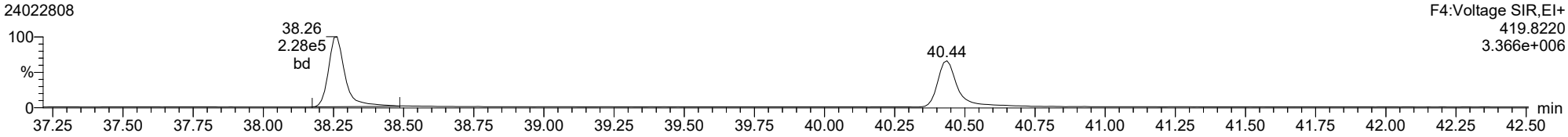
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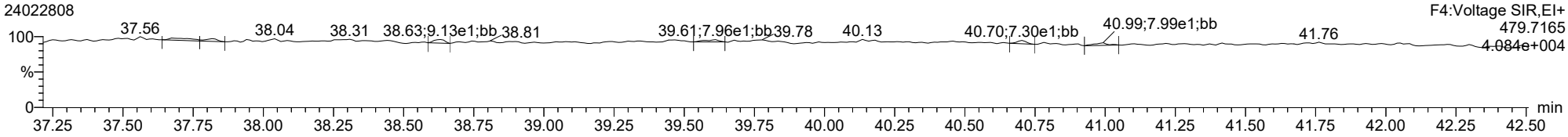
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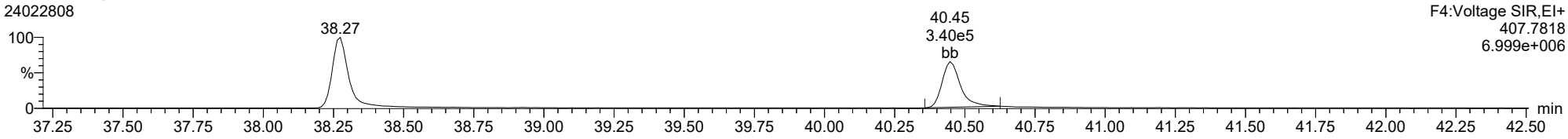


FUNCTION4 NCDPE

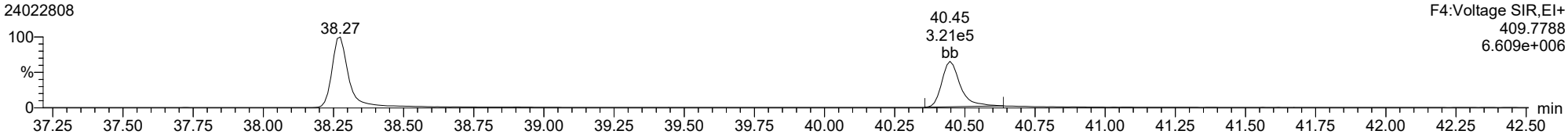


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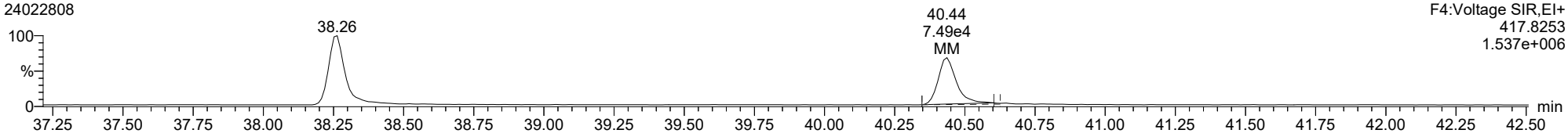
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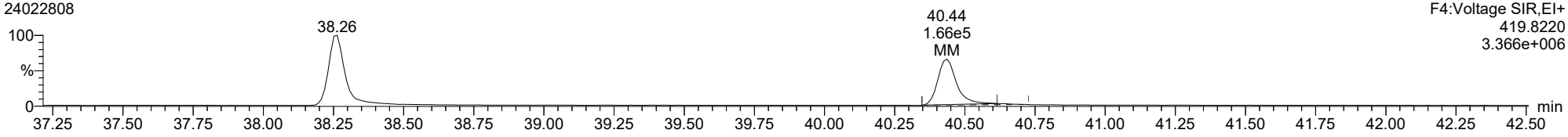
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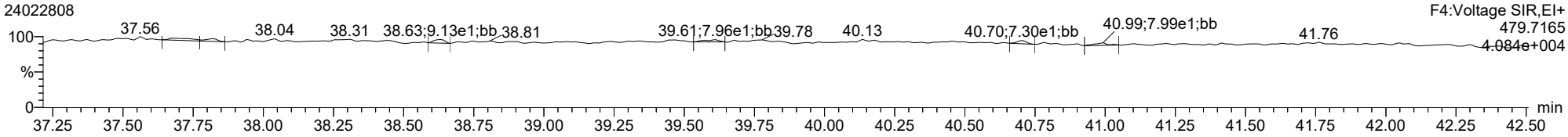
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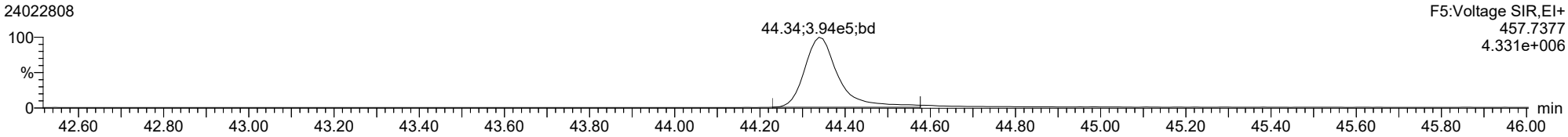


FUNCTION4 NCDPE

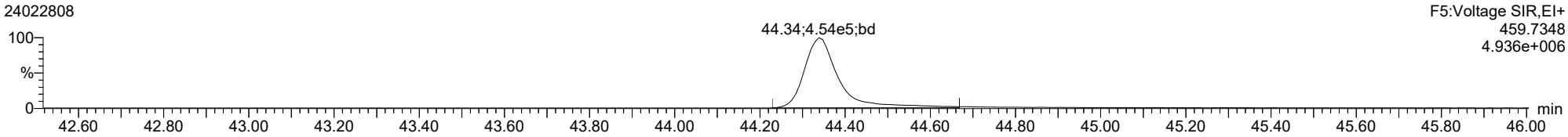


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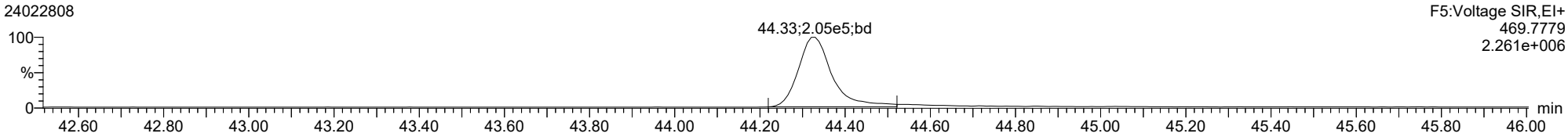
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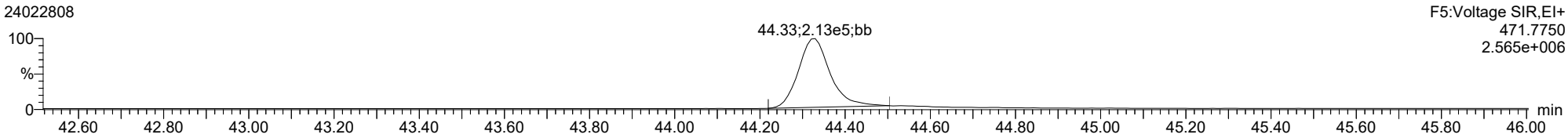
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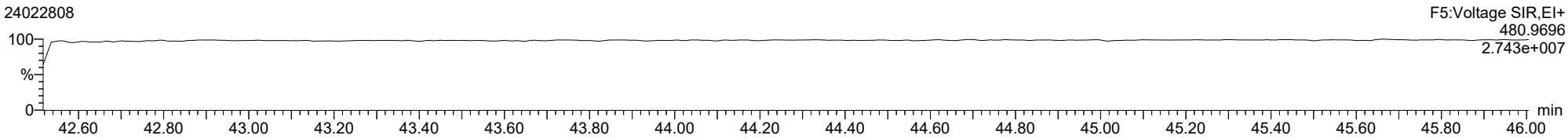
13C-OCDD



13C-OCDD



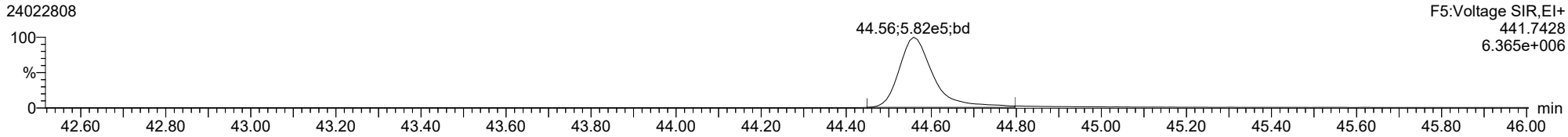
FUNCTION5 PFK



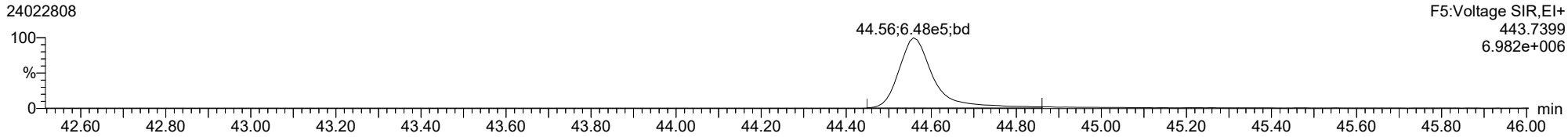
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ID: CS4CY, Name: 24022808, Date: 28-Feb-2024, Time: 17:51:41, Conditions: AUTOSPEC01, User: pk

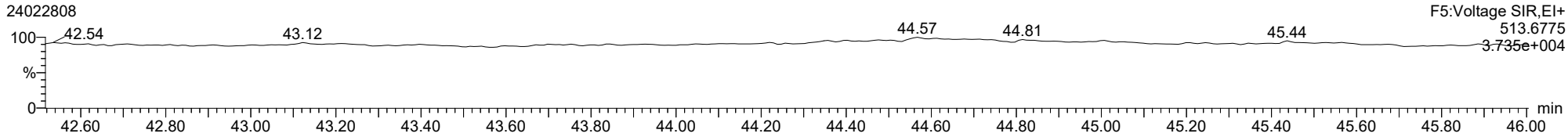
OCDF



OCDF

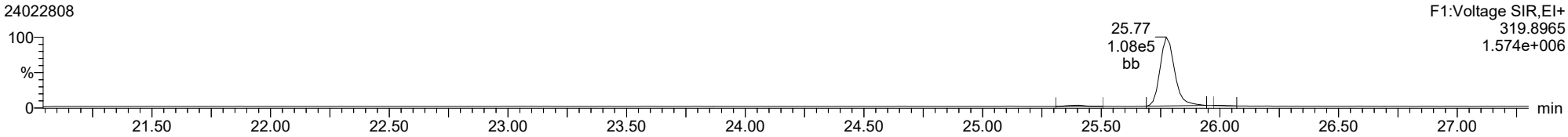


FUNCTION5 DCDPE

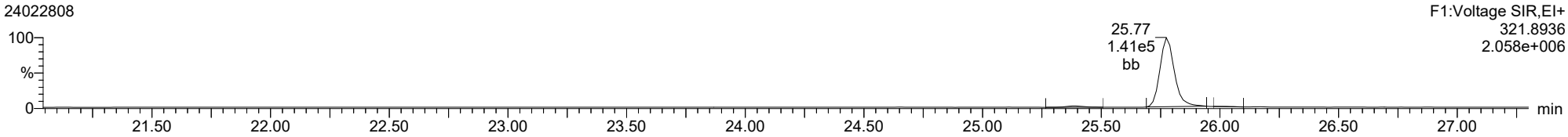


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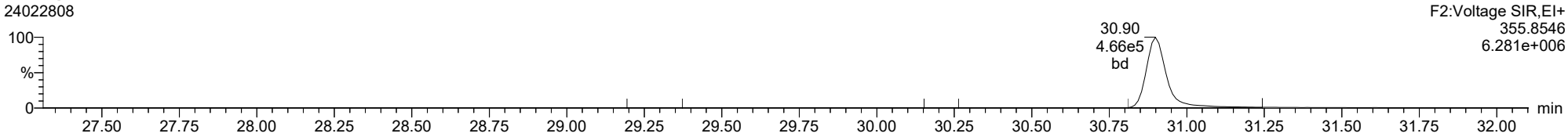
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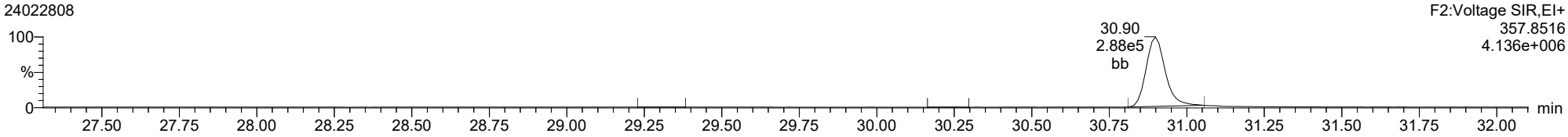
Total-tetradioxins



Total-pentadioxins

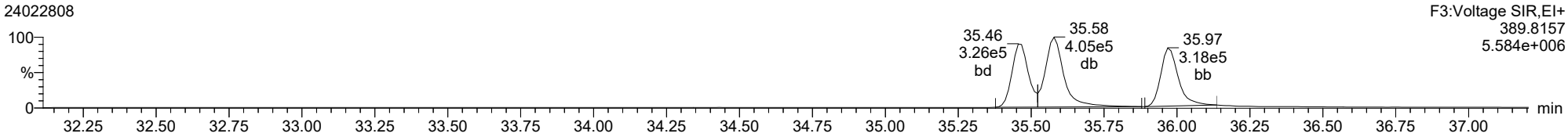


Total-pentadioxins

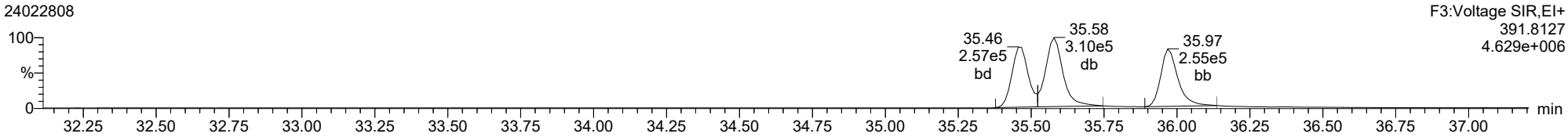


ID: CS4CY, Name: 24022808, Date: 28-Feb-2024, Time: 17:51:41, Conditions: AUTOSPEC01, User: pk

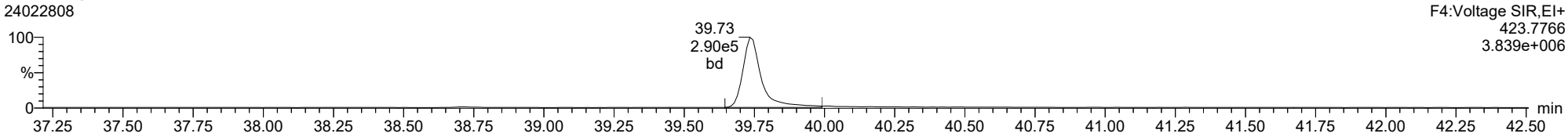
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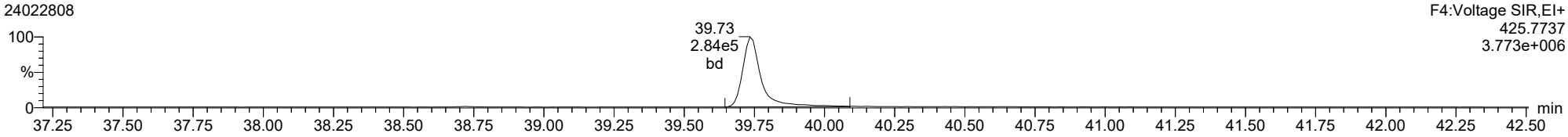
Total-hexadioxins



Total-heptadioxins

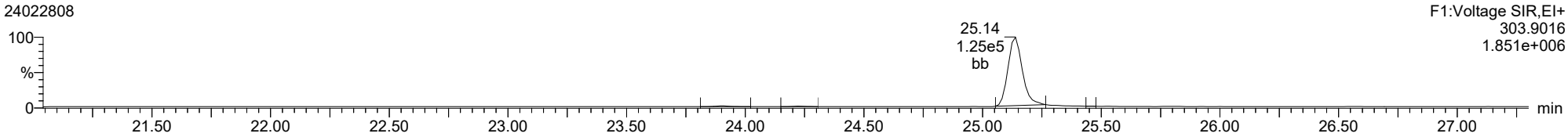


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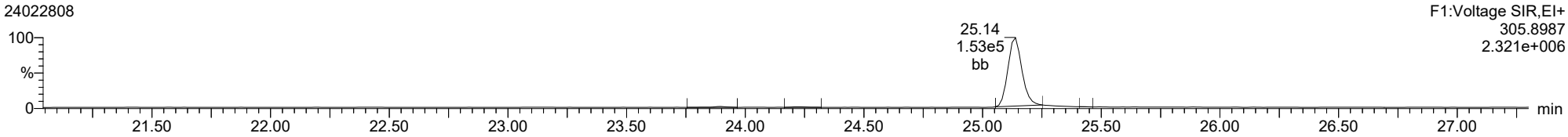


ID: CS4CY, Name: 24022808, Date: 28-Feb-2024, Time: 17:51:41, Conditions: AUTOSPEC01, User: pk

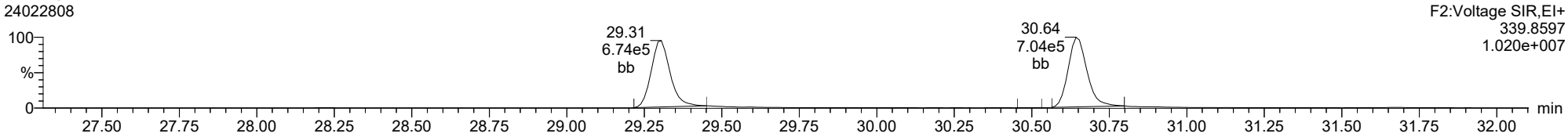
Total-tetrafurans



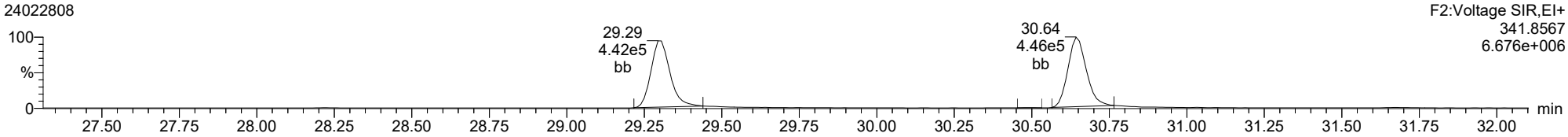
Total-tetrafurans



Total-pentafurans

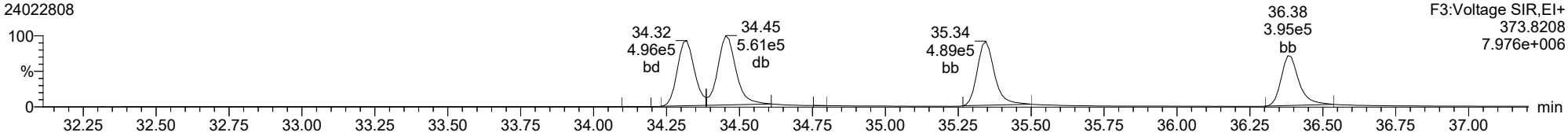


Total-pentafurans

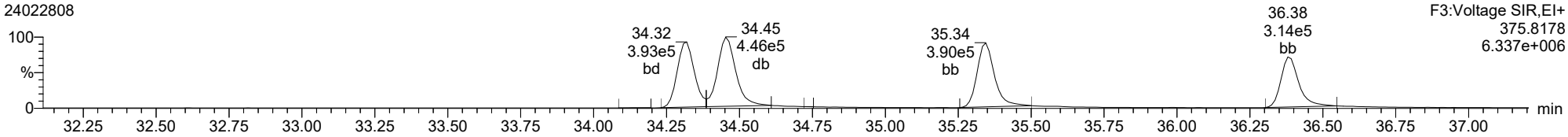


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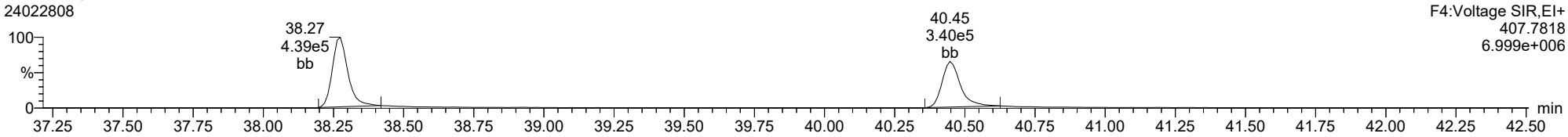
Total-hexafurans



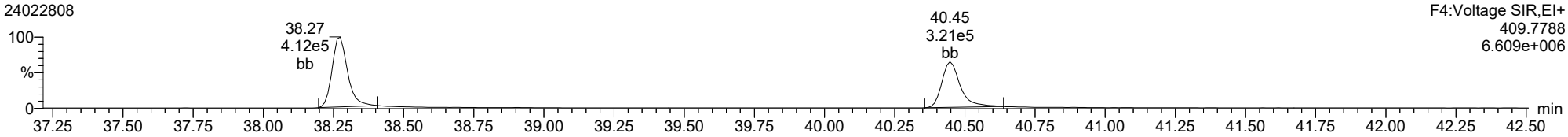
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\240228ICIH.qld
Last Altered: Thursday, February 29, 2024 08:17:31 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:26:09 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240228.mdb 29 Feb 2024 08:04:37
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

ID: CS5CY, Name: 24022809, Date: 28-Feb-2024, Time: 18:40:18, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.139	1.001	6.953e5	8.492e5	0.980	0.819	0.770	1904	2251	1.05e7	1.26e7	5490.5	5618.6	NO	bb	bb	202.020
12378-PeCDF	29.308	1.001	4.113e6	2.670e6	1.047	1.541	1.550	7538	10427	6.14e7	3.97e7	8151.4	3809.5	NO	bb	bb	1016.752
23478-PeCDF	30.645	1.000	4.347e6	2.830e6	1.156	1.536	1.550	7538	10427	6.63e7	4.32e7	8793.6	4142.5	NO	bb	bb	1011.576
123478-HxCDF	34.321	1.001	3.161e6	2.496e6	1.224	1.266	1.240	4112	2002	4.84e7	3.79e7	11776.6	18949.3	NO	bd	bd	1005.375
234678-HxCDF	35.347	1.000	3.154e6	2.726e6	1.235	1.157	1.240	4112	2002	4.87e7	3.92e7	11843.8	19560.0	NO	bb	bd	1024.740
123678-HxCDF	34.455	1.000	3.464e6	2.737e6	1.193	1.265	1.240	4112	2002	5.00e7	3.97e7	12169.8	19829.3	NO	db	db	979.910
123789-HxCDF	36.383	1.000	2.569e6	2.038e6	1.100	1.260	1.240	4112	2002	3.86e7	3.05e7	9399.4	15257.0	NO	bb	bb	1064.230
1234678-HpCDF	38.277	1.000	2.815e6	2.691e6	1.392	1.046	1.050	6346	5325	4.74e7	4.47e7	7468.8	8387.5	NO	bb	bb	1002.781
1234789-HpCDF	40.449	1.000	2.199e6	2.096e6	1.381	1.049	1.050	6346	5325	3.21e7	3.00e7	5055.5	5642.0	NO	bb	bb	997.634
OCDF	44.569	1.005	3.975e6	4.328e6	1.222	0.919	0.890	5931	5298	4.87e7	5.33e7	8206.7	10067.0	NO	bb	bb	2121.722
2378-TCDD	25.774	1.001	5.946e5	7.665e5	1.227	0.776	0.770	1202	1158	8.74e6	1.12e7	7273.0	9695.4	NO	bb	bb	194.984
12378-PeCDD	30.901	1.001	2.655e6	1.752e6	0.964	1.515	1.550	1851	1951	4.00e7	2.64e7	21583.8	13542.9	NO	bb	bb	980.163
123478-HxCDD	35.469	1.001	2.101e6	1.673e6	0.841	1.256	1.240	2742	2150	3.40e7	2.69e7	12399.0	12503.7	NO	bd	bd	986.538
123678-HxCDD	35.581	1.000	2.309e6	1.874e6	0.833	1.232	1.240	2742	2150	3.47e7	2.84e7	12647.0	13199.5	NO	db	db	1025.453
123789-HxCDD	35.970	1.011	2.076e6	1.666e6	0.770	1.246	1.240	2742	2150	3.20e7	2.61e7	11674.7	12122.3	NO	bb	bb	1028.281
1234678-HpCDD	39.736	1.000	1.756e6	1.752e6	0.984	1.003	1.050	2446	4088	2.70e7	2.68e7	11046.5	6566.7	NO	bb	bb	1026.238
OCDD	44.350	1.000	2.751e6	3.516e6	0.938	0.782	0.890	4804	4198	3.46e7	4.10e7	7200.5	9763.7	NO	bb	bd	2087.776
13C-2378-TCDF	25.125	1.007	3.274e5	4.525e5	1.655	0.724	0.770	1509	1434	4.71e6	6.60e6	3124.5	4605.2	NO	bb	bb	101.227
13C-12378-PeCDF	29.286	1.174	3.890e5	2.481e5	1.196	1.568	1.550	2827	2065	5.78e6	3.66e6	2043.5	1771.8	NO	bb	bb	114.439
13C-23478-PeCDF	30.634	1.228	3.736e5	2.404e5	1.117	1.554	1.550	2827	2065	5.50e6	3.57e6	1945.4	1730.3	NO	bb	bb	118.055
13C-123478-HxCDF	34.299	0.954	1.597e5	3.001e5	1.028	0.532	0.510	2351	1707	2.34e6	4.46e6	994.0	2615.1	NO	bd	bd	93.496
13C-123678-HxCDF	34.444	0.958	1.917e5	3.387e5	1.176	0.566	0.510	2351	1707	2.67e6	4.96e6	1136.0	2903.8	NO	dd	db	94.322
13C-234678-HxCDF	35.335	0.983	1.642e5	3.006e5	1.016	0.547	0.510	2351	1707	2.37e6	4.51e6	1008.8	2640.5	NO	bb	bb	95.646
13C-123789-HxCDF	36.371	1.012	1.340e5	2.596e5	0.879	0.516	0.510	2351	1707	2.04e6	3.90e6	865.9	2285.5	NO	bb	bb	93.612
13C-1234678-HpCDF	38.265	1.064	1.238e5	2.705e5	0.870	0.458	0.440	1694	2256	2.04e6	4.51e6	1203.9	1998.5	NO	bb	bb	94.767
13C-1234789-HpCDF	40.438	1.125	9.911e4	2.127e5	0.638	0.466	0.440	1694	2256	1.41e6	3.06e6	831.0	1354.5	NO	MM	MM	102.235
13C-1234-TCDD	24.941	0.000	2.052e5	2.604e5	1.000	0.788	0.770	1830	1627	3.17e6	4.00e6	1731.3	2459.3	NO	bb	bb	100.000
13C-2378-TCDD	25.760	1.033	2.505e5	3.184e5	1.151	0.787	0.770	1830	1627	3.75e6	4.73e6	2049.8	2908.0	NO	bb	bb	106.193
13C-12378-PeCDD	30.879	1.238	2.814e5	1.848e5	0.828	1.523	1.550	966	1375	4.09e6	2.57e6	4232.0	1871.5	NO	bb	bd	120.917
13C-123478-HxCDD	35.447	0.986	2.513e5	2.037e5	0.950	1.234	1.240	1584	1073	3.91e6	3.16e6	2470.5	2943.7	NO	bd	bd	100.164
13C-123678-HxCDD	35.569	0.989	2.681e5	2.218e5	1.107	1.209	1.240	1584	1073	3.93e6	3.35e6	2482.4	3125.8	NO	db	db	92.543
13C-1234678-HpCDD	39.725	1.105	1.731e5	1.742e5	0.737	0.994	1.050	2006	1932	2.67e6	2.58e6	1333.3	1333.0	NO	bb	bd	98.506
13C-OCDD	44.332	1.233	3.026e5	3.377e5	0.633	0.896	0.890	2079	2005	3.82e6	4.27e6	1835.0	2131.6	NO	bb	bb	211.619
13C-123789-HxCDD	35.959	0.000	2.595e5	2.188e5	1.000	1.186	1.240	1584	1073	4.01e6	3.34e6	2531.8	3117.6	NO	bb	bb	100.000
37CL-2378-TCDD	25.774	1.033	1.288e6		1.312			1939		1.90e7		9780.0			bb		210.792

Dataset: T:\Autospec\Processed Data Batch\240228ICIH.qld
Last Altered: Thursday, February 29, 2024 08:17:31 Pacific Standard Time
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ID: CS5CY, Name: 24022809, Date: 28-Feb-2024, Time: 18:40:18, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.247		0.770	1904	2251								
1289-TCDF					0.916		0.770	1904	2251								
13468-PECDF					1.353		1.550	609	875								
12389-PECDF					0.925		1.550	7538	10427								
123468-HXCDF					1.335		1.240	4112	2002								
1368-TCDD					1.120		0.770	1202	1158								
1289-TCDD					0.966		0.770	1202	1158								
12479-PECDD					1.859		1.550	1851	1951								
12389-PECDD					1.154		1.550	1851	1951								
124679-HXCDD					1.006		1.240	2742	2150								
1234679-HPCDD					1.184		1.050	2446	4088								
Total-tetrafurans			6.993e5		1.048			1904		1.05e7							203.243
Total-penta1			0.000e0					609		0.00e0							
Total-pentafurans			8.488e6		1.043			7538		1.28e8							2035.257
Total-hexafurans			1.235e7		1.217			4112		1.86e8							4076.127
Total-heptafurans			5.015e6		1.387			6346		7.95e7							2000.725
Total-Furans			3.053e7		1.180			1904		4.53e8							10437.075
Total-tetradioxins			6.074e5		1.104			1202		8.90e6							199.655
Total-pentadioxins			2.658e6		1.326			1851		4.00e7							980.878
Total-hexadioxins			6.487e6		0.863			2742		1.01e8							3040.590
Total-heptadioxins			1.756e6		1.084			2446		2.70e7							1026.238
Total-Dioxins			1.426e7		1.065			1202		2.11e8							7335.137
Total-TEQ			4.479e7					1202		6.64e8							17772.212
FUNCTION1 PFK			3.807e5					567809		9.06e6							
FUNCTION2 PFK			2.184e5					314126		7.12e6							0.000
FUNCTION3 PFK			6.469e6					467768		6.58e7							0.000
FUNCTION4 PFK			2.987e6					577121		4.15e7							
FUNCTION5 PFK			3.313e6					229375		1.93e7							
FUNCTION1 HXCD...			0.000e0					518		0.00e0							
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			3.747e3					841		5.62e4							0.000
FUNCTION3 OCDPE			1.534e3					452		2.09e4							0.000
FUNCTION4 NCDPE			2.547e2					571		4.99e3							0.000
FUNCTION5 DCDPE			6.994e2					483		7.34e3							0.000

Method: T:\Autospec\Methods\Dioxin240228.mdb 29 Feb 2024 08:04:37
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	26.24	1.434e2	1.717e2	1.048	0.83	0.77	2.5	NO	NO	bb	bb	0.039
2	2378-TCDF	25.14	6.953e5	8.492e5	0.980	0.82	0.77	5490.5	YES	NO	bb	bb	202.020
3	Total-tetrafurans	24.22	3.869e3	5.814e3	1.048	0.67	0.77	29.4	YES	NO	bb	bb	1.185

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	29.68	4.991e2	2.836e2	1.043	1.76	1.55	0.0	NO	NO	bb	bb	0.120
2	12378-PeCDF	29.31	4.113e6	2.670e6	1.047	1.54	1.55	8151.4	YES	NO	bb	bb	1016.7...
3	Total-pentafurans	28.23	1.336e4	8.107e3	1.043	1.65	1.55	20.4	YES	NO	bb	bb	3.291
4	Total-pentafurans	30.89	1.128e4	6.401e3	1.043	1.76	1.55	19.7	YES	NO	bb	bb	2.711
5	23478-PeCDF	30.65	4.347e6	2.830e6	1.156	1.54	1.55	8793.6	YES	NO	bb	bb	1011.5...
6	Total-pentafurans	30.38	3.092e3	2.169e3	1.043	1.43	1.55	7.3	YES	NO	bb	bb	0.807

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDF	34.46	3.464e6	2.737e6	1.193	1.27	1.24	12169.8	YES	NO	db	db	979.910
2	123478-HxCDF	34.32	3.161e6	2.496e6	1.224	1.27	1.24	11776.6	YES	NO	bd	bd	1005.3...
3	Total-hexafurans	34.15	2.864e3	2.572e3	1.217	1.11	1.24	13.6	YES	NO	bb	bb	0.966
4	Total-hexafurans	32.83	2.548e3	2.084e3	1.217	1.22	1.24	8.2	YES	NO	dd	db	0.823
5	Total-hexafurans	37.04	2.533e2	2.158e2	1.217	1.17	1.24	1.0	NO	NO	dd	bd	0.083
6	123789-HxCDF	36.38	2.569e6	2.038e6	1.100	1.26	1.24	9399.4	YES	NO	bb	bb	1064.2...
7	234678-HxCDF	35.35	3.154e6	2.726e6	1.235	1.16	1.24	11843.8	YES	NO	bb	bd	1024.7...

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HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	38.67	7.901e2	7.301e2	1.387	1.08	1.05	3.6	YES	NO	bb	db	0.311
2	1234678-HpCDF	38.28	2.815e6	2.691e6	1.392	1.05	1.05	7468.8	YES	NO	bb	bb	1002.7...
3	1234789-HpCDF	40.45	2.199e6	2.096e6	1.381	1.05	1.05	5055.5	YES	NO	bb	bb	997.634

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	26.24	1.434e2	1.717e2	1.048	0.83	0.77	2.5	NO	NO	bb	bb	0.039
2	2378-TCDF	25.14	6.953e5	8.492e5	0.980	0.82	0.77	5490.5	YES	NO	bb	bb	202.020
3	Total-tetrafurans	24.22	3.869e3	5.814e3	1.048	0.67	0.77	29.4	YES	NO	bb	bb	1.185
4	Total-pentafurans	29.68	4.991e2	2.836e2	1.043	1.76	1.55	0.0	NO	NO	bb	bb	0.120
5	12378-PeCDF	29.31	4.113e6	2.670e6	1.047	1.54	1.55	8151.4	YES	NO	bb	bb	1016.7...
6	Total-pentafurans	28.23	1.336e4	8.107e3	1.043	1.65	1.55	20.4	YES	NO	bb	bb	3.291
7	Total-pentafurans	30.89	1.128e4	6.401e3	1.043	1.76	1.55	19.7	YES	NO	bb	bb	2.711
8	23478-PeCDF	30.65	4.347e6	2.830e6	1.156	1.54	1.55	8793.6	YES	NO	bb	bb	1011.5...
9	Total-pentafurans	30.38	3.092e3	2.169e3	1.043	1.43	1.55	7.3	YES	NO	bb	bb	0.807
10	123678-HxCDF	34.46	3.464e6	2.737e6	1.193	1.27	1.24	12169.8	YES	NO	db	db	979.910
11	123478-HxCDF	34.32	3.161e6	2.496e6	1.224	1.27	1.24	11776.6	YES	NO	bd	bd	1005.3...
12	Total-hexafurans	34.15	2.864e3	2.572e3	1.217	1.11	1.24	13.6	YES	NO	bb	bb	0.966
13	Total-hexafurans	32.83	2.548e3	2.084e3	1.217	1.22	1.24	8.2	YES	NO	dd	db	0.823
14	Total-hexafurans	37.04	2.533e2	2.158e2	1.217	1.17	1.24	1.0	NO	NO	dd	bd	0.083
15	123789-HxCDF	36.38	2.569e6	2.038e6	1.100	1.26	1.24	9399.4	YES	NO	bb	bb	1064.2...
16	234678-HxCDF	35.35	3.154e6	2.726e6	1.235	1.16	1.24	11843.8	YES	NO	bb	bd	1024.7...
17	Total-heptafurans	38.67	7.901e2	7.301e2	1.387	1.08	1.05	3.6	YES	NO	bb	db	0.311
18	1234678-HpCDF	38.28	2.815e6	2.691e6	1.392	1.05	1.05	7468.8	YES	NO	bb	bb	1002.7...
19	1234789-HpCDF	40.45	2.199e6	2.096e6	1.381	1.05	1.05	5055.5	YES	NO	bb	bb	997.634
20	OCDF	44.57	3.975e6	4.328e6	1.222	0.92	0.89	8206.7	YES	NO	bb	bb	2121.7...

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.77	5.946e5	7.665e5	1.227	0.78	0.77	7273.0	YES	NO	bb	bb	194.984
2	Total-tetradioxins	25.39	1.280e4	1.655e4	1.104	0.77	0.77	127.8	YES	NO	bb	bb	4.672

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PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	29.31	2.662e3	1.756e3	1.326	1.52	1.55	17.3	YES	NO	bd	bd	0.715
2	12378-PeCDD	30.90	2.655e6	1.752e6	0.964	1.52	1.55	21583.8	YES	NO	bb	bb	980.163

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.97	2.076e6	1.666e6	0.770	1.25	1.24	11674.7	YES	NO	bb	bb	1028.2...
2	123678-HxCDD	35.58	2.309e6	1.874e6	0.833	1.23	1.24	12647.0	YES	NO	db	db	1025.4...
3	123478-HxCDD	35.47	2.101e6	1.673e6	0.841	1.26	1.24	12399.0	YES	NO	bd	bd	986.538
4	Total-hexadioxins	34.57	7.596e2	5.342e2	0.863	1.42	1.24	3.1	YES	NO	db	db	0.317

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.74	1.756e6	1.752e6	0.984	1.00	1.05	11046.5	YES	NO	bb	bb	1026.2...

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.77	5.946e5	7.665e5	1.227	0.78	0.77	7273.0	YES	NO	bb	bb	194.984
2	Total-tetradioxins	25.39	1.280e4	1.655e4	1.104	0.77	0.77	127.8	YES	NO	bb	bb	4.672
3	Total-pentadioxins	29.31	2.662e3	1.756e3	1.326	1.52	1.55	17.3	YES	NO	bd	bd	0.715
4	12378-PeCDD	30.90	2.655e6	1.752e6	0.964	1.52	1.55	21583.8	YES	NO	bb	bb	980.163
5	123789-HxCDD	35.97	2.076e6	1.666e6	0.770	1.25	1.24	11674.7	YES	NO	bb	bb	1028.2...
6	123678-HxCDD	35.58	2.309e6	1.874e6	0.833	1.23	1.24	12647.0	YES	NO	db	db	1025.4...
7	123478-HxCDD	35.47	2.101e6	1.673e6	0.841	1.26	1.24	12399.0	YES	NO	bd	bd	986.538
8	Total-hexadioxins	34.57	7.596e2	5.342e2	0.863	1.42	1.24	3.1	YES	NO	db	db	0.317
9	1234678-HpCDD	39.74	1.756e6	1.752e6	0.984	1.00	1.05	11046.5	YES	NO	bb	bb	1026.2...
10	OCDD	44.35	2.751e6	3.516e6	0.938	0.78	0.89	7200.5	YES	NO	bb	bd	2087.7...

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	26.24	1.434e2	1.717e2	1.048	0.83	0.77	2.5	NO	NO	bb	bb	0.039
2	2378-TCDF	25.14	6.953e5	8.492e5	0.980	0.82	0.77	5490.5	YES	NO	bb	bb	202.020
3	Total-tetrafurans	24.22	3.869e3	5.814e3	1.048	0.67	0.77	29.4	YES	NO	bb	bb	1.185
4	Total-pentafurans	29.68	4.991e2	2.836e2	1.043	1.76	1.55	0.0	NO	NO	bb	bb	0.120
5	12378-PeCDF	29.31	4.113e6	2.670e6	1.047	1.54	1.55	8151.4	YES	NO	bb	bb	1016.7...
6	Total-pentafurans	28.23	1.336e4	8.107e3	1.043	1.65	1.55	20.4	YES	NO	bb	bb	3.291
7	Total-pentafurans	30.89	1.128e4	6.401e3	1.043	1.76	1.55	19.7	YES	NO	bb	bb	2.711
8	23478-PeCDF	30.65	4.347e6	2.830e6	1.156	1.54	1.55	8793.6	YES	NO	bb	bb	1011.5...
9	Total-pentafurans	30.38	3.092e3	2.169e3	1.043	1.43	1.55	7.3	YES	NO	bb	bb	0.807
10	123678-HxCDF	34.46	3.464e6	2.737e6	1.193	1.27	1.24	12169.8	YES	NO	db	db	979.910
11	123478-HxCDF	34.32	3.161e6	2.496e6	1.224	1.27	1.24	11776.6	YES	NO	bd	bd	1005.3...
12	Total-hexafurans	34.15	2.864e3	2.572e3	1.217	1.11	1.24	13.6	YES	NO	bb	bb	0.966
13	Total-hexafurans	32.83	2.548e3	2.084e3	1.217	1.22	1.24	8.2	YES	NO	dd	db	0.823
14	Total-hexafurans	37.04	2.533e2	2.158e2	1.217	1.17	1.24	1.0	NO	NO	dd	bd	0.083
15	123789-HxCDF	36.38	2.569e6	2.038e6	1.100	1.26	1.24	9399.4	YES	NO	bb	bb	1064.2...
16	234678-HxCDF	35.35	3.154e6	2.726e6	1.235	1.16	1.24	11843.8	YES	NO	bb	bd	1024.7...
17	Total-heptafurans	38.67	7.901e2	7.301e2	1.387	1.08	1.05	3.6	YES	NO	bb	db	0.311
18	1234678-HpCDF	38.28	2.815e6	2.691e6	1.392	1.05	1.05	7468.8	YES	NO	bb	bb	1002.7...
19	1234789-HpCDF	40.45	2.199e6	2.096e6	1.381	1.05	1.05	5055.5	YES	NO	bb	bb	997.634
20	OCDF	44.57	3.975e6	4.328e6	1.222	0.92	0.89	8206.7	YES	NO	bb	bb	2121.7...
21	2378-TCDD	25.77	5.946e5	7.665e5	1.227	0.78	0.77	7273.0	YES	NO	bb	bb	194.984
22	Total-tetradioxins	25.39	1.280e4	1.655e4	1.104	0.77	0.77	127.8	YES	NO	bb	bb	4.672
23	Total-pentadioxins	29.31	2.662e3	1.756e3	1.326	1.52	1.55	17.3	YES	NO	bd	bd	0.715
24	12378-PeCDD	30.90	2.655e6	1.752e6	0.964	1.52	1.55	21583.8	YES	NO	bb	bb	980.163
25	123789-HxCDD	35.97	2.076e6	1.666e6	0.770	1.25	1.24	11674.7	YES	NO	bb	bb	1028.2...
26	123678-HxCDD	35.58	2.309e6	1.874e6	0.833	1.23	1.24	12647.0	YES	NO	db	db	1025.4...
27	123478-HxCDD	35.47	2.101e6	1.673e6	0.841	1.26	1.24	12399.0	YES	NO	bd	bd	986.538
28	Total-hexadioxins	34.57	7.596e2	5.342e2	0.863	1.42	1.24	3.1	YES	NO	db	db	0.317
29	1234678-HpCDD	39.74	1.756e6	1.752e6	0.984	1.00	1.05	11046.5	YES	NO	bb	bb	1026.2...
30	OCDD	44.35	2.751e6	3.516e6	0.938	0.78	0.89	7200.5	YES	NO	bb	bd	2087.7...

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.17	7.148e4					2.7	NO		bd		
2	FUNCTION1 PFK	26.83	4.980e4					1.9	NO		bb		
3	FUNCTION1 PFK	25.87	4.806e3					0.6	NO		bb		
4	FUNCTION1 PFK	24.46	2.768e4					1.4	NO		bb		
5	FUNCTION1 PFK	24.12	5.077e4					1.9	NO		bb		
6	FUNCTION1 PFK	22.71	1.021e4					0.8	NO		bb		
7	FUNCTION1 PFK	21.86	4.961e4					1.9	NO		bb		
8	FUNCTION1 PFK	21.49	3.323e4					1.4	NO		bb		
9	FUNCTION1 PFK	21.23	8.307e4					3.3	YES		db		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.27	1.016e4					1.0	NO		bb		0.000
2	FUNCTION2 PFK	28.09	8.274e3					1.1	NO		bb		0.000
3	FUNCTION2 PFK	27.87	9.065e3					1.2	NO		bb		0.000
4	FUNCTION2 PFK	27.78	1.482e3					0.4	NO		bb		0.000
5	FUNCTION2 PFK	27.66	2.304e4					1.7	NO		bb		0.000
6	FUNCTION2 PFK	27.60	7.628e3					0.9	NO		bb		0.000
7	FUNCTION2 PFK	27.46	2.507e4					1.1	NO		bb		0.000
8	FUNCTION2 PFK	31.95	8.514e3					1.0	NO		bb		0.000
9	FUNCTION2 PFK	31.45	2.910e3					0.8	NO		bb		0.000
10	FUNCTION2 PFK	31.09	1.314e4					1.2	NO		bb		0.000
11	FUNCTION2 PFK	30.87	7.304e3					1.1	NO		bb		0.000
12	FUNCTION2 PFK	30.40	2.143e3					0.6	NO		bb		0.000
13	FUNCTION2 PFK	29.92	1.461e4					1.5	NO		bb		0.000
14	FUNCTION2 PFK	29.88	1.398e4					0.9	NO		bb		0.000
15	FUNCTION2 PFK	29.71	5.814e3					0.9	NO		bb		0.000
16	FUNCTION2 PFK	29.59	9.783e3					1.3	NO		bb		0.000
17	FUNCTION2 PFK	29.41	1.848e3					0.5	NO		bb		0.000
18	FUNCTION2 PFK	28.97	8.883e3					1.1	NO		db		0.000
19	FUNCTION2 PFK	28.92	1.676e4					1.7	NO		bd		0.000
20	FUNCTION2 PFK	28.72	1.191e4					1.5	NO		bb		0.000
21	FUNCTION2 PFK	28.49	1.608e4					1.2	NO		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	32.16	1.117e6					31.3	YES		bd		0.000
2	FUNCTION3 PFK	34.82	2.342e4					1.5	NO		dd		0.000
3	FUNCTION3 PFK	34.79	2.786e4					1.7	NO		bd		0.000
4	FUNCTION3 PFK	34.72	7.861e3					1.0	NO		bb		0.000
5	FUNCTION3 PFK	34.41	2.403e3					0.5	NO		bb		0.000
6	FUNCTION3 PFK	34.11	4.519e4					1.4	NO		bb		0.000
7	FUNCTION3 PFK	33.80	5.922e3					0.8	NO		bb		0.000
8	FUNCTION3 PFK	33.72	1.972e4					1.7	NO		bb		0.000
9	FUNCTION3 PFK	33.52	1.244e4					1.1	NO		bb		0.000
10	FUNCTION3 PFK	33.29	5.014e4					1.7	NO		bb		0.000
11	FUNCTION3 PFK	33.13	1.221e4					0.8	NO		bb		0.000
12	FUNCTION3 PFK	33.08	5.468e3					0.7	NO		bb		0.000
13	FUNCTION3 PFK	32.85	3.091e4					2.6	NO		db		0.000
14	FUNCTION3 PFK	32.82	1.431e6					4.5	YES		dd		0.000
15	FUNCTION3 PFK	32.38	1.589e6					23.4	YES		dd		0.000
16	FUNCTION3 PFK	32.33	6.440e5					25.5	YES		dd		0.000
17	FUNCTION3 PFK	32.23	1.268e6					29.1	YES		dd		0.000
18	FUNCTION3 PFK	37.16	2.122e4					1.5	NO		bb		0.000
19	FUNCTION3 PFK	37.07	7.968e3					0.9	NO		bb		0.000
20	FUNCTION3 PFK	36.95	5.493e3					0.6	NO		bb		0.000
21	FUNCTION3 PFK	36.67	1.249e4					1.0	NO		bb		0.000
22	FUNCTION3 PFK	36.22	1.598e4					1.2	NO		bb		0.000
23	FUNCTION3 PFK	36.06	2.194e3					0.4	NO		bb		0.000
24	FUNCTION3 PFK	35.97	3.868e4					1.6	NO		bb		0.000
25	FUNCTION3 PFK	35.89	9.453e3					1.1	NO		bb		0.000
26	FUNCTION3 PFK	35.67	3.157e4					1.2	NO		bb		0.000
27	FUNCTION3 PFK	35.19	2.995e3					0.6	NO		bb		0.000
28	FUNCTION3 PFK	34.92	2.893e4					1.5	NO		db		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.53	2.492e4					0.8	NO		dd		
2	FUNCTION4 PFK	37.47	3.063e4					0.9	NO		bd		
3	FUNCTION4 PFK	37.39	3.412e3					0.5	NO		bb		
4	FUNCTION4 PFK	37.34	5.291e3					0.2	NO		bb		
5	FUNCTION4 PFK	39.17	3.071e4					1.2	NO		dd		
6	FUNCTION4 PFK	39.11	2.941e4					1.3	NO		dd		
7	FUNCTION4 PFK	39.07	3.770e4					1.5	NO		dd		
8	FUNCTION4 PFK	39.00	2.769e4					1.1	NO		dd		
9	FUNCTION4 PFK	38.93	1.793e4					1.1	NO		dd		
10	FUNCTION4 PFK	38.89	2.397e4					1.2	NO		bd		
11	FUNCTION4 PFK	38.69	1.710e5					8.5	YES		db		
12	FUNCTION4 PFK	38.64	7.306e5					8.4	YES		dd		
13	FUNCTION4 PFK	38.47	2.480e5					6.8	YES		dd		
14	FUNCTION4 PFK	38.41	5.317e5					6.6	YES		dd		
15	FUNCTION4 PFK	38.20	2.038e5					4.6	YES		dd		
16	FUNCTION4 PFK	38.14	1.784e5					3.9	YES		dd		
17	FUNCTION4 PFK	38.06	2.076e5					3.1	YES		dd		
18	FUNCTION4 PFK	37.88	5.108e4					1.4	NO		dd		
19	FUNCTION4 PFK	37.81	9.152e3					0.5	NO		bd		
20	FUNCTION4 PFK	37.61	1.238e4					0.7	NO		db		
21	FUNCTION4 PFK	41.08	3.202e4					0.9	NO		bb		
22	FUNCTION4 PFK	40.88	1.407e4					0.7	NO		bb		
23	FUNCTION4 PFK	40.57	2.338e4					1.0	NO		db		
24	FUNCTION4 PFK	40.48	3.075e4					0.9	NO		bd		
25	FUNCTION4 PFK	40.42	2.285e3					0.4	NO		bb		
26	FUNCTION4 PFK	40.23	5.454e4					1.3	NO		bb		
27	FUNCTION4 PFK	40.08	1.382e4					0.6	NO		bb		
28	FUNCTION4 PFK	39.87	1.384e4					0.7	NO		db		
29	FUNCTION4 PFK	39.84	9.892e3					0.7	NO		bd		
30	FUNCTION4 PFK	39.75	2.380e4					0.7	NO		db		
31	FUNCTION4 PFK	39.70	4.294e3					0.3	NO		dd		
32	FUNCTION4 PFK	39.67	1.722e3					0.2	NO		bd		
33	FUNCTION4 PFK	39.62	1.857e4					0.8	NO		bb		
34	FUNCTION4 PFK	39.47	5.250e3					0.4	NO		bb		
35	FUNCTION4 PFK	39.34	1.445e4					0.8	NO		bb		
36	FUNCTION4 PFK	39.26	5.485e4					1.5	NO		db		
37	FUNCTION4 PFK	42.44	9.172e3					0.4	NO		bb		

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION4 PFK	42.25	1.340e3					0.2	NO		bb		
39	FUNCTION4 PFK	42.11	1.317e4					0.7	NO		db		
40	FUNCTION4 PFK	42.08	9.086e3					0.7	NO		bd		
41	FUNCTION4 PFK	41.96	7.928e3					0.6	NO		bb		
42	FUNCTION4 PFK	41.90	4.522e3					0.4	NO		bb		
43	FUNCTION4 PFK	41.73	2.060e3					0.3	NO		bb		
44	FUNCTION4 PFK	41.61	6.019e3					0.4	NO		bb		
45	FUNCTION4 PFK	41.57	5.612e3					0.4	NO		bb		
46	FUNCTION4 PFK	41.51	5.701e3					0.4	NO		bb		
47	FUNCTION4 PFK	41.34	6.398e3					0.5	NO		bb		
48	FUNCTION4 PFK	41.30	1.501e3					0.2	NO		bb		
49	FUNCTION4 PFK	41.21	2.110e4					0.5	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	42.81	1.248e6					22.9	YES		dd		
2	FUNCTION5 PFK	42.57	6.761e5					30.7	YES		bd		
3	FUNCTION5 PFK	45.97	5.589e3					1.1	NO		bb		
4	FUNCTION5 PFK	45.88	5.982e3					1.1	NO		bb		
5	FUNCTION5 PFK	45.66	1.633e4					2.0	NO		db		
6	FUNCTION5 PFK	45.60	5.069e3					1.1	NO		bd		
7	FUNCTION5 PFK	45.36	9.624e2					0.5	NO		bb		
8	FUNCTION5 PFK	45.18	9.991e3					1.3	NO		db		
9	FUNCTION5 PFK	45.14	5.748e3					1.2	NO		bd		
10	FUNCTION5 PFK	44.90	5.510e3					1.1	NO		bb		
11	FUNCTION5 PFK	44.66	8.404e2					0.4	NO		bb		
12	FUNCTION5 PFK	44.62	2.754e3					0.7	NO		bb		
13	FUNCTION5 PFK	44.21	1.009e3					0.5	NO		bb		
14	FUNCTION5 PFK	44.11	2.352e3					0.6	NO		bb		
15	FUNCTION5 PFK	43.97	1.358e4					2.0	NO		bb		
16	FUNCTION5 PFK	43.86	5.109e3					1.1	NO		bb		
17	FUNCTION5 PFK	43.64	7.249e3					1.3	NO		bb		
18	FUNCTION5 PFK	43.04	1.301e6					14.4	YES		db		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.49	3.212e3					59.9	YES		bb		0.000
2	FUNCTION2 HPCD...	29.31	5.350e2					7.0	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.40	1.781e2					5.4	YES		bb		0.000
2	FUNCTION3 OCDPE	35.97	3.936e2					11.9	YES		bb		0.000
3	FUNCTION3 OCDPE	35.58	4.762e2					12.1	YES		db		0.000
4	FUNCTION3 OCDPE	35.47	3.370e2					10.9	YES		bd		0.000
5	FUNCTION3 OCDPE	34.47	1.488e2					6.0	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	42.37	7.280e1					2.9	NO		bb		0.000
2	FUNCTION4 NCDPE	38.28	1.819e2					5.8	YES		bb		0.000

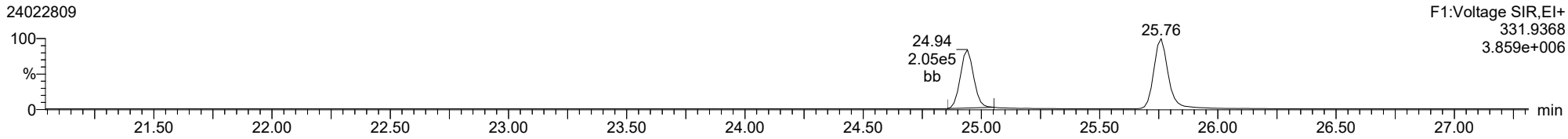
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.36	6.994e2					15.2	YES		bb		0.000

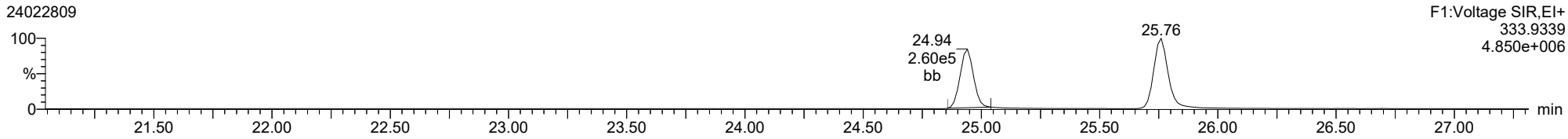
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ID: CS5CY, Name: 24022809, Date: 28-Feb-2024, Time: 18:40:18, Conditions: AUTOSPEC01, User: pk

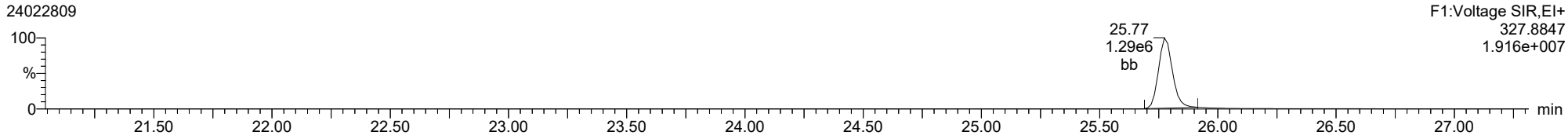
13C-1234-TCDD



13C-1234-TCDD

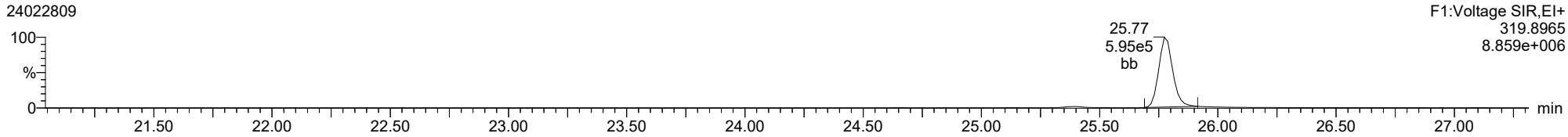


37CL-2378-TCDD

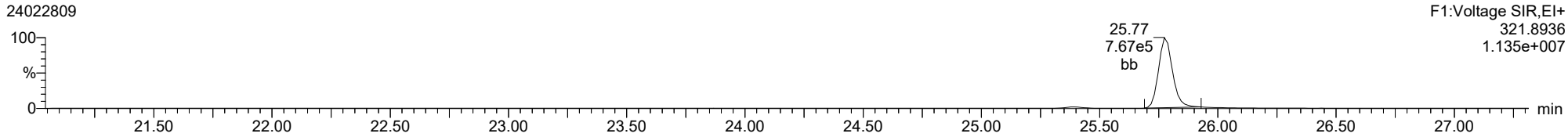


ID: CS5CY, Name: 24022809, Date: 28-Feb-2024, Time: 18:40:18, Conditions: AUTOSPEC01, User: pk

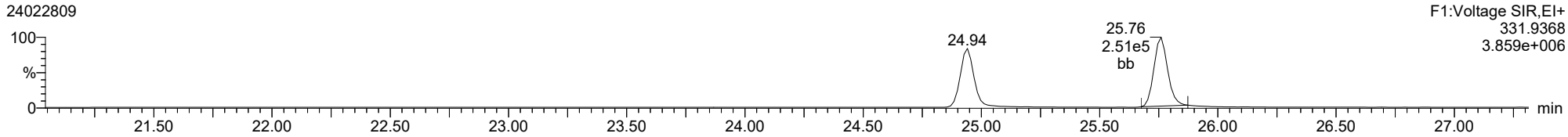
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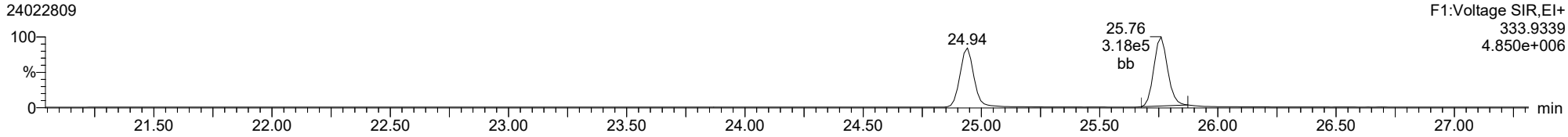
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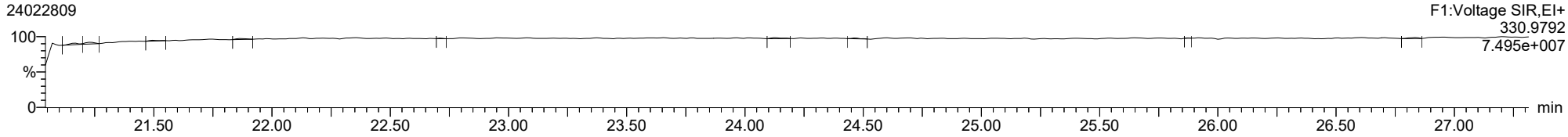
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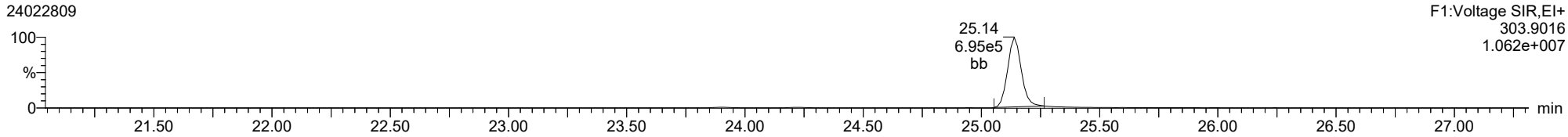


FUNCTION1 PFK

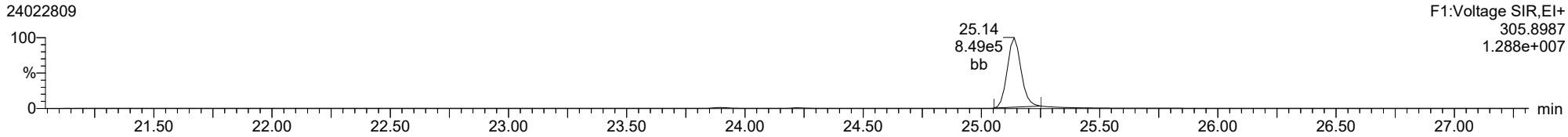


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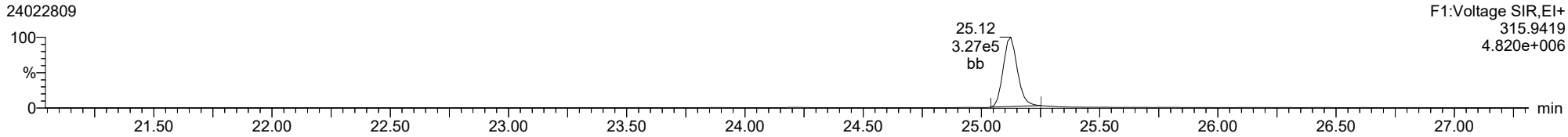
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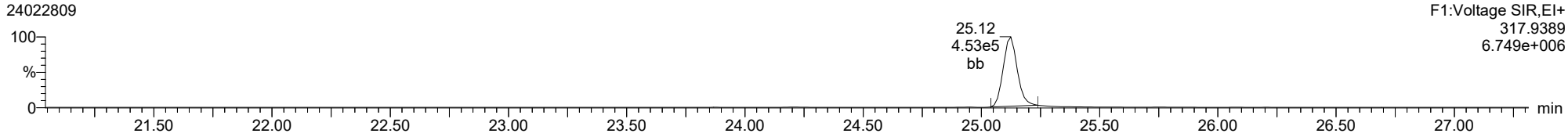
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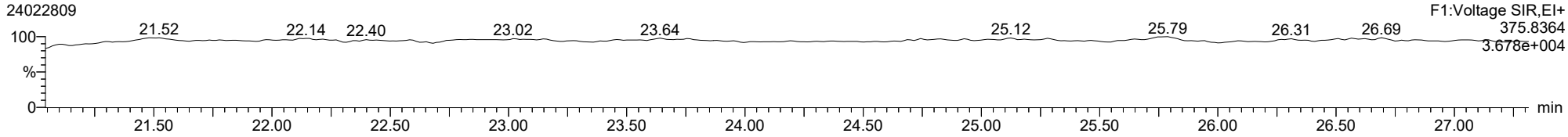
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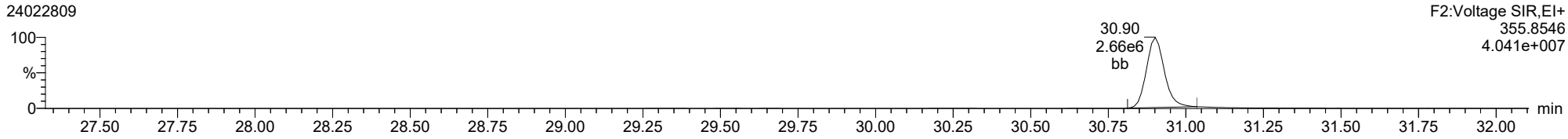


FUNCTION1 HXCDPE

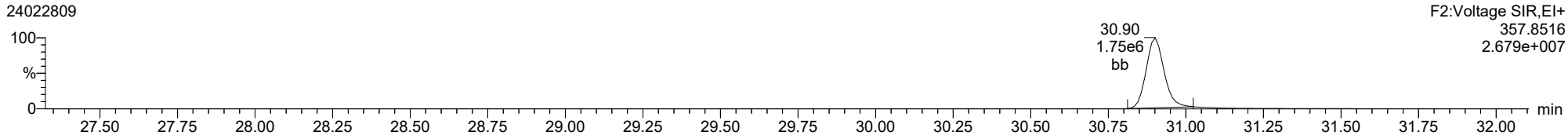


ID: CS5CY, Name: 24022809, Date: 28-Feb-2024, Time: 18:40:18, Conditions: AUTOSPEC01, User: pk

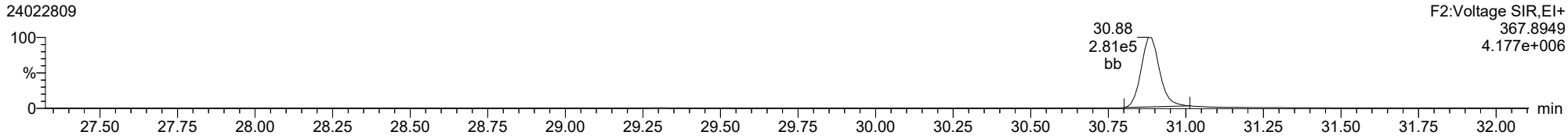
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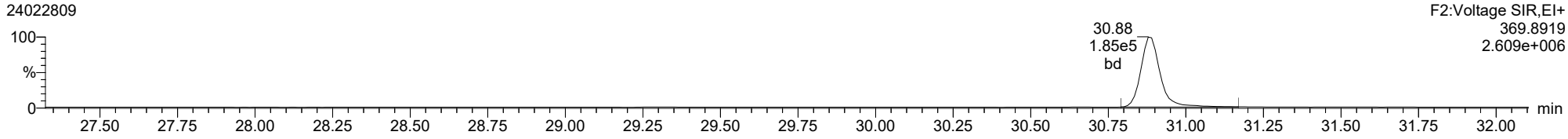
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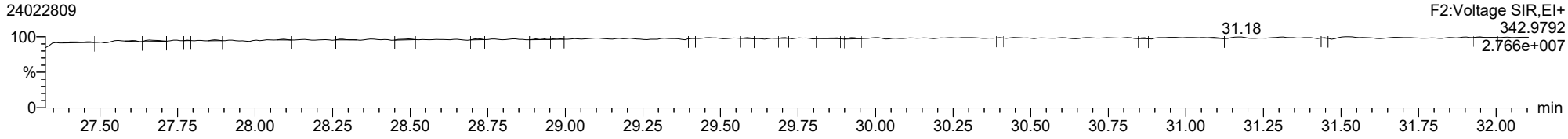
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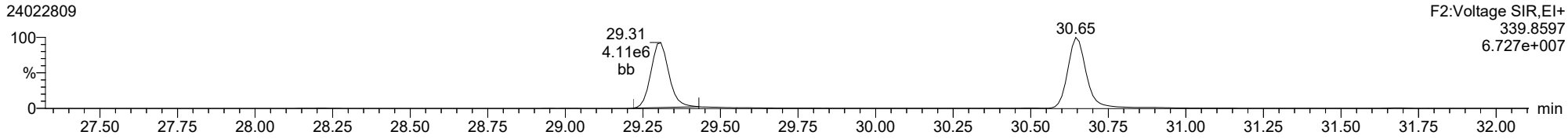


FUNCTION2 PFK

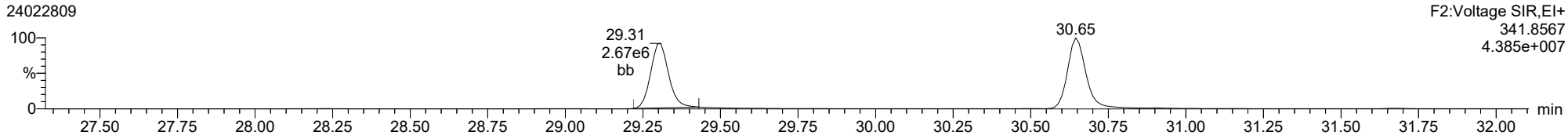


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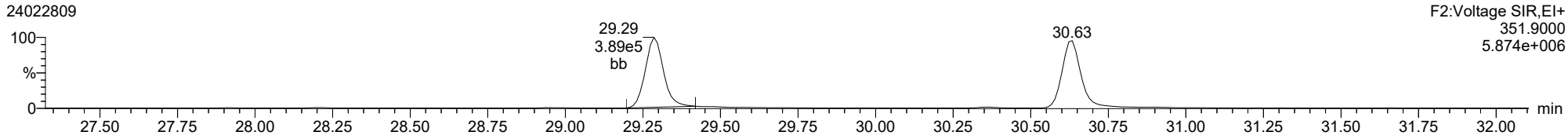
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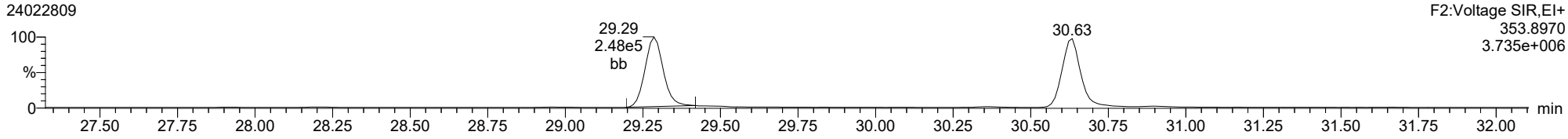
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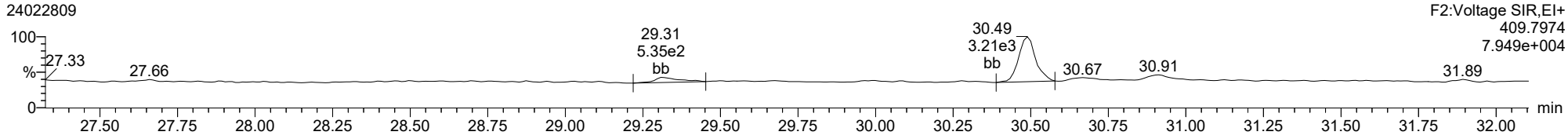
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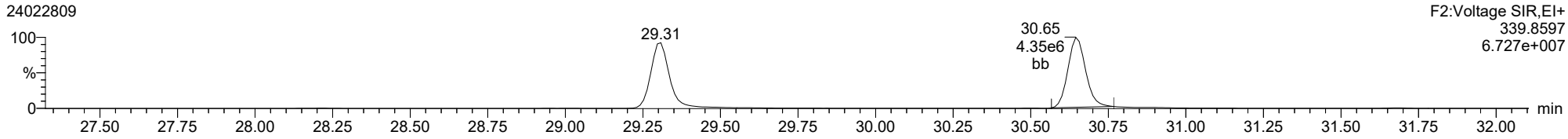


FUNCTION2 HPCDPE

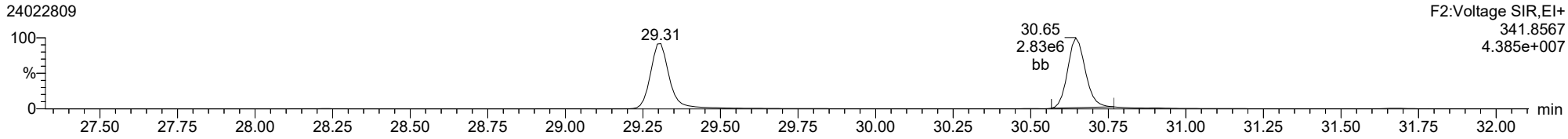


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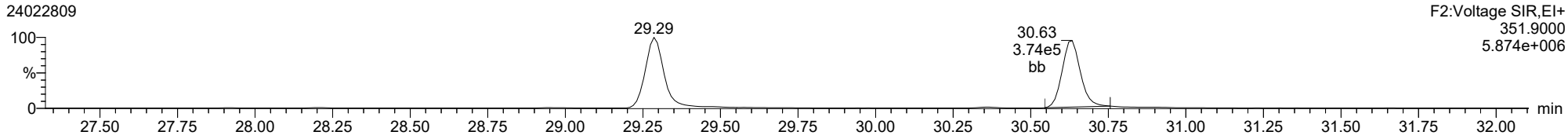
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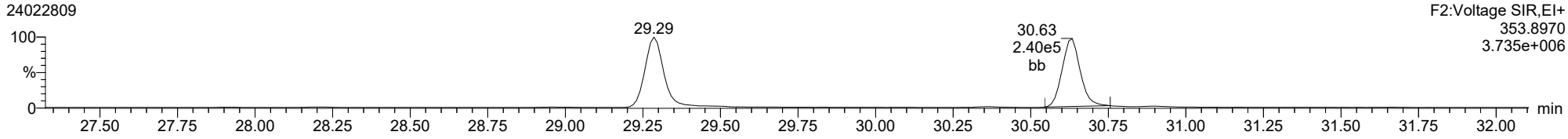
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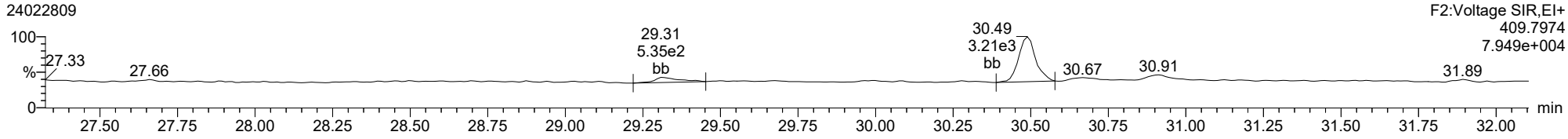
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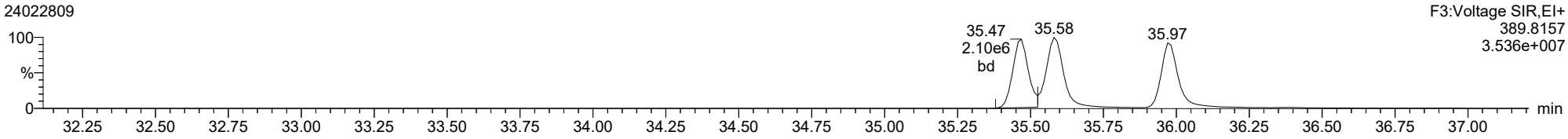


FUNCTION2 HPCDPE

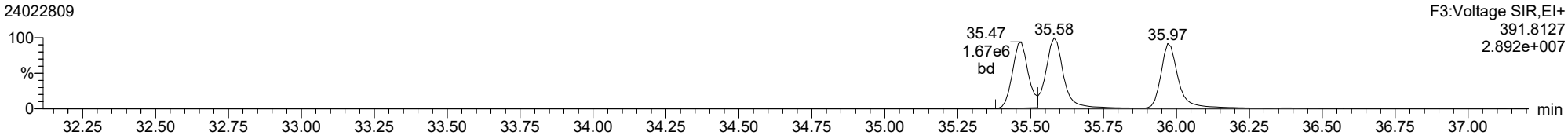


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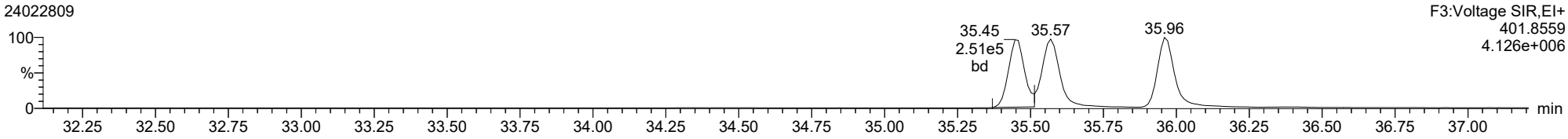
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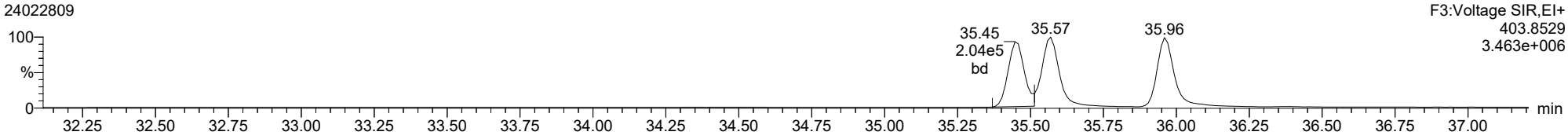
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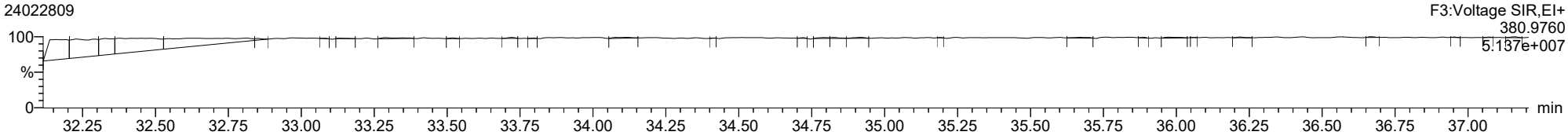
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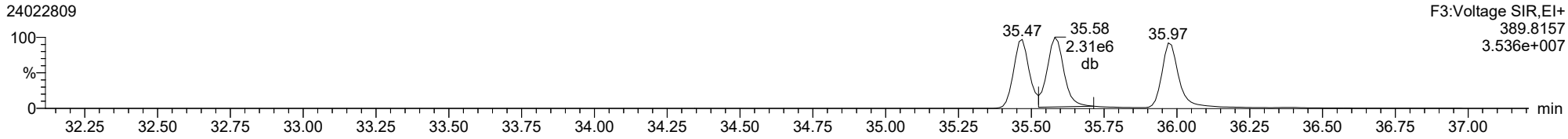


FUNCTION3 PFK

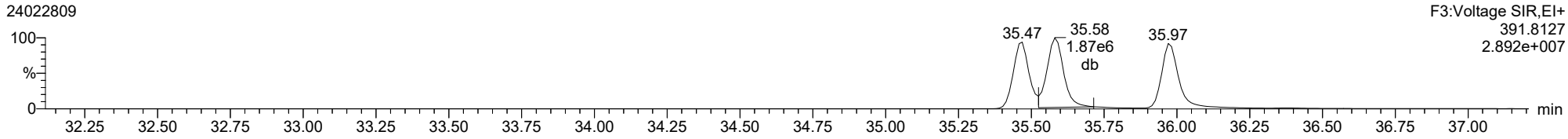


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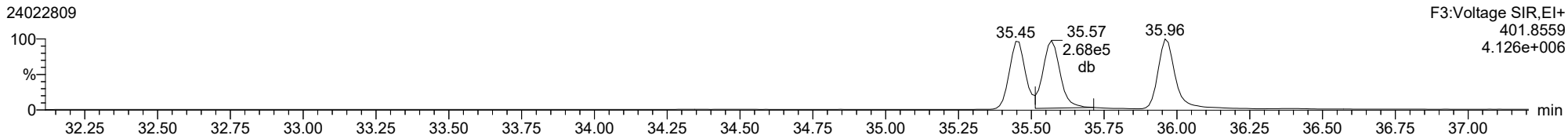
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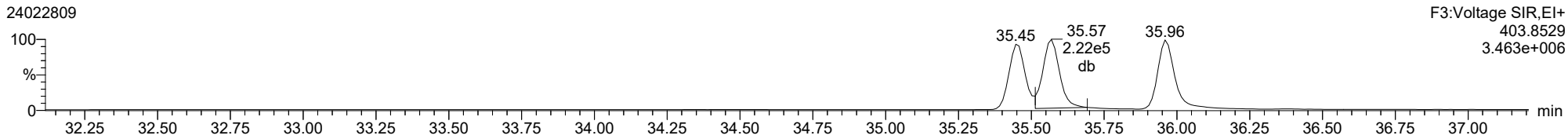
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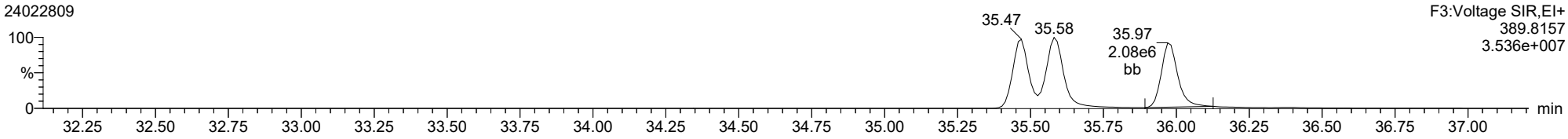


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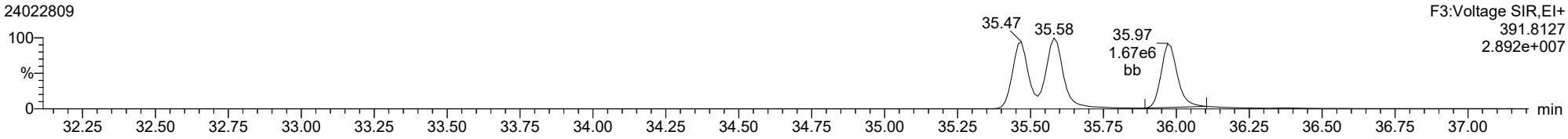


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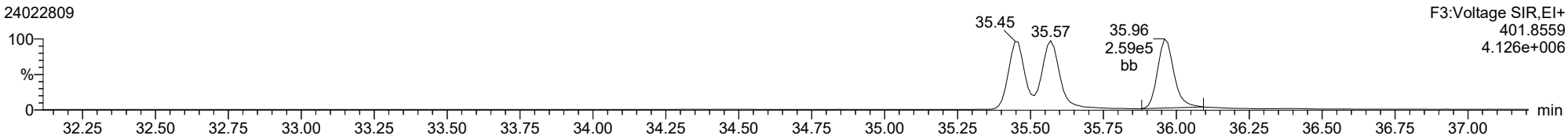
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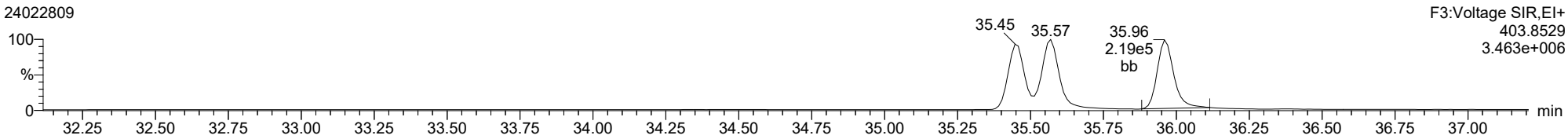
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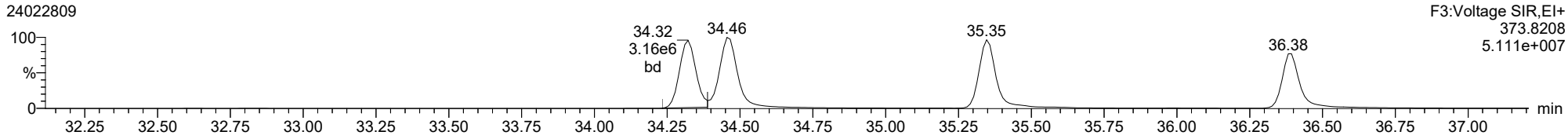


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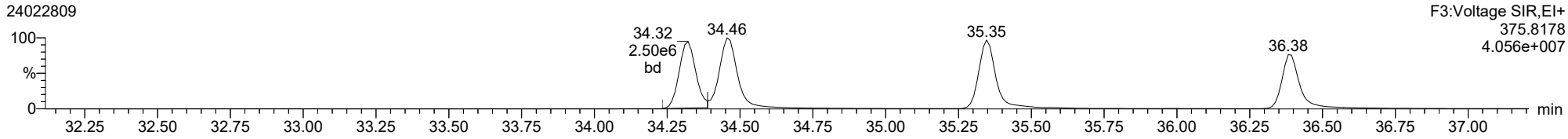


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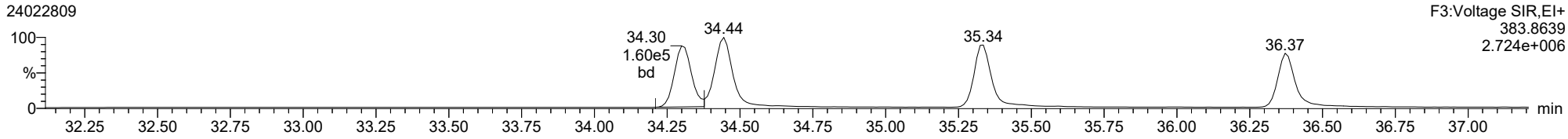
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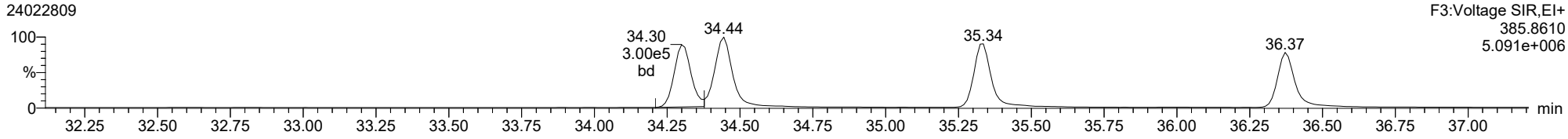
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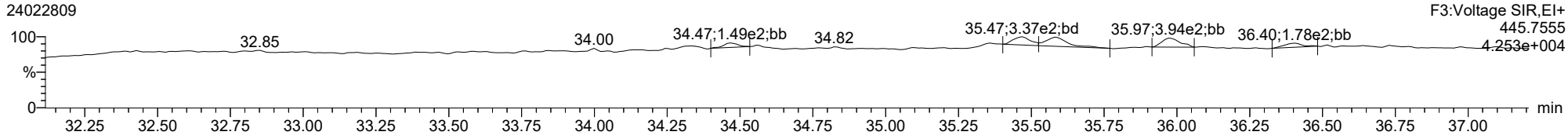
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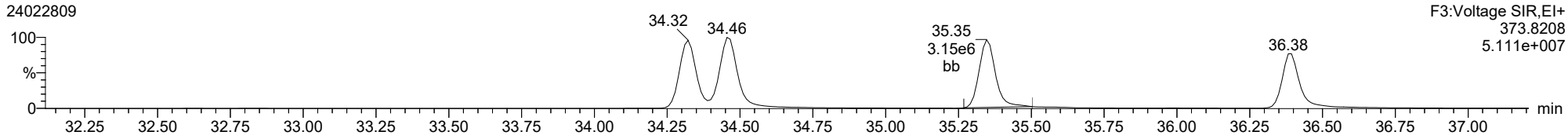


FUNCTION3 OCDPE

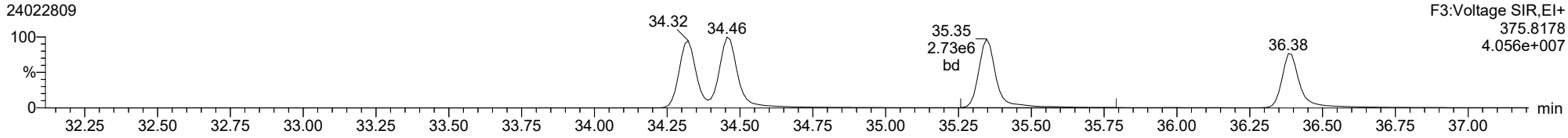


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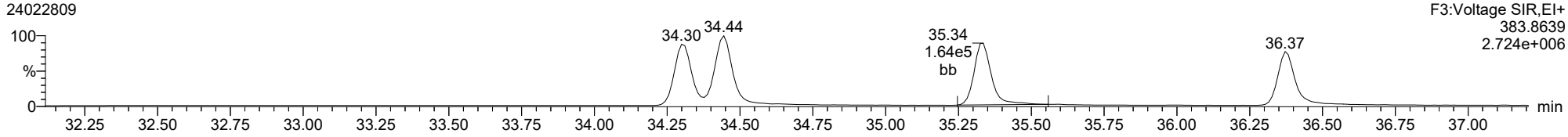
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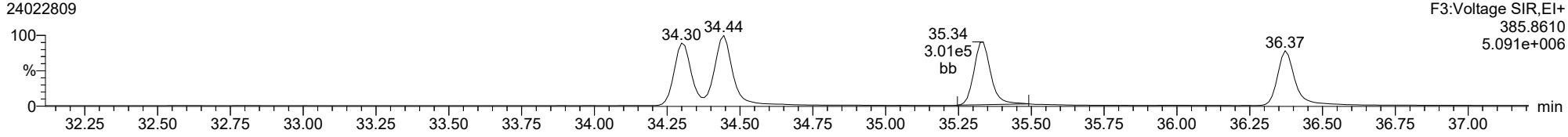
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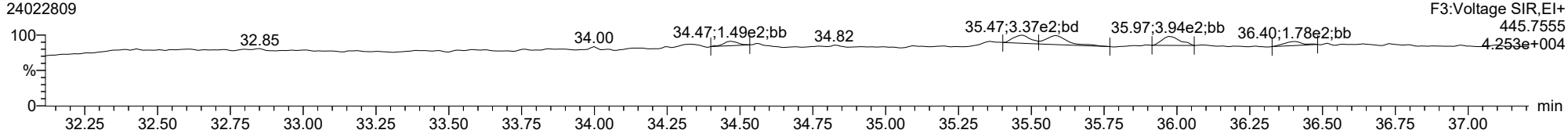
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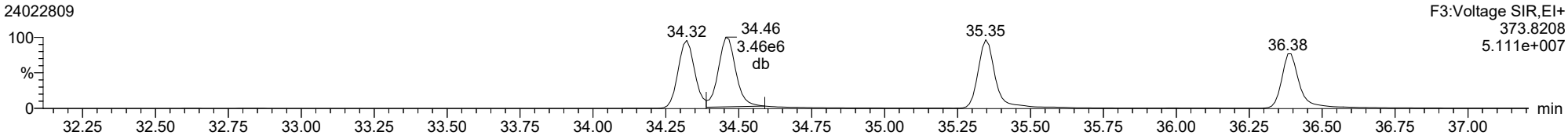


FUNCTION3 OCDPE

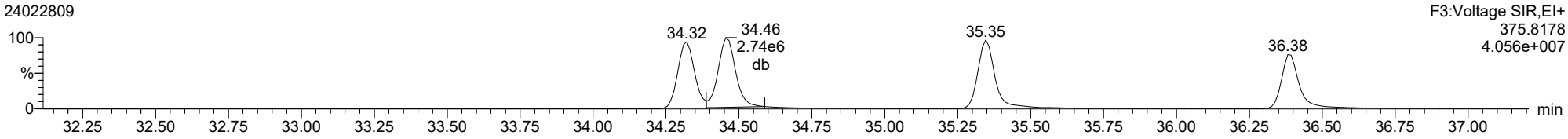


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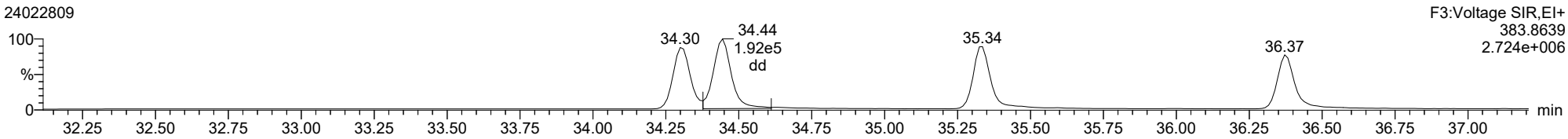
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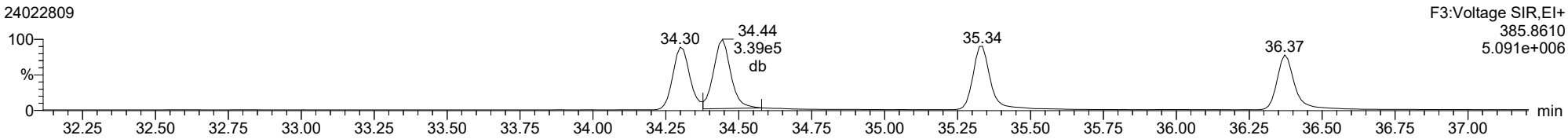
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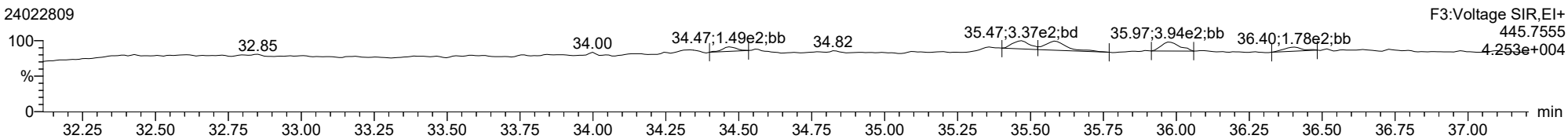
13C-123678-HxCDF



13C-123678-HxCDF

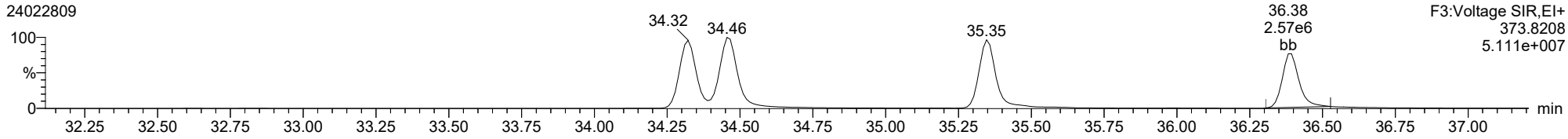


FUNCTION3 OCDPE

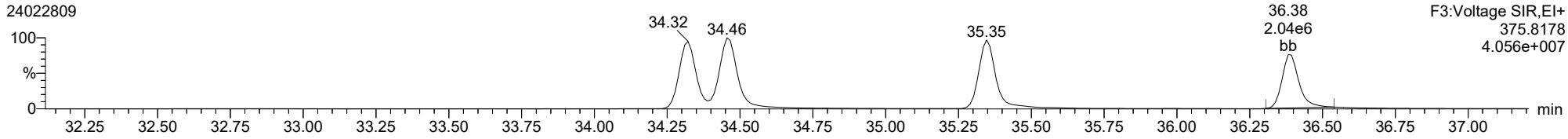


ID: CS5CY, Name: 24022809, Date: 28-Feb-2024, Time: 18:40:18, Conditions: AUTOSPEC01, User: pk

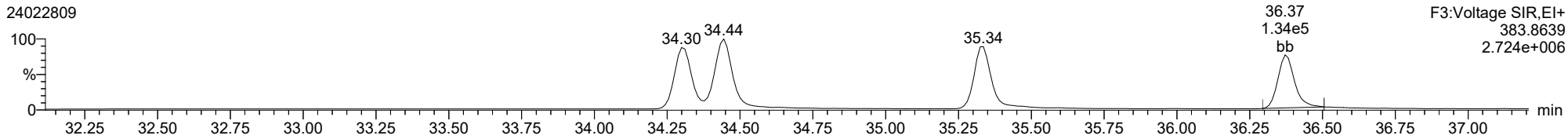
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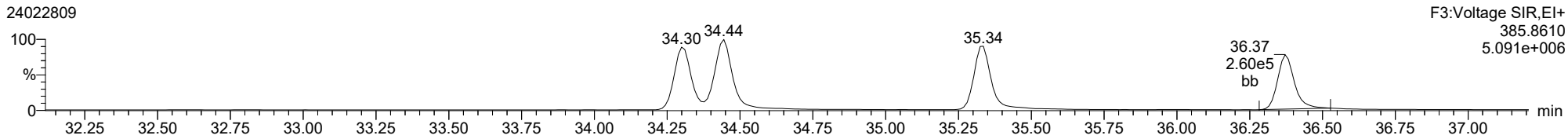
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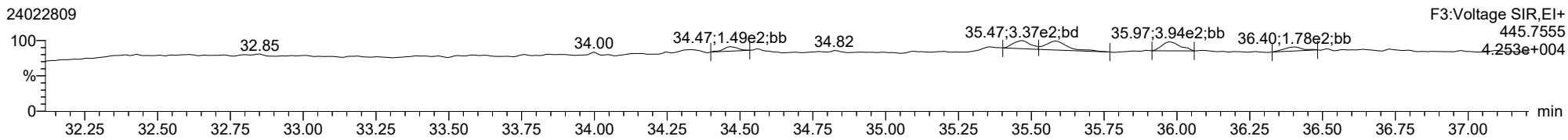
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13C-123789-HxCDF

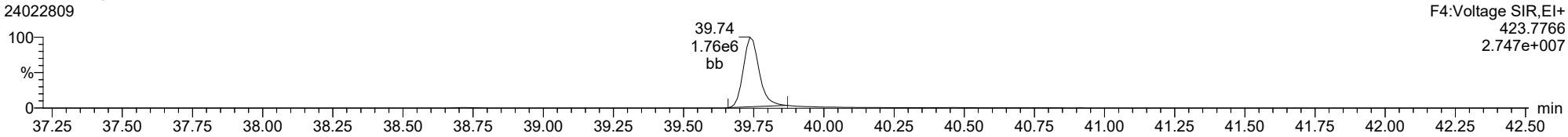


FUNCTION3 OCDPE

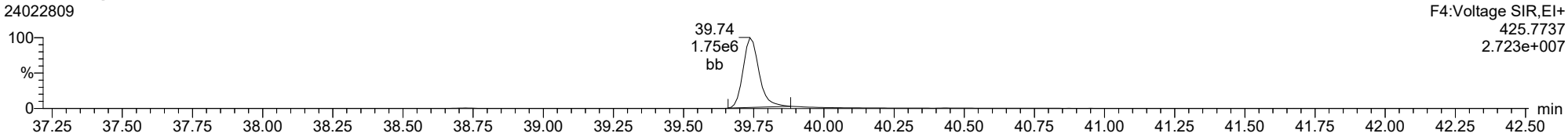


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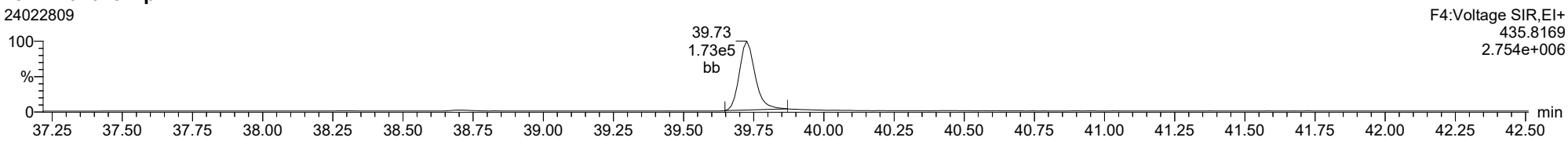
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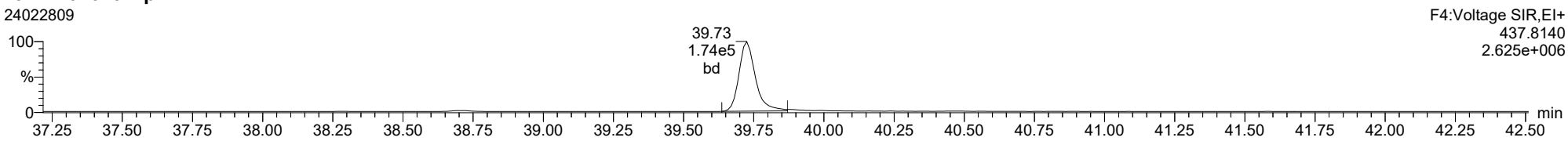
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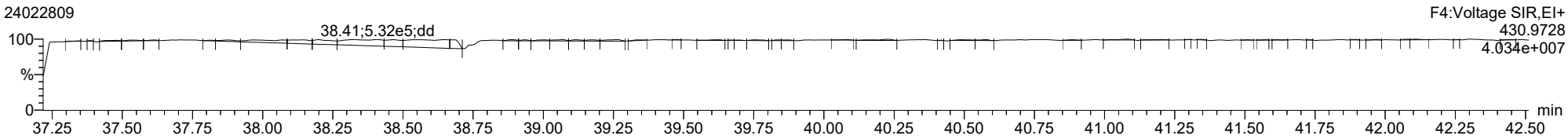
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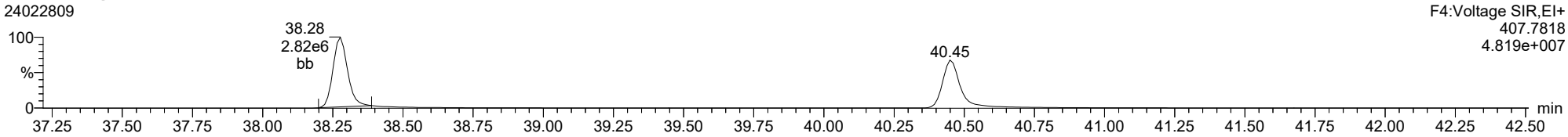


FUNCTION4 PFK

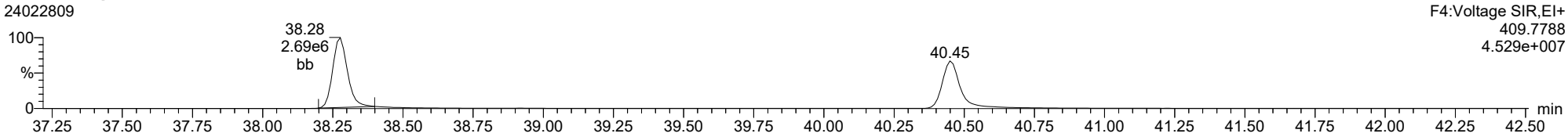


ID: CS5CY, Name: 24022809, Date: 28-Feb-2024, Time: 18:40:18, Conditions: AUTOSPEC01, User: pk

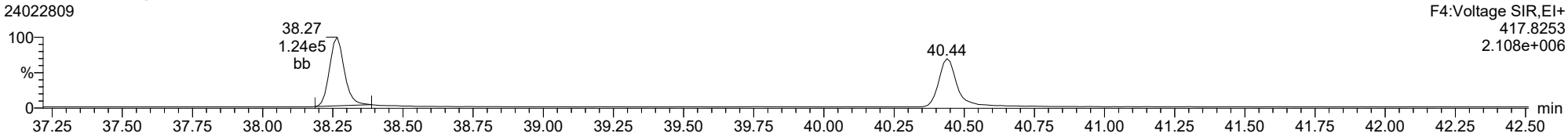
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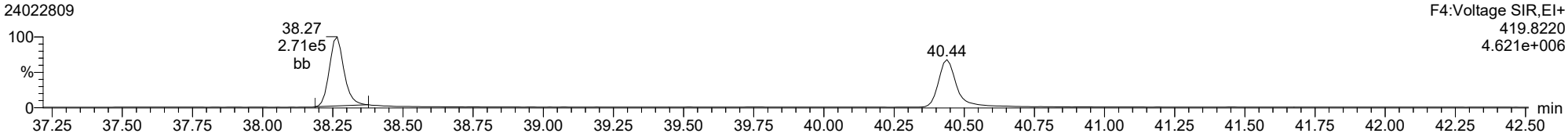
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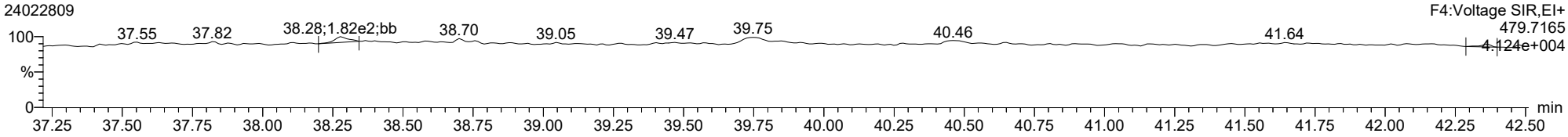
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13C-1234678-HpCDF

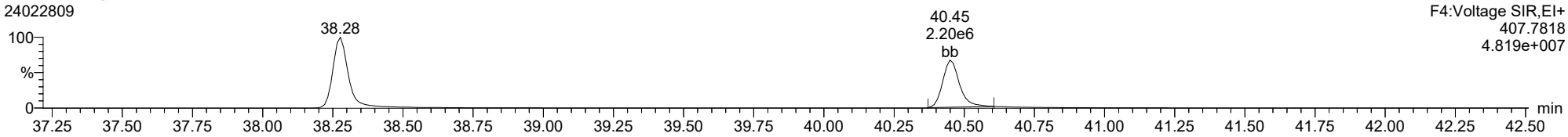


FUNCTION4 NCDPE

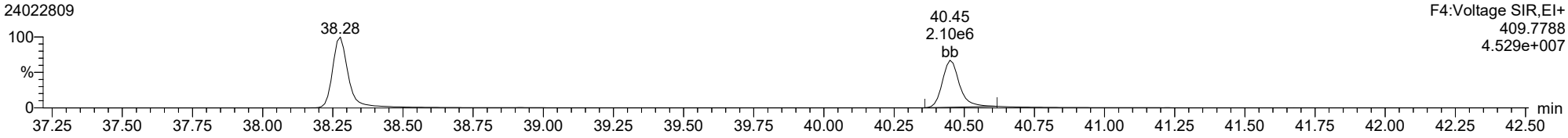


ID: CS5CY, Name: 24022809, Date: 28-Feb-2024, Time: 18:40:18, Conditions: AUTOSPEC01, User: pk

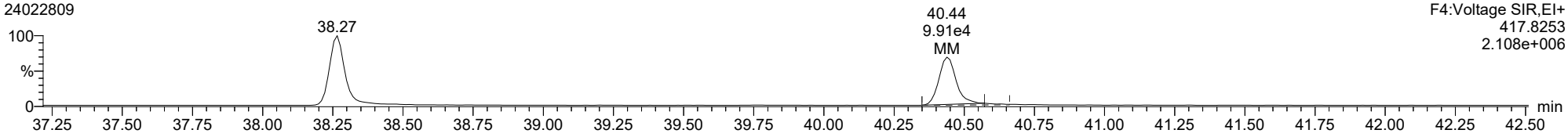
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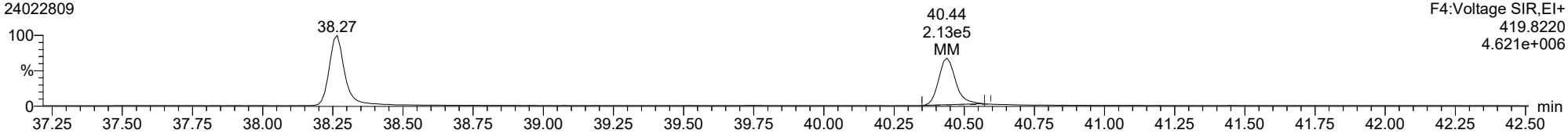
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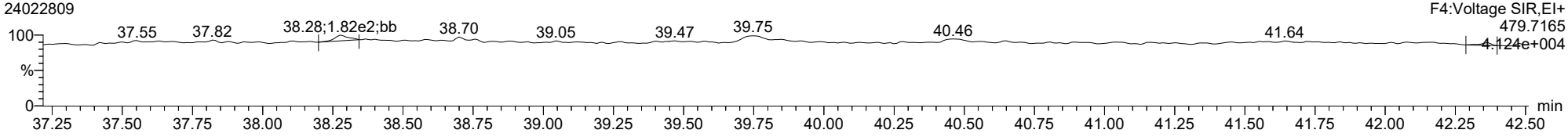
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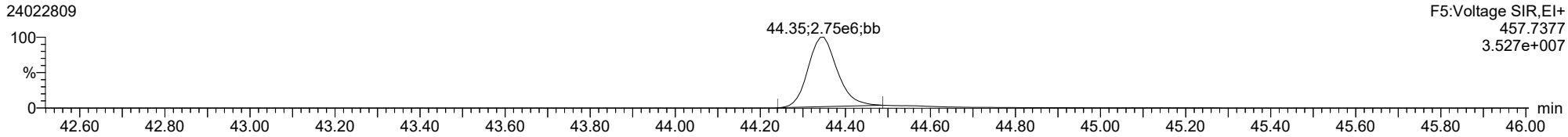


FUNCTION4 NCDPE

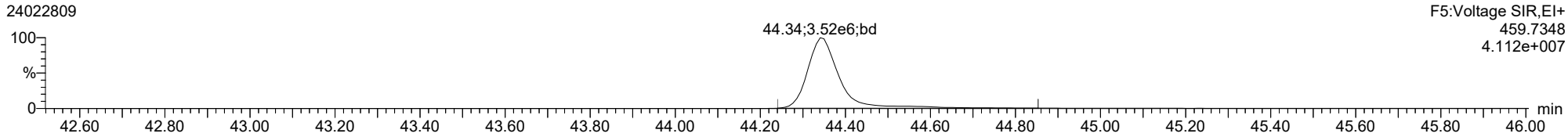


ID: CS5CY, Name: 24022809, Date: 28-Feb-2024, Time: 18:40:18, Conditions: AUTOSPEC01, User: pk

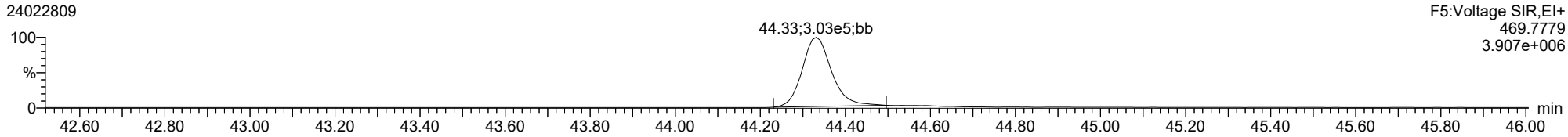
OCDD



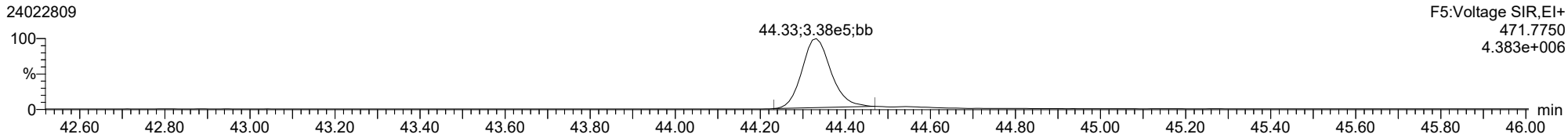
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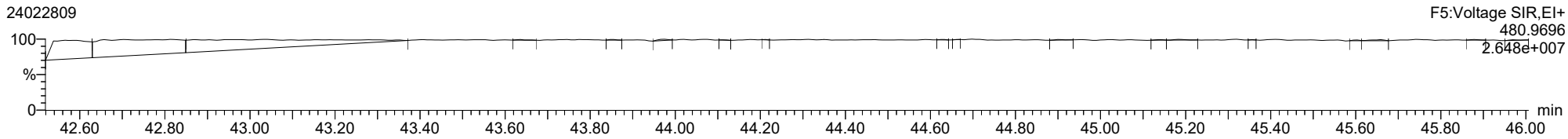
13C-OCDD



13C-OCDD



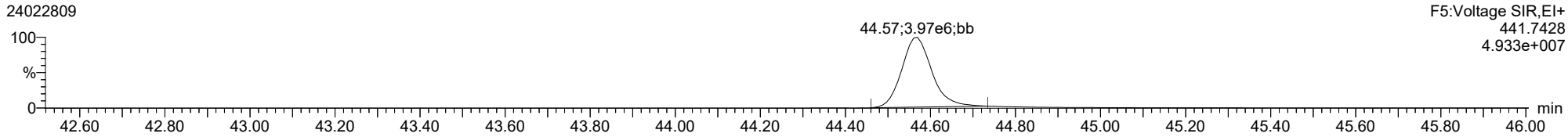
FUNCTION5 PFK



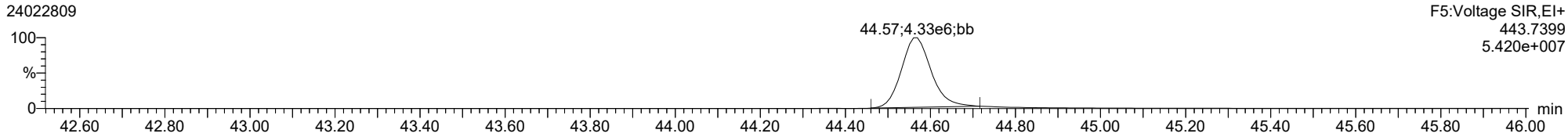
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Printed: Thursday, February 29, 2024 08:26:09 Pacific Standard Time

ID: CS5CY, Name: 24022809, Date: 28-Feb-2024, Time: 18:40:18, Conditions: AUTOSPEC01, User: pk

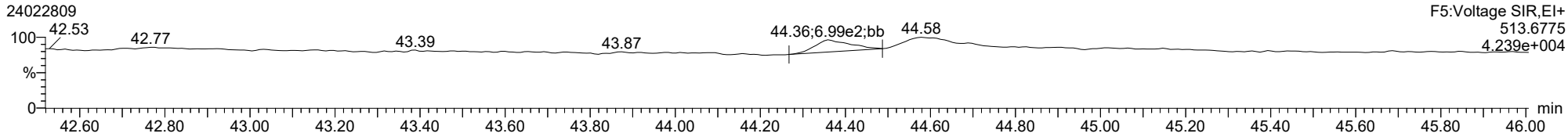
OCDF



OCDF

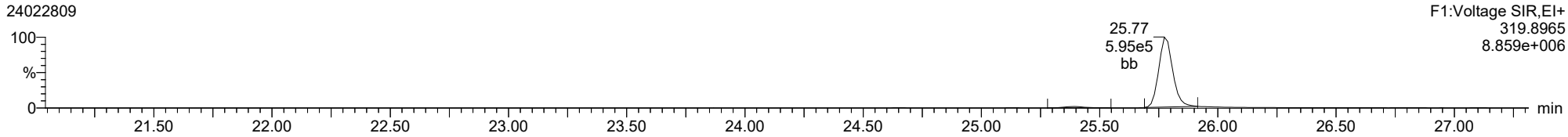


FUNCTION5 DCDPE

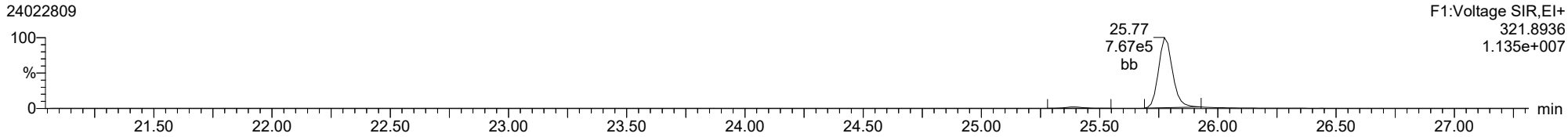


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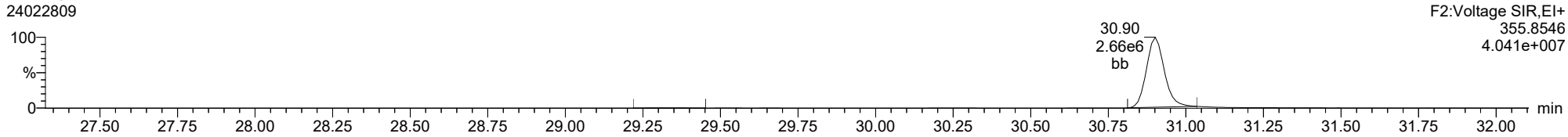
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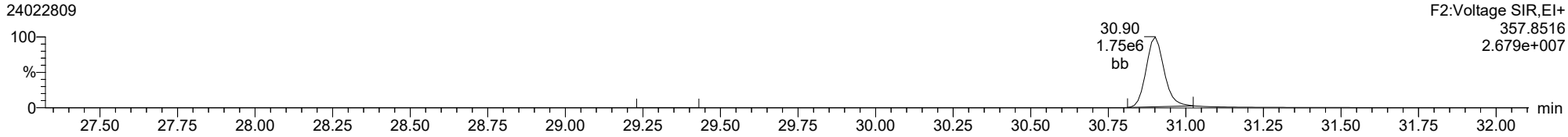
Total-tetradioxins



Total-pentadioxins

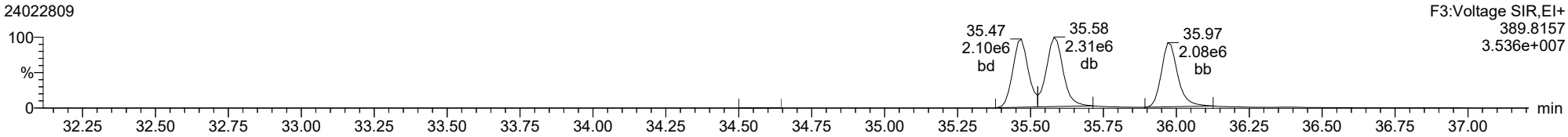


Total-pentadioxins

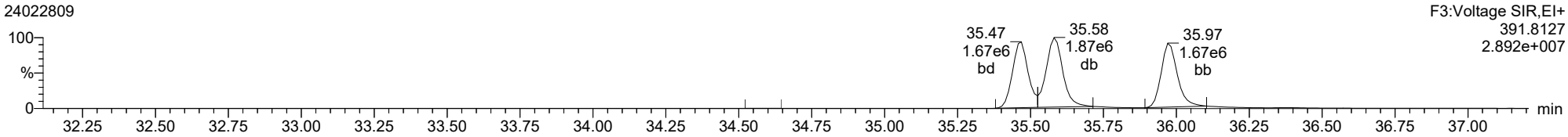


ID: CS5CY, Name: 24022809, Date: 28-Feb-2024, Time: 18:40:18, Conditions: AUTOSPEC01, User: pk

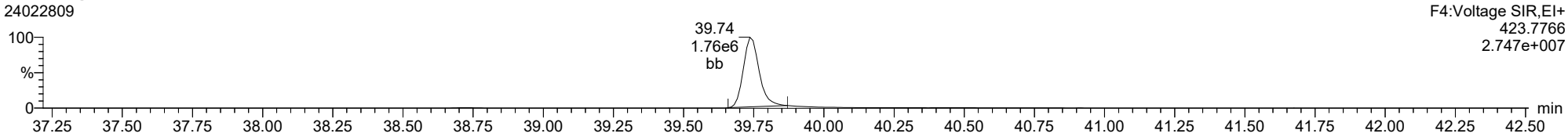
Total-hexadioxins



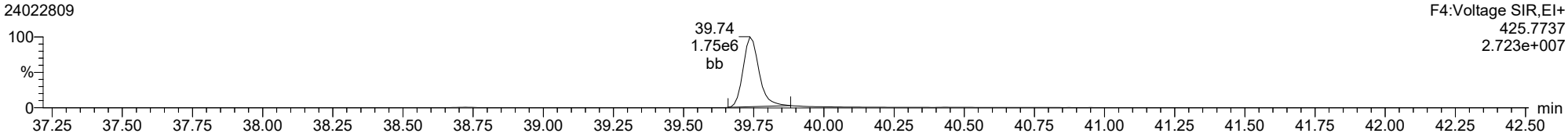
Total-hexadioxins



Total-heptadioxins

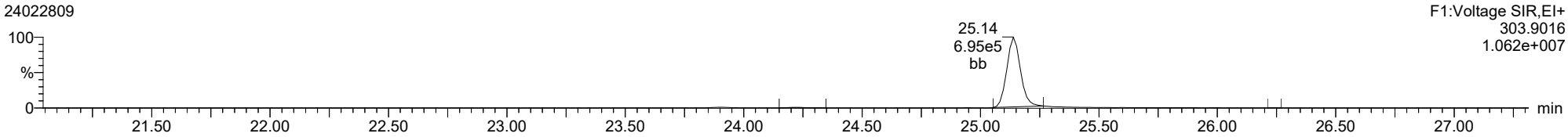


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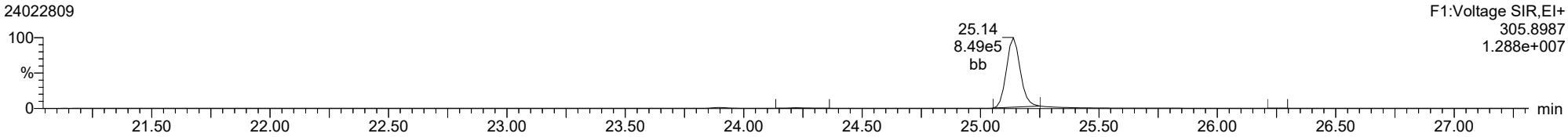


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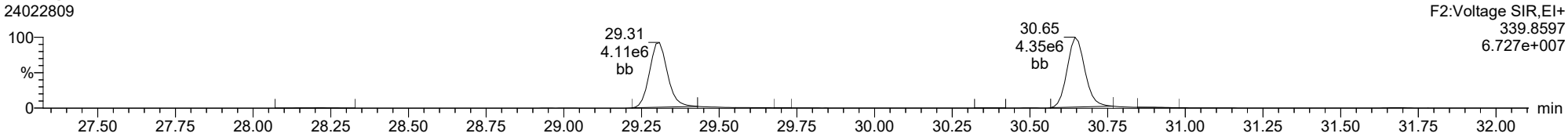
Total-tetrafurans



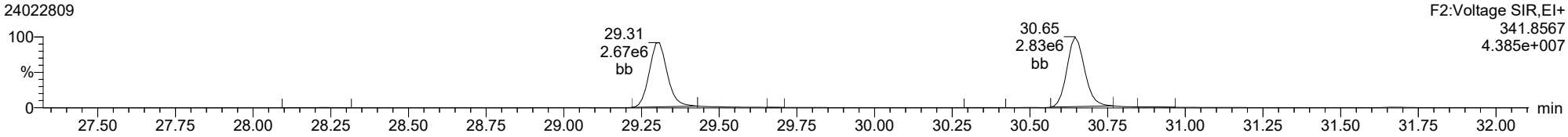
Total-tetrafurans



Total-pentafurans

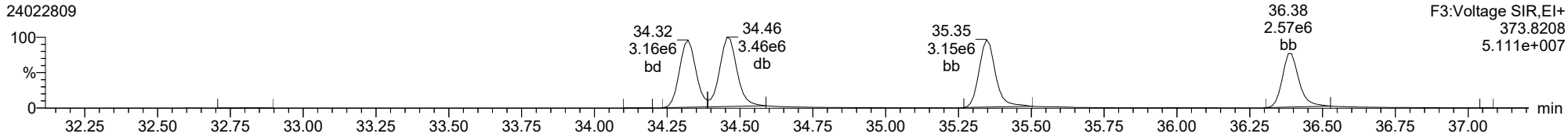


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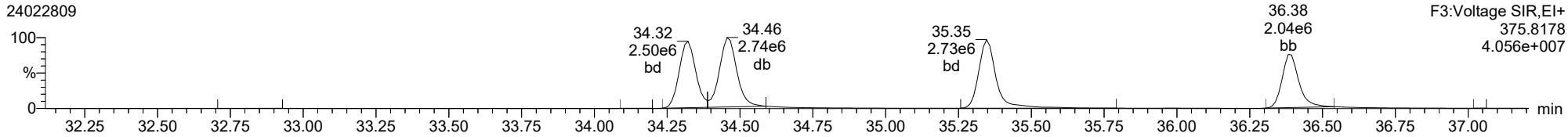


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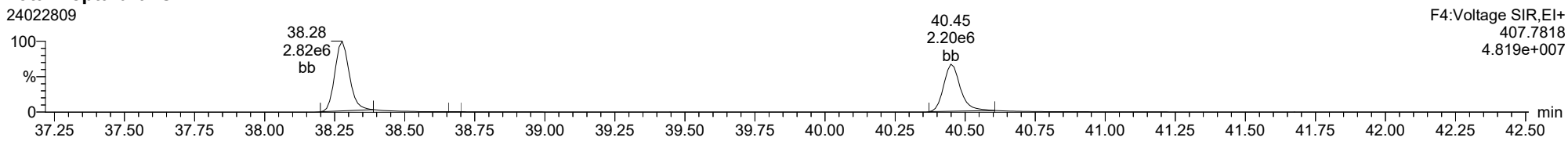
Total-hexafurans



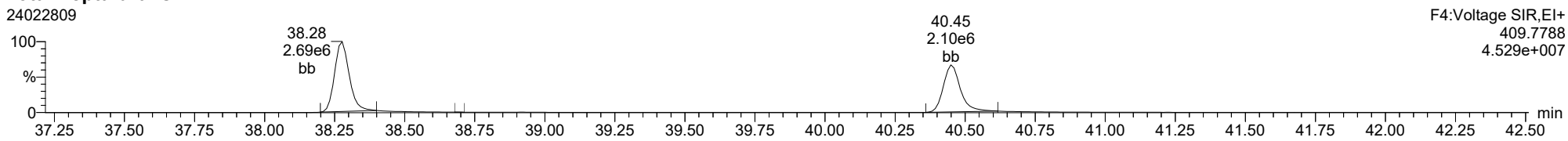
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\240228IHICV.qld
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Printed: Thursday, February 29, 2024 08:23:37 Pacific Standard Time

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Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

ID: ICVCY, Name: 24022810, Date: 28-Feb-2024, Time: 19:28:59, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.125	1.001	3.742e4	5.178e4	0.980	0.723	0.770	1426	1837	5.20e5	6.77e5	364.6	368.8	NO	bb	bb	10.326
12378-PeCDF	29.294	1.001	2.013e5	1.216e5	1.047	1.655	1.550	2442	2038	2.84e6	1.80e6	1161.1	882.0	NO	bb	bb	49.480
23478-PeCDF	30.642	1.001	2.089e5	1.366e5	1.156	1.529	1.550	2442	2038	3.03e6	1.92e6	1242.7	940.3	NO	bb	bb	51.442
123478-HxCDF	34.308	1.001	1.523e5	1.161e5	1.224	1.313	1.240	3079	2402	2.21e6	1.75e6	716.2	729.6	NO	bd	bd	51.134
234678-HxCDF	35.333	1.000	1.473e5	1.125e5	1.235	1.309	1.240	3079	2402	2.15e6	1.66e6	699.1	692.1	NO	bb	bb	50.469
123678-HxCDF	34.453	1.001	1.828e5	1.321e5	1.193	1.384	1.240	3079	2402	2.30e6	1.78e6	746.9	742.3	NO	dd	db	54.535
123789-HxCDF	36.380	1.001	1.145e5	9.410e4	1.100	1.216	1.240	3079	2402	1.59e6	1.29e6	518.0	537.6	NO	bb	bb	53.149
1234678-HpCDF	38.263	1.000	1.321e5	1.281e5	1.392	1.032	1.050	2294	2767	2.06e6	1.98e6	898.0	714.0	NO	bb	bb	49.076
1234789-HpCDF	40.436	1.000	1.120e5	1.069e5	1.381	1.048	1.050	2294	2767	1.40e6	1.27e6	610.1	459.1	NO	bd	bd	51.203
OCDF	44.558	1.005	1.833e5	1.998e5	1.222	0.918	0.890	2329	2330	1.96e6	2.09e6	841.3	897.5	NO	bd	bd	100.505
2378-TCDD	25.774	1.001	3.156e4	4.045e4	1.227	0.780	0.770	1289	1329	4.36e5	5.69e5	338.2	427.9	NO	bb	bb	9.537
12378-PeCDD	30.887	1.000	1.209e5	7.952e4	0.964	1.520	1.550	1406	2215	1.76e6	1.17e6	1249.6	526.8	NO	bb	bb	48.635
123478-HxCDD	35.455	1.001	9.192e4	7.444e4	0.841	1.235	1.240	1679	1719	1.40e6	1.13e6	831.4	659.9	NO	bd	bd	49.699
123678-HxCDD	35.567	1.000	1.154e5	9.344e4	0.833	1.235	1.240	1679	1719	1.50e6	1.21e6	896.0	703.5	NO	dd	db	53.069
123789-HxCDD	35.968	1.012	9.597e4	7.094e4	0.770	1.353	1.240	1679	1719	1.32e6	1.01e6	784.4	590.3	NO	bb	bb	49.777
1234678-HpCDD	39.734	1.001	8.951e4	8.400e4	0.984	1.066	1.050	1672	1949	1.17e6	1.15e6	701.0	589.9	NO	bd	bd	52.042
OCDD	44.338	1.000	1.377e5	1.561e5	0.938	0.882	0.890	1583	2271	1.55e6	1.75e6	979.4	772.4	NO	bd	bd	100.481
13C-2378-TCDF	25.110	1.007	3.699e5	5.114e5	1.655	0.723	0.770	1810	1741	5.21e6	7.20e6	2877.9	4133.4	NO	bb	bb	98.041
13C-12378-PeCDF	29.272	1.174	3.731e5	2.500e5	1.196	1.492	1.550	3083	2585	5.32e6	3.42e6	1724.5	1322.9	NO	bb	bd	95.959
13C-23478-PeCDF	30.620	1.228	3.530e5	2.281e5	1.117	1.548	1.550	3083	2585	5.11e6	3.23e6	1658.9	1250.9	NO	bb	bb	95.796
13C-123478-HxCDF	34.286	0.954	1.509e5	2.781e5	1.028	0.543	0.510	2162	2211	2.17e6	4.08e6	1004.8	1845.2	NO	bd	bd	97.526
13C-123678-HxCDF	34.431	0.958	1.696e5	3.143e5	1.176	0.539	0.510	2162	2211	2.34e6	4.30e6	1083.6	1944.6	NO	db	db	96.223
13C-234678-HxCDF	35.322	0.983	1.444e5	2.725e5	1.016	0.530	0.510	2162	2211	2.09e6	3.85e6	968.8	1741.6	NO	bb	bb	95.947
13C-123789-HxCDF	36.358	1.011	1.252e5	2.316e5	0.879	0.541	0.510	2162	2211	1.69e6	3.20e6	779.8	1449.8	NO	bb	bb	94.878
13C-1234678-HpCDF	38.252	1.064	1.240e5	2.568e5	0.870	0.483	0.440	2511	2912	1.84e6	3.96e6	733.9	1361.3	NO	bd	bb	102.334
13C-1234789-HpCDF	40.424	1.125	9.928e4	2.103e5	0.638	0.472	0.440	2511	2912	1.23e6	2.65e6	490.2	909.5	NO	bb	bb	113.496
13C-1234-TCDD	24.927	0.000	2.419e5	3.012e5	1.000	0.803	0.770	2285	1329	3.68e6	4.72e6	1609.7	3548.7	NO	bb	bb	100.000
13C-2378-TCDD	25.746	1.033	2.702e5	3.452e5	1.151	0.783	0.770	2285	1329	3.86e6	5.02e6	1688.4	3778.5	NO	bb	bb	98.457
13C-12378-PeCDD	30.876	1.239	2.646e5	1.627e5	0.828	1.627	1.550	1937	1230	3.70e6	2.31e6	1910.0	1875.9	NO	bb	bb	94.984
13C-123478-HxCDD	35.433	0.986	2.201e5	1.780e5	0.950	1.237	1.240	1646	3028	3.28e6	2.71e6	1992.2	895.4	NO	bd	bd	98.013
13C-123678-HxCDD	35.556	0.989	2.583e5	2.142e5	1.107	1.206	1.240	1646	3028	3.57e6	3.02e6	2167.8	997.5	NO	db	db	99.804
13C-1234678-HpCDD	39.711	1.105	1.751e5	1.636e5	0.737	1.071	1.050	1847	1319	2.27e6	2.14e6	1228.0	1623.9	NO	bb	bb	107.432
13C-OCDD	44.320	1.233	2.949e5	3.289e5	0.633	0.897	0.890	2658	1670	3.16e6	3.56e6	1189.8	2132.6	NO	bd	bd	230.541
13C-123789-HxCDD	35.946	0.000	2.274e5	2.003e5	1.000	1.135	1.240	1646	3028	3.15e6	2.63e6	1912.6	868.0	NO	bb	bb	100.000
37CL-2378-TCDD	25.774	1.034	6.678e4		1.312			1033		9.11e5		882.4			bd		9.370

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Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.622	0.861	4.759e4	6.113e4	1.247	0.779	0.770	1426	1837	7.23e5	9.25e5	506.9	503.4	NO	bb	bb	9.892
1289-TCDF	26.622	1.060	3.634e4	4.298e4	0.916	0.846	0.770	1426	1837	4.85e5	6.16e5	339.8	335.6	NO	db	db	9.831
13468-PECDF	26.495	0.905	2.646e5	1.685e5	1.353	1.571	1.550	1108	893	3.84e6	2.46e6	3469.0	2756.1	NO	bb	bb	51.353
12389-PECDF	31.667	1.082	2.008e5	1.308e5	0.925	1.535	1.550	2442	2038	2.60e6	1.63e6	1065.0	799.0	NO	bd	bd	57.512
123468-HXCDF	32.614	0.951	1.688e5	1.243e5	1.335	1.357	1.240	3079	2402	2.27e6	1.77e6	738.6	738.8	NO	bd	bb	51.172
1368-TCDD	22.907	0.890	3.125e4	4.042e4	1.120	0.773	0.770	1289	1329	4.79e5	6.23e5	371.5	468.9	NO	bb	bb	10.397
1289-TCDD	26.353	1.024	2.789e4	3.276e4	0.966	0.851	0.770	1289	1329	3.73e5	4.56e5	289.3	343.0	NO	bb	bb	10.204
12479-PECDD	28.191	0.913	2.228e5	1.479e5	1.859	1.506	1.550	1406	2215	2.03e6	1.35e6	1442.2	607.6	NO	bb	bb	46.673
12389-PECDD	31.288	1.013	1.427e5	9.782e4	1.154	1.458	1.550	1406	2215	1.90e6	1.26e6	1352.0	570.7	NO	bb	bd	48.764
124679-HXCDD	33.405	0.943	1.104e5	8.923e4	1.006	1.237	1.240	1679	1719	1.52e6	1.26e6	905.3	735.3	NO	bb	bb	49.822
1234679-HPCDD	38.709	0.975	9.831e4	9.682e4	1.184	1.015	1.050	1672	1949	1.37e6	1.41e6	822.0	724.9	NO	bd	bd	48.662
Total-tetrafurans			1.214e5		1.048			1426		1.73e6							30.049
Total-penta1			2.646e5					1108		3.84e6							51.353
Total-pentafurans			6.442e5		1.043			2442		8.97e6							167.436
Total-hexafurans			7.656e5		1.217			3079		1.05e7							260.460
Total-heptafurans			2.457e5		1.387			2294		3.48e6							100.947
Total-Furans			2.225e6		1.180			1426		3.05e7							710.750
Total-tetradioxins			1.531e5		1.104			1289		2.00e6							50.933
Total-pentadioxins			4.864e5		1.326			1406		5.69e6							144.071
Total-hexadioxins			4.137e5		0.863			1679		5.74e6							202.367
Total-heptadioxins			1.878e5		1.084			1672		2.55e6							100.703
Total-Dioxins			1.379e6		1.065			1289		1.75e7							598.555
Total-TEQ			3.603e6					1289		4.80e7							1309.305
FUNCTION1 PFK			5.049e5					624255		1.29e7							
FUNCTION2 PFK			2.754e4					304928		1.18e6							0.000
FUNCTION3 PFK			5.332e5					362926		1.59e7							0.000
FUNCTION4 PFK			3.147e5					315466		7.92e6							
FUNCTION5 PFK			4.173e6					183791		5.78e7							
FUNCTION1 HXCD...			1.000e3					492		1.32e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			2.586e2					1378		8.49e3							0.000
FUNCTION3 OCDPE			8.009e1					548		2.92e3							0.000
FUNCTION4 NCDPE			1.746e2					613		2.64e3							0.000
FUNCTION5 DCDPE			0.000e0					535		0.00e0							

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Method: T:\Autospec\Methods\Dioxin240228.mdb 29 Feb 2024 08:04:37
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.62	3.634e4	4.298e4	0.916	0.85	0.77	339.8	YES	NO	db	db	9.831
2	2378-TCDF	25.12	3.742e4	5.178e4	0.980	0.72	0.77	364.6	YES	NO	bb	bb	10.326
3	1368-TCDF	21.62	4.759e4	6.113e4	1.247	0.78	0.77	506.9	YES	NO	bb	bb	9.892

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.49	2.646e5	1.685e5	1.353	1.57	1.55	3469.0	YES	NO	bb	bb	51.353

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.64	2.089e5	1.366e5	1.156	1.53	1.55	1242.7	YES	NO	bb	bb	51.442
2	12378-PeCDF	29.29	2.013e5	1.216e5	1.047	1.66	1.55	1161.1	YES	NO	bb	bb	49.480
3	Total-pentafurans	28.15	3.323e4	2.328e4	1.043	1.43	1.55	203.6	YES	NO	bb	bb	9.002
4	12389-PECDF	31.67	2.008e5	1.308e5	0.925	1.54	1.55	1065.0	YES	NO	bd	bd	57.512

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.38	1.145e5	9.410e4	1.100	1.22	1.24	518.0	YES	NO	bb	bb	53.149
2	234678-HxCDF	35.33	1.473e5	1.125e5	1.235	1.31	1.24	699.1	YES	NO	bb	bb	50.469
3	123678-HxCDF	34.45	1.828e5	1.321e5	1.193	1.38	1.24	746.9	YES	NO	dd	db	54.535
4	123478-HxCDF	34.31	1.523e5	1.161e5	1.224	1.31	1.24	716.2	YES	NO	bd	bd	51.134
5	123468-HXCDF	32.61	1.688e5	1.243e5	1.335	1.36	1.24	738.6	YES	NO	bd	bb	51.172

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.44	1.120e5	1.069e5	1.381	1.05	1.05	610.1	YES	NO	bd	bd	51.203
2	Total-heptafurans	38.91	1.587e3	1.607e3	1.387	0.99	1.05	10.8	YES	NO	bb	bd	0.667
3	1234678-HpCDF	38.26	1.321e5	1.281e5	1.392	1.03	1.05	898.0	YES	NO	bb	bb	49.076

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.62	3.634e4	4.298e4	0.916	0.85	0.77	339.8	YES	NO	db	db	9.831
2	2378-TCDF	25.12	3.742e4	5.178e4	0.980	0.72	0.77	364.6	YES	NO	bb	bb	10.326
3	1368-TCDF	21.62	4.759e4	6.113e4	1.247	0.78	0.77	506.9	YES	NO	bb	bb	9.892
4	23478-PeCDF	30.64	2.089e5	1.366e5	1.156	1.53	1.55	1242.7	YES	NO	bb	bb	51.442
5	12378-PeCDF	29.29	2.013e5	1.216e5	1.047	1.66	1.55	1161.1	YES	NO	bb	bb	49.480
6	Total-pentafurans	28.15	3.323e4	2.328e4	1.043	1.43	1.55	203.6	YES	NO	bb	bb	9.002
7	12389-PECDF	31.67	2.008e5	1.308e5	0.925	1.54	1.55	1065.0	YES	NO	bd	bd	57.512
8	123789-HxCDF	36.38	1.145e5	9.410e4	1.100	1.22	1.24	518.0	YES	NO	bb	bb	53.149
9	234678-HxCDF	35.33	1.473e5	1.125e5	1.235	1.31	1.24	699.1	YES	NO	bb	bb	50.469
10	123678-HxCDF	34.45	1.828e5	1.321e5	1.193	1.38	1.24	746.9	YES	NO	dd	db	54.535
11	123478-HxCDF	34.31	1.523e5	1.161e5	1.224	1.31	1.24	716.2	YES	NO	bd	bd	51.134
12	123468-HXCDF	32.61	1.688e5	1.243e5	1.335	1.36	1.24	738.6	YES	NO	bd	bb	51.172
13	1234789-HpCDF	40.44	1.120e5	1.069e5	1.381	1.05	1.05	610.1	YES	NO	bd	bd	51.203
14	Total-heptafurans	38.91	1.587e3	1.607e3	1.387	0.99	1.05	10.8	YES	NO	bb	bd	0.667
15	1234678-HpCDF	38.26	1.321e5	1.281e5	1.392	1.03	1.05	898.0	YES	NO	bb	bb	49.076
16	OCDF	44.56	1.833e5	1.998e5	1.222	0.92	0.89	841.3	YES	NO	bd	bd	100.505
17	13468-PECDF	26.49	2.646e5	1.685e5	1.353	1.57	1.55	3469.0	YES	NO	bb	bb	51.353

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.77	3.156e4	4.045e4	1.227	0.78	0.77	338.2	YES	NO	bb	bb	9.537
2	Total-tetradioxins	25.44	4.773e4	6.036e4	1.104	0.79	0.77	386.2	YES	NO	bb	bb	15.907
3	Total-tetradioxins	24.95	1.469e4	1.853e4	1.104	0.79	0.77	168.2	YES	NO	bd	bb	4.888
4	1368-TCDD	22.91	3.125e4	4.042e4	1.120	0.77	0.77	371.5	YES	NO	bb	bb	10.397
5	1289-TCDD	26.35	2.789e4	3.276e4	0.966	0.85	0.77	289.3	YES	NO	bb	bb	10.204

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12479-PECDD	28.19	2.228e5	1.479e5	1.859	1.51	1.55	1442.2	YES	NO	bb	bb	46.673
2	12389-PECDD	31.29	1.427e5	9.782e4	1.154	1.46	1.55	1352.0	YES	NO	bb	bd	48.764
3	12378-PeCDD	30.89	1.209e5	7.952e4	0.964	1.52	1.55	1249.6	YES	NO	bb	bb	48.635

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.97	9.597e4	7.094e4	0.770	1.35	1.24	784.4	YES	NO	bb	bb	49.777
2	123678-HxCDD	35.57	1.154e5	9.344e4	0.833	1.23	1.24	896.0	YES	NO	dd	db	53.069
3	123478-HxCDD	35.46	9.192e4	7.444e4	0.841	1.23	1.24	831.4	YES	NO	bd	bd	49.699
4	124679-HXCDD	33.41	1.104e5	8.923e4	1.006	1.24	1.24	905.3	YES	NO	bb	bb	49.822

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234679-HPCDD	38.71	9.831e4	9.682e4	1.184	1.02	1.05	822.0	YES	NO	bd	bd	48.662
2	1234678-HpCDD	39.73	8.951e4	8.400e4	0.984	1.07	1.05	701.0	YES	NO	bd	bd	52.042

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.77	3.156e4	4.045e4	1.227	0.78	0.77	338.2	YES	NO	bb	bb	9.537
2	Total-tetradioxins	25.44	4.773e4	6.036e4	1.104	0.79	0.77	386.2	YES	NO	bb	bb	15.907
3	Total-tetradioxins	24.95	1.469e4	1.853e4	1.104	0.79	0.77	168.2	YES	NO	bd	bb	4.888
4	1368-TCDD	22.91	3.125e4	4.042e4	1.120	0.77	0.77	371.5	YES	NO	bb	bb	10.397
5	12479-PECDD	28.19	2.228e5	1.479e5	1.859	1.51	1.55	1442.2	YES	NO	bb	bb	46.673
6	1289-TCDD	26.35	2.789e4	3.276e4	0.966	0.85	0.77	289.3	YES	NO	bb	bb	10.204
7	12389-PECDD	31.29	1.427e5	9.782e4	1.154	1.46	1.55	1352.0	YES	NO	bb	bd	48.764
8	12378-PeCDD	30.89	1.209e5	7.952e4	0.964	1.52	1.55	1249.6	YES	NO	bb	bb	48.635
9	123789-HxCDD	35.97	9.597e4	7.094e4	0.770	1.35	1.24	784.4	YES	NO	bb	bb	49.777
10	123678-HxCDD	35.57	1.154e5	9.344e4	0.833	1.23	1.24	896.0	YES	NO	dd	db	53.069
11	123478-HxCDD	35.46	9.192e4	7.444e4	0.841	1.23	1.24	831.4	YES	NO	bd	bd	49.699
12	124679-HXCDD	33.41	1.104e5	8.923e4	1.006	1.24	1.24	905.3	YES	NO	bb	bb	49.822
13	1234679-HPCDD	38.71	9.831e4	9.682e4	1.184	1.02	1.05	822.0	YES	NO	bd	bd	48.662
14	1234678-HpCDD	39.73	8.951e4	8.400e4	0.984	1.07	1.05	701.0	YES	NO	bd	bd	52.042
15	OCDD	44.34	1.377e5	1.561e5	0.938	0.88	0.89	979.4	YES	NO	bd	bd	100.481

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.62	3.634e4	4.298e4	0.916	0.85	0.77	339.8	YES	NO	db	db	9.831
2	2378-TCDF	25.12	3.742e4	5.178e4	0.980	0.72	0.77	364.6	YES	NO	bb	bb	10.326
3	1368-TCDF	21.62	4.759e4	6.113e4	1.247	0.78	0.77	506.9	YES	NO	bb	bb	9.892
4	23478-PeCDF	30.64	2.089e5	1.366e5	1.156	1.53	1.55	1242.7	YES	NO	bb	bb	51.442
5	12378-PeCDF	29.29	2.013e5	1.216e5	1.047	1.66	1.55	1161.1	YES	NO	bb	bb	49.480
6	Total-pentafurans	28.15	3.323e4	2.328e4	1.043	1.43	1.55	203.6	YES	NO	bb	bb	9.002
7	12389-PECDF	31.67	2.008e5	1.308e5	0.925	1.54	1.55	1065.0	YES	NO	bd	bd	57.512
8	123789-HxCDF	36.38	1.145e5	9.410e4	1.100	1.22	1.24	518.0	YES	NO	bb	bb	53.149
9	234678-HxCDF	35.33	1.473e5	1.125e5	1.235	1.31	1.24	699.1	YES	NO	bb	bb	50.469
10	123678-HxCDF	34.45	1.828e5	1.321e5	1.193	1.38	1.24	746.9	YES	NO	dd	db	54.535
11	123478-HxCDF	34.31	1.523e5	1.161e5	1.224	1.31	1.24	716.2	YES	NO	bd	bd	51.134
12	123468-HXCDF	32.61	1.688e5	1.243e5	1.335	1.36	1.24	738.6	YES	NO	bd	bb	51.172
13	1234789-HpCDF	40.44	1.120e5	1.069e5	1.381	1.05	1.05	610.1	YES	NO	bd	bd	51.203
14	Total-heptafurans	38.91	1.587e3	1.607e3	1.387	0.99	1.05	10.8	YES	NO	bb	bd	0.667
15	1234678-HpCDF	38.26	1.321e5	1.281e5	1.392	1.03	1.05	898.0	YES	NO	bb	bb	49.076
16	OCDF	44.56	1.833e5	1.998e5	1.222	0.92	0.89	841.3	YES	NO	bd	bd	100.505
17	13468-PECDF	26.49	2.646e5	1.685e5	1.353	1.57	1.55	3469.0	YES	NO	bb	bb	51.353
18	2378-TCDD	25.77	3.156e4	4.045e4	1.227	0.78	0.77	338.2	YES	NO	bb	bb	9.537
19	Total-tetradioxins	25.44	4.773e4	6.036e4	1.104	0.79	0.77	386.2	YES	NO	bb	bb	15.907
20	Total-tetradioxins	24.95	1.469e4	1.853e4	1.104	0.79	0.77	168.2	YES	NO	bd	bb	4.888
21	1368-TCDD	22.91	3.125e4	4.042e4	1.120	0.77	0.77	371.5	YES	NO	bb	bb	10.397
22	12479-PECDD	28.19	2.228e5	1.479e5	1.859	1.51	1.55	1442.2	YES	NO	bb	bb	46.673
23	1289-TCDD	26.35	2.789e4	3.276e4	0.966	0.85	0.77	289.3	YES	NO	bb	bb	10.204
24	12389-PECDD	31.29	1.427e5	9.782e4	1.154	1.46	1.55	1352.0	YES	NO	bb	bd	48.764
25	12378-PeCDD	30.89	1.209e5	7.952e4	0.964	1.52	1.55	1249.6	YES	NO	bb	bb	48.635
26	123789-HxCDD	35.97	9.597e4	7.094e4	0.770	1.35	1.24	784.4	YES	NO	bb	bb	49.777
27	123678-HxCDD	35.57	1.154e5	9.344e4	0.833	1.23	1.24	896.0	YES	NO	dd	db	53.069
28	123478-HxCDD	35.46	9.192e4	7.444e4	0.841	1.23	1.24	831.4	YES	NO	bd	bd	49.699
29	124679-HXCDD	33.41	1.104e5	8.923e4	1.006	1.24	1.24	905.3	YES	NO	bb	bb	49.822
30	1234679-HPCDD	38.71	9.831e4	9.682e4	1.184	1.02	1.05	822.0	YES	NO	bd	bd	48.662
31	1234678-HpCDD	39.73	8.951e4	8.400e4	0.984	1.07	1.05	701.0	YES	NO	bd	bd	52.042
32	OCDD	44.34	1.377e5	1.561e5	0.938	0.88	0.89	979.4	YES	NO	bd	bd	100.481

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	26.11	1.147e4					0.7	NO		bd		
2	FUNCTION1 PFK	25.42	3.009e4					1.2	NO		bb		
3	FUNCTION1 PFK	25.28	4.533e3					0.5	NO		db		
4	FUNCTION1 PFK	25.21	2.708e4					1.1	NO		bd		
5	FUNCTION1 PFK	24.86	7.969e3					0.5	NO		bb		
6	FUNCTION1 PFK	24.80	9.686e3					0.6	NO		bb		
7	FUNCTION1 PFK	24.25	2.598e4					1.4	NO		bb		
8	FUNCTION1 PFK	24.12	9.710e3					0.6	NO		bb		
9	FUNCTION1 PFK	24.02	2.435e4					1.1	NO		bb		
10	FUNCTION1 PFK	23.88	6.832e3					0.4	NO		bb		
11	FUNCTION1 PFK	23.66	1.482e4					0.9	NO		bb		
12	FUNCTION1 PFK	22.37	3.654e3					0.4	NO		bb		
13	FUNCTION1 PFK	22.30	3.811e4					1.4	NO		bb		
14	FUNCTION1 PFK	22.06	2.538e4					1.1	NO		db		
15	FUNCTION1 PFK	21.93	9.471e4					2.1	NO		bd		
16	FUNCTION1 PFK	21.75	3.189e3					0.4	NO		bb		
17	FUNCTION1 PFK	27.22	1.204e4					0.8	NO		bb		
18	FUNCTION1 PFK	27.05	3.407e3					0.4	NO		bb		
19	FUNCTION1 PFK	26.85	5.810e4					1.5	NO		bb		
20	FUNCTION1 PFK	26.72	1.048e4					0.7	NO		bb		
21	FUNCTION1 PFK	26.57	3.640e4					0.8	NO		bb		
22	FUNCTION1 PFK	26.41	1.815e4					0.9	NO		bb		
23	FUNCTION1 PFK	26.17	2.876e4					1.3	NO		db		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	30.95	2.981e3					0.9	NO		bb		0.000
2	FUNCTION2 PFK	30.24	3.390e3					0.7	NO		bb		0.000
3	FUNCTION2 PFK	30.14	1.896e3					0.6	NO		bb		0.000
4	FUNCTION2 PFK	29.67	1.928e4					1.7	NO		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	32.78	1.062e4					1.3	NO		bb		0.000
2	FUNCTION3 PFK	32.22	4.307e4					3.2	YES		db		0.000
3	FUNCTION3 PFK	32.18	1.206e4					1.5	NO		bd		0.000
4	FUNCTION3 PFK	34.71	2.787e4					2.0	NO		db		0.000
5	FUNCTION3 PFK	34.66	1.436e4					1.7	NO		bd		0.000
6	FUNCTION3 PFK	34.46	7.648e3					1.0	NO		bb		0.000
7	FUNCTION3 PFK	34.39	3.064e4					1.3	NO		bb		0.000
8	FUNCTION3 PFK	34.32	5.901e3					0.9	NO		bb		0.000
9	FUNCTION3 PFK	34.10	2.590e4					2.1	NO		db		0.000
10	FUNCTION3 PFK	34.05	1.249e4					1.3	NO		bd		0.000
11	FUNCTION3 PFK	34.00	1.827e4					1.9	NO		bb		0.000
12	FUNCTION3 PFK	33.81	3.135e4					1.6	NO		bb		0.000
13	FUNCTION3 PFK	33.64	1.260e4					1.6	NO		db		0.000
14	FUNCTION3 PFK	33.61	1.645e4					1.5	NO		bd		0.000
15	FUNCTION3 PFK	33.49	1.680e4					0.9	NO		bb		0.000
16	FUNCTION3 PFK	33.41	2.357e3					0.6	NO		bb		0.000
17	FUNCTION3 PFK	33.25	1.118e4					1.1	NO		bb		0.000
18	FUNCTION3 PFK	33.15	6.042e4					2.0	NO		bb		0.000
19	FUNCTION3 PFK	32.96	1.631e3					0.4	NO		bb		0.000
20	FUNCTION3 PFK	37.13	5.419e3					0.7	NO		bb		0.000
21	FUNCTION3 PFK	36.70	1.983e3					0.5	NO		bb		0.000
22	FUNCTION3 PFK	36.59	1.504e4					0.9	NO		bb		0.000
23	FUNCTION3 PFK	36.34	2.260e4					1.7	NO		bb		0.000
24	FUNCTION3 PFK	36.27	1.341e4					1.5	NO		bb		0.000
25	FUNCTION3 PFK	36.11	3.328e3					0.8	NO		bb		0.000
26	FUNCTION3 PFK	36.06	1.622e4					1.2	NO		db		0.000
27	FUNCTION3 PFK	36.00	4.045e3					0.6	NO		bd		0.000
28	FUNCTION3 PFK	35.92	1.095e4					1.2	NO		bb		0.000
29	FUNCTION3 PFK	35.85	1.922e3					0.5	NO		bb		0.000
30	FUNCTION3 PFK	35.74	1.481e4					1.7	NO		bb		0.000
31	FUNCTION3 PFK	35.61	6.430e3					0.9	NO		bb		0.000
32	FUNCTION3 PFK	35.52	2.692e4					1.5	NO		bb		0.000
33	FUNCTION3 PFK	35.39	2.847e4					2.2	NO		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.34	1.146e4					0.4	NO		bb		
2	FUNCTION4 PFK	41.51	1.997e4					1.3	NO		bb		
3	FUNCTION4 PFK	41.30	2.254e3					0.6	NO		bb		
4	FUNCTION4 PFK	41.26	8.278e3					0.6	NO		bb		
5	FUNCTION4 PFK	40.57	2.980e4					1.8	NO		bb		
6	FUNCTION4 PFK	39.96	6.356e3					0.9	NO		bb		
7	FUNCTION4 PFK	39.88	1.780e4					1.6	NO		bb		
8	FUNCTION4 PFK	39.18	1.169e4					1.3	NO		db		
9	FUNCTION4 PFK	39.13	7.158e3					0.9	NO		bd		
10	FUNCTION4 PFK	38.52	5.450e3					0.7	NO		bb		
11	FUNCTION4 PFK	38.30	1.417e3					0.4	NO		bb		
12	FUNCTION4 PFK	38.07	2.043e4					1.5	NO		bb		
13	FUNCTION4 PFK	37.96	2.538e4					1.9	NO		bb		
14	FUNCTION4 PFK	37.86	2.625e4					1.8	NO		db		
15	FUNCTION4 PFK	37.75	2.882e4					1.5	NO		bd		
16	FUNCTION4 PFK	37.63	2.136e4					1.5	NO		bb		
17	FUNCTION4 PFK	37.51	1.082e4					1.0	NO		bb		
18	FUNCTION4 PFK	42.43	1.603e4					1.5	NO		bb		
19	FUNCTION4 PFK	42.27	6.820e3					0.6	NO		bb		
20	FUNCTION4 PFK	42.15	1.868e4					1.1	NO		bb		
21	FUNCTION4 PFK	41.83	3.252e3					0.6	NO		bb		
22	FUNCTION4 PFK	41.76	1.525e4					1.7	NO		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.41	6.878e4					5.3	YES		db		
2	FUNCTION5 PFK	43.10	6.634e5					19.5	YES		dd		
3	FUNCTION5 PFK	43.05	2.109e5					22.4	YES		dd		
4	FUNCTION5 PFK	43.02	1.567e5					23.7	YES		dd		
5	FUNCTION5 PFK	42.84	9.963e5					32.6	YES		dd		
6	FUNCTION5 PFK	42.79	1.713e5					34.6	YES		dd		
7	FUNCTION5 PFK	42.76	2.384e5					36.3	YES		dd		
8	FUNCTION5 PFK	42.71	3.708e5					37.9	YES		dd		
9	FUNCTION5 PFK	42.61	7.310e5					42.3	YES		dd		
10	FUNCTION5 PFK	42.56	5.056e5					43.9	YES		bd		
11	FUNCTION5 PFK	45.38	1.009e4					1.7	NO		db		
12	FUNCTION5 PFK	45.34	4.132e3					1.3	NO		bd		
13	FUNCTION5 PFK	45.16	4.187e3					0.9	NO		bb		
14	FUNCTION5 PFK	45.07	3.837e3					1.1	NO		bb		
15	FUNCTION5 PFK	45.02	4.743e3					1.2	NO		bb		
16	FUNCTION5 PFK	44.81	2.200e3					0.7	NO		bb		
17	FUNCTION5 PFK	44.69	5.074e3					1.4	NO		bb		
18	FUNCTION5 PFK	44.51	1.701e3					0.7	NO		bb		
19	FUNCTION5 PFK	44.48	1.057e3					0.6	NO		bb		
20	FUNCTION5 PFK	44.45	7.351e2					0.4	NO		bb		
21	FUNCTION5 PFK	44.36	7.624e3					1.3	NO		bb		
22	FUNCTION5 PFK	44.16	1.781e3					0.8	NO		db		
23	FUNCTION5 PFK	44.14	7.223e3					1.5	NO		dd		
24	FUNCTION5 PFK	44.11	5.194e3					1.6	NO		bd		
25	FUNCTION5 PFK	43.83	7.270e2					0.4	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.02	7.037e1					2.1	NO		bb		0.000
2	FUNCTION1 HXCD...	26.88	1.461e2					3.1	YES		bb		0.000
3	FUNCTION1 HXCD...	26.48	1.406e2					2.4	NO		bb		0.000
4	FUNCTION1 HXCD...	26.01	9.024e1					3.6	YES		bb		0.000
5	FUNCTION1 HXCD...	24.56	7.078e1					2.5	NO		bb		0.000
6	FUNCTION1 HXCD...	24.38	1.361e2					3.8	YES		db		0.000
7	FUNCTION1 HXCD...	24.31	1.954e2					4.6	YES		dd		0.000
8	FUNCTION1 HXCD...	24.18	7.072e1					2.7	NO		dd		0.000
9	FUNCTION1 HXCD...	24.02	7.990e1					1.9	NO		bd		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.50	1.230e2					2.7	NO		db		0.000
2	FUNCTION2 HPCD...	30.46	1.356e2					3.4	YES		bd		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.31	8.009e1					5.3	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	38.26	8.211e1					2.5	NO		bb		0.000
2	FUNCTION4 NCDPE	41.58	9.251e1					1.8	NO		bb		0.000

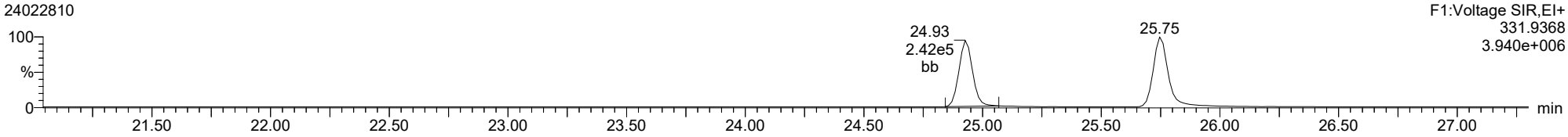
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
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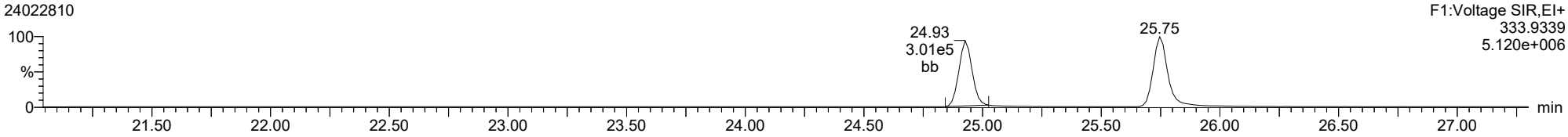
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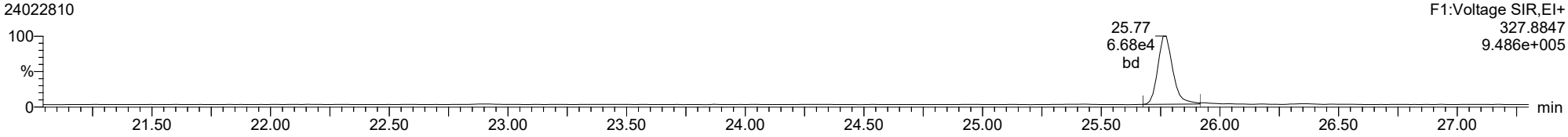
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13C-1234-TCDD

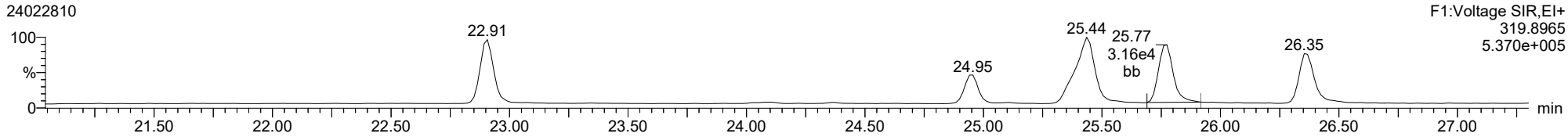


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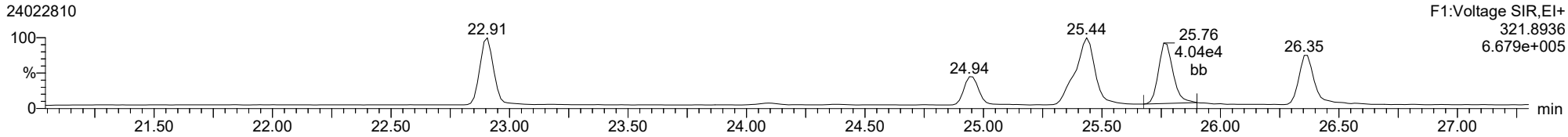


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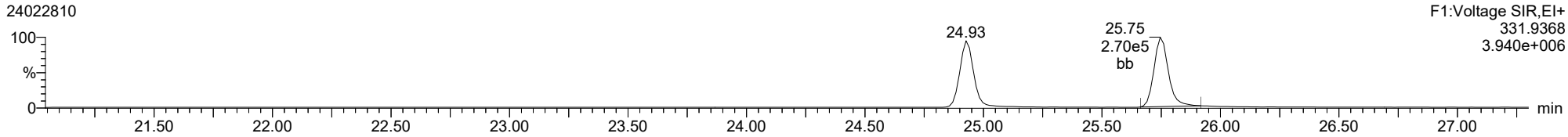
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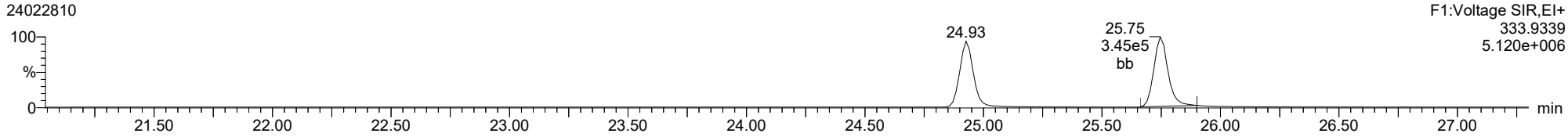
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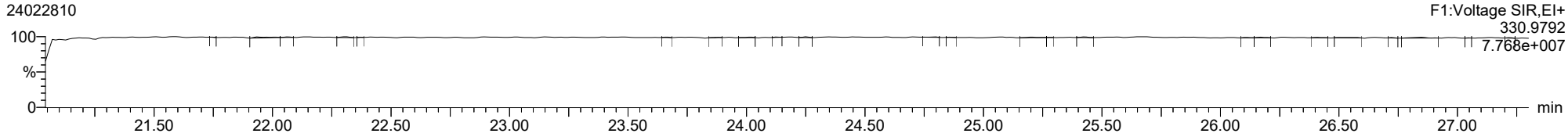
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13C-2378-TCDD



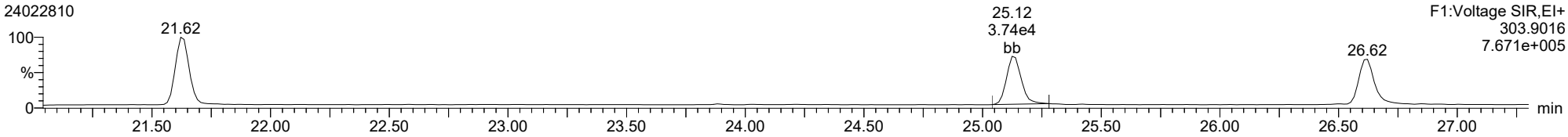
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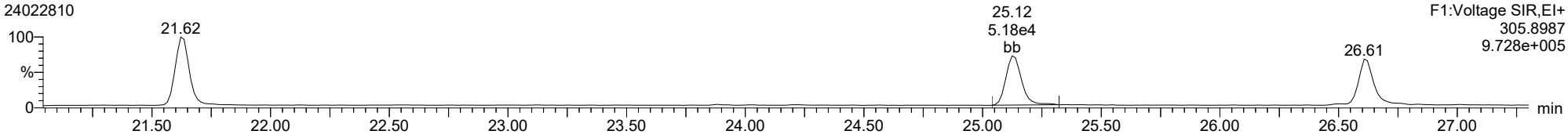
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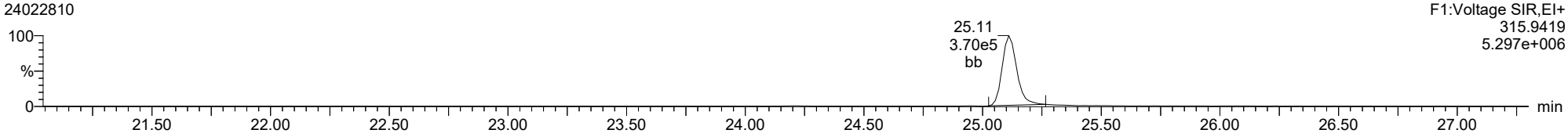
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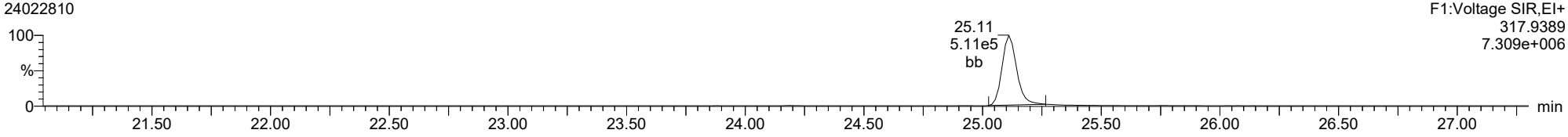
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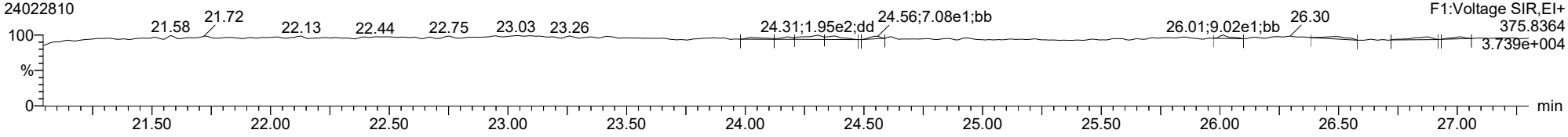
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13C-2378-TCDF

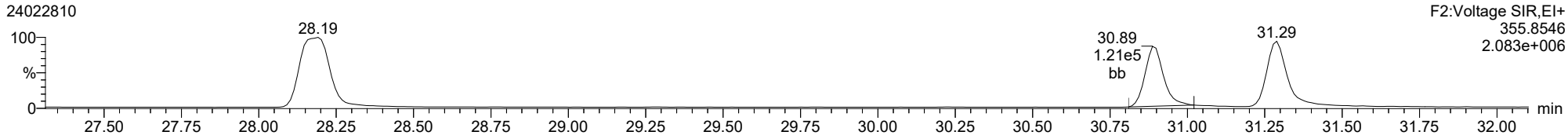


FUNCTION1 HXCDPE

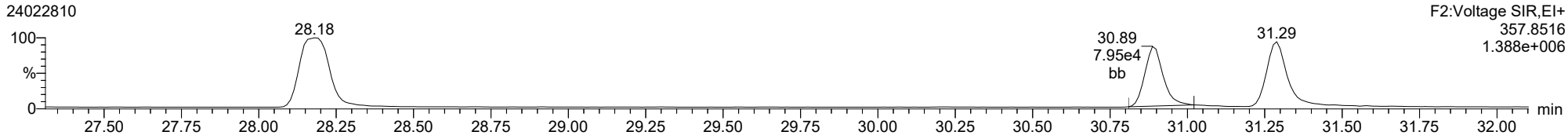


ID: ICVCY, Name: 24022810, Date: 28-Feb-2024, Time: 19:28:59, Conditions: AUTOSPEC01, User: pk

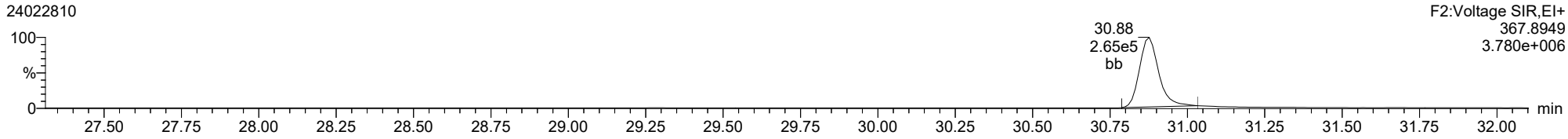
12378-PeCDD



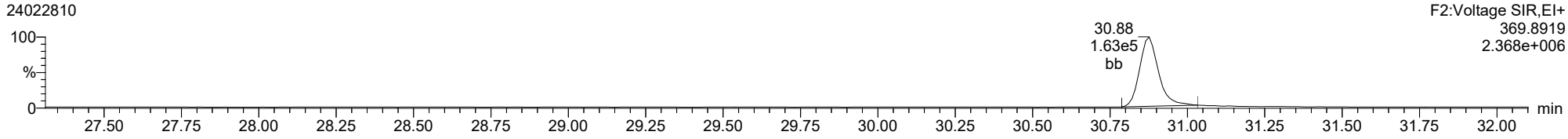
12378-PeCDD



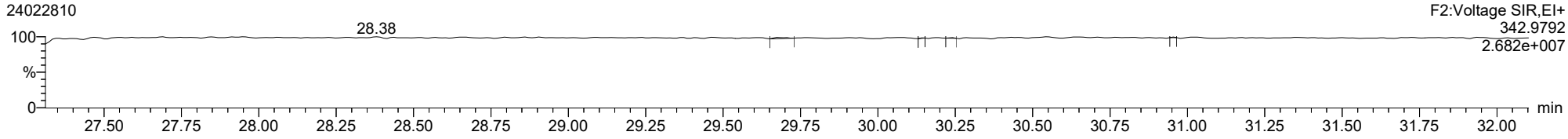
13C-12378-PeCDD



13C-12378-PeCDD

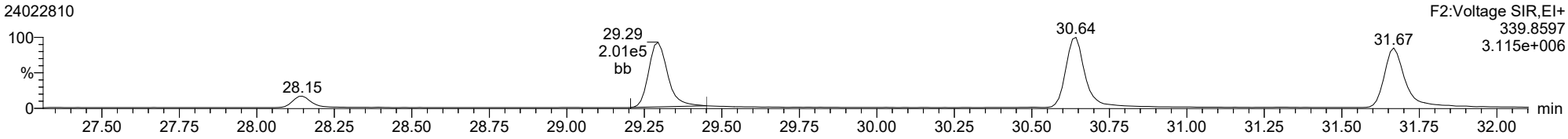


FUNCTION2 PFK

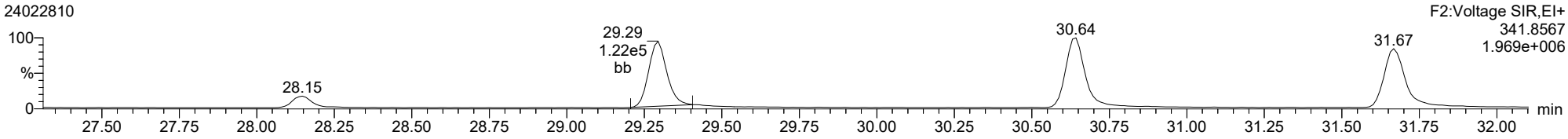


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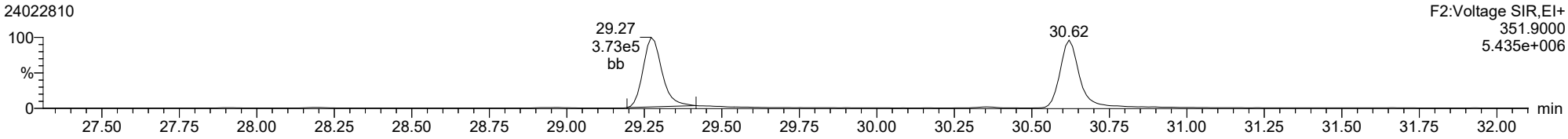
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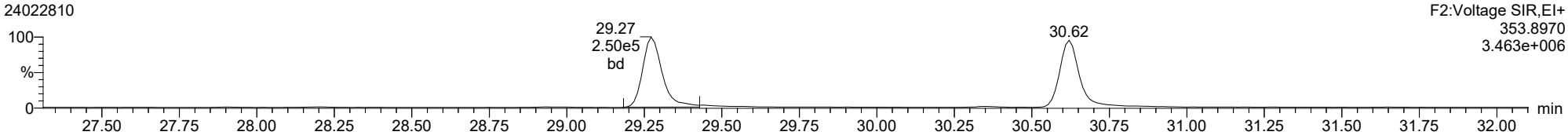
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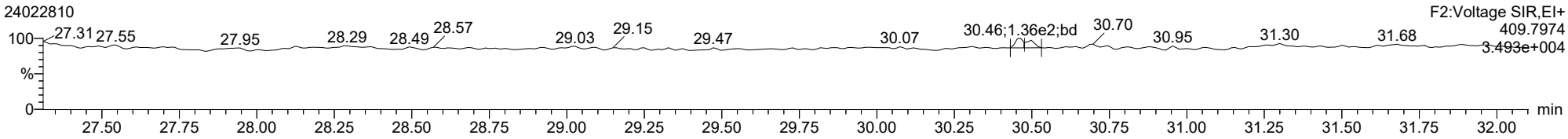
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13C-12378-PeCDF

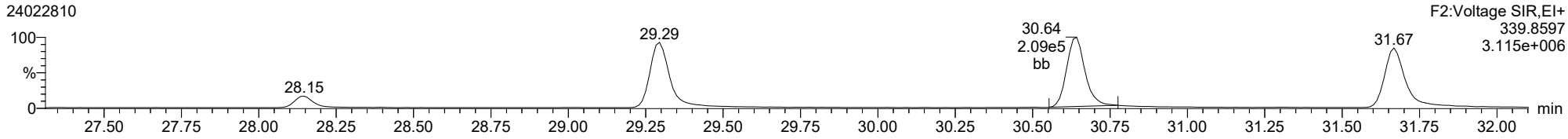


FUNCTION2 HPCDPE

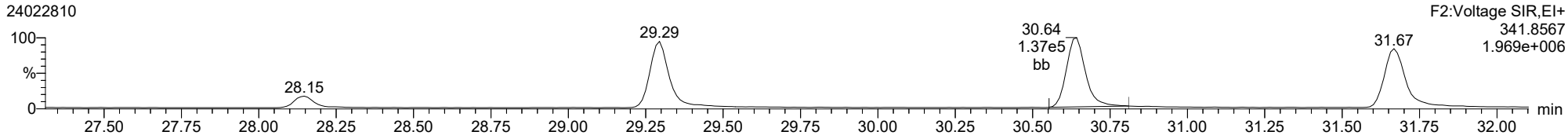


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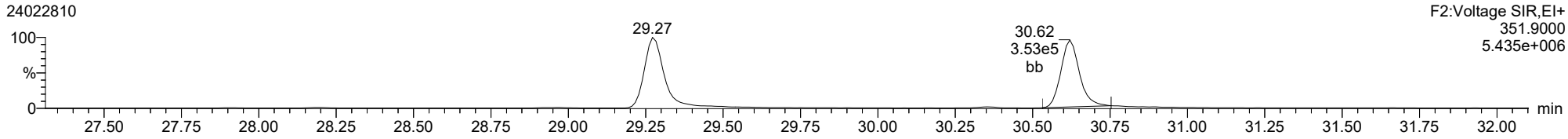
23478-PeCDF



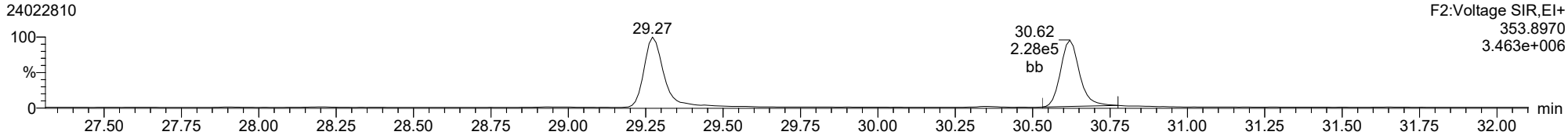
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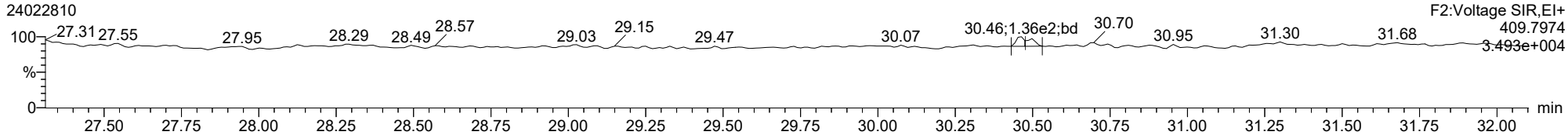
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13C-23478-PeCDF

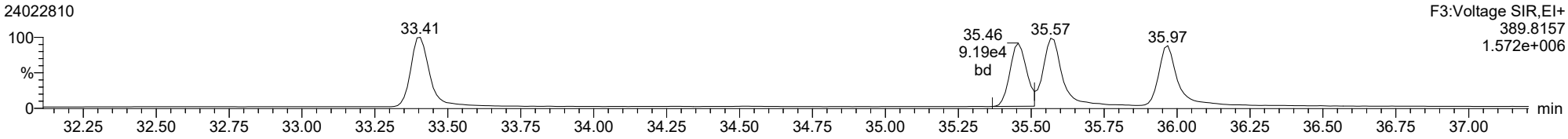


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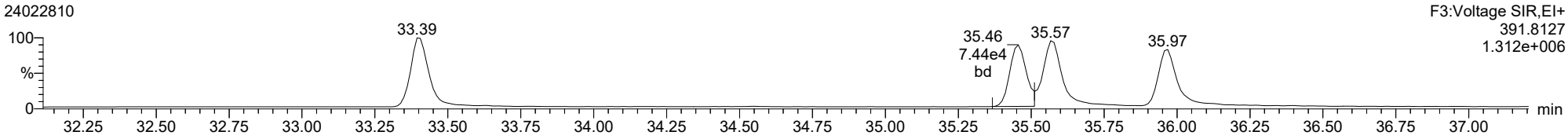


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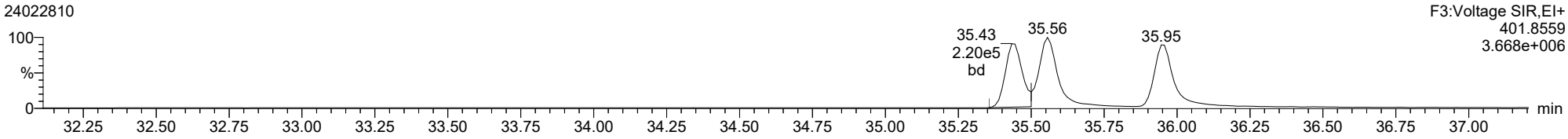
123478-HxCDD



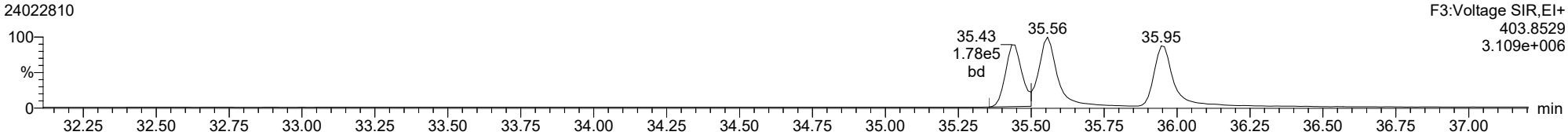
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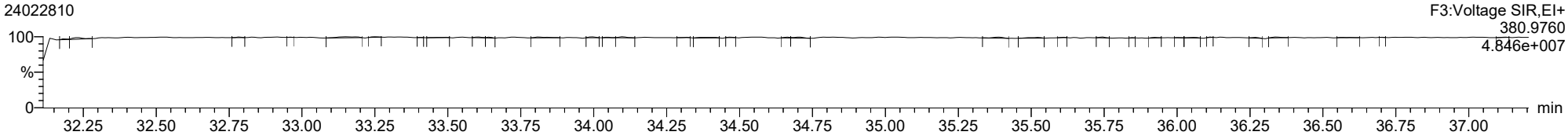
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13C-123478-HxCDD



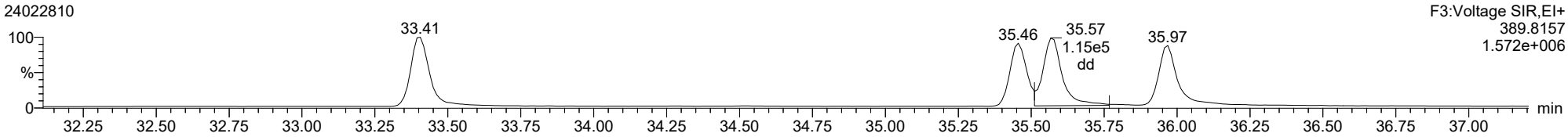
FUNCTION3 PFK



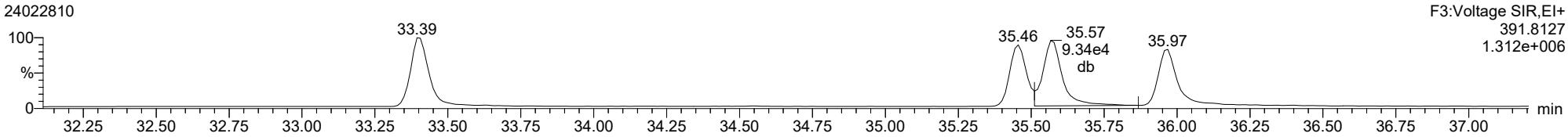
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Last Altered: Thursday, February 29, 2024 08:22:47 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:23:37 Pacific Standard Time

ID: ICVCY, Name: 24022810, Date: 28-Feb-2024, Time: 19:28:59, Conditions: AUTOSPEC01, User: pk

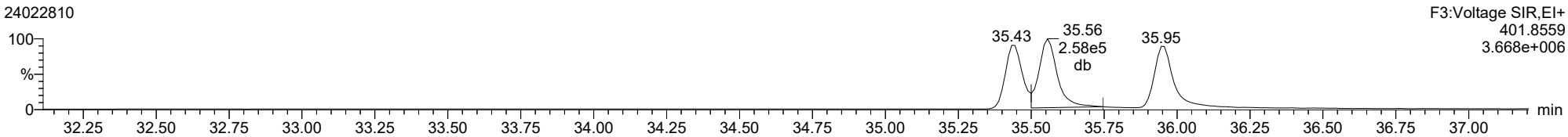
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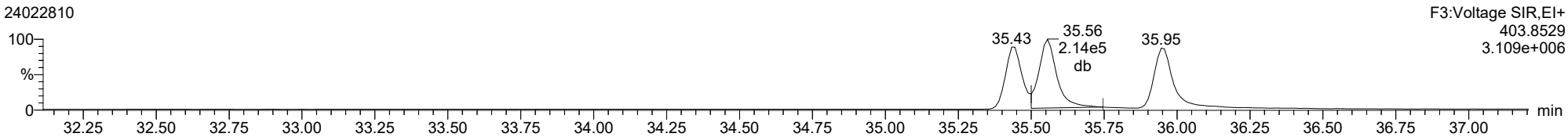
123678-HxCDD



13C-123678-HxCDD

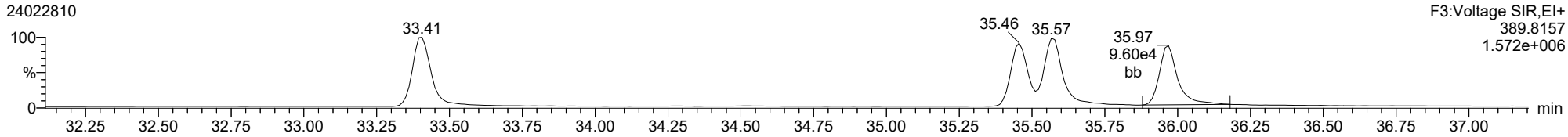


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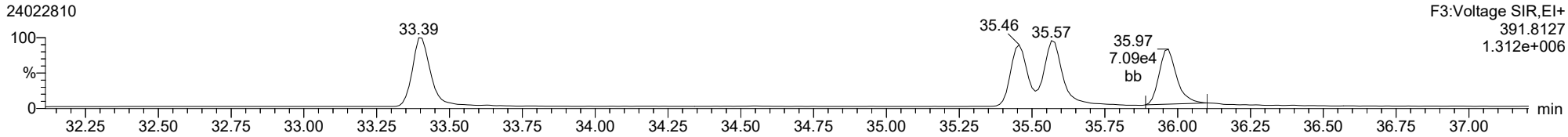


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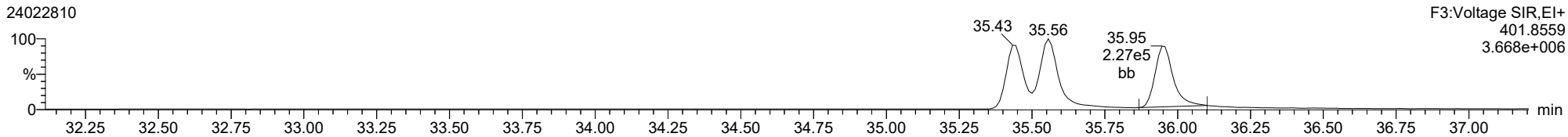
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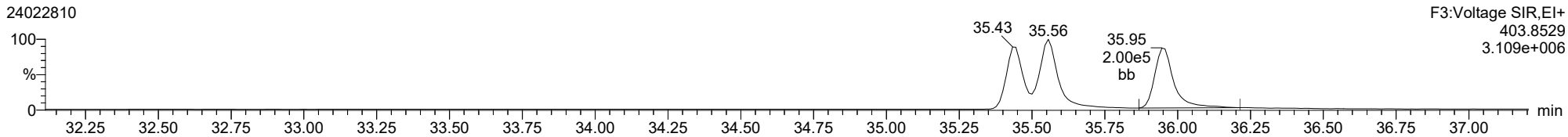
123789-HxCDD



13C-123789-HxCDD

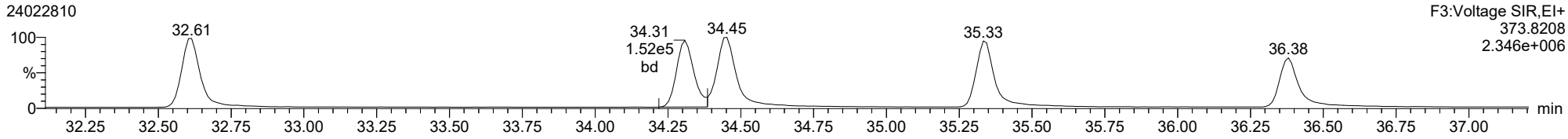


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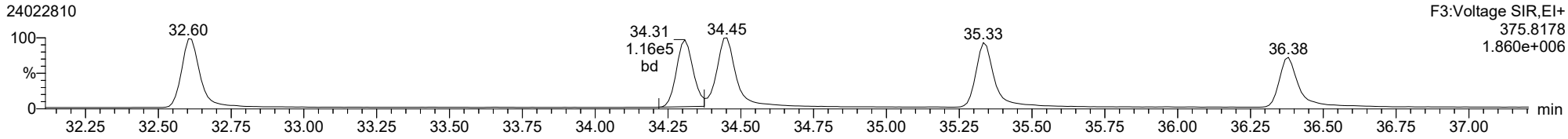


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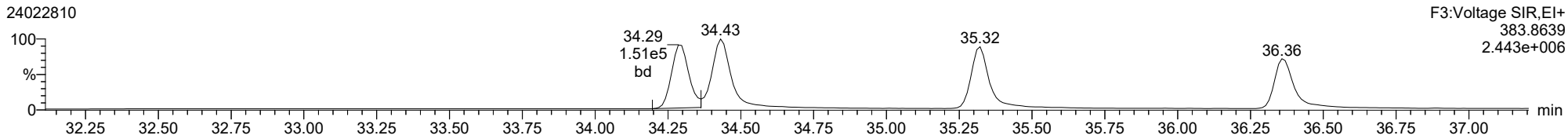
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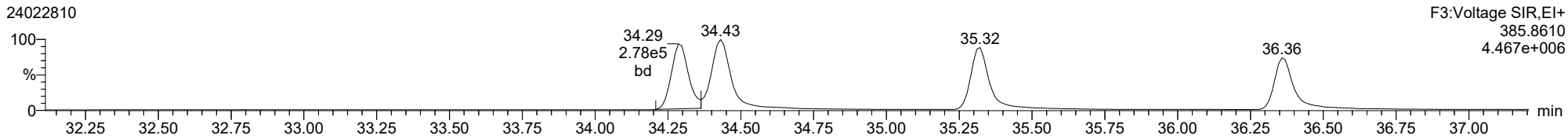
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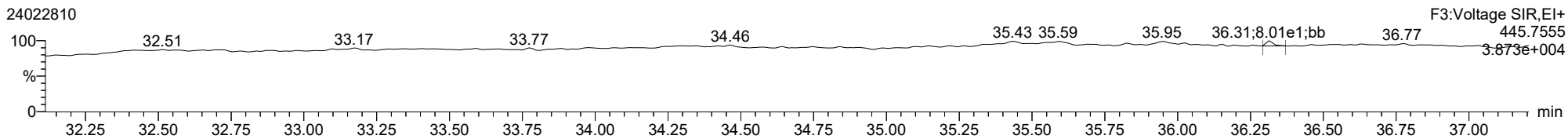
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13C-123478-HxCDF

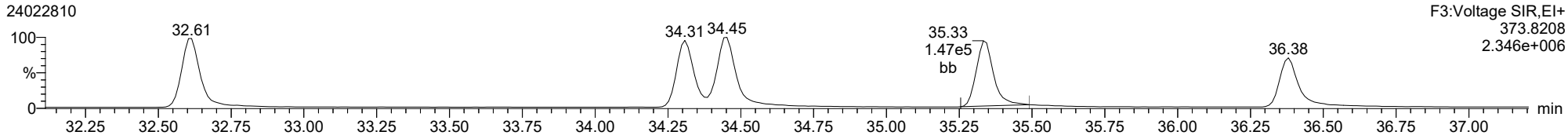


FUNCTION3 OCDPE

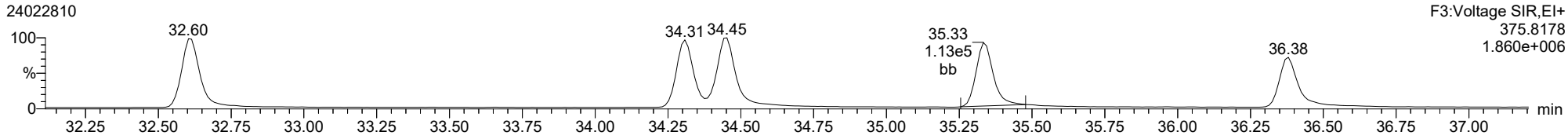


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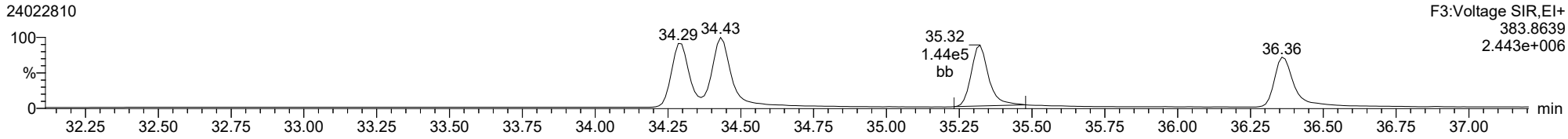
234678-HxCDF



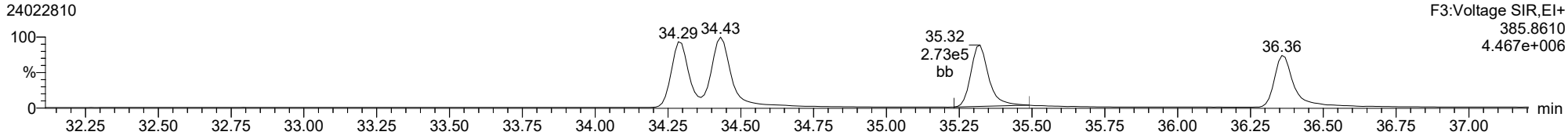
234678-HxCDF



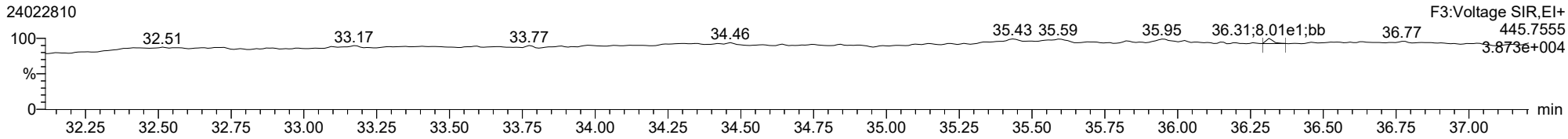
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13C-234678-HxCDF

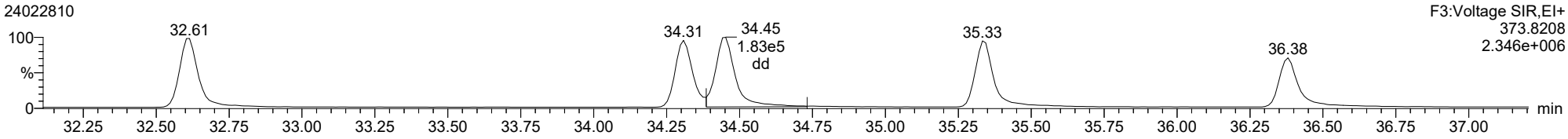


FUNCTION3 OCDPE

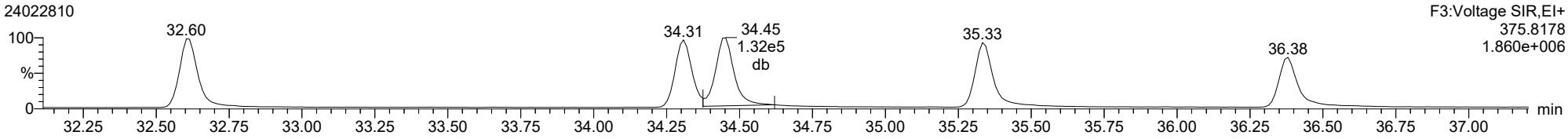


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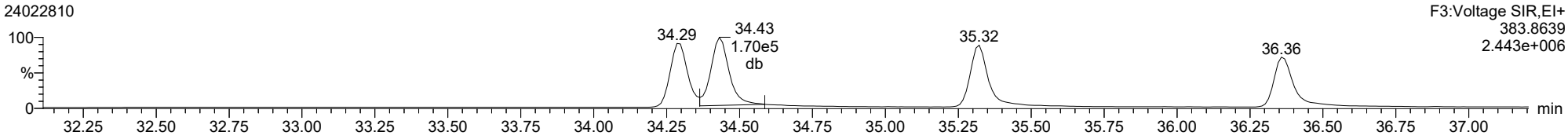
123678-HxCDF



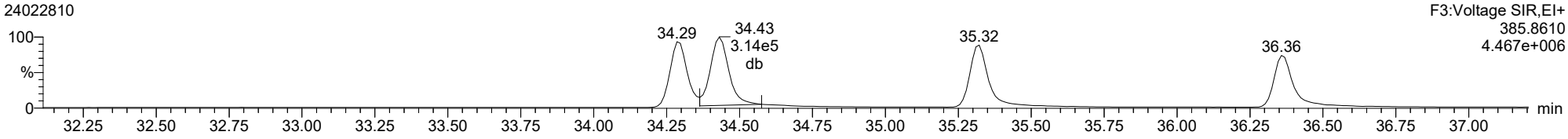
123678-HxCDF



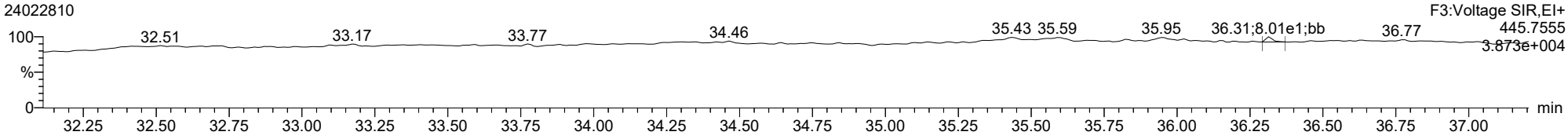
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13C-123678-HxCDF

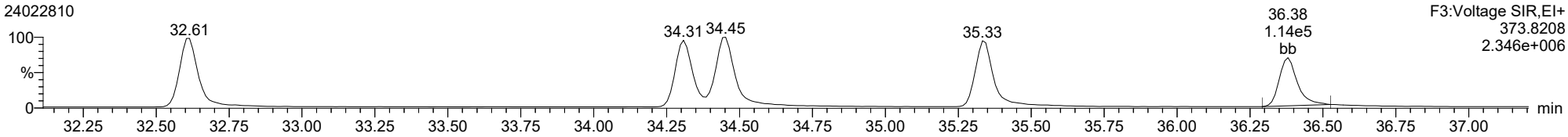


FUNCTION3 OCDPE

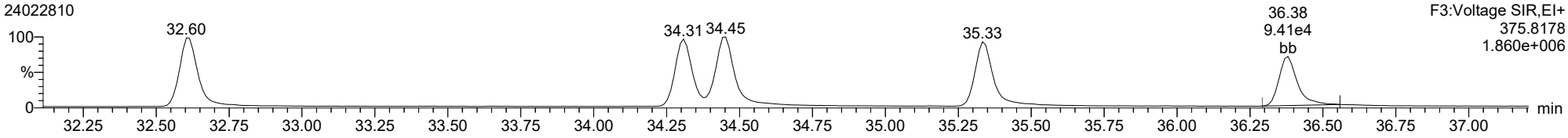


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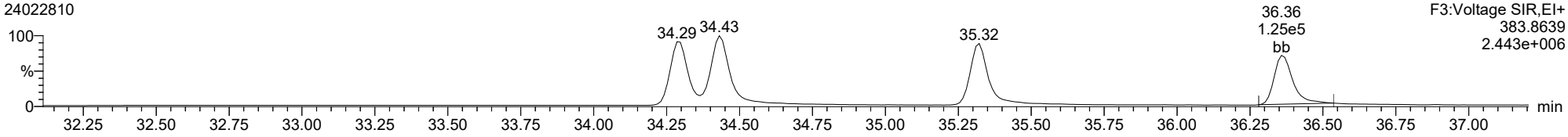
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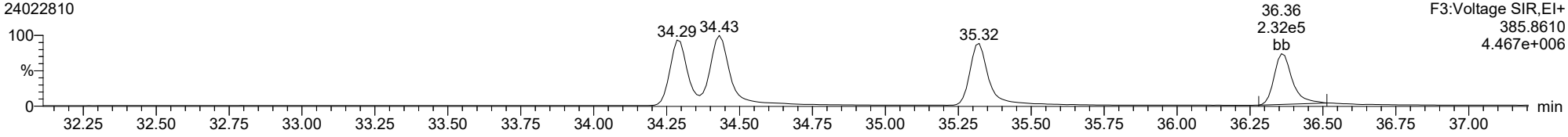
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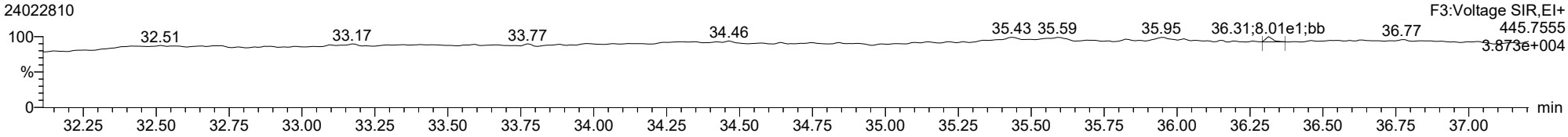
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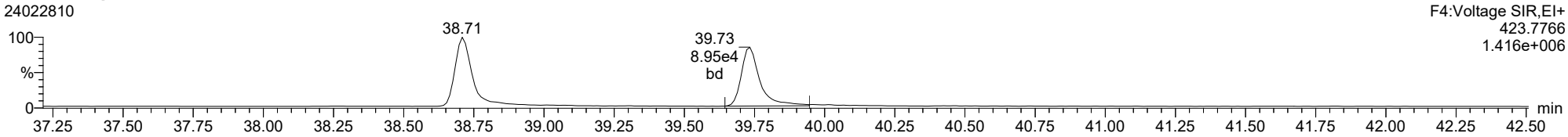


FUNCTION3 OCDPE

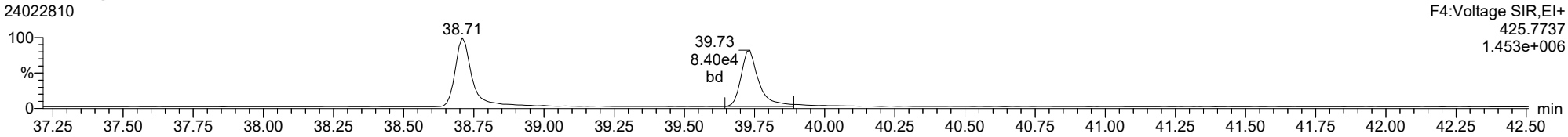


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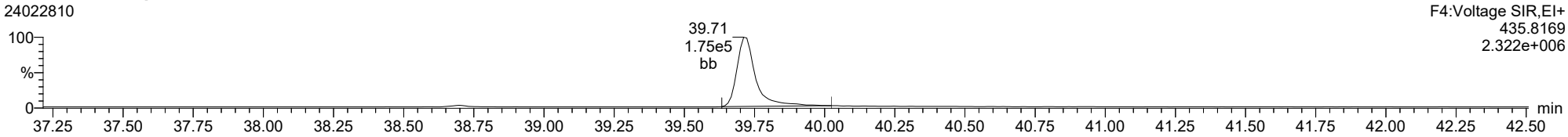
1234678-HpCDD



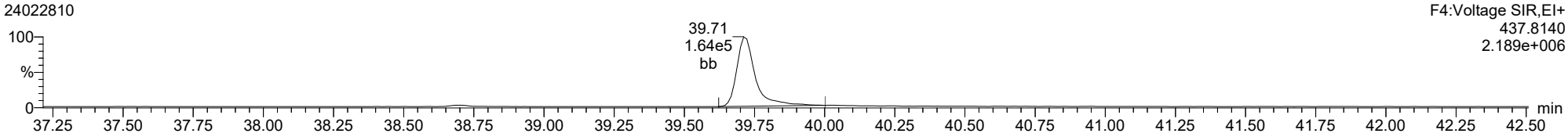
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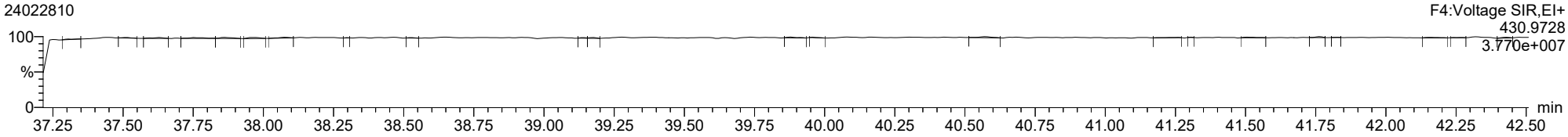
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13C-1234678-HpCDD

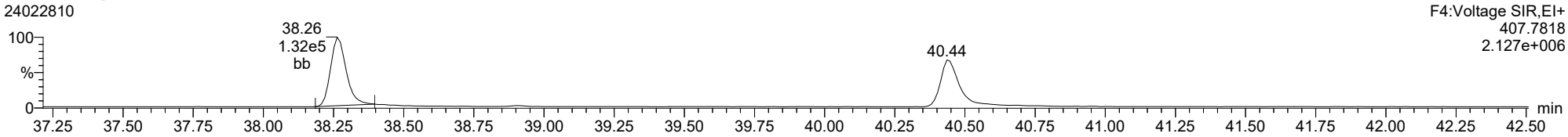


FUNCTION4 PFK

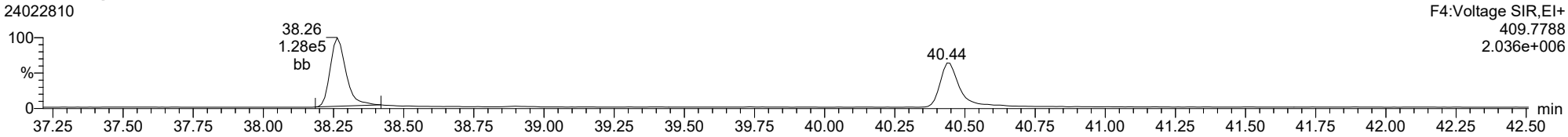


ID: ICVCY, Name: 24022810, Date: 28-Feb-2024, Time: 19:28:59, Conditions: AUTOSPEC01, User: pk

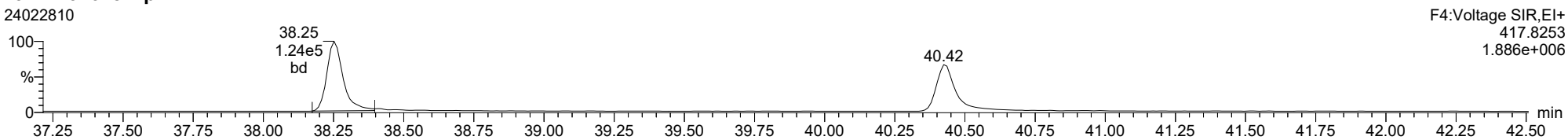
1234678-HpCDF



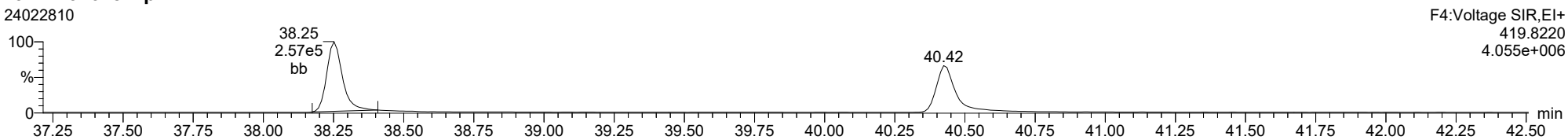
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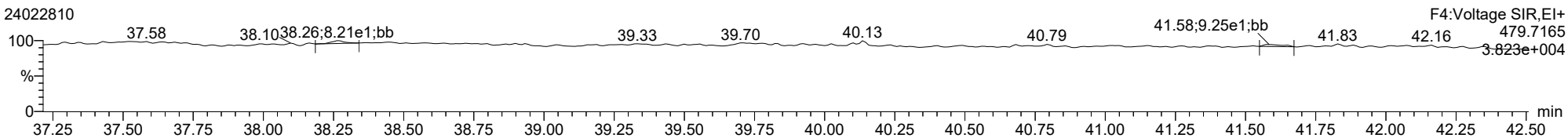
13C-1234678-HpCDF



13C-1234678-HpCDF

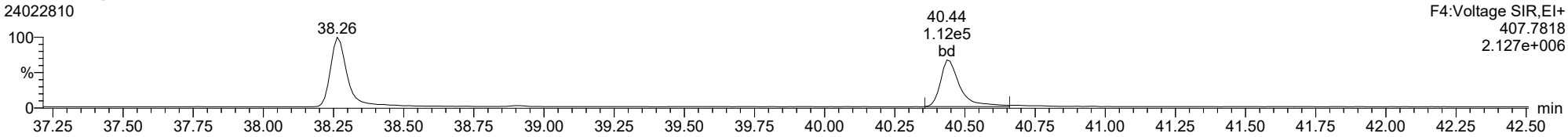


FUNCTION4 NCDPE

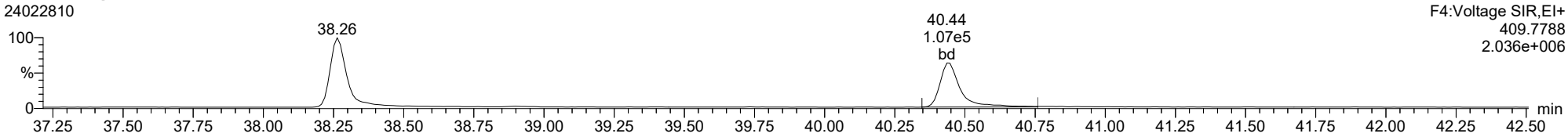


ID: ICVCY, Name: 24022810, Date: 28-Feb-2024, Time: 19:28:59, Conditions: AUTOSPEC01, User: pk

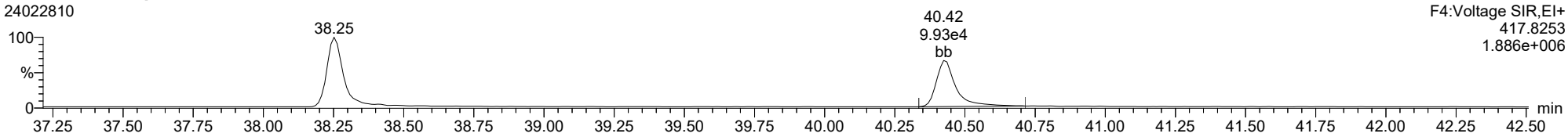
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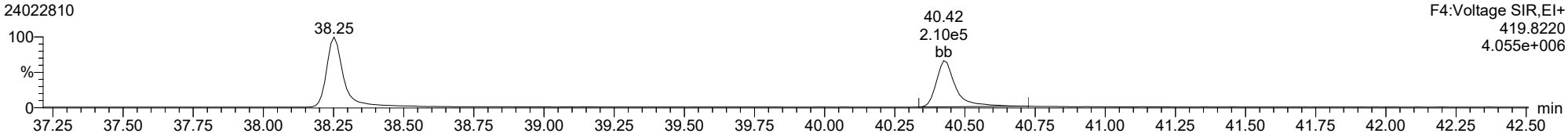
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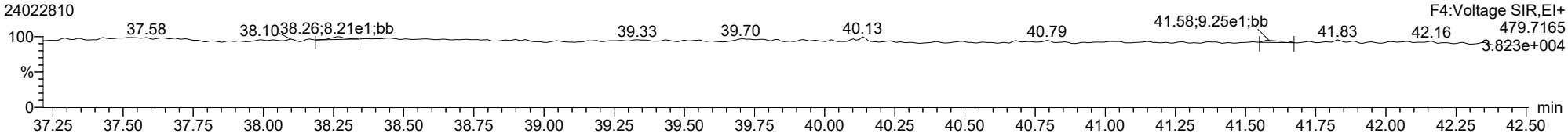
13C-1234789-HpCDF



13C-1234789-HpCDF

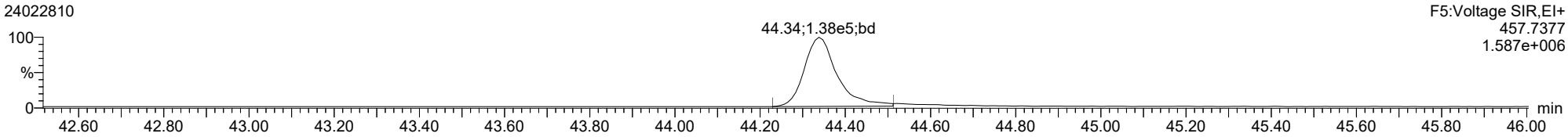


FUNCTION4 NCDPE

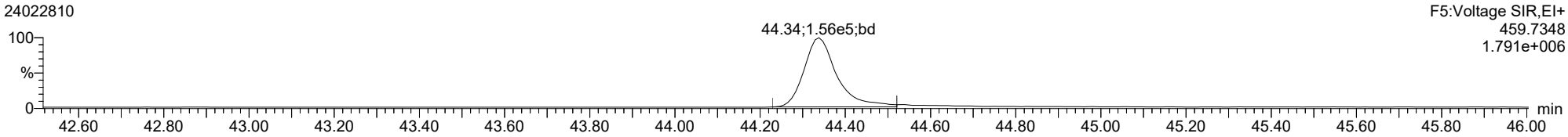


ID: ICVCY, Name: 24022810, Date: 28-Feb-2024, Time: 19:28:59, Conditions: AUTOSPEC01, User: pk

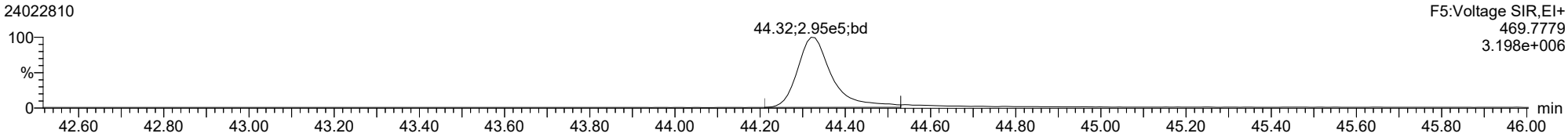
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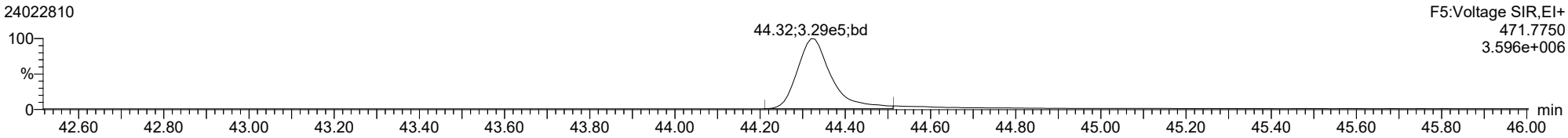
OCDD



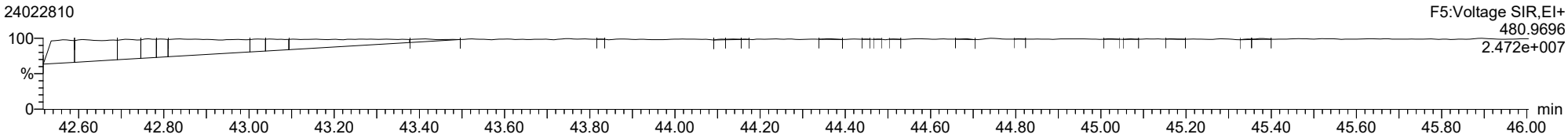
13C-OCDD



13C-OCDD

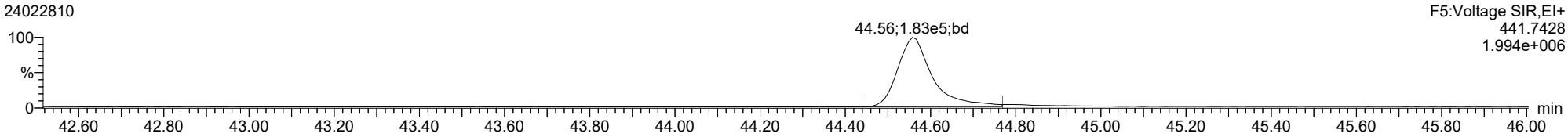


FUNCTION5 PFK

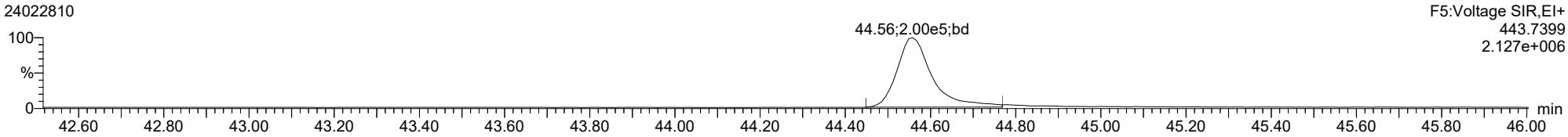


ID: ICVCY, Name: 24022810, Date: 28-Feb-2024, Time: 19:28:59, Conditions: AUTOSPEC01, User: pk

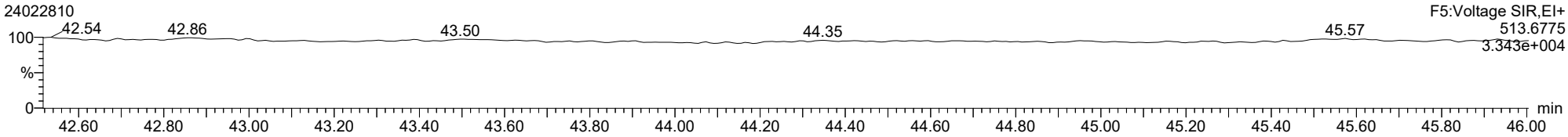
OCDF



OCDF

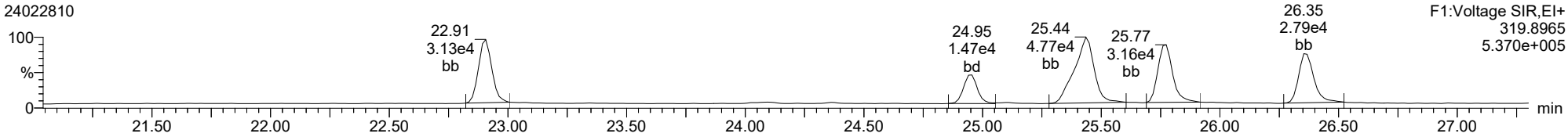


FUNCTION5 DCDPE

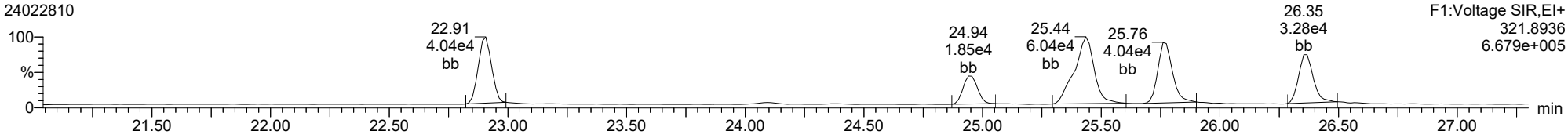


ID: ICVCY, Name: 24022810, Date: 28-Feb-2024, Time: 19:28:59, Conditions: AUTOSPEC01, User: pk

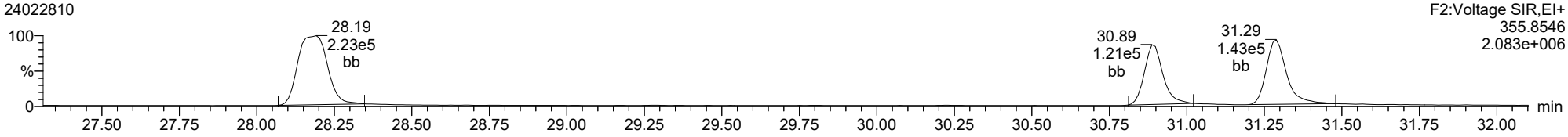
Total-tetradioxins



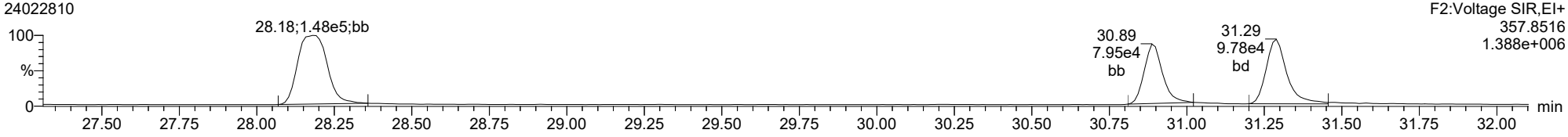
Total-tetradioxins



Total-pentadioxins

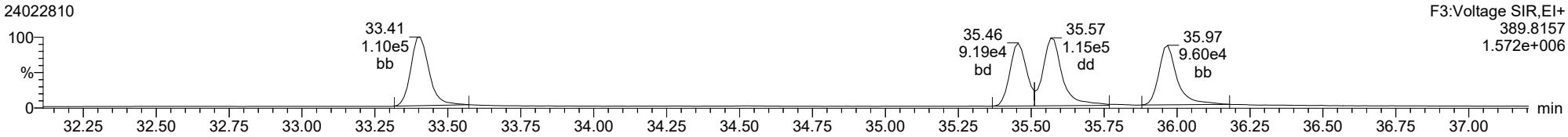


Total-pentadioxins

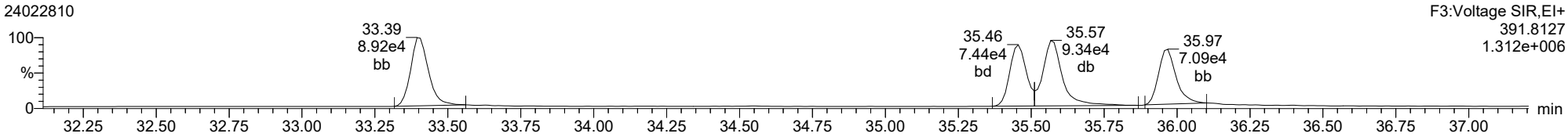


ID: ICVCY, Name: 24022810, Date: 28-Feb-2024, Time: 19:28:59, Conditions: AUTOSPEC01, User: pk

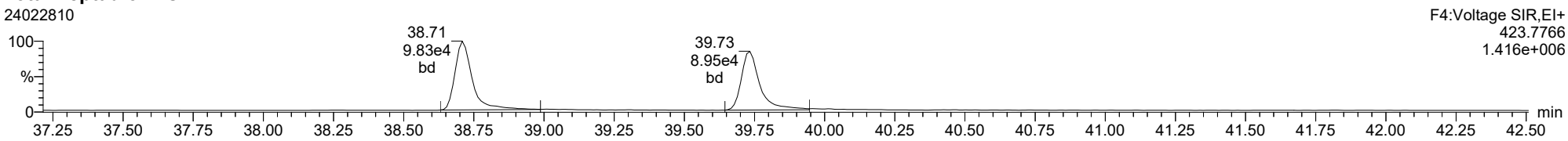
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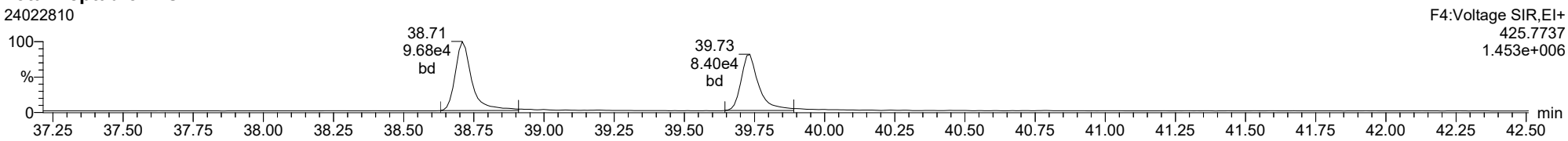
Total-hexadioxins



Total-heptadioxins



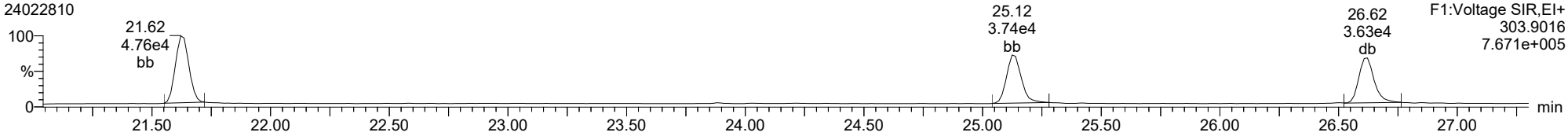
Total-heptadioxins



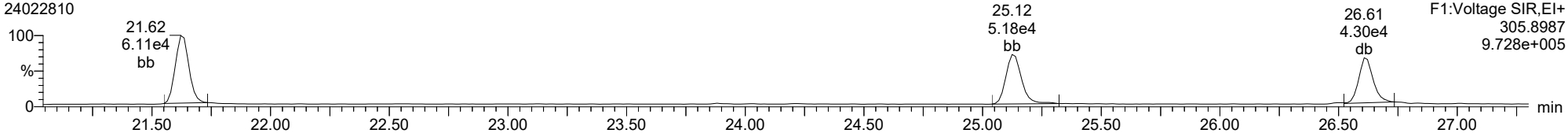
Dataset: T:\Autospec\Processed Data Batch\240228IHICV.qld
Last Altered: Thursday, February 29, 2024 08:22:47 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:23:37 Pacific Standard Time

ID: ICVCY, Name: 24022810, Date: 28-Feb-2024, Time: 19:28:59, Conditions: AUTOSPEC01, User: pk

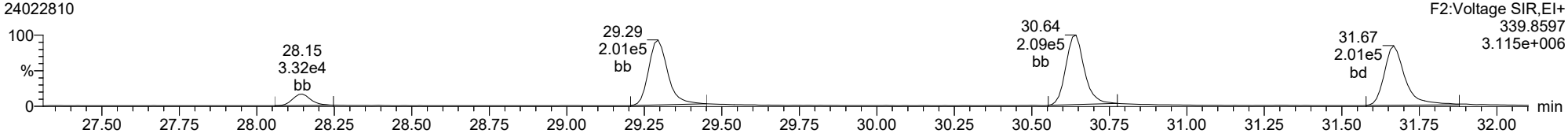
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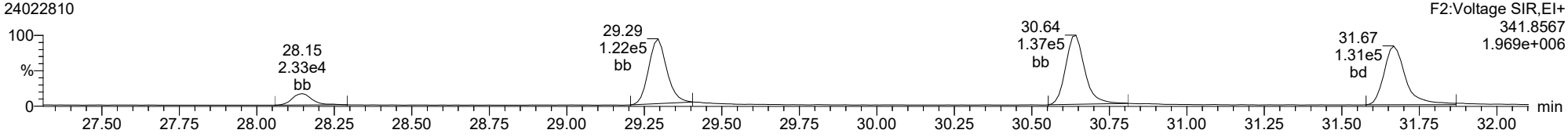
Total-tetrafurans



Total-pentafurans

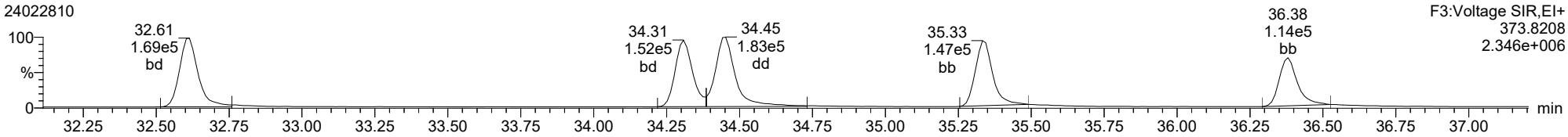


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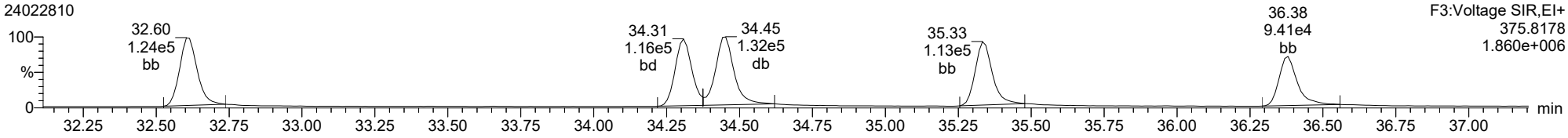


ID: ICVCY, Name: 24022810, Date: 28-Feb-2024, Time: 19:28:59, Conditions: AUTOSPEC01, User: pk

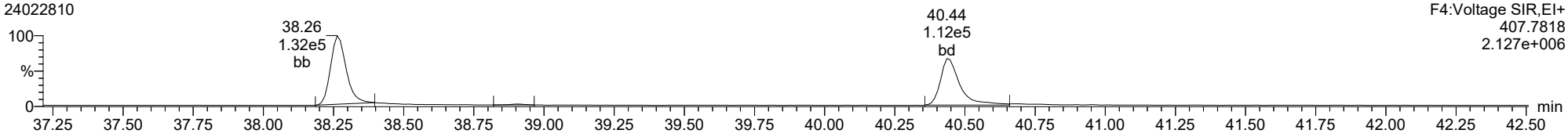
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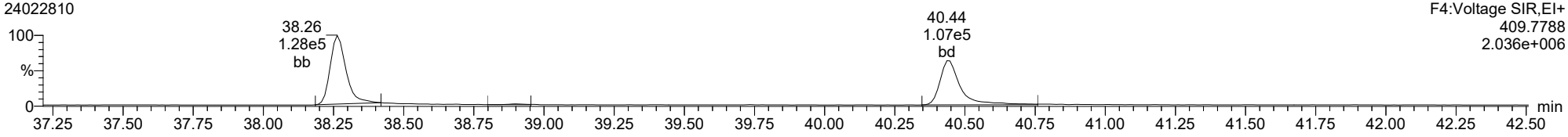
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\240228IHICV.qld
Last Altered: Thursday, February 29, 2024 08:22:47 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:23:51 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240228.mdb 29 Feb 2024 08:04:37
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

ID: CS3Y2, Name: 24022811, Date: 28-Feb-2024, Time: 20:17:35, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.139	1.001	3.434e4	4.641e4	0.980	0.740	0.770	1386	1568	5.11e5	6.62e5	368.7	422.2	NO	bb	bd	10.285
12378-PeCDF	29.308	1.001	1.853e5	1.156e5	1.047	1.602	1.550	3566	2924	2.59e6	1.67e6	725.5	570.2	NO	bb	bb	45.003
23478-PeCDF	30.645	1.001	1.927e5	1.337e5	1.156	1.442	1.550	3566	2924	2.85e6	1.83e6	798.5	626.0	NO	bb	bd	50.325
123478-HxCDF	34.321	1.001	1.364e5	1.105e5	1.224	1.234	1.240	2533	2095	1.99e6	1.60e6	787.0	764.4	NO	bd	bd	48.991
234678-HxCDF	35.347	1.001	1.468e5	1.083e5	1.235	1.356	1.240	2533	2095	1.98e6	1.55e6	781.0	741.7	NO	bd	bb	51.681
123678-HxCDF	34.455	1.000	1.570e5	1.378e5	1.193	1.139	1.240	2533	2095	2.14e6	1.67e6	843.2	797.1	NO	db	dd	52.795
123789-HxCDF	36.382	1.000	1.100e5	8.605e4	1.100	1.279	1.240	2533	2095	1.53e6	1.16e6	604.5	554.5	NO	bb	bb	50.066
1234678-HpCDF	38.277	1.000	1.223e5	1.074e5	1.392	1.139	1.050	3333	2844	1.88e6	1.73e6	564.2	608.3	NO	bb	bb	47.324
1234789-HpCDF	40.449	1.000	9.324e4	9.405e4	1.381	0.991	1.050	3333	2844	1.21e6	1.17e6	362.4	410.1	NO	bb	bd	56.783
OCDF	44.569	1.005	1.452e5	1.820e5	1.222	0.798	0.890	1729	2754	1.59e6	1.80e6	918.0	655.2	NO	bb	bd	88.308
2378-TCDD	25.774	1.001	2.997e4	3.973e4	1.227	0.754	0.770	1487	1231	4.15e5	5.53e5	279.4	448.9	NO	bb	bd	9.585
12378-PeCDD	30.901	1.001	1.206e5	7.800e4	0.964	1.546	1.550	1902	1853	1.66e6	1.07e6	874.7	577.2	NO	bd	bb	52.733
123478-HxCDD	35.469	1.001	8.719e4	6.951e4	0.841	1.254	1.240	1772	1286	1.33e6	1.04e6	753.0	811.3	NO	bd	bd	49.337
123678-HxCDD	35.580	1.000	1.017e5	8.241e4	0.833	1.234	1.240	1772	1286	1.39e6	1.13e6	785.5	880.9	NO	db	db	50.498
123789-HxCDD	35.970	1.011	8.707e4	7.287e4	0.770	1.195	1.240	1772	1286	1.22e6	1.01e6	689.8	788.7	NO	bb	bb	50.922
1234678-HpCDD	39.736	1.000	7.847e4	6.927e4	0.984	1.133	1.050	2032	2240	1.05e6	1.00e6	517.8	448.6	NO	bd	bb	50.525
OCDD	44.349	1.000	1.300e5	1.402e5	0.938	0.927	0.890	3160	2647	1.38e6	1.57e6	437.2	594.2	NO	bd	bd	95.071
13C-2378-TCDF	25.124	1.007	3.397e5	4.613e5	1.655	0.736	0.770	1402	1360	4.85e6	6.65e6	3455.3	4890.4	NO	bb	bb	95.186
13C-12378-PeCDF	29.286	1.174	4.009e5	2.377e5	1.196	1.686	1.550	3650	2203	5.33e6	3.30e6	1459.9	1498.4	NO	bb	bb	105.041
13C-23478-PeCDF	30.623	1.228	3.333e5	2.280e5	1.117	1.462	1.550	3650	2203	4.71e6	3.06e6	1290.6	1388.6	NO	bb	bd	98.822
13C-123478-HxCDF	34.299	0.954	1.429e5	2.689e5	1.028	0.531	0.510	1677	3237	2.05e6	3.88e6	1222.1	1198.2	NO	bd	bd	105.271
13C-123678-HxCDF	34.444	0.958	1.635e5	3.045e5	1.176	0.537	0.510	1677	3237	2.15e6	3.98e6	1279.0	1228.8	NO	db	db	104.636
13C-234678-HxCDF	35.324	0.982	1.388e5	2.610e5	1.016	0.532	0.510	1677	3237	1.94e6	3.73e6	1154.9	1153.2	NO	bb	bb	103.427
13C-123789-HxCDF	36.371	1.011	1.275e5	2.286e5	0.879	0.558	0.510	1677	3237	1.68e6	3.08e6	1003.3	950.9	NO	bb	bb	106.472
13C-1234678-HpCDF	38.265	1.064	1.134e5	2.353e5	0.870	0.482	0.440	1841	2748	1.62e6	3.54e6	881.6	1289.8	NO	bd	bb	105.346
13C-1234789-HpCDF	40.438	1.125	7.609e4	1.628e5	0.638	0.467	0.440	1841	2748	9.89e5	2.15e6	536.9	781.6	NO	bb	bb	98.476
13C-1234-TCDD	24.941	0.000	2.234e5	2.850e5	1.000	0.784	0.770	2417	1238	3.37e6	4.24e6	1393.1	3429.0	NO	bb	bb	100.000
13C-2378-TCDD	25.760	1.033	2.602e5	3.325e5	1.151	0.783	0.770	2417	1238	3.79e6	4.78e6	1567.2	3863.9	NO	bb	bb	101.298
13C-12378-PeCDD	30.879	1.238	2.431e5	1.474e5	0.828	1.650	1.550	1433	796	3.36e6	2.10e6	2342.6	2642.5	NO	bb	bb	92.736
13C-123478-HxCDD	35.447	0.986	2.085e5	1.692e5	0.950	1.232	1.240	1703	1514	3.29e6	2.70e6	1931.4	1781.5	NO	bd	bd	104.559
13C-123678-HxCDD	35.569	0.989	2.376e5	2.001e5	1.107	1.188	1.240	1703	1514	3.23e6	2.71e6	1895.0	1792.0	NO	db	db	103.956
13C-1234678-HpCDD	39.725	1.105	1.541e5	1.430e5	0.737	1.078	1.050	1691	1913	2.13e6	1.99e6	1260.3	1037.7	NO	bb	bb	105.930
13C-OCDD	44.331	1.233	2.672e5	3.392e5	0.633	0.788	0.890	1409	2754	3.07e6	3.47e6	2176.0	1260.5	NO	bb	bd	251.955
13C-123789-HxCDD	35.959	0.000	2.125e5	1.680e5	1.000	1.265	1.240	1703	1514	2.96e6	2.40e6	1739.5	1586.4	NO	bb	bb	100.000
37CL-2378-TCDD	25.774	1.033	6.420e4		1.312			1074		9.27e5		863.5			bb		9.622

Dataset: T:\Autospec\Processed Data Batch\240228IHICV.qld
Last Altered: Thursday, February 29, 2024 08:22:47 Pacific Standard Time
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ID: CS3Y2, Name: 24022811, Date: 28-Feb-2024, Time: 20:17:35, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.636	0.861	4.376e4	5.625e4	1.247	0.778	0.770	1386	1568	6.89e5	8.58e5	496.9	547.4	NO	bb	bb	10.012
1289-TCDF	26.622	1.060	3.504e4	4.263e4	0.916	0.822	0.770	1386	1568	4.80e5	6.01e5	346.5	383.5	NO	dd	db	10.591
13468-PECDF	26.494	0.905	2.500e5	1.589e5	1.353	1.573	1.550	1330	961	3.69e6	2.35e6	2770.4	2445.3	NO	bb	bb	47.324
12389-PECDF	31.681	1.082	1.804e5	1.214e5	0.925	1.486	1.550	3566	2924	2.38e6	1.54e6	668.0	525.0	NO	bb	bd	51.068
123468-HXCDF	32.617	0.951	1.640e5	1.191e5	1.335	1.377	1.240	2533	2095	2.18e6	1.68e6	859.6	801.4	NO	bb	bb	51.470
1368-TCDD	22.907	0.889	2.870e4	3.846e4	1.120	0.746	0.770	1487	1231	4.44e5	5.84e5	298.4	474.1	NO	bb	bb	10.116
1289-TCDD	26.367	1.024	2.630e4	3.133e4	0.966	0.839	0.770	1487	1231	3.41e5	4.29e5	229.5	348.6	NO	bb	bd	10.067
12479-PECDD	28.194	0.913	2.067e5	1.387e5	1.859	1.490	1.550	1902	1853	1.90e6	1.29e6	996.3	698.4	NO	bb	bb	47.576
12389-PECDD	31.291	1.013	1.325e5	8.754e4	1.154	1.514	1.550	1902	1853	1.78e6	1.21e6	936.0	650.3	NO	bb	bb	48.817
124679-HXCDD	33.408	0.942	1.036e5	8.025e4	1.006	1.292	1.240	1772	1286	1.44e6	1.15e6	814.5	895.4	NO	bb	bb	48.367
1234679-HPCDD	38.722	0.975	9.405e4	9.324e4	1.184	1.009	1.050	2032	2240	1.28e6	1.32e6	630.0	588.3	NO	bd	bd	53.256
Total-tetrafurans			1.131e5		1.048			1386		1.68e6							30.888
Total-penta1			2.500e5					1330		3.69e6							47.324
Total-pentafurans			5.910e5		1.043			3566		8.26e6							154.699
Total-hexafurans			7.146e5		1.217			2533		9.83e6							255.122
Total-heptafurans			2.156e5		1.387			3333		3.09e6							104.107
Total-Furans			2.029e6		1.180			1386		2.81e7							680.448
Total-tetradioxins			1.391e5		1.104			1487		1.86e6							48.827
Total-pentadioxins			4.598e5		1.326			1902		5.34e6							149.126
Total-hexadioxins			3.796e5		0.863			1772		5.39e6							199.124
Total-heptadioxins			1.745e5		1.084			2032		2.37e6							105.056
Total-Dioxins			1.283e6		1.065			1487		1.63e7							597.205
Total-TEQ			3.312e6					1487		4.45e7							1277.653
FUNCTION1 PFK			1.194e7					505547		4.95e7							
FUNCTION2 PFK			2.147e5					310351		6.59e6							0.000
FUNCTION3 PFK			1.958e5					373445		7.14e6							0.000
FUNCTION4 PFK			4.002e5					343552		1.13e7							
FUNCTION5 PFK			1.735e5					194933		6.65e6							
FUNCTION1 HXCD...			7.963e2					489		9.10e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			6.184e2					950		1.60e4							0.000
FUNCTION3 OCDPE			1.706e2					547		3.52e3							0.000
FUNCTION4 NCDPE			3.827e2					519		5.80e3							0.000
FUNCTION5 DCDPE			7.952e1					378		1.03e3							0.000

Method: T:\Autospec\Methods\Dioxin240228.mdb 29 Feb 2024 08:04:37
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.62	3.504e4	4.263e4	0.916	0.82	0.77	346.5	YES	NO	dd	db	10.591
2	2378-TCDF	25.14	3.434e4	4.641e4	0.980	0.74	0.77	368.7	YES	NO	bb	bd	10.285
3	1368-TCDF	21.64	4.376e4	5.625e4	1.247	0.78	0.77	496.9	YES	NO	bb	bb	10.012

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.49	2.500e5	1.589e5	1.353	1.57	1.55	2770.4	YES	NO	bb	bb	47.324

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.31	1.853e5	1.156e5	1.047	1.60	1.55	725.5	YES	NO	bb	bb	45.003
2	Total-pentafurans	28.15	3.262e4	1.932e4	1.043	1.69	1.55	125.7	YES	NO	bb	bb	8.303
3	12389-PECDF	31.68	1.804e5	1.214e5	0.925	1.49	1.55	668.0	YES	NO	bb	bd	51.068
4	23478-PeCDF	30.64	1.927e5	1.337e5	1.156	1.44	1.55	798.5	YES	NO	bb	bd	50.325

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.38	1.100e5	8.605e4	1.100	1.28	1.24	604.5	YES	NO	bb	bb	50.066
2	234678-HxCDF	35.35	1.468e5	1.083e5	1.235	1.36	1.24	781.0	YES	NO	bd	bb	51.681
3	Total-hexafurans	34.93	3.087e2	2.795e2	1.217	1.10	1.24	3.9	YES	NO	bb	db	0.118
4	123678-HxCDF	34.46	1.570e5	1.378e5	1.193	1.14	1.24	843.2	YES	NO	db	dd	52.795
5	123478-HxCDF	34.32	1.364e5	1.105e5	1.224	1.23	1.24	787.0	YES	NO	bd	bd	48.991
6	123468-HXCDF	32.62	1.640e5	1.191e5	1.335	1.38	1.24	859.6	YES	NO	bb	bb	51.470

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.45	9.324e4	9.405e4	1.381	0.99	1.05	362.4	YES	NO	bb	bd	56.783
2	1234678-HpCDF	38.28	1.223e5	1.074e5	1.392	1.14	1.05	564.2	YES	NO	bb	bb	47.324

Dataset: T:\Autospec\Processed Data Batch\240228IHICV.qld
Last Altered: Thursday, February 29, 2024 08:22:47 Pacific Standard Time
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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.62	3.504e4	4.263e4	0.916	0.82	0.77	346.5	YES	NO	dd	db	10.591
2	2378-TCDF	25.14	3.434e4	4.641e4	0.980	0.74	0.77	368.7	YES	NO	bb	bd	10.285
3	1368-TCDF	21.64	4.376e4	5.625e4	1.247	0.78	0.77	496.9	YES	NO	bb	bb	10.012
4	12378-PeCDF	29.31	1.853e5	1.156e5	1.047	1.60	1.55	725.5	YES	NO	bb	bb	45.003
5	Total-pentafurans	28.15	3.262e4	1.932e4	1.043	1.69	1.55	125.7	YES	NO	bb	bb	8.303
6	12389-PECDF	31.68	1.804e5	1.214e5	0.925	1.49	1.55	668.0	YES	NO	bb	bd	51.068
7	23478-PeCDF	30.64	1.927e5	1.337e5	1.156	1.44	1.55	798.5	YES	NO	bb	bd	50.325
8	123789-HxCDF	36.38	1.100e5	8.605e4	1.100	1.28	1.24	604.5	YES	NO	bb	bb	50.066
9	234678-HxCDF	35.35	1.468e5	1.083e5	1.235	1.36	1.24	781.0	YES	NO	bd	bb	51.681
10	Total-hexafurans	34.93	3.087e2	2.795e2	1.217	1.10	1.24	3.9	YES	NO	bb	db	0.118
11	123678-HxCDF	34.46	1.570e5	1.378e5	1.193	1.14	1.24	843.2	YES	NO	db	dd	52.795
12	123478-HxCDF	34.32	1.364e5	1.105e5	1.224	1.23	1.24	787.0	YES	NO	bd	bd	48.991
13	123468-HXCDF	32.62	1.640e5	1.191e5	1.335	1.38	1.24	859.6	YES	NO	bb	bb	51.470
14	1234789-HpCDF	40.45	9.324e4	9.405e4	1.381	0.99	1.05	362.4	YES	NO	bb	bd	56.783
15	1234678-HpCDF	38.28	1.223e5	1.074e5	1.392	1.14	1.05	564.2	YES	NO	bb	bb	47.324
16	OCDF	44.57	1.452e5	1.820e5	1.222	0.80	0.89	918.0	YES	NO	bb	bd	88.308
17	13468-PECDF	26.49	2.500e5	1.589e5	1.353	1.57	1.55	2770.4	YES	NO	bb	bb	47.324

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.37	2.630e4	3.133e4	0.966	0.84	0.77	229.5	YES	NO	bb	bd	10.067
2	2378-TCDD	25.77	2.997e4	3.973e4	1.227	0.75	0.77	279.4	YES	NO	bb	bd	9.585
3	Total-tetradioxins	25.45	4.109e4	5.264e4	1.104	0.78	0.77	308.2	YES	NO	bb	bb	14.320
4	Total-tetradioxins	24.95	1.305e4	1.798e4	1.104	0.73	0.77	134.4	YES	NO	bb	bd	4.740
5	1368-TCDD	22.91	2.870e4	3.846e4	1.120	0.75	0.77	298.4	YES	NO	bb	bb	10.116

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.90	1.206e5	7.800e4	0.964	1.55	1.55	874.7	YES	NO	bd	bb	52.733
2	12479-PECDD	28.19	2.067e5	1.387e5	1.859	1.49	1.55	996.3	YES	NO	bb	bb	47.576
3	12389-PECDD	31.29	1.325e5	8.754e4	1.154	1.51	1.55	936.0	YES	NO	bb	bb	48.817

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.97	8.707e4	7.287e4	0.770	1.19	1.24	689.8	YES	NO	bb	bb	50.922
2	123678-HxCDD	35.58	1.017e5	8.241e4	0.833	1.23	1.24	785.5	YES	NO	db	db	50.498
3	123478-HxCDD	35.47	8.719e4	6.951e4	0.841	1.25	1.24	753.0	YES	NO	bd	bd	49.337
4	124679-HXCDD	33.41	1.036e5	8.025e4	1.006	1.29	1.24	814.5	YES	NO	bb	bb	48.367

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptadioxins	38.92	1.972e3	2.134e3	1.084	0.92	1.05	17.1	YES	NO	dd	dd	1.275
2	1234679-HPCDD	38.72	9.405e4	9.324e4	1.184	1.01	1.05	630.0	YES	NO	bd	bd	53.256
3	1234678-HpCDD	39.74	7.847e4	6.927e4	0.984	1.13	1.05	517.8	YES	NO	bd	bb	50.525

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.37	2.630e4	3.133e4	0.966	0.84	0.77	229.5	YES	NO	bb	bd	10.067
2	2378-TCDD	25.77	2.997e4	3.973e4	1.227	0.75	0.77	279.4	YES	NO	bb	bd	9.585
3	Total-tetradioxins	25.45	4.109e4	5.264e4	1.104	0.78	0.77	308.2	YES	NO	bb	bb	14.320
4	Total-tetradioxins	24.95	1.305e4	1.798e4	1.104	0.73	0.77	134.4	YES	NO	bb	bd	4.740
5	1368-TCDD	22.91	2.870e4	3.846e4	1.120	0.75	0.77	298.4	YES	NO	bb	bb	10.116
6	12378-PeCDD	30.90	1.206e5	7.800e4	0.964	1.55	1.55	874.7	YES	NO	bd	bb	52.733
7	12479-PECDD	28.19	2.067e5	1.387e5	1.859	1.49	1.55	996.3	YES	NO	bb	bb	47.576
8	12389-PECDD	31.29	1.325e5	8.754e4	1.154	1.51	1.55	936.0	YES	NO	bb	bb	48.817
9	123789-HxCDD	35.97	8.707e4	7.287e4	0.770	1.19	1.24	689.8	YES	NO	bb	bb	50.922
10	123678-HxCDD	35.58	1.017e5	8.241e4	0.833	1.23	1.24	785.5	YES	NO	db	db	50.498
11	123478-HxCDD	35.47	8.719e4	6.951e4	0.841	1.25	1.24	753.0	YES	NO	bd	bd	49.337
12	124679-HXCDD	33.41	1.036e5	8.025e4	1.006	1.29	1.24	814.5	YES	NO	bb	bb	48.367
13	Total-heptadioxins	38.92	1.972e3	2.134e3	1.084	0.92	1.05	17.1	YES	NO	dd	dd	1.275
14	1234679-HPCDD	38.72	9.405e4	9.324e4	1.184	1.01	1.05	630.0	YES	NO	bd	bd	53.256
15	1234678-HpCDD	39.74	7.847e4	6.927e4	0.984	1.13	1.05	517.8	YES	NO	bd	bb	50.525
16	OCDD	44.35	1.300e5	1.402e5	0.938	0.93	0.89	437.2	YES	NO	bd	bd	95.071

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.62	3.504e4	4.263e4	0.916	0.82	0.77	346.5	YES	NO	dd	db	10.591
2	2378-TCDF	25.14	3.434e4	4.641e4	0.980	0.74	0.77	368.7	YES	NO	bb	bd	10.285
3	1368-TCDF	21.64	4.376e4	5.625e4	1.247	0.78	0.77	496.9	YES	NO	bb	bb	10.012
4	12378-PeCDF	29.31	1.853e5	1.156e5	1.047	1.60	1.55	725.5	YES	NO	bb	bb	45.003
5	Total-pentafurans	28.15	3.262e4	1.932e4	1.043	1.69	1.55	125.7	YES	NO	bb	bb	8.303
6	12389-PECDF	31.68	1.804e5	1.214e5	0.925	1.49	1.55	668.0	YES	NO	bb	bd	51.068
7	23478-PeCDF	30.64	1.927e5	1.337e5	1.156	1.44	1.55	798.5	YES	NO	bb	bd	50.325
8	123789-HxCDF	36.38	1.100e5	8.605e4	1.100	1.28	1.24	604.5	YES	NO	bb	bb	50.066
9	234678-HxCDF	35.35	1.468e5	1.083e5	1.235	1.36	1.24	781.0	YES	NO	bd	bb	51.681
10	Total-hexafurans	34.93	3.087e2	2.795e2	1.217	1.10	1.24	3.9	YES	NO	bb	db	0.118
11	123678-HxCDF	34.46	1.570e5	1.378e5	1.193	1.14	1.24	843.2	YES	NO	db	dd	52.795
12	123478-HxCDF	34.32	1.364e5	1.105e5	1.224	1.23	1.24	787.0	YES	NO	bd	bd	48.991
13	123468-HXCDF	32.62	1.640e5	1.191e5	1.335	1.38	1.24	859.6	YES	NO	bb	bb	51.470
14	1234789-HpCDF	40.45	9.324e4	9.405e4	1.381	0.99	1.05	362.4	YES	NO	bb	bd	56.783
15	1234678-HpCDF	38.28	1.223e5	1.074e5	1.392	1.14	1.05	564.2	YES	NO	bb	bb	47.324
16	OCDF	44.57	1.452e5	1.820e5	1.222	0.80	0.89	918.0	YES	NO	bb	bd	88.308
17	13468-PECDF	26.49	2.500e5	1.589e5	1.353	1.57	1.55	2770.4	YES	NO	bb	bb	47.324
18	1289-TCDD	26.37	2.630e4	3.133e4	0.966	0.84	0.77	229.5	YES	NO	bb	bd	10.067
19	2378-TCDD	25.77	2.997e4	3.973e4	1.227	0.75	0.77	279.4	YES	NO	bb	bd	9.585
20	Total-tetradioxins	25.45	4.109e4	5.264e4	1.104	0.78	0.77	308.2	YES	NO	bb	bb	14.320
21	Total-tetradioxins	24.95	1.305e4	1.798e4	1.104	0.73	0.77	134.4	YES	NO	bb	bd	4.740
22	1368-TCDD	22.91	2.870e4	3.846e4	1.120	0.75	0.77	298.4	YES	NO	bb	bb	10.116
23	12378-PeCDD	30.90	1.206e5	7.800e4	0.964	1.55	1.55	874.7	YES	NO	bd	bb	52.733
24	12479-PECDD	28.19	2.067e5	1.387e5	1.859	1.49	1.55	996.3	YES	NO	bb	bb	47.576
25	12389-PECDD	31.29	1.325e5	8.754e4	1.154	1.51	1.55	936.0	YES	NO	bb	bb	48.817
26	123789-HxCDD	35.97	8.707e4	7.287e4	0.770	1.19	1.24	689.8	YES	NO	bb	bb	50.922
27	123678-HxCDD	35.58	1.017e5	8.241e4	0.833	1.23	1.24	785.5	YES	NO	db	db	50.498
28	123478-HxCDD	35.47	8.719e4	6.951e4	0.841	1.25	1.24	753.0	YES	NO	bd	bd	49.337
29	124679-HXCDD	33.41	1.036e5	8.025e4	1.006	1.29	1.24	814.5	YES	NO	bb	bb	48.367
30	Total-heptadioxins	38.92	1.972e3	2.134e3	1.084	0.92	1.05	17.1	YES	NO	dd	dd	1.275
31	1234679-HPCDD	38.72	9.405e4	9.324e4	1.184	1.01	1.05	630.0	YES	NO	bd	bd	53.256
32	1234678-HpCDD	39.74	7.847e4	6.927e4	0.984	1.13	1.05	517.8	YES	NO	bd	bb	50.525
33	OCDD	44.35	1.300e5	1.402e5	0.938	0.93	0.89	437.2	YES	NO	bd	bd	95.071

ID: CS3Y2, Name: 24022811, Date: 28-Feb-2024, Time: 20:17:35, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	25.46	5.119e4					1.6	NO		bb		
2	FUNCTION1 PFK	25.39	4.155e3					0.6	NO		bb		
3	FUNCTION1 PFK	25.21	1.770e4					1.2	NO		bb		
4	FUNCTION1 PFK	25.11	1.482e4					1.2	NO		bb		
5	FUNCTION1 PFK	24.97	3.756e4					1.6	NO		bb		
6	FUNCTION1 PFK	23.47	2.225e4					0.9	NO		bb		
7	FUNCTION1 PFK	21.88	4.986e6					7.7	YES		db		
8	FUNCTION1 PFK	21.31	3.706e6					37.2	YES		dd		
9	FUNCTION1 PFK	21.10	3.103e6					46.1	YES		bd		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	27.49	7.786e3					1.1	NO		bb		0.000
2	FUNCTION2 PFK	27.36	1.203e4					1.8	NO		bb		0.000
3	FUNCTION2 PFK	31.92	6.647e3					1.1	NO		bb		0.000
4	FUNCTION2 PFK	31.87	1.172e4					1.4	NO		db		0.000
5	FUNCTION2 PFK	31.81	6.298e3					0.9	NO		bd		0.000
6	FUNCTION2 PFK	31.65	2.240e4					1.6	NO		db		0.000
7	FUNCTION2 PFK	31.61	1.606e4					1.6	NO		dd		0.000
8	FUNCTION2 PFK	31.48	4.702e4					1.9	NO		bd		0.000
9	FUNCTION2 PFK	31.34	1.612e3					0.5	NO		bb		0.000
10	FUNCTION2 PFK	31.29	1.779e3					0.5	NO		bb		0.000
11	FUNCTION2 PFK	31.24	3.480e3					0.6	NO		bb		0.000
12	FUNCTION2 PFK	30.98	1.476e4					1.2	NO		bb		0.000
13	FUNCTION2 PFK	30.34	4.937e3					0.9	NO		bb		0.000
14	FUNCTION2 PFK	30.30	1.812e4					1.8	NO		bb		0.000
15	FUNCTION2 PFK	30.15	1.064e4					1.3	NO		bb		0.000
16	FUNCTION2 PFK	29.68	9.309e3					0.5	NO		bb		0.000
17	FUNCTION2 PFK	29.14	8.994e3					1.2	NO		bb		0.000
18	FUNCTION2 PFK	28.20	1.347e3					0.4	NO		bb		0.000
19	FUNCTION2 PFK	31.96	9.786e3					1.2	NO		bb		0.000

Dataset: T:\Autospec\Processed Data Batch\240228IHICV.qld
Last Altered: Thursday, February 29, 2024 08:22:47 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:23:51 Pacific Standard Time

ID: CS3Y2, Name: 24022811, Date: 28-Feb-2024, Time: 20:17:35, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	36.65	2.999e4					2.0	NO		bb		0.000
2	FUNCTION3 PFK	35.86	1.198e4					1.2	NO		bb		0.000
3	FUNCTION3 PFK	35.80	1.069e4					1.2	NO		bb		0.000
4	FUNCTION3 PFK	35.71	4.994e3					0.8	NO		bb		0.000
5	FUNCTION3 PFK	35.67	2.362e4					1.9	NO		bb		0.000
6	FUNCTION3 PFK	35.26	2.133e4					1.6	NO		bb		0.000
7	FUNCTION3 PFK	34.34	4.527e3					0.7	NO		bb		0.000
8	FUNCTION3 PFK	33.63	5.021e3					0.7	NO		bb		0.000
9	FUNCTION3 PFK	33.02	1.684e4					1.3	NO		bb		0.000
10	FUNCTION3 PFK	32.68	8.978e3					0.9	NO		bb		0.000
11	FUNCTION3 PFK	32.64	1.378e4					1.6	NO		bb		0.000
12	FUNCTION3 PFK	32.42	1.480e4					1.5	NO		bb		0.000
13	FUNCTION3 PFK	32.28	3.639e3					0.9	NO		bb		0.000
14	FUNCTION3 PFK	32.19	1.232e4					1.3	NO		bb		0.000
15	FUNCTION3 PFK	37.02	1.325e4					1.3	NO		bb		0.000

Dataset: T:\Autospec\Processed Data Batch\240228IHICV.qld
Last Altered: Thursday, February 29, 2024 08:22:47 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:23:51 Pacific Standard Time

ID: CS3Y2, Name: 24022811, Date: 28-Feb-2024, Time: 20:17:35, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	39.19	1.672e3					0.4	NO		bb		
2	FUNCTION4 PFK	39.15	2.307e4					1.4	NO		bb		
3	FUNCTION4 PFK	39.06	1.673e4					1.6	NO		bb		
4	FUNCTION4 PFK	38.94	1.314e4					1.2	NO		bb		
5	FUNCTION4 PFK	38.80	1.000e4					1.0	NO		bb		
6	FUNCTION4 PFK	38.72	9.628e3					1.0	NO		bb		
7	FUNCTION4 PFK	38.67	1.585e3					0.4	NO		bb		
8	FUNCTION4 PFK	38.42	3.065e3					0.5	NO		bb		
9	FUNCTION4 PFK	38.22	1.289e4					0.6	NO		bb		
10	FUNCTION4 PFK	37.98	1.245e4					1.1	NO		bb		
11	FUNCTION4 PFK	37.56	2.289e3					0.6	NO		bb		
12	FUNCTION4 PFK	37.50	1.065e4					0.9	NO		bb		
13	FUNCTION4 PFK	37.34	3.289e4					1.9	NO		db		
14	FUNCTION4 PFK	37.28	1.897e4					1.8	NO		bd		
15	FUNCTION4 PFK	41.99	9.260e3					0.9	NO		bb		
16	FUNCTION4 PFK	41.89	3.651e3					0.6	NO		bb		
17	FUNCTION4 PFK	41.74	9.437e3					1.1	NO		db		
18	FUNCTION4 PFK	41.69	3.262e4					1.6	NO		dd		
19	FUNCTION4 PFK	41.60	9.874e3					1.1	NO		bd		
20	FUNCTION4 PFK	41.52	2.037e4					1.4	NO		bb		
21	FUNCTION4 PFK	41.45	7.144e3					1.2	NO		bb		
22	FUNCTION4 PFK	40.93	1.201e3					0.3	NO		bb		
23	FUNCTION4 PFK	40.66	1.565e4					1.3	NO		bb		
24	FUNCTION4 PFK	40.47	1.783e4					1.4	NO		bb		
25	FUNCTION4 PFK	40.22	3.637e4					1.8	NO		bb		
26	FUNCTION4 PFK	39.97	5.800e3					0.7	NO		bb		
27	FUNCTION4 PFK	39.61	1.482e4					1.4	NO		db		
28	FUNCTION4 PFK	39.57	1.167e4					1.1	NO		bd		
29	FUNCTION4 PFK	39.38	2.073e4					0.7	NO		bb		
30	FUNCTION4 PFK	39.23	1.240e3					0.3	NO		bb		
31	FUNCTION4 PFK	42.47	9.812e3					1.1	NO		bb		
32	FUNCTION4 PFK	42.21	3.728e3					0.5	NO		bb		

Dataset: T:\Autospec\Processed Data Batch\240228IHICV.qld
Last Altered: Thursday, February 29, 2024 08:22:47 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:23:51 Pacific Standard Time

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.92	8.145e3					1.3	NO		bb		
2	FUNCTION5 PFK	43.68	2.061e3					0.8	NO		bb		
3	FUNCTION5 PFK	43.53	7.081e3					1.5	NO		bb		
4	FUNCTION5 PFK	43.34	6.879e3					1.5	NO		db		
5	FUNCTION5 PFK	43.30	9.671e3					1.7	NO		dd		
6	FUNCTION5 PFK	43.26	5.096e3					1.1	NO		bd		
7	FUNCTION5 PFK	43.20	3.995e3					0.9	NO		bb		
8	FUNCTION5 PFK	43.14	5.281e3					1.6	NO		bb		
9	FUNCTION5 PFK	43.10	5.618e3					0.9	NO		bb		
10	FUNCTION5 PFK	42.89	7.298e2					0.4	NO		bb		
11	FUNCTION5 PFK	42.81	7.240e3					1.0	NO		bb		
12	FUNCTION5 PFK	42.69	7.085e3					1.8	NO		bb		
13	FUNCTION5 PFK	42.65	1.346e3					0.8	NO		bb		
14	FUNCTION5 PFK	45.90	2.288e3					0.8	NO		bb		
15	FUNCTION5 PFK	45.83	1.202e4					1.7	NO		db		
16	FUNCTION5 PFK	45.79	1.834e4					2.1	NO		dd		
17	FUNCTION5 PFK	45.71	4.529e3					1.1	NO		bd		
18	FUNCTION5 PFK	45.62	3.053e3					0.9	NO		bb		
19	FUNCTION5 PFK	45.48	1.009e4					1.3	NO		bb		
20	FUNCTION5 PFK	45.41	6.268e3					1.5	NO		bb		
21	FUNCTION5 PFK	45.36	2.533e3					0.9	NO		bb		
22	FUNCTION5 PFK	45.27	2.508e3					0.9	NO		bb		
23	FUNCTION5 PFK	45.24	5.563e3					1.1	NO		bb		
24	FUNCTION5 PFK	45.09	3.073e3					0.8	NO		bb		
25	FUNCTION5 PFK	45.05	1.189e3					0.7	NO		bb		
26	FUNCTION5 PFK	44.72	3.582e3					0.9	NO		bb		
27	FUNCTION5 PFK	44.62	1.099e4					1.8	NO		bb		
28	FUNCTION5 PFK	44.59	8.213e3					1.1	NO		bb		
29	FUNCTION5 PFK	44.36	9.040e3					1.3	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.14	8.469e1					2.4	NO		db		0.000
2	FUNCTION1 HXCD...	27.07	9.153e1					2.1	NO		bd		0.000
3	FUNCTION1 HXCD...	26.48	8.004e1					2.0	NO		bb		0.000
4	FUNCTION1 HXCD...	26.14	1.339e2					2.4	NO		bb		0.000
5	FUNCTION1 HXCD...	25.99	7.302e1					3.6	YES		bb		0.000
6	FUNCTION1 HXCD...	25.75	1.091e2					2.7	NO		bb		0.000
7	FUNCTION1 HXCD...	23.44	8.303e1					1.6	NO		bb		0.000
8	FUNCTION1 HXCD...	21.41	1.410e2					1.8	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.89	1.524e2					2.8	NO		bb		0.000
2	FUNCTION2 HPCD...	30.50	1.262e2					4.3	YES		db		0.000
3	FUNCTION2 HPCD...	30.48	1.407e2					4.1	YES		bd		0.000
4	FUNCTION2 HPCD...	29.98	1.232e2					2.2	NO		bb		0.000
5	FUNCTION2 HPCD...	27.49	7.591e1					3.4	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.45	9.127e1					3.3	YES		bb		0.000
2	FUNCTION3 OCDPE	33.42	7.928e1					3.2	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	41.70	7.186e1					3.2	YES		bb		0.000
2	FUNCTION4 NCDPE	38.39	1.629e2					4.7	YES		db		0.000
3	FUNCTION4 NCDPE	38.30	1.479e2					3.3	YES		bd		0.000

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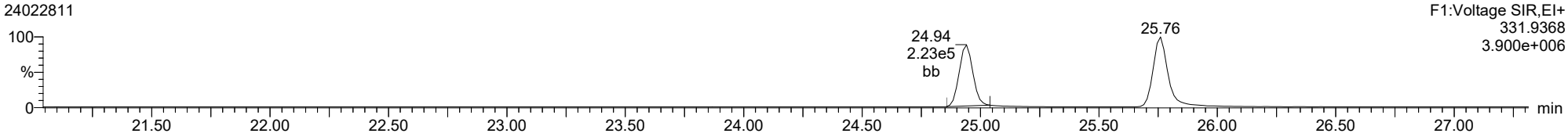
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.36	7.952e1					2.7	NO		bb		0.000

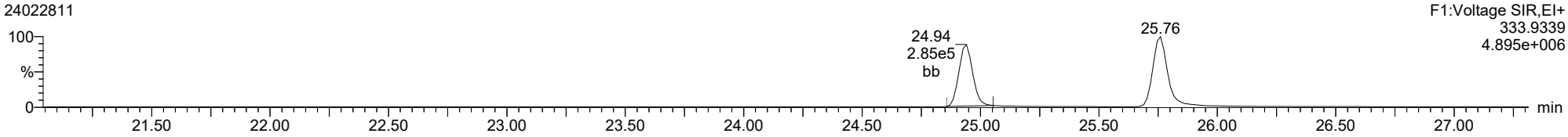
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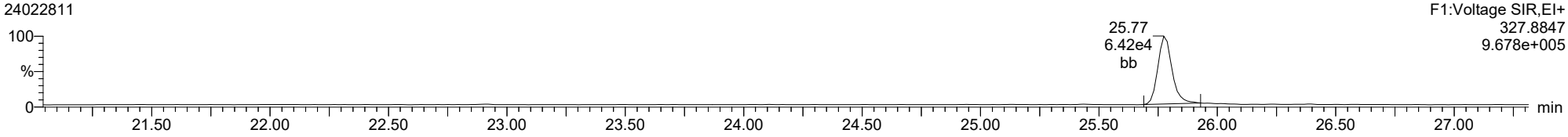
13C-1234-TCDD



13C-1234-TCDD

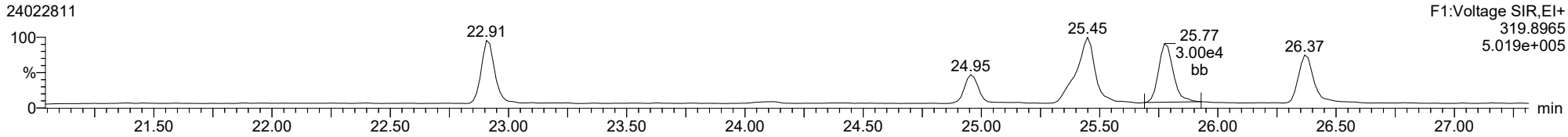


37CL-2378-TCDD

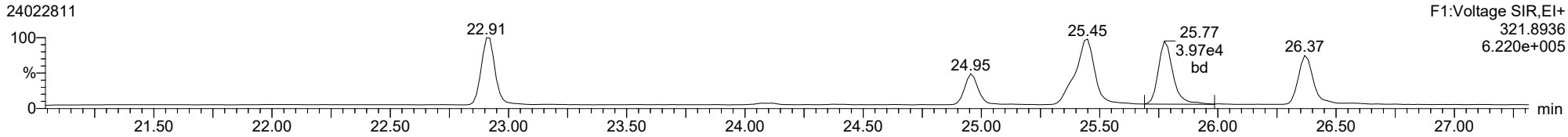


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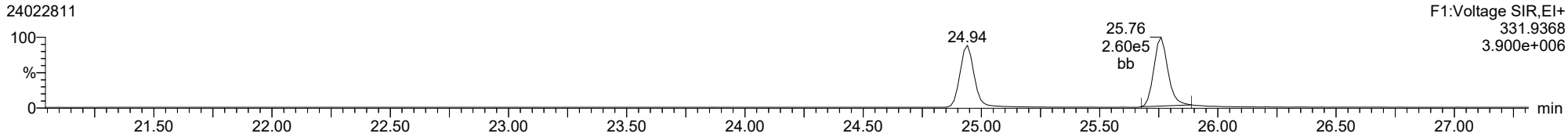
2378-TCDD



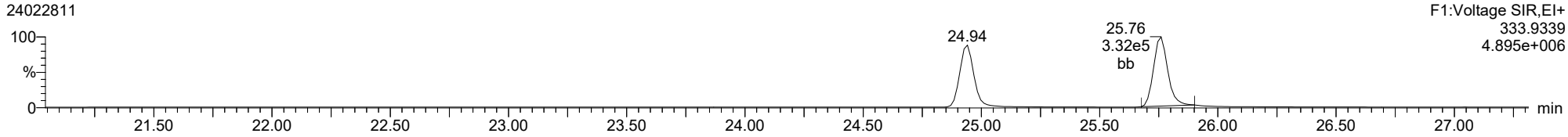
2378-TCDD



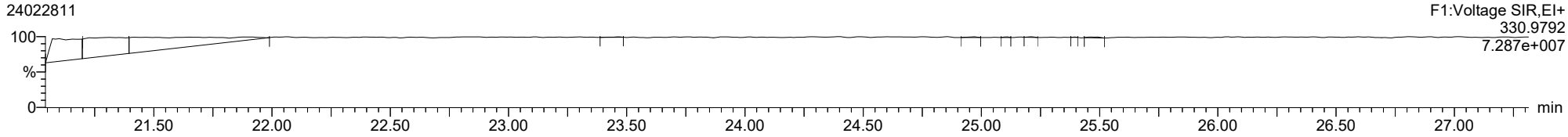
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13C-2378-TCDD

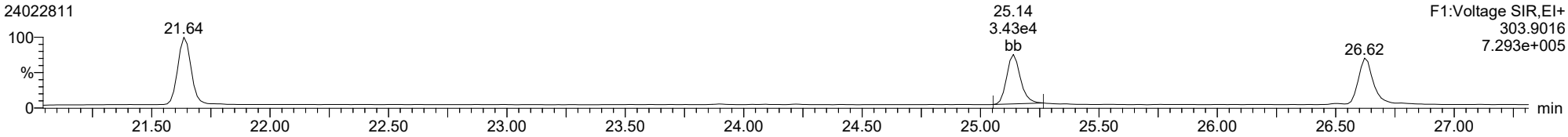


FUNCTION1 PFK

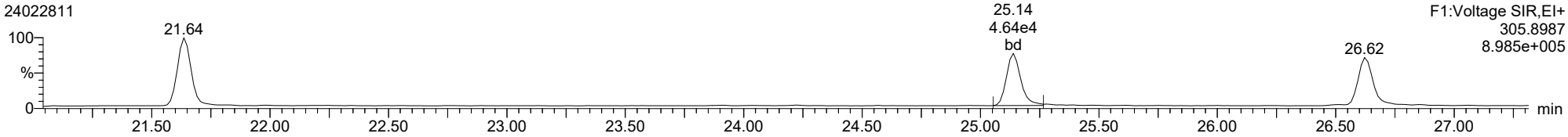


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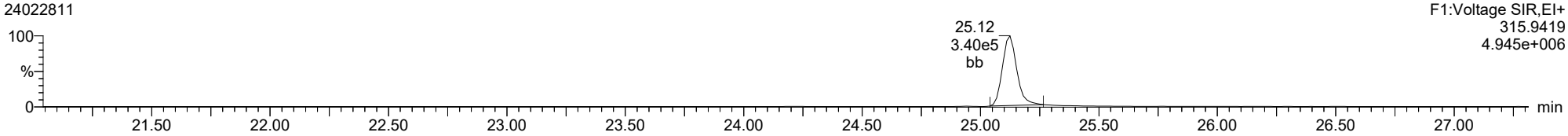
2378-TCDF



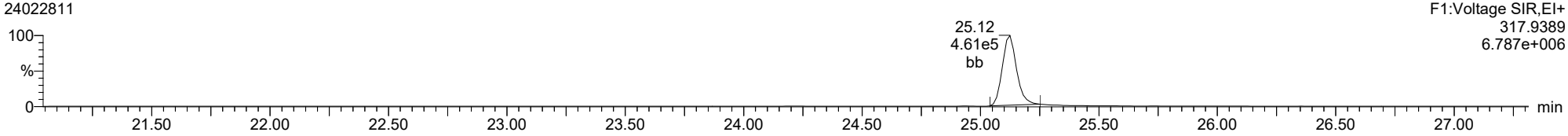
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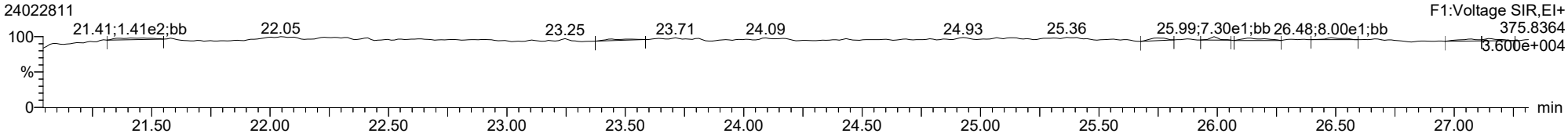
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13C-2378-TCDF

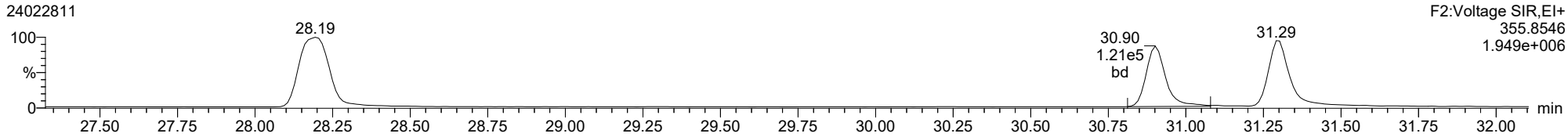


FUNCTION1 HXCDPE

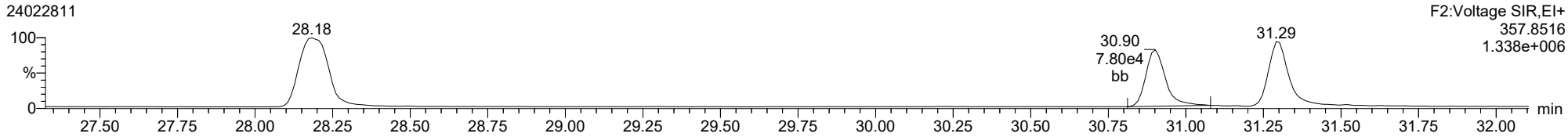


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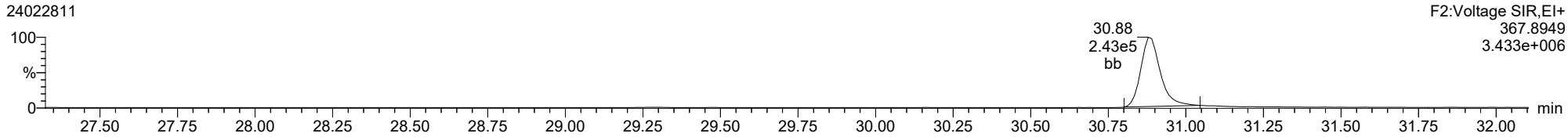
12378-PeCDD



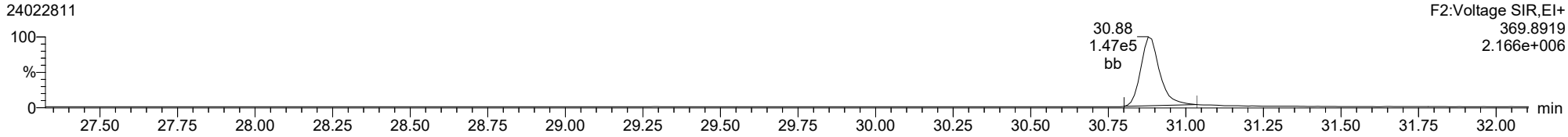
12378-PeCDD



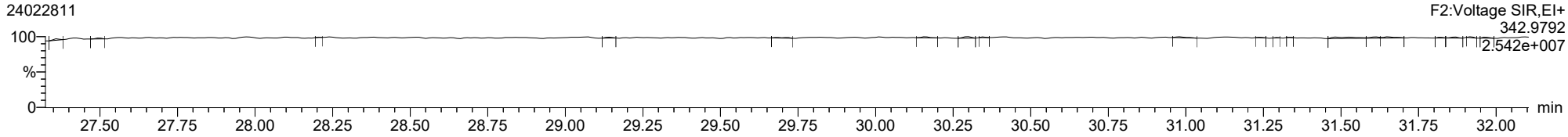
13C-12378-PeCDD



13C-12378-PeCDD

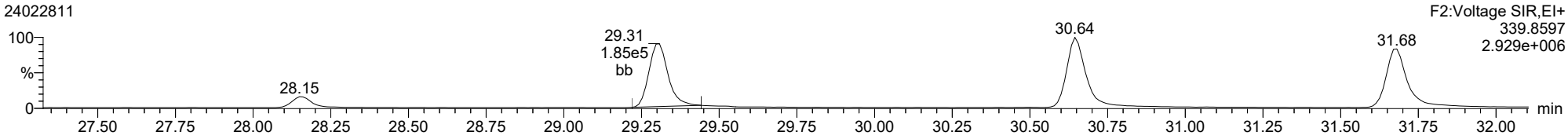


FUNCTION2 PFK

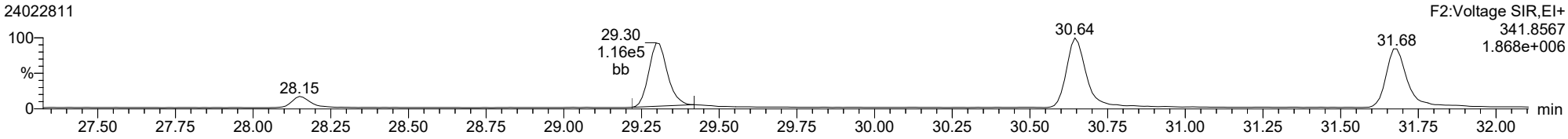


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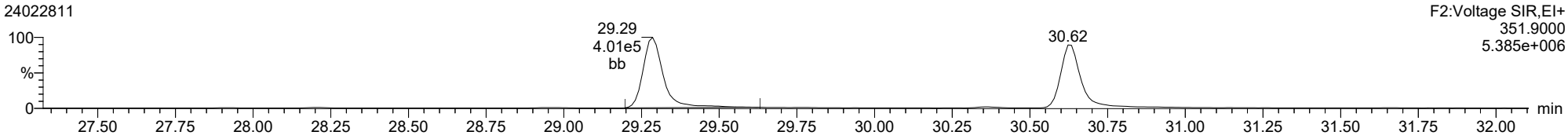
12378-PeCDF



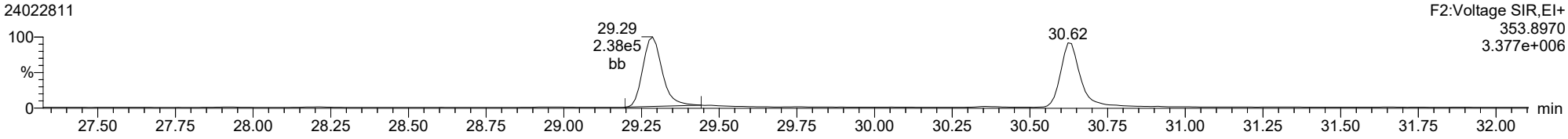
12378-PeCDF



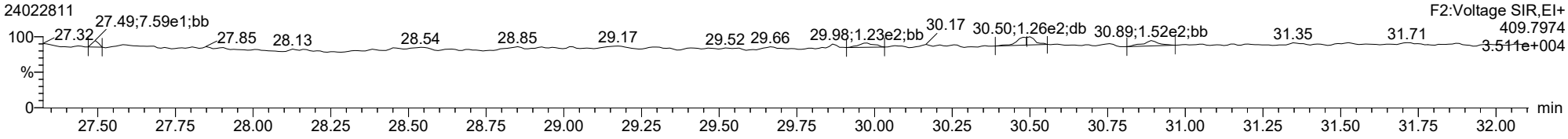
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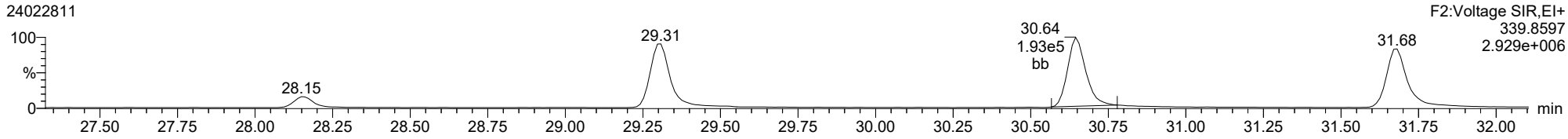


FUNCTION2 HPCDPE

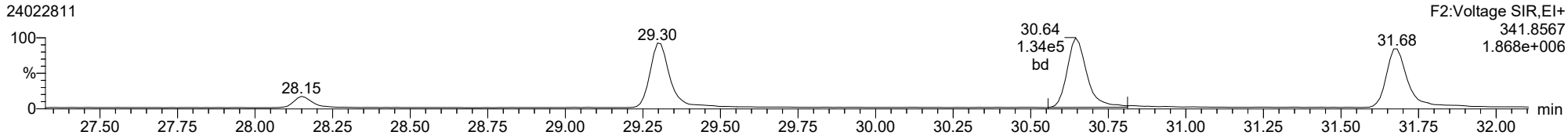


ID: CS3Y2, Name: 24022811, Date: 28-Feb-2024, Time: 20:17:35, Conditions: AUTOSPEC01, User: pk

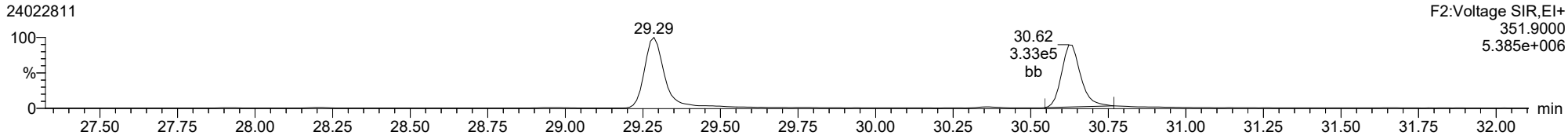
23478-PeCDF



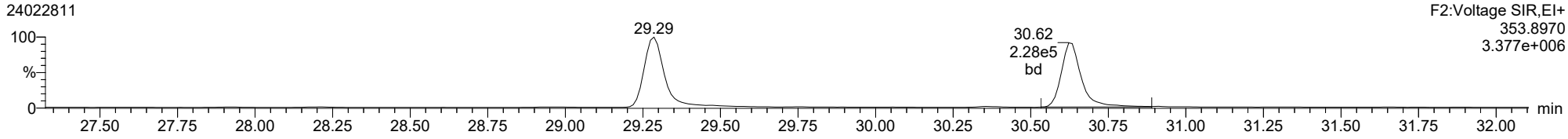
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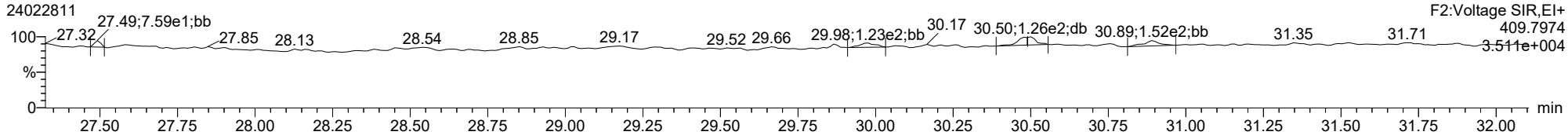
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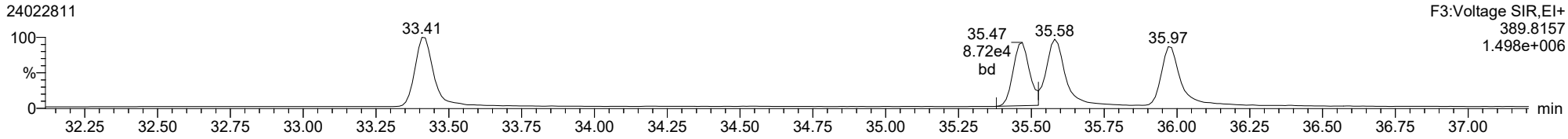


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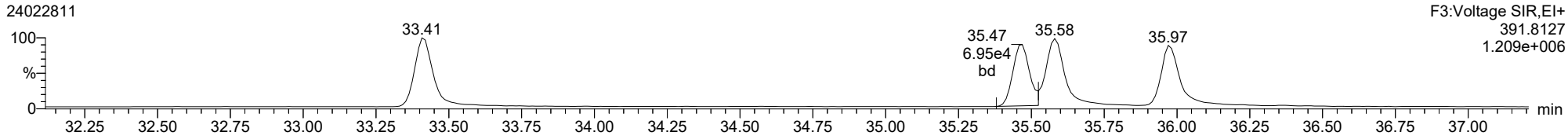


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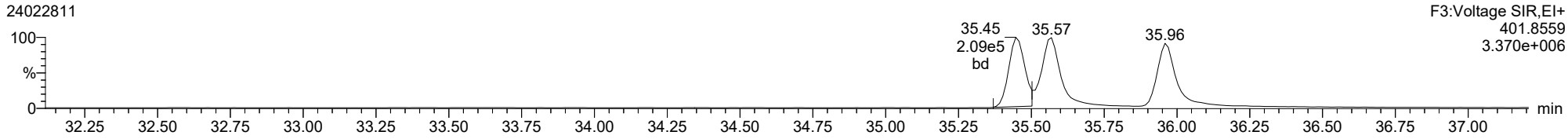
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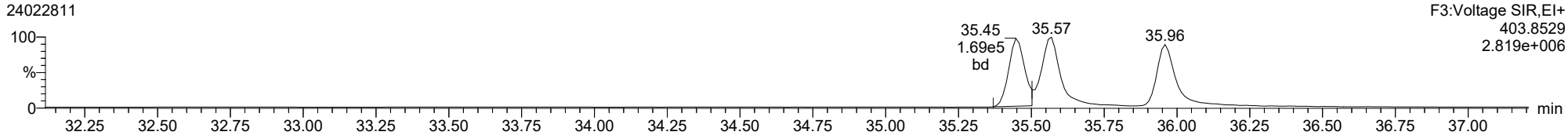
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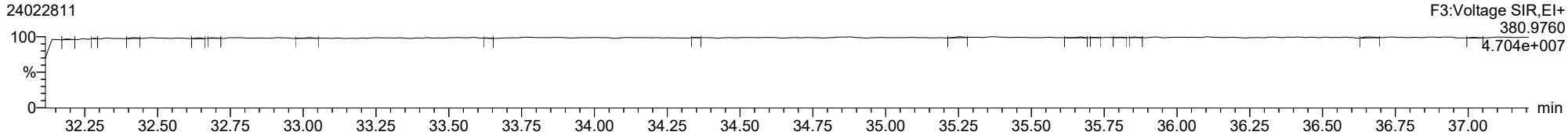
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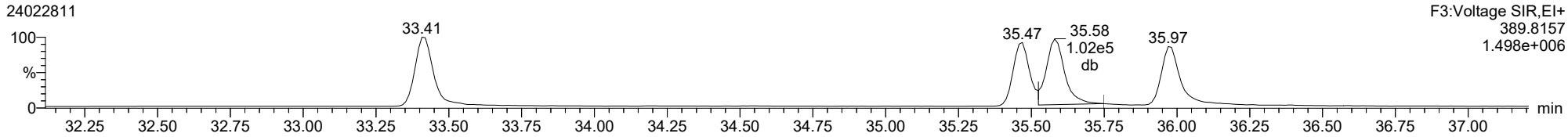


FUNCTION3 PFK

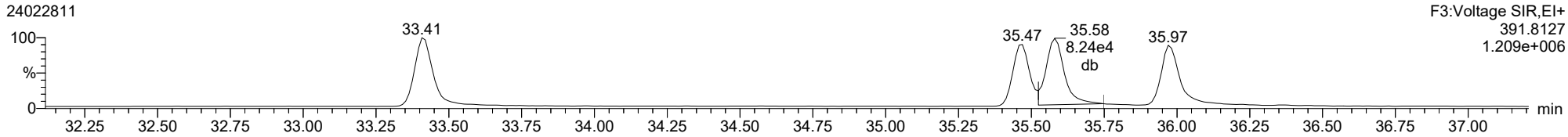


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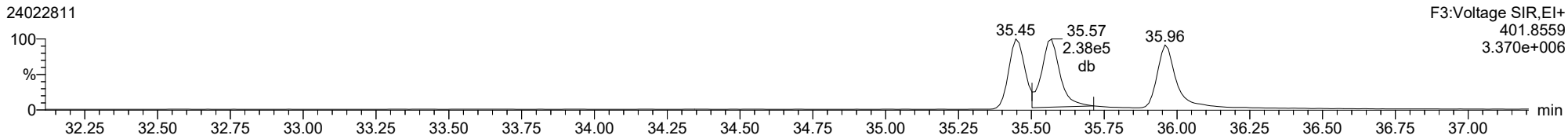
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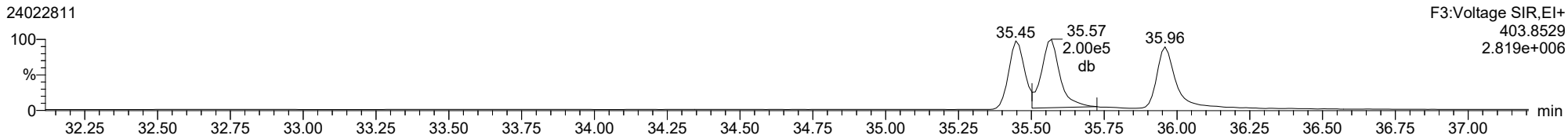
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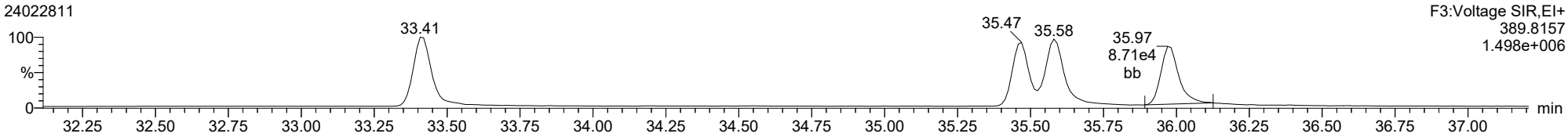
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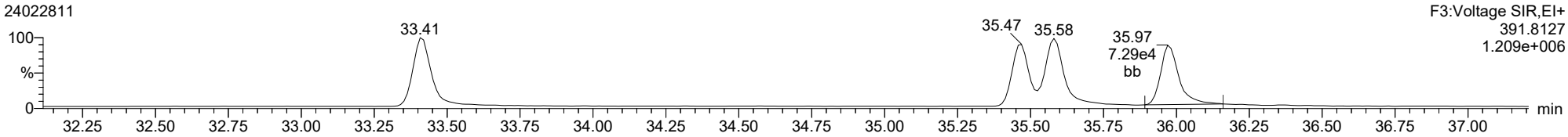
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ID: CS3Y2, Name: 24022811, Date: 28-Feb-2024, Time: 20:17:35, Conditions: AUTOSPEC01, User: pk

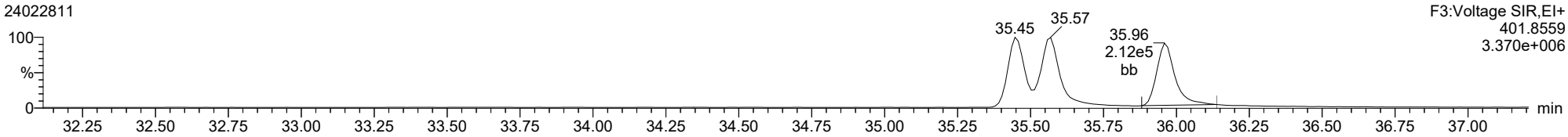
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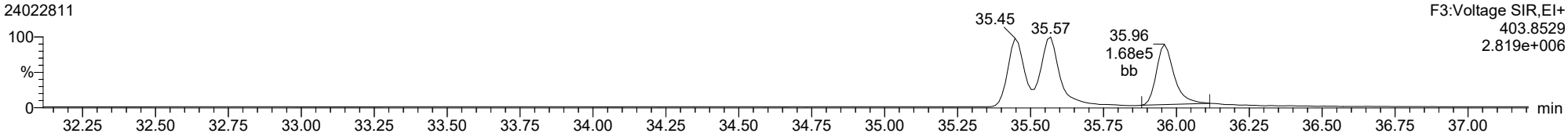
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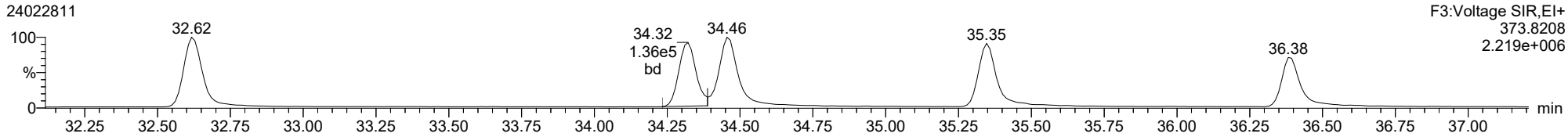


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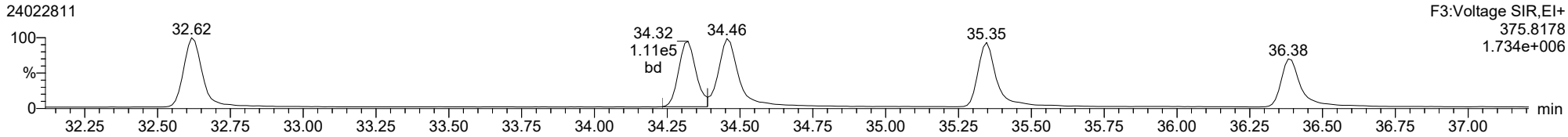


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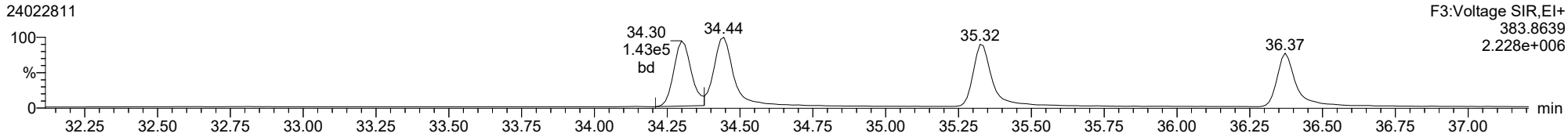
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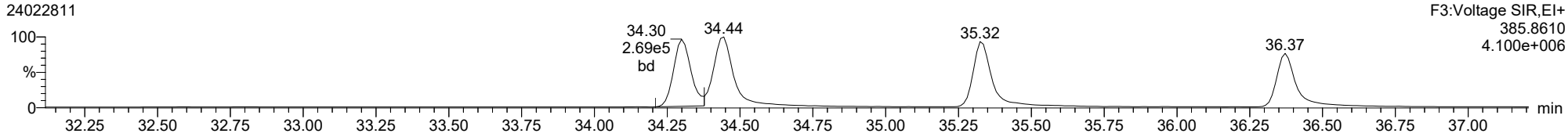
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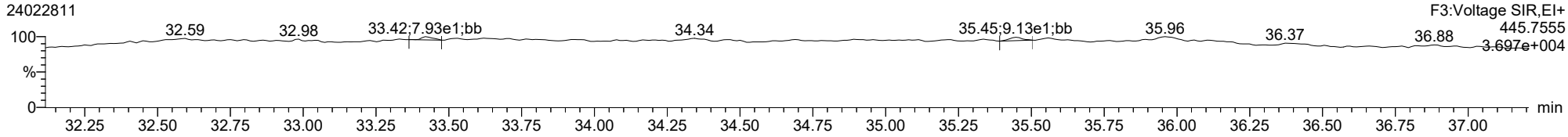
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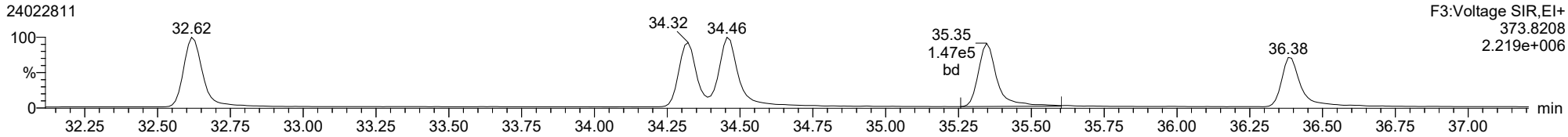


FUNCTION3 OCDPE

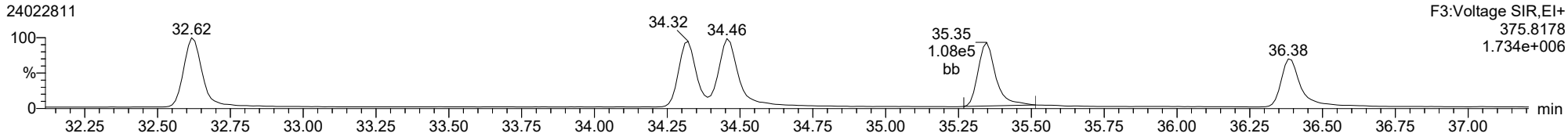


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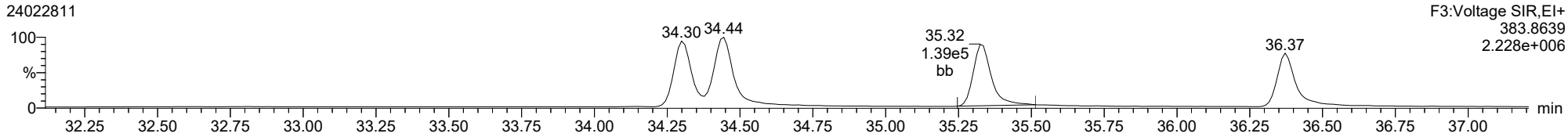
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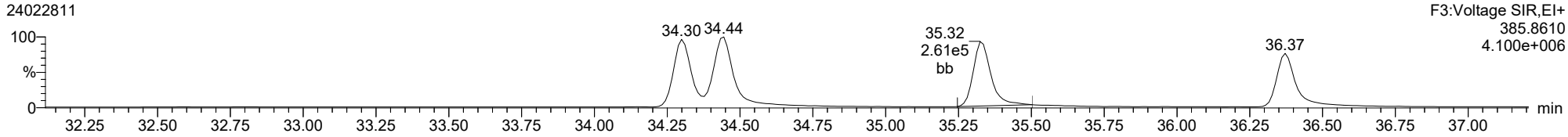
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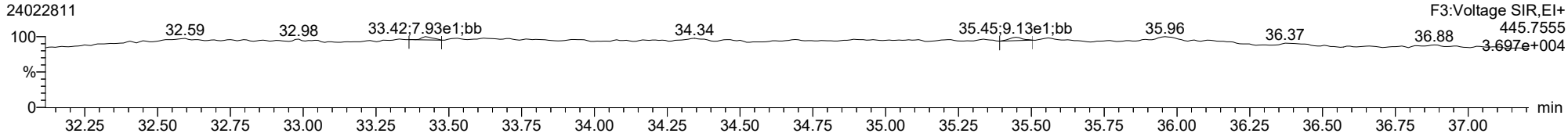
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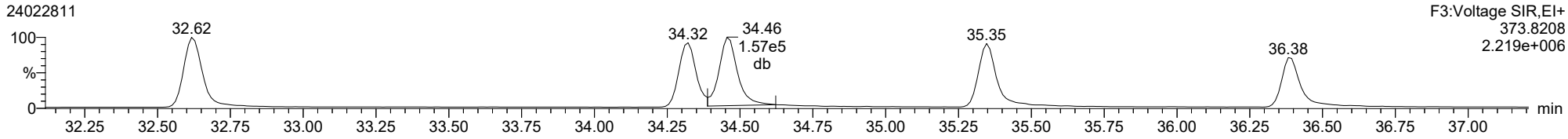


FUNCTION3 OCDPE

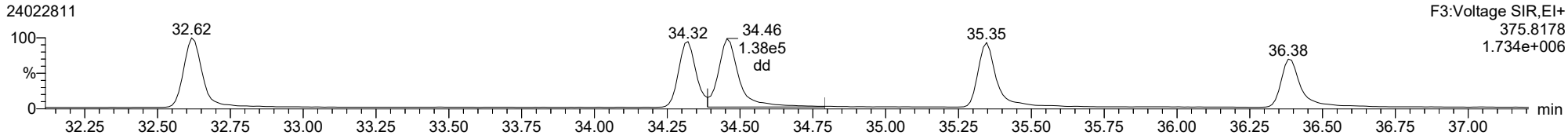


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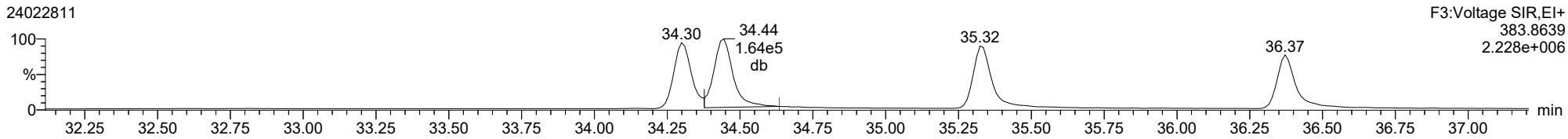
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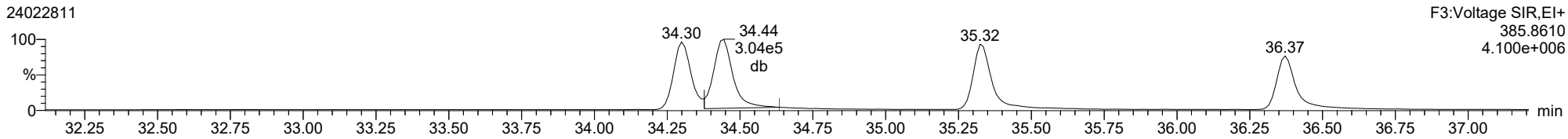
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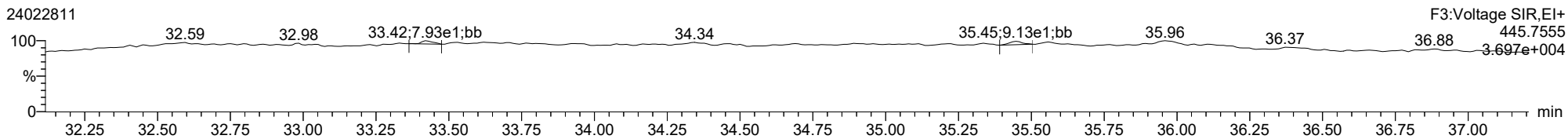
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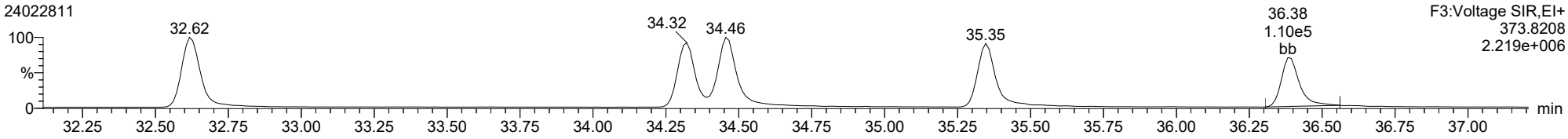


FUNCTION3 OCDPE

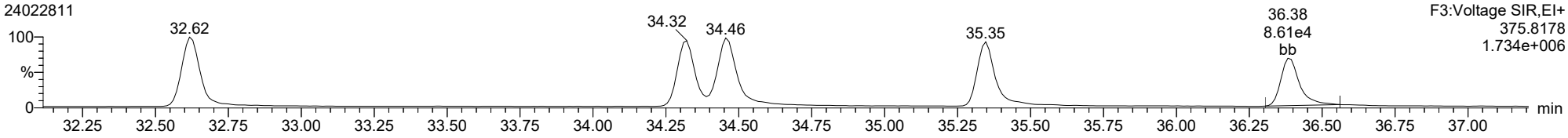


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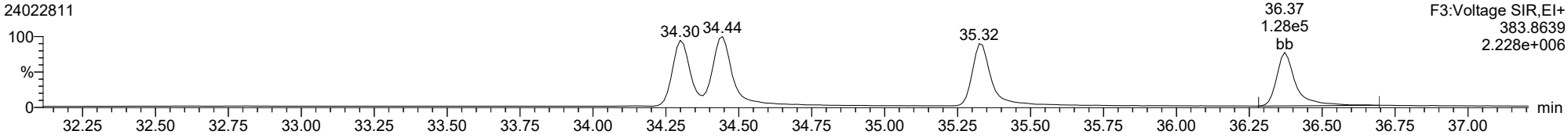
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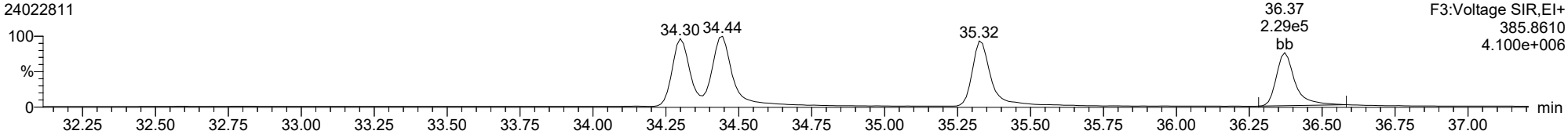
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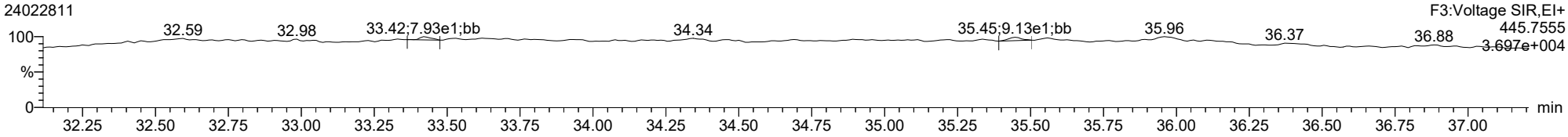
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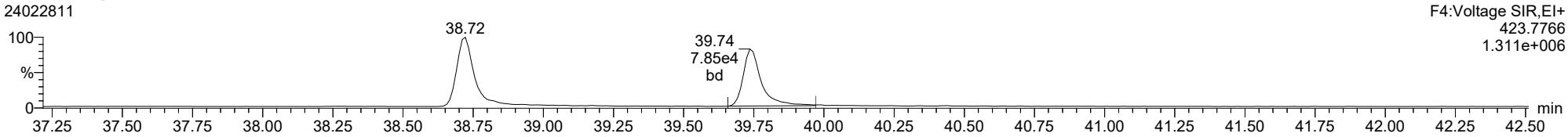


FUNCTION3 OCDPE

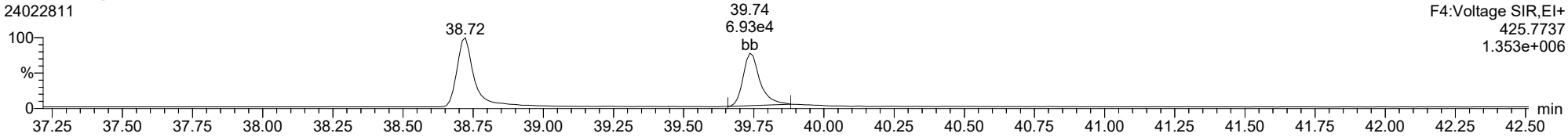


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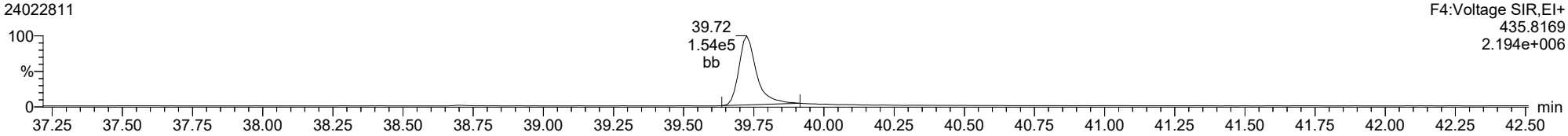
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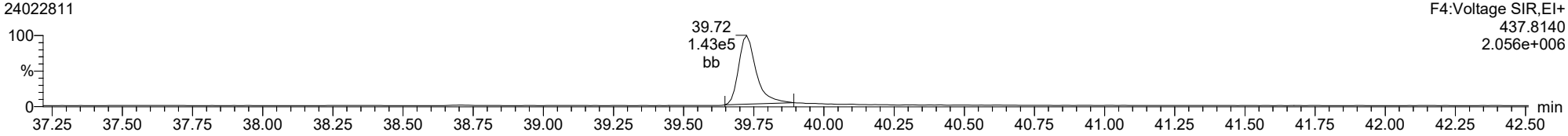
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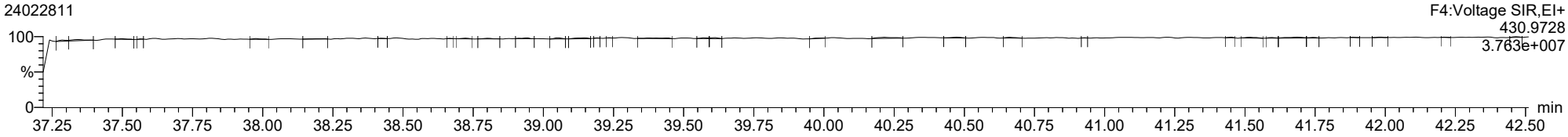
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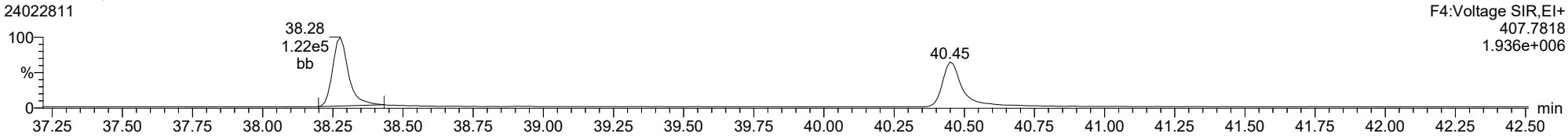


FUNCTION4 PFK

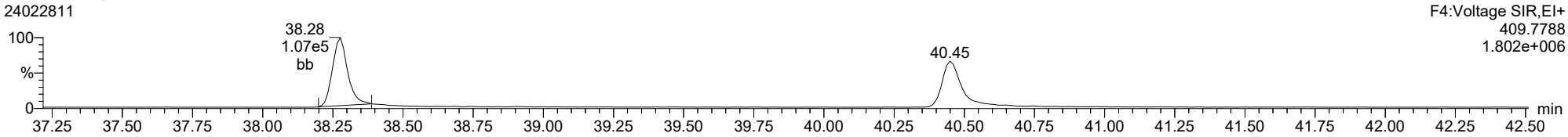


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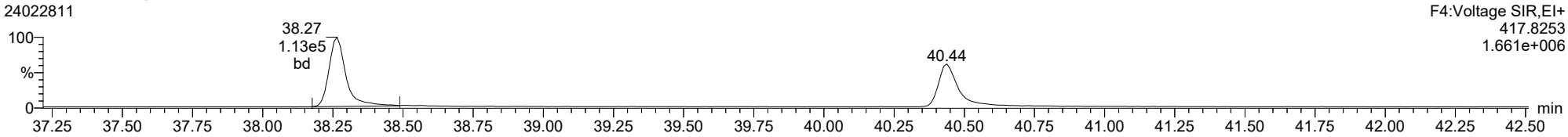
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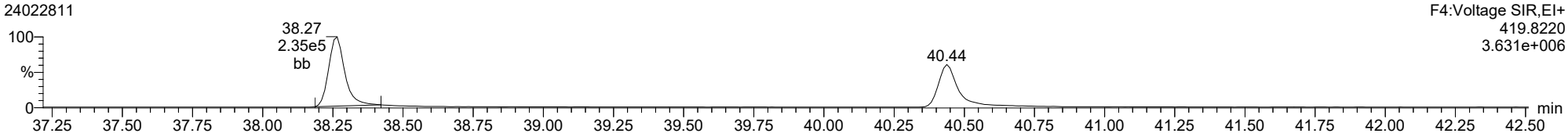
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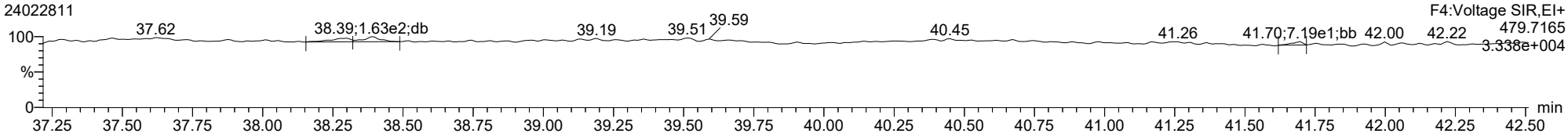
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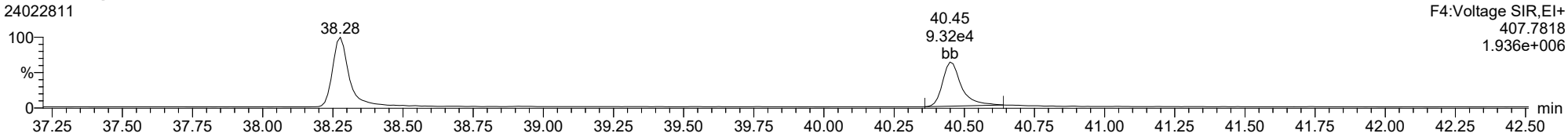


FUNCTION4 NCDPE

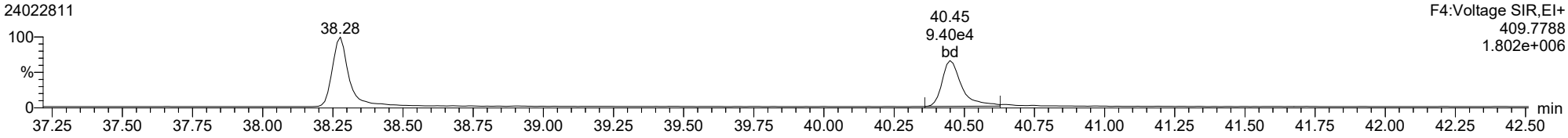


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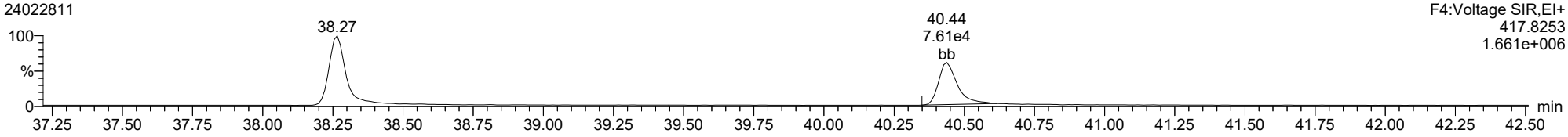
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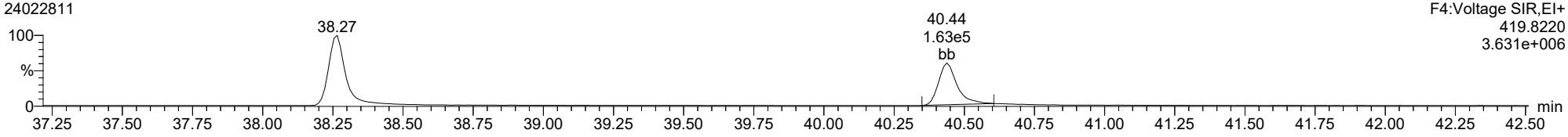
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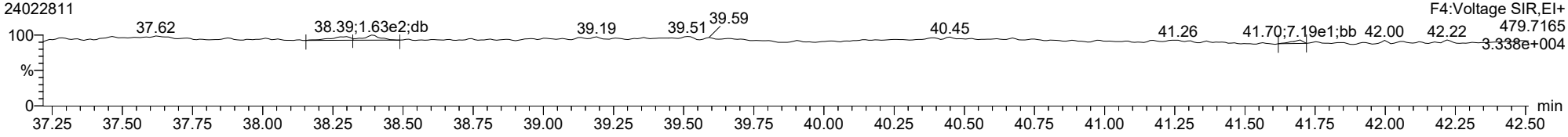
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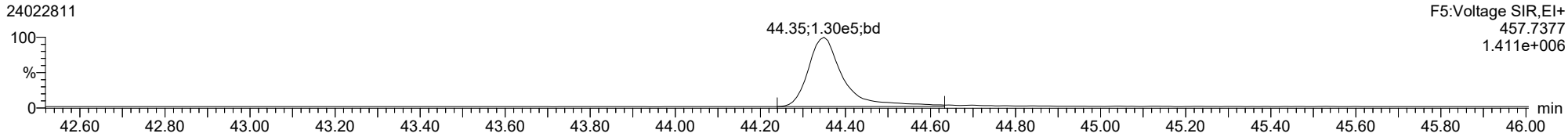


FUNCTION4 NCDPE

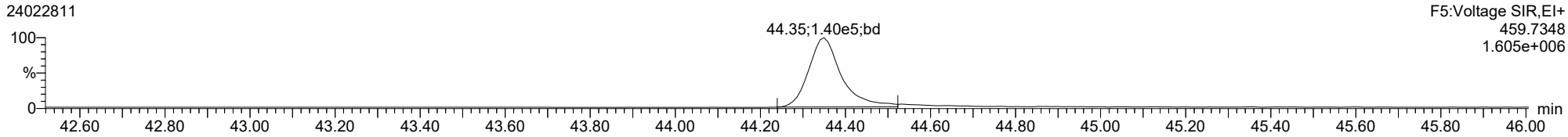


ID: CS3Y2, Name: 24022811, Date: 28-Feb-2024, Time: 20:17:35, Conditions: AUTOSPEC01, User: pk

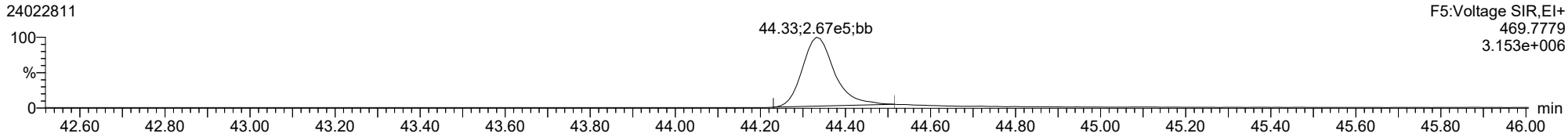
OCDD



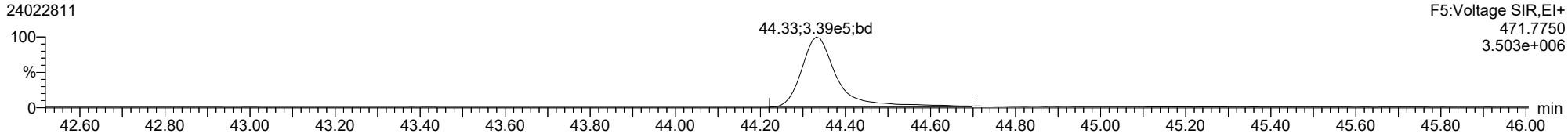
OCDD



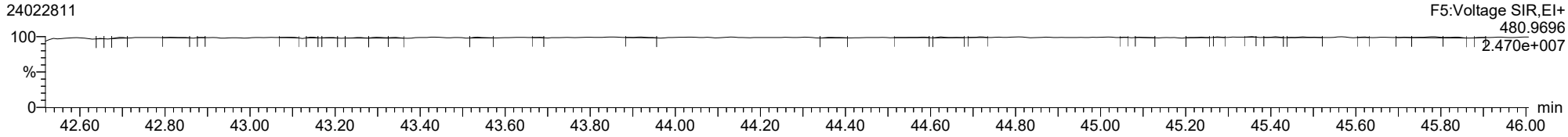
13C-OCDD



13C-OCDD

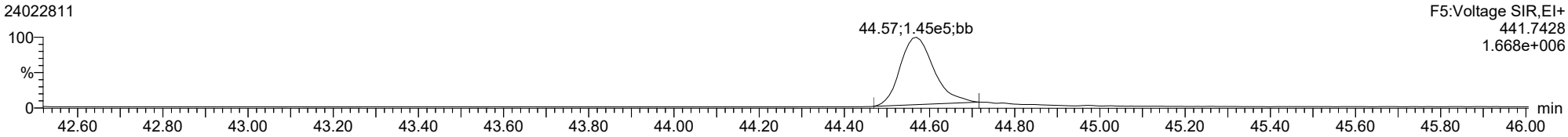


FUNCTION5 PFK

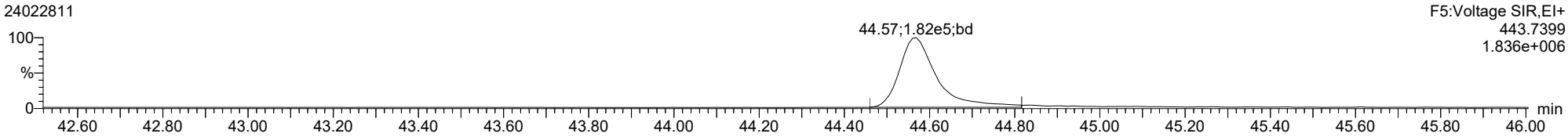


ID: CS3Y2, Name: 24022811, Date: 28-Feb-2024, Time: 20:17:35, Conditions: AUTOSPEC01, User: pk

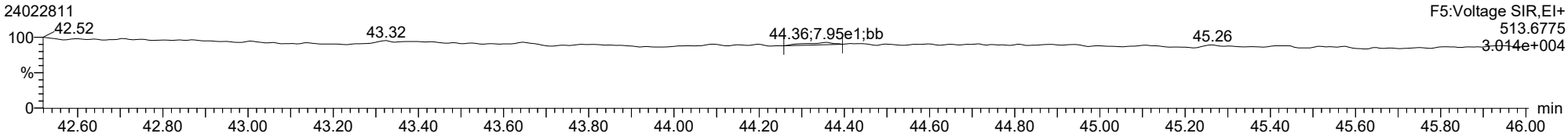
OCDF



OCDF

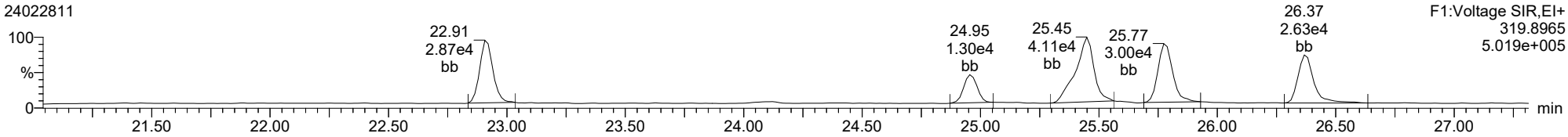


FUNCTION5 DCDPE

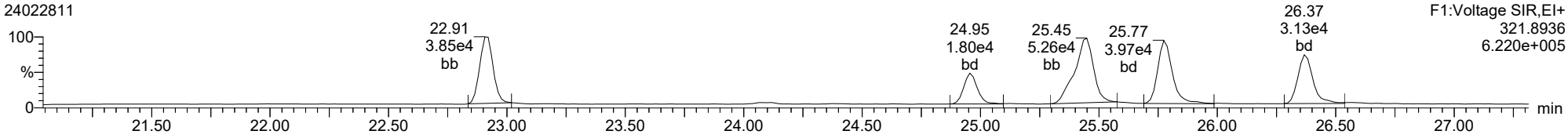


ID: CS3Y2, Name: 24022811, Date: 28-Feb-2024, Time: 20:17:35, Conditions: AUTOSPEC01, User: pk

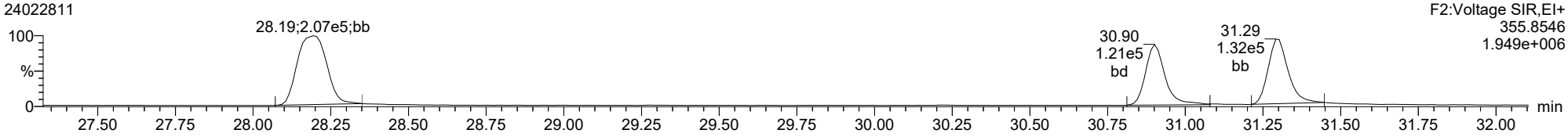
Total-tetradioxins



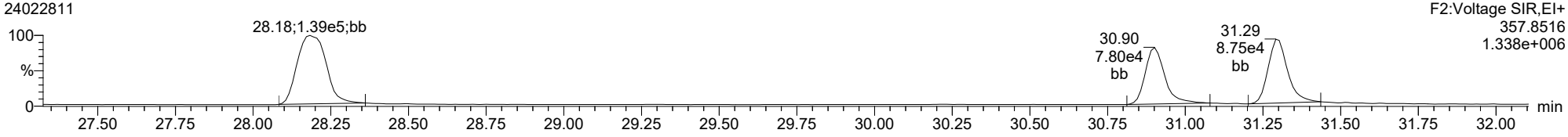
Total-tetradioxins



Total-pentadioxins



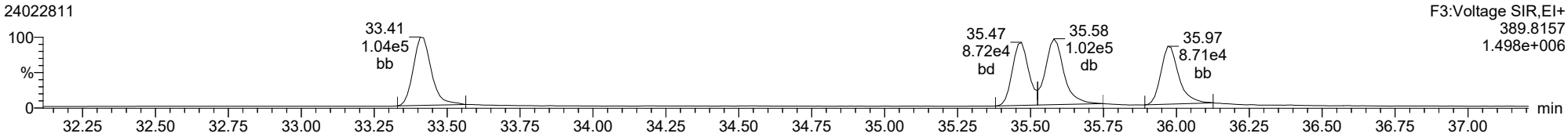
Total-pentadioxins



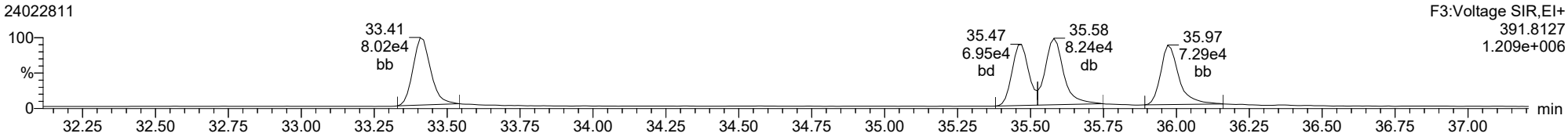
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Last Altered: Thursday, February 29, 2024 08:22:47 Pacific Standard Time
Printed: Thursday, February 29, 2024 08:23:51 Pacific Standard Time

ID: CS3Y2, Name: 24022811, Date: 28-Feb-2024, Time: 20:17:35, Conditions: AUTOSPEC01, User: pk

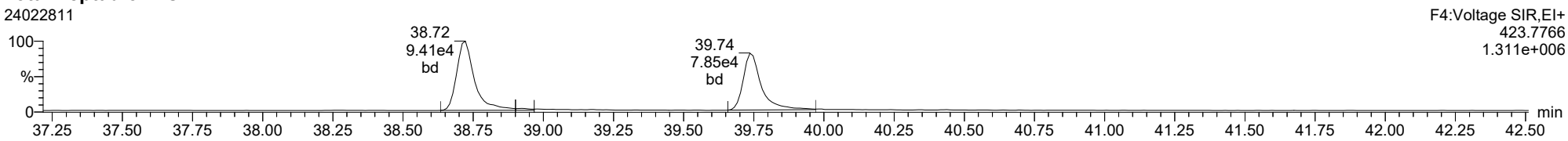
Total-hexadioxins



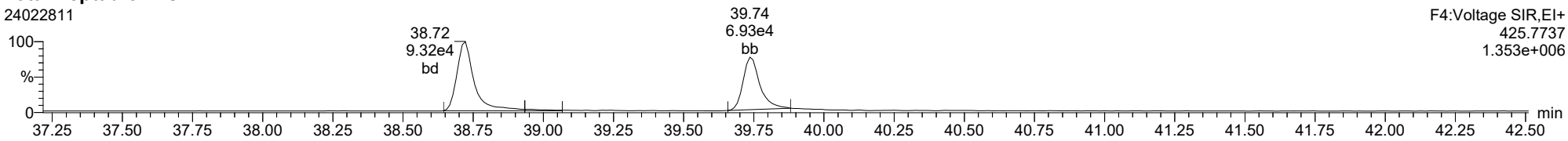
Total-hexadioxins



Total-heptadioxins

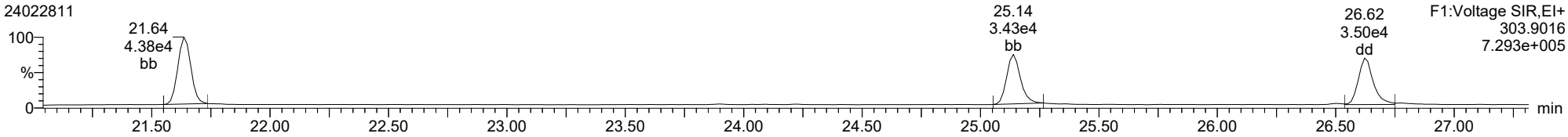


Total-heptadioxins

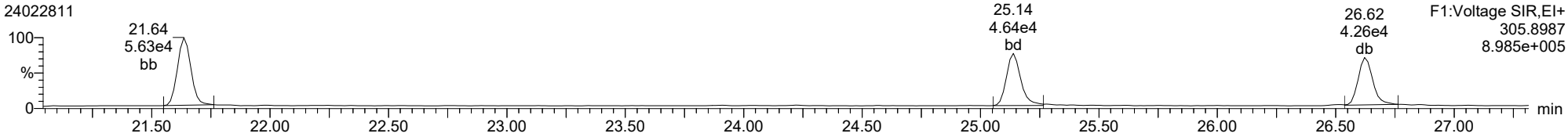


ID: CS3Y2, Name: 24022811, Date: 28-Feb-2024, Time: 20:17:35, Conditions: AUTOSPEC01, User: pk

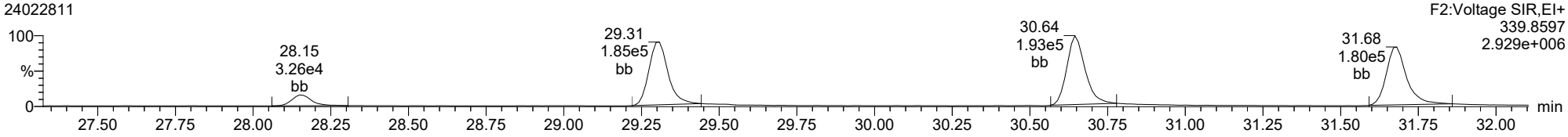
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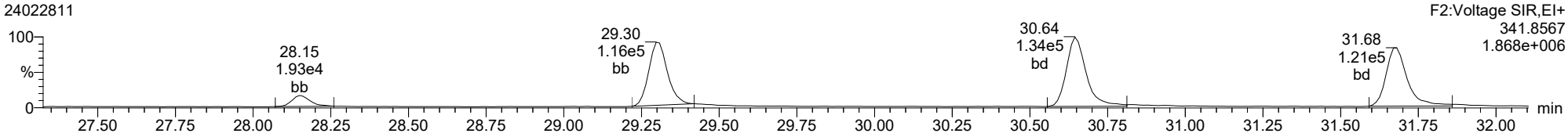
Total-tetrafurans



Total-pentafurans

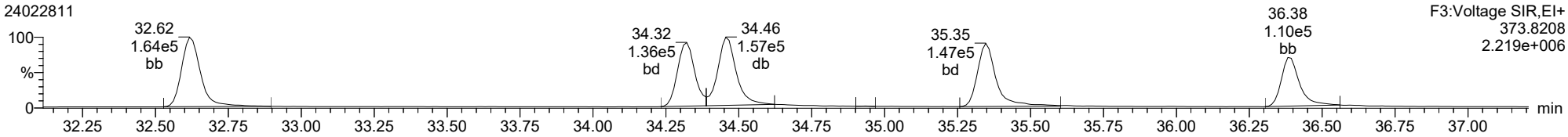


Total-pentafurans

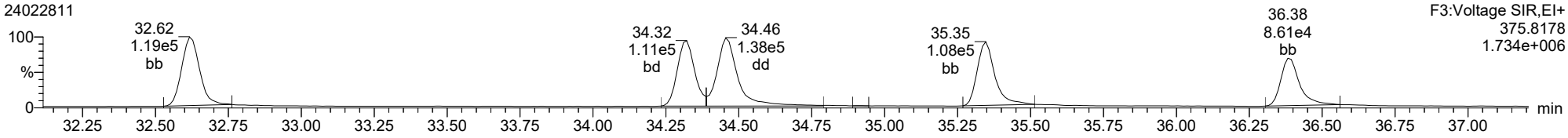


ID: CS3Y2, Name: 24022811, Date: 28-Feb-2024, Time: 20:17:35, Conditions: AUTOSPEC01, User: pk

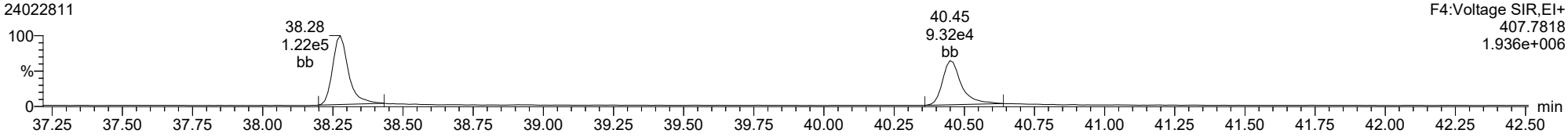
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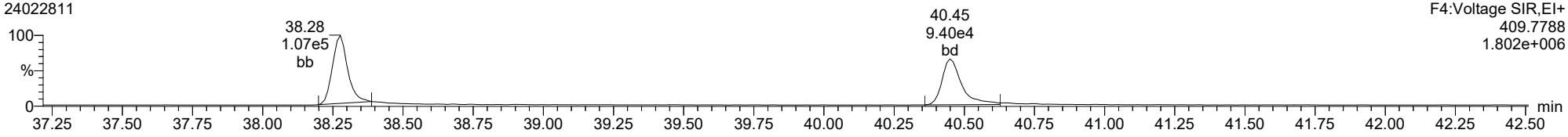
Total-hexafurans



Total-heptafurans

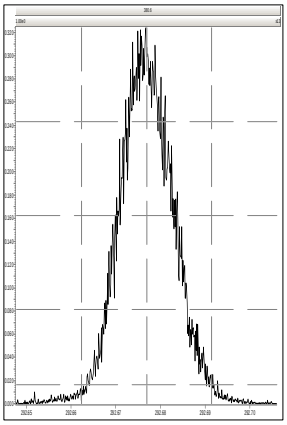


Total-heptafurans

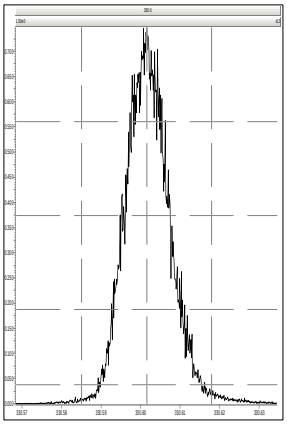


Printed: Wednesday, February 28, 2024 21:10:37 Pacific Standard Time

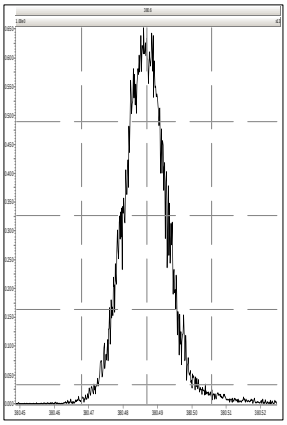
M 292.9824 R 11038



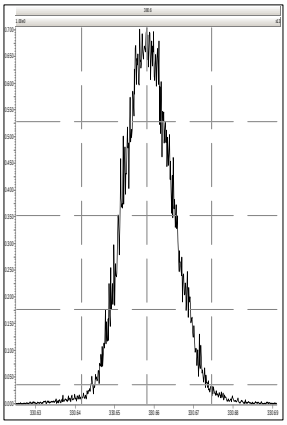
M 330.9792 R 12987



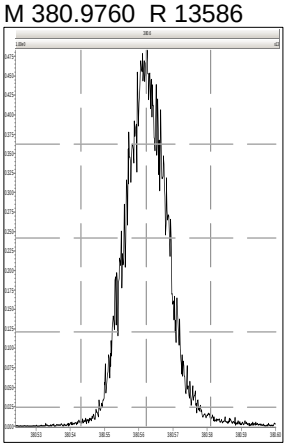
M 380.9760 R 13479



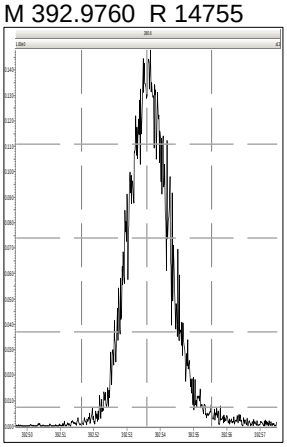
M 330.9792 R 11608



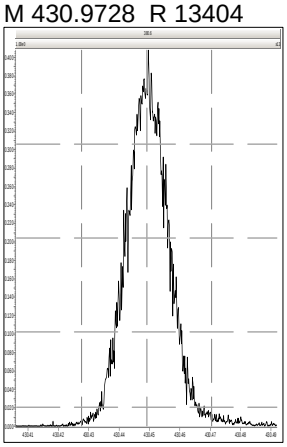
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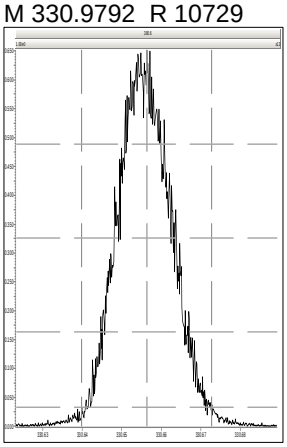
M 392.9760 R 14755



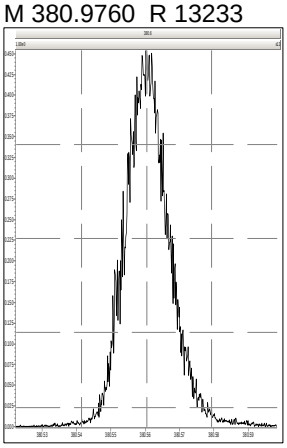
M 430.9728 R 13404



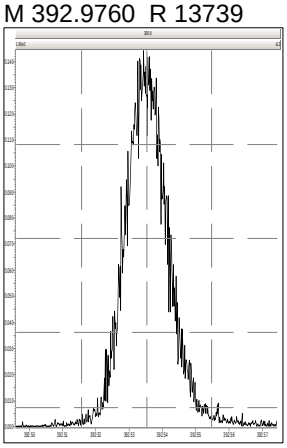
M 330.9792 R 10729



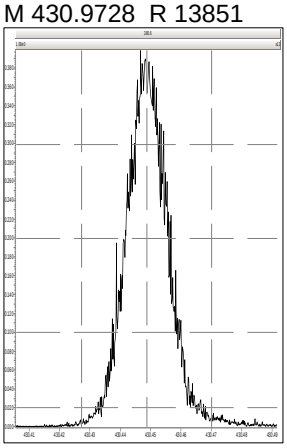
M 380.9760 R 13233



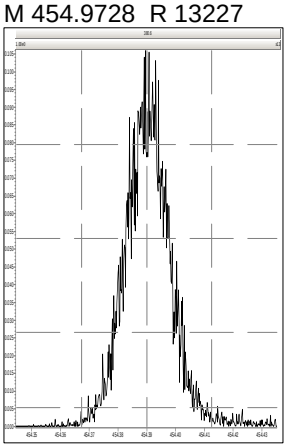
M 392.9760 R 13739



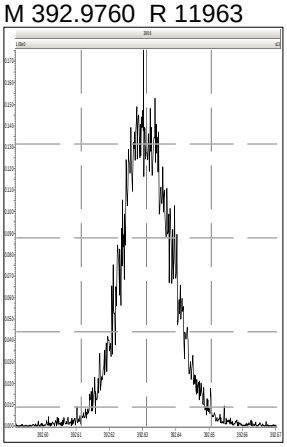
M 430.9728 R 13851



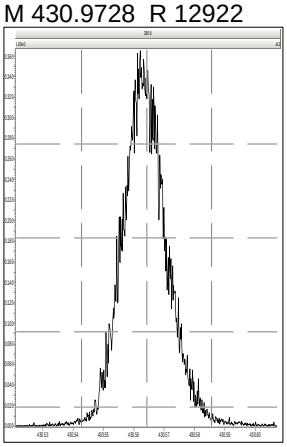
M 454.9728 R 13227



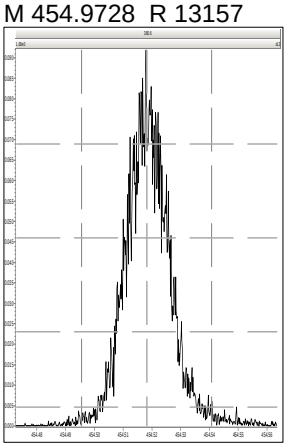
M 392.9760 R 11963



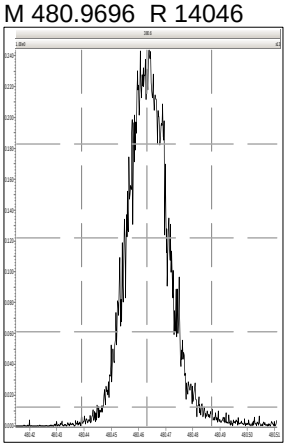
M 430.9728 R 12922



M 454.9728 R 13157

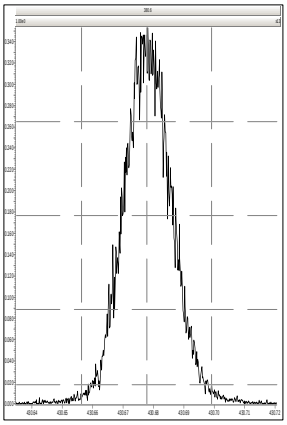


M 480.9696 R 14046

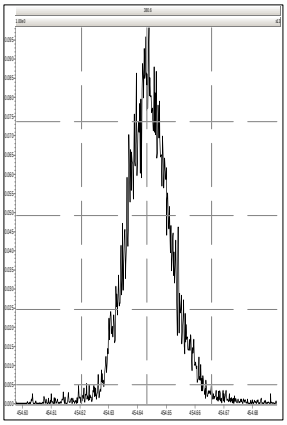


Printed: Wednesday, February 28, 2024 21:10:37 Pacific Standard Time

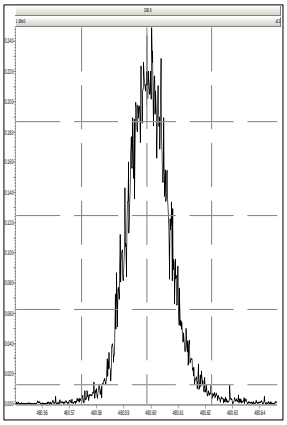
M 430.9728 R 12257



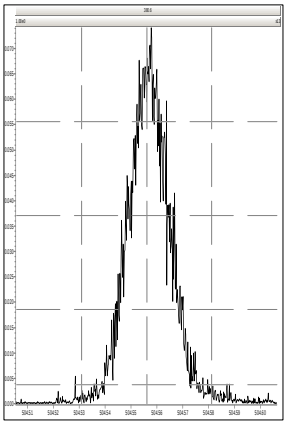
M 454.9728 R 12887



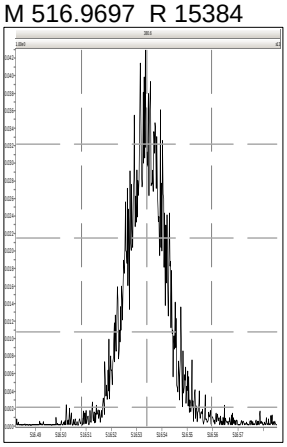
M 480.9696 R 13858

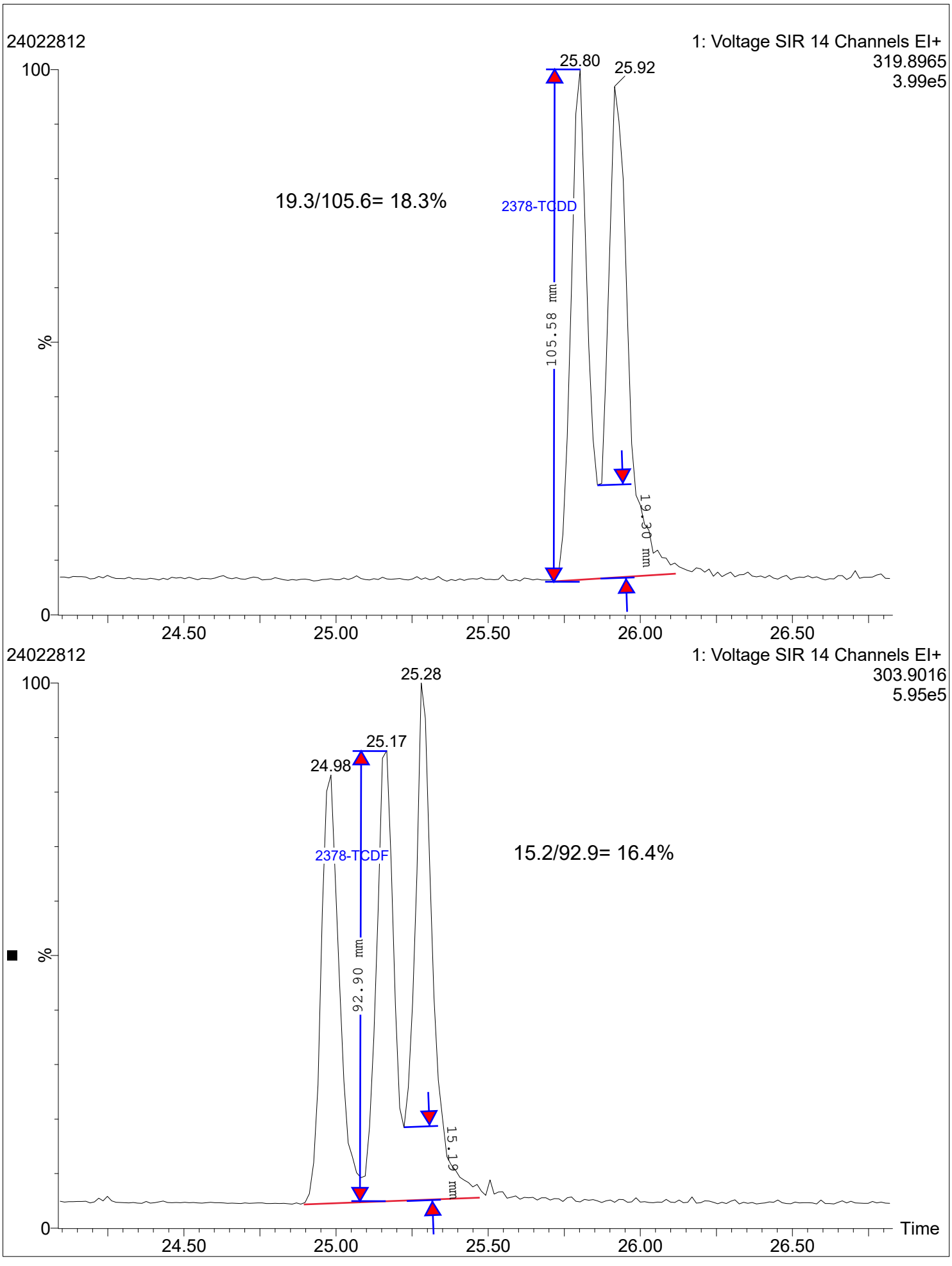


M 504.9696 R 14558



M 516.9697 R 15384




24022812
1: Voltage SIR 14 Channels EI+
319.8965
3.99e5
100
%
0
25.80
25.92
19.3/105.6= 18.3%
2378-TCDD
105.58 mm
19.30 mm
24.50
25.00
25.50
26.00
26.50
24022812
1: Voltage SIR 14 Channels EI+
303.9016
5.95e5
100
%
0
25.28
25.17
24.98
2378-TCDF
15.2/92.9= 16.4%
92.90 mm
15.19 mm
24.50
25.00
25.50
26.00
26.50
Time

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23I0156
Client: Floyd - Snider
Project: Smith-Kem
Calibration: GH00041
Laboratory ID: SLH0135-SCV1
Sequence: SLH0135
Sequence Name: ICVCF
Standard ID: H008219

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
2,3,7,8-TCDF	10.000	9.78	-2.2	
2,3,7,8-TCDD	10.000	9.85	-1.5	
1,2,3,7,8-PeCDF	50.000	49.3	-1.4	
2,3,4,7,8-PeCDF	50.000	50.5	1.0	
1,2,3,7,8-PeCDD	50.000	52.8	5.6	
1,2,3,4,7,8-HxCDF	50.000	50.0	0.09	
1,2,3,6,7,8-HxCDF	50.000	50.9	1.9	
2,3,4,6,7,8-HxCDF	50.000	52.9	5.9	
1,2,3,7,8,9-HxCDF	50.000	53.4	6.8	
1,2,3,4,7,8-HxCDD	50.000	47.8	-4.5	
1,2,3,6,7,8-HxCDD	50.000	50.8	1.5	
1,2,3,7,8,9-HxCDD	50.000	54.6	9.3	
1,2,3,4,6,7,8-HpCDF	50.000	51.9	3.9	
1,2,3,4,7,8,9-HpCDF	50.000	56.7	13.4	
1,2,3,4,6,7,8-HpCDD	50.000	48.3	-3.5	
OCDF	100.00	100	0.3	
OCDD	100.00	98.5	-1.5	
13C12-2,3,7,8-TCDF	100.00	101	1.2	
13C12-2,3,7,8-TCDD	100.00	100	0.05	
13C12-1,2,3,7,8-PeCDF	100.00	104	3.5	
13C12-2,3,4,7,8-PeCDF	100.00	99.8	-0.2	
13C12-1,2,3,7,8-PeCDD	100.00	100	0.2	
13C12-1,2,3,4,7,8-HxCDF	100.00	95.3	-4.7	
13C12-1,2,3,6,7,8-HxCDF	100.00	93.4	-6.6	
13C12-2,3,4,6,7,8-HxCDF	100.00	93.8	-6.2	
13C12-1,2,3,7,8,9-HxCDF	100.00	96.1	-3.9	
13C12-1,2,3,4,7,8-HxCDD	100.00	99.2	-0.8	
13C12-1,2,3,6,7,8-HxCDD	100.00	99.0	-1.0	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	97.6	-2.4	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	100	0.2	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	103	2.8	
13C12-OCDD	200.00	225	12.5	
37Cl4-2,3,7,8-TCDD	10.000	9.69	-3.1	

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1613B

Laboratory:	Analytical Resources, LLC	**SDG:**	23I0156
Client:	Floyd - Snider	**Project:**	Smith-Kem
Calibration:	GH00041	**Laboratory ID:**	SLH0135-SCV1
Sequence:	SLH0135	**Sequence Name:**	ICVCF
		Standard ID:	H008219

* Indicates values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23I0156
Client: Floyd - Snider
Project: Smith-Kem
Calibration: HB00095
Laboratory ID: SMB0412-SCV1
Sequence: SMB0412
Sequence Name: ICVCY
Standard ID: H012366

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
2,3,7,8-TCDF	10.000	10.3	3.3	
2,3,7,8-TCDD	10.000	9.54	-4.6	
1,2,3,7,8-PeCDF	50.000	49.5	-1.0	
2,3,4,7,8-PeCDF	50.000	51.4	2.9	
1,2,3,7,8-PeCDD	50.000	48.6	-2.7	
1,2,3,4,7,8-HxCDF	50.000	51.1	2.3	
1,2,3,6,7,8-HxCDF	50.000	54.5	9.1	
2,3,4,6,7,8-HxCDF	50.000	50.5	0.9	
1,2,3,7,8,9-HxCDF	50.000	53.1	6.3	
1,2,3,4,7,8-HxCDD	50.000	49.7	-0.6	
1,2,3,6,7,8-HxCDD	50.000	53.1	6.1	
1,2,3,7,8,9-HxCDD	50.000	49.8	-0.4	
1,2,3,4,6,7,8-HpCDF	50.000	49.1	-1.8	
1,2,3,4,7,8,9-HpCDF	50.000	51.2	2.4	
1,2,3,4,6,7,8-HpCDD	50.000	52.0	4.1	
OCDF	100.00	101	0.5	
OCDD	100.00	100	0.5	
13C12-2,3,7,8-TCDF	100.00	98.0	-2.0	
13C12-2,3,7,8-TCDD	100.00	98.5	-1.5	
13C12-1,2,3,7,8-PeCDF	100.00	96.0	-4.0	
13C12-2,3,4,7,8-PeCDF	100.00	95.8	-4.2	
13C12-1,2,3,7,8-PeCDD	100.00	95.0	-5.0	
13C12-1,2,3,4,7,8-HxCDF	100.00	97.5	-2.5	
13C12-1,2,3,6,7,8-HxCDF	100.00	96.2	-3.8	
13C12-2,3,4,6,7,8-HxCDF	100.00	95.9	-4.1	
13C12-1,2,3,7,8,9-HxCDF	100.00	94.9	-5.1	
13C12-1,2,3,4,7,8-HxCDD	100.00	98.0	-2.0	
13C12-1,2,3,6,7,8-HxCDD	100.00	99.8	-0.2	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	102	2.3	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	113	13.5	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	107	7.4	
13C12-OCDD	200.00	231	15.3	
37Cl4-2,3,7,8-TCDD	10.000	9.37	-6.3	

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1613B

Laboratory:	Analytical Resources, LLC	**SDG:**	23I0156
Client:	Floyd - Snider	**Project:**	Smith-Kem
Calibration:	HB00095	**Laboratory ID:**	SMB0412-SCV1
Sequence:	SMB0412	**Sequence Name:**	ICVCY
		Standard ID:	H012366

* Indicates values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23I0156
Client: Floyd - Snider
Project: Smith-Kem
Calibration: GH00041
Laboratory ID: SLH0135-SCV1
Sequence: SLH0135
Standard ID: H008219

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
OCDF	100.00	100	0.3	
OCDD	100.00	98.5	-1.5	
13C12-2,3,7,8-TCDF	100.00	101	1.2	
13C12-2,3,7,8-TCDD	100.00	100	0.05	
13C12-1,2,3,7,8-PeCDF	100.00	104	3.5	
13C12-2,3,4,7,8-PeCDF	100.00	99.8	-0.2	
13C12-1,2,3,7,8-PeCDD	100.00	100	0.2	
13C12-1,2,3,4,7,8-HxCDF	100.00	95.3	-4.7	
13C12-1,2,3,6,7,8-HxCDF	100.00	93.4	-6.6	
13C12-2,3,4,6,7,8-HxCDF	100.00	93.8	-6.2	
13C12-1,2,3,7,8,9-HxCDF	100.00	96.1	-3.9	
13C12-1,2,3,4,7,8-HxCDD	100.00	99.2	-0.8	
13C12-1,2,3,6,7,8-HxCDD	100.00	99.0	-1.0	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	97.6	-2.4	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	100	0.2	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	103	2.8	
13C12-OCDD	200.00	225	12.5	
37Cl4-2,3,7,8-TCDD	10.000	9.69	-3.1	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23I0156
Client: Floyd - Snider
Project: Smith-Kem
Calibration: HB00095
Laboratory ID: SMB0412-SCV1
Sequence: SMB0412
Standard ID: H012366

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
OCDF	100.00	101	0.5	
OCDD	100.00	100	0.5	
13C12-2,3,7,8-TCDF	100.00	98.0	-2.0	
13C12-2,3,7,8-TCDD	100.00	98.5	-1.5	
13C12-1,2,3,7,8-PeCDF	100.00	96.0	-4.0	
13C12-2,3,4,7,8-PeCDF	100.00	95.8	-4.2	
13C12-1,2,3,7,8-PeCDD	100.00	95.0	-5.0	
13C12-1,2,3,4,7,8-HxCDF	100.00	97.5	-2.5	
13C12-1,2,3,6,7,8-HxCDF	100.00	96.2	-3.8	
13C12-2,3,4,6,7,8-HxCDF	100.00	95.9	-4.1	
13C12-1,2,3,7,8,9-HxCDF	100.00	94.9	-5.1	
13C12-1,2,3,4,7,8-HxCDD	100.00	98.0	-2.0	
13C12-1,2,3,6,7,8-HxCDD	100.00	99.8	-0.2	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	102	2.3	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	113	13.5	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	107	7.4	
13C12-OCDD	200.00	231	15.3	
37Cl4-2,3,7,8-TCDD	10.000	9.37	-6.3	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	AUTOSPEC01	Calibration:	HB00095
Lab File ID:	24030439A	Calibration Date:	02/28/2024
Sequence:	SMC0054	Injection Date:	03/05/24
Lab Sample ID:	SMC0054-ICV1	Injection Time:	17:54
Sequence Name:	CS3Z4		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
2,3,7,8-TCDF	A	10.000	9.52	0.9801617	0.9329934		-4.8	+/-16
2,3,7,8-TCDD	A	10.000	8.94	1.2269140	1.0971200		-10.6	+/-22
1,2,3,7,8-PeCDF	A	50.000	46.8	1.0471660	0.9798160		-6.4	+/-18
2,3,4,7,8-PeCDF	A	50.000	55.2	1.1555820	1.2752640		10.4	+/-18
1,2,3,7,8-PeCDD	A	50.000	56.7	0.9644437	1.0933330		13.4	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	50.2	1.2236720	1.2280730		0.4	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	49.5	1.1931900	1.1808340		-1.0	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	52.5	1.2346350	1.2951460		4.9	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	50.9	1.0998150	1.1195410		1.8	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	51.5	0.8407818	0.8656278		3.0	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	49.0	0.8327394	0.8166970		-1.9	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	51.7	0.7703177	3577.6020000		3.4	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	47.0	1.3924350	1.3075470		-6.1	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	53.0	1.3805820	1.4634410		6.0	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	50.9	0.9843566	1.0025590		1.8	+/-14
OCDF	A	100.00	93.1	1.2222950	1.1382870		-6.9	+/-37
OCDD	A	100.00	96.8	0.9375272	0.9078810		-3.2	+/-21
13C12-2,3,7,8-TCDF	A	100.00	90.4	1.6550640	1.4967925		-9.6	+/-29
13C12-2,3,7,8-TCDD	A	100.00	103	1.1508440	1.1898059		3.4	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	118	1.1956730	1.4096037		17.9	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	105	1.1170800	1.1693044		4.7	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	89.7	0.8282280	0.7425194		-10.3	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	105	1.0281980	1.0786981		4.9	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	111	1.1757200	1.3020641		10.7	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	112	1.0160410	1.1384316		12.0	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	111	0.8791764	0.9737575		10.8	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	106	0.9496210	1.0041216		5.7	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	112	1.1068570	1.2426729		12.3	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	121	0.8699971	1.0487379		20.5	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	110	0.6376791	0.7010644		9.9	+/-23

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	AUTOSPEC01	Calibration:	HB00095
Lab File ID:	24030439A	Calibration Date:	02/28/2024
Sequence:	SMC0054	Injection Date:	03/05/24
Lab Sample ID:	SMC0054-ICV1	Injection Time:	17:54
Sequence Name:	CS3Z4		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	117	0.7370793	0.8601845		16.7	+/-18
13C12-OCDD	A	200.00	254	0.6325999	0.8039709		27.1	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	9.58	1.3123570	1.2577780		-4.2	+/-21

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\240304IH1.qld
Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
Printed: Wednesday, March 06, 2024 10:48:35 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240306.mdb 06 Mar 2024 10:17:07
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

ID: CS3Z4, Name: 24030439, Date: 05-Mar-2024, Time: 17:54:18, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.054	1.001	3.350e4	3.971e4	0.980	0.844	0.770	1234	2847	4.56e5	5.65e5	369.4	198.4	NO	bb	bb	9.519
12378-PeCDF	29.216	1.000	2.208e5	1.412e5	1.047	1.564	1.550	3357	3336	3.13e6	2.01e6	932.0	602.3	NO	bb	bb	46.784
23478-PeCDF	30.564	1.001	2.342e5	1.566e5	1.156	1.495	1.550	3357	3336	3.26e6	2.16e6	969.8	648.1	NO	bb	bd	55.178
123478-HxCDF	34.230	1.000	1.474e5	1.173e5	1.224	1.257	1.240	2576	2960	2.13e6	1.69e6	827.1	571.4	NO	bd	bd	50.180
234678-HxCDF	35.266	1.001	1.595e5	1.351e5	1.235	1.181	1.240	2576	2960	2.22e6	1.79e6	861.4	603.6	NO	bb	bd	52.451
123678-HxCDF	34.375	1.001	1.734e5	1.339e5	1.193	1.295	1.240	2576	2960	2.31e6	1.80e6	897.5	609.3	NO	db	db	49.482
123789-HxCDF	36.302	1.000	1.226e5	9.521e4	1.100	1.288	1.240	2576	2960	1.73e6	1.30e6	671.9	440.1	NO	bb	bb	50.897
1234678-HpCDF	38.196	1.000	1.339e5	1.401e5	1.392	0.956	1.050	2083	3879	2.07e6	2.02e6	994.8	520.6	NO	bb	bd	46.952
1234789-HpCDF	40.369	1.001	1.046e5	1.004e5	1.381	1.042	1.050	2083	3879	1.37e6	1.34e6	657.8	346.0	NO	bb	bb	53.001
OCDF	44.457	1.005	1.690e5	1.967e5	1.222	0.859	0.890	2335	2753	1.81e6	2.00e6	774.0	726.5	NO	bb	bd	93.127
2378-TCDD	25.690	1.001	3.057e4	3.785e4	1.227	0.808	0.770	1598	1310	4.16e5	5.17e5	260.5	394.5	NO	bd	bb	8.942
12378-PeCDD	30.820	1.001	1.320e5	8.077e4	0.964	1.634	1.550	1472	2772	1.72e6	1.16e6	1170.6	418.6	NO	bb	bb	56.682
123478-HxCDD	35.377	1.000	9.418e4	7.951e4	0.841	1.184	1.240	1839	1378	1.43e6	1.16e6	776.9	840.0	NO	bd	bd	51.478
123678-HxCDD	35.500	1.000	1.056e5	9.726e4	0.833	1.085	1.240	1839	1378	1.53e6	1.27e6	833.7	919.3	NO	db	dd	49.037
123789-HxCDD	35.890	1.011	9.363e4	8.525e4	0.770	1.098	1.240	1839	1378	1.31e6	1.09e6	713.6	788.1	NO	bb	dd	51.719
1234678-HpCDD	39.656	1.000	9.177e4	8.057e4	0.984	1.139	1.050	1917	1735	1.14e6	1.18e6	595.6	679.7	NO	bd	bb	50.925
OCDD	44.247	1.000	1.398e5	1.519e5	0.938	0.921	0.890	1832	1762	1.50e6	1.74e6	821.0	986.3	NO	bd	bb	96.838
13C-2378-TCDF	25.040	1.007	3.222e5	4.624e5	1.655	0.697	0.770	1572	1440	4.59e6	6.56e6	2922.2	4558.8	NO	bb	bb	90.437
13C-12378-PeCDF	29.205	1.175	4.629e5	2.760e5	1.196	1.677	1.550	3840	2698	5.97e6	3.67e6	1554.0	1359.7	NO	bb	bd	117.892
13C-23478-PeCDF	30.542	1.229	3.791e5	2.338e5	1.117	1.622	1.550	3840	2698	5.27e6	3.29e6	1372.0	1217.9	NO	bb	bb	104.675
13C-123478-HxCDF	34.219	0.954	1.500e5	2.811e5	1.028	0.534	0.510	2199	2572	2.16e6	4.14e6	981.7	1609.3	NO	bd	bd	104.912
13C-123678-HxCDF	34.353	0.957	1.799e5	3.405e5	1.176	0.529	0.510	2199	2572	2.33e6	4.38e6	1059.3	1703.8	NO	db	db	110.746
13C-234678-HxCDF	35.244	0.982	1.618e5	2.932e5	1.016	0.552	0.510	2199	2572	2.23e6	4.12e6	1015.5	1600.2	NO	bb	bb	112.046
13C-123789-HxCDF	36.291	1.011	1.294e5	2.598e5	0.879	0.498	0.510	2199	2572	1.79e6	3.41e6	813.2	1325.5	NO	bb	bb	110.758
13C-1234678-HpCDF	38.185	1.064	1.313e5	2.879e5	0.870	0.456	0.440	1624	3030	1.83e6	4.02e6	1125.0	1327.3	NO	bd	bb	120.545
13C-1234789-HpCDF	40.347	1.125	8.814e4	1.921e5	0.638	0.459	0.440	1624	3030	1.10e6	2.49e6	679.7	821.7	NO	bb	bb	109.940
13C-1234-TCDD	24.856	0.000	2.327e5	2.915e5	1.000	0.799	0.770	1603	1777	3.54e6	4.45e6	2208.2	2505.2	NO	bb	bb	100.000
13C-2378-TCDD	25.676	1.033	2.784e5	3.453e5	1.151	0.806	0.770	1603	1777	3.91e6	4.90e6	2442.1	2758.6	NO	bb	bb	103.386
13C-12378-PeCDD	30.798	1.239	2.479e5	1.413e5	0.828	1.754	1.550	1786	1682	3.24e6	1.86e6	1811.8	1104.5	NO	bd	bd	89.652
13C-123478-HxCDD	35.366	0.986	2.260e5	1.753e5	0.950	1.289	1.240	2031	2064	3.53e6	2.66e6	1738.4	1287.8	NO	bd	bd	105.739
13C-123678-HxCDD	35.489	0.989	2.799e5	2.168e5	1.107	1.291	1.240	2031	2064	3.54e6	2.76e6	1745.0	1336.0	NO	db	db	112.270
13C-1234678-HpCDD	39.645	1.105	1.703e5	1.735e5	0.737	0.981	1.050	2418	1454	2.37e6	2.23e6	981.8	1531.6	NO	bb	bd	116.702
13C-OCDD	44.229	1.233	3.016e5	3.411e5	0.633	0.884	0.890	2488	2661	3.47e6	3.97e6	1395.7	1493.2	NO	bb	bb	254.180
13C-123789-HxCDD	35.879	0.000	2.175e5	1.822e5	1.000	1.194	1.240	2031	2064	2.89e6	2.49e6	1421.1	1206.0	NO	bb	bb	100.000
37CL-2378-TCDD	25.690	1.034	6.593e4		1.312			1173		9.27e5		790.6			bb		9.584

Dataset: T:\Autospec\Processed Data Batch\240304IH1.qld
Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
Printed: Wednesday, March 06, 2024 10:48:35 Pacific Standard Time

ID: CS3Z4, Name: 24030439, Date: 05-Mar-2024, Time: 17:54:18, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.565	0.861	4.088e4	5.150e4	1.247	0.794	0.770	1234	2847	6.20e5	8.08e5	502.3	283.7	NO	bb	bb	9.441
1289-TCDF	26.537	1.060	3.083e4	4.256e4	0.916	0.724	0.770	1234	2847	4.22e5	5.58e5	341.8	196.0	NO	db	db	10.215
13468-PECDF	26.410	0.904	2.509e5	1.583e5	1.353	1.585	1.550	1156	1215	3.70e6	2.33e6	3197.2	1917.0	NO	bb	bb	40.919
12389-PECDF	31.589	1.082	2.263e5	1.384e5	0.925	1.635	1.550	3357	3336	2.89e6	1.81e6	860.3	541.2	NO	bd	bb	53.341
123468-HXCDF	32.536	0.951	1.623e5	1.297e5	1.335	1.251	1.240	2576	2960	2.31e6	1.82e6	898.7	613.3	NO	bb	bb	50.715
1368-TCDD	22.836	0.889	2.933e4	3.816e4	1.120	0.769	0.770	1598	1310	4.59e5	5.97e5	287.4	456.0	NO	bb	bb	9.660
1289-TCDD	26.283	1.024	2.453e4	3.087e4	0.966	0.794	0.770	1598	1310	3.28e5	4.28e5	205.4	326.8	NO	bd	bd	9.197
12479-PECDD	28.091	0.912	2.230e5	1.462e5	1.859	1.525	1.550	1472	2772	2.12e6	1.38e6	1438.5	498.5	NO	bb	bb	51.022
12389-PECDD	31.211	1.013	1.415e5	9.081e4	1.154	1.559	1.550	1472	2772	2.02e6	1.22e6	1368.7	440.0	NO	bb	bb	51.720
124679-HXCDD	33.327	0.942	1.059e5	8.378e4	1.006	1.264	1.240	1839	1378	1.54e6	1.22e6	838.1	886.9	NO	bb	bb	46.954
1234679-HPCDD	38.642	0.975	1.009e5	1.004e5	1.184	1.005	1.050	1917	1735	1.52e6	1.47e6	790.7	847.4	NO	bb	bb	49.468
Total-tetrafurans			1.060e5		1.048			1234		1.51e6							29.401
Total-penta1			2.509e5					1156		3.70e6							40.919
Total-pentafurans			7.190e5		1.043			3357		9.84e6							164.070
Total-hexafurans			7.652e5		1.217			2576		1.07e7							253.724
Total-heptafurans			2.386e5		1.387			2083		3.44e6							99.953
Total-Furans			2.249e6		1.180			1234		3.10e7							681.193
Total-tetradioxins			1.421e5		1.104			1598		1.86e6							46.862
Total-pentadioxins			4.970e5		1.326			1472		5.87e6							159.561
Total-hexadioxins			3.993e5		0.863			1839		5.82e6							199.187
Total-heptadioxins			1.927e5		1.084			1917		2.66e6							100.392
Total-Dioxins			1.371e6		1.065			1598		1.77e7							602.841
Total-TEQ			3.620e6					1598		4.87e7							1284.034
FUNCTION1 PFK			3.375e4					315830		1.20e6							
FUNCTION2 PFK			1.156e5					264510		4.26e6							0.000
FUNCTION3 PFK			2.280e5					209128		7.37e6							0.000
FUNCTION4 PFK			6.684e3					199569		2.84e5							
FUNCTION5 PFK			0.000e0					146062		0.00e0							
FUNCTION1 HXCD...			7.470e2					542		1.19e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			4.151e2					769		8.73e3							0.000
FUNCTION3 OCDPE			3.373e2					494		5.73e3							0.000
FUNCTION4 NCDPE			1.973e2					538		2.65e3							0.000
FUNCTION5 DCDPE			0.000e0					494		0.00e0							

Method: T:\Autospec\Methods\Dioxin240306.mdb 06 Mar 2024 10:17:07
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.54	3.083e4	4.256e4	0.916	0.72	0.77	341.8	YES	NO	db	db	10.215
2	Total-tetrafurans	26.44	6.386e2	8.796e2	1.048	0.73	0.77	10.4	YES	NO	bd	bd	0.185
3	Total-tetrafurans	25.70	1.412e2	1.992e2	1.048	0.71	0.77	2.7	NO	NO	bb	bb	0.041
4	2378-TCDF	25.05	3.350e4	3.971e4	0.980	0.84	0.77	369.4	YES	NO	bb	bb	9.519
5	1368-TCDF	21.57	4.088e4	5.150e4	1.247	0.79	0.77	502.3	YES	NO	bb	bb	9.441

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.41	2.509e5	1.583e5	1.353	1.59	1.55	3197.2	YES	NO	bb	bb	40.919

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.22	2.208e5	1.412e5	1.047	1.56	1.55	932.0	YES	NO	bb	bb	46.784
2	Total-pentafurans	28.07	3.775e4	2.403e4	1.043	1.57	1.55	167.9	YES	NO	bb	bb	8.766
3	12389-PECDF	31.59	2.263e5	1.384e5	0.925	1.63	1.55	860.3	YES	NO	bd	bb	53.341
4	23478-PeCDF	30.56	2.342e5	1.566e5	1.156	1.50	1.55	969.8	YES	NO	bb	bd	55.178

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.30	1.226e5	9.521e4	1.100	1.29	1.24	671.9	YES	NO	bb	bb	50.897
2	234678-HxCDF	35.27	1.595e5	1.351e5	1.235	1.18	1.24	861.4	YES	NO	bb	bd	52.451
3	123678-HxCDF	34.37	1.734e5	1.339e5	1.193	1.30	1.24	897.5	YES	NO	db	db	49.482
4	123478-HxCDF	34.23	1.474e5	1.173e5	1.224	1.26	1.24	827.1	YES	NO	bd	bd	50.180
5	123468-HXCDF	32.54	1.623e5	1.297e5	1.335	1.25	1.24	898.7	YES	NO	bb	bb	50.715

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.20	1.339e5	1.401e5	1.392	0.96	1.05	994.8	YES	NO	bb	bd	46.952
2	1234789-HpCDF	40.37	1.046e5	1.004e5	1.381	1.04	1.05	657.8	YES	NO	bb	bb	53.001

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.54	3.083e4	4.256e4	0.916	0.72	0.77	341.8	YES	NO	db	db	10.215
2	Total-tetrafurans	26.44	6.386e2	8.796e2	1.048	0.73	0.77	10.4	YES	NO	bd	bd	0.185
3	Total-tetrafurans	25.70	1.412e2	1.992e2	1.048	0.71	0.77	2.7	NO	NO	bb	bb	0.041
4	2378-TCDF	25.05	3.350e4	3.971e4	0.980	0.84	0.77	369.4	YES	NO	bb	bb	9.519
5	1368-TCDF	21.57	4.088e4	5.150e4	1.247	0.79	0.77	502.3	YES	NO	bb	bb	9.441
6	12378-PeCDF	29.22	2.208e5	1.412e5	1.047	1.56	1.55	932.0	YES	NO	bb	bb	46.784
7	Total-pentafurans	28.07	3.775e4	2.403e4	1.043	1.57	1.55	167.9	YES	NO	bb	bb	8.766
8	12389-PECDF	31.59	2.263e5	1.384e5	0.925	1.63	1.55	860.3	YES	NO	bd	bb	53.341
9	23478-PeCDF	30.56	2.342e5	1.566e5	1.156	1.50	1.55	969.8	YES	NO	bb	bd	55.178
10	123789-HxCDF	36.30	1.226e5	9.521e4	1.100	1.29	1.24	671.9	YES	NO	bb	bb	50.897
11	234678-HxCDF	35.27	1.595e5	1.351e5	1.235	1.18	1.24	861.4	YES	NO	bb	bd	52.451
12	123678-HxCDF	34.37	1.734e5	1.339e5	1.193	1.30	1.24	897.5	YES	NO	db	db	49.482
13	123478-HxCDF	34.23	1.474e5	1.173e5	1.224	1.26	1.24	827.1	YES	NO	bd	bd	50.180
14	123468-HXCDF	32.54	1.623e5	1.297e5	1.335	1.25	1.24	898.7	YES	NO	bb	bb	50.715
15	1234678-HpCDF	38.20	1.339e5	1.401e5	1.392	0.96	1.05	994.8	YES	NO	bb	bd	46.952
16	1234789-HpCDF	40.37	1.046e5	1.004e5	1.381	1.04	1.05	657.8	YES	NO	bb	bb	53.001
17	OCDF	44.46	1.690e5	1.967e5	1.222	0.86	0.89	774.0	YES	NO	bb	bd	93.127
18	13468-PECDF	26.41	2.509e5	1.583e5	1.353	1.59	1.55	3197.2	YES	NO	bb	bb	40.919

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.28	2.453e4	3.087e4	0.966	0.79	0.77	205.4	YES	NO	bd	bd	9.197
2	2378-TCDD	25.69	3.057e4	3.785e4	1.227	0.81	0.77	260.5	YES	NO	bd	bb	8.942
3	Total-tetradioxins	25.36	4.344e4	5.606e4	1.104	0.77	0.77	273.2	YES	NO	bd	bb	14.447
4	Total-tetradioxins	24.87	1.419e4	1.760e4	1.104	0.81	0.77	136.8	YES	NO	bd	bb	4.616
5	1368-TCDD	22.84	2.933e4	3.816e4	1.120	0.77	0.77	287.4	YES	NO	bb	bb	9.660

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.82	1.320e5	8.077e4	0.964	1.63	1.55	1170.6	YES	NO	bb	bb	56.682
2	12479-PECDD	28.09	2.230e5	1.462e5	1.859	1.52	1.55	1438.5	YES	NO	bb	bb	51.022
3	Total-pentadioxins	31.44	4.395e2	2.669e2	1.326	1.65	1.55	6.3	YES	NO	bb	bb	0.137
4	12389-PECDD	31.21	1.415e5	9.081e4	1.154	1.56	1.55	1368.7	YES	NO	bb	bb	51.720

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.89	9.363e4	8.525e4	0.770	1.10	1.24	713.6	YES	NO	bb	dd	51.719
2	123678-HxCDD	35.50	1.056e5	9.726e4	0.833	1.09	1.24	833.7	YES	NO	db	dd	49.037
3	123478-HxCDD	35.38	9.418e4	7.951e4	0.841	1.18	1.24	776.9	YES	NO	bd	bd	51.478
4	124679-HXCDD	33.33	1.059e5	8.378e4	1.006	1.26	1.24	838.1	YES	NO	bb	bb	46.954

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.66	9.177e4	8.057e4	0.984	1.14	1.05	595.6	YES	NO	bd	bb	50.925
2	1234679-HPCDD	38.64	1.009e5	1.004e5	1.184	1.01	1.05	790.7	YES	NO	bb	bb	49.468

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.28	2.453e4	3.087e4	0.966	0.79	0.77	205.4	YES	NO	bd	bd	9.197
2	2378-TCDD	25.69	3.057e4	3.785e4	1.227	0.81	0.77	260.5	YES	NO	bd	bb	8.942
3	Total-tetradioxins	25.36	4.344e4	5.606e4	1.104	0.77	0.77	273.2	YES	NO	bd	bb	14.447
4	Total-tetradioxins	24.87	1.419e4	1.760e4	1.104	0.81	0.77	136.8	YES	NO	bd	bb	4.616
5	1368-TCDD	22.84	2.933e4	3.816e4	1.120	0.77	0.77	287.4	YES	NO	bb	bb	9.660
6	12378-PeCDD	30.82	1.320e5	8.077e4	0.964	1.63	1.55	1170.6	YES	NO	bb	bb	56.682
7	12479-PECDD	28.09	2.230e5	1.462e5	1.859	1.52	1.55	1438.5	YES	NO	bb	bb	51.022
8	Total-pentadioxins	31.44	4.395e2	2.669e2	1.326	1.65	1.55	6.3	YES	NO	bb	bb	0.137
9	12389-PECDD	31.21	1.415e5	9.081e4	1.154	1.56	1.55	1368.7	YES	NO	bb	bb	51.720
10	123789-HxCDD	35.89	9.363e4	8.525e4	0.770	1.10	1.24	713.6	YES	NO	bb	dd	51.719
11	123678-HxCDD	35.50	1.056e5	9.726e4	0.833	1.09	1.24	833.7	YES	NO	db	dd	49.037
12	123478-HxCDD	35.38	9.418e4	7.951e4	0.841	1.18	1.24	776.9	YES	NO	bd	bd	51.478
13	124679-HXCDD	33.33	1.059e5	8.378e4	1.006	1.26	1.24	838.1	YES	NO	bb	bb	46.954
14	1234678-HpCDD	39.66	9.177e4	8.057e4	0.984	1.14	1.05	595.6	YES	NO	bd	bb	50.925
15	1234679-HPCDD	38.64	1.009e5	1.004e5	1.184	1.01	1.05	790.7	YES	NO	bb	bb	49.468
16	OCDD	44.25	1.398e5	1.519e5	0.938	0.92	0.89	821.0	YES	NO	bd	bb	96.838

Dataset: T:\Autospec\Processed Data Batch\240304IH1.qld
Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.54	3.083e4	4.256e4	0.916	0.72	0.77	341.8	YES	NO	db	db	10.215
2	Total-tetrafurans	26.44	6.386e2	8.796e2	1.048	0.73	0.77	10.4	YES	NO	bd	bd	0.185
3	Total-tetrafurans	25.70	1.412e2	1.992e2	1.048	0.71	0.77	2.7	NO	NO	bb	bb	0.041
4	2378-TCDF	25.05	3.350e4	3.971e4	0.980	0.84	0.77	369.4	YES	NO	bb	bb	9.519
5	1368-TCDF	21.57	4.088e4	5.150e4	1.247	0.79	0.77	502.3	YES	NO	bb	bb	9.441
6	12378-PeCDF	29.22	2.208e5	1.412e5	1.047	1.56	1.55	932.0	YES	NO	bb	bb	46.784
7	Total-pentafurans	28.07	3.775e4	2.403e4	1.043	1.57	1.55	167.9	YES	NO	bb	bb	8.766
8	12389-PECDF	31.59	2.263e5	1.384e5	0.925	1.63	1.55	860.3	YES	NO	bd	bb	53.341
9	23478-PeCDF	30.56	2.342e5	1.566e5	1.156	1.50	1.55	969.8	YES	NO	bb	bd	55.178
10	123789-HxCDF	36.30	1.226e5	9.521e4	1.100	1.29	1.24	671.9	YES	NO	bb	bb	50.897
11	234678-HxCDF	35.27	1.595e5	1.351e5	1.235	1.18	1.24	861.4	YES	NO	bb	bd	52.451
12	123678-HxCDF	34.37	1.734e5	1.339e5	1.193	1.30	1.24	897.5	YES	NO	db	db	49.482
13	123478-HxCDF	34.23	1.474e5	1.173e5	1.224	1.26	1.24	827.1	YES	NO	bd	bd	50.180
14	123468-HXCDF	32.54	1.623e5	1.297e5	1.335	1.25	1.24	898.7	YES	NO	bb	bb	50.715
15	1234678-HpCDF	38.20	1.339e5	1.401e5	1.392	0.96	1.05	994.8	YES	NO	bb	bd	46.952
16	1234789-HpCDF	40.37	1.046e5	1.004e5	1.381	1.04	1.05	657.8	YES	NO	bb	bb	53.001
17	OCDF	44.46	1.690e5	1.967e5	1.222	0.86	0.89	774.0	YES	NO	bb	bd	93.127
18	13468-PECDF	26.41	2.509e5	1.583e5	1.353	1.59	1.55	3197.2	YES	NO	bb	bb	40.919
19	1289-TCDD	26.28	2.453e4	3.087e4	0.966	0.79	0.77	205.4	YES	NO	bd	bd	9.197
20	2378-TCDD	25.69	3.057e4	3.785e4	1.227	0.81	0.77	260.5	YES	NO	bd	bb	8.942
21	Total-tetradioxins	25.36	4.344e4	5.606e4	1.104	0.77	0.77	273.2	YES	NO	bd	bb	14.447
22	Total-tetradioxins	24.87	1.419e4	1.760e4	1.104	0.81	0.77	136.8	YES	NO	bd	bb	4.616
23	1368-TCDD	22.84	2.933e4	3.816e4	1.120	0.77	0.77	287.4	YES	NO	bb	bb	9.660
24	12378-PeCDD	30.82	1.320e5	8.077e4	0.964	1.63	1.55	1170.6	YES	NO	bb	bb	56.682
25	12479-PECDD	28.09	2.230e5	1.462e5	1.859	1.52	1.55	1438.5	YES	NO	bb	bb	51.022
26	Total-pentadioxins	31.44	4.395e2	2.669e2	1.326	1.65	1.55	6.3	YES	NO	bb	bb	0.137
27	12389-PECDD	31.21	1.415e5	9.081e4	1.154	1.56	1.55	1368.7	YES	NO	bb	bb	51.720
28	123789-HxCDD	35.89	9.363e4	8.525e4	0.770	1.10	1.24	713.6	YES	NO	bb	dd	51.719
29	123678-HxCDD	35.50	1.056e5	9.726e4	0.833	1.09	1.24	833.7	YES	NO	db	dd	49.037
30	123478-HxCDD	35.38	9.418e4	7.951e4	0.841	1.18	1.24	776.9	YES	NO	bd	bd	51.478
31	124679-HXCDD	33.33	1.059e5	8.378e4	1.006	1.26	1.24	838.1	YES	NO	bb	bb	46.954
32	1234678-HpCDD	39.66	9.177e4	8.057e4	0.984	1.14	1.05	595.6	YES	NO	bd	bb	50.925
33	1234679-HPCDD	38.64	1.009e5	1.004e5	1.184	1.01	1.05	790.7	YES	NO	bb	bb	49.468
34	OCDD	44.25	1.398e5	1.519e5	0.938	0.92	0.89	821.0	YES	NO	bd	bb	96.838

Dataset: T:\Autospec\Processed Data Batch\240304IH1.qld
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ID: CS3Z4, Name: 24030439, Date: 05-Mar-2024, Time: 17:54:18, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	24.09	1.960e4					1.7	NO		bb		
2	FUNCTION1 PFK	21.27	1.038e4					1.2	NO		bb		
3	FUNCTION1 PFK	21.21	3.771e3					0.8	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	31.78	1.816e3					0.6	NO		bb		0.000
2	FUNCTION2 PFK	30.49	5.496e3					1.0	NO		bb		0.000
3	FUNCTION2 PFK	30.15	4.103e3					0.8	NO		bb		0.000
4	FUNCTION2 PFK	30.10	1.624e3					0.5	NO		bb		0.000
5	FUNCTION2 PFK	29.62	1.537e3					0.5	NO		bb		0.000
6	FUNCTION2 PFK	29.36	3.231e3					0.7	NO		bb		0.000
7	FUNCTION2 PFK	28.61	1.709e4					1.5	NO		db		0.000
8	FUNCTION2 PFK	28.55	1.833e4					1.8	NO		bd		0.000
9	FUNCTION2 PFK	28.50	7.930e3					1.1	NO		bb		0.000
10	FUNCTION2 PFK	28.28	1.424e4					1.4	NO		bb		0.000
11	FUNCTION2 PFK	28.11	1.074e4					1.6	NO		bb		0.000
12	FUNCTION2 PFK	28.05	5.155e3					0.9	NO		bb		0.000
13	FUNCTION2 PFK	28.01	1.840e3					0.6	NO		bb		0.000
14	FUNCTION2 PFK	27.67	1.742e3					0.6	NO		bb		0.000
15	FUNCTION2 PFK	27.53	1.901e4					1.7	NO		bb		0.000
16	FUNCTION2 PFK	31.82	1.746e3					0.6	NO		bb		0.000

ID: CS3Z4, Name: 24030439, Date: 05-Mar-2024, Time: 17:54:18, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	33.84	6.022e3					1.2	NO		bb		0.000
2	FUNCTION3 PFK	33.59	1.145e4					1.6	NO		db		0.000
3	FUNCTION3 PFK	33.56	6.781e3					1.5	NO		bd		0.000
4	FUNCTION3 PFK	33.45	1.103e3					0.5	NO		bb		0.000
5	FUNCTION3 PFK	33.22	4.632e3					1.0	NO		bb		0.000
6	FUNCTION3 PFK	33.04	1.013e4					1.3	NO		db		0.000
7	FUNCTION3 PFK	32.97	1.684e4					2.1	NO		dd		0.000
8	FUNCTION3 PFK	32.90	2.184e4					1.8	NO		dd		0.000
9	FUNCTION3 PFK	32.80	8.545e3					1.2	NO		bd		0.000
10	FUNCTION3 PFK	32.75	2.485e4					2.2	NO		bb		0.000
11	FUNCTION3 PFK	32.53	9.975e3					1.3	NO		bb		0.000
12	FUNCTION3 PFK	32.46	4.380e3					1.0	NO		bb		0.000
13	FUNCTION3 PFK	32.41	4.760e3					0.8	NO		bb		0.000
14	FUNCTION3 PFK	32.18	7.089e3					1.9	NO		bb		0.000
15	FUNCTION3 PFK	36.61	2.264e3					0.6	NO		bb		0.000
16	FUNCTION3 PFK	36.41	1.100e3					0.5	NO		bb		0.000
17	FUNCTION3 PFK	36.08	1.486e4					2.3	NO		bb		0.000
18	FUNCTION3 PFK	35.88	7.649e3					0.9	NO		bb		0.000
19	FUNCTION3 PFK	35.37	7.223e3					1.2	NO		bb		0.000
20	FUNCTION3 PFK	35.30	3.966e3					0.9	NO		bb		0.000
21	FUNCTION3 PFK	35.20	5.318e3					1.1	NO		bb		0.000
22	FUNCTION3 PFK	35.12	8.572e3					1.5	NO		db		0.000
23	FUNCTION3 PFK	35.08	1.002e4					1.3	NO		bd		0.000
24	FUNCTION3 PFK	34.81	3.593e3					1.0	NO		bb		0.000
25	FUNCTION3 PFK	34.22	7.984e3					1.2	NO		db		0.000
26	FUNCTION3 PFK	34.17	8.767e3					1.6	NO		bd		0.000
27	FUNCTION3 PFK	34.12	8.244e3					1.7	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	41.56	6.684e3					1.4	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ID: CS3Z4, Name: 24030439, Date: 05-Mar-2024, Time: 17:54:18, Conditions: AUTOSPEC01, User: pk

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.42	9.253e1					3.1	YES		bb		0.000
2	FUNCTION1 HXCD...	25.94	8.241e1					2.5	NO		bb		0.000
3	FUNCTION1 HXCD...	23.64	8.616e1					3.1	YES		db		0.000
4	FUNCTION1 HXCD...	23.60	7.562e1					3.1	YES		bd		0.000
5	FUNCTION1 HXCD...	23.49	9.360e1					2.1	NO		db		0.000
6	FUNCTION1 HXCD...	23.34	1.525e2					3.1	YES		dd		0.000
7	FUNCTION1 HXCD...	23.19	8.466e1					2.8	NO		bd		0.000
8	FUNCTION1 HXCD...	21.45	7.959e1					2.1	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.59	9.999e1					2.9	NO		bb		0.000
2	FUNCTION2 HPCD...	29.33	9.495e1					3.9	YES		bb		0.000
3	FUNCTION2 HPCD...	28.20	1.280e2					2.0	NO		bb		0.000
4	FUNCTION2 HPCD...	27.67	9.213e1					2.5	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	34.22	1.616e2					3.9	YES		bb		0.000
2	FUNCTION3 OCDPE	35.48	8.591e1					3.4	YES		bb		0.000
3	FUNCTION3 OCDPE	34.83	8.975e1					4.3	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	41.79	8.482e1					1.8	NO		bb		0.000
2	FUNCTION4 NCDPE	40.35	1.125e2					3.1	YES		bb		0.000

ID: CS3Z4, Name: 24030439, Date: 05-Mar-2024, Time: 17:54:18, Conditions: AUTOSPEC01, User: pk

ETHERS6

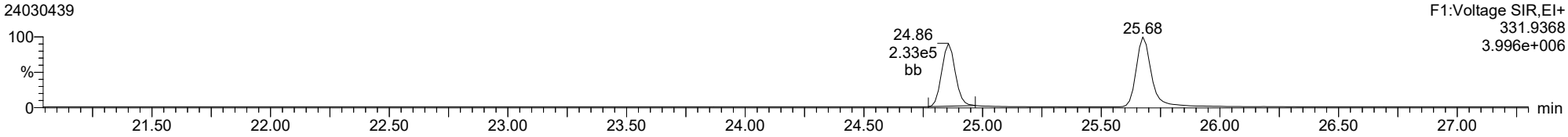
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1													

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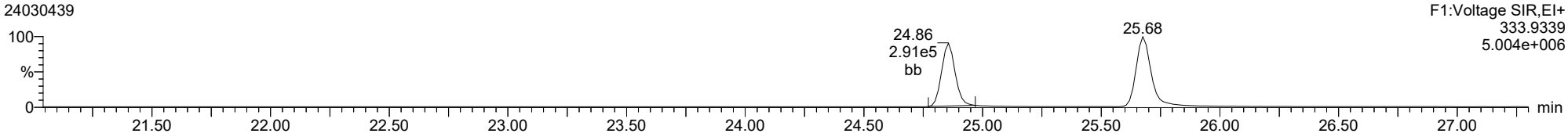
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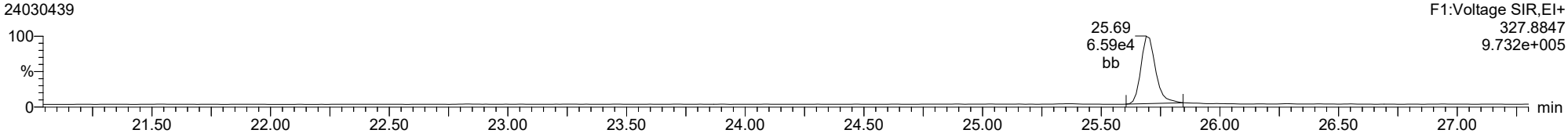
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13C-1234-TCDD

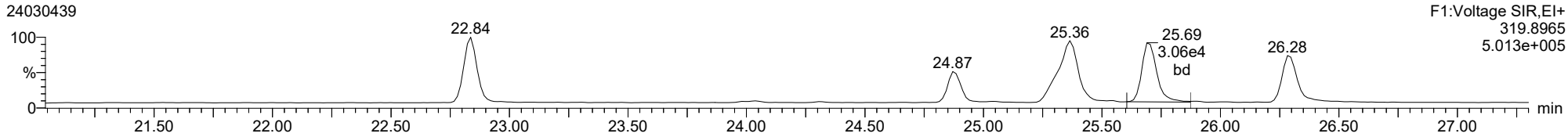


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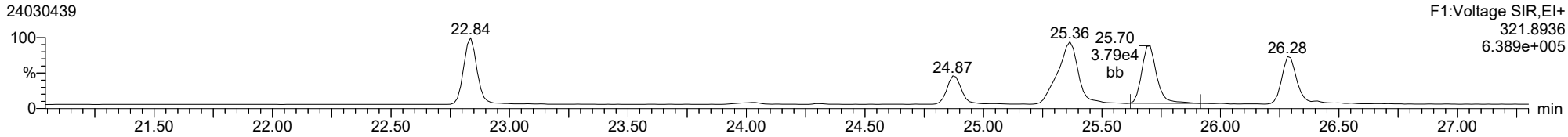


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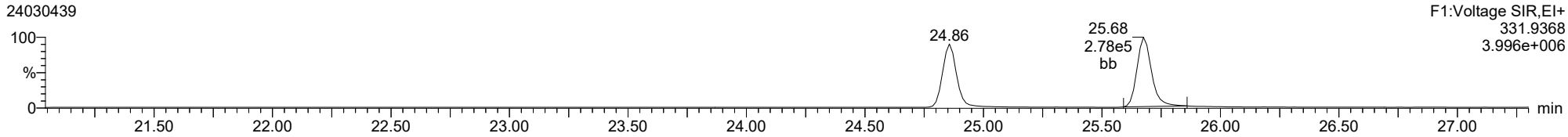
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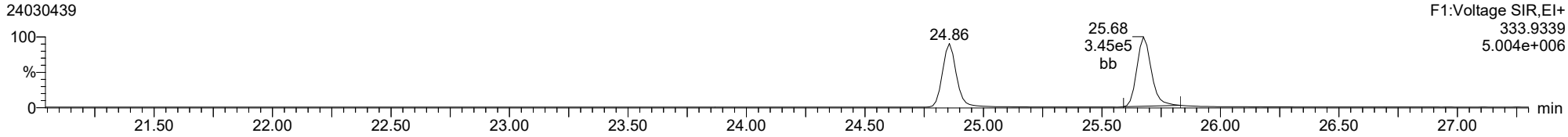
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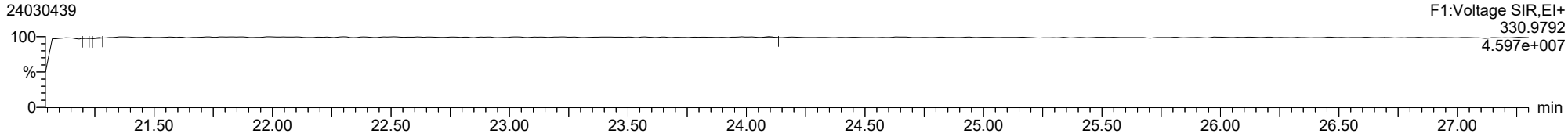
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13C-2378-TCDD



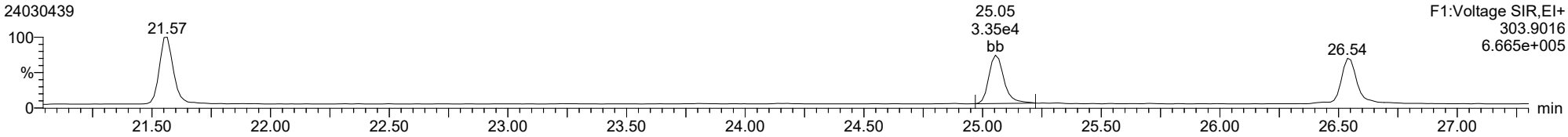
FUNCTION1 PFK



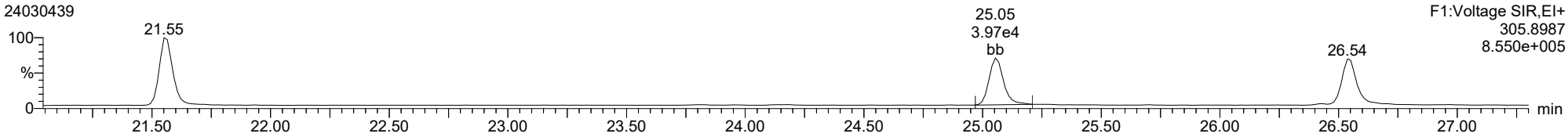
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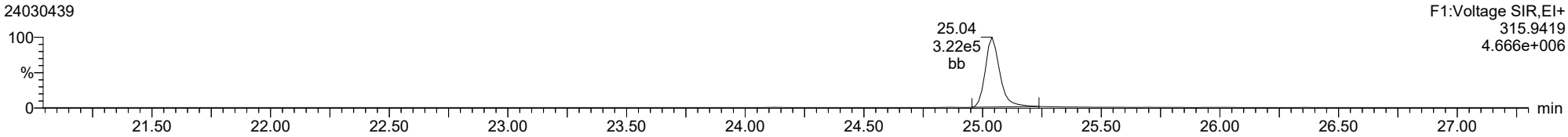
2378-TCDF



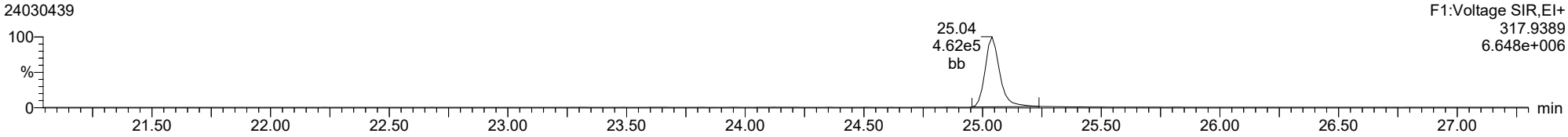
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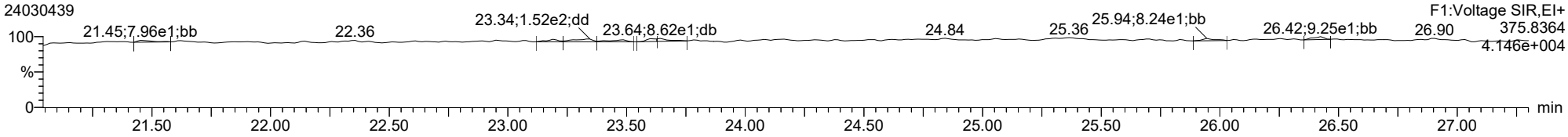
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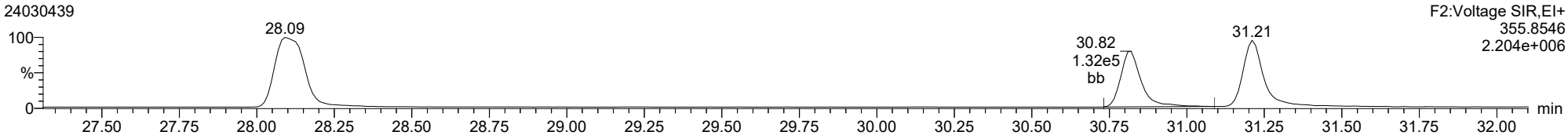


FUNCTION1 HXCDPE

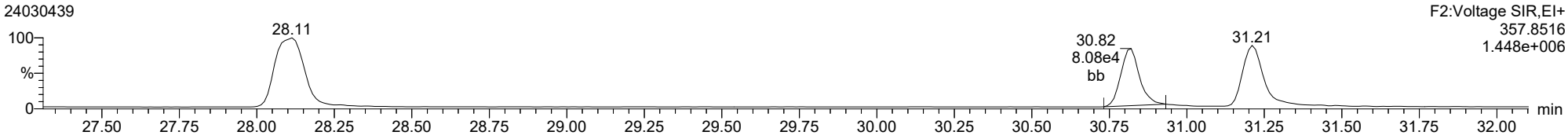


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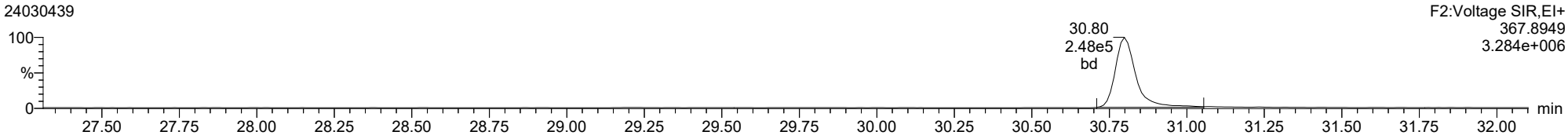
12378-PeCDD



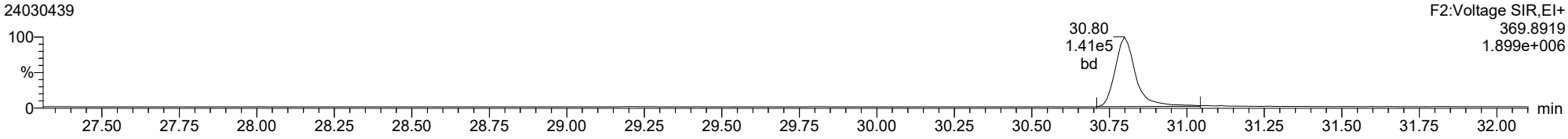
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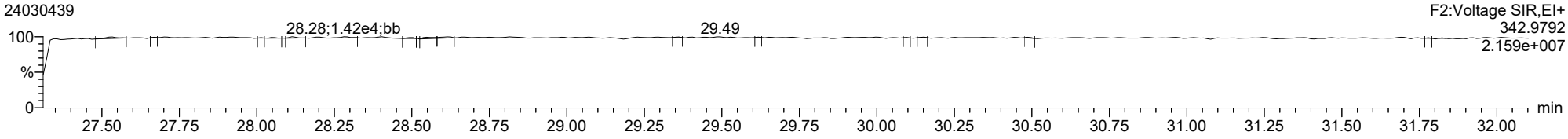
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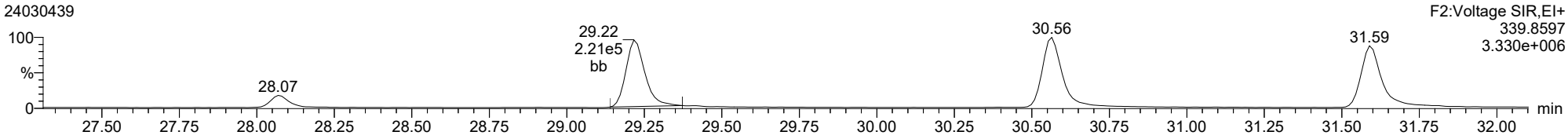


FUNCTION2 PFK

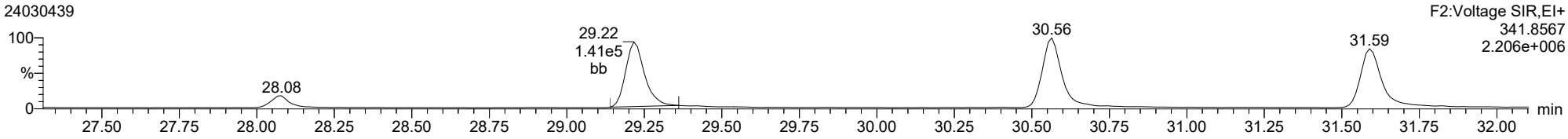


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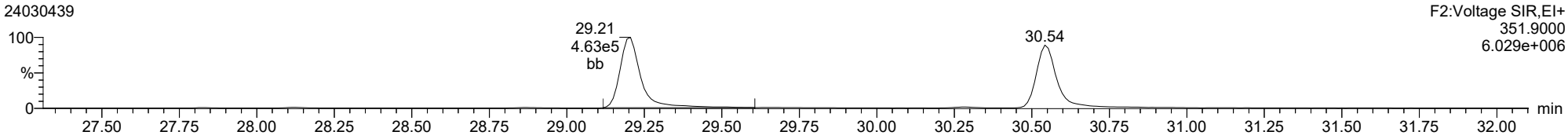
12378-PeCDF



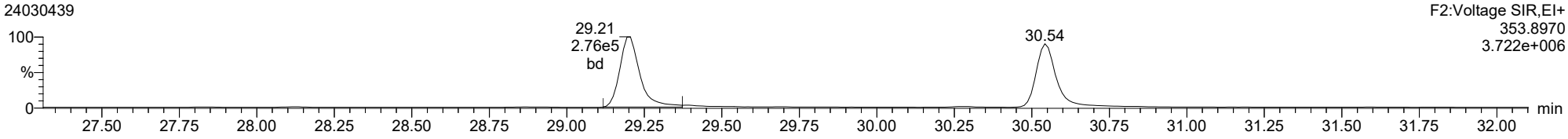
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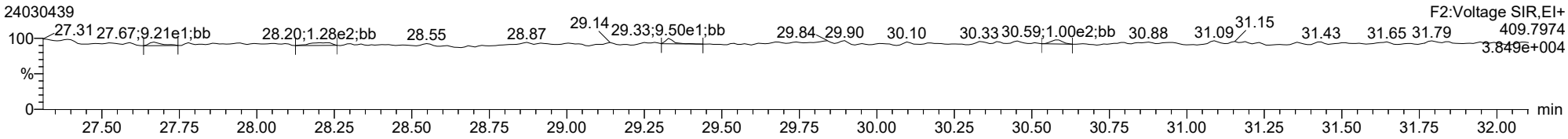
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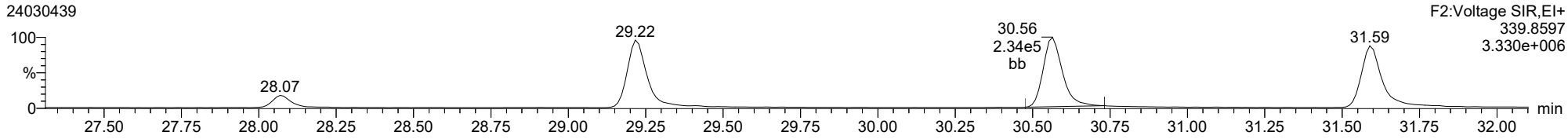


FUNCTION2 HPCDPE

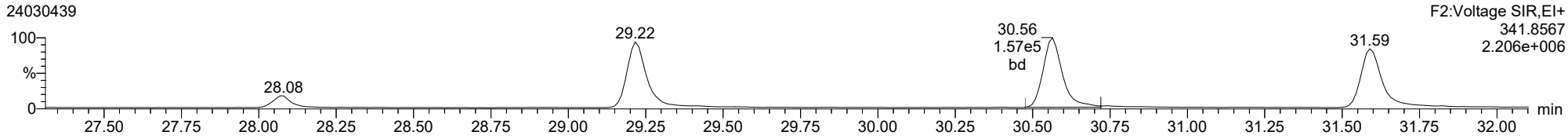


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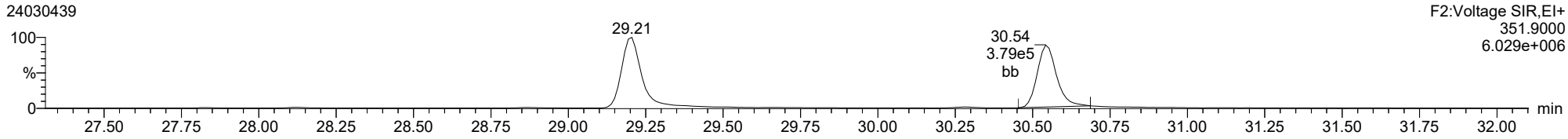
23478-PeCDF



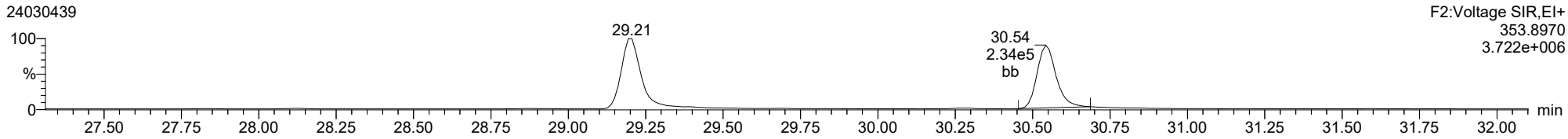
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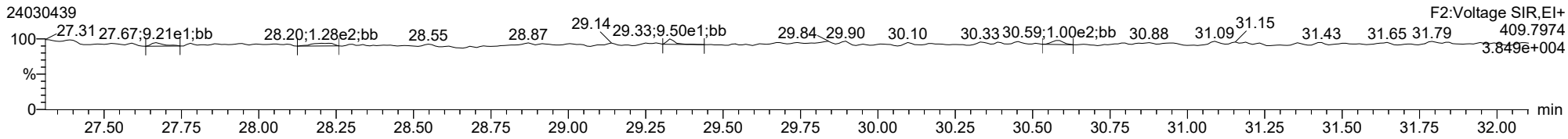
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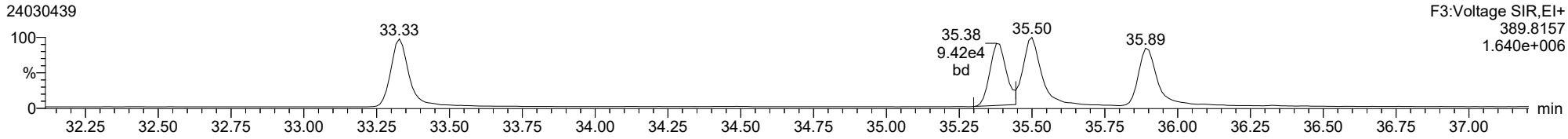


FUNCTION2 HPCDPE

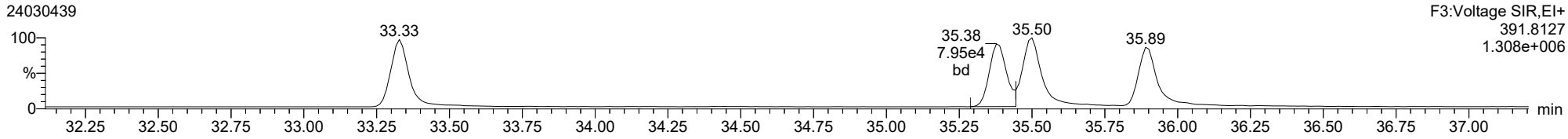


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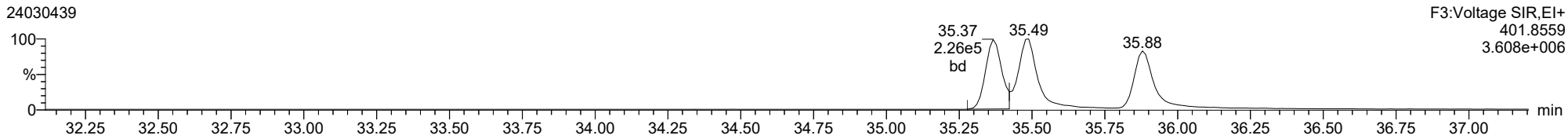
123478-HxCDD



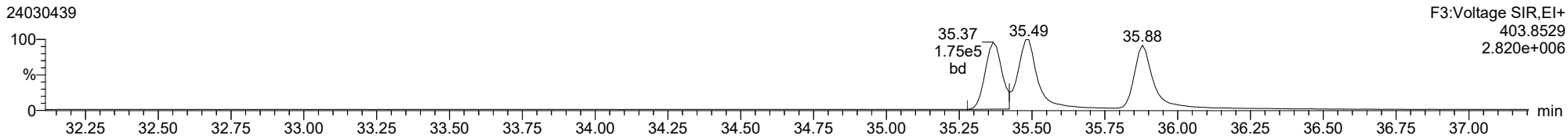
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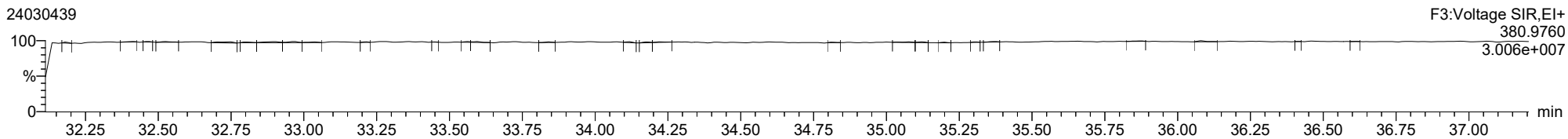
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13C-123478-HxCDD

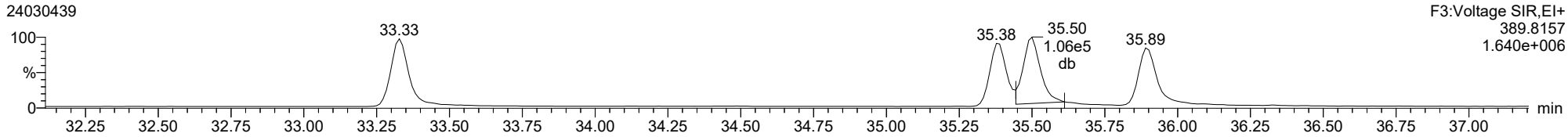


FUNCTION3 PFK

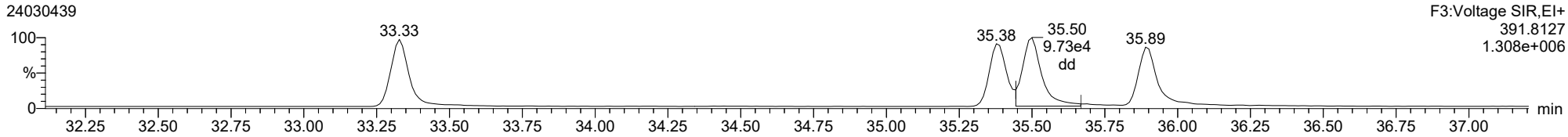


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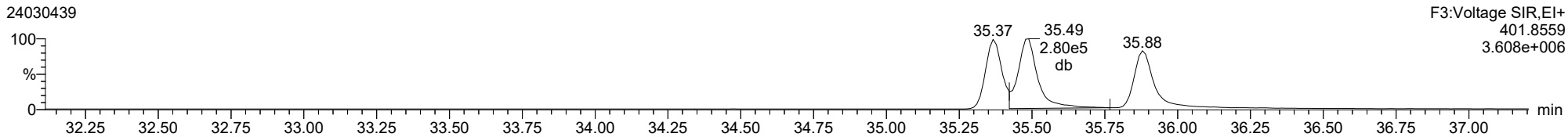
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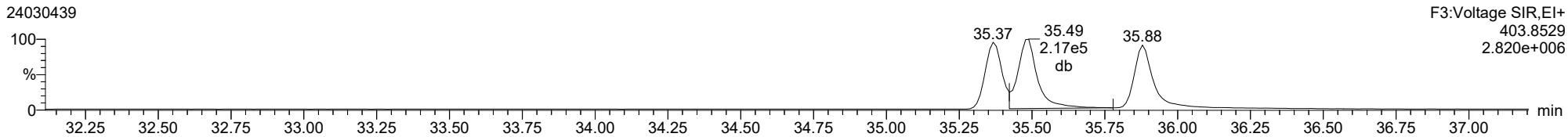
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13C-123678-HxCDD

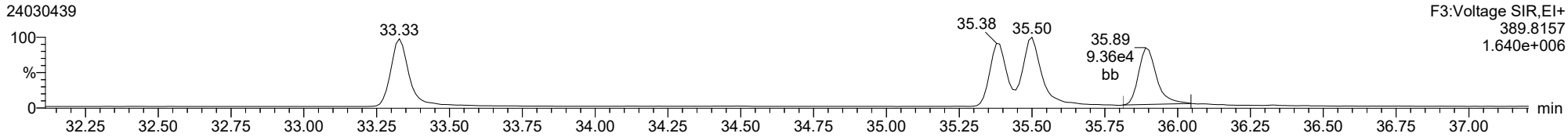


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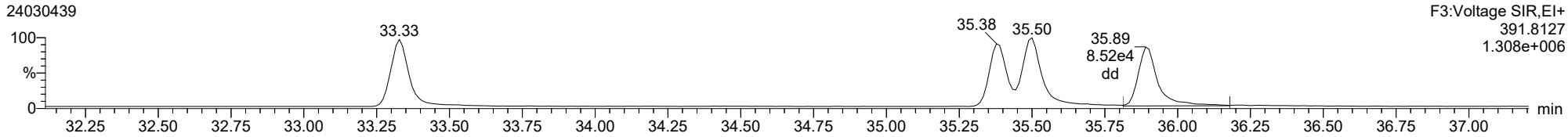


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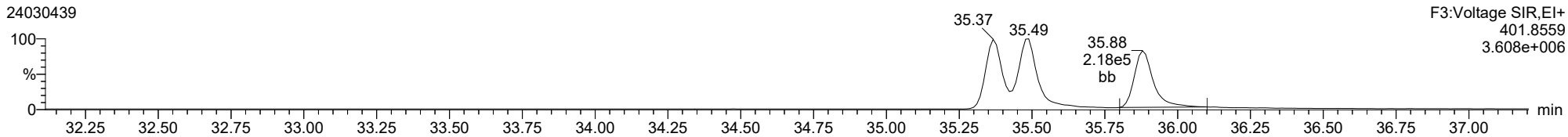
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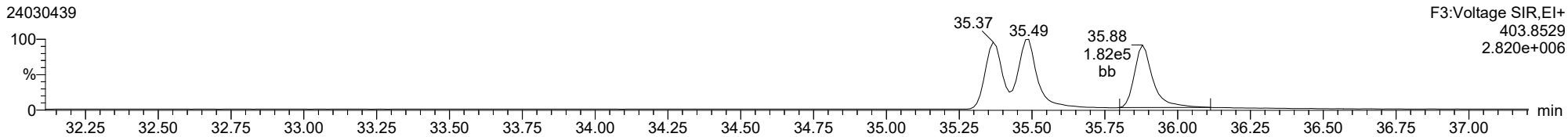
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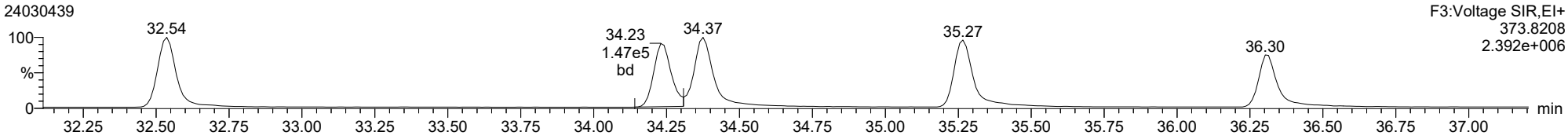


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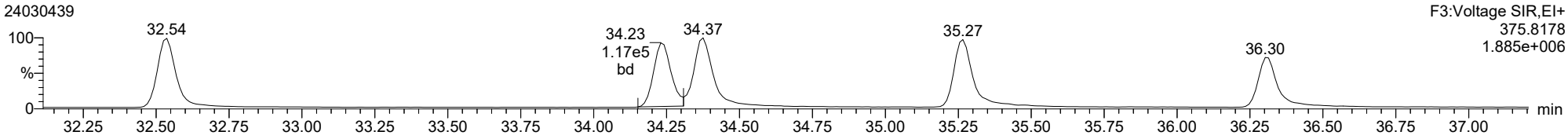


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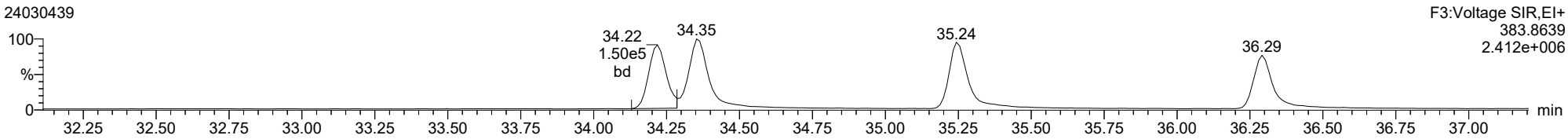
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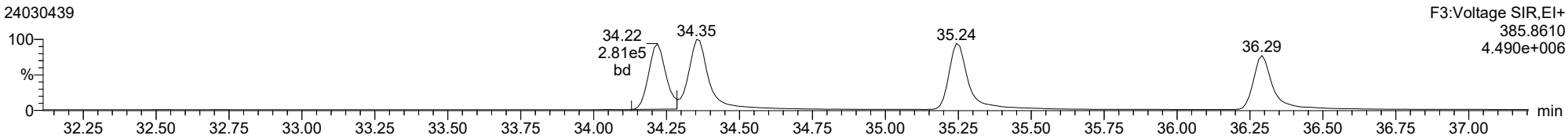
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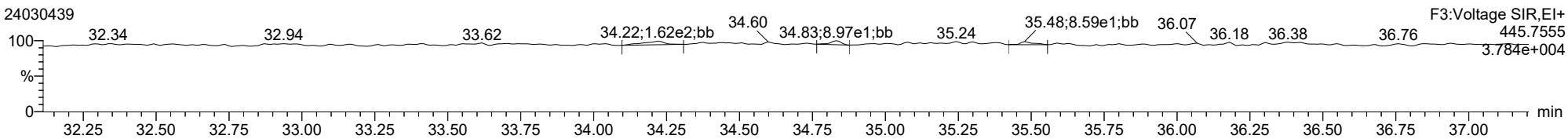
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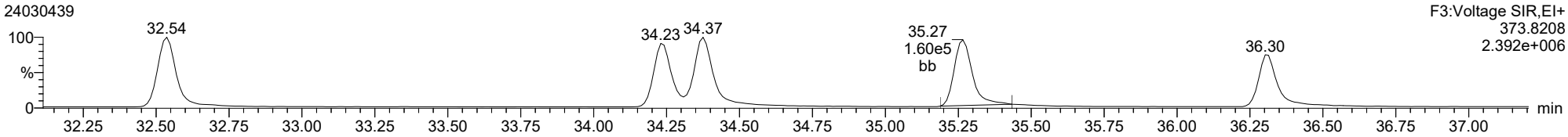
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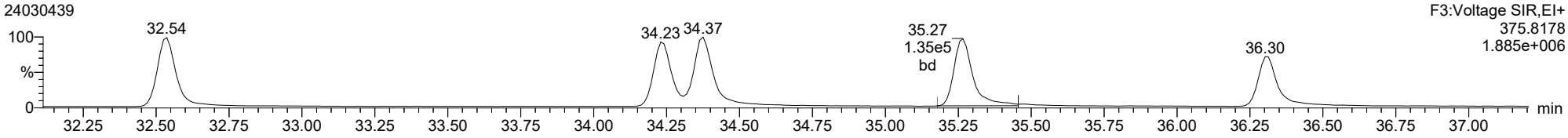
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ID: CS3Z4, Name: 24030439, Date: 05-Mar-2024, Time: 17:54:18, Conditions: AUTOSPEC01, User: pk

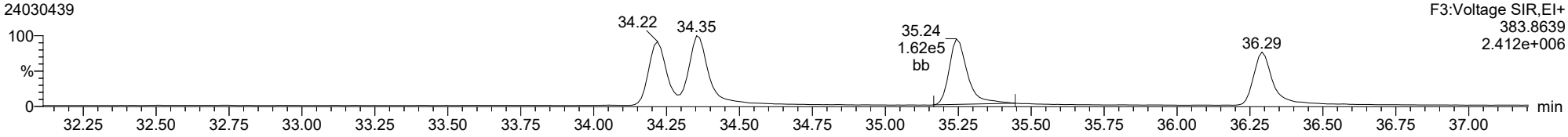
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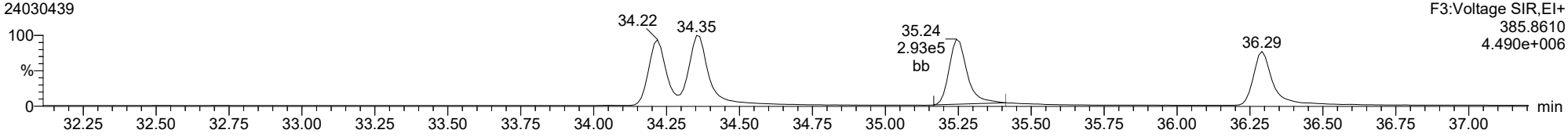
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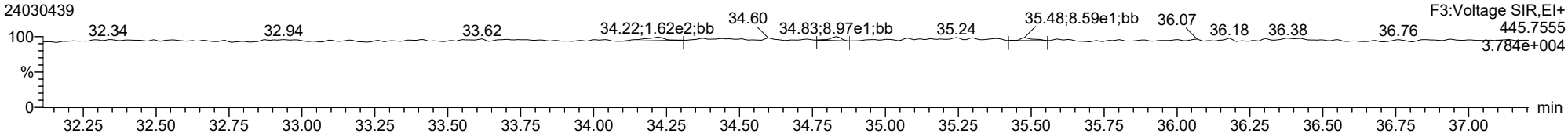
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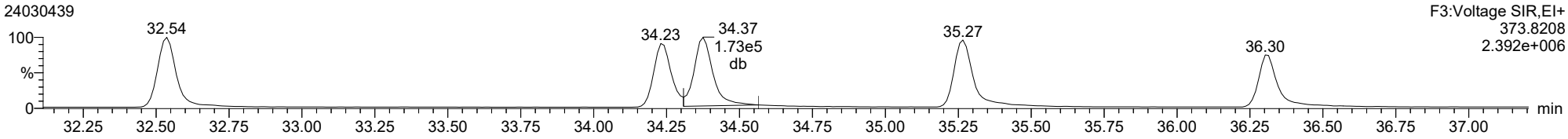


FUNCTION3 OCDPE

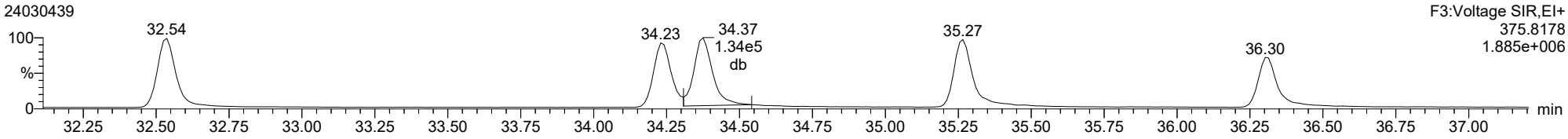


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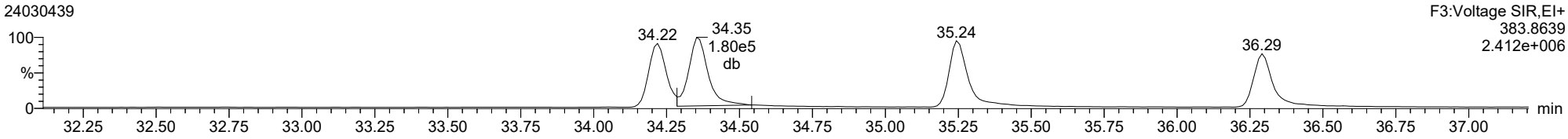
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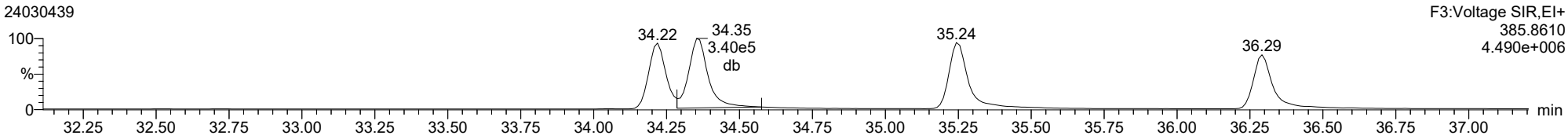
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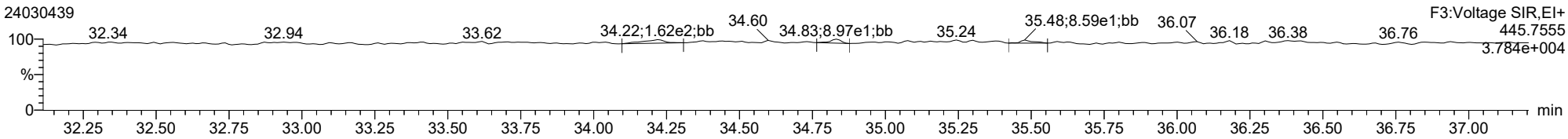
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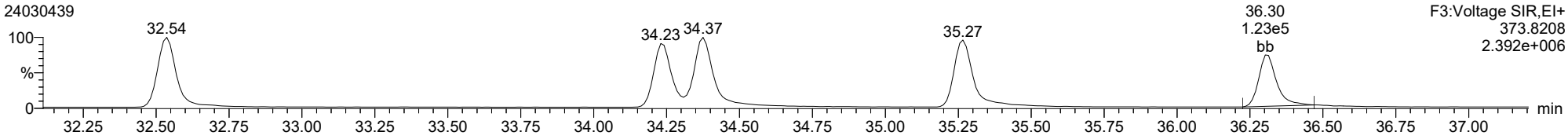


FUNCTION3 OCDPE

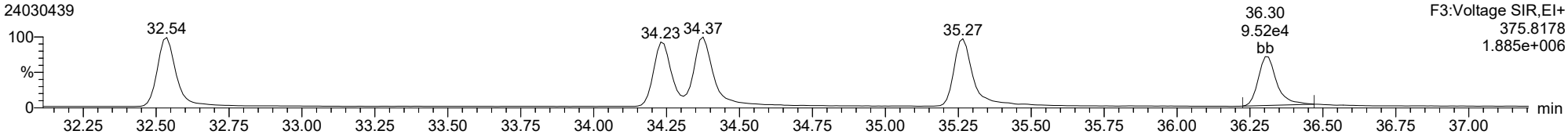


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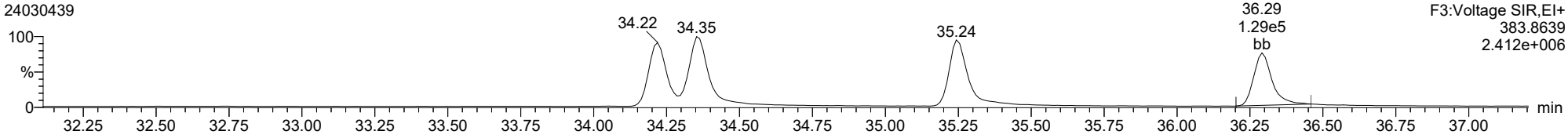
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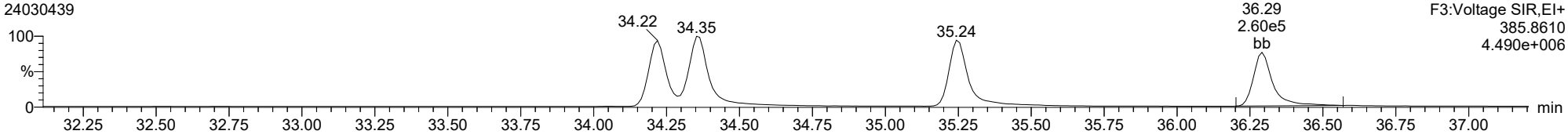
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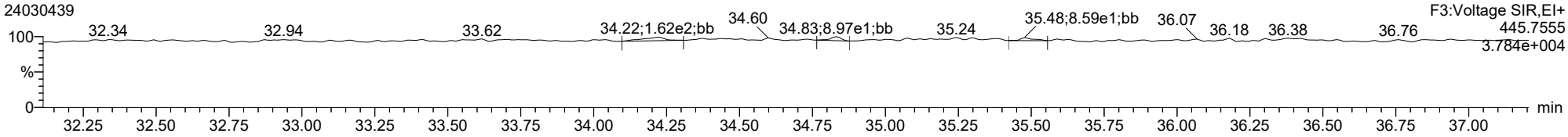
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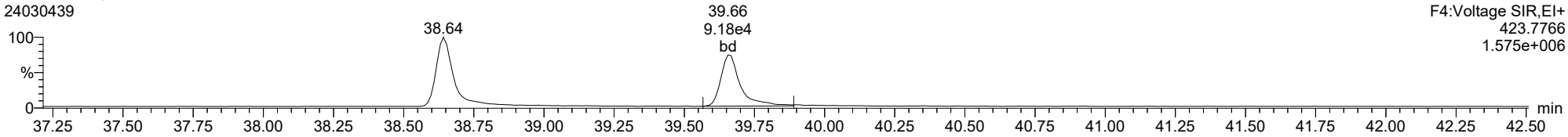


FUNCTION3 OCDPE

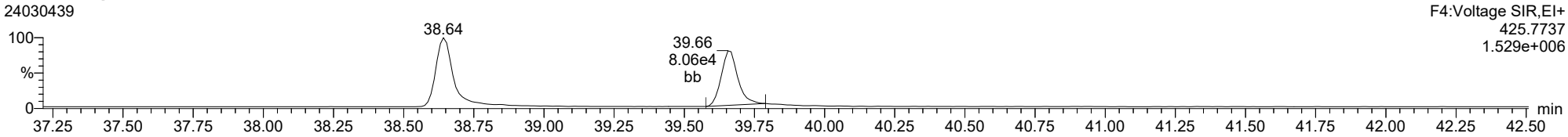


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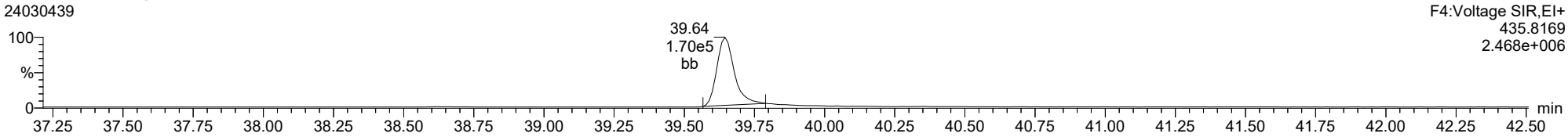
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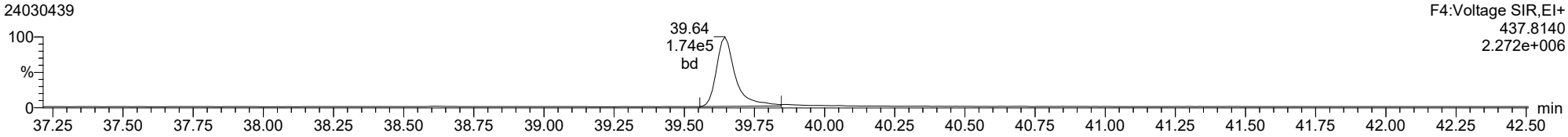
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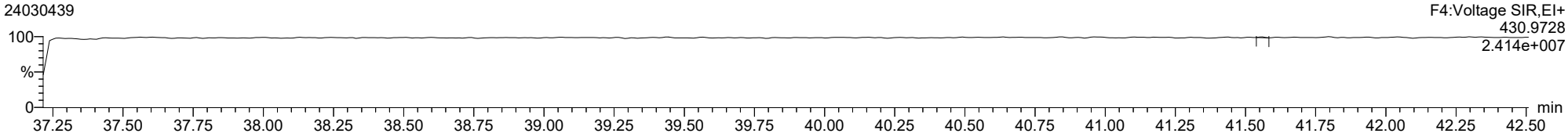
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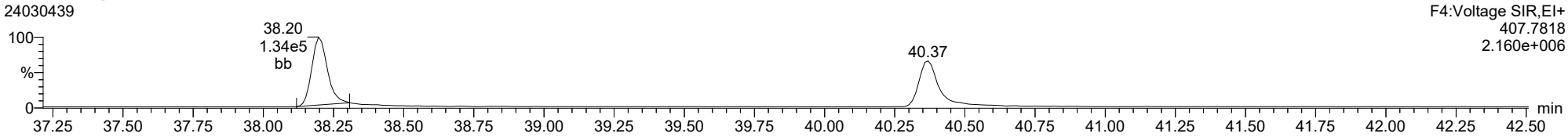


FUNCTION4 PFK

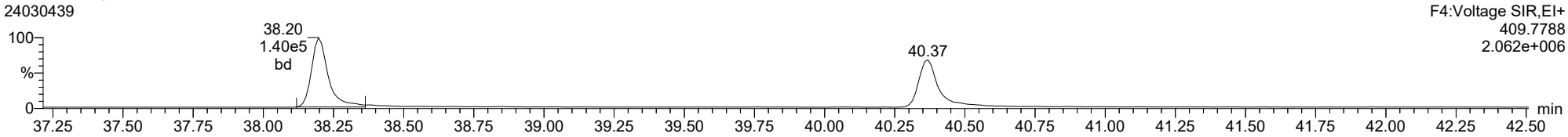


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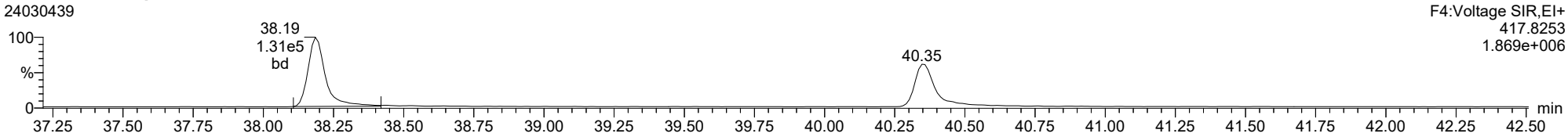
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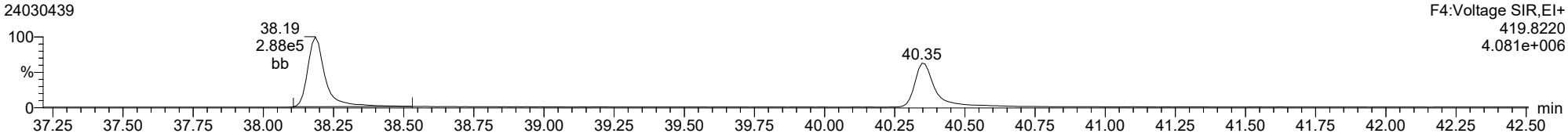
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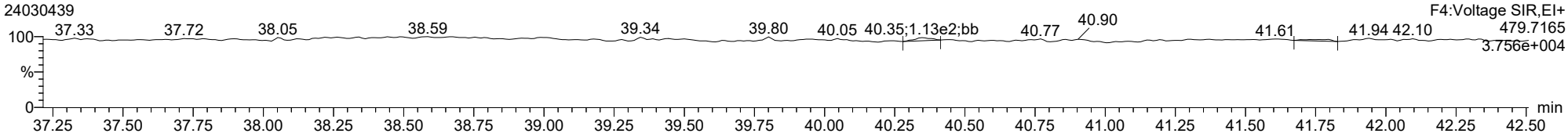
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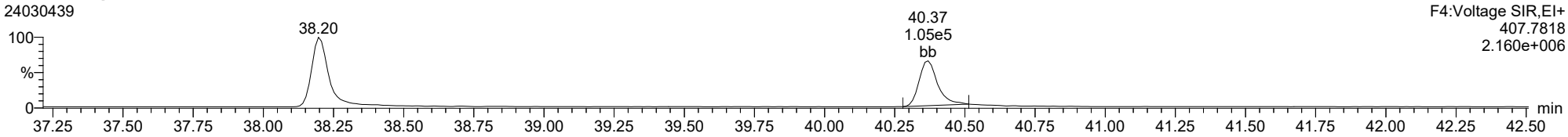


FUNCTION4 NCDPE

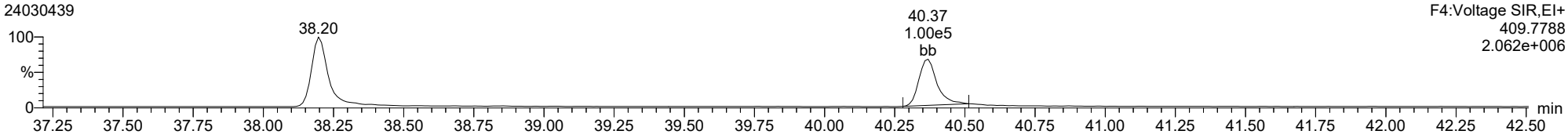


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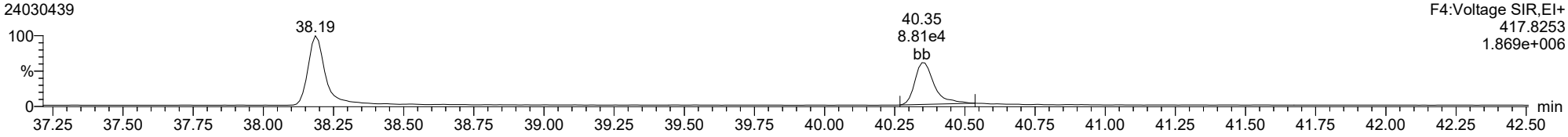
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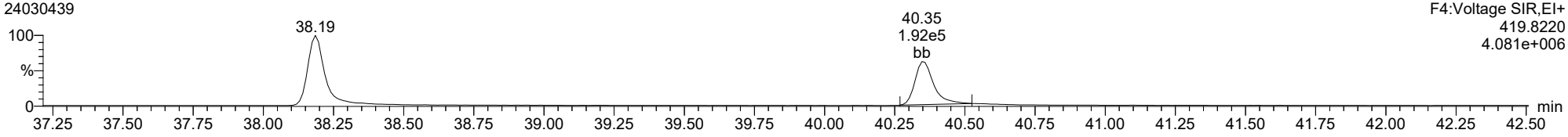
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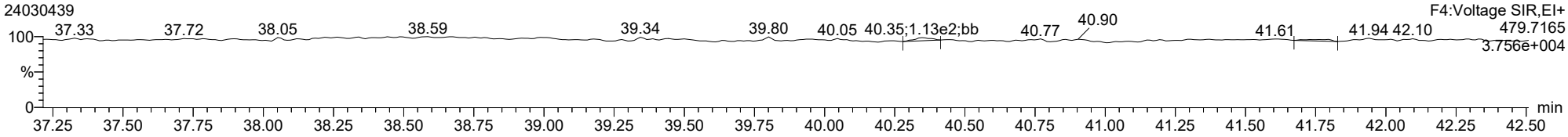
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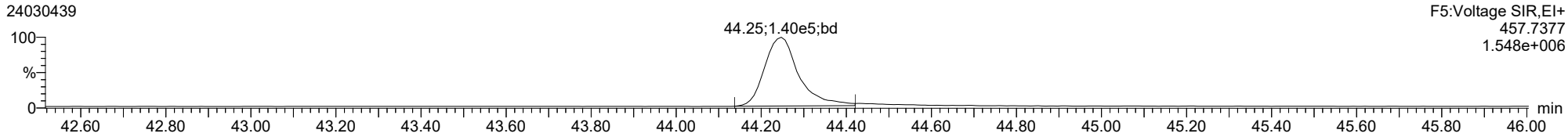


FUNCTION4 NCDPE

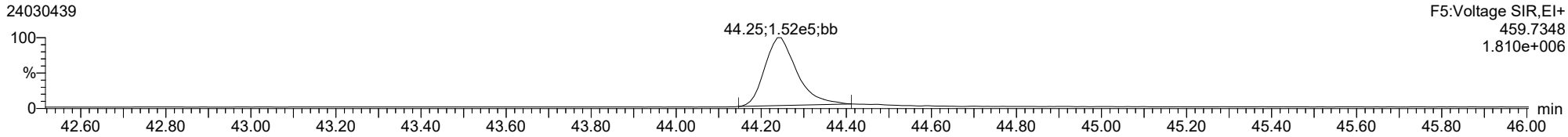


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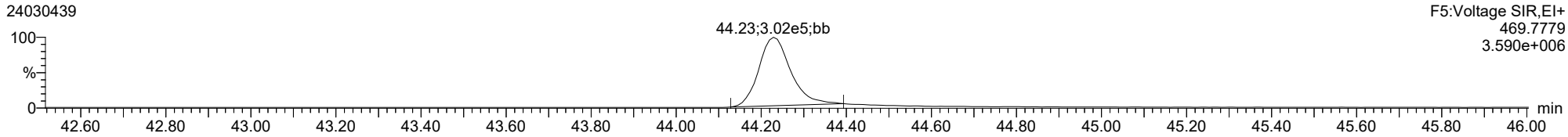
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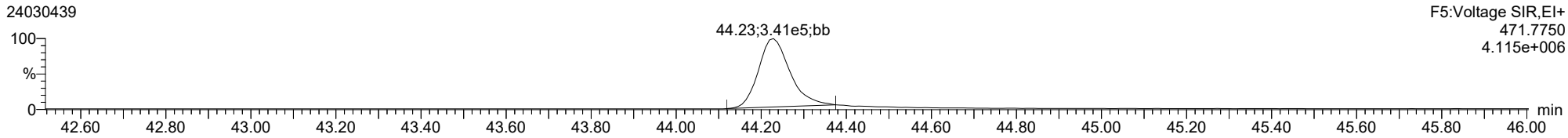
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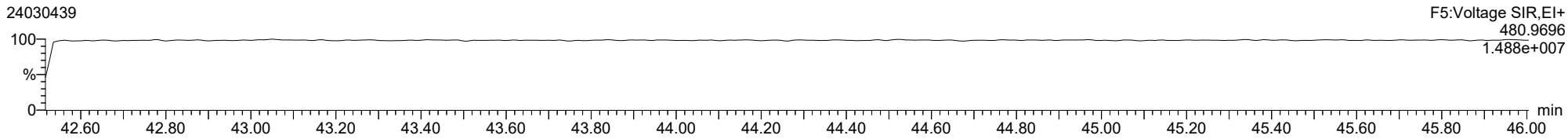
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13C-OCDD

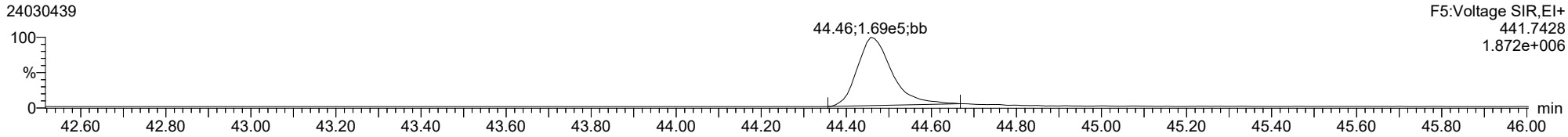


FUNCTION5 PFK

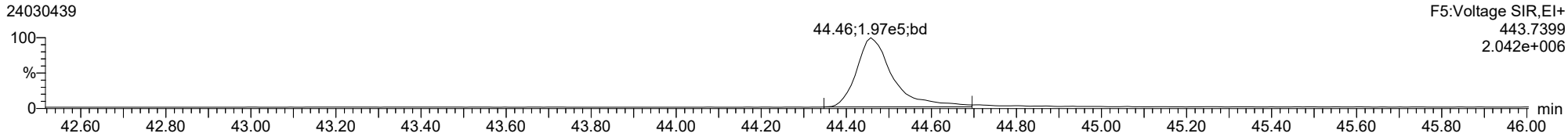


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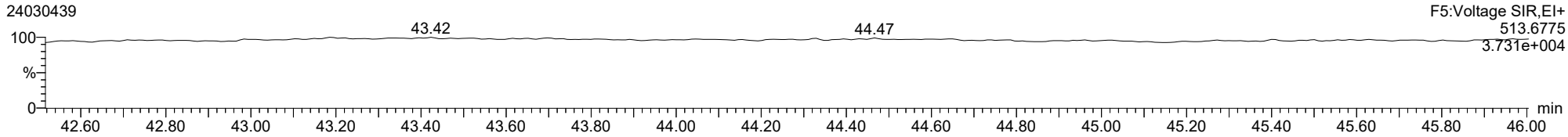
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OCDF

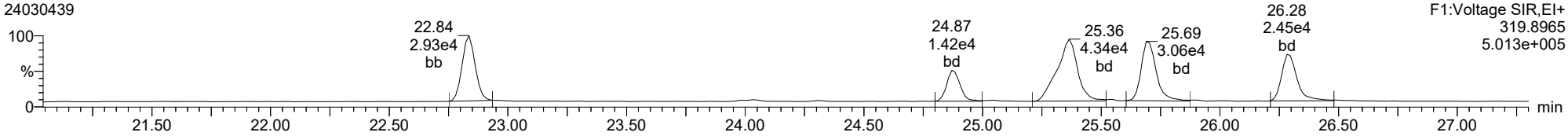


FUNCTION5 DCDPE

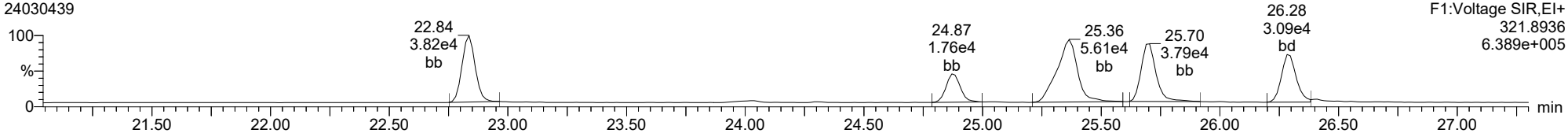


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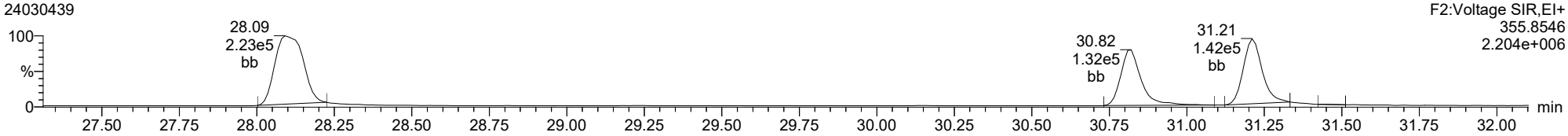
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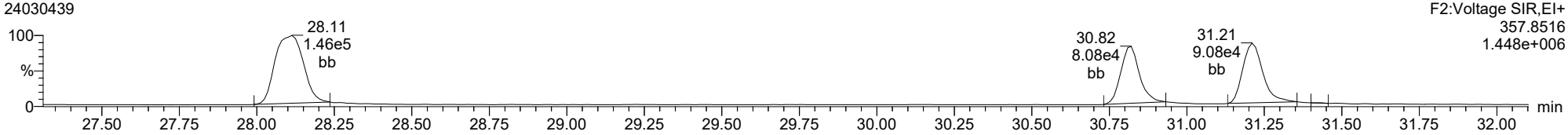
Total-tetradioxins



Total-pentadioxins

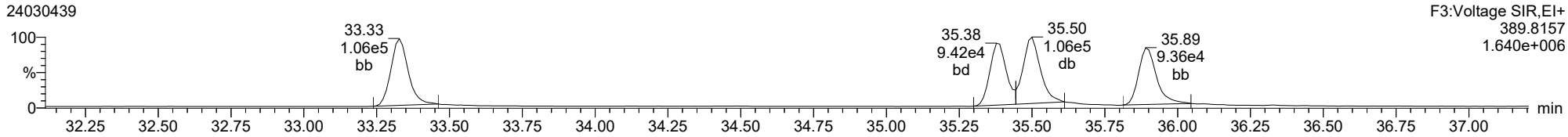


Total-pentadioxins

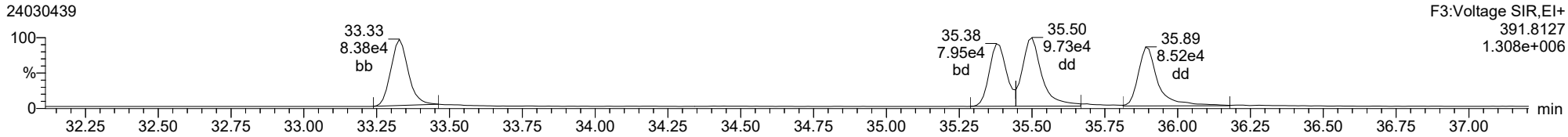


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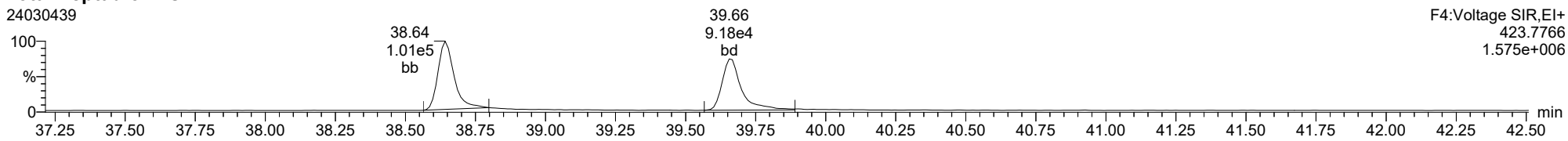
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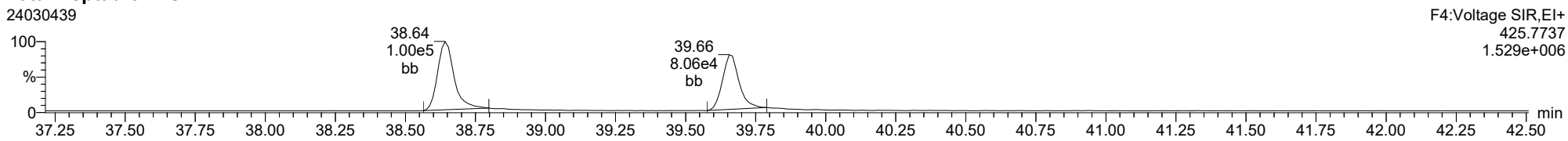
Total-hexadioxins



Total-heptadioxins



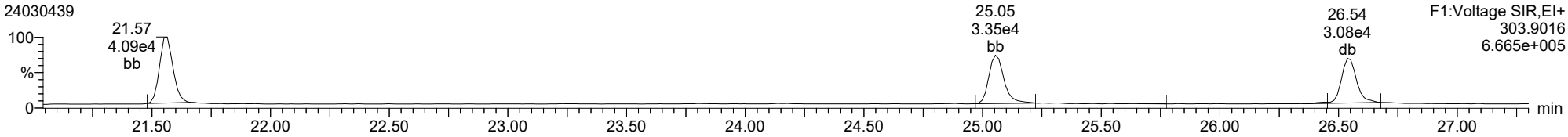
Total-heptadioxins



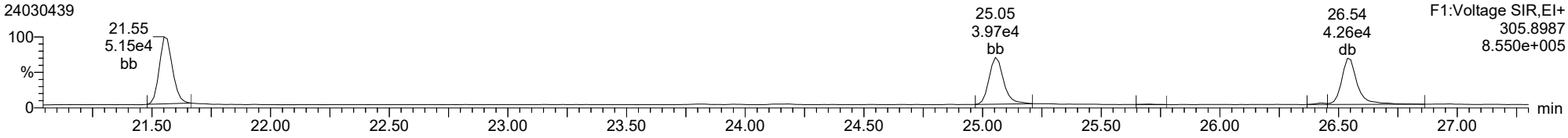
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Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
Printed: Wednesday, March 06, 2024 10:48:35 Pacific Standard Time

ID: CS3Z4, Name: 24030439, Date: 05-Mar-2024, Time: 17:54:18, Conditions: AUTOSPEC01, User: pk

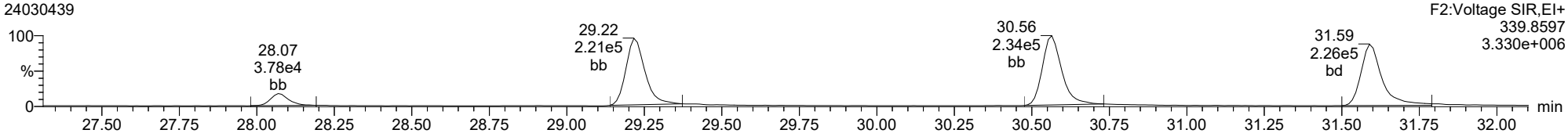
Total-tetrafurans



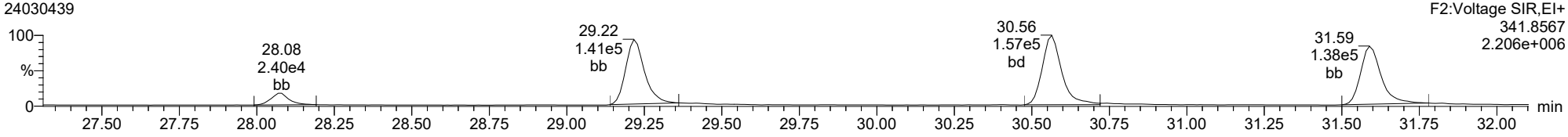
Total-tetrafurans



Total-pentafurans



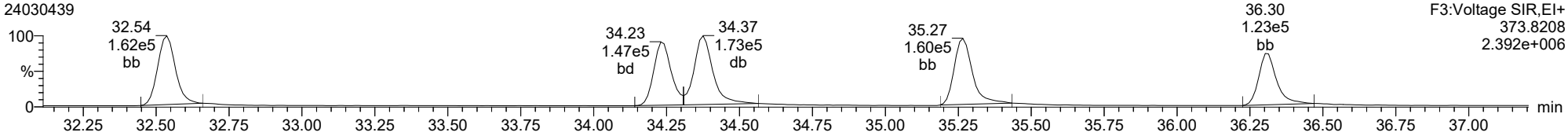
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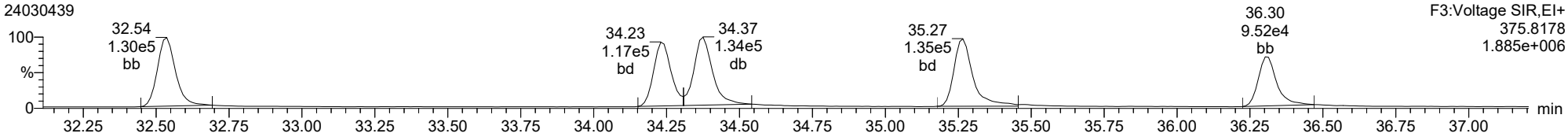
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Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
Printed: Wednesday, March 06, 2024 10:48:35 Pacific Standard Time

ID: CS3Z4, Name: 24030439, Date: 05-Mar-2024, Time: 17:54:18, Conditions: AUTOSPEC01, User: pk

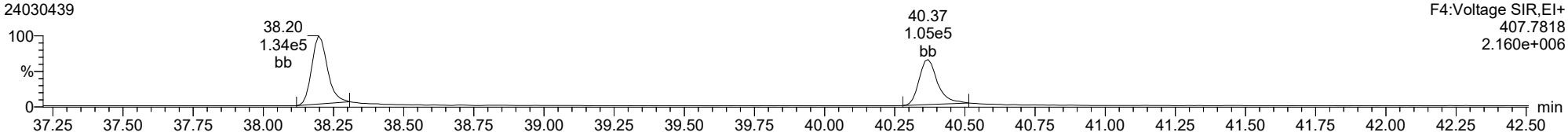
Total-hexafurans



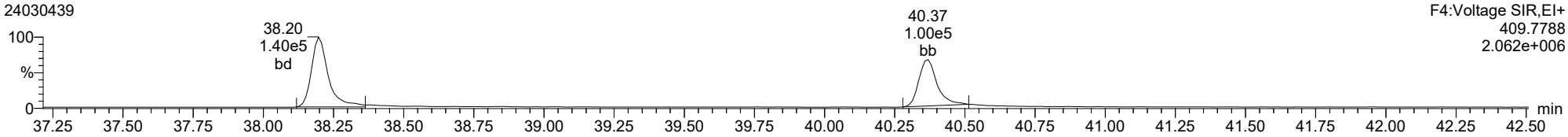
Total-hexafurans



Total-heptafurans

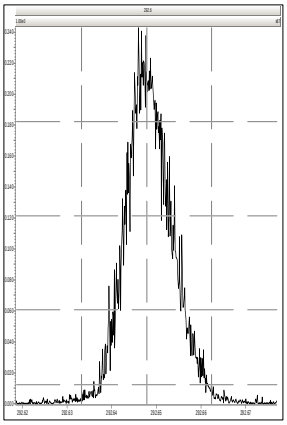


Total-heptafurans

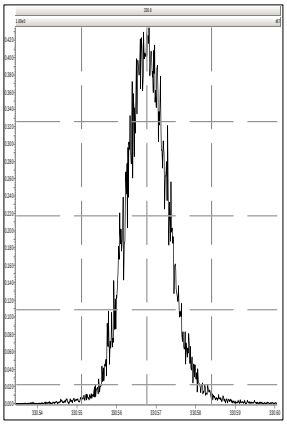


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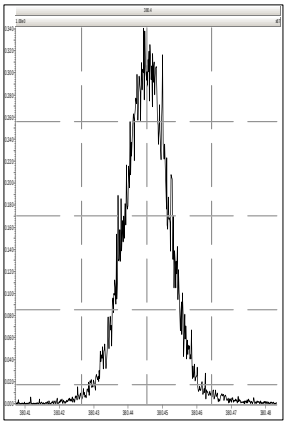
M 292.9824 R 12345



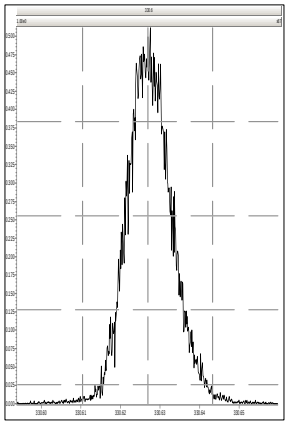
M 330.9792 R 13550



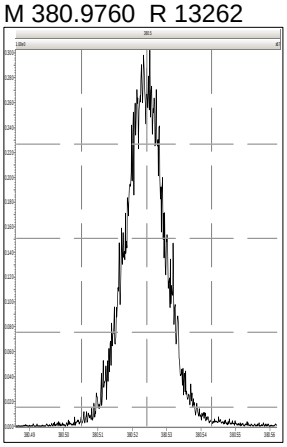
M 380.9760 R 12627



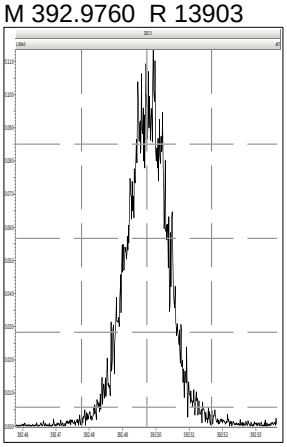
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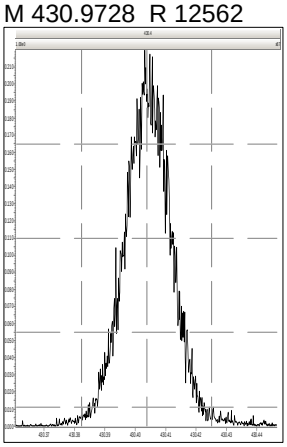
M 380.9760 R 13262



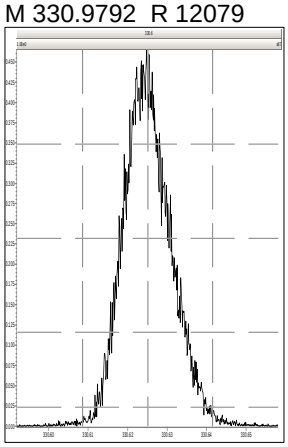
M 392.9760 R 13903



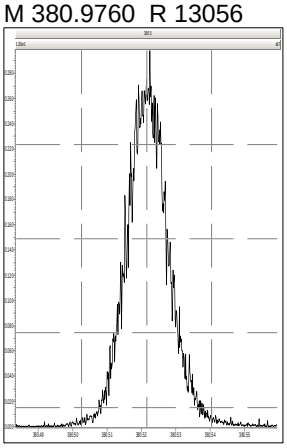
M 430.9728 R 12562



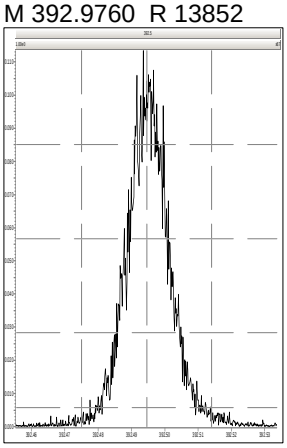
M 330.9792 R 12079



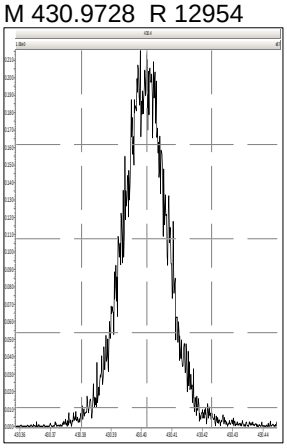
M 380.9760 R 13056



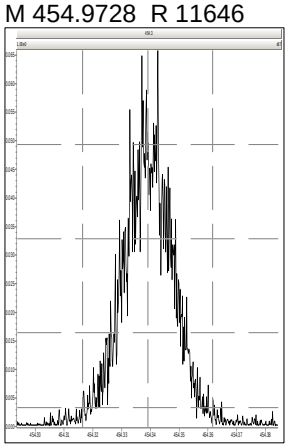
M 392.9760 R 13852



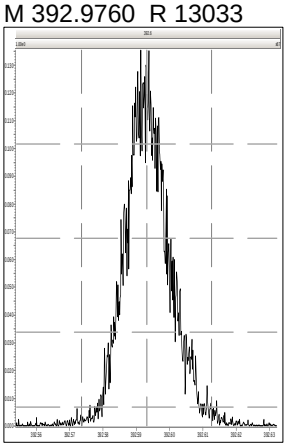
M 430.9728 R 12954



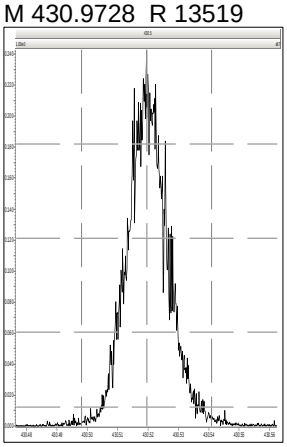
M 454.9728 R 11646



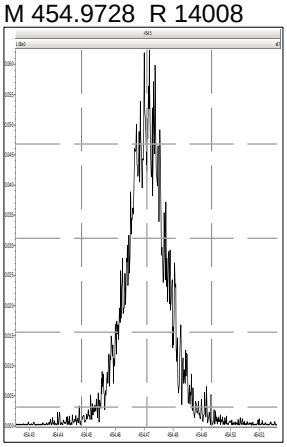
M 392.9760 R 13033



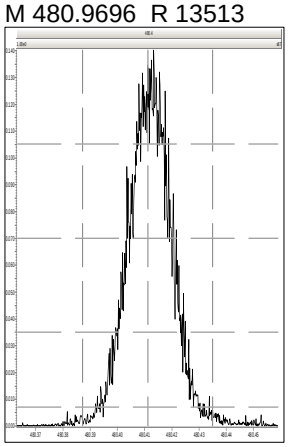
M 430.9728 R 13519



M 454.9728 R 14008

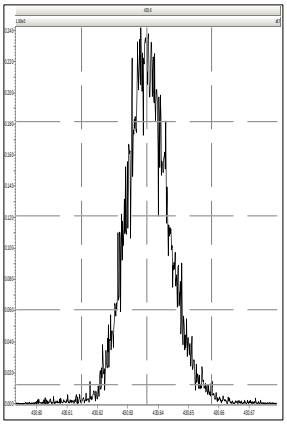


M 480.9696 R 13513

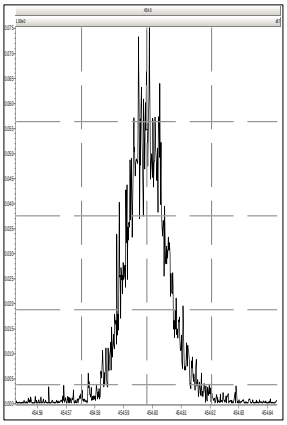


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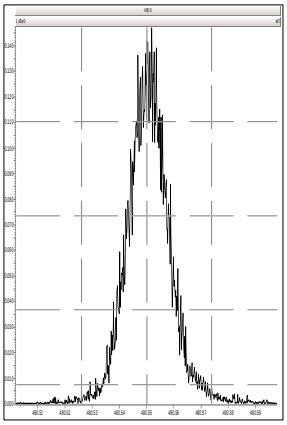
M 430.9728 R 13668



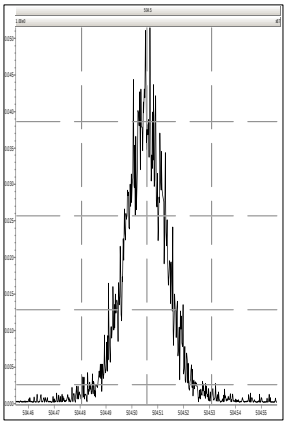
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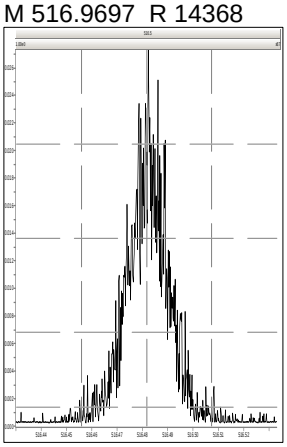
M 480.9696 R 13815

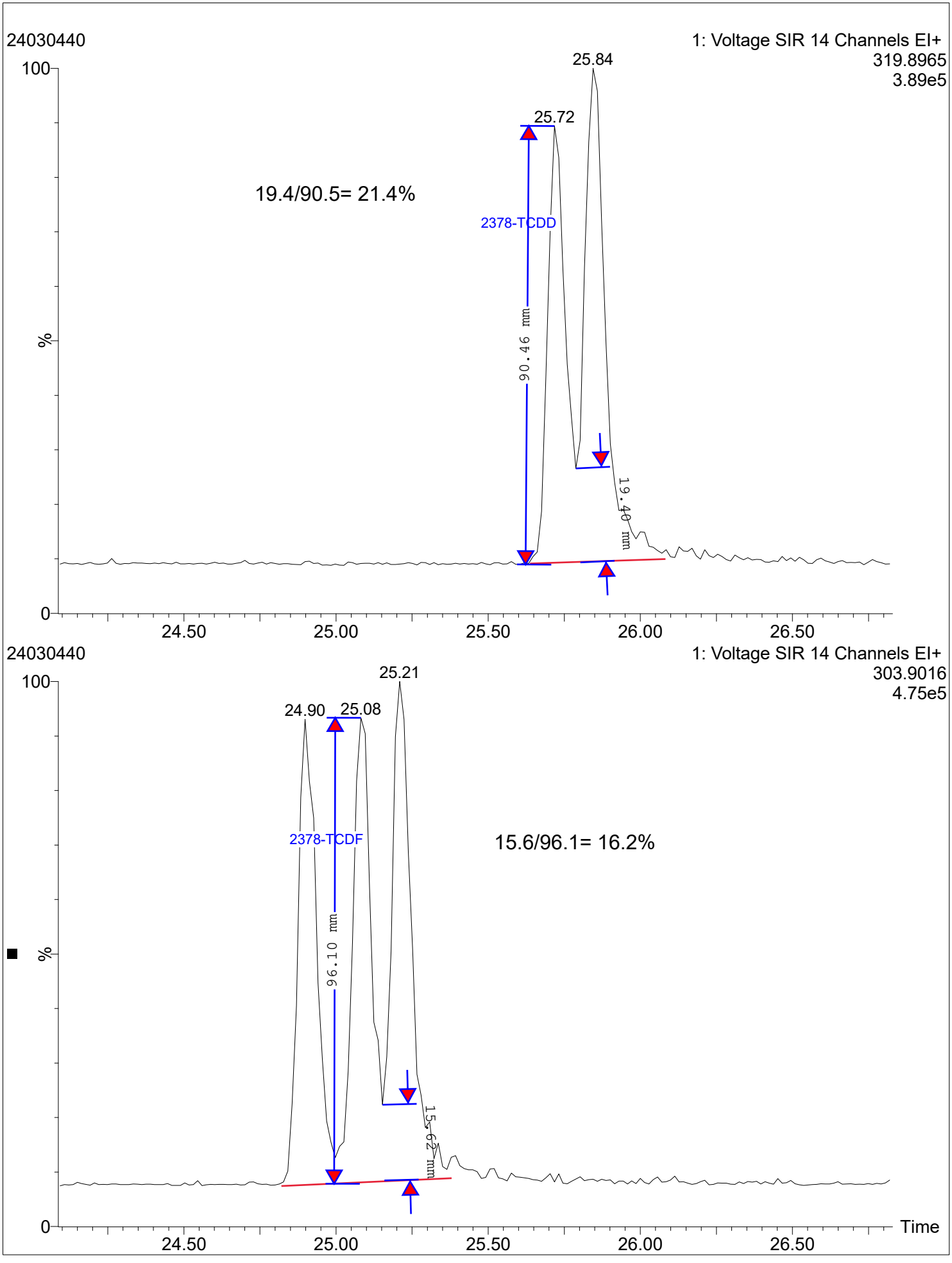


M 504.9696 R 14250



M 516.9697 R 14368




24030440
1: Voltage SIR 14 Channels EI+
319.8965
3.89e5
100
25.84
25.72
19.4/90.5= 21.4%
2378-TCDD
90.46 mm
19.40 mm
%
0
24.50
25.00
25.50
26.00
26.50
24030440
1: Voltage SIR 14 Channels EI+
303.9016
4.75e5
100
25.21
24.90
25.08
2378-TCDF
15.6/96.1= 16.2%
96.10 mm
15.62 mm
%
0
Time
24.50
25.00
25.50
26.00
26.50

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	AUTOSPEC01	Calibration:	HB00095
Lab File ID:	24030451	Calibration Date:	02/28/2024
Sequence:	SMC0054	Injection Date:	03/06/24
Lab Sample ID:	SMC0054-CCV1	Injection Time:	03:48
Sequence Name:	CS3Z5		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
2,3,7,8-TCDF	A	10.000	9.50	0.9801617	0.9311014		-5.0	+/-16
2,3,7,8-TCDD	A	10.000	8.92	1.2269140	1.0941630		-10.8	+/-22
1,2,3,7,8-PeCDF	A	50.000	50.6	1.0471660	1.0590600		1.1	+/-18
2,3,4,7,8-PeCDF	A	50.000	52.9	1.1555820	1.2229060		5.8	+/-18
1,2,3,7,8-PeCDD	A	50.000	57.0	0.9644437	1.1000010		14.1	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	48.7	1.2236720	1.1922410		-2.6	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	50.0	1.1931900	1.1943260		0.1	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	51.3	1.2346350	1.2661700		2.6	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	52.7	1.0998150	1.1597520		5.4	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	49.9	0.8407818	0.8397445		-0.1	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	52.5	0.8327394	0.8739797		5.0	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	54.2	0.7703177	4632.524		8.3	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	47.9	1.3924350	1.3337940		-4.2	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	53.1	1.3805820	1.4649420		6.1	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	48.9	0.9843566	0.9624066		-2.2	+/-14
OCDF	A	100.00	80.6	1.2222950	0.9856795		-19.4	+/-37
OCDD	A	100.00	91.0	0.9375272	0.8529258		-9.0	+/-21
13C12-2,3,7,8-TCDF	A	100.00	86.1	1.6550640	1.4245728		-13.9	+/-29
13C12-2,3,7,8-TCDD	A	100.00	98.2	1.1508440	1.1300425		-1.8	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	114	1.1956730	1.3642848		14.1	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	110	1.1170800	1.2324259		10.3	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	94.9	0.8282280	0.7856356		-5.1	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	107	1.0281980	1.1030977		7.3	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	95.7	1.1757200	1.1249377		-4.3	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	104	1.0160410	1.0567641		4.0	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	103	0.8791764	0.9098786		3.5	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	108	0.9496210	1.0272137		8.2	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	90.3	1.1068570	0.9995867		-9.7	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	110	0.8699971	0.9576794		10.1	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	110	0.6376791	0.7041122		10.4	+/-23
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	122	0.7370793	0.8999185		22.1	+/-18
13C12-OCDD	A	200.00	245	0.6325999	0.7751018		22.5	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	9.13	1.3123570	1.1977878		-8.7	+/-21

* Values outside of QC limits

* Values outside of QC limits

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\240304IH1.qld
Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
Printed: Wednesday, March 06, 2024 10:51:52 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240306.mdb 06 Mar 2024 10:17:07
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

ID: CS3Z5, Name: 24030451, Date: 06-Mar-2024, Time: 03:48:43, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.054	1.001	3.899e4	4.517e4	0.980	0.863	0.770	1080	1330	6.02e5	7.00e5	557.9	526.3	NO	bb	bb	9.499
12378-PeCDF	29.216	1.001	2.758e5	1.826e5	1.047	1.510	1.550	2663	2114	4.19e6	2.84e6	1575.1	1342.6	NO	bb	bb	50.568
23478-PeCDF	30.553	1.000	2.903e5	1.879e5	1.156	1.545	1.550	2663	2114	4.50e6	2.89e6	1689.4	1369.2	NO	bb	bb	52.913
123478-HxCDF	34.230	1.001	2.006e5	1.597e5	1.224	1.256	1.240	1473	1505	3.15e6	2.53e6	2141.6	1683.6	NO	bd	bd	48.716
234678-HxCDF	35.255	1.000	2.055e5	1.610e5	1.235	1.276	1.240	1473	1505	3.28e6	2.62e6	2228.9	1744.0	NO	bb	bb	51.277
123678-HxCDF	34.375	1.001	2.056e5	1.624e5	1.193	1.266	1.240	1473	1505	3.13e6	2.46e6	2124.2	1636.1	NO	db	db	50.048
123789-HxCDF	36.302	1.001	1.630e5	1.261e5	1.100	1.293	1.240	1473	1505	2.58e6	1.96e6	1750.2	1305.3	NO	bb	bb	52.725
1234678-HpCDF	38.196	1.000	1.820e5	1.679e5	1.392	1.084	1.050	2153	1078	3.10e6	2.88e6	1440.9	2668.1	NO	bb	bb	47.894
1234789-HpCDF	40.357	1.000	1.464e5	1.361e5	1.381	1.075	1.050	2153	1078	2.24e6	2.05e6	1038.2	1904.3	NO	bb	bb	53.055
OCDF	44.457	1.005	2.021e5	2.164e5	1.222	0.934	0.890	1170	1032	2.45e6	2.77e6	2096.9	2684.7	NO	bb	bb	80.642
2378-TCDD	25.690	1.001	3.420e4	4.426e4	1.227	0.773	0.770	874	1083	5.33e5	6.69e5	610.4	617.4	NO	bb	bd	8.918
12378-PeCDD	30.809	1.001	1.657e5	1.085e5	0.964	1.528	1.550	1237	1165	2.66e6	1.73e6	2154.7	1485.4	NO	bb	bb	57.028
123478-HxCDD	35.377	1.000	1.316e5	1.047e5	0.841	1.257	1.240	1452	1252	2.18e6	1.75e6	1500.9	1396.3	NO	bd	bd	49.938
123678-HxCDD	35.489	1.000	1.323e5	1.070e5	0.833	1.237	1.240	1452	1252	2.14e6	1.71e6	1471.7	1363.7	NO	db	db	52.476
123789-HxCDD	35.890	1.012	1.301e5	1.016e5	0.770	1.281	1.240	1452	1252	2.10e6	1.62e6	1443.7	1295.1	NO	bb	bb	54.160
1234678-HpCDD	39.655	1.001	1.192e5	1.180e5	0.984	1.010	1.050	1067	1198	1.91e6	1.89e6	1793.7	1578.9	NO	bb	bb	48.885
OCDD	44.237	1.000	1.631e5	1.990e5	0.938	0.820	0.890	1234	1499	2.07e6	2.42e6	1674.3	1611.4	NO	bb	bb	90.976
13C-2378-TCDF	25.040	1.008	3.718e5	5.322e5	1.655	0.699	0.770	982	1303	5.54e6	8.06e6	5641.1	6188.0	NO	bb	bb	86.074
13C-12378-PeCDF	29.194	1.175	5.288e5	3.370e5	1.196	1.569	1.550	2326	1709	8.14e6	5.16e6	3502.1	3019.8	NO	bb	bb	114.102
13C-23478-PeCDF	30.542	1.229	4.799e5	3.021e5	1.117	1.588	1.550	2326	1709	7.36e6	4.64e6	3166.4	2715.2	NO	bb	bb	110.326
13C-123478-HxCDF	34.207	0.954	2.120e5	3.923e5	1.028	0.540	0.510	1731	1599	3.24e6	6.09e6	1874.8	3808.9	NO	bd	bd	107.285
13C-123678-HxCDF	34.352	0.958	2.149e5	4.014e5	1.176	0.535	0.510	1731	1599	3.26e6	6.08e6	1883.0	3800.9	NO	db	db	95.681
13C-234678-HxCDF	35.243	0.983	1.996e5	3.794e5	1.016	0.526	0.510	1731	1599	3.25e6	6.18e6	1880.3	3868.7	NO	bb	bb	104.008
13C-123789-HxCDF	36.280	1.011	1.736e5	3.249e5	0.879	0.534	0.510	1731	1599	2.69e6	5.11e6	1552.7	3196.0	NO	bb	bb	103.492
13C-1234678-HpCDF	38.185	1.065	1.634e5	3.613e5	0.870	0.452	0.440	1579	1425	2.72e6	6.00e6	1724.3	4211.4	NO	bb	bb	110.078
13C-1234789-HpCDF	40.346	1.125	1.195e5	2.663e5	0.638	0.449	0.440	1579	1425	1.82e6	4.01e6	1151.3	2813.8	NO	bb	bb	110.418
13C-1234-TCDD	24.842	0.000	2.801e5	3.545e5	1.000	0.790	0.770	1404	1632	4.31e6	5.42e6	3068.2	3323.7	NO	bb	bb	100.000
13C-2378-TCDD	25.676	1.034	3.174e5	3.996e5	1.151	0.794	0.770	1404	1632	4.76e6	5.98e6	3386.9	3665.8	NO	bb	bb	98.193
13C-12378-PeCDD	30.787	1.239	3.138e5	1.847e5	0.828	1.698	1.550	1027	769	4.82e6	2.86e6	4691.7	3721.5	NO	bb	bb	94.857
13C-123478-HxCDD	35.366	0.986	3.112e5	2.515e5	0.950	1.237	1.240	964	971	4.98e6	4.11e6	5168.8	4229.4	NO	bd	bd	108.171
13C-123678-HxCDD	35.478	0.989	3.025e5	2.451e5	1.107	1.234	1.240	964	971	4.81e6	3.91e6	4990.5	4026.3	NO	db	db	90.309
13C-1234678-HpCDD	39.633	1.105	2.530e5	2.400e5	0.737	1.054	1.050	997	1004	3.97e6	3.76e6	3983.3	3751.0	NO	bb	bb	122.092
13C-OCDD	44.228	1.233	3.968e5	4.524e5	0.633	0.877	0.890	1906	2134	5.12e6	5.77e6	2687.5	2703.5	NO	bb	bb	245.053
13C-123789-HxCDD	35.868	0.000	2.994e5	2.485e5	1.000	1.205	1.240	964	971	4.77e6	3.96e6	4952.5	4081.8	NO	bb	bb	100.000
37CL-2378-TCDD	25.690	1.034	7.601e4		1.312			725		1.19e6		1642.0			bb		9.127

Dataset: T:\Autospec\Processed Data Batch\240304IH1.qld
Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
Printed: Wednesday, March 06, 2024 10:51:52 Pacific Standard Time

ID: CS3Z5, Name: 24030451, Date: 06-Mar-2024, Time: 03:48:43, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.551	0.861	4.725e4	5.673e4	1.247	0.833	0.770	1080	1330	7.68e5	9.47e5	711.0	712.0	NO	bb	bb	9.223
1289-TCDF	26.537	1.060	3.782e4	4.480e4	0.916	0.844	0.770	1080	1330	5.84e5	6.61e5	541.4	496.8	NO	db	db	9.982
13468-PECDF	26.410	0.905	2.771e5	1.764e5	1.353	1.571	1.550	493	568	4.46e6	2.84e6	9056.9	4989.9	NO	bb	bb	38.710
12389-PECDF	31.589	1.082	2.793e5	1.826e5	0.925	1.530	1.550	2663	2114	4.15e6	2.68e6	1559.5	1268.2	NO	bb	bb	57.659
123468-HXCDF	32.525	0.951	2.098e5	1.627e5	1.335	1.289	1.240	1473	1505	3.22e6	2.54e6	2189.1	1689.7	NO	bb	bb	46.166
1368-TCDD	22.822	0.889	3.244e4	4.196e4	1.120	0.773	0.770	874	1083	5.11e5	6.63e5	584.9	611.6	NO	bb	bb	9.262
1289-TCDD	26.283	1.024	3.129e4	4.049e4	0.966	0.773	0.770	874	1083	4.79e5	6.30e5	548.0	581.2	NO	bb	bd	10.364
12479-PECDD	28.080	0.912	2.777e5	1.840e5	1.859	1.509	1.550	1237	1165	2.71e6	1.80e6	2191.8	1542.7	NO	bb	bb	49.804
12389-PECDD	31.199	1.013	2.049e5	1.322e5	1.154	1.550	1.550	1237	1165	3.24e6	2.13e6	2620.6	1830.0	NO	bb	bb	58.586
124679-HXCDD	33.316	0.942	1.448e5	1.125e5	1.006	1.287	1.240	1452	1252	2.26e6	1.81e6	1556.4	1442.8	NO	bb	bb	45.430
1234679-HPCDD	38.631	0.975	1.414e5	1.413e5	1.184	1.001	1.050	1067	1198	2.35e6	2.34e6	2198.9	1951.4	NO	bb	bb	48.429
Total-tetrafurans			1.260e5		1.048			1080		1.99e6							29.153
Total-penta1			2.771e5					493		4.46e6							38.710
Total-pentafurans			8.917e5		1.043			2663		1.36e7							169.947
Total-hexafurans			9.845e5		1.217			1473		1.54e7							248.931
Total-heptafurans			3.286e5		1.387			2153		5.34e6							101.006
Total-Furans			2.810e6		1.180			1080		4.32e7							668.390
Total-tetradioxins			1.679e5		1.104			874		2.37e6							48.786
Total-pentadioxins			6.494e5		1.326			1237		8.64e6							165.708
Total-hexadioxins			5.392e5		0.863			1452		8.68e6							202.146
Total-heptadioxins			2.606e5		1.084			1067		4.26e6							97.314
Total-Dioxins			1.780e6		1.065			874		2.60e7							604.930
Total-TEQ			4.590e6					874		6.92e7							1273.320
FUNCTION1 PFK			1.304e7					259537		5.39e7							
FUNCTION2 PFK			1.082e5					212358		3.59e6							0.000
FUNCTION3 PFK			2.501e5					197622		7.48e6							0.000
FUNCTION4 PFK			1.634e5					158086		4.33e6							
FUNCTION5 PFK			1.267e5					118134		3.84e6							
FUNCTION1 HXCD...			1.802e2					518		1.93e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			3.294e2					608		7.18e3							0.000
FUNCTION3 OCDPE			0.000e0					428		0.00e0							
FUNCTION4 NCDPE			9.607e1					451		1.03e3							0.000
FUNCTION5 DCDPE			0.000e0					469		0.00e0							

Method: T:\Autospec\Methods\Dioxin240306.mdb 06 Mar 2024 10:17:07
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.54	3.782e4	4.480e4	0.916	0.84	0.77	541.4	YES	NO	db	db	9.982
2	Total-tetrafurans	26.42	1.197e3	1.374e3	1.048	0.87	0.77	19.1	YES	NO	bd	bd	0.272
3	2378-TCDF	25.05	3.899e4	4.517e4	0.980	0.86	0.77	557.9	YES	NO	bb	bb	9.499
4	Total-tetrafurans	24.14	3.041e2	3.763e2	1.048	0.81	0.77	3.5	YES	NO	bb	bb	0.072
5	Total-tetrafurans	23.80	4.026e2	6.005e2	1.048	0.67	0.77	6.2	YES	NO	bd	bd	0.106
6	1368-TCDF	21.55	4.725e4	5.673e4	1.247	0.83	0.77	711.0	YES	NO	bb	bb	9.223

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.41	2.771e5	1.764e5	1.353	1.57	1.55	9056.9	YES	NO	bb	bb	38.710

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.07	4.574e4	2.882e4	1.043	1.59	1.55	265.4	YES	NO	bb	bb	8.680
2	12389-PECDF	31.59	2.793e5	1.826e5	0.925	1.53	1.55	1559.5	YES	NO	bb	bb	57.659
3	23478-PeCDF	30.55	2.903e5	1.879e5	1.156	1.54	1.55	1689.4	YES	NO	bb	bb	52.913
4	Total-pentafurans	30.41	6.299e2	4.619e2	1.043	1.36	1.55	4.8	YES	NO	bb	bb	0.127
5	12378-PeCDF	29.22	2.758e5	1.826e5	1.047	1.51	1.55	1575.1	YES	NO	bb	bb	50.568

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.30	1.630e5	1.261e5	1.100	1.29	1.24	1750.2	YES	NO	bb	bb	52.725
2	234678-HxCDF	35.25	2.055e5	1.610e5	1.235	1.28	1.24	2228.9	YES	NO	bb	bb	51.277
3	123678-HxCDF	34.37	2.056e5	1.624e5	1.193	1.27	1.24	2124.2	YES	NO	db	db	50.048
4	123478-HxCDF	34.23	2.006e5	1.597e5	1.224	1.26	1.24	2141.6	YES	NO	bd	bd	48.716
5	123468-HXCDF	32.53	2.098e5	1.627e5	1.335	1.29	1.24	2189.1	YES	NO	bb	bb	46.166

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HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.20	1.820e5	1.679e5	1.392	1.08	1.05	1440.9	YES	NO	bb	bb	47.894
2	1234789-HpCDF	40.36	1.464e5	1.361e5	1.381	1.08	1.05	1038.2	YES	NO	bb	bb	53.055
3	Total-heptafurans	39.12	8.801e1	7.456e1	1.387	1.18	1.05	1.5	NO	NO	bb	bb	0.026
4	Total-heptafurans	38.56	9.366e1	1.033e2	1.387	0.91	1.05	1.7	NO	NO	bb	bb	0.031

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.54	3.782e4	4.480e4	0.916	0.84	0.77	541.4	YES	NO	db	db	9.982
2	Total-tetrafurans	26.42	1.197e3	1.374e3	1.048	0.87	0.77	19.1	YES	NO	bd	bd	0.272
3	2378-TCDF	25.05	3.899e4	4.517e4	0.980	0.86	0.77	557.9	YES	NO	bb	bb	9.499
4	Total-tetrafurans	24.14	3.041e2	3.763e2	1.048	0.81	0.77	3.5	YES	NO	bb	bb	0.072
5	Total-tetrafurans	23.80	4.026e2	6.005e2	1.048	0.67	0.77	6.2	YES	NO	bd	bd	0.106
6	1368-TCDF	21.55	4.725e4	5.673e4	1.247	0.83	0.77	711.0	YES	NO	bb	bb	9.223
7	Total-pentafurans	28.07	4.574e4	2.882e4	1.043	1.59	1.55	265.4	YES	NO	bb	bb	8.680
8	12389-PECDF	31.59	2.793e5	1.826e5	0.925	1.53	1.55	1559.5	YES	NO	bb	bb	57.659
9	23478-PeCDF	30.55	2.903e5	1.879e5	1.156	1.54	1.55	1689.4	YES	NO	bb	bb	52.913
10	Total-pentafurans	30.41	6.299e2	4.619e2	1.043	1.36	1.55	4.8	YES	NO	bb	bb	0.127
11	12378-PeCDF	29.22	2.758e5	1.826e5	1.047	1.51	1.55	1575.1	YES	NO	bb	bb	50.568
12	123789-HxCDF	36.30	1.630e5	1.261e5	1.100	1.29	1.24	1750.2	YES	NO	bb	bb	52.725
13	234678-HxCDF	35.25	2.055e5	1.610e5	1.235	1.28	1.24	2228.9	YES	NO	bb	bb	51.277
14	123678-HxCDF	34.37	2.056e5	1.624e5	1.193	1.27	1.24	2124.2	YES	NO	db	db	50.048
15	123478-HxCDF	34.23	2.006e5	1.597e5	1.224	1.26	1.24	2141.6	YES	NO	bd	bd	48.716
16	123468-HXCDF	32.53	2.098e5	1.627e5	1.335	1.29	1.24	2189.1	YES	NO	bb	bb	46.166
17	1234678-HpCDF	38.20	1.820e5	1.679e5	1.392	1.08	1.05	1440.9	YES	NO	bb	bb	47.894
18	1234789-HpCDF	40.36	1.464e5	1.361e5	1.381	1.08	1.05	1038.2	YES	NO	bb	bb	53.055
19	Total-heptafurans	39.12	8.801e1	7.456e1	1.387	1.18	1.05	1.5	NO	NO	bb	bb	0.026
20	Total-heptafurans	38.56	9.366e1	1.033e2	1.387	0.91	1.05	1.7	NO	NO	bb	bb	0.031
21	OCDF	44.46	2.021e5	2.164e5	1.222	0.93	0.89	2096.9	YES	NO	bb	bb	80.642
22	13468-PECDF	26.41	2.771e5	1.764e5	1.353	1.57	1.55	9056.9	YES	NO	bb	bb	38.710

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TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	22.82	3.244e4	4.196e4	1.120	0.77	0.77	584.9	YES	NO	bb	bb	9.262
2	1289-TCDD	26.28	3.129e4	4.049e4	0.966	0.77	0.77	548.0	YES	NO	bb	bd	10.364
3	2378-TCDD	25.69	3.420e4	4.426e4	1.227	0.77	0.77	610.4	YES	NO	bb	bd	8.918
4	Total-tetradioxins	25.36	5.354e4	6.898e4	1.104	0.78	0.77	669.6	YES	NO	bb	bb	15.471
5	Total-tetradioxins	24.87	1.639e4	2.139e4	1.104	0.77	0.77	301.4	YES	NO	bb	bb	4.770

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.20	2.049e5	1.322e5	1.154	1.55	1.55	2620.6	YES	NO	bb	bb	58.586
2	12378-PeCDD	30.81	1.657e5	1.085e5	0.964	1.53	1.55	2154.7	YES	NO	bb	bb	57.028
3	Total-pentadioxins	30.13	7.345e2	5.418e2	1.326	1.36	1.55	12.5	YES	NO	bb	bb	0.193
4	Total-pentadioxins	29.20	3.675e2	2.776e2	1.326	1.32	1.55	6.2	YES	NO	bd	bb	0.098
5	12479-PECDD	28.08	2.777e5	1.840e5	1.859	1.51	1.55	2191.8	YES	NO	bb	bb	49.804

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDD	35.38	1.316e5	1.047e5	0.841	1.26	1.24	1500.9	YES	NO	bd	bd	49.938
2	Total-hexadioxins	34.43	3.505e2	3.261e2	0.863	1.07	1.24	5.9	YES	NO	bd	bd	0.141
3	124679-HXCDD	33.32	1.448e5	1.125e5	1.006	1.29	1.24	1556.4	YES	NO	bb	bb	45.430
4	123789-HxCDD	35.89	1.301e5	1.016e5	0.770	1.28	1.24	1443.7	YES	NO	bb	bb	54.160
5	123678-HxCDD	35.49	1.323e5	1.070e5	0.833	1.24	1.24	1471.7	YES	NO	db	db	52.476

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.66	1.192e5	1.180e5	0.984	1.01	1.05	1793.7	YES	NO	bb	bb	48.885
2	1234679-HPCDD	38.63	1.414e5	1.413e5	1.184	1.00	1.05	2198.9	YES	NO	bb	bb	48.429

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	22.82	3.244e4	4.196e4	1.120	0.77	0.77	584.9	YES	NO	bb	bb	9.262
2	1289-TCDD	26.28	3.129e4	4.049e4	0.966	0.77	0.77	548.0	YES	NO	bb	bd	10.364
3	2378-TCDD	25.69	3.420e4	4.426e4	1.227	0.77	0.77	610.4	YES	NO	bb	bd	8.918
4	Total-tetradioxins	25.36	5.354e4	6.898e4	1.104	0.78	0.77	669.6	YES	NO	bb	bb	15.471
5	Total-tetradioxins	24.87	1.639e4	2.139e4	1.104	0.77	0.77	301.4	YES	NO	bb	bb	4.770
6	12389-PECDD	31.20	2.049e5	1.322e5	1.154	1.55	1.55	2620.6	YES	NO	bb	bb	58.586
7	12378-PeCDD	30.81	1.657e5	1.085e5	0.964	1.53	1.55	2154.7	YES	NO	bb	bb	57.028
8	Total-pentadioxins	30.13	7.345e2	5.418e2	1.326	1.36	1.55	12.5	YES	NO	bb	bb	0.193
9	Total-pentadioxins	29.20	3.675e2	2.776e2	1.326	1.32	1.55	6.2	YES	NO	bd	bb	0.098
10	12479-PECDD	28.08	2.777e5	1.840e5	1.859	1.51	1.55	2191.8	YES	NO	bb	bb	49.804
11	123478-HxCDD	35.38	1.316e5	1.047e5	0.841	1.26	1.24	1500.9	YES	NO	bd	bd	49.938
12	Total-hexadioxins	34.43	3.505e2	3.261e2	0.863	1.07	1.24	5.9	YES	NO	bd	bd	0.141
13	124679-HXCDD	33.32	1.448e5	1.125e5	1.006	1.29	1.24	1556.4	YES	NO	bb	bb	45.430
14	123789-HxCDD	35.89	1.301e5	1.016e5	0.770	1.28	1.24	1443.7	YES	NO	bb	bb	54.160
15	123678-HxCDD	35.49	1.323e5	1.070e5	0.833	1.24	1.24	1471.7	YES	NO	db	db	52.476
16	1234678-HpCDD	39.66	1.192e5	1.180e5	0.984	1.01	1.05	1793.7	YES	NO	bb	bb	48.885
17	1234679-HPCDD	38.63	1.414e5	1.413e5	1.184	1.00	1.05	2198.9	YES	NO	bb	bb	48.429
18	OCDD	44.24	1.631e5	1.990e5	0.938	0.82	0.89	1674.3	YES	NO	bb	bb	90.976

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.54	3.782e4	4.480e4	0.916	0.84	0.77	541.4	YES	NO	db	db	9.982
2	Total-tetrafurans	26.42	1.197e3	1.374e3	1.048	0.87	0.77	19.1	YES	NO	bd	bd	0.272
3	2378-TCDF	25.05	3.899e4	4.517e4	0.980	0.86	0.77	557.9	YES	NO	bb	bb	9.499
4	Total-tetrafurans	24.14	3.041e2	3.763e2	1.048	0.81	0.77	3.5	YES	NO	bb	bb	0.072
5	Total-tetrafurans	23.80	4.026e2	6.005e2	1.048	0.67	0.77	6.2	YES	NO	bd	bd	0.106
6	1368-TCDF	21.55	4.725e4	5.673e4	1.247	0.83	0.77	711.0	YES	NO	bb	bb	9.223
7	Total-pentafurans	28.07	4.574e4	2.882e4	1.043	1.59	1.55	265.4	YES	NO	bb	bb	8.680
8	12389-PECDF	31.59	2.793e5	1.826e5	0.925	1.53	1.55	1559.5	YES	NO	bb	bb	57.659
9	23478-PeCDF	30.55	2.903e5	1.879e5	1.156	1.54	1.55	1689.4	YES	NO	bb	bb	52.913
10	Total-pentafurans	30.41	6.299e2	4.619e2	1.043	1.36	1.55	4.8	YES	NO	bb	bb	0.127
11	12378-PeCDF	29.22	2.758e5	1.826e5	1.047	1.51	1.55	1575.1	YES	NO	bb	bb	50.568
12	123789-HxCDF	36.30	1.630e5	1.261e5	1.100	1.29	1.24	1750.2	YES	NO	bb	bb	52.725
13	234678-HxCDF	35.25	2.055e5	1.610e5	1.235	1.28	1.24	2228.9	YES	NO	bb	bb	51.277
14	123678-HxCDF	34.37	2.056e5	1.624e5	1.193	1.27	1.24	2124.2	YES	NO	db	db	50.048
15	123478-HxCDF	34.23	2.006e5	1.597e5	1.224	1.26	1.24	2141.6	YES	NO	bd	bd	48.716
16	123468-HXCDF	32.53	2.098e5	1.627e5	1.335	1.29	1.24	2189.1	YES	NO	bb	bb	46.166
17	1234678-HpCDF	38.20	1.820e5	1.679e5	1.392	1.08	1.05	1440.9	YES	NO	bb	bb	47.894
18	1234789-HpCDF	40.36	1.464e5	1.361e5	1.381	1.08	1.05	1038.2	YES	NO	bb	bb	53.055
19	Total-heptafurans	39.12	8.801e1	7.456e1	1.387	1.18	1.05	1.5	NO	NO	bb	bb	0.026
20	Total-heptafurans	38.56	9.366e1	1.033e2	1.387	0.91	1.05	1.7	NO	NO	bb	bb	0.031
21	OCDF	44.46	2.021e5	2.164e5	1.222	0.93	0.89	2096.9	YES	NO	bb	bb	80.642
22	13468-PECDF	26.41	2.771e5	1.764e5	1.353	1.57	1.55	9056.9	YES	NO	bb	bb	38.710
23	1368-TCDD	22.82	3.244e4	4.196e4	1.120	0.77	0.77	584.9	YES	NO	bb	bb	9.262
24	1289-TCDD	26.28	3.129e4	4.049e4	0.966	0.77	0.77	548.0	YES	NO	bb	bd	10.364
25	2378-TCDD	25.69	3.420e4	4.426e4	1.227	0.77	0.77	610.4	YES	NO	bb	bd	8.918
26	Total-tetradioxins	25.36	5.354e4	6.898e4	1.104	0.78	0.77	669.6	YES	NO	bb	bb	15.471
27	Total-tetradioxins	24.87	1.639e4	2.139e4	1.104	0.77	0.77	301.4	YES	NO	bb	bb	4.770
28	12389-PECDD	31.20	2.049e5	1.322e5	1.154	1.55	1.55	2620.6	YES	NO	bb	bb	58.586
29	12378-PeCDD	30.81	1.657e5	1.085e5	0.964	1.53	1.55	2154.7	YES	NO	bb	bb	57.028
30	Total-pentadioxins	30.13	7.345e2	5.418e2	1.326	1.36	1.55	12.5	YES	NO	bb	bb	0.193
31	Total-pentadioxins	29.20	3.675e2	2.776e2	1.326	1.32	1.55	6.2	YES	NO	bd	bb	0.098
32	12479-PECDD	28.08	2.777e5	1.840e5	1.859	1.51	1.55	2191.8	YES	NO	bb	bb	49.804
33	123478-HxCDD	35.38	1.316e5	1.047e5	0.841	1.26	1.24	1500.9	YES	NO	bd	bd	49.938
34	Total-hexadioxins	34.43	3.505e2	3.261e2	0.863	1.07	1.24	5.9	YES	NO	bd	bd	0.141
35	124679-HXCDD	33.32	1.448e5	1.125e5	1.006	1.29	1.24	1556.4	YES	NO	bb	bb	45.430
36	123789-HxCDD	35.89	1.301e5	1.016e5	0.770	1.28	1.24	1443.7	YES	NO	bb	bb	54.160
37	123678-HxCDD	35.49	1.323e5	1.070e5	0.833	1.24	1.24	1471.7	YES	NO	db	db	52.476

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	1234678-HpCDD	39.66	1.192e5	1.180e5	0.984	1.01	1.05	1793.7	YES	NO	bb	bb	48.885
39	1234679-HPCDD	38.63	1.414e5	1.413e5	1.184	1.00	1.05	2198.9	YES	NO	bb	bb	48.429
40	OCDD	44.24	1.631e5	1.990e5	0.938	0.82	0.89	1674.3	YES	NO	bb	bb	90.976

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	24.91	3.926e3					0.7	NO		bb		
2	FUNCTION1 PFK	24.49	1.819e3					0.5	NO		bb		
3	FUNCTION1 PFK	23.83	8.813e3					1.0	NO		bb		
4	FUNCTION1 PFK	23.64	3.578e3					0.6	NO		bb		
5	FUNCTION1 PFK	23.19	1.789e4					1.1	NO		bb		
6	FUNCTION1 PFK	22.65	7.878e4					2.8	NO		db		
7	FUNCTION1 PFK	22.37	5.841e5					13.6	YES		dd		
8	FUNCTION1 PFK	22.30	3.279e5					15.6	YES		dd		
9	FUNCTION1 PFK	21.47	9.428e6					46.1	YES		dd		
10	FUNCTION1 PFK	21.16	1.405e6					56.8	YES		dd		
11	FUNCTION1 PFK	21.11	1.041e6					56.9	YES		bd		
12	FUNCTION1 PFK	26.86	4.307e3					0.8	NO		bb		
13	FUNCTION1 PFK	26.47	1.928e4					1.5	NO		bb		
14	FUNCTION1 PFK	26.37	1.400e4					1.3	NO		bb		
15	FUNCTION1 PFK	26.24	2.084e4					1.4	NO		bb		
16	FUNCTION1 PFK	26.17	1.829e4					1.7	NO		bb		
17	FUNCTION1 PFK	26.04	6.815e3					0.9	NO		bb		
18	FUNCTION1 PFK	25.73	3.609e4					1.7	NO		bb		
19	FUNCTION1 PFK	25.32	9.336e3					1.2	NO		bb		
20	FUNCTION1 PFK	25.01	1.207e4					1.3	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.83	7.881e3					0.7	NO		bb		0.000
2	FUNCTION2 PFK	28.48	8.098e3					1.0	NO		bb		0.000
3	FUNCTION2 PFK	28.39	6.205e3					0.9	NO		bb		0.000
4	FUNCTION2 PFK	27.82	5.138e3					0.8	NO		bb		0.000
5	FUNCTION2 PFK	27.58	1.985e4					1.6	NO		db		0.000
6	FUNCTION2 PFK	27.48	9.034e3					1.6	NO		bd		0.000
7	FUNCTION2 PFK	32.00	1.039e3					0.4	NO		bb		0.000
8	FUNCTION2 PFK	31.63	3.493e3					0.8	NO		bb		0.000
9	FUNCTION2 PFK	30.89	5.035e3					0.9	NO		bb		0.000
10	FUNCTION2 PFK	30.72	1.965e3					0.6	NO		bb		0.000
11	FUNCTION2 PFK	30.56	4.824e3					1.1	NO		bb		0.000
12	FUNCTION2 PFK	30.31	4.327e3					0.9	NO		bb		0.000
13	FUNCTION2 PFK	29.82	1.335e3					0.6	NO		bb		0.000
14	FUNCTION2 PFK	29.57	1.169e4					1.0	NO		db		0.000
15	FUNCTION2 PFK	29.54	2.108e3					0.7	NO		bd		0.000
16	FUNCTION2 PFK	29.49	8.287e3					1.6	NO		bb		0.000
17	FUNCTION2 PFK	29.36	7.887e3					1.5	NO		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	32.59	7.963e2					0.4	NO		bb		0.000
2	FUNCTION3 PFK	32.42	4.951e3					0.9	NO		bb		0.000
3	FUNCTION3 PFK	32.30	4.805e3					0.8	NO		bb		0.000
4	FUNCTION3 PFK	32.21	1.084e3					0.5	NO		bb		0.000
5	FUNCTION3 PFK	34.75	2.202e3					0.7	NO		bb		0.000
6	FUNCTION3 PFK	34.64	6.138e3					1.2	NO		bb		0.000
7	FUNCTION3 PFK	34.58	1.193e4					1.4	NO		db		0.000
8	FUNCTION3 PFK	34.52	9.190e3					1.3	NO		bd		0.000
9	FUNCTION3 PFK	34.44	6.711e3					1.1	NO		bb		0.000
10	FUNCTION3 PFK	34.30	6.184e3					1.3	NO		bb		0.000
11	FUNCTION3 PFK	34.07	6.736e3					1.0	NO		bb		0.000
12	FUNCTION3 PFK	33.82	2.580e4					1.7	NO		db		0.000
13	FUNCTION3 PFK	33.69	2.309e4					2.0	NO		bd		0.000
14	FUNCTION3 PFK	33.36	4.601e3					0.8	NO		bb		0.000
15	FUNCTION3 PFK	33.08	8.312e2					0.4	NO		bb		0.000
16	FUNCTION3 PFK	32.95	2.408e3					0.7	NO		bb		0.000
17	FUNCTION3 PFK	32.90	8.038e2					0.4	NO		bb		0.000
18	FUNCTION3 PFK	32.77	3.443e3					0.7	NO		bb		0.000
19	FUNCTION3 PFK	32.69	6.194e3					1.1	NO		db		0.000
20	FUNCTION3 PFK	32.65	7.367e3					1.3	NO		bd		0.000
21	FUNCTION3 PFK	36.63	3.250e3					0.7	NO		bb		0.000
22	FUNCTION3 PFK	36.52	1.794e4					2.0	NO		bb		0.000
23	FUNCTION3 PFK	36.46	4.827e3					0.9	NO		bb		0.000
24	FUNCTION3 PFK	36.31	5.451e3					1.1	NO		bb		0.000
25	FUNCTION3 PFK	36.24	7.501e3					1.2	NO		bb		0.000
26	FUNCTION3 PFK	36.07	4.293e3					0.8	NO		bb		0.000
27	FUNCTION3 PFK	35.90	3.378e3					0.7	NO		bb		0.000
28	FUNCTION3 PFK	35.63	4.870e3					1.0	NO		db		0.000
29	FUNCTION3 PFK	35.59	8.511e3					1.3	NO		bd		0.000
30	FUNCTION3 PFK	35.07	5.798e3					1.0	NO		db		0.000
31	FUNCTION3 PFK	35.02	6.268e3					1.1	NO		dd		0.000
32	FUNCTION3 PFK	34.99	6.176e3					0.9	NO		dd		0.000
33	FUNCTION3 PFK	34.94	1.077e3					0.4	NO		bd		0.000
34	FUNCTION3 PFK	34.90	1.246e3					0.5	NO		bb		0.000
35	FUNCTION3 PFK	34.85	1.272e3					0.4	NO		bb		0.000
36	FUNCTION3 PFK	34.79	2.730e3					0.8	NO		bb		0.000
37	FUNCTION3 PFK	37.05	2.359e4					2.0	NO		db		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION3 PFK	36.99	5.138e3					1.2	NO		bd		0.000
39	FUNCTION3 PFK	36.95	1.522e3					0.4	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	40.08	4.507e3					1.3	NO		bb		
2	FUNCTION4 PFK	39.92	1.247e3					0.7	NO		bb		
3	FUNCTION4 PFK	39.81	1.251e4					1.6	NO		db		
4	FUNCTION4 PFK	39.73	1.048e4					1.9	NO		bd		
5	FUNCTION4 PFK	39.48	3.464e3					0.9	NO		bb		
6	FUNCTION4 PFK	39.40	8.957e2					0.5	NO		bb		
7	FUNCTION4 PFK	39.29	1.057e4					2.4	NO		bb		
8	FUNCTION4 PFK	39.17	5.602e3					1.4	NO		bb		
9	FUNCTION4 PFK	38.69	8.051e3					1.6	NO		bb		
10	FUNCTION4 PFK	38.47	4.432e4					3.1	YES		bb		
11	FUNCTION4 PFK	37.43	8.561e3					2.2	NO		bb		
12	FUNCTION4 PFK	37.36	6.600e3					1.3	NO		bb		
13	FUNCTION4 PFK	42.08	1.371e4					2.2	NO		bb		
14	FUNCTION4 PFK	41.47	7.473e3					1.8	NO		bb		
15	FUNCTION4 PFK	40.77	6.854e3					1.7	NO		bb		
16	FUNCTION4 PFK	40.65	1.577e4					2.1	NO		bb		
17	FUNCTION4 PFK	40.21	2.821e3					0.9	NO		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.51	4.037e3					1.6	NO		db		
2	FUNCTION5 PFK	43.47	8.209e3					2.0	NO		dd		
3	FUNCTION5 PFK	43.42	8.087e3					1.4	NO		dd		
4	FUNCTION5 PFK	43.36	3.929e3					1.3	NO		bd		
5	FUNCTION5 PFK	43.21	4.308e2					0.4	NO		bb		
6	FUNCTION5 PFK	43.09	1.177e3					0.7	NO		bb		
7	FUNCTION5 PFK	42.94	8.207e3					1.8	NO		bb		
8	FUNCTION5 PFK	42.84	4.756e3					1.3	NO		bb		
9	FUNCTION5 PFK	42.66	1.409e3					0.7	NO		db		
10	FUNCTION5 PFK	42.61	6.750e3					1.5	NO		bd		
11	FUNCTION5 PFK	45.59	7.740e3					1.7	NO		bd		
12	FUNCTION5 PFK	45.42	4.089e2					0.4	NO		bb		
13	FUNCTION5 PFK	45.16	1.523e3					0.8	NO		bb		
14	FUNCTION5 PFK	45.04	6.143e2					0.6	NO		bb		
15	FUNCTION5 PFK	44.88	1.919e3					0.7	NO		bb		
16	FUNCTION5 PFK	44.77	9.531e2					0.7	NO		db		
17	FUNCTION5 PFK	44.74	2.629e3					1.0	NO		bd		
18	FUNCTION5 PFK	44.70	4.684e2					0.4	NO		bb		
19	FUNCTION5 PFK	44.63	1.704e3					0.8	NO		bb		
20	FUNCTION5 PFK	44.54	1.150e3					0.7	NO		bb		
21	FUNCTION5 PFK	44.33	9.442e3					1.4	NO		bb		
22	FUNCTION5 PFK	44.17	1.184e4					1.8	NO		bb		
23	FUNCTION5 PFK	43.80	9.288e3					1.4	NO		db		
24	FUNCTION5 PFK	43.72	4.107e3					1.4	NO		dd		
25	FUNCTION5 PFK	43.62	1.212e4					1.7	NO		bd		
26	FUNCTION5 PFK	43.55	3.375e3					1.2	NO		bb		
27	FUNCTION5 PFK	45.72	3.524e3					1.5	NO		bb		
28	FUNCTION5 PFK	45.66	6.866e3					1.7	NO		db		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	25.72	8.919e1					1.5	NO		bb		0.000
2	FUNCTION1 HXCD...	25.01	9.099e1					2.2	NO		bb		0.000

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ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.82	8.964e1					3.4	YES		db		0.000
2	FUNCTION2 HPCD...	30.79	7.429e1					3.2	YES		bd		0.000
3	FUNCTION2 HPCD...	30.13	9.235e1					2.1	NO		bb		0.000
4	FUNCTION2 HPCD...	28.38	7.315e1					3.2	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	39.00	9.607e1					2.3	NO		bb		0.000

ETHERS6

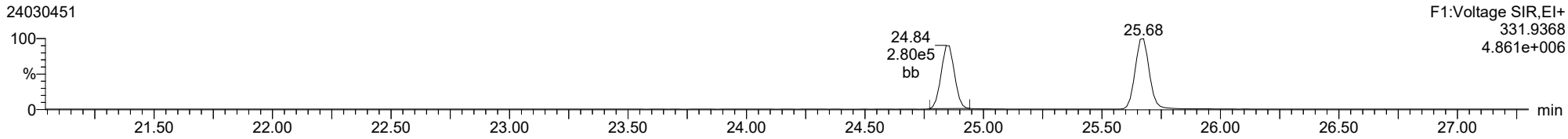
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1													

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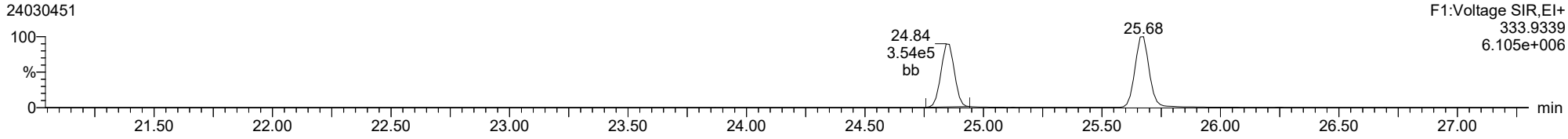
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Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

ID: CS3Z5, Name: 24030451, Date: 06-Mar-2024, Time: 03:48:43, Conditions: AUTOSPEC01, User: pk

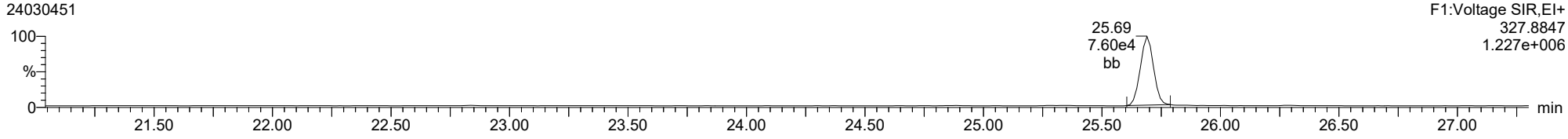
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13C-1234-TCDD

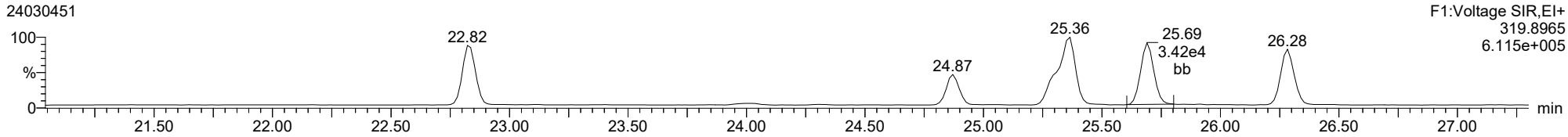


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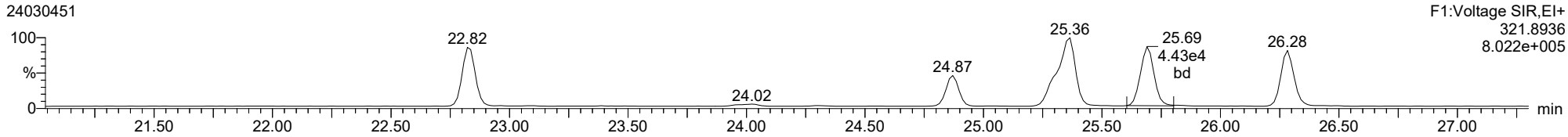


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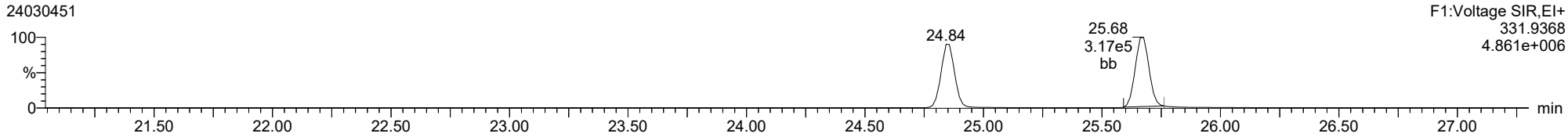
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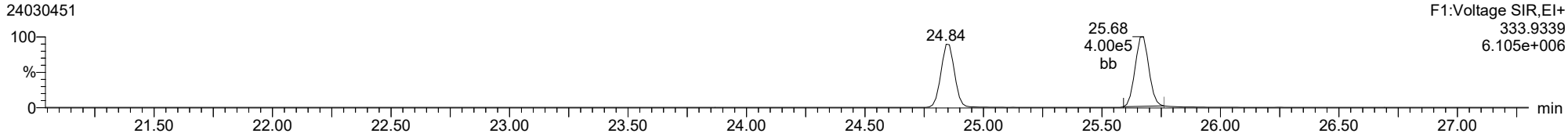
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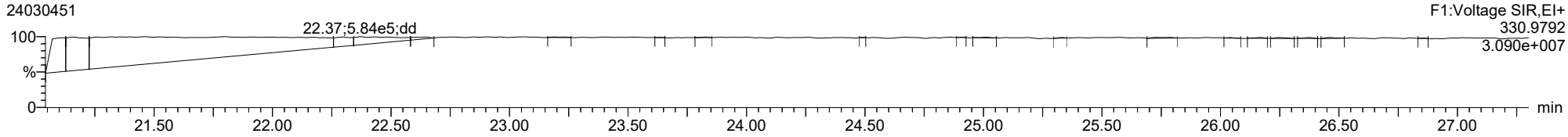
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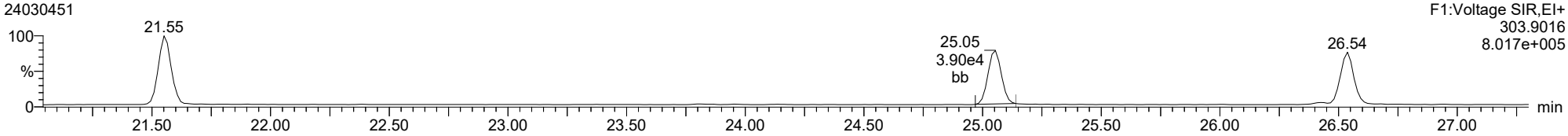


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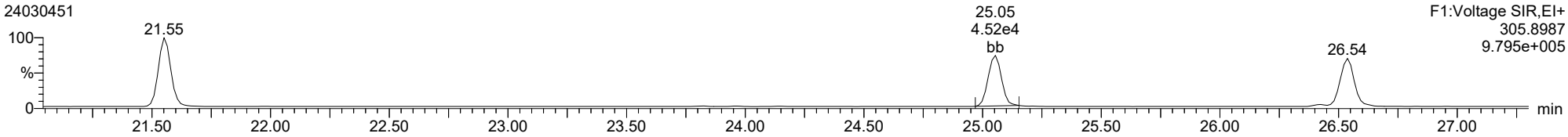


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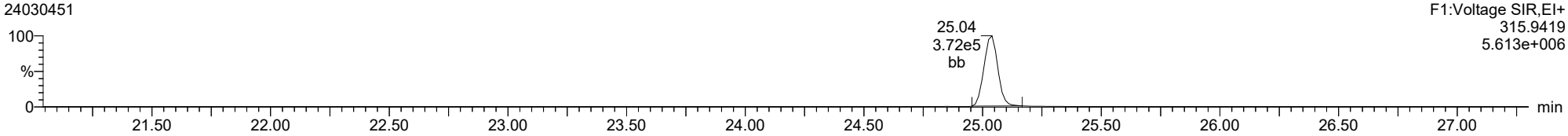
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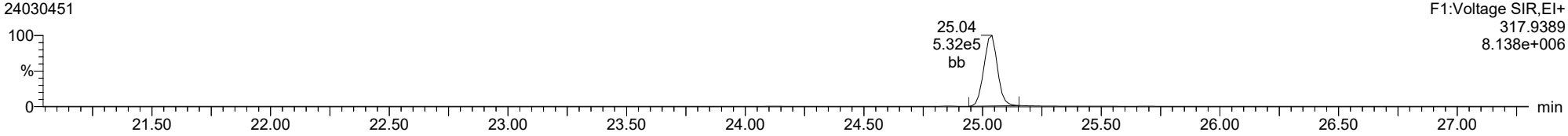
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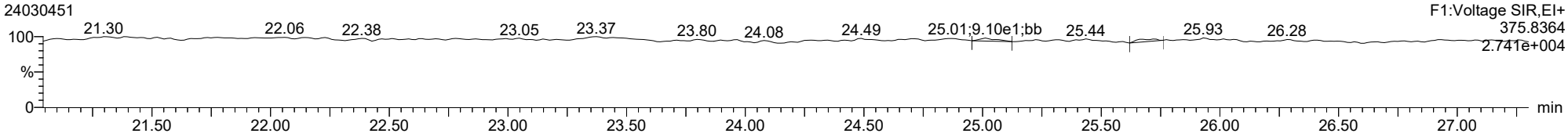
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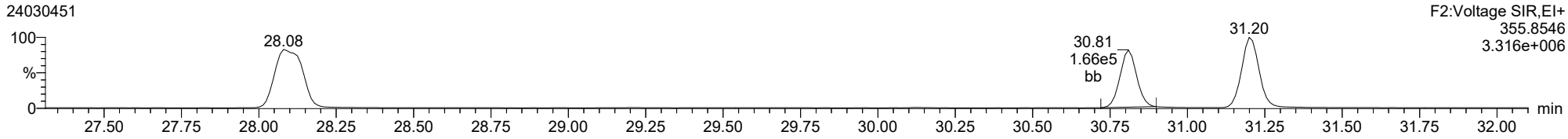


FUNCTION1 HXCDPE

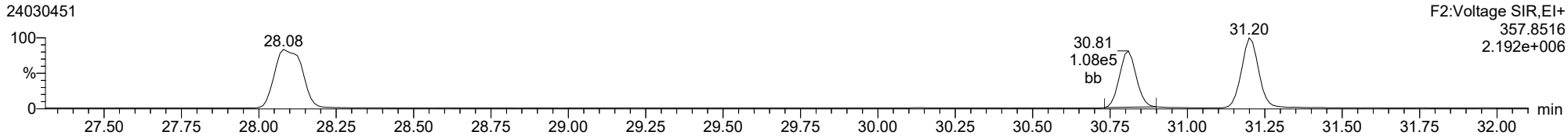


ID: CS3Z5, Name: 24030451, Date: 06-Mar-2024, Time: 03:48:43, Conditions: AUTOSPEC01, User: pk

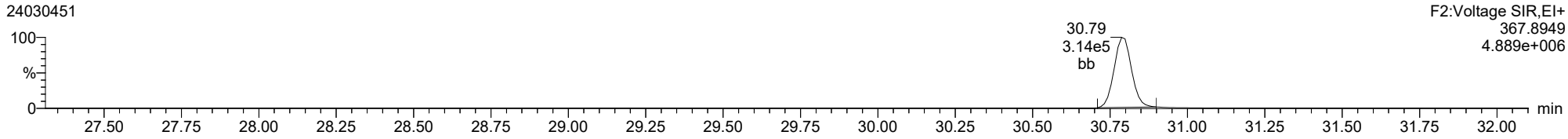
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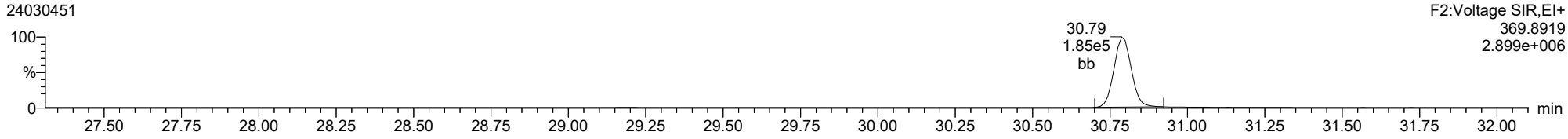
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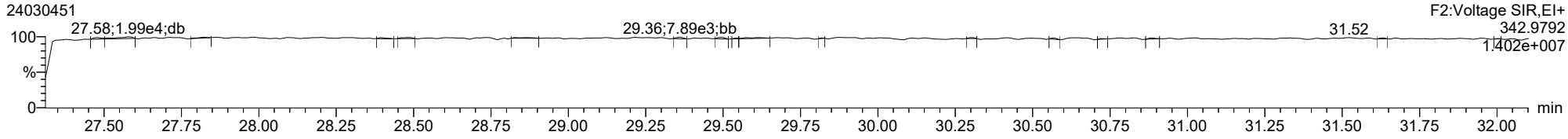
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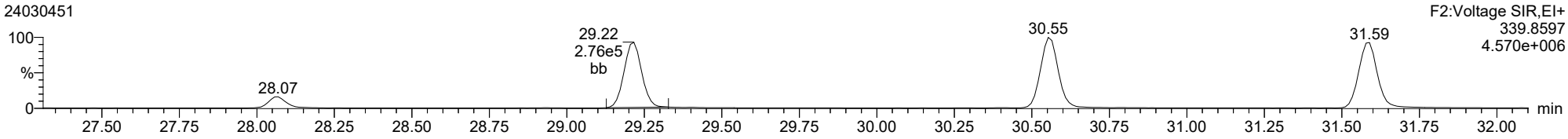


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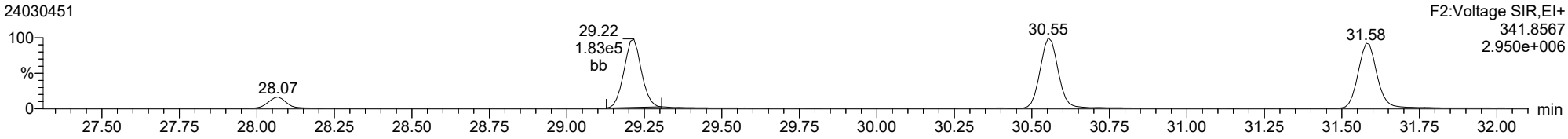


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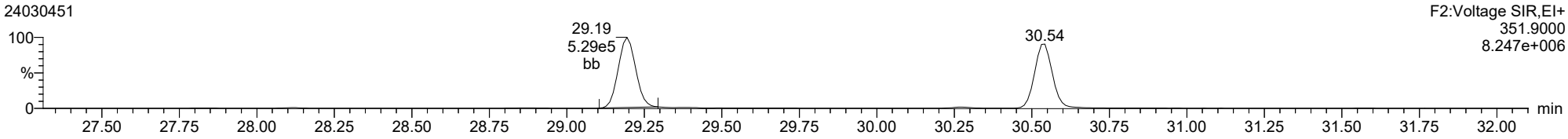
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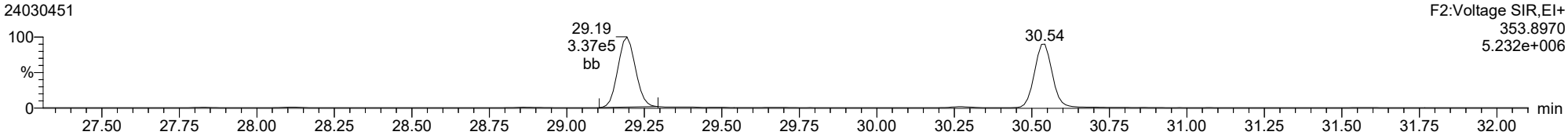
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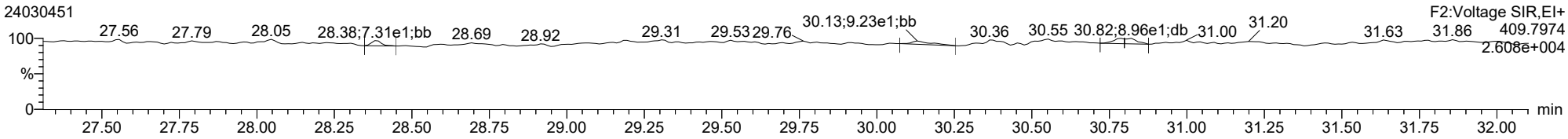
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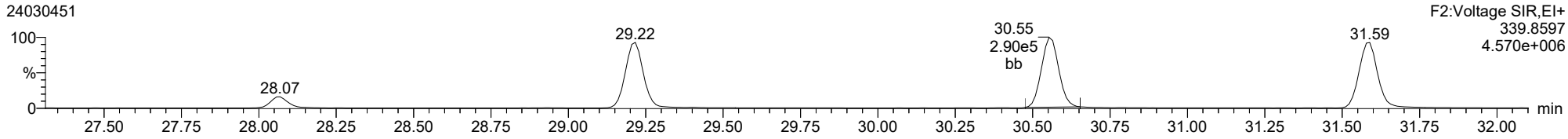


FUNCTION2 HPCDPE

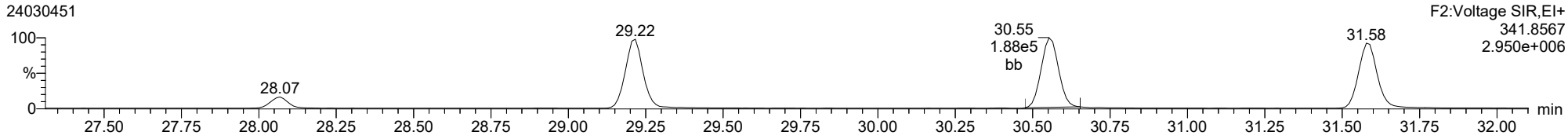


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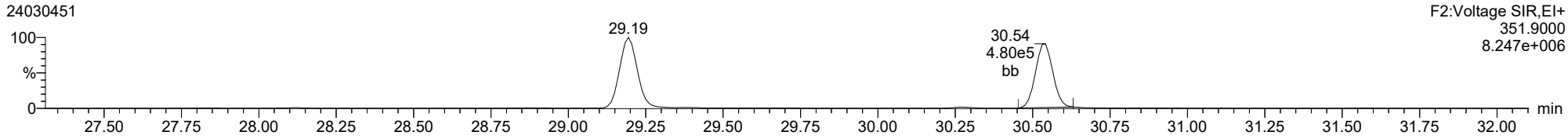
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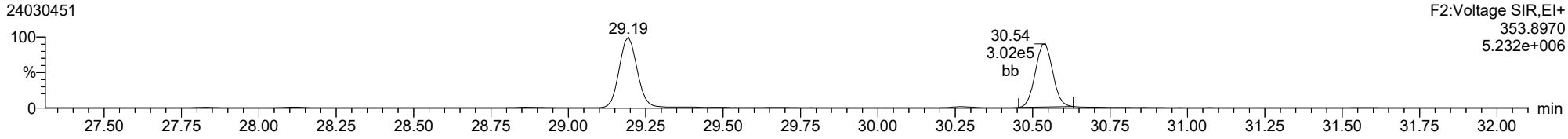
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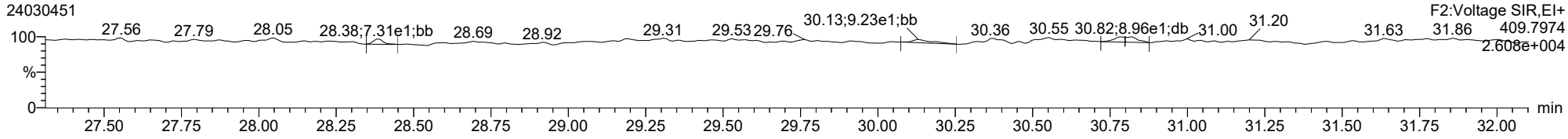
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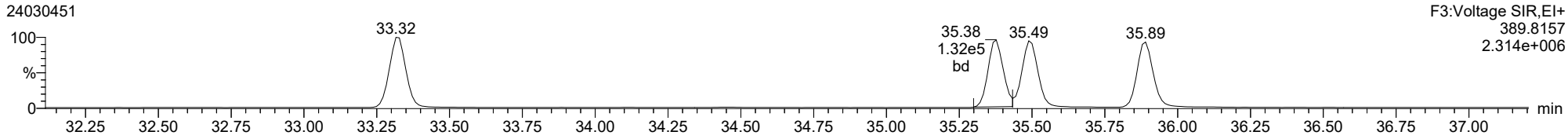


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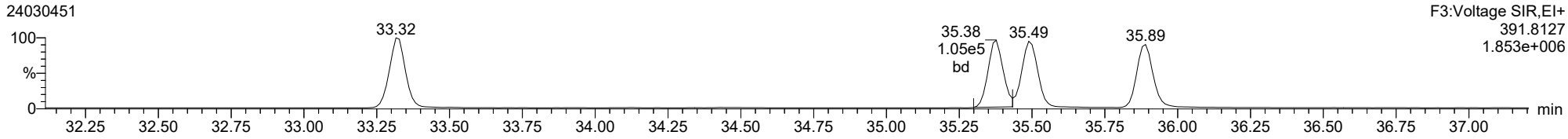


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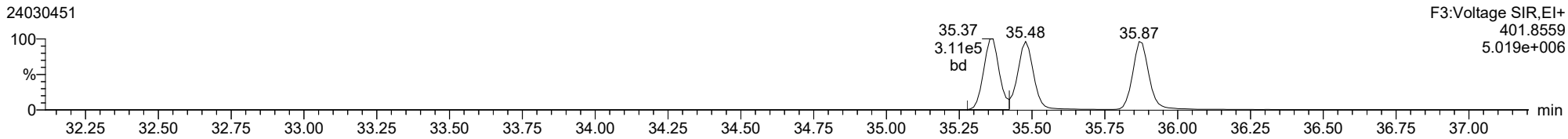
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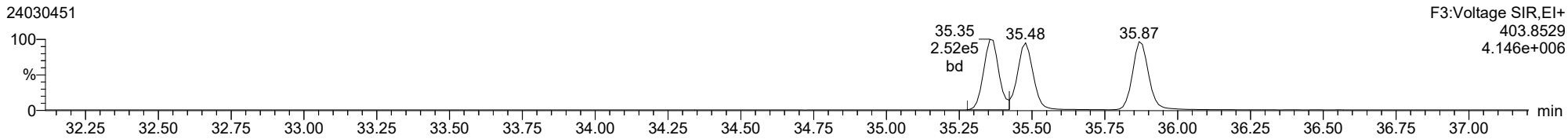
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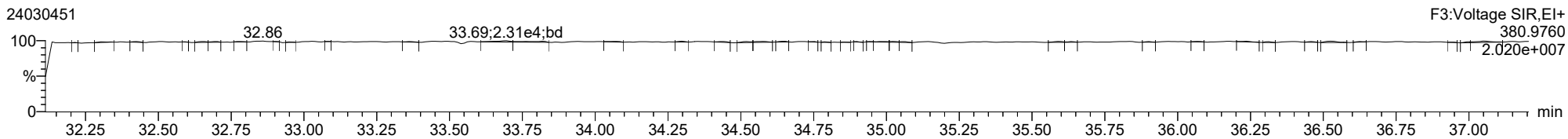
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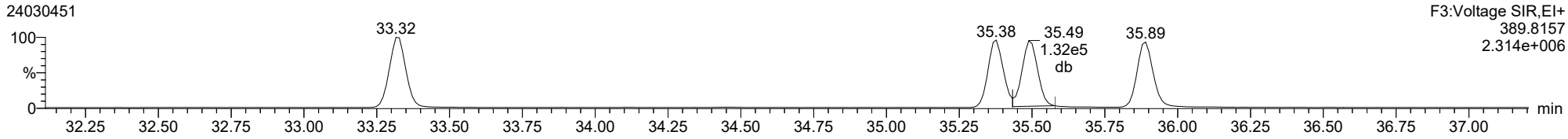


FUNCTION3 PFK

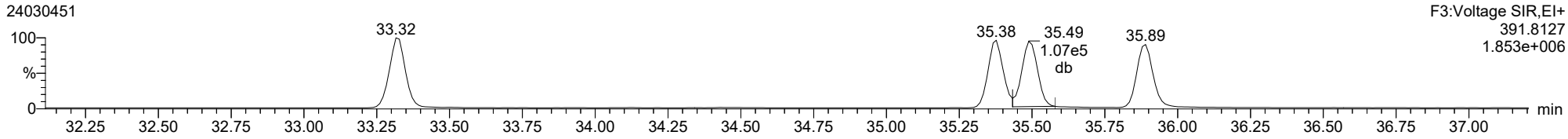


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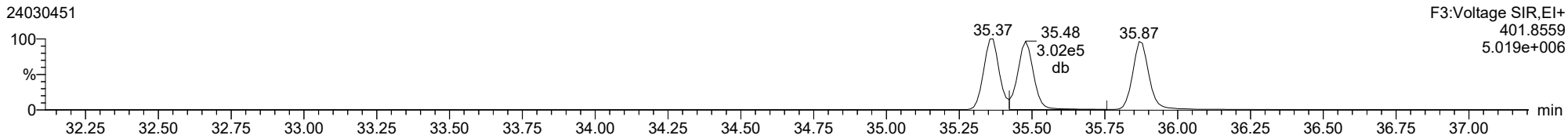
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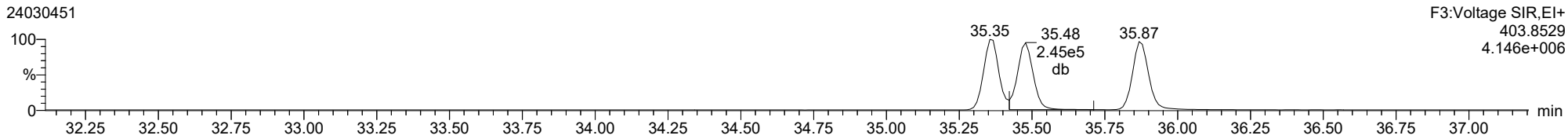
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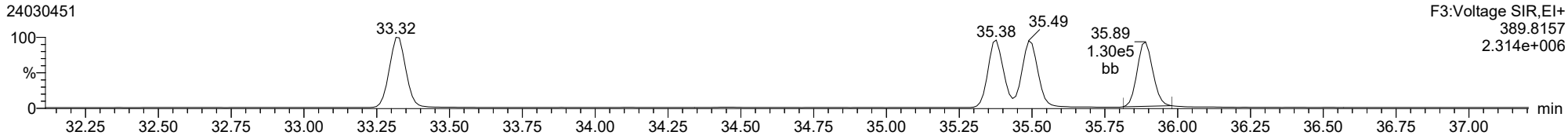


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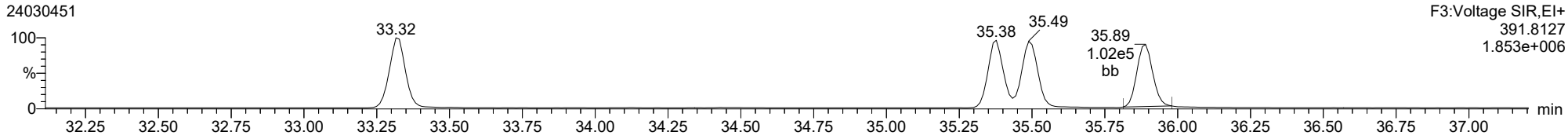


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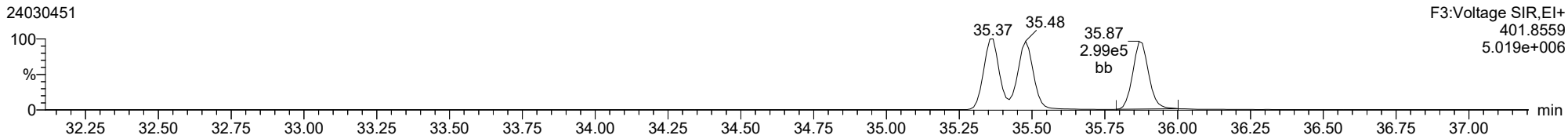
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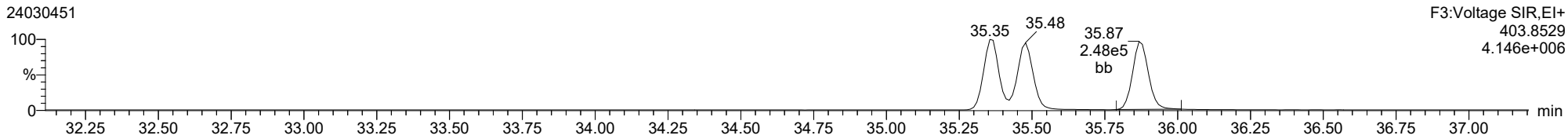
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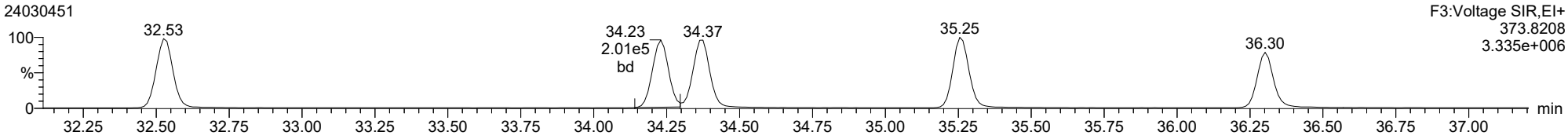


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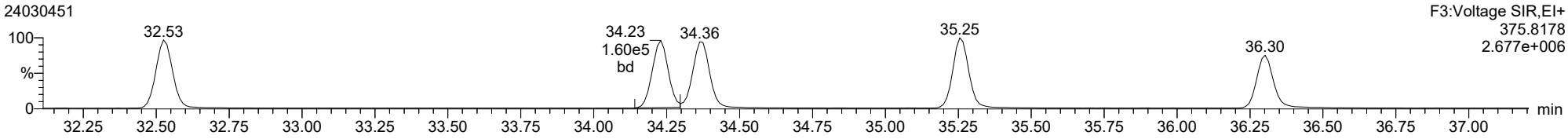


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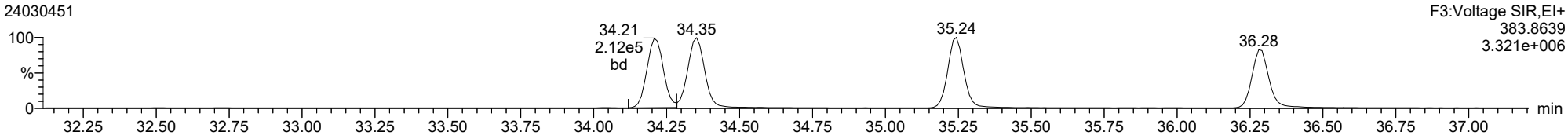
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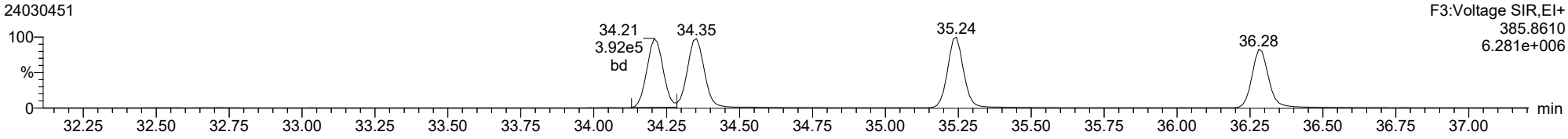
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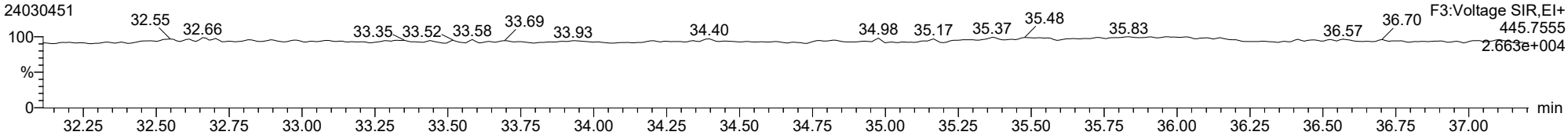
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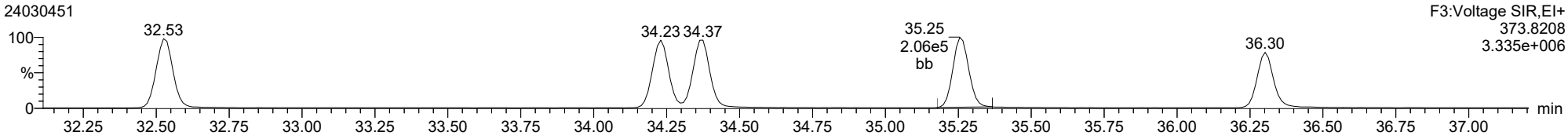


FUNCTION3 OCDPE

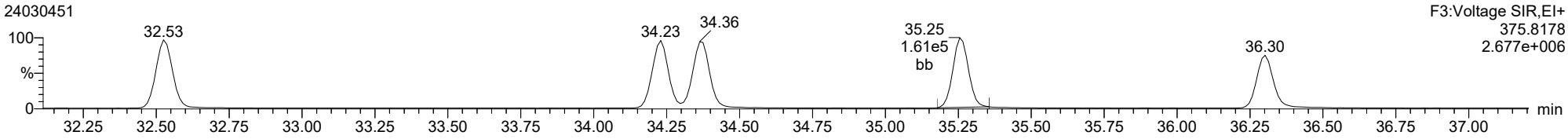


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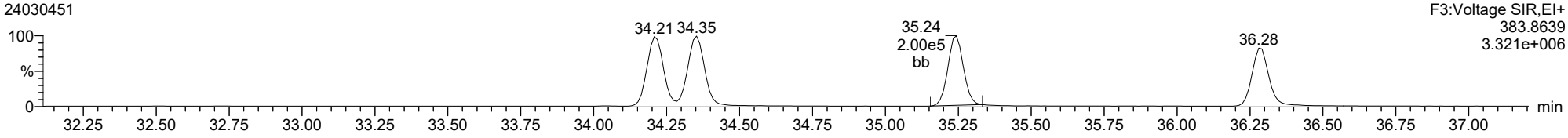
234678-HxCDF



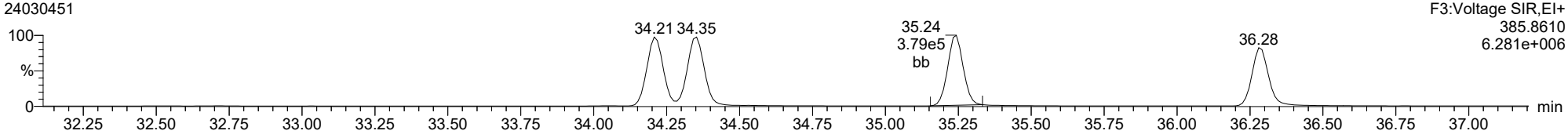
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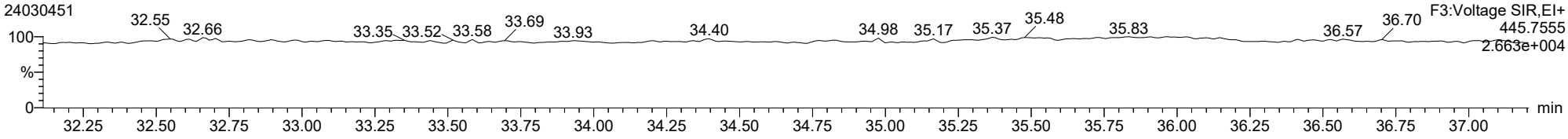
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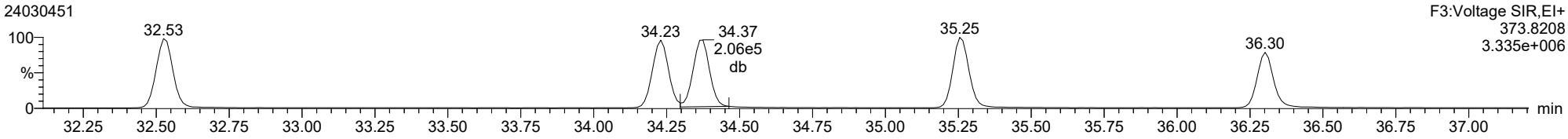


FUNCTION3 OCDPE

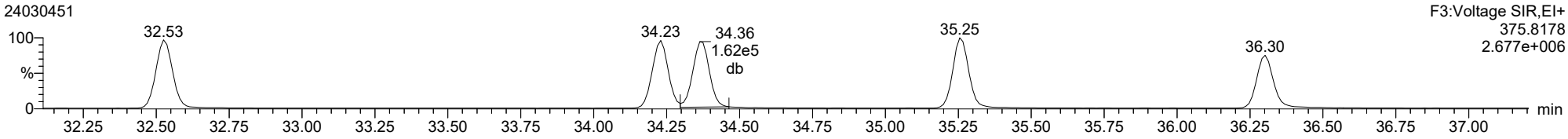


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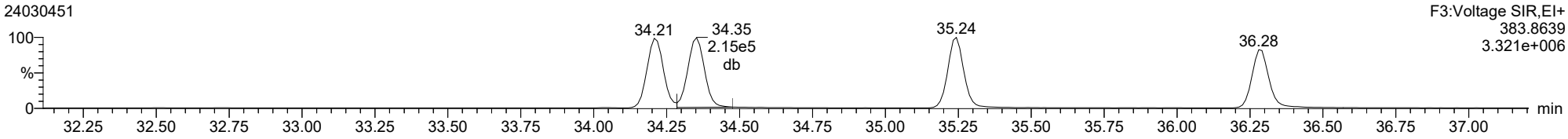
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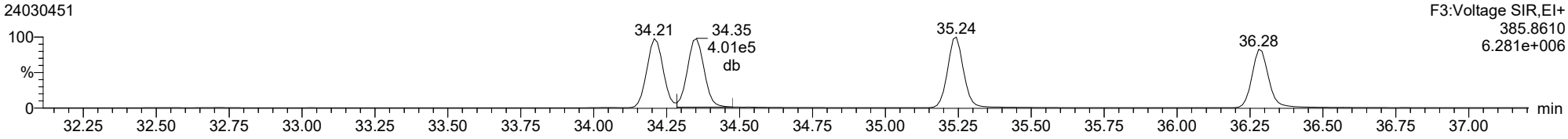
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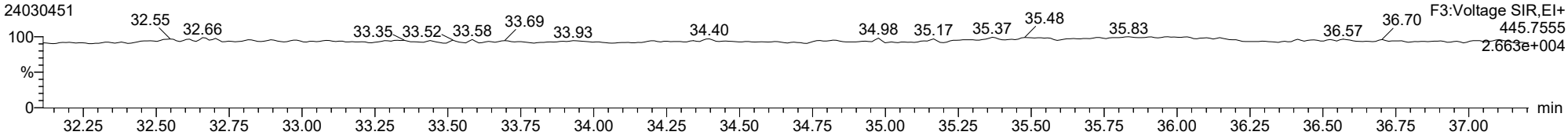
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13C-123678-HxCDF

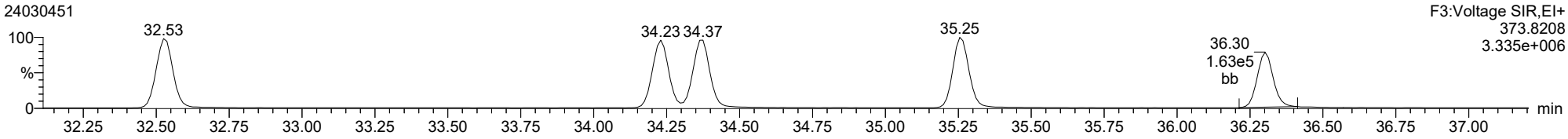


FUNCTION3 OCDPE

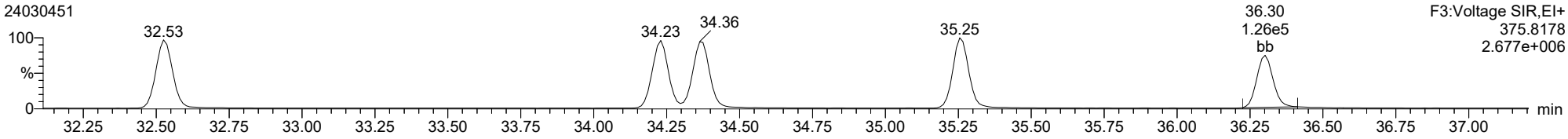


ID: CS3Z5, Name: 24030451, Date: 06-Mar-2024, Time: 03:48:43, Conditions: AUTOSPEC01, User: pk

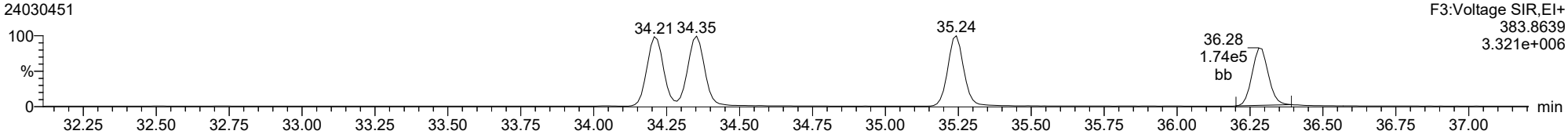
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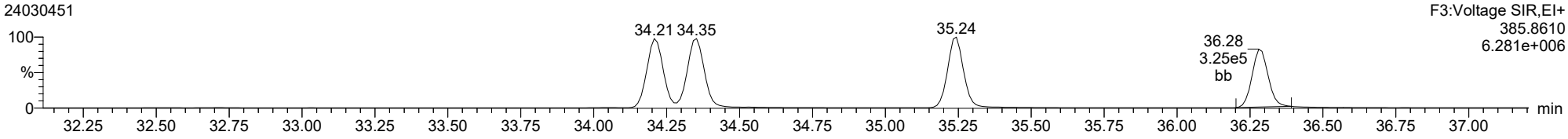
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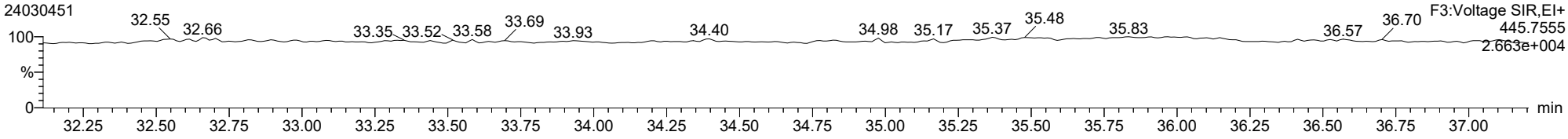
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13C-123789-HxCDF

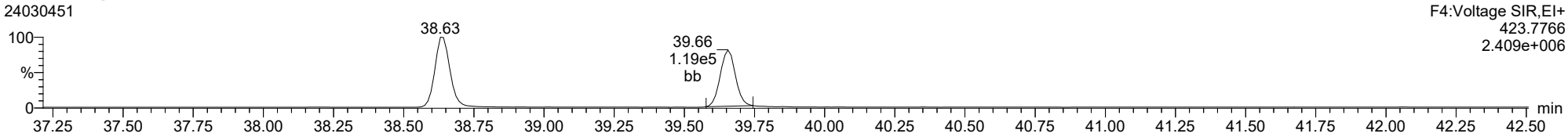


FUNCTION3 OCDPE

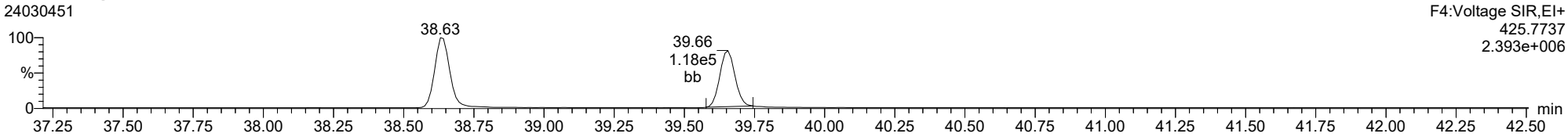


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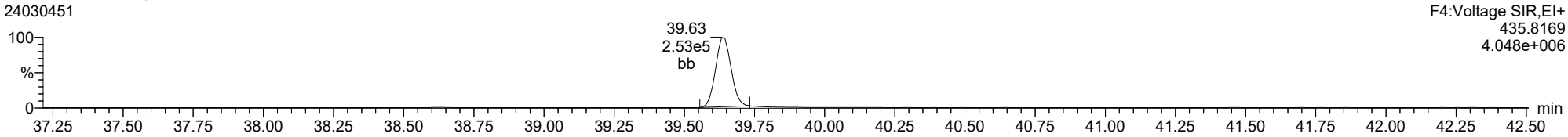
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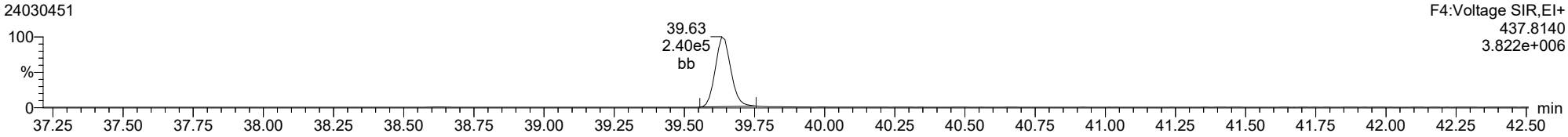
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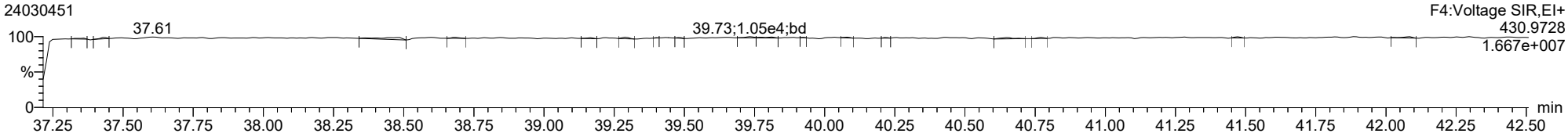
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13C-1234678-HpCDD

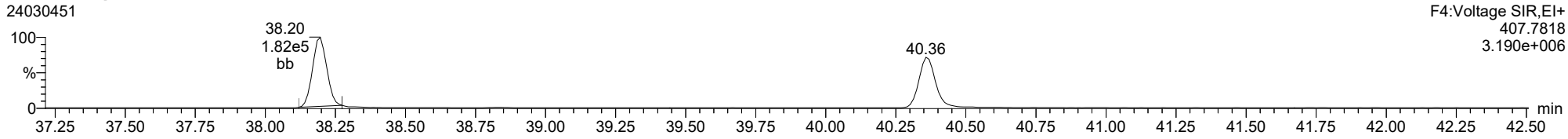


FUNCTION4 PFK

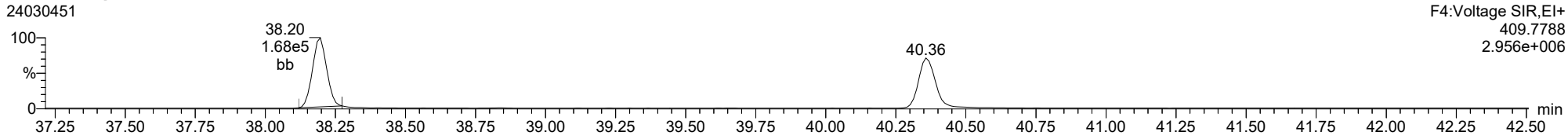


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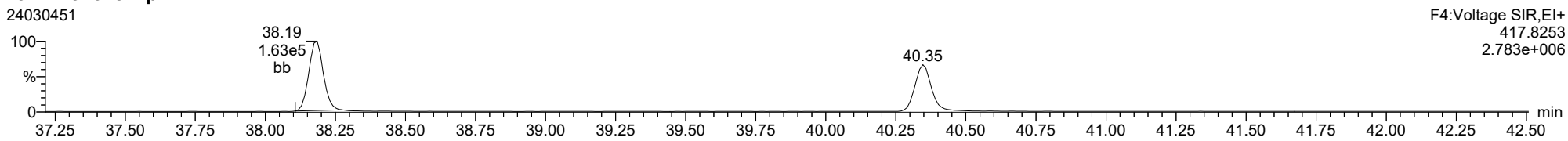
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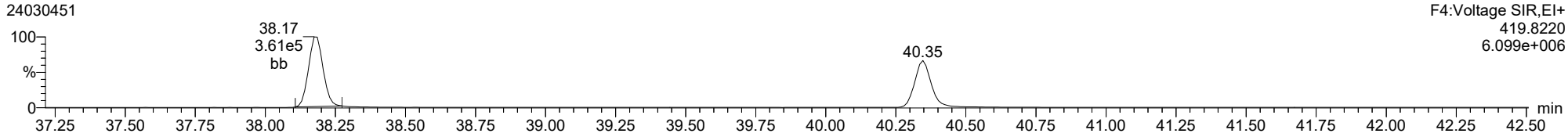
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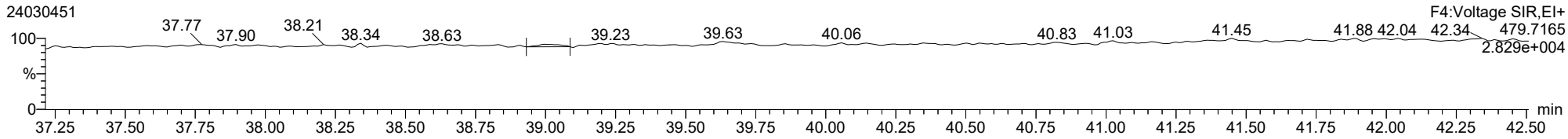
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13C-1234678-HpCDF

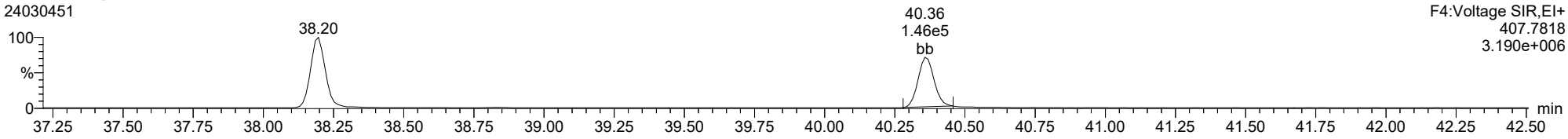


FUNCTION4 NCDPE

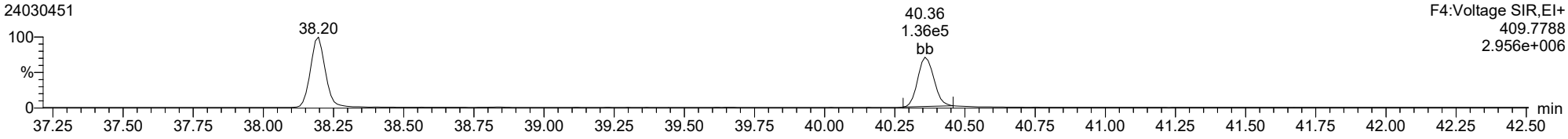


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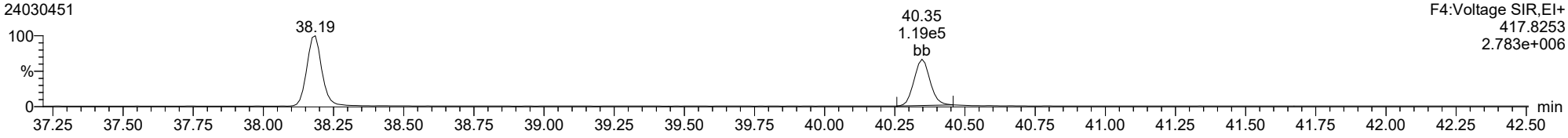
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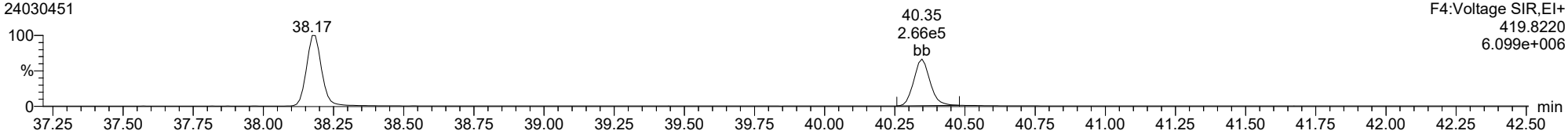
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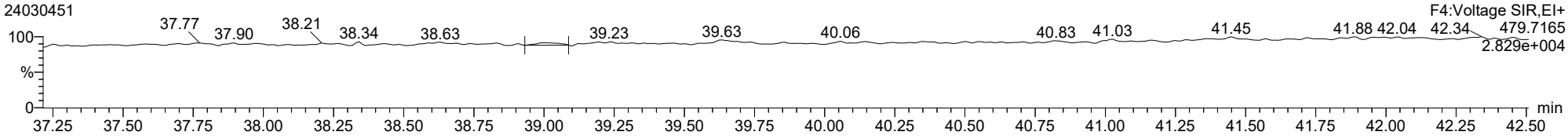
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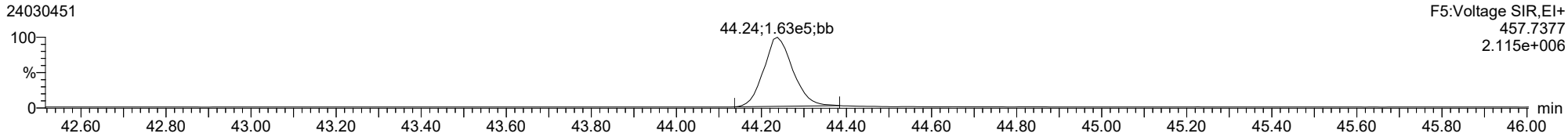


FUNCTION4 NCDPE

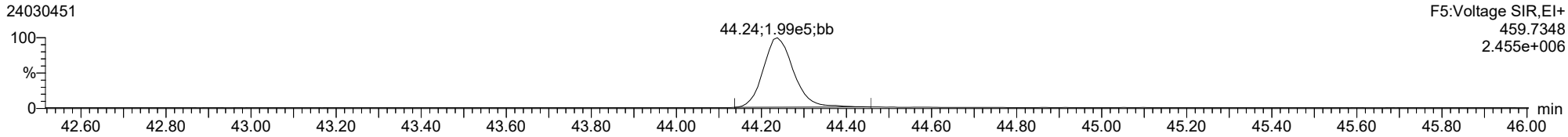


ID: CS3Z5, Name: 24030451, Date: 06-Mar-2024, Time: 03:48:43, Conditions: AUTOSPEC01, User: pk

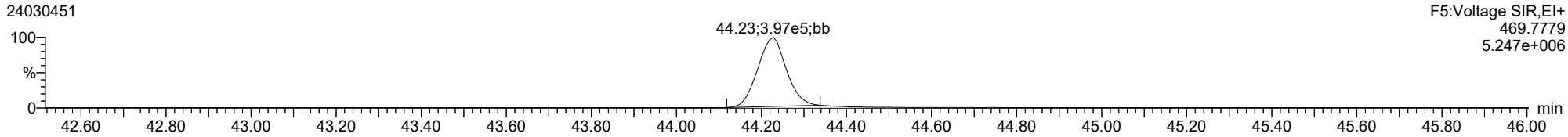
OCDD



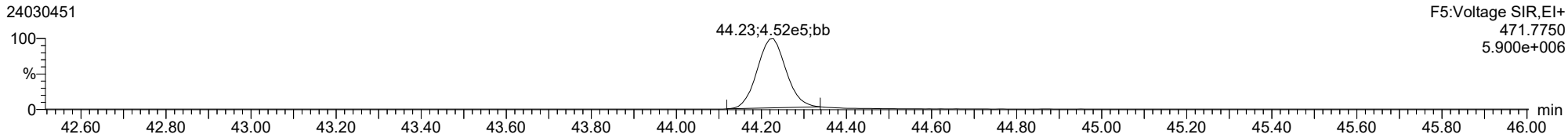
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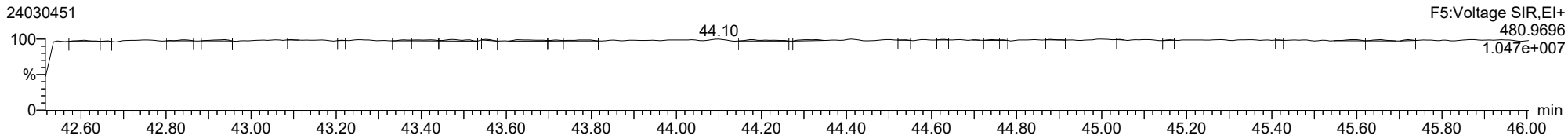
13C-OCDD



13C-OCDD

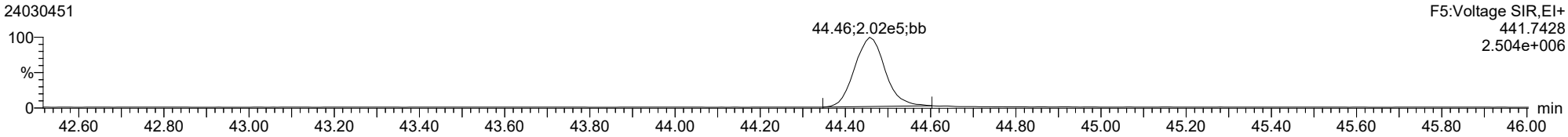


FUNCTION5 PFK

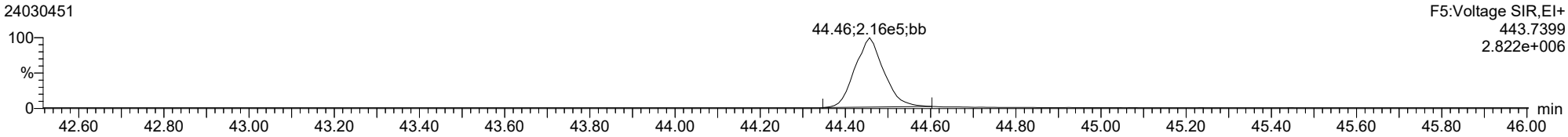


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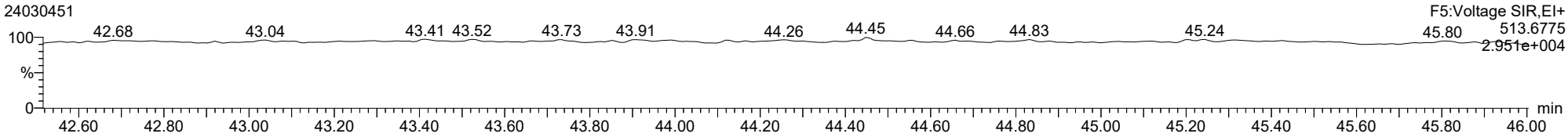
OCDF



OCDF



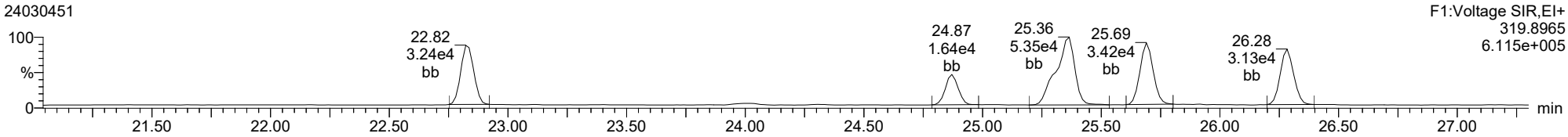
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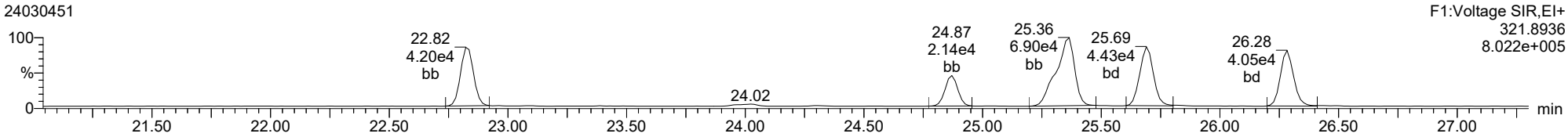
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Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
Printed: Wednesday, March 06, 2024 10:51:52 Pacific Standard Time

ID: CS3Z5, Name: 24030451, Date: 06-Mar-2024, Time: 03:48:43, Conditions: AUTOSPEC01, User: pk

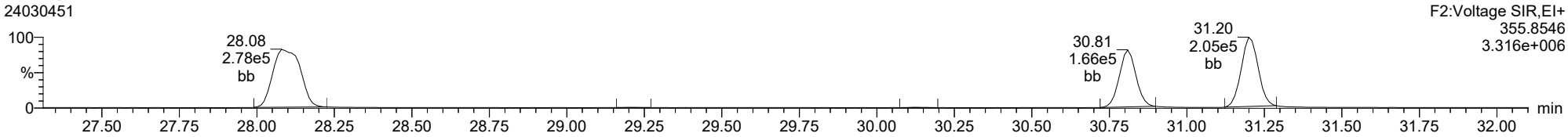
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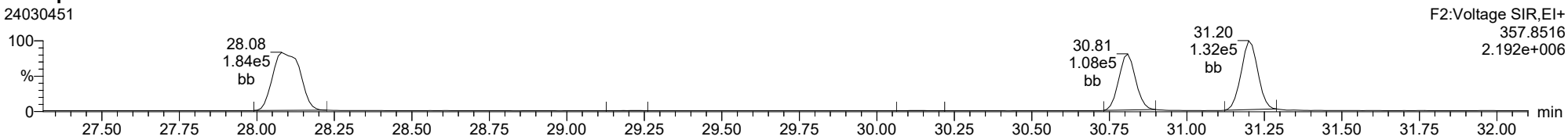
Total-tetradioxins



Total-pentadioxins



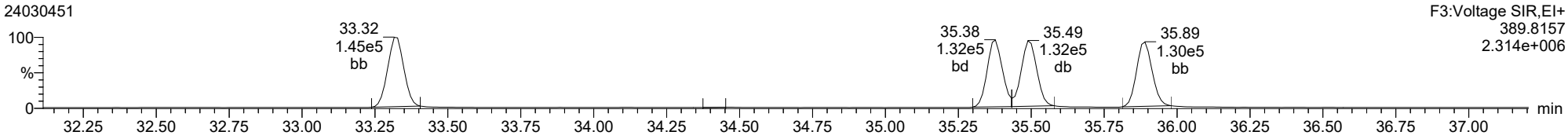
Total-pentadioxins



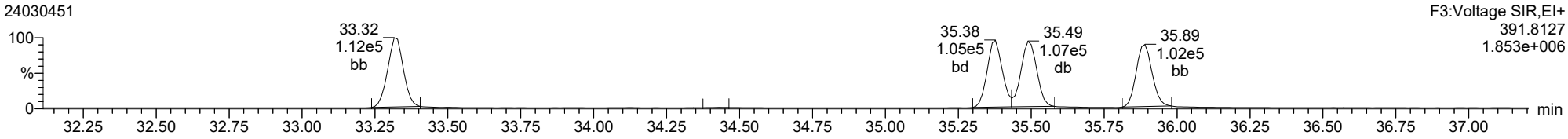
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ID: CS3Z5, Name: 24030451, Date: 06-Mar-2024, Time: 03:48:43, Conditions: AUTOSPEC01, User: pk

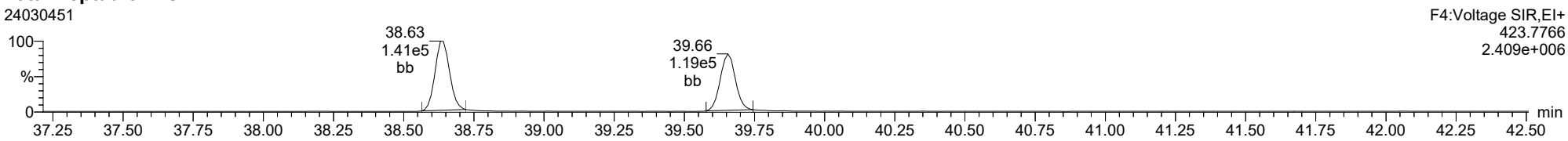
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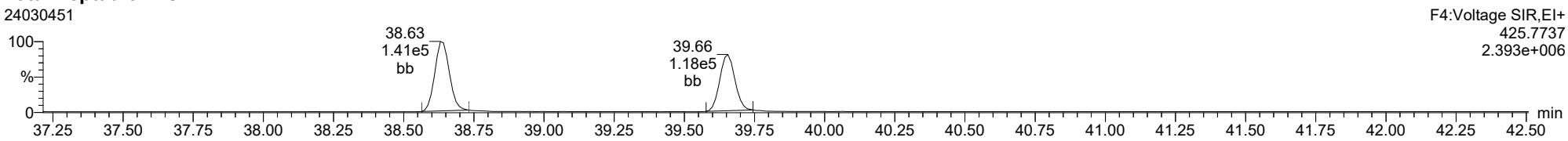
Total-hexadioxins



Total-heptadioxins



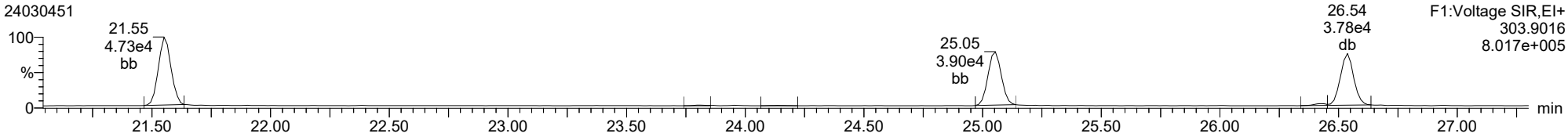
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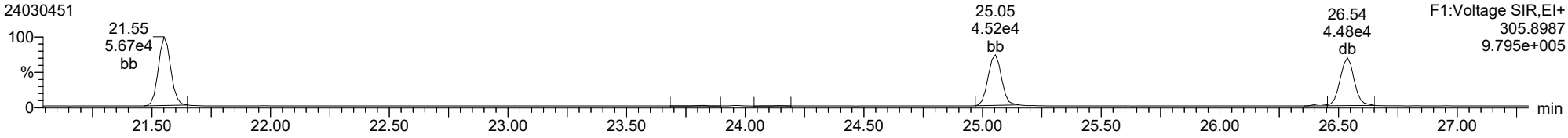
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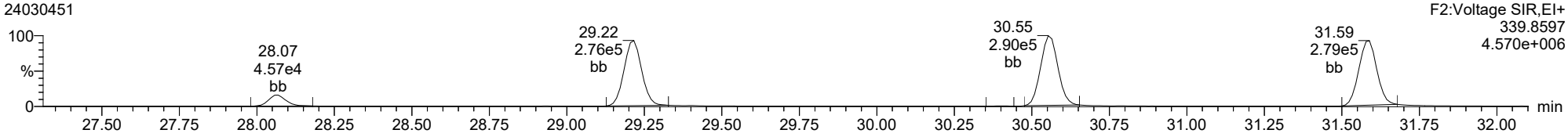
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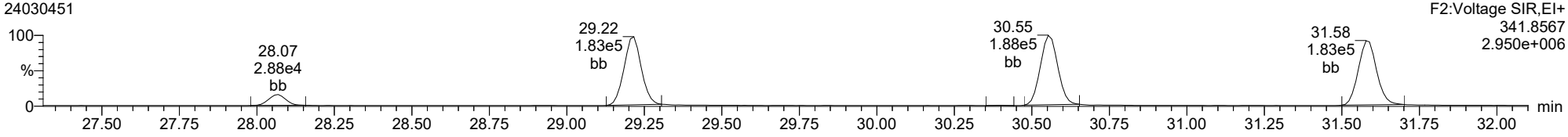
Total-tetrafurans



Total-pentafurans



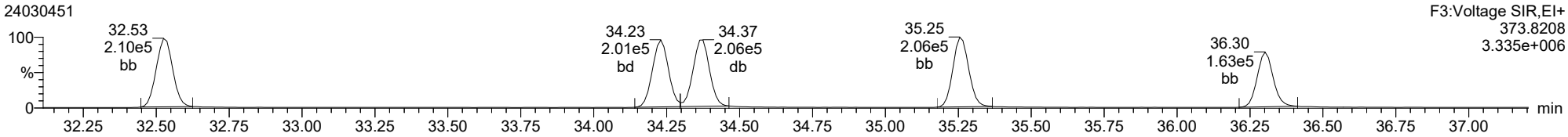
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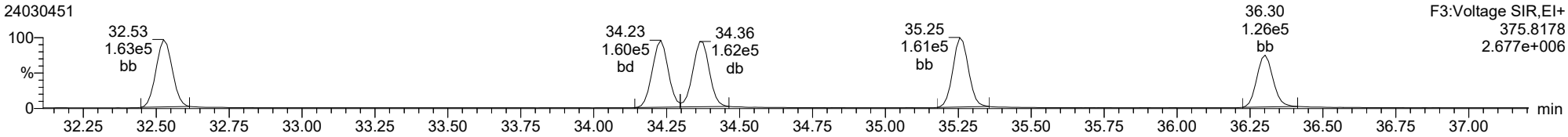
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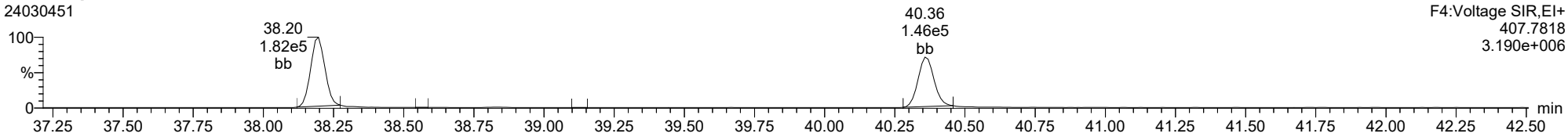
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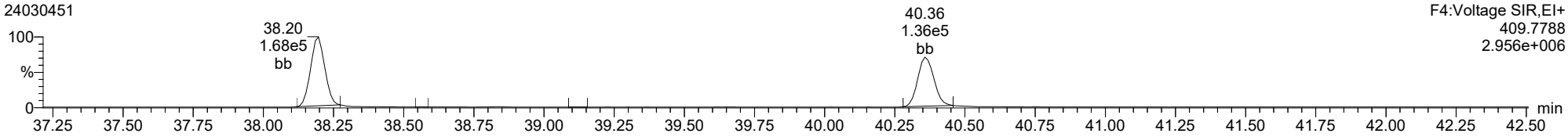
Total-hexafurans



Total-heptafurans

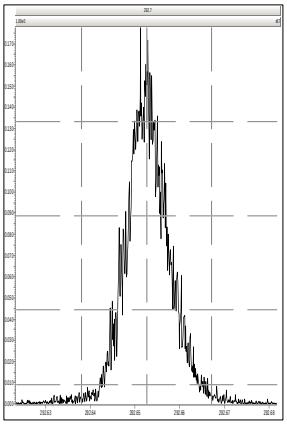


Total-heptafurans

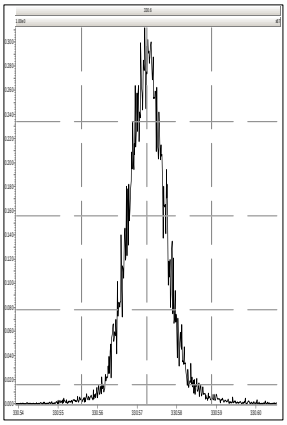


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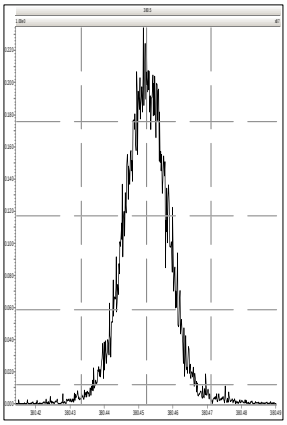
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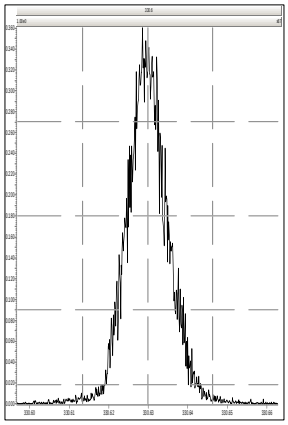
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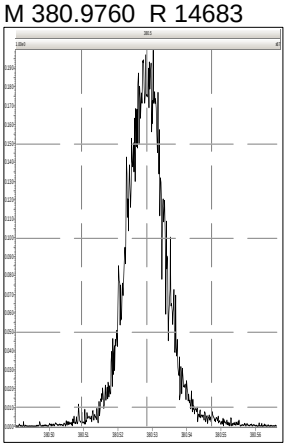
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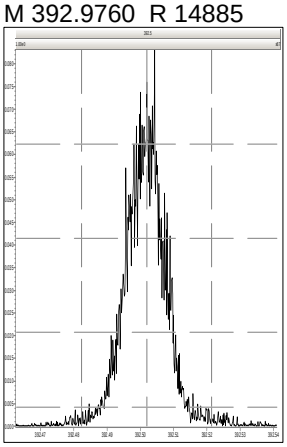
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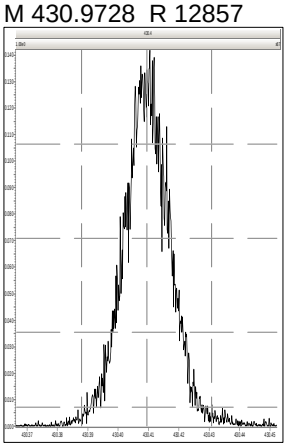
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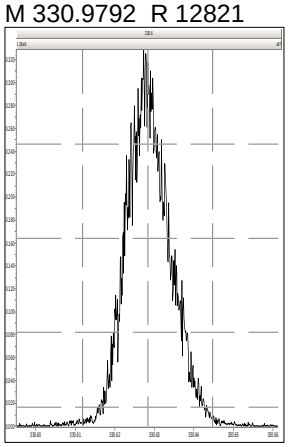
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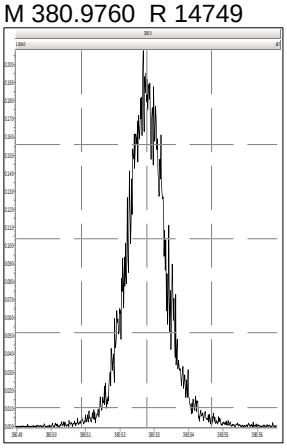
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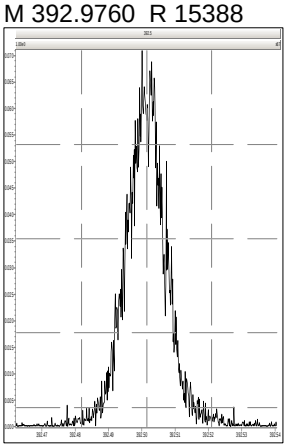
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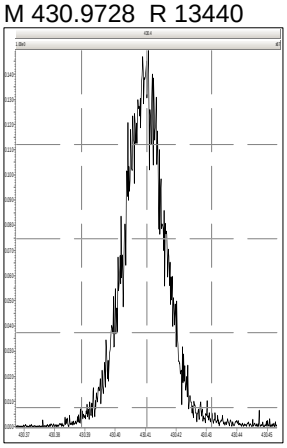
M 380.9760 R 14749



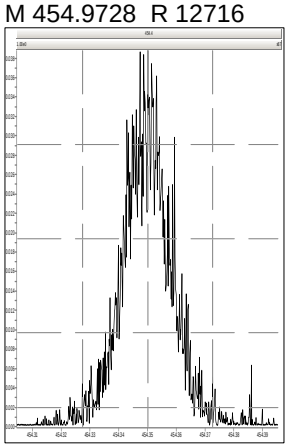
M 392.9760 R 15388



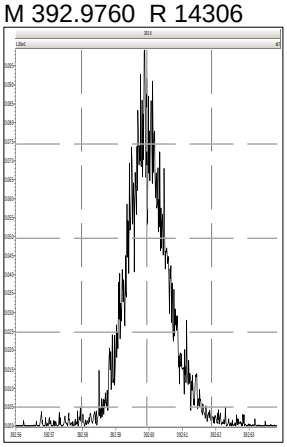
M 430.9728 R 13440



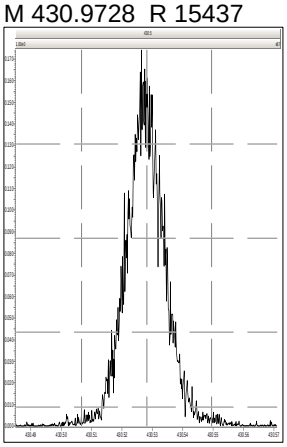
M 454.9728 R 12716



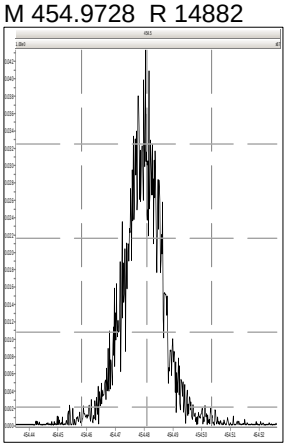
M 392.9760 R 14306



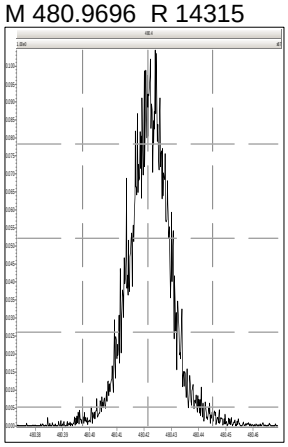
M 430.9728 R 15437



M 454.9728 R 14882

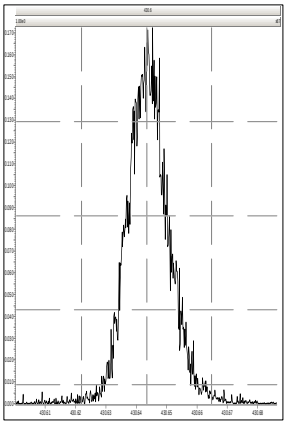


M 480.9696 R 14315

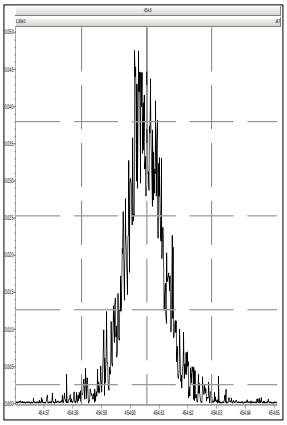


Printed: Wednesday, March 06, 2024 04:41:34 Pacific Standard Time

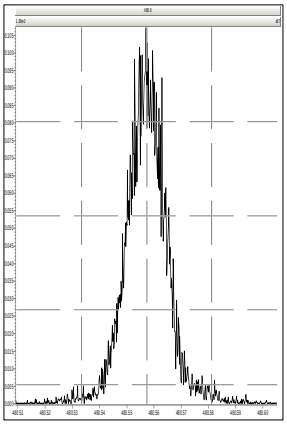
M 430.9728 R 14534



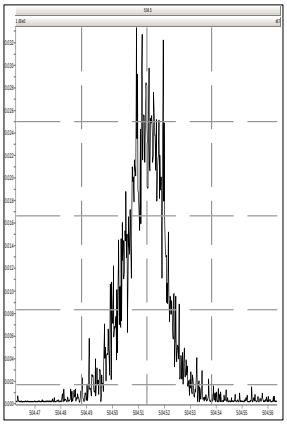
M 454.9728 R 16726



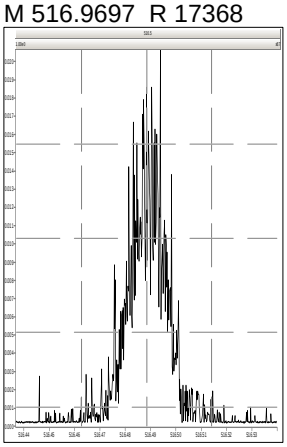
M 480.9696 R 15244

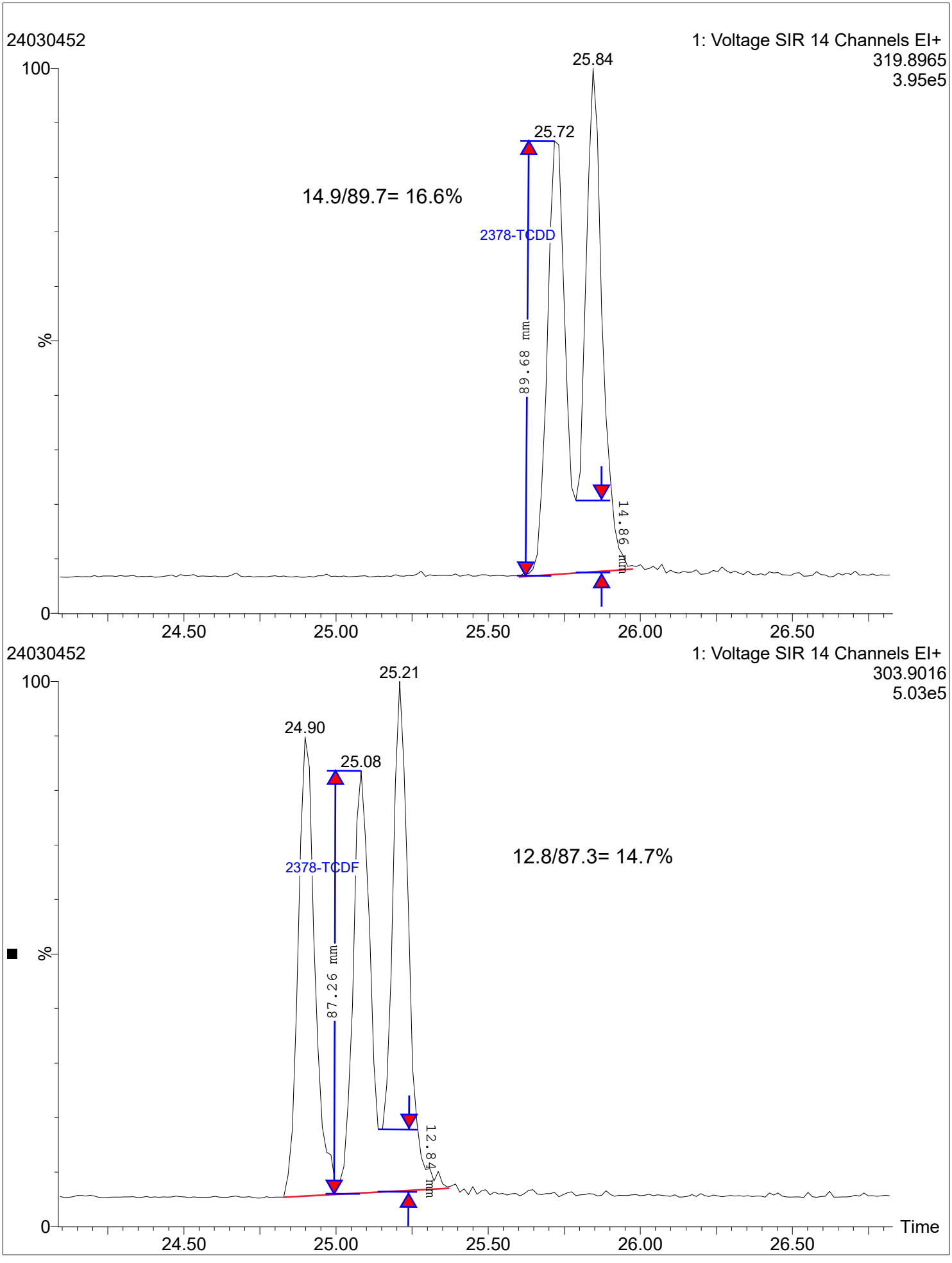


M 504.9696 R 15385



M 516.9697 R 17368




24030452
1: Voltage SIR 14 Channels EI+
319.8965
3.95e5
100
25.84
25.72
14.9/89.7= 16.6%
2378-TCDD
89.68 mm
14.86 mm
%
0
24.50
25.00
25.50
26.00
26.50
24030452
1: Voltage SIR 14 Channels EI+
303.9016
5.03e5
100
25.21
24.90
25.08
12.8/87.3= 14.7%
2378-TCDF
92.78 mm
12.84 mm
%
0
Time
24.50
25.00
25.50
26.00
26.50

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	AUTOSPEC01	Calibration:	HB00095
Lab File ID:	24030461	Calibration Date:	02/28/2024
Sequence:	SMC0054	Injection Date:	03/06/24
Lab Sample ID:	SMC0054-CCV2	Injection Time:	12:05
Sequence Name:	CS3Z6		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
2,3,7,8-TCDF	A	10.000	9.16	0.9801617	0.8982683		-8.4	+/-16
2,3,7,8-TCDD	A	10.000	8.94	1.2269140	1.0973530		-10.6	+/-22
1,2,3,7,8-PeCDF	A	50.000	50.3	1.0471660	1.0531320		0.6	+/-18
2,3,4,7,8-PeCDF	A	50.000	53.0	1.1555820	1.2248150		6.0	+/-18
1,2,3,7,8-PeCDD	A	50.000	61.6	0.9644437	1.1873630		23.1	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	49.4	1.2236720	1.2081450		-1.3	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	50.5	1.1931900	1.2043320		0.9	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	50.8	1.2346350	1.2538450		1.6	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	53.7	1.0998150	1.1819440		7.5	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	51.7	0.8407818	0.8687796		3.3	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	53.7	0.8327394	0.8940814		7.4	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	58.2	0.7703177	5117.502		16.5	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	47.1	1.3924350	1.3111920		-5.8	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	51.5	1.3805820	1.4220950		3.0	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	50.0	0.9843566	0.9846821		0.03	+/-14
OCDF	A	100.00	73.6	1.2222950	0.8992015		-26.4	+/-37
OCDD	A	100.00	89.8	0.9375272	0.8414437		-10.2	+/-21
13C12-2,3,7,8-TCDF	A	100.00	83.7	1.6550640	1.3859722		-16.3	+/-29
13C12-2,3,7,8-TCDD	A	100.00	101	1.1508440	1.1641003		1.2	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	117	1.1956730	1.3975754		16.9	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	113	1.1170800	1.2586080		12.7	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	89.1	0.8282280	0.7379581		-10.9	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	111	1.0281980	1.1372884		10.6	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	97.0	1.1757200	1.1406844		-3.0	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	106	1.0160410	1.0774643		6.0	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	108	0.8791764	0.9473996		7.8	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	107	0.9496210	1.0142663		6.8	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	89.7	1.1068570	0.9928533		-10.3	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	118	0.8699971	1.0231109		17.6	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	120	0.6376791	0.7668008		20.2	+/-23
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	133	0.7370793	0.9810094		33.1	+/-18
13C12-OCDD	A	200.00	274	0.6325999	0.8662203		36.9	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	9.31	1.3123570	1.2216130		-6.9	+/-21

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\240304IH2.qld
Last Altered: Thursday, March 07, 2024 11:17:57 Pacific Standard Time
Printed: Thursday, March 07, 2024 11:25:57 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240306.mdb 06 Mar 2024 10:17:07
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

ID: CS3Z6, Name: 24030461, Date: 06-Mar-2024, Time: 12:05:24, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.054	1.001	3.765e4	4.538e4	0.980	0.830	0.770	1096	1658	5.79e5	7.29e5	528.4	439.8	NO	bb	bb	9.164
12378-PeCDF	29.216	1.001	2.982e5	1.926e5	1.047	1.549	1.550	2702	1795	4.74e6	3.04e6	1752.7	1692.5	NO	bb	bb	50.285
23478-PeCDF	30.553	1.000	3.101e5	2.040e5	1.156	1.520	1.550	2702	1795	4.92e6	3.20e6	1821.8	1783.8	NO	bb	bb	52.996
123478-HxCDF	34.230	1.001	2.182e5	1.723e5	1.224	1.266	1.240	2059	1814	3.45e6	2.69e6	1674.4	1483.2	NO	bd	bd	49.366
234678-HxCDF	35.255	1.000	2.129e5	1.710e5	1.235	1.245	1.240	2059	1814	3.40e6	2.75e6	1652.9	1514.6	NO	bb	bb	50.778
123678-HxCDF	34.363	1.000	2.194e5	1.710e5	1.193	1.283	1.240	2059	1814	3.39e6	2.66e6	1644.0	1464.1	NO	db	db	50.467
123789-HxCDF	36.302	1.001	1.791e5	1.392e5	1.100	1.286	1.240	2059	1814	2.90e6	2.23e6	1407.4	1231.4	NO	bb	bb	53.734
1234678-HpCDF	38.196	1.000	1.976e5	1.837e5	1.392	1.076	1.050	1912	1656	3.54e6	3.19e6	1851.6	1928.5	NO	bb	bb	47.083
1234789-HpCDF	40.357	1.000	1.582e5	1.517e5	1.381	1.043	1.050	1912	1656	2.44e6	2.31e6	1277.6	1394.1	NO	bb	bb	51.503
OCDF	44.457	1.005	2.120e5	2.307e5	1.222	0.919	0.890	1759	1889	2.69e6	2.87e6	1531.4	1517.7	NO	bb	bb	73.567
2378-TCDD	25.690	1.001	3.766e4	4.753e4	1.227	0.792	0.770	1326	1518	5.91e5	7.45e5	446.1	490.9	NO	bb	bd	8.944
12378-PeCDD	30.809	1.001	1.753e5	1.169e5	0.964	1.500	1.550	1273	1222	2.73e6	1.84e6	2146.1	1507.0	NO	bb	bb	61.557
123478-HxCDD	35.377	1.001	1.405e5	1.099e5	0.841	1.278	1.240	1511	1544	2.34e6	1.87e6	1548.4	1213.2	NO	bd	bd	51.665
123678-HxCDD	35.489	1.000	1.424e5	1.099e5	0.833	1.296	1.240	1511	1544	2.29e6	1.83e6	1513.1	1181.9	NO	db	db	53.683
123789-HxCDD	35.890	1.012	1.426e5	1.133e5	0.770	1.258	1.240	1511	1544	2.32e6	1.84e6	1538.5	1192.9	NO	bb	bb	58.234
1234678-HpCDD	39.655	1.001	1.355e5	1.390e5	0.984	0.974	1.050	1357	1500	2.17e6	2.22e6	1600.8	1480.7	NO	bb	bb	50.017
OCDD	44.237	1.000	1.887e5	2.256e5	0.938	0.836	0.890	1157	1519	2.44e6	2.92e6	2112.5	1920.1	NO	bb	bb	89.751
13C-2378-TCDF	25.040	1.008	3.754e5	5.489e5	1.655	0.684	0.770	992	1719	5.68e6	8.24e6	5727.1	4795.8	NO	bb	bb	83.741
13C-12378-PeCDF	29.194	1.175	5.723e5	3.598e5	1.196	1.590	1.550	1704	2193	8.82e6	5.58e6	5175.6	2544.5	NO	bb	bb	116.886
13C-23478-PeCDF	30.542	1.229	5.164e5	3.230e5	1.117	1.599	1.550	1704	2193	7.95e6	4.98e6	4662.9	2271.3	NO	bb	bb	112.669
13C-123478-HxCDF	34.208	0.954	2.225e5	4.240e5	1.028	0.525	0.510	1279	2999	3.53e6	6.51e6	2756.8	2171.6	NO	bd	bd	110.610
13C-123678-HxCDF	34.353	0.958	2.294e5	4.189e5	1.176	0.548	0.510	1279	2999	3.67e6	6.62e6	2869.5	2206.7	NO	db	db	97.020
13C-234678-HxCDF	35.244	0.983	2.142e5	3.982e5	1.016	0.538	0.510	1279	2999	3.48e6	6.41e6	2723.6	2136.0	NO	bb	bb	106.045
13C-123789-HxCDF	36.280	1.012	1.892e5	3.492e5	0.879	0.542	0.510	1279	2999	3.02e6	5.57e6	2357.9	1856.2	NO	bb	bb	107.760
13C-1234678-HpCDF	38.185	1.065	1.834e5	3.981e5	0.870	0.461	0.440	1496	1379	3.14e6	6.63e6	2099.1	4806.3	NO	bb	bb	117.599
13C-1234789-HpCDF	40.346	1.125	1.356e5	3.002e5	0.638	0.452	0.440	1496	1379	2.04e6	4.42e6	1362.1	3205.3	NO	bb	bb	120.249
13C-1234-TCDD	24.842	0.000	2.954e5	3.716e5	1.000	0.795	0.770	2100	1443	4.67e6	5.83e6	2223.4	4039.3	NO	bb	bb	100.000
13C-2378-TCDD	25.661	1.033	3.489e5	4.275e5	1.151	0.816	0.770	2100	1443	5.33e6	6.59e6	2537.9	4565.3	NO	bb	bb	101.152
13C-12378-PeCDD	30.787	1.239	3.106e5	1.816e5	0.828	1.711	1.550	1096	1179	4.83e6	2.72e6	4402.2	2309.8	NO	bb	bb	89.101
13C-123478-HxCDD	35.355	0.986	3.192e5	2.572e5	0.950	1.241	1.240	1465	1234	5.22e6	4.27e6	3564.6	3460.1	NO	bd	bd	106.807
13C-123678-HxCDD	35.478	0.989	3.142e5	2.501e5	1.107	1.256	1.240	1465	1234	4.97e6	4.00e6	3391.3	3244.2	NO	dd	dd	89.700
13C-1234678-HpCDD	39.633	1.105	2.892e5	2.684e5	0.737	1.078	1.050	1352	1241	4.46e6	4.24e6	3299.8	3419.4	NO	bb	bb	133.094
13C-OCDD	44.219	1.233	4.612e5	5.235e5	0.633	0.881	0.890	3219	1532	6.03e6	6.73e6	1873.6	4394.0	NO	bb	bb	273.860
13C-123789-HxCDD	35.868	0.000	3.172e5	2.512e5	1.000	1.263	1.240	1465	1234	5.11e6	4.12e6	3487.3	3338.3	NO	bb	bb	100.000
37CL-2378-TCDD	25.690	1.034	8.147e4		1.312			802		1.27e6		1578.1			bb		9.309

Dataset: T:\Autospec\Processed Data Batch\240304IH2.qld
Last Altered: Thursday, March 07, 2024 11:17:57 Pacific Standard Time
Printed: Thursday, March 07, 2024 11:25:57 Pacific Standard Time

ID: CS3Z6, Name: 24030461, Date: 06-Mar-2024, Time: 12:05:24, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.551	0.861	4.621e4	5.256e4	1.247	0.879	0.770	1096	1658	7.55e5	8.36e5	689.0	504.1	NO	bb	MM	8.567
1289-TCDF	26.537	1.060	3.639e4	4.458e4	0.916	0.816	0.770	1096	1658	5.44e5	6.69e5	496.5	403.3	NO	db	db	9.566
13468-PECDF	26.410	0.905	2.996e5	1.884e5	1.353	1.590	1.550	933	854	4.83e6	3.00e6	5180.4	3515.2	NO	bb	bb	38.682
12389-PECDF	31.578	1.082	3.055e5	2.026e5	0.925	1.508	1.550	2702	1795	4.68e6	3.03e6	1732.4	1689.4	NO	bb	bb	58.902
123468-HXCDF	32.525	0.951	2.209e5	1.707e5	1.335	1.293	1.240	2059	1814	3.51e6	2.70e6	1705.8	1488.5	NO	bb	bb	45.363
1368-TCDD	22.822	0.889	3.527e4	4.387e4	1.120	0.804	0.770	1326	1518	5.50e5	6.77e5	414.9	445.7	NO	bb	bb	9.100
1289-TCDD	26.283	1.024	3.226e4	4.468e4	0.966	0.722	0.770	1326	1518	5.14e5	6.72e5	387.8	442.8	NO	bb	bd	10.261
12479-PECDD	28.080	0.912	3.027e5	1.930e5	1.859	1.568	1.550	1273	1222	3.02e6	1.92e6	2369.3	1573.2	NO	bb	bb	54.166
12389-PECDD	31.199	1.013	2.158e5	1.412e5	1.154	1.528	1.550	1273	1222	3.40e6	2.19e6	2673.7	1792.2	NO	bb	bb	62.854
124679-HXCDD	33.316	0.942	1.512e5	1.174e5	1.006	1.287	1.240	1511	1544	2.39e6	1.84e6	1580.6	1192.3	NO	bb	bb	46.292
1234679-HPCDD	38.631	0.975	1.598e5	1.592e5	1.184	1.004	1.050	1357	1500	2.67e6	2.72e6	1967.7	1815.5	NO	bb	bb	48.317
Total-tetrafurans			1.215e5		1.048			1096		1.90e6							27.569
Total-penta1			2.996e5					933		4.83e6							38.682
Total-pentafurans			9.639e5		1.043			2702		1.51e7							171.076
Total-hexafurans			1.050e6		1.217			2059		1.66e7							249.707
Total-heptafurans			3.558e5		1.387			1912		5.98e6							98.586
Total-Furans			3.003e6		1.180			1096		4.72e7							659.187
Total-tetradioxins			1.793e5		1.104			1326		2.55e6							48.114
Total-pentadioxins			6.948e5		1.326			1273		9.17e6							178.837
Total-hexadioxins			5.766e5		0.863			1511		9.34e6							209.875
Total-heptadioxins			2.952e5		1.084			1357		4.84e6							98.334
Total-Dioxins			1.935e6		1.065			1326		2.83e7							624.911
Total-TEQ			4.938e6					1326		7.55e7							1284.098
FUNCTION1 PFK			4.144e6					1300356		3.94e7							
FUNCTION2 PFK			2.402e5					263721		6.92e6							0.000
FUNCTION3 PFK			5.432e7					175686		5.68e6							0.000
FUNCTION4 PFK			0.000e0					196351		0.00e0							
FUNCTION5 PFK			0.000e0					149131		0.00e0							
FUNCTION1 HXCD...			1.415e3					798		2.26e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			4.974e2					849		8.73e3							0.000
FUNCTION3 OCDPE			4.363e2					823		6.97e3							0.000
FUNCTION4 NCDPE			7.793e1					850		2.90e3							0.000
FUNCTION5 DCDPE			2.411e2					587		5.09e3							0.000

Method: T:\Autospec\Methods\Dioxin240306.mdb 06 Mar 2024 10:17:07
Calibration: T:\Autospec\Curves\240228ICIH.cdb 29 Feb 2024 08:17:31

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.54	3.639e4	4.458e4	0.916	0.82	0.77	496.5	YES	NO	db	db	9.566
2	Total-tetrafurans	26.42	1.216e3	1.407e3	1.048	0.86	0.77	20.8	YES	NO	bd	bd	0.271
3	2378-TCDF	25.05	3.765e4	4.538e4	0.980	0.83	0.77	528.4	YES	NO	bb	bb	9.164
4	1368-TCDF	21.55	4.621e4	5.256e4	1.247	0.88	0.77	689.0	YES	NO	bb	MM	8.567

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.41	2.996e5	1.884e5	1.353	1.59	1.55	5180.4	YES	NO	bb	bb	38.682

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.22	2.982e5	1.926e5	1.047	1.55	1.55	1752.7	YES	NO	bb	bb	50.285
2	Total-pentafurans	28.07	5.016e4	3.198e4	1.043	1.57	1.55	283.3	YES	NO	bb	bb	8.894
3	12389-PECDF	31.58	3.055e5	2.026e5	0.925	1.51	1.55	1732.4	YES	NO	bb	bb	58.902
4	23478-PeCDF	30.55	3.101e5	2.040e5	1.156	1.52	1.55	1821.8	YES	NO	bb	bb	52.996

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.30	1.791e5	1.392e5	1.100	1.29	1.24	1407.4	YES	NO	bb	bb	53.734
2	234678-HxCDF	35.25	2.129e5	1.710e5	1.235	1.24	1.24	1652.9	YES	NO	bb	bb	50.778
3	123678-HxCDF	34.36	2.194e5	1.710e5	1.193	1.28	1.24	1644.0	YES	NO	db	db	50.467
4	123478-HxCDF	34.23	2.182e5	1.723e5	1.224	1.27	1.24	1674.4	YES	NO	bd	bd	49.366
5	123468-HXCDF	32.53	2.209e5	1.707e5	1.335	1.29	1.24	1705.8	YES	NO	bb	bb	45.363

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.20	1.976e5	1.837e5	1.392	1.08	1.05	1851.6	YES	NO	bb	bb	47.083
2	1234789-HpCDF	40.36	1.582e5	1.517e5	1.381	1.04	1.05	1277.6	YES	NO	bb	bb	51.503

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.54	3.639e4	4.458e4	0.916	0.82	0.77	496.5	YES	NO	db	db	9.566
2	Total-tetrafurans	26.42	1.216e3	1.407e3	1.048	0.86	0.77	20.8	YES	NO	bd	bd	0.271
3	2378-TCDF	25.05	3.765e4	4.538e4	0.980	0.83	0.77	528.4	YES	NO	bb	bb	9.164
4	1368-TCDF	21.55	4.621e4	5.256e4	1.247	0.88	0.77	689.0	YES	NO	bb	MM	8.567
5	12378-PeCDF	29.22	2.982e5	1.926e5	1.047	1.55	1.55	1752.7	YES	NO	bb	bb	50.285
6	Total-pentafurans	28.07	5.016e4	3.198e4	1.043	1.57	1.55	283.3	YES	NO	bb	bb	8.894
7	12389-PECDF	31.58	3.055e5	2.026e5	0.925	1.51	1.55	1732.4	YES	NO	bb	bb	58.902
8	23478-PeCDF	30.55	3.101e5	2.040e5	1.156	1.52	1.55	1821.8	YES	NO	bb	bb	52.996
9	123789-HxCDF	36.30	1.791e5	1.392e5	1.100	1.29	1.24	1407.4	YES	NO	bb	bb	53.734
10	234678-HxCDF	35.25	2.129e5	1.710e5	1.235	1.24	1.24	1652.9	YES	NO	bb	bb	50.778
11	123678-HxCDF	34.36	2.194e5	1.710e5	1.193	1.28	1.24	1644.0	YES	NO	db	db	50.467
12	123478-HxCDF	34.23	2.182e5	1.723e5	1.224	1.27	1.24	1674.4	YES	NO	bd	bd	49.366
13	123468-HXCDF	32.53	2.209e5	1.707e5	1.335	1.29	1.24	1705.8	YES	NO	bb	bb	45.363
14	1234678-HpCDF	38.20	1.976e5	1.837e5	1.392	1.08	1.05	1851.6	YES	NO	bb	bb	47.083
15	1234789-HpCDF	40.36	1.582e5	1.517e5	1.381	1.04	1.05	1277.6	YES	NO	bb	bb	51.503
16	OCDF	44.46	2.120e5	2.307e5	1.222	0.92	0.89	1531.4	YES	NO	bb	bb	73.567
17	13468-PECDF	26.41	2.996e5	1.884e5	1.353	1.59	1.55	5180.4	YES	NO	bb	bb	38.682

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	22.82	3.527e4	4.387e4	1.120	0.80	0.77	414.9	YES	NO	bb	bb	9.100
2	1289-TCDD	26.28	3.226e4	4.468e4	0.966	0.72	0.77	387.8	YES	NO	bb	bd	10.261
3	2378-TCDD	25.69	3.766e4	4.753e4	1.227	0.79	0.77	446.1	YES	NO	bb	bd	8.944
4	Total-tetradioxins	25.35	5.641e4	7.375e4	1.104	0.76	0.77	462.3	YES	NO	bb	bd	15.181
5	Total-tetradioxins	24.87	1.767e4	2.200e4	1.104	0.80	0.77	211.4	YES	NO	bb	bb	4.627

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.81	1.753e5	1.169e5	0.964	1.50	1.55	2146.1	YES	NO	bb	bb	61.557
2	Total-pentadioxins	30.14	8.617e2	6.053e2	1.326	1.42	1.55	11.3	YES	NO	bb	bb	0.225
3	Total-pentadioxins	29.70	1.401e2	8.748e1	1.326	1.60	1.55	3.0	NO	NO	bb	bb	0.035
4	12479-PECDD	28.08	3.027e5	1.930e5	1.859	1.57	1.55	2369.3	YES	NO	bb	bb	54.166
5	12389-PECDD	31.20	2.158e5	1.412e5	1.154	1.53	1.55	2673.7	YES	NO	bb	bb	62.854

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	33.32	1.512e5	1.174e5	1.006	1.29	1.24	1580.6	YES	NO	bb	bb	46.292
2	123789-HxCDD	35.89	1.426e5	1.133e5	0.770	1.26	1.24	1538.5	YES	NO	bb	bb	58.234
3	123678-HxCDD	35.49	1.424e5	1.099e5	0.833	1.30	1.24	1513.1	YES	NO	db	db	53.683
4	123478-HxCDD	35.38	1.405e5	1.099e5	0.841	1.28	1.24	1548.4	YES	NO	bd	bd	51.665

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.66	1.355e5	1.390e5	0.984	0.97	1.05	1600.8	YES	NO	bb	bb	50.017
2	1234679-HPCDD	38.63	1.598e5	1.592e5	1.184	1.00	1.05	1967.7	YES	NO	bb	bb	48.317

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	22.82	3.527e4	4.387e4	1.120	0.80	0.77	414.9	YES	NO	bb	bb	9.100
2	1289-TCDD	26.28	3.226e4	4.468e4	0.966	0.72	0.77	387.8	YES	NO	bb	bd	10.261
3	2378-TCDD	25.69	3.766e4	4.753e4	1.227	0.79	0.77	446.1	YES	NO	bb	bd	8.944
4	Total-tetradioxins	25.35	5.641e4	7.375e4	1.104	0.76	0.77	462.3	YES	NO	bb	bd	15.181
5	Total-tetradioxins	24.87	1.767e4	2.200e4	1.104	0.80	0.77	211.4	YES	NO	bb	bb	4.627
6	12378-PeCDD	30.81	1.753e5	1.169e5	0.964	1.50	1.55	2146.1	YES	NO	bb	bb	61.557
7	Total-pentadioxins	30.14	8.617e2	6.053e2	1.326	1.42	1.55	11.3	YES	NO	bb	bb	0.225
8	Total-pentadioxins	29.70	1.401e2	8.748e1	1.326	1.60	1.55	3.0	NO	NO	bb	bb	0.035
9	12479-PECDD	28.08	3.027e5	1.930e5	1.859	1.57	1.55	2369.3	YES	NO	bb	bb	54.166
10	124679-HXCDD	33.32	1.512e5	1.174e5	1.006	1.29	1.24	1580.6	YES	NO	bb	bb	46.292
11	12389-PECDD	31.20	2.158e5	1.412e5	1.154	1.53	1.55	2673.7	YES	NO	bb	bb	62.854
12	123789-HxCDD	35.89	1.426e5	1.133e5	0.770	1.26	1.24	1538.5	YES	NO	bb	bb	58.234
13	123678-HxCDD	35.49	1.424e5	1.099e5	0.833	1.30	1.24	1513.1	YES	NO	db	db	53.683
14	123478-HxCDD	35.38	1.405e5	1.099e5	0.841	1.28	1.24	1548.4	YES	NO	bd	bd	51.665
15	OCDD	44.24	1.887e5	2.256e5	0.938	0.84	0.89	2112.5	YES	NO	bb	bb	89.751
16	1234678-HpCDD	39.66	1.355e5	1.390e5	0.984	0.97	1.05	1600.8	YES	NO	bb	bb	50.017
17	1234679-HPCDD	38.63	1.598e5	1.592e5	1.184	1.00	1.05	1967.7	YES	NO	bb	bb	48.317

Dataset: T:\Autospec\Processed Data Batch\240304IH2.qld
Last Altered: Thursday, March 07, 2024 11:17:57 Pacific Standard Time
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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.54	3.639e4	4.458e4	0.916	0.82	0.77	496.5	YES	NO	db	db	9.566
2	Total-tetrafurans	26.42	1.216e3	1.407e3	1.048	0.86	0.77	20.8	YES	NO	bd	bd	0.271
3	2378-TCDF	25.05	3.765e4	4.538e4	0.980	0.83	0.77	528.4	YES	NO	bb	bb	9.164
4	1368-TCDF	21.55	4.621e4	5.256e4	1.247	0.88	0.77	689.0	YES	NO	bb	MM	8.567
5	12378-PeCDF	29.22	2.982e5	1.926e5	1.047	1.55	1.55	1752.7	YES	NO	bb	bb	50.285
6	Total-pentafurans	28.07	5.016e4	3.198e4	1.043	1.57	1.55	283.3	YES	NO	bb	bb	8.894
7	12389-PECDF	31.58	3.055e5	2.026e5	0.925	1.51	1.55	1732.4	YES	NO	bb	bb	58.902
8	23478-PeCDF	30.55	3.101e5	2.040e5	1.156	1.52	1.55	1821.8	YES	NO	bb	bb	52.996
9	123789-HxCDF	36.30	1.791e5	1.392e5	1.100	1.29	1.24	1407.4	YES	NO	bb	bb	53.734
10	234678-HxCDF	35.25	2.129e5	1.710e5	1.235	1.24	1.24	1652.9	YES	NO	bb	bb	50.778
11	123678-HxCDF	34.36	2.194e5	1.710e5	1.193	1.28	1.24	1644.0	YES	NO	db	db	50.467
12	123478-HxCDF	34.23	2.182e5	1.723e5	1.224	1.27	1.24	1674.4	YES	NO	bd	bd	49.366
13	123468-HXCDF	32.53	2.209e5	1.707e5	1.335	1.29	1.24	1705.8	YES	NO	bb	bb	45.363
14	1234678-HpCDF	38.20	1.976e5	1.837e5	1.392	1.08	1.05	1851.6	YES	NO	bb	bb	47.083
15	1234789-HpCDF	40.36	1.582e5	1.517e5	1.381	1.04	1.05	1277.6	YES	NO	bb	bb	51.503
16	OCDF	44.46	2.120e5	2.307e5	1.222	0.92	0.89	1531.4	YES	NO	bb	bb	73.567
17	13468-PECDF	26.41	2.996e5	1.884e5	1.353	1.59	1.55	5180.4	YES	NO	bb	bb	38.682
18	1368-TCDD	22.82	3.527e4	4.387e4	1.120	0.80	0.77	414.9	YES	NO	bb	bb	9.100
19	1289-TCDD	26.28	3.226e4	4.468e4	0.966	0.72	0.77	387.8	YES	NO	bb	bd	10.261
20	2378-TCDD	25.69	3.766e4	4.753e4	1.227	0.79	0.77	446.1	YES	NO	bb	bd	8.944
21	Total-tetradioxins	25.35	5.641e4	7.375e4	1.104	0.76	0.77	462.3	YES	NO	bb	bd	15.181
22	Total-tetradioxins	24.87	1.767e4	2.200e4	1.104	0.80	0.77	211.4	YES	NO	bb	bb	4.627
23	12378-PeCDD	30.81	1.753e5	1.169e5	0.964	1.50	1.55	2146.1	YES	NO	bb	bb	61.557
24	Total-pentadioxins	30.14	8.617e2	6.053e2	1.326	1.42	1.55	11.3	YES	NO	bb	bb	0.225
25	Total-pentadioxins	29.70	1.401e2	8.748e1	1.326	1.60	1.55	3.0	NO	NO	bb	bb	0.035
26	12479-PECDD	28.08	3.027e5	1.930e5	1.859	1.57	1.55	2369.3	YES	NO	bb	bb	54.166
27	124679-HXCDD	33.32	1.512e5	1.174e5	1.006	1.29	1.24	1580.6	YES	NO	bb	bb	46.292
28	12389-PECDD	31.20	2.158e5	1.412e5	1.154	1.53	1.55	2673.7	YES	NO	bb	bb	62.854
29	123789-HxCDD	35.89	1.426e5	1.133e5	0.770	1.26	1.24	1538.5	YES	NO	bb	bb	58.234
30	123678-HxCDD	35.49	1.424e5	1.099e5	0.833	1.30	1.24	1513.1	YES	NO	db	db	53.683
31	123478-HxCDD	35.38	1.405e5	1.099e5	0.841	1.28	1.24	1548.4	YES	NO	bd	bd	51.665
32	OCDD	44.24	1.887e5	2.256e5	0.938	0.84	0.89	2112.5	YES	NO	bb	bb	89.751
33	1234678-HpCDD	39.66	1.355e5	1.390e5	0.984	0.97	1.05	1600.8	YES	NO	bb	bb	50.017
34	1234679-HPCDD	38.63	1.598e5	1.592e5	1.184	1.00	1.05	1967.7	YES	NO	bb	bb	48.317

Dataset: T:\Autospec\Processed Data Batch\240304IH2.qld
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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	23.51	1.363e4					0.3	NO		bd		
2	FUNCTION1 PFK	23.42	6.178e3					0.2	NO		bb		
3	FUNCTION1 PFK	23.16	1.233e4					0.3	NO		bb		
4	FUNCTION1 PFK	23.06	5.891e4					0.6	NO		bb		
5	FUNCTION1 PFK	22.85	1.051e4					0.2	NO		bb		
6	FUNCTION1 PFK	22.78	1.453e4					0.3	NO		bb		
7	FUNCTION1 PFK	22.58	1.517e4					0.3	NO		bb		
8	FUNCTION1 PFK	22.36	2.107e3					0.1	NO		bb		
9	FUNCTION1 PFK	22.29	2.686e4					0.2	NO		bb		
10	FUNCTION1 PFK	21.93	4.320e5					6.9	YES		db		
11	FUNCTION1 PFK	21.83	1.486e6					6.7	YES		dd		
12	FUNCTION1 PFK	21.66	1.356e6					5.1	YES		dd		
13	FUNCTION1 PFK	21.40	2.448e5					2.5	NO		dd		
14	FUNCTION1 PFK	21.31	1.930e5					1.7	NO		bd		
15	FUNCTION1 PFK	21.14	4.620e3					0.1	NO		bb		
16	FUNCTION1 PFK	26.34	1.197e4					0.3	NO		bb		
17	FUNCTION1 PFK	26.17	5.808e3					0.2	NO		bb		
18	FUNCTION1 PFK	25.65	8.579e3					0.2	NO		bb		
19	FUNCTION1 PFK	25.56	3.744e3					0.1	NO		db		
20	FUNCTION1 PFK	25.49	1.748e4					0.4	NO		bd		
21	FUNCTION1 PFK	25.42	3.763e4					0.4	NO		db		
22	FUNCTION1 PFK	25.27	9.106e3					0.1	NO		bd		
23	FUNCTION1 PFK	25.03	1.665e3					0.1	NO		bb		
24	FUNCTION1 PFK	24.97	4.038e3					0.1	NO		db		
25	FUNCTION1 PFK	24.90	7.803e3					0.2	NO		bd		
26	FUNCTION1 PFK	24.60	6.886e3					0.1	NO		bb		
27	FUNCTION1 PFK	24.42	3.724e4					0.4	NO		bb		
28	FUNCTION1 PFK	24.02	8.835e3					0.2	NO		bb		
29	FUNCTION1 PFK	23.83	1.306e4					0.3	NO		bb		
30	FUNCTION1 PFK	23.64	2.473e3					0.1	NO		bb		
31	FUNCTION1 PFK	23.58	9.777e3					0.2	NO		db		
32	FUNCTION1 PFK	27.26	1.086e4					0.3	NO		db		
33	FUNCTION1 PFK	27.19	1.622e4					0.2	NO		dd		
34	FUNCTION1 PFK	27.06	2.525e4					0.3	NO		bd		
35	FUNCTION1 PFK	26.85	1.429e4					0.2	NO		bb		
36	FUNCTION1 PFK	26.47	1.475e4					0.3	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.96	8.613e3					1.4	NO		bb		0.000
2	FUNCTION2 PFK	29.90	4.515e3					0.7	NO		bb		0.000
3	FUNCTION2 PFK	29.71	3.559e3					0.7	NO		bb		0.000
4	FUNCTION2 PFK	29.63	1.336e4					1.2	NO		bb		0.000
5	FUNCTION2 PFK	29.35	9.429e3					1.1	NO		db		0.000
6	FUNCTION2 PFK	29.27	1.784e4					1.6	NO		bd		0.000
7	FUNCTION2 PFK	28.87	1.675e3					0.6	NO		bb		0.000
8	FUNCTION2 PFK	27.88	6.196e3					1.2	NO		bb		0.000
9	FUNCTION2 PFK	27.83	1.739e3					0.6	NO		bb		0.000
10	FUNCTION2 PFK	27.40	2.562e4					2.3	NO		bb		0.000
11	FUNCTION2 PFK	31.78	9.183e3					1.3	NO		db		0.000
12	FUNCTION2 PFK	31.73	8.990e3					1.0	NO		bd		0.000
13	FUNCTION2 PFK	31.66	1.107e4					1.3	NO		bb		0.000
14	FUNCTION2 PFK	31.52	1.279e3					0.4	NO		db		0.000
15	FUNCTION2 PFK	31.49	6.287e3					1.2	NO		bd		0.000
16	FUNCTION2 PFK	31.31	1.565e4					1.5	NO		bb		0.000
17	FUNCTION2 PFK	31.02	2.248e4					1.3	NO		bb		0.000
18	FUNCTION2 PFK	30.90	3.166e4					2.2	NO		bb		0.000
19	FUNCTION2 PFK	30.79	4.626e3					0.8	NO		bb		0.000
20	FUNCTION2 PFK	30.73	5.093e3					0.9	NO		bb		0.000
21	FUNCTION2 PFK	30.60	1.855e4					1.1	NO		bb		0.000
22	FUNCTION2 PFK	30.42	1.144e4					1.5	NO		bb		0.000
23	FUNCTION2 PFK	30.26	1.343e3					0.5	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	34.91	5.432e7					32.3	YES		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.13	1.010e2					2.3	NO		bb		0.000
2	FUNCTION1 HXCD...	26.90	1.559e2					2.7	NO		db		0.000
3	FUNCTION1 HXCD...	26.82	1.077e2					4.1	YES		bd		0.000
4	FUNCTION1 HXCD...	25.66	1.314e2					2.0	NO		bb		0.000
5	FUNCTION1 HXCD...	24.81	1.761e2					1.9	NO		bb		0.000
6	FUNCTION1 HXCD...	22.45	1.561e2					2.8	NO		bb		0.000
7	FUNCTION1 HXCD...	22.13	8.929e1					1.6	NO		db		0.000
8	FUNCTION1 HXCD...	22.07	7.447e1					2.3	NO		dd		0.000
9	FUNCTION1 HXCD...	22.00	1.067e2					2.7	NO		dd		0.000
10	FUNCTION1 HXCD...	21.89	7.260e1					1.7	NO		bd		0.000
11	FUNCTION1 HXCD...	21.16	2.442e2					4.4	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.41	9.967e1					2.2	NO		bb		0.000
2	FUNCTION2 HPCD...	28.50	7.399e1					2.3	NO		bb		0.000
3	FUNCTION2 HPCD...	31.58	1.238e2					1.3	NO		bb		0.000
4	FUNCTION2 HPCD...	30.92	8.488e1					2.3	NO		bb		0.000
5	FUNCTION2 HPCD...	30.53	1.151e2					2.2	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.87	1.687e2					3.2	YES		bb		0.000
2	FUNCTION3 OCDPE	35.50	1.535e2					2.2	NO		bb		0.000
3	FUNCTION3 OCDPE	34.35	1.140e2					3.1	YES		bb		0.000

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ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	39.30	7.793e1					3.4	YES		bb		0.000

ETHERS6

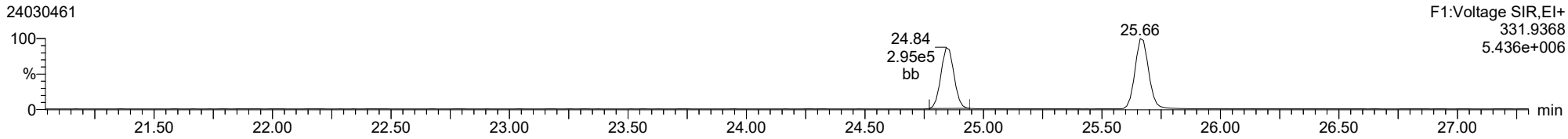
	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.18	1.544e2					6.2	YES		bb		0.000
2	FUNCTION5 DCDPE	42.82	8.671e1					2.4	NO		bb		0.000

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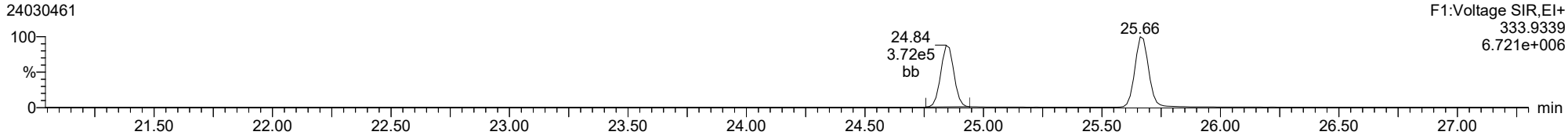
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ID: CS3Z6, Name: 24030461, Date: 06-Mar-2024, Time: 12:05:24, Conditions: AUTOSPEC01, User: pk

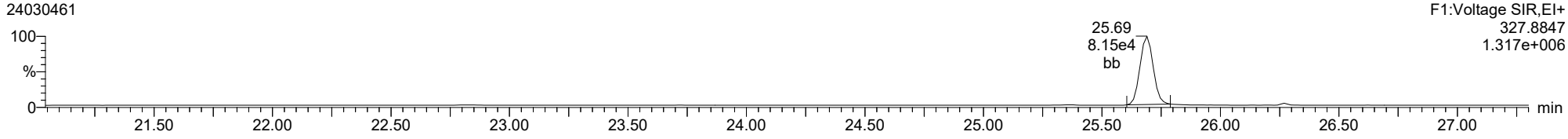
13C-1234-TCDD



13C-1234-TCDD

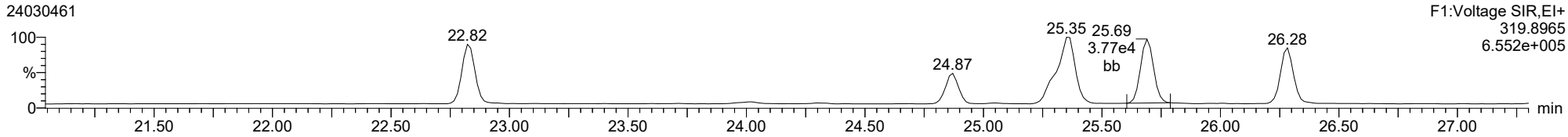


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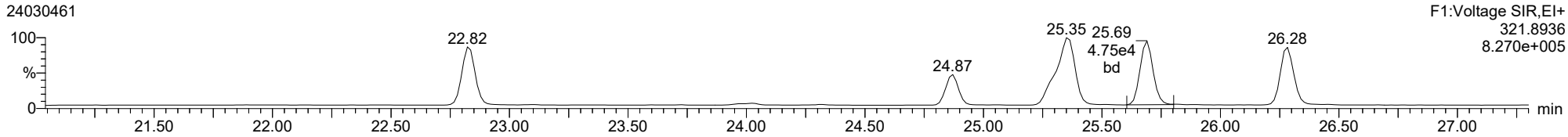


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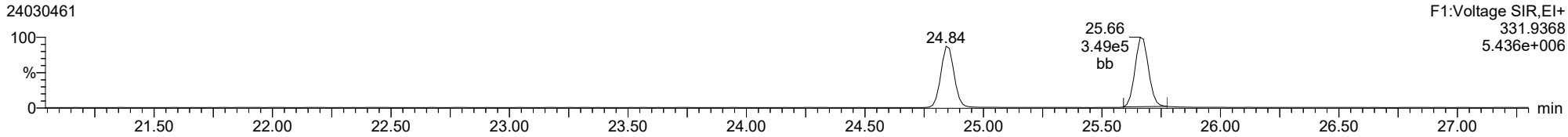
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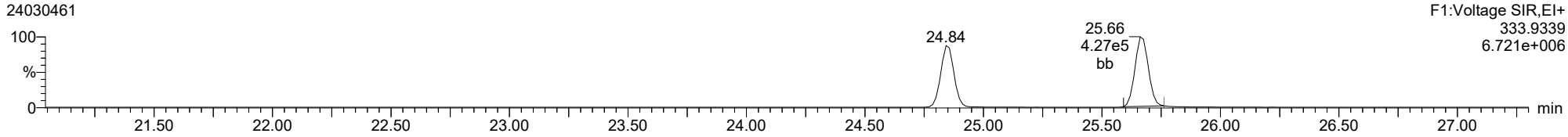
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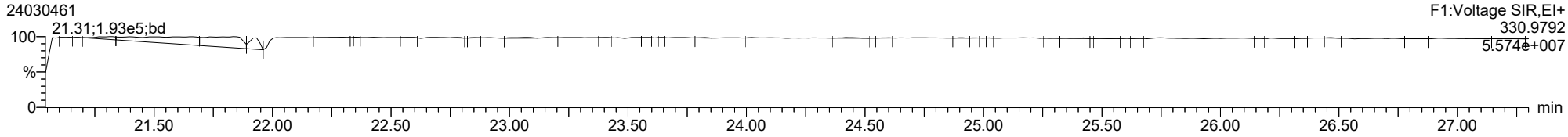
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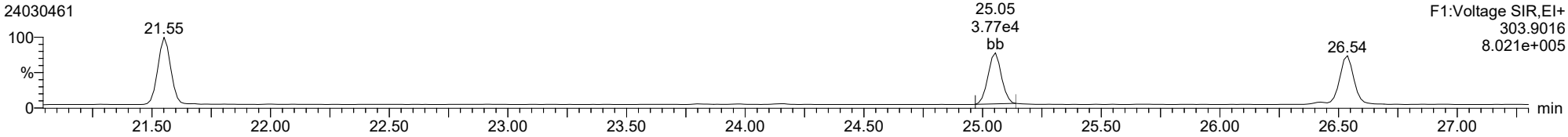


FUNCTION1 PFK

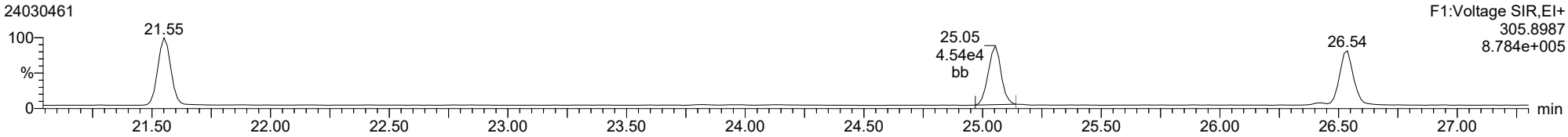


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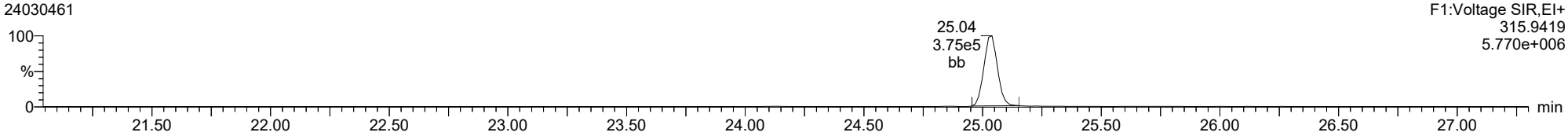
2378-TCDF



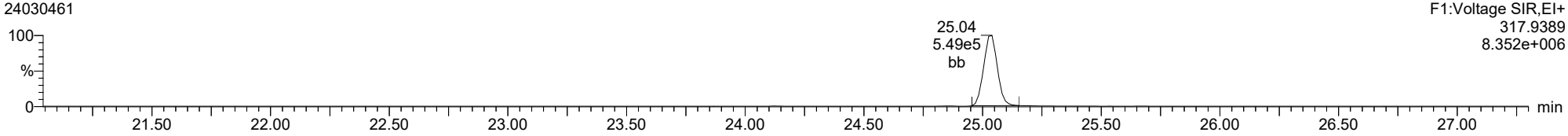
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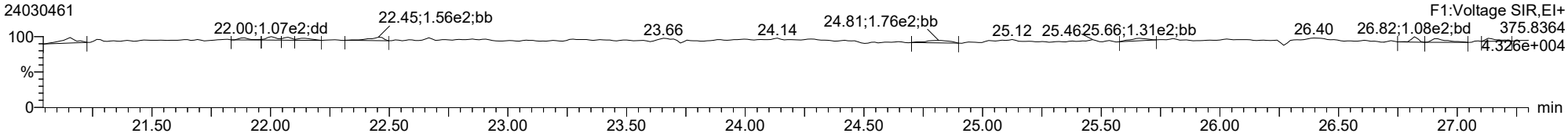
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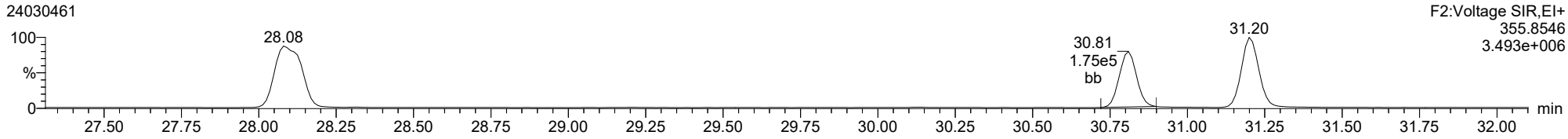


FUNCTION1 HXCDPE

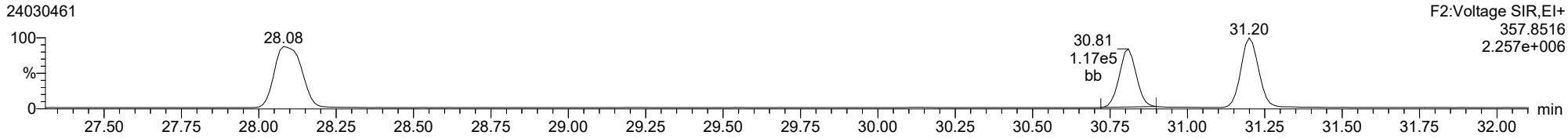


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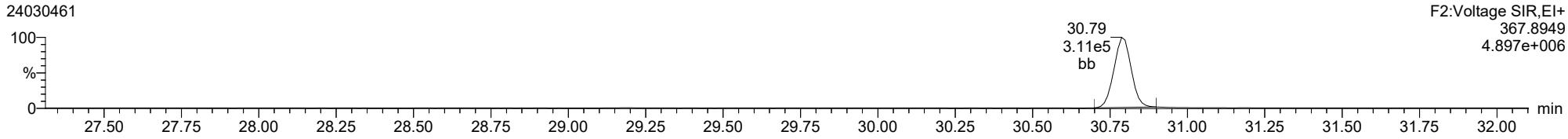
12378-PeCDD



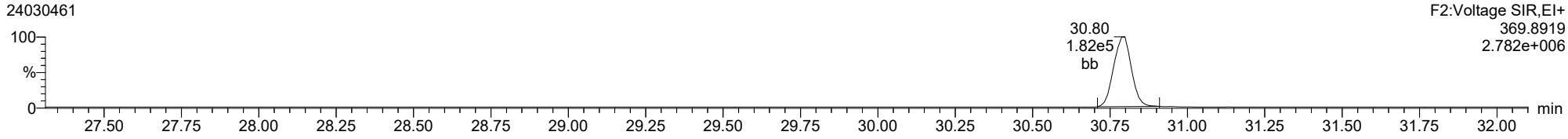
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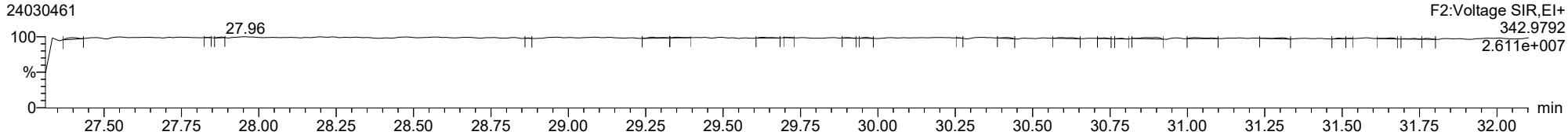
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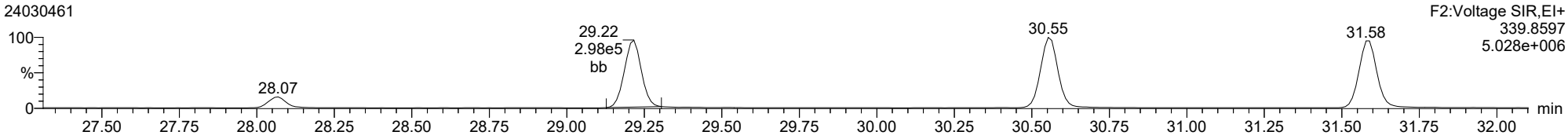


FUNCTION2 PFK

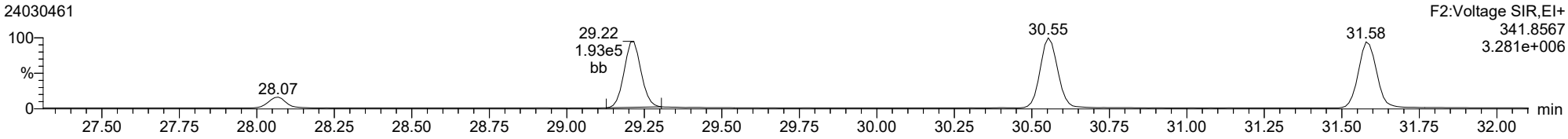


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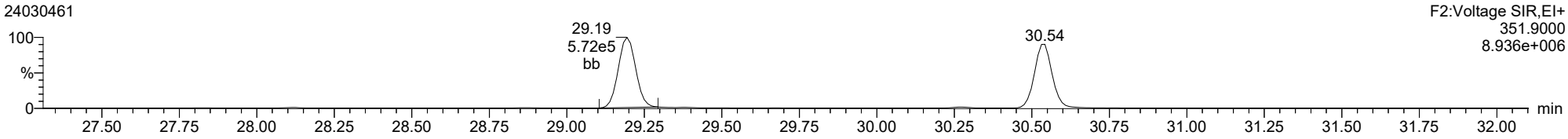
12378-PeCDF



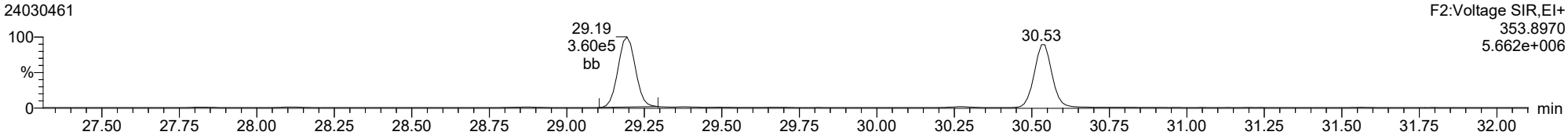
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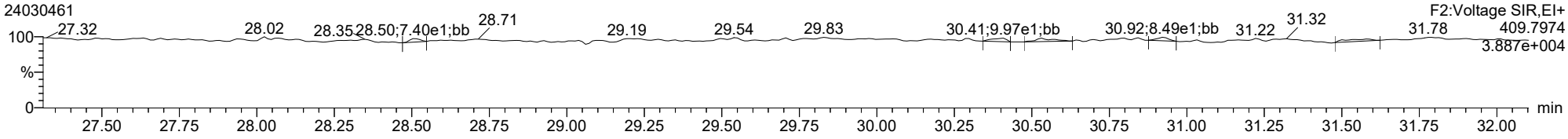
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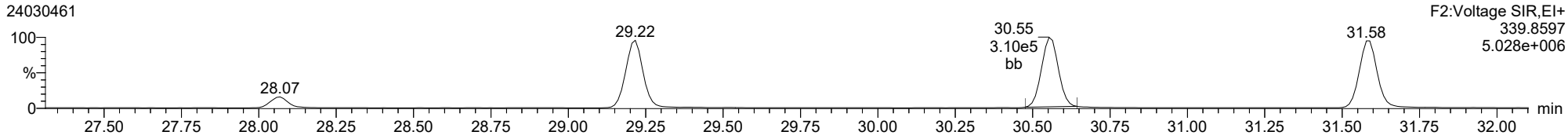


FUNCTION2 HPCDPE

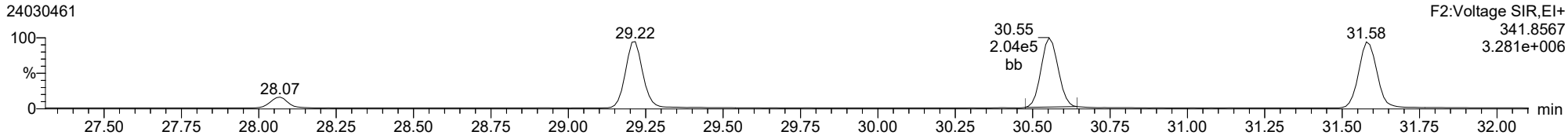


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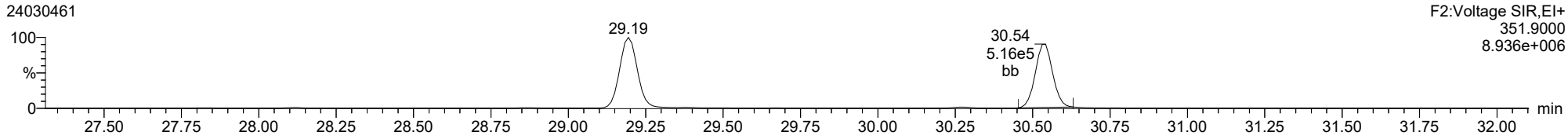
23478-PeCDF



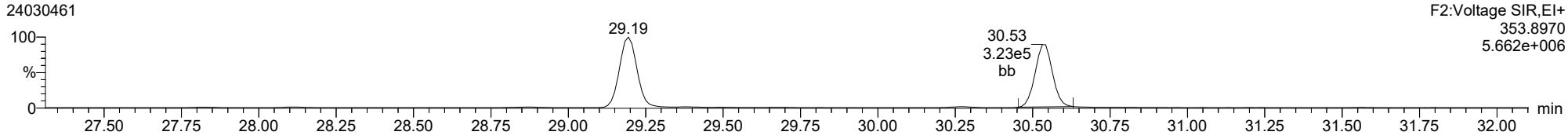
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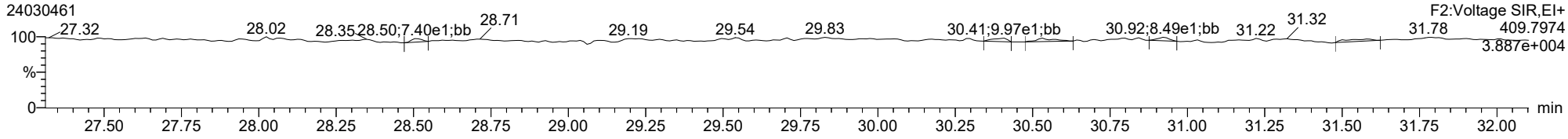
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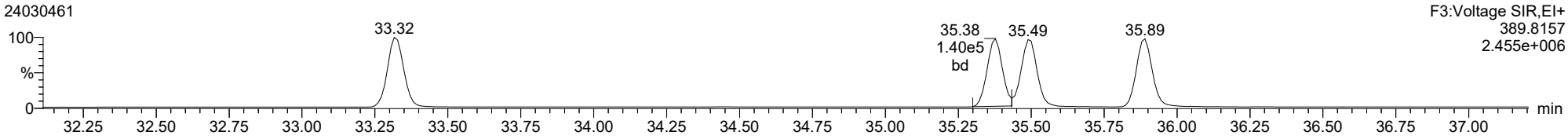


FUNCTION2 HPCDPE

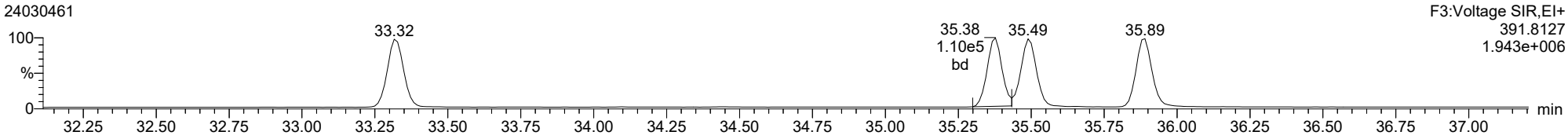


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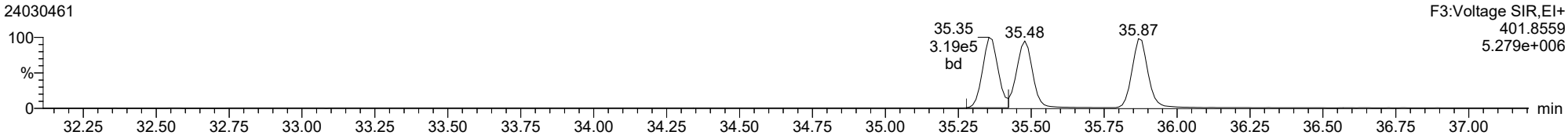
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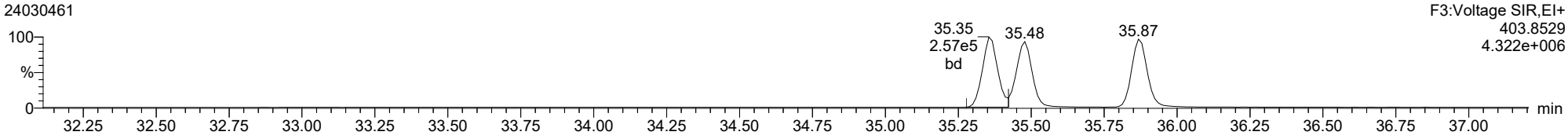
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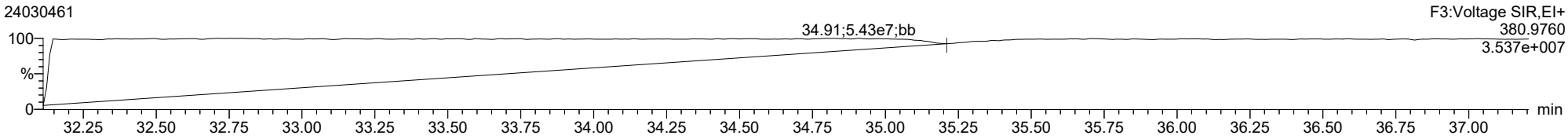
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13C-123478-HxCDD

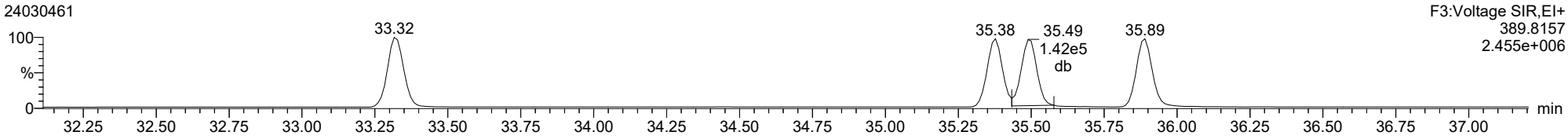


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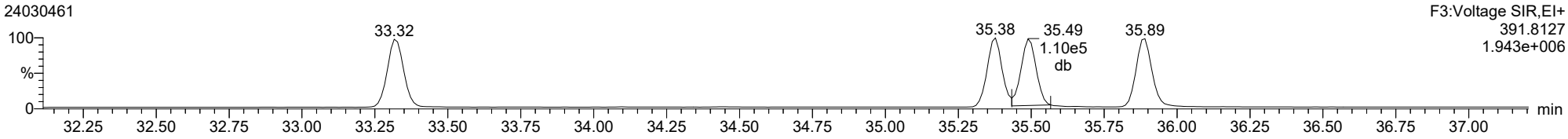


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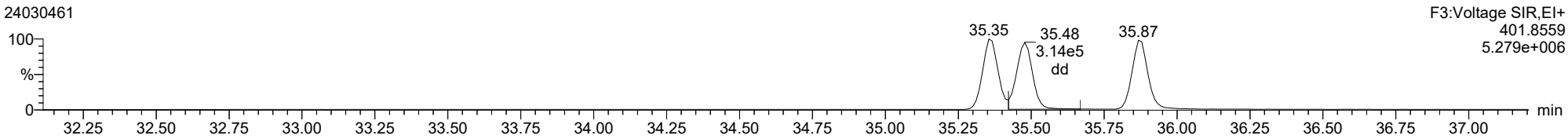
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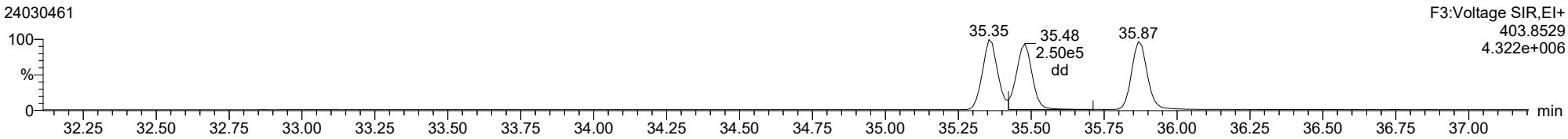
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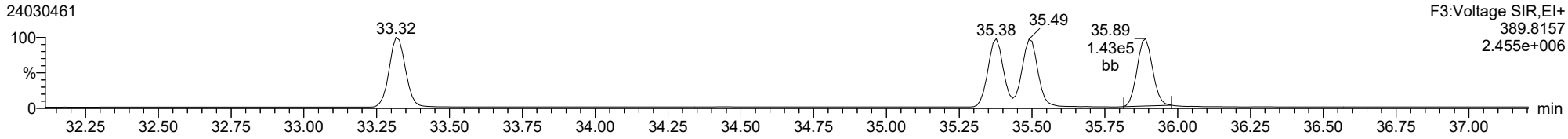


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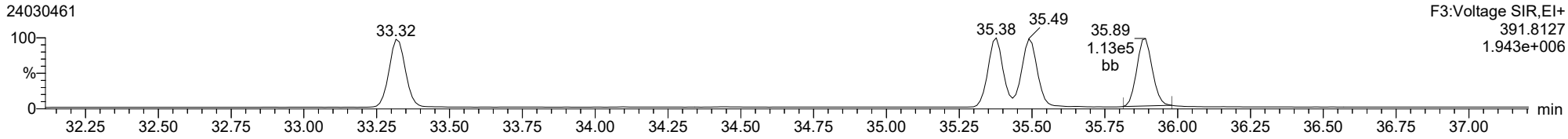


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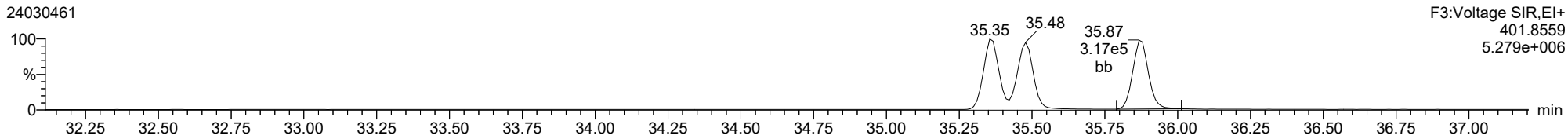
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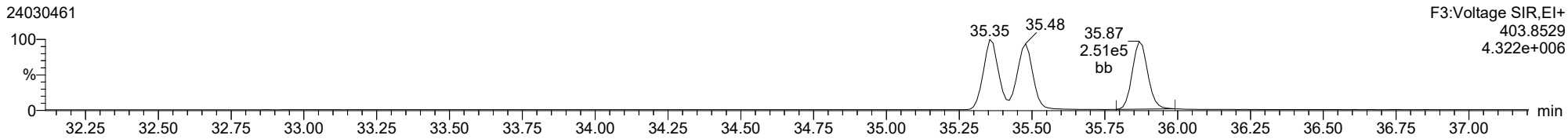
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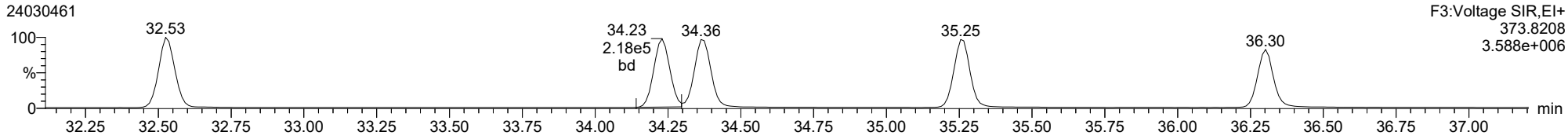


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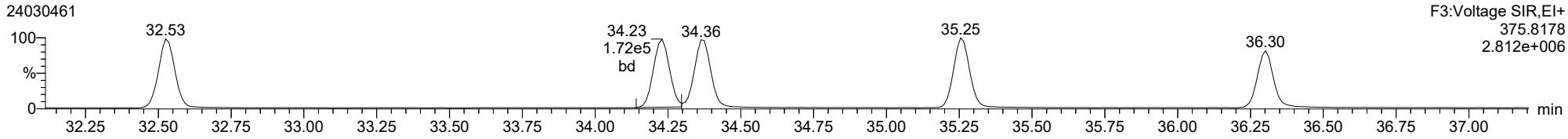


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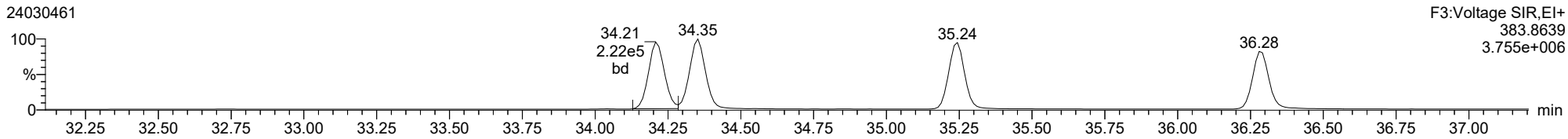
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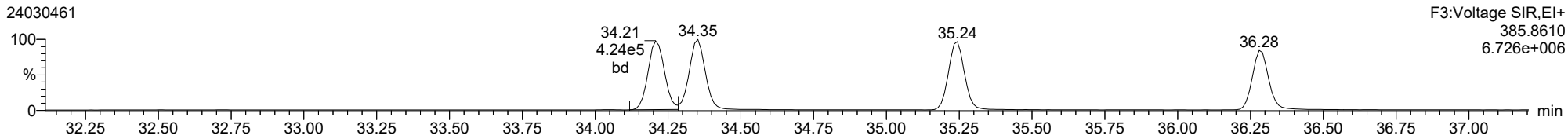
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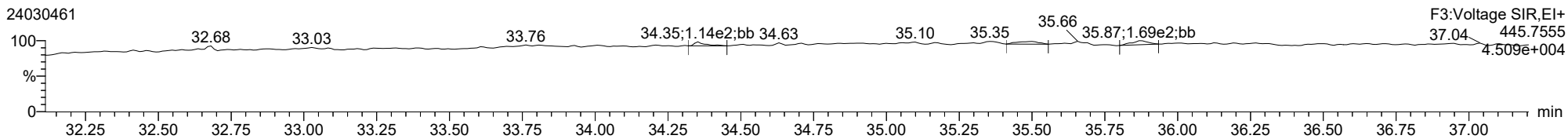
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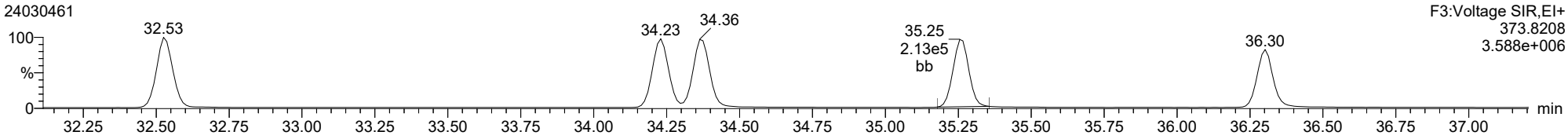


FUNCTION3 OCDPE

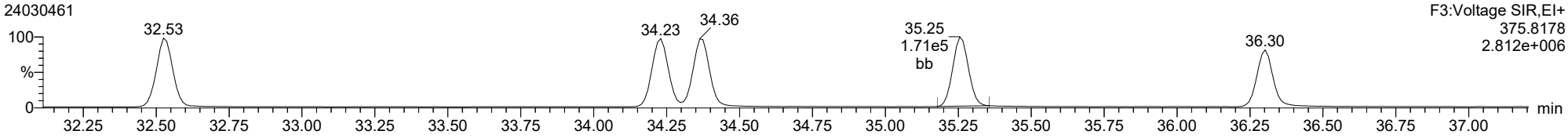


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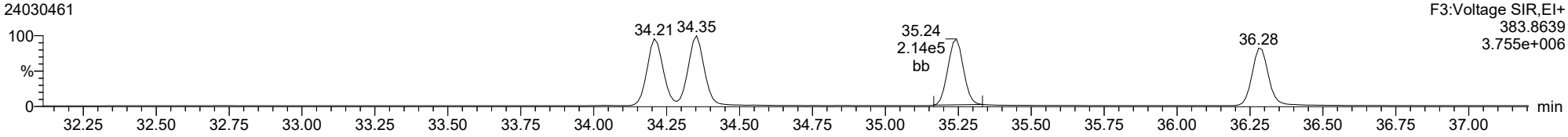
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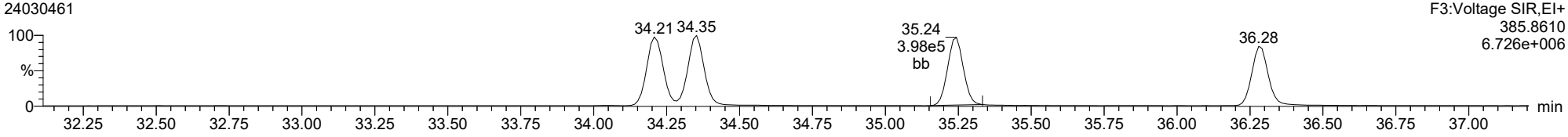
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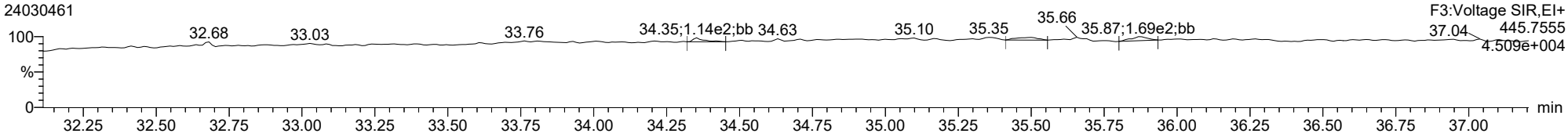
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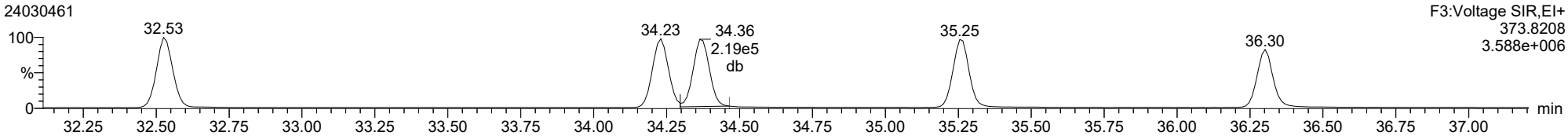


FUNCTION3 OCDPE

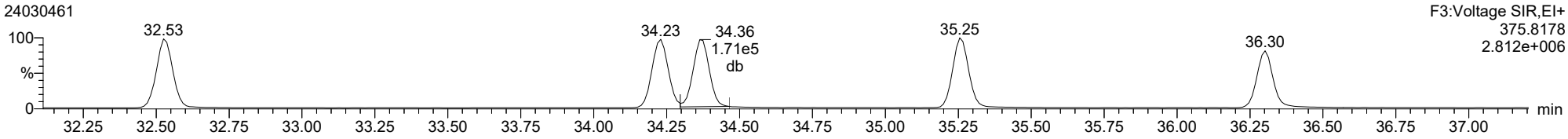


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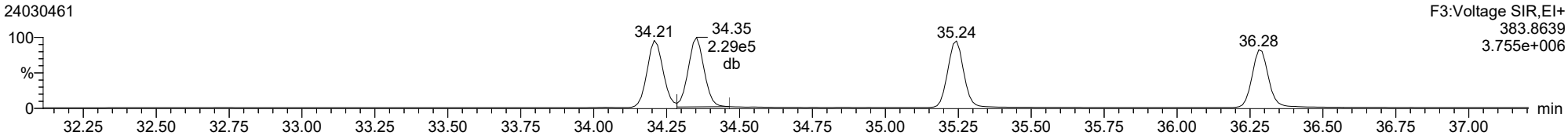
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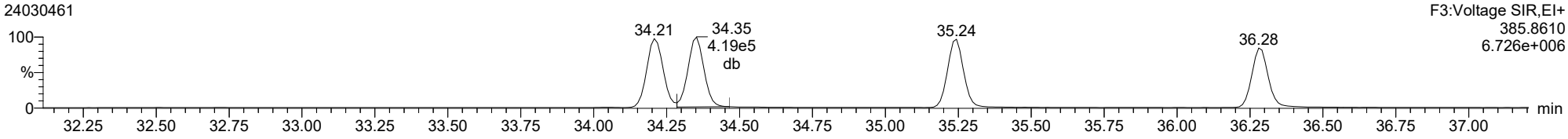
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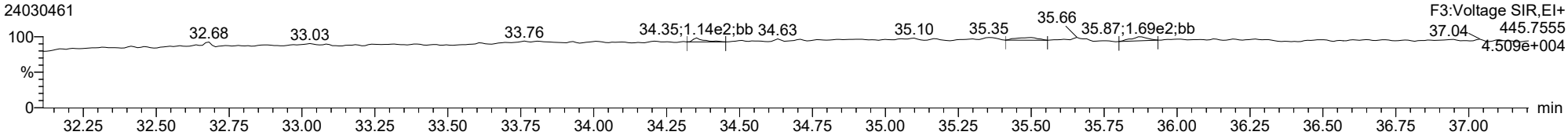
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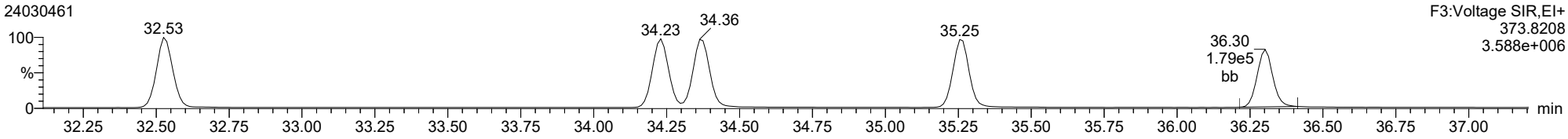


FUNCTION3 OCDPE

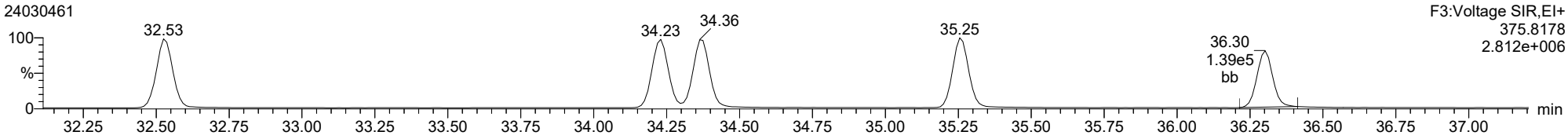


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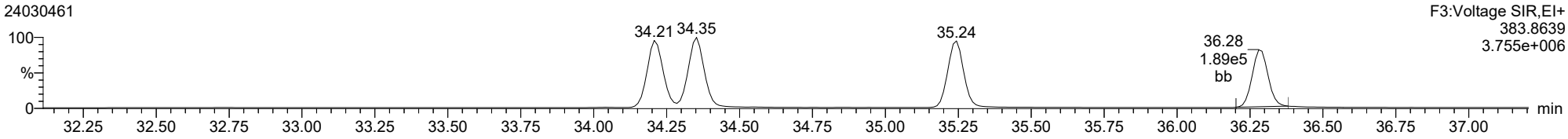
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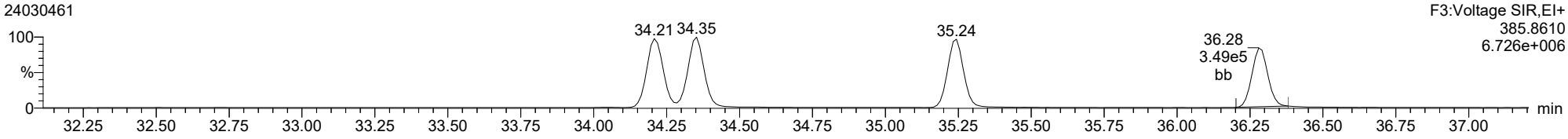
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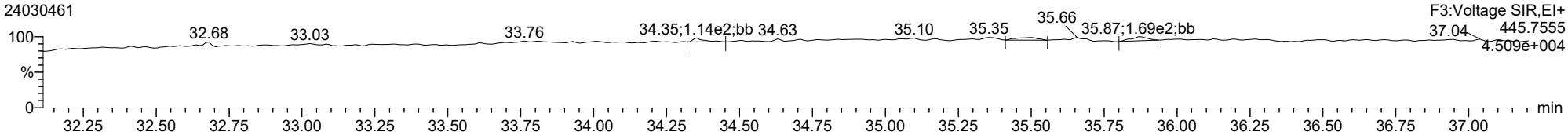
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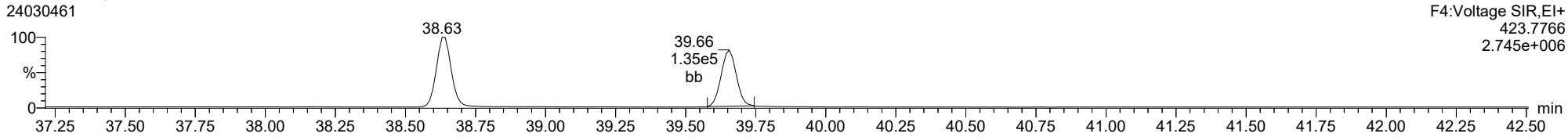


FUNCTION3 OCDPE

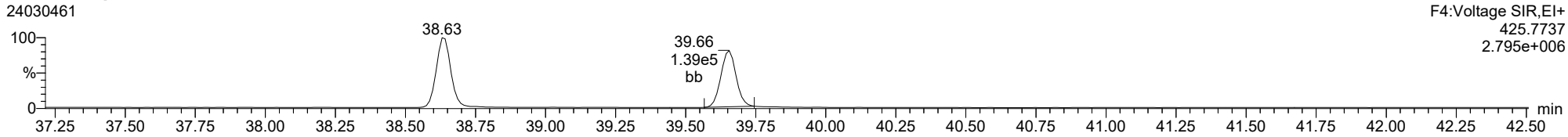


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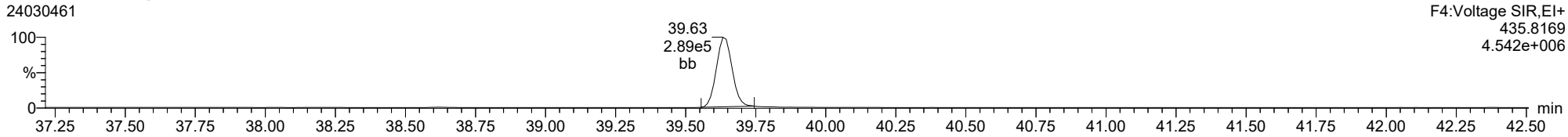
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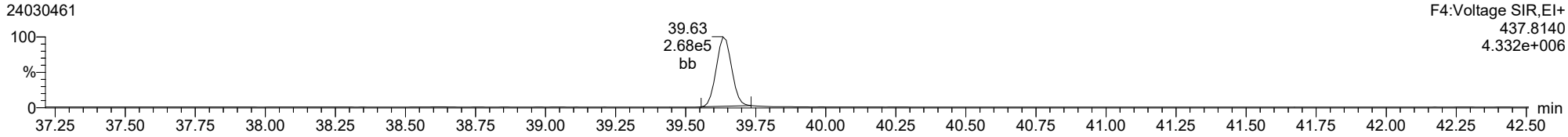
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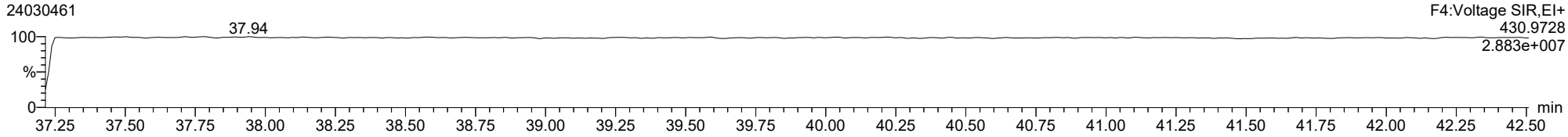
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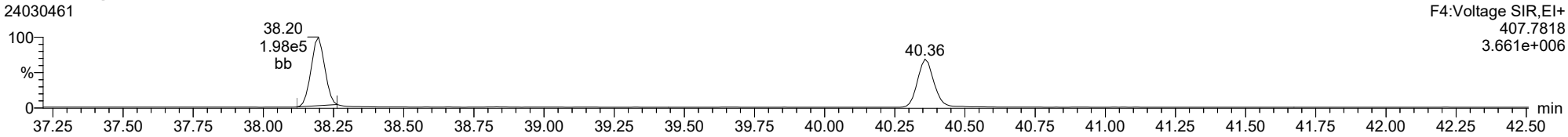


FUNCTION4 PFK

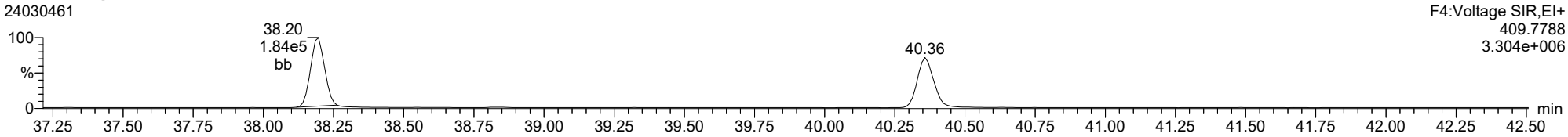


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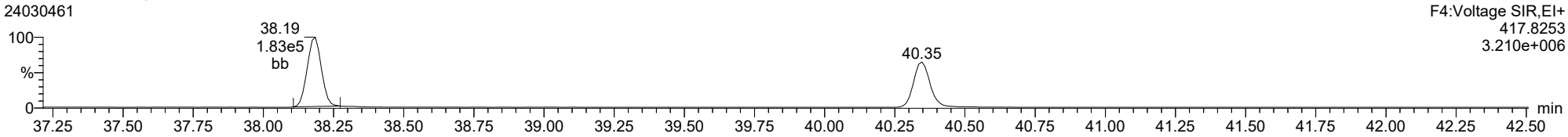
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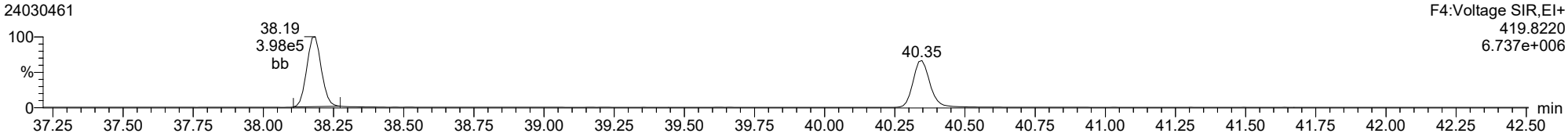
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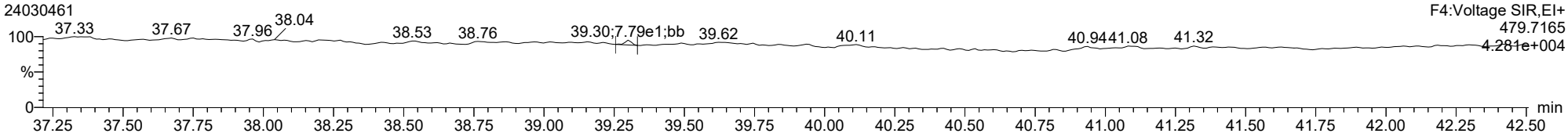
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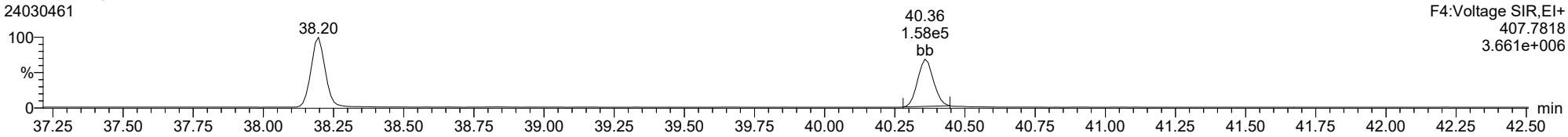


FUNCTION4 NCDPE

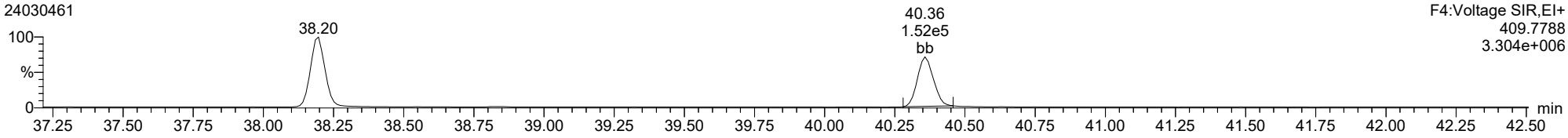


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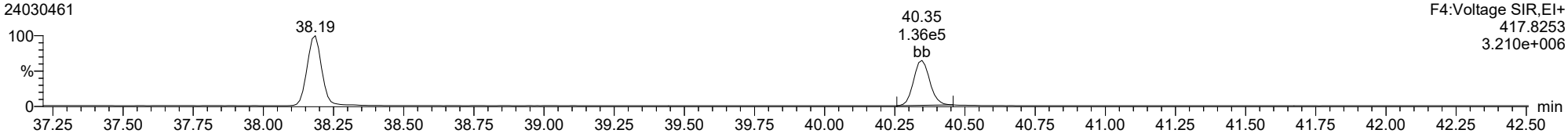
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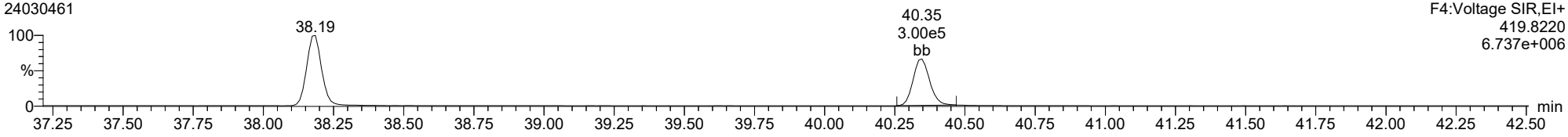
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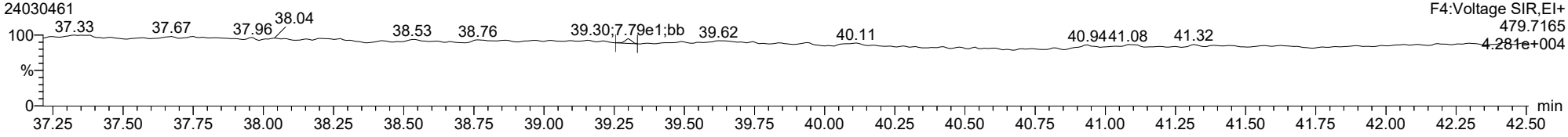
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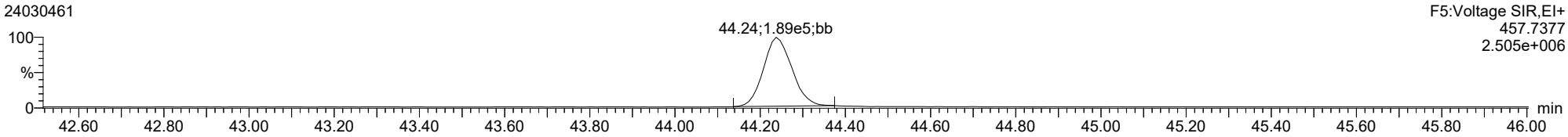


FUNCTION4 NCDPE

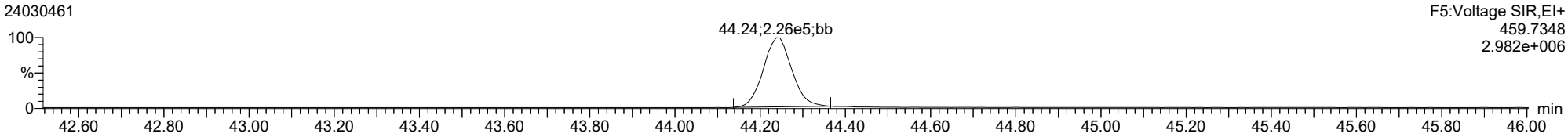


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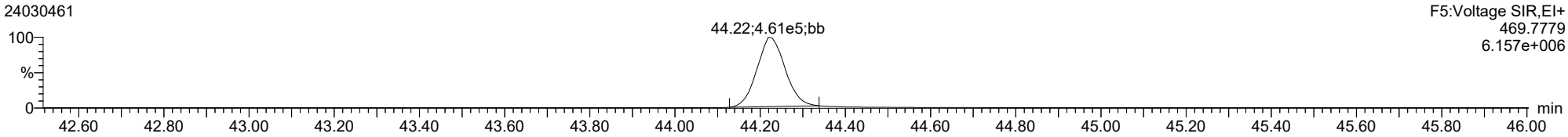
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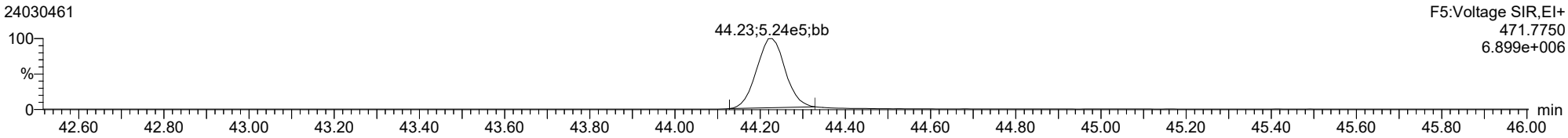
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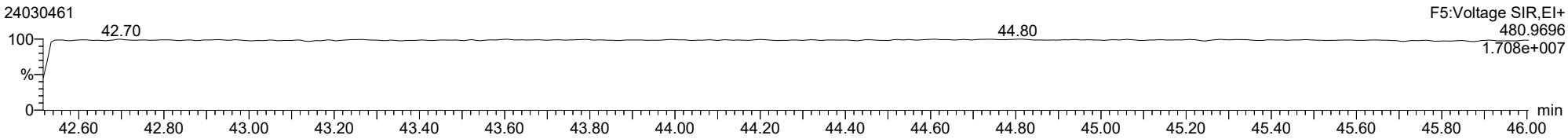
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13C-OCDD

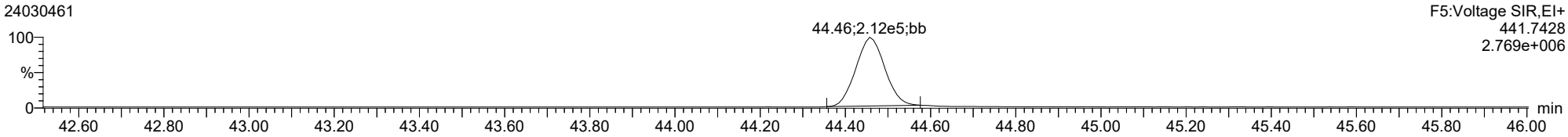


FUNCTION5 PFK

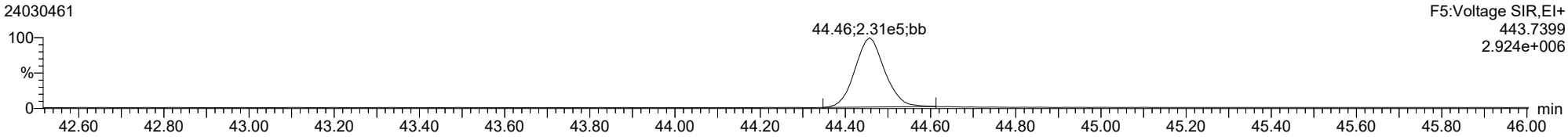


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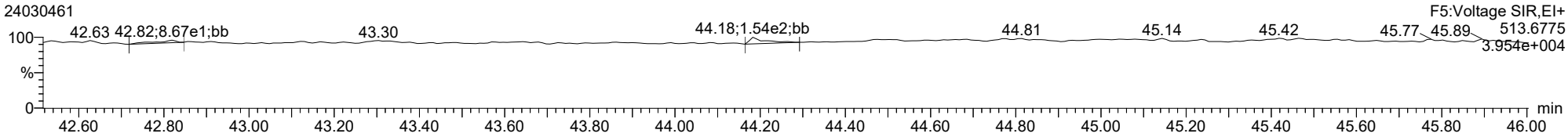
OCDF



OCDF

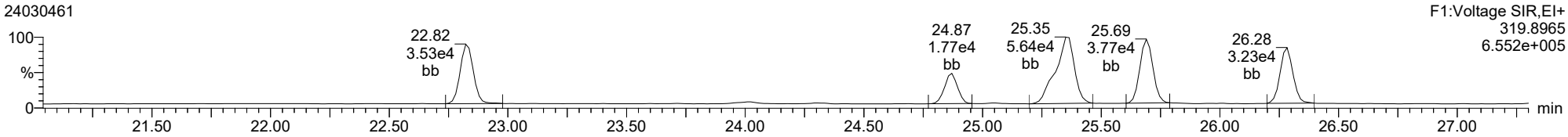


FUNCTION5 DCDPE

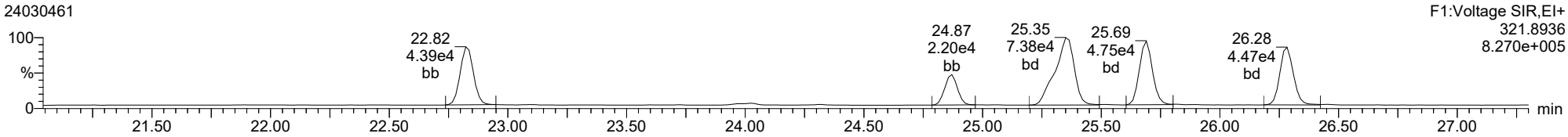


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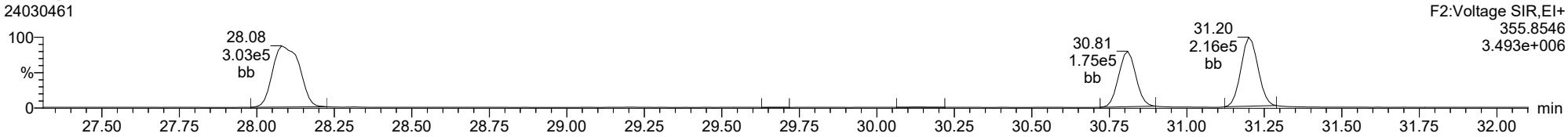
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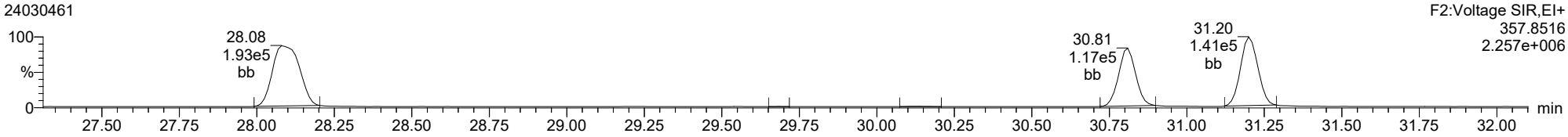
Total-tetradioxins



Total-pentadioxins

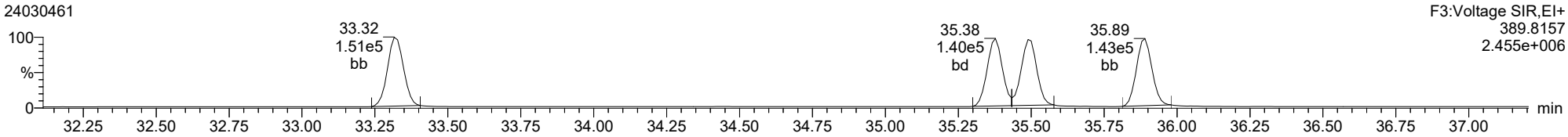


Total-pentadioxins

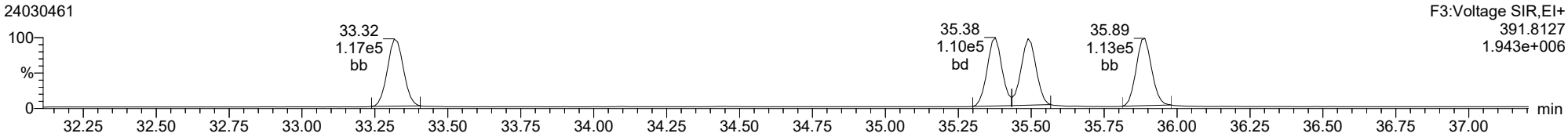


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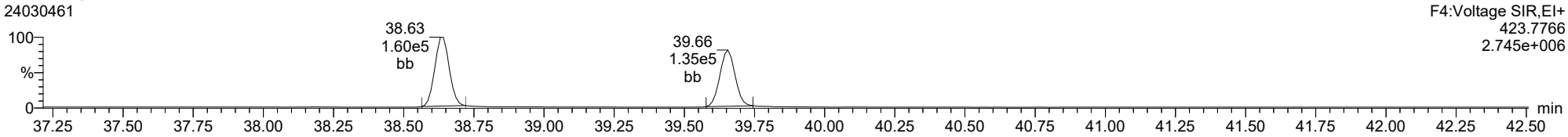
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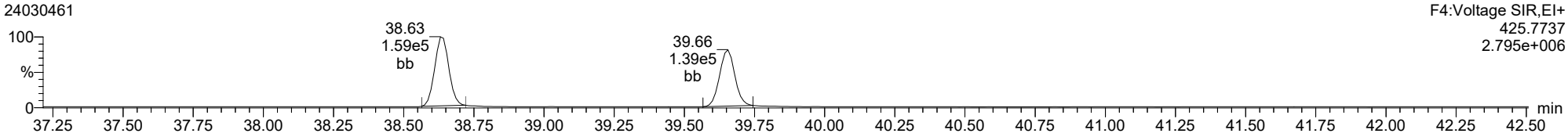
Total-hexadioxins



Total-heptadioxins

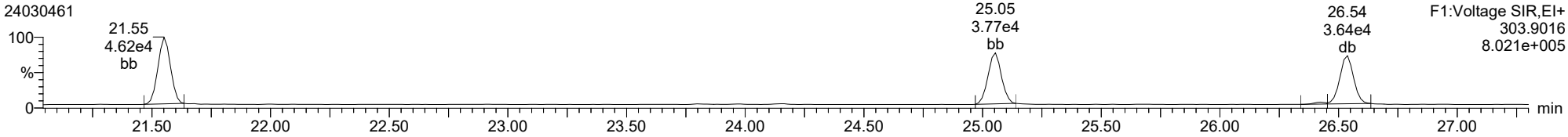


Total-heptadioxins

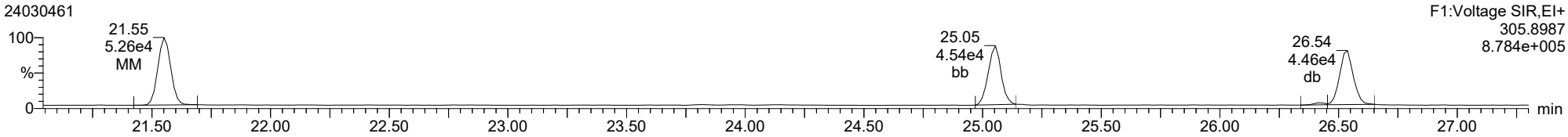


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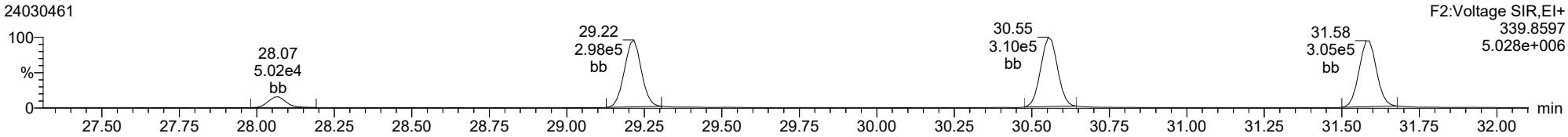
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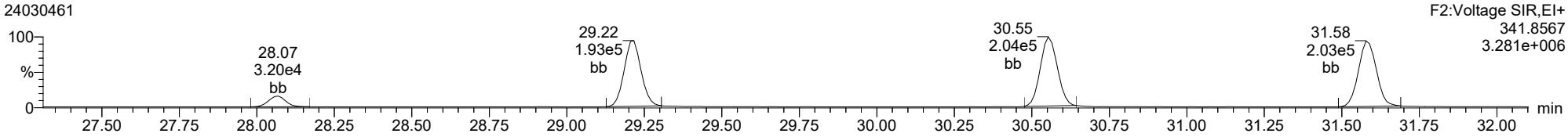
Total-tetrafurans



Total-pentafurans



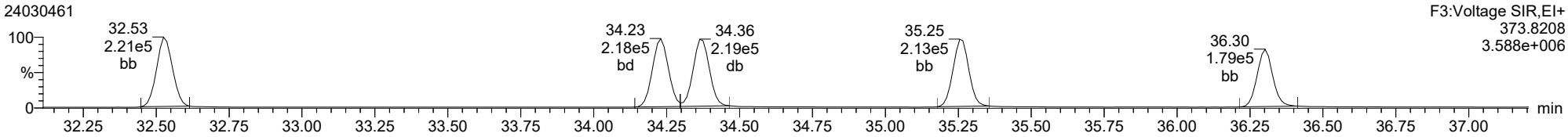
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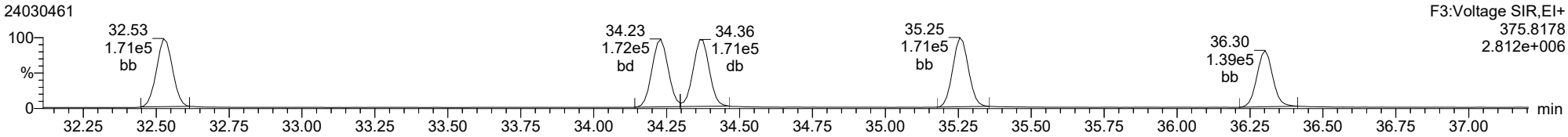
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Last Altered: Thursday, March 07, 2024 11:17:57 Pacific Standard Time
Printed: Thursday, March 07, 2024 11:25:57 Pacific Standard Time

ID: CS3Z6, Name: 24030461, Date: 06-Mar-2024, Time: 12:05:24, Conditions: AUTOSPEC01, User: pk

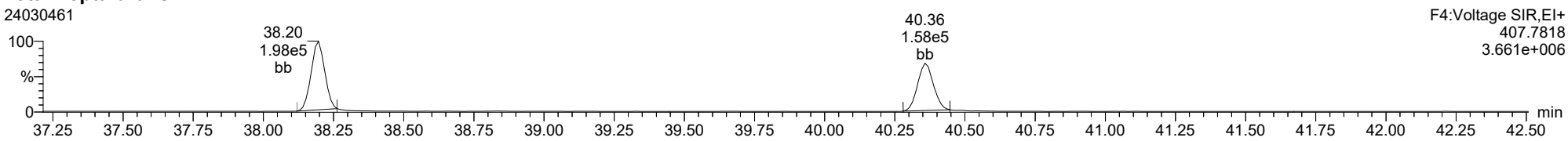
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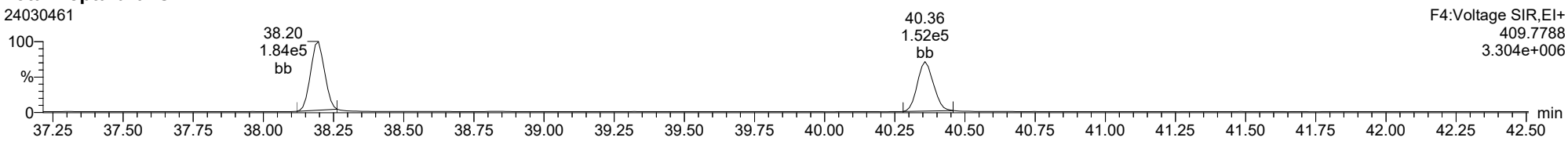
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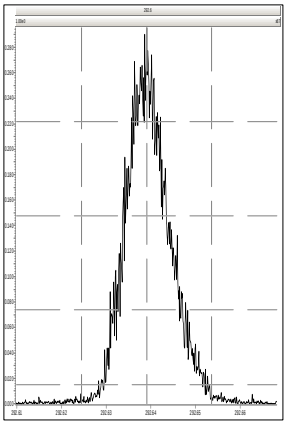


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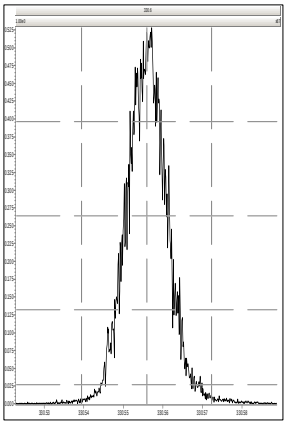


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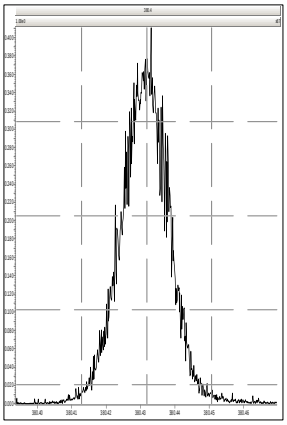
M 292.9824 R 13406



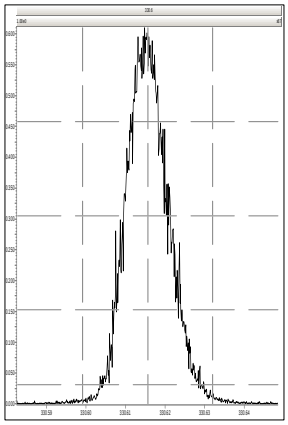
M 330.9792 R 14565



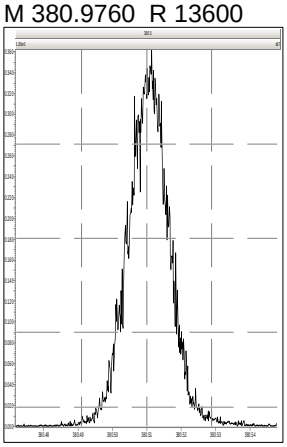
M 380.9760 R 12440



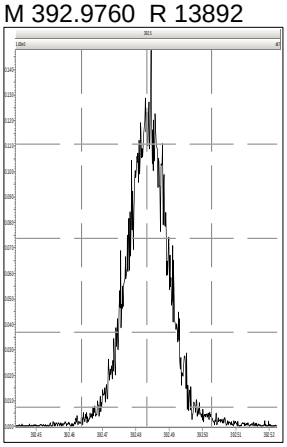
M 330.9792 R 13303



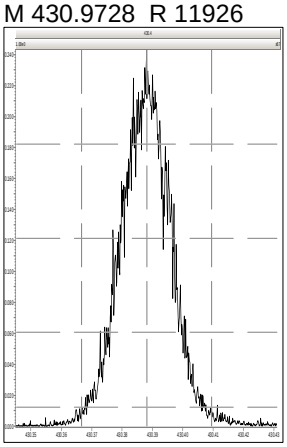
M 380.9760 R 13600



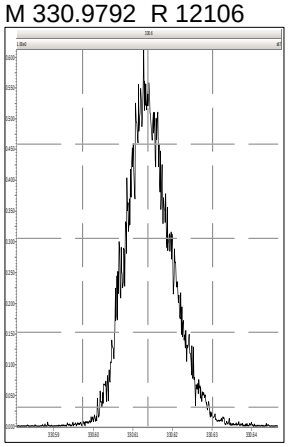
M 392.9760 R 13892



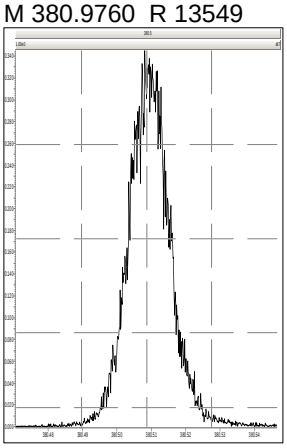
M 430.9728 R 11926



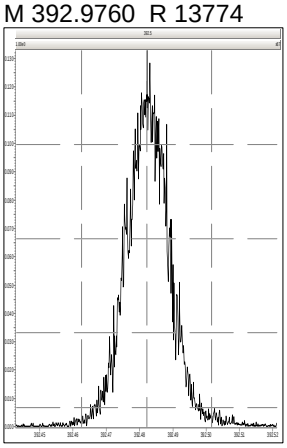
M 330.9792 R 12106



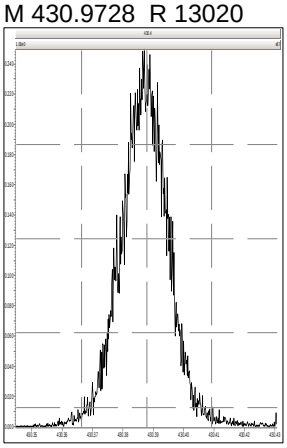
M 380.9760 R 13549



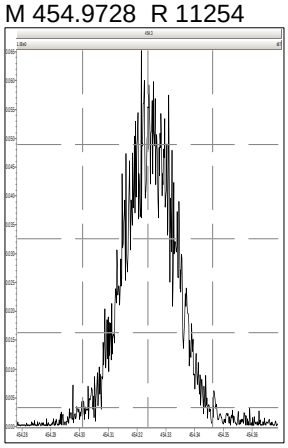
M 392.9760 R 13774



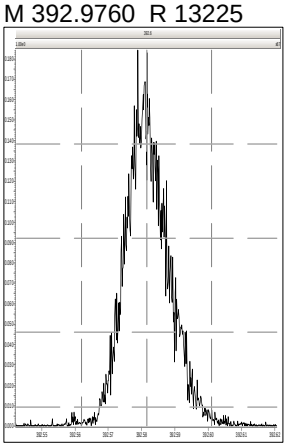
M 430.9728 R 13020



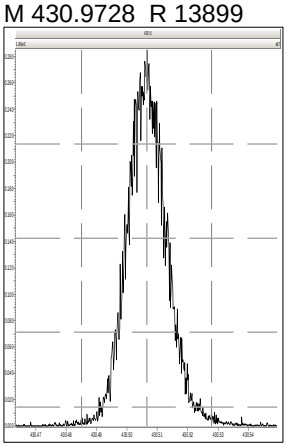
M 454.9728 R 11254



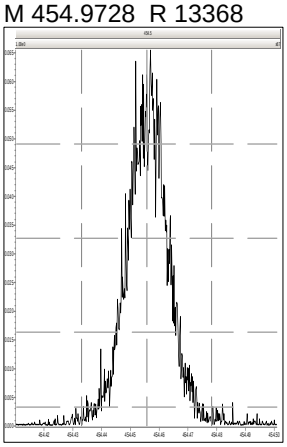
M 392.9760 R 13225



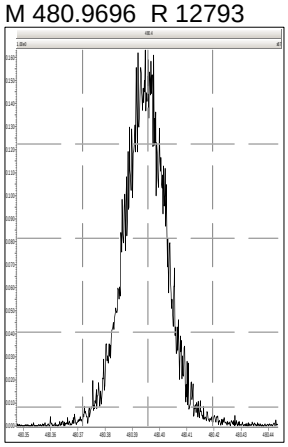
M 430.9728 R 13899



M 454.9728 R 13368

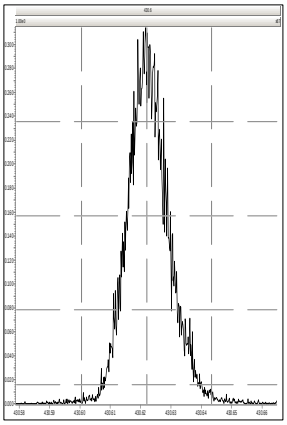


M 480.9696 R 12793

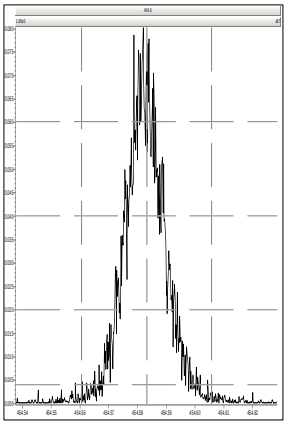


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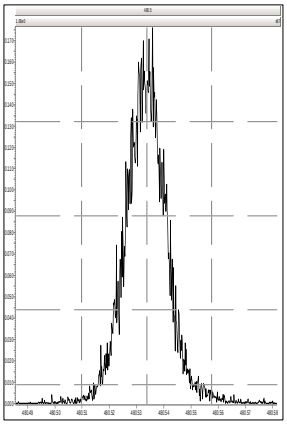
M 430.9728 R 13838



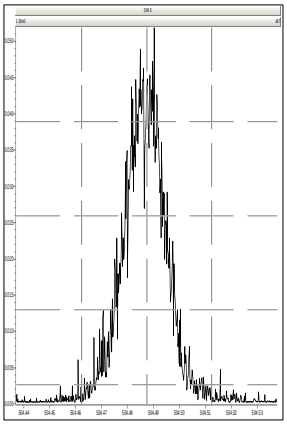
M 454.9728 R 15853



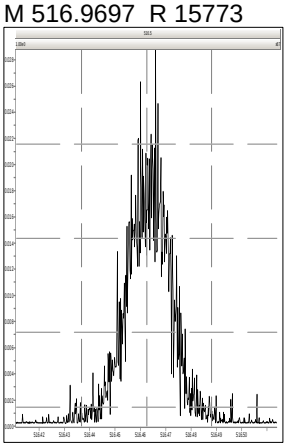
M 480.9696 R 14414

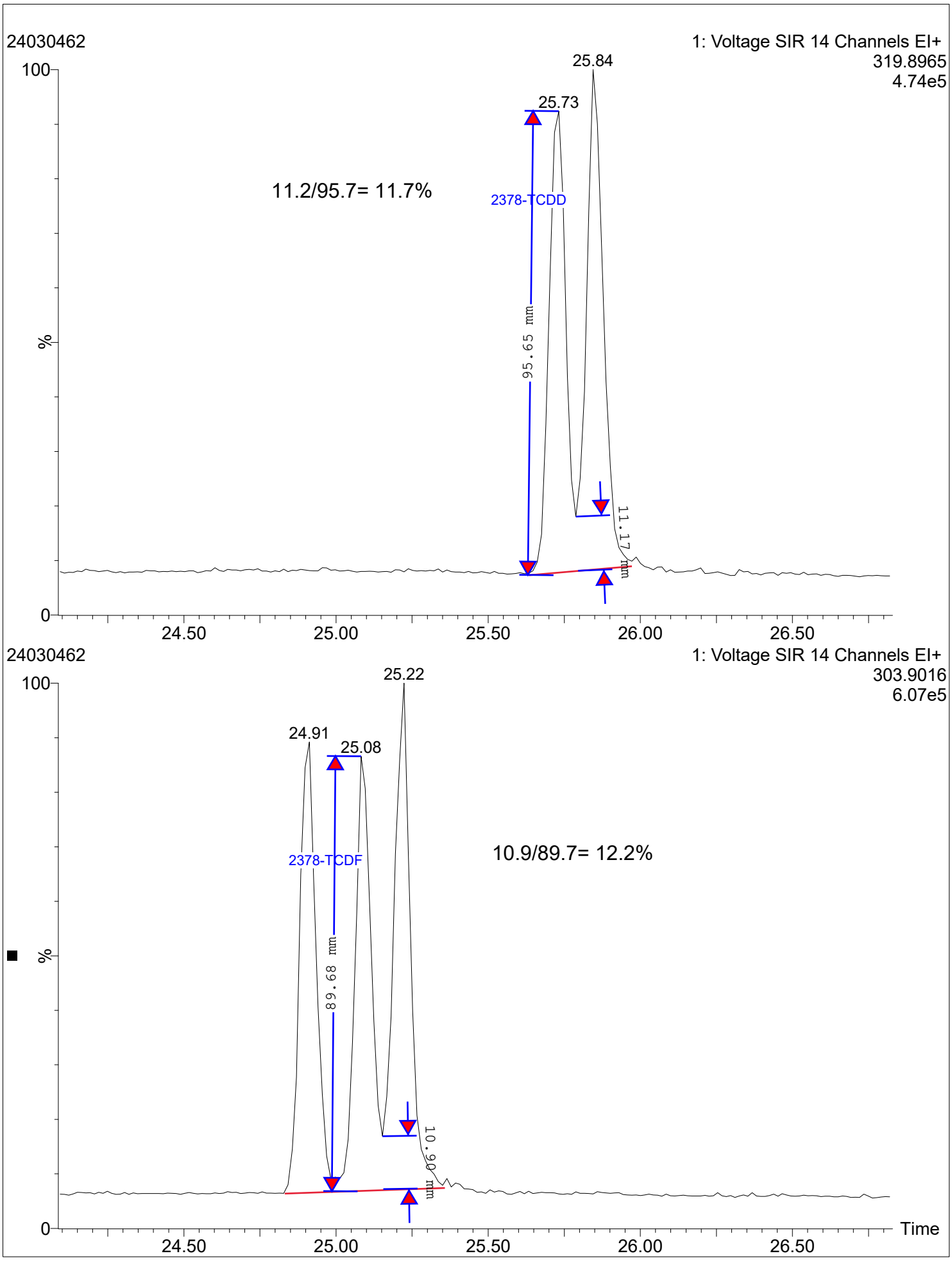


M 504.9696 R 13710



M 516.9697 R 15773




24030462
1: Voltage SIR 14 Channels EI+
319.8965
4.74e5
100
25.84
25.73
11.2/95.7= 11.7%
2378-TCDD
95.65 mm
11.17 mm
%
0
24.50
25.00
25.50
26.00
26.50
24030462
1: Voltage SIR 14 Channels EI+
303.9016
6.07e5
100
25.22
24.91
25.08
10.9/89.7= 12.2%
2378-TCDF
89.68 mm
10.90 mm
%
0
Time
24.50
25.00
25.50
26.00
26.50

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23I0156
Instrument .ID: AUTOSPEC01
Lab File ID: 23081103
Date Analyzed: 08/11/23
Time Analyzed: 11:19
Lab Sample ID: SLH0135-RES1
Sequence: SLH0135

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 14.9

3467-TCDF/2378-TCDF: 10.5

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLH0135-ICV1	CS3F1	23081102	08/11/2023	10:28
SLH0135-RES1	ISCF1	23081103	08/11/2023	11:19
SLH0135-CAL1	CSLCF	23081104	08/11/2023	12:07
SLH0135-CAL2	CS1CF	23081105	08/11/2023	13:01
SLH0135-CAL3	CS2CF	23081106	08/11/2023	13:56
SLH0135-CAL4	CS3CF	23081107	08/11/2023	14:52
SLH0135-CAL5	CS4CF	23081108	08/11/2023	15:40
SLH0135-CAL6	CS5CF	23081109	08/11/2023	16:29
SLH0135-SCV1	ICVCF	23081110	08/11/2023	17:18
SLH0135-CCV1	CS3F2	23081111	08/11/2023	18:06
SLH0135-RES2	ISCF2	23081112	08/11/2023	18:59

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23I0156
Instrument .ID: AUTOSPEC01
Lab File ID: 23081112
Date Analyzed: 08/11/23
Time Analyzed: 18:59
Lab Sample ID: SLH0135-RES2
Sequence: SLH0135

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 18.4

3467-TCDF/2378-TCDF: 15.3

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLH0135-ICV1	CS3F1	23081102	08/11/2023	10:28
SLH0135-RES1	ISCF1	23081103	08/11/2023	11:19
SLH0135-CAL1	CSLCF	23081104	08/11/2023	12:07
SLH0135-CAL2	CS1CF	23081105	08/11/2023	13:01
SLH0135-CAL3	CS2CF	23081106	08/11/2023	13:56
SLH0135-CAL4	CS3CF	23081107	08/11/2023	14:52
SLH0135-CAL5	CS4CF	23081108	08/11/2023	15:40
SLH0135-CAL6	CS5CF	23081109	08/11/2023	16:29
SLH0135-SCV1	ICVCF	23081110	08/11/2023	17:18
SLH0135-CCV1	CS3F2	23081111	08/11/2023	18:06
SLH0135-RES2	ISCF2	23081112	08/11/2023	18:59

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23I0156
Instrument .ID: AUTOSPEC01
Lab File ID: 23121420
Date Analyzed: 12/15/23
Time Analyzed: 01:28
Lab Sample ID: SLL0222-RES1
Sequence: SLL0222

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 15.2

3467-TCDF/2378-TCDF: 15.2

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLL0222-ICV1	CS3J3	23121419A	12/15/2023	00:35
SLL0222-RES1	ISCJ3	23121420	12/15/2023	01:28
SLL0222-CCV1	CS3J4	23121431	12/15/2023	15:28
SLL0222-RES2	ISCJ4	23121432	12/15/2023	16:21
SLL0222-CCV2	CS3J5	23121442	12/16/2023	00:33
SLL0222-RES3	ISCJ5	23121443	12/16/2023	01:26

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23I0156
Instrument .ID: AUTOSPEC01
Lab File ID: 23121432
Date Analyzed: 12/15/23
Time Analyzed: 16:21
Lab Sample ID: SLL0222-RES2
Sequence: SLL0222

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 13.6

3467-TCDF/2378-TCDF: 12.3

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLL0222-ICV1	CS3J3	23121419A	12/15/2023	00:35
SLL0222-RES1	ISCJ3	23121420	12/15/2023	01:28
SLL0222-CCV1	CS3J4	23121431	12/15/2023	15:28
SLL0222-RES2	ISCJ4	23121432	12/15/2023	16:21
SLL0222-CCV2	CS3J5	23121442	12/16/2023	00:33
SLL0222-RES3	ISCJ5	23121443	12/16/2023	01:26

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23I0156
Instrument .ID: AUTOSPEC01
Lab File ID: 23121443
Date Analyzed: 12/16/23
Time Analyzed: 01:26
Lab Sample ID: SLL0222-RES3
Sequence: SLL0222

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 14.2

3467-TCDF/2378-TCDF: 11.5

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLL0222-ICV1	CS3J3	23121419A	12/15/2023	00:35
SLL0222-RES1	ISCJ3	23121420	12/15/2023	01:28
SLL0222-CCV1	CS3J4	23121431	12/15/2023	15:28
SLL0222-RES2	ISCJ4	23121432	12/15/2023	16:21
SLL0222-CCV2	CS3J5	23121442	12/16/2023	00:33
SLL0222-RES3	ISCJ5	23121443	12/16/2023	01:26

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23I0156
Instrument .ID: AUTOSPEC01
Lab File ID: 24022803
Date Analyzed: 02/28/24
Time Analyzed: 13:38
Lab Sample ID: SMB0412-RES1
Sequence: SMB0412

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 14.2

3467-TCDF/2378-TCDF: 12.8

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SMB0412-ICV1	CS3Y1	24022802	02/28/2024	11:57
SMB0412-RES1	ISCY2	24022803	02/28/2024	13:38
SMB0412-CAL1	CSLCY	24022804	02/28/2024	14:33
SMB0412-CAL2	CS1CY	24022805	02/28/2024	15:26
SMB0412-CAL3	CS2CY	24022806	02/28/2024	16:14
SMB0412-CAL4	CS3CY	24022807	02/28/2024	17:03
SMB0412-CAL5	CS4CY	24022808	02/28/2024	17:51
SMB0412-CAL6	CS5CY	24022809	02/28/2024	18:40
SMB0412-SCV1	ICVCY	24022810	02/28/2024	19:28
SMB0412-CCV1	CS3Y2	24022811	02/28/2024	20:17
SMB0412-RES2	ISCY2	24022812	02/28/2024	21:10

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23I0156
Instrument .ID: AUTOSPEC01
Lab File ID: 24022812
Date Analyzed: 02/28/24
Time Analyzed: 21:10
Lab Sample ID: SMB0412-RES2
Sequence: SMB0412

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 18.3

3467-TCDF/2378-TCDF: 16.4

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SMB0412-ICV1	CS3Y1	24022802	02/28/2024	11:57
SMB0412-RES1	ISCY2	24022803	02/28/2024	13:38
SMB0412-CAL1	CSLCY	24022804	02/28/2024	14:33
SMB0412-CAL2	CS1CY	24022805	02/28/2024	15:26
SMB0412-CAL3	CS2CY	24022806	02/28/2024	16:14
SMB0412-CAL4	CS3CY	24022807	02/28/2024	17:03
SMB0412-CAL5	CS4CY	24022808	02/28/2024	17:51
SMB0412-CAL6	CS5CY	24022809	02/28/2024	18:40
SMB0412-SCV1	ICVCY	24022810	02/28/2024	19:28
SMB0412-CCV1	CS3Y2	24022811	02/28/2024	20:17
SMB0412-RES2	ISCY2	24022812	02/28/2024	21:10

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC SDG: 23I0156

Instrument .ID: AUTOSPEC01 Lab File ID: 24030440

Date Analyzed: 03/05/24 Time Analyzed: 18:47

Lab Sample ID: SMC0054-RES1 Sequence: SMC0054

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD:

3467-TCDF/2378-TCDF:

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SMC0054-ICV1	CS3Z4	24030439A	03/05/2024	17:54
SMC0054-RES1	ISCZ4	24030440	03/05/2024	18:47
BMA0737-BLK1	Blank	24030446	03/05/2024	23:43
BMA0737-BS1	LCS	24030447	03/06/2024	00:32
BMA0737-DUP1	Duplicate	24030448	03/06/2024	01:21
23I0156-20	H4H-05-0.5-1.0	24030449	03/06/2024	02:10
SMC0054-CCV1	CS3Z5	24030451	03/06/2024	03:48
SMC0054-RES2	ISCZ5	24030452	03/06/2024	04:41
SMC0054-CCV2	CS3Z6	24030461	03/06/2024	12:05
SMC0054-RES3	ISCZ6	24030462	03/06/2024	12:58

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC

SDG: 23I0156

Instrument .ID: AUTOSPEC01

Lab File ID: 24030452

Date Analyzed: 03/06/24

Time Analyzed: 04:41

Lab Sample ID: SMC0054-RES2

Sequence: SMC0054

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD:

3467-TCDF/2378-TCDF:

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SMC0054-ICV1	CS3Z4	24030439A	03/05/2024	17:54
SMC0054-RES1	ISCZ4	24030440	03/05/2024	18:47
BMA0737-BLK1	Blank	24030446	03/05/2024	23:43
BMA0737-BS1	LCS	24030447	03/06/2024	00:32
BMA0737-DUP1	Duplicate	24030448	03/06/2024	01:21
23I0156-20	H4H-05-0.5-1.0	24030449	03/06/2024	02:10
SMC0054-CCV1	CS3Z5	24030451	03/06/2024	03:48
SMC0054-RES2	ISCZ5	24030452	03/06/2024	04:41
SMC0054-CCV2	CS3Z6	24030461	03/06/2024	12:05
SMC0054-RES3	ISCZ6	24030462	03/06/2024	12:58

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC SDG: 23I0156

Instrument .ID: AUTOSPEC01 Lab File ID: 24030462

Date Analyzed: 03/06/24 Time Analyzed: 12:58

Lab Sample ID: SMC0054-RES3 Sequence: SMC0054

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD:

3467-TCDF/2378-TCDF:

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SMC0054-ICV1	CS3Z4	24030439A	03/05/2024	17:54
SMC0054-RES1	ISCZ4	24030440	03/05/2024	18:47
BMA0737-BLK1	Blank	24030446	03/05/2024	23:43
BMA0737-BS1	LCS	24030447	03/06/2024	00:32
BMA0737-DUP1	Duplicate	24030448	03/06/2024	01:21
23I0156-20	H4H-05-0.5-1.0	24030449	03/06/2024	02:10
SMC0054-CCV1	CS3Z5	24030451	03/06/2024	03:48
SMC0054-RES2	ISCZ5	24030452	03/06/2024	04:41
SMC0054-CCV2	CS3Z6	24030461	03/06/2024	12:05
SMC0054-RES3	ISCZ6	24030462	03/06/2024	12:58

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SLH0135	Instrument:	AUTOSPEC01
		Calibration:	GH00041

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CS3F1	SLH0135-ICV1	23081102	NA	08/11/23 10:28
ISCF1	SLH0135-RES1	23081103	NA	08/11/23 11:19
CSLCF	SLH0135-CAL1	23081104	NA	08/11/23 12:07
CS1CF	SLH0135-CAL2	23081105	NA	08/11/23 13:01
CS2CF	SLH0135-CAL3	23081106	NA	08/11/23 13:56
CS3CF	SLH0135-CAL4	23081107	NA	08/11/23 14:52
CS4CF	SLH0135-CAL5	23081108	NA	08/11/23 15:40
CS5CF	SLH0135-CAL6	23081109	NA	08/11/23 16:29
ICVCF	SLH0135-SCV1	23081110	NA	08/11/23 17:18
CS3F2	SLH0135-CCV1	23081111	NA	08/11/23 18:06
ISCF2	SLH0135-RES2	23081112	NA	08/11/23 18:59

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SLL0222	Instrument:	AUTOSPEC01
		Calibration:	GH00041

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CS3J3	SLL0222-ICV1	23121419A	NA	12/15/23 00:35
ISCJ3	SLL0222-RES1	23121420	NA	12/15/23 01:28
CS3J4	SLL0222-CCV1	23121431	NA	12/15/23 15:28
ISCJ4	SLL0222-RES2	23121432	NA	12/15/23 16:21
CS3J5	SLL0222-CCV2	23121442	NA	12/16/23 00:33
ISCJ5	SLL0222-RES3	23121443	NA	12/16/23 01:26

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SMB0412	Instrument:	AUTOSPEC01
		Calibration:	HB00095

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CS3Y1	SMB0412-ICV1	24022802	NA	02/28/24 11:57
ISCY2	SMB0412-RES1	24022803	NA	02/28/24 13:38
CSLCY	SMB0412-CAL1	24022804	NA	02/28/24 14:33
CS1CY	SMB0412-CAL2	24022805	NA	02/28/24 15:26
CS2CY	SMB0412-CAL3	24022806	NA	02/28/24 16:14
CS3CY	SMB0412-CAL4	24022807	NA	02/28/24 17:03
CS4CY	SMB0412-CAL5	24022808	NA	02/28/24 17:51
CS5CY	SMB0412-CAL6	24022809	NA	02/28/24 18:40
ICVCY	SMB0412-SCV1	24022810	NA	02/28/24 19:28
CS3Y2	SMB0412-CCV1	24022811	NA	02/28/24 20:17
ISCY2	SMB0412-RES2	24022812	NA	02/28/24 21:10

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SMC0054	Instrument:	AUTOSPEC01
		Calibration:	HB00095

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CS3Z4	SMC0054-ICV1	24030439A	NA	03/05/24 17:54
ISCZ4	SMC0054-RES1	24030440	NA	03/05/24 18:47
Blank	BMA0737-BLK1	24030446	Solid	03/05/24 23:43
LCS	BMA0737-BS1	24030447	Solid	03/06/24 00:32
H4H-05-0.5-1.0	BMA0737-DUP1	24030448	Solid	03/06/24 01:21
H4H-05-0.5-1.0	23I0156-20	24030449	Solid	03/06/24 02:10
CS3Z5	SMC0054-CCV1	24030451	NA	03/06/24 03:48
ISCZ5	SMC0054-RES2	24030452	NA	03/06/24 04:41
CS3Z6	SMC0054-CCV2	24030461	NA	03/06/24 12:05
ISCZ6	SMC0054-RES3	24030462	NA	03/06/24 12:58

Analytical Resources, LLC
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Printed: 3/7/2024 11:55:46AM

ANALYSIS SEQUENCE

SMC0054

Instrument: AUTOSPEC01 HRGCMS Column ID: L7621
Calibration ID: HB00095 Tune File: FEB0724_1-5
EM Voltage: 360 Resolution check times : 18:47, 04:41, 12:58

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
SMC0054-ICV1	CS3Z4	QC		1	L013952		03/05/2024 17:54	24030439A	PK	
SMC0054-RES1	ISCZ4	QC		2	L013640		03/05/2024 18:47	24030440	PK	
BMA0679-BLK2	Blank	QC		3		L013949	03/05/2024 10:33	24030430A	PK	
BMA0679-BS2	LCS	QC		4		L013949	03/05/2024 11:22	24030431A	PK	
24A0451-01	5-334 JANUARY SAMPL	1613B Dioxin	C 01	5		L013949	03/05/2024 19:38	24030441	PK	
24A0543-01	SDN1012524COMP-P	1613B Dioxin	A 01	6		L013949	03/05/2024 20:27	24030442	PK	requires 5 pg/L or less MDL EDL - TCDD
24A0543-02	SDN2/3/4012524COMP-P	1613B Dioxin	A 01	7		L013949	03/05/2024 21:16	24030443	PK	requires 5 pg/L or less MDL EDL - TCDD
24A0543-03	SDW1B012524COMP-P	1613B Dioxin	A 01	8		L013949	03/05/2024 22:05	24030444	PK	requires 5 pg/L or less MDL EDL - TCDD
24A0543-04	SDW2012524COMP-P	1613B Dioxin	A 01	9		L013949	03/05/2024 22:54	24030445	PK	requires 5 pg/L or less MDL EDL - TCDD
BMA0737-BLK1	Blank	QC		10		L013949	03/05/2024 23:43	24030446	PK	
BMA0737-BS1	LCS	QC		11		L013949	03/06/2024 00:32	24030447	PK	
BMA0737-DUP1	Duplicate	QC		12		L013949	03/06/2024 01:21	24030448	PK	
23I0156-20	H4H-05-0.5-1.0	1613B Dioxin	A 01	13		L013949	03/06/2024 02:10	24030449	PK	
24A0305-19	OBI-SG-205-(0-10)-24011	1613B Dioxin	C 01	14		L013949	03/06/2024 02:59	24030450	PK	
SMC0054-CCV1	CS3Z5	QC		15	L013952		03/06/2024 03:48	24030451	PK	
SMC0054-RES2	ISCZ5	QC		16	L013640		03/06/2024 04:41	24030452	PK	
24A0305-20	OBI-SG-101-(0-10)-24011	1613B Dioxin	C 01	17		L013949	03/06/2024 05:33	24030453	PK	
24A0305-21	OBI-SG-208-(0-10)-24011	1613B Dioxin	C 01	18		L013949	03/06/2024 06:22	24030454	PK	
BMA0737-DUP2	Duplicate	QC		19		L013949	03/06/2024 07:11	24030455	PK	
24A0305-22	OBI-SG-207-(0-10)-24011	1613B Dioxin	C 01	20		L013949	03/06/2024 08:00	24030456	PK	
24A0305-23	OBI-SG-206-(0-10)-24011	1613B Dioxin	C 01	21		L013949	03/06/2024 08:49	24030457	PK	
24A0305-24	OBI-SG-209-(0-10)-24011	1613B Dioxin	G 01	22		L013949	03/06/2024 09:38	24030458	PK	

ANALYSIS SEQUENCE

SMC0054

Instrument: AUTOSPEC01 HRGCMS Column ID: L7621
Calibration ID: HB00095 Tune File: FEB0724_1-5
EM Voltage: 360 Resolution check times : 18:47, 04:41, 12:58

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
24A0305-25	I-SG-209-(0-10)-240111-I	1613B Dioxin	C 01	23		L013949	03/06/2024 10:27	24030459	PK	
24A0305-26	I-SG-212-(0-10)-240111-I	1613B Dioxin	C 01	24		L013949	03/06/2024 11:16	24030460	PK	
SMC0054-CCV2	CS3Z6	QC		25	L013952		03/06/2024 12:05	24030461	PK	
SMC0054-RES3	ISCZ6	QC		26	L013640		03/06/2024 12:58	24030462	PK	

Dataset: T:\Autospec\Processed Data Batch\240304IH1.qld
Last Altered: Wednesday, March 06, 2024 10:45:54 Pacific Standard Time
Printed: Wednesday, March 06, 2024 10:47:44 Pacific Standard Time 3/6/24 PK

Event	Details	Sample ID
Dataset Created		
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\240304IH1.qld'	
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\240304IH1.qld'	
Peak added	Sample:24030449, Compound:HPF, RT:38.842	11
Peak added	Sample:24030449, Compound:HPF, RT:38.831	11
Peak added	Sample:24030448, Compound:PD, RT:30.812	10
Peak added	Sample:24030448, Compound:PD, RT:30.812	10
Peak added	Sample:24030450, Compound:PF, RT:28.191	12
Peak added	Sample:24030450, Compound:PF, RT:28.191	12
Peak deleted	Sample:24030440, Compound:13C-1234-TCDD, RT:25.054	2
Peak deleted	Sample:24030441, Compound:HPF, RT:38.199	3
Peak deleted	Sample:24030441, Compound:TD, RT:25.704	3
Peak deleted	Sample:24030442, Compound:HPF, RT:38.196	4
Peak deleted	Sample:24030444, Compound:OF, RT:44.459	6
Peak deleted	Sample:24030444, Compound:OF, RT:44.486	6
Peak deleted	Sample:24030444, Compound:OF, RT:44.459	6
Peak deleted	Sample:24030444, Compound:OF, RT:44.422	6
Peak deleted	Sample:24030446, Compound:PF, RT:30.576	8
Peak deleted	Sample:24030446, Compound:OF, RT:44.438	8
Peak deleted	Sample:24030448, Compound:TD, RT:25.690	10
Peak deleted	Sample:24030448, Compound:PD, RT:30.812	10
Peak deleted	Sample:24030441, Compound:TF, RT:24.447	3
Peak deleted	Sample:24030443, Compound:TD, RT:25.054	5
Peak deleted	Sample:24030446, Compound:HD, RT:35.277	8
Peak deleted	Sample:24030447, Compound:HF, RT:35.021	9
Peak deleted	Sample:24030447, Compound:HPF, RT:38.798	9
Peak deleted	Sample:24030447, Compound:HPD, RT:39.901	9
Peak deleted	Sample:24030448, Compound:TF, RT:26.947	10
Peak deleted	Sample:24030449, Compound:TF, RT:22.031	11
Peak deleted	Sample:24030449, Compound:PP, RT:26.933	11
Peak deleted	Sample:24030449, Compound:PF, RT:31.578	11
Peak deleted	Sample:24030449, Compound:PF, RT:31.333	11
Peak deleted	Sample:24030448, Compound:PD, RT:30.812	10
Peak deleted	Sample:24030450, Compound:TF, RT:26.692	12
Peak deleted	Sample:24030450, Compound:HPF, RT:39.678	12
Peak deleted	Sample:24030450, Compound:TD, RT:25.026	12
Peak modified	Sample:24030447, Compound:13C-12378-PeCDD, RT:30.787	9
Peak modified	Sample:24030447, Compound:13C-12378-PeCDD, RT:30.787	9
Peak modified	Sample:24030447, Compound:13C-123789-HxCDF, RT:36.280	9
Peak modified	Sample:24030441, Compound:OD, RT:44.277	3
Peak modified	Sample:24030446, Compound:OD, RT:44.228	8
Peak modified	Sample:24030446, Compound:OD, RT:44.237	8
Peak modified	Sample:24030447, Compound:TF, RT:25.068	9
Peak modified	Sample:24030449, Compound:HD, RT:35.389	11
Peak modified	Sample:24030442, Compound:OD, RT:44.247	4
Pre modification peak	Sample:24030447, Compound:13C-12378-PeCDD, RT:30.787	9
Pre modification peak	Sample:24030447, Compound:13C-123789-HxCDF, RT:36.280	9
Pre modification peak	Sample:24030441, Compound:OD, RT:44.277	3
Pre modification peak	Sample:24030446, Compound:OD, RT:44.228	8
Pre modification peak	Sample:24030446, Compound:OD, RT:44.237	8
Pre modification peak	Sample:24030447, Compound:TF, RT:25.068	9
Pre modification peak	Sample:24030449, Compound:HD, RT:35.389	11
Pre modification peak	Sample:24030442, Compound:OD, RT:44.247	4
Process Extract		
Process Integrate		

Dataset: T:\Autospec\Processed Data Batch\240304IH2.qld
Last Altered: Thursday, March 07, 2024 11:17:57 Pacific Standard Time
Printed: Thursday, March 07, 2024 11:18:27 Pacific Standard Time 3/7/24 PK

Event	Details	Sample ID
Process Extract		
Process Integrate		
Process Quantify		
Dataset Created		
Pre modification peak	Sample:24030453, Compound:HF, RT:35.288	1
Peak modified	Sample:24030453, Compound:HF, RT:35.288	1
Peak deleted	Sample:24030453, Compound:HF, RT:35.945	1
Pre modification peak	Sample:24030453, Compound:PF, RT:28.158	1
Peak modified	Sample:24030453, Compound:PF, RT:28.158	1
Pre modification peak	Sample:24030453, Compound:PF, RT:28.158	1
Peak modified	Sample:24030453, Compound:PF, RT:28.158	1
Peak deleted	Sample:24030453, Compound:TF, RT:23.571	1
Pre modification peak	Sample:24030453, Compound:TF, RT:25.068	1
Peak modified	Sample:24030453, Compound:TF, RT:25.068	1
Pre modification peak	Sample:24030454, Compound:HF, RT:35.333	2
Peak modified	Sample:24030454, Compound:HF, RT:35.333	2
Peak added	Sample:24030455, Compound:PD, RT:29.584	3
Peak added	Sample:24030455, Compound:PD, RT:29.584	3
Pre modification peak	Sample:24030455, Compound:PF, RT:30.576	3
Peak modified	Sample:24030455, Compound:PF, RT:30.576	3
Pre modification peak	Sample:24030456, Compound:TD, RT:25.732	4
Peak modified	Sample:24030456, Compound:TD, RT:25.732	4
Peak deleted	Sample:24030457, Compound:HF, RT:33.829	5
Pre modification peak	Sample:24030457, Compound:HPF, RT:40.391	5
Peak modified	Sample:24030457, Compound:HPF, RT:40.391	5
Peak deleted	Sample:24030457, Compound:TF, RT:26.537	5
Pre modification peak	Sample:24030458, Compound:13C-12378-PeCDD, RT:30.832	6
Peak modified	Sample:24030458, Compound:13C-12378-PeCDD, RT:30.832	6
Peak deleted	Sample:24030458, Compound:HF, RT:35.734	6
Pre modification peak	Sample:24030458, Compound:PF, RT:28.191	6
Peak modified	Sample:24030458, Compound:PF, RT:28.191	6
Pre modification peak	Sample:24030458, Compound:PF, RT:28.191	6
Peak modified	Sample:24030458, Compound:PF, RT:28.191	6
Pre modification peak	Sample:24030458, Compound:TD, RT:25.718	6
Peak modified	Sample:24030458, Compound:TD, RT:25.718	6
Peak added	Sample:24030458, Compound:TF, RT:23.980	6
Peak added	Sample:24030458, Compound:TF, RT:23.994	6
Pre modification peak	Sample:24030458, Compound:TF, RT:25.096	6
Peak modified	Sample:24030458, Compound:TF, RT:25.096	6
Pre modification peak	Sample:24030459, Compound:PF, RT:29.241	7
Peak modified	Sample:24030459, Compound:PF, RT:29.241	7
Peak deleted	Sample:24030459, Compound:PF, RT:29.720	7
Peak added	Sample:24030459, Compound:TF, RT:22.427	7
Peak added	Sample:24030459, Compound:TF, RT:22.427	7
Peak added	Sample:24030460, Compound:PD, RT:29.584	8
Peak added	Sample:24030460, Compound:PD, RT:29.584	8
Pre modification peak	Sample:24030460, Compound:PF, RT:29.227	8
Peak modified	Sample:24030460, Compound:PF, RT:29.227	8
Pre modification peak	Sample:24030460, Compound:PF, RT:30.575	8
Peak modified	Sample:24030460, Compound:PF, RT:30.575	8
Peak added	Sample:24030461, Compound:TF, RT:21.551	9
Peak added	Sample:24030461, Compound:TF, RT:21.551	9
Peak modified	Sample:24030461, Compound:TF, RT:21.551	9
Peak modified	Sample:24030461, Compound:TF, RT:21.551	9
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\240304IH2.qld'	

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SMC0054	Instrument:	AUTOSPEC01
Sample ID:	SMC0054-ICV1	Calibration:	HB00095
File ID:	24030439A	Analyzed:	03/05/24 17:54

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	90.4	71 - 129	25.0398	25.12217	-0.0824	N/A	
13C12-2,3,7,8-TCDD	100.00	103	82 - 118	25.6755	25.75775	-0.0823	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	118	76 - 124	29.2052	29.28447	-0.0793	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	105	77 - 123	30.542	30.62688	-0.0849	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	89.7	62 - 138	30.7983	30.87942	-0.0811	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	105	76 - 124	34.2188	34.29607	-0.0773	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	111	70 - 130	34.3525	34.43723	-0.0847	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	112	73 - 127	35.2437	35.32288	-0.0792	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	111	74 - 126	36.291	36.36835	-0.0774	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	106	85 - 115	35.3663	35.44367	-0.0774	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	112	85 - 115	35.4888	35.5606	-0.0718	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	121	78 - 122	38.1852	38.25862	-0.0734	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	110	77 - 123	40.3465	40.433	-0.0865	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	117	82 - 118	39.6447	39.72187	-0.0772	N/A	
13C12-OCDD	200.00	127	48 - 152	44.2285	44.32408	-0.0956	N/A	
37Cl4-2,3,7,8-TCDD	10.000	95.8	79 - 121	25.6895	25.77665	-0.0872	N/A	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SMC0054	Instrument:	AUTOSPEC01
Sample ID:	BMA0737-BLK1	Calibration:	HB00095
File ID:	24030446	Analyzed:	03/05/24 23:43

Surrogate Compound	Spike Level ng/kg wet	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	200.00	48.2	24 - 169	25.054	25.12217	-0.0682	N/A	
13C12-2,3,7,8-TCDD	200.00	84.7	25 - 164	25.6895	25.75775	-0.0683	N/A	
13C12-1,2,3,7,8-PeCDF	200.00	105	24 - 185	29.205	29.28447	-0.0795	N/A	
13C12-2,3,4,7,8-PeCDF	200.00	96.9	21 - 178	30.5422	30.62688	-0.0847	N/A	
13C12-1,2,3,7,8-PeCDD	200.00	85.4	25 - 181	30.7983	30.87942	-0.0811	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.00	112	26 - 152	34.2188	34.29607	-0.0773	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.00	109	26 - 123	34.3525	34.43723	-0.0847	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.00	118	28 - 136	35.2437	35.32288	-0.0792	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.00	107	29 - 147	36.291	36.36835	-0.0774	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.00	111	32 - 141	35.3662	35.44367	-0.0775	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.00	114	28 - 130	35.4777	35.5606	-0.0829	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.00	114	28 - 143	38.1848	38.25862	-0.0738	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.00	125	26 - 138	40.3462	40.433	-0.0868	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.00	126	23 - 140	39.6443	39.72187	-0.0776	N/A	
13C12-OCDD	400.00	114	17 - 157	44.2278	44.32408	-0.0963	N/A	
37Cl4-2,3,7,8-TCDD	80.000	84.5	35 - 197	25.7037	25.77665	-0.0729	N/A	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SMC0054	Instrument:	AUTOSPEC01
Sample ID:	BMA0737-BS1	Calibration:	HB00095
File ID:	24030447	Analyzed:	03/06/24 00:32

Surrogate Compound	Spike Level ng/kg wet	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	200.00	34.1	24 - 169	25.0398	25.12217	-0.0824	N/A	
13C12-2,3,7,8-TCDD	200.00	51.9	25 - 164	25.6755	25.75775	-0.0823	N/A	
13C12-1,2,3,7,8-PeCDF	200.00	83.8	24 - 185	29.1942	29.28447	-0.0903	N/A	
13C12-2,3,4,7,8-PeCDF	200.00	75.8	21 - 178	30.5423	30.62688	-0.0846	N/A	
13C12-1,2,3,7,8-PeCDD	200.00	69.3	25 - 181	30.7873	30.87942	-0.0921	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.00	109	26 - 152	34.2078	34.29607	-0.0883	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.00	109	26 - 123	34.3527	34.43723	-0.0845	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.00	122	28 - 136	35.2438	35.32288	-0.0791	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.00	104	29 - 147	36.28	36.36835	-0.0883	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.00	103	32 - 141	35.3552	35.44367	-0.0885	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.00	104	28 - 130	35.4778	35.5606	-0.0828	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.00	116	28 - 143	38.1742	38.25862	-0.0844	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.00	135	26 - 138	40.3467	40.433	-0.0863	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.00	123	23 - 140	39.6337	39.72187	-0.0882	N/A	
13C12-OCDD	400.00	122	17 - 157	44.2288	44.32408	-0.0953	N/A	
37Cl4-2,3,7,8-TCDD	80.000	49.4	35 - 197	25.7038	25.77665	-0.0728	N/A	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SMC0054	Instrument:	AUTOSPEC01
Sample ID:	BMA0737-DUP1	Calibration:	HB00095
File ID:	24030448	Analyzed:	03/06/24 01:21

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	199.99	65.0	24 - 169	25.0398	25.12217	-0.0824	N/A	
13C12-2,3,7,8-TCDD	199.99	80.6	25 - 164	25.6753	25.75775	-0.0825	N/A	
13C12-1,2,3,7,8-PeCDF	199.99	100	24 - 185	29.1968	29.28447	-0.0877	N/A	
13C12-2,3,4,7,8-PeCDF	199.99	101	21 - 178	30.5448	30.62688	-0.0821	N/A	
13C12-1,2,3,7,8-PeCDD	199.99	86.4	25 - 181	30.8012	30.87942	-0.0782	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.99	106	26 - 152	34.2215	34.29607	-0.0746	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.99	107	26 - 123	34.3663	34.43723	-0.0709	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.99	104	28 - 136	35.2575	35.32288	-0.0654	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.99	114	29 - 147	36.2937	36.36835	-0.0746	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.99	105	32 - 141	35.3802	35.44367	-0.0635	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.99	100	28 - 130	35.5027	35.5606	-0.0579	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.99	110	28 - 143	38.1877	38.25862	-0.0709	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.99	131	26 - 138	40.349	40.433	-0.0840	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.99	117	23 - 140	39.636	39.72187	-0.0859	N/A	
13C12-OCDD	399.97	108	17 - 157	44.2312	44.32408	-0.0929	N/A	
37Cl4-2,3,7,8-TCDD	79.995	79.2	35 - 197	25.6895	25.77665	-0.0872	N/A	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SMC0054	Instrument:	AUTOSPEC01
Sample ID:	23I0156-20	Calibration:	HB00095
File ID:	24030449	Analyzed:	03/06/24 02:10

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	199.99	81.1	24 - 169	25.0398	25.12217	-0.0824	N/A	
13C12-2,3,7,8-TCDD	199.99	93.4	25 - 164	25.6755	25.75775	-0.0823	N/A	
13C12-1,2,3,7,8-PeCDF	199.99	96.8	24 - 185	29.194	29.28447	-0.0905	N/A	
13C12-2,3,4,7,8-PeCDF	199.99	99.1	21 - 178	30.5422	30.62688	-0.0847	N/A	
13C12-1,2,3,7,8-PeCDD	199.99	84.4	25 - 181	30.7985	30.87942	-0.0809	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.99	99.5	26 - 152	34.2188	34.29607	-0.0773	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.99	94.9	26 - 123	34.3525	34.43723	-0.0847	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.99	98.1	28 - 136	35.255	35.32288	-0.0679	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.99	105	29 - 147	36.2912	36.36835	-0.0771	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.99	99.2	32 - 141	35.3775	35.44367	-0.0662	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.99	90.3	28 - 130	35.4888	35.5606	-0.0718	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.99	100	28 - 143	38.185	38.25862	-0.0736	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.99	117	26 - 138	40.3463	40.433	-0.0867	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.99	108	23 - 140	39.6445	39.72187	-0.0774	N/A	
13C12-OCDD	399.97	108	17 - 157	44.2283	44.32408	-0.0958	N/A	
37Cl4-2,3,7,8-TCDD	79.995	91.9	35 - 197	25.6895	25.77665	-0.0872	N/A	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SMC0054	Instrument:	AUTOSPEC01
Sample ID:	SMC0054-CCV1	Calibration:	HB00095
File ID:	24030451	Analyzed:	03/06/24 03:48

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	86.1	71 - 129	25.0398	25.12217	-0.0824	N/A	
13C12-2,3,7,8-TCDD	100.00	98.2	82 - 118	25.6755	25.75775	-0.0823	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	114	76 - 124	29.1938	29.28447	-0.0907	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	110	77 - 123	30.542	30.62688	-0.0849	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	94.9	62 - 138	30.787	30.87942	-0.0924	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	107	76 - 124	34.2073	34.29607	-0.0888	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	95.7	70 - 130	34.3523	34.43723	-0.0849	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	104	73 - 127	35.2435	35.32288	-0.0794	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	103	74 - 126	36.2797	36.36835	-0.0887	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	108	85 - 115	35.3662	35.44367	-0.0775	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	90.3	85 - 115	35.4775	35.5606	-0.0831	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	110	78 - 122	38.185	38.25862	-0.0736	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	110	77 - 123	40.3463	40.433	-0.0867	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	122	82 - 138	39.6332	39.72187	-0.0887	N/A	
13C12-OCDD	200.00	123	48 - 152	44.2282	44.32408	-0.0959	N/A	
37Cl4-2,3,7,8-TCDD	10.000	91.3	79 - 121	25.6895	25.77665	-0.0872	N/A	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SMC0054	Instrument:	AUTOSPEC01
Sample ID:	SMC0054-CCV2	Calibration:	HB00095
File ID:	24030461	Analyzed:	03/06/24 12:05

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	83.7	71 - 129	25.0398	25.12217	-0.0824	N/A	
13C12-2,3,7,8-TCDD	100.00	101	82 - 118	25.6613	25.75775	-0.0965	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	117	76 - 124	29.194	29.28447	-0.0905	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	113	77 - 123	30.542	30.62688	-0.0849	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	89.1	62 - 138	30.7872	30.87942	-0.0922	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	111	76 - 124	34.2075	34.29607	-0.0886	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	97.0	70 - 130	34.3525	34.43723	-0.0847	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	106	73 - 127	35.2437	35.32288	-0.0792	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	108	74 - 126	36.2798	36.36835	-0.0885	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	107	85 - 115	35.355	35.44367	-0.0887	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	89.7	85 - 115	35.4777	35.5606	-0.0829	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	118	78 - 122	38.185	38.25862	-0.0736	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	120	77 - 123	40.3463	40.433	-0.0867	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	133	82 - 138	39.6332	39.72187	-0.0887	N/A	
13C12-OCDD	200.00	137	48 - 152	44.2192	44.32408	-0.1049	N/A	
37Cl4-2,3,7,8-TCDD	10.000	93.1	79 - 121	25.6897	25.77665	-0.0870	N/A	

* Values outside of QC limits

HOLDING TIME SUMMARY

Analysis: EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23I0156
Client: Floyd - Snider
Project: Smith-Kem

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
H4H-05-0.5-1.0 23I0156-20	09/07/23 10:35	09/08/23 11:58	01/30/24 13:37	145	365	03/06/24 02:10	36	365	
Duplicate BMA0737-DUP1	09/07/23 10:35	09/08/23 11:58	01/30/24 13:37	145	365	03/06/24 01:21	35	365	

* Indicates hold time exceedance.

Analytical Resources, LLC
Analytical Chemists and Consultants

METHOD DETECTION AND REPORTING LIMITS

EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23I0156
Client: Floyd - Snider
Project: Smith-Kem
Matrix: Solid
Instrument: AUTOSPEC01

Analyte	MDL	RL	Units
2,3,7,8-TCDF	0.058	1.00	ng/kg
2,3,7,8-TCDD	0.150	1.00	ng/kg
1,2,3,7,8-PeCDF	0.240	1.00	ng/kg
2,3,4,7,8-PeCDF	0.220	1.00	ng/kg
1,2,3,7,8-PeCDD	0.170	1.00	ng/kg
1,2,3,4,7,8-HxCDF	0.280	1.00	ng/kg
1,2,3,6,7,8-HxCDF	0.200	1.00	ng/kg
2,3,4,6,7,8-HxCDF	0.170	1.00	ng/kg
1,2,3,7,8,9-HxCDF	0.190	1.00	ng/kg
1,2,3,4,7,8-HxCDD	0.170	1.00	ng/kg
1,2,3,6,7,8-HxCDD	0.180	1.00	ng/kg
1,2,3,7,8,9-HxCDD	0.220	1.00	ng/kg
1,2,3,4,6,7,8-HpCDF	0.210	1.00	ng/kg
1,2,3,4,7,8,9-HpCDF	0.240	1.00	ng/kg
1,2,3,4,6,7,8-HpCDD	0.560	2.50	ng/kg
OCDF	1.10	2.50	ng/kg
OCDD	4.60	10.0	ng/kg
Total TCDF		1.00	ng/kg
Total TCDD		1.00	ng/kg
Total PeCDF		1.00	ng/kg
Total PeCDD		1.00	ng/kg
Total HxCDF		1.00	ng/kg
Total HxCDD		1.00	ng/kg
Total HpCDF		1.00	ng/kg
Total HpCDD		1.00	ng/kg

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

CS3WT

Calibration and Verification Solution (EPA-1613CS3) combined with Window Defining and 2,3,7,8-TCDD Resolution Testing Congeners

PRODUCT CODE:	CS3WT
LOT NUMBER:	CS3WT0918
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/24/2018
LAST TESTED: (mm/dd/yyyy)	10/29/2018
EXPIRY DATE: (mm/dd/yyyy)	10/29/2025
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

CS3WT is a solution/mixture of native and $^{13}C_{12}$-labelled chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

CS3WT was designed and prepared to be used as a HRMS calibration standard according to U.S. EPA Method 1613B.

It is to be used for calibration verification in place of EPA-1613CS3 (Lot: 13CS30918). It also contains the PCDD and PCDF window defining congeners for a DB-5 (or equivalent) capillary column as well as the TCDD isomers required to test and confirm the resolution of 2,3,7,8-TCDD.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%. The individual native 2,3,7,8-substituted PCDD and PCDF congeners all have chemical purities of >98%; the other congeners (window defining and resolution testing) should only be considered semi-quantitative.

This current lot of CS3WT is to be used with the 1613 calibration solutions having the following lot numbers:

PRODUCT CODE	LOT NUMBER
EPA-1613CS1	13CS10918
EPA-1613CS2	13CS20918
EPA-1613CS3	13CS30918
EPA-1613CS4	13CS40918
EPA-1613CS5	13CS50918
EPA-1613CSL	13CSL0918
EPA-1613CS0.5	13CS0.50918

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.
- Only the 2,3,7,8-substituted PCDDs and PCDFs should be used for quantitation. The other congeners (window defining and 2378-TCDD resolution testing) should be considered semi-quantitative (within ±20% of their design value). Impurities have been identified where possible.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **CS3WT; Components and Concentrations (ng/ml, in nonane/4.5% toluene)**

QUANTITATIVE ANALYTES (ng/ml, ±5%)	
Native PCDDs & PCDFs:	
2,3,7,8-TCDD	10
2,3,7,8-TCDF	10
1,2,3,7,8-PeCDD	50
1,2,3,7,8-PeCDF	50
2,3,4,7,8-PeCDF	50
1,2,3,4,7,8-HxCDD	50
1,2,3,6,7,8-HxCDD	50
1,2,3,7,8,9-HxCDD	50
1,2,3,4,7,8-HxCDF	50
1,2,3,6,7,8-HxCDF	50
1,2,3,7,8,9-HxCDF	50
2,3,4,6,7,8-HxCDF	50
1,2,3,4,6,7,8-HpCDD *(WD)*	50
1,2,3,4,6,7,8-HpCDF *(WD)*	50
1,2,3,4,7,8,9-HpCDF *(WD)*	50
OCDD	100
OCDF	100
Labelled PCDDs & PCDFs:	
$^{13}C_{12}$-2,3,7,8-TCDD	100
$^{13}C_{12}$-2,3,7,8-TCDF	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100
$^{13}C_{12}$-OCDD	200
Cleanup Standard:	
$^{37}Cl_4$-2,3,7,8-TCDD	10
Internal Standards:	
$^{13}C_{12}$-1,2,3,4-TCDD	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100

SEMI-QUANTITATIVE ANALYTES (ng/ml, ±20%)	
Window Definers:*	
1,3,6,8-TCDD	10
1,2,8,9-TCDD	10
1,3,6,8-TCDF	10
1,2,8,9-TCDF	10
1,2,4,6,8/1,2,4,7,9-PeCDD	50
1,2,3,8,9-PeCDD	50
1,3,4,6,8-PeCDF	50
1,2,3,8,9-PeCDF	50
1,2,4,6,7,9-HxCDD	50
1,2,3,4,6,8-HxCDF	50
1,2,3,4,6,7,9-HpCDD	50
2378-TCDD Resolution Testing Isomers:	
1,2,3,4-TCDD	5
1,2,3,7/1,2,3,8-TCDD	5
1,2,3,9-TCDD	10

** 1,2,3,4,6,7-HxCDD (last eluting HxCDD) not included; coelutes with 1,2,3,7,8,9-HxCDD. Use 1,2,3,4,6,7,9-HpCDD to set window.*

** 1,2,3,4,8,9-HxCDF (last eluting HxCDF) not included; can interfere with 1,2,3,7,8,9-HxCDF. Use 1,2,3,4,6,7,8-HpCDF to set window.*

WD – Window Definer

Certified By: _____ **Date:** 10/30/2018
(mm/dd/yyyy)

B.G. Chittim, General Manager

Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

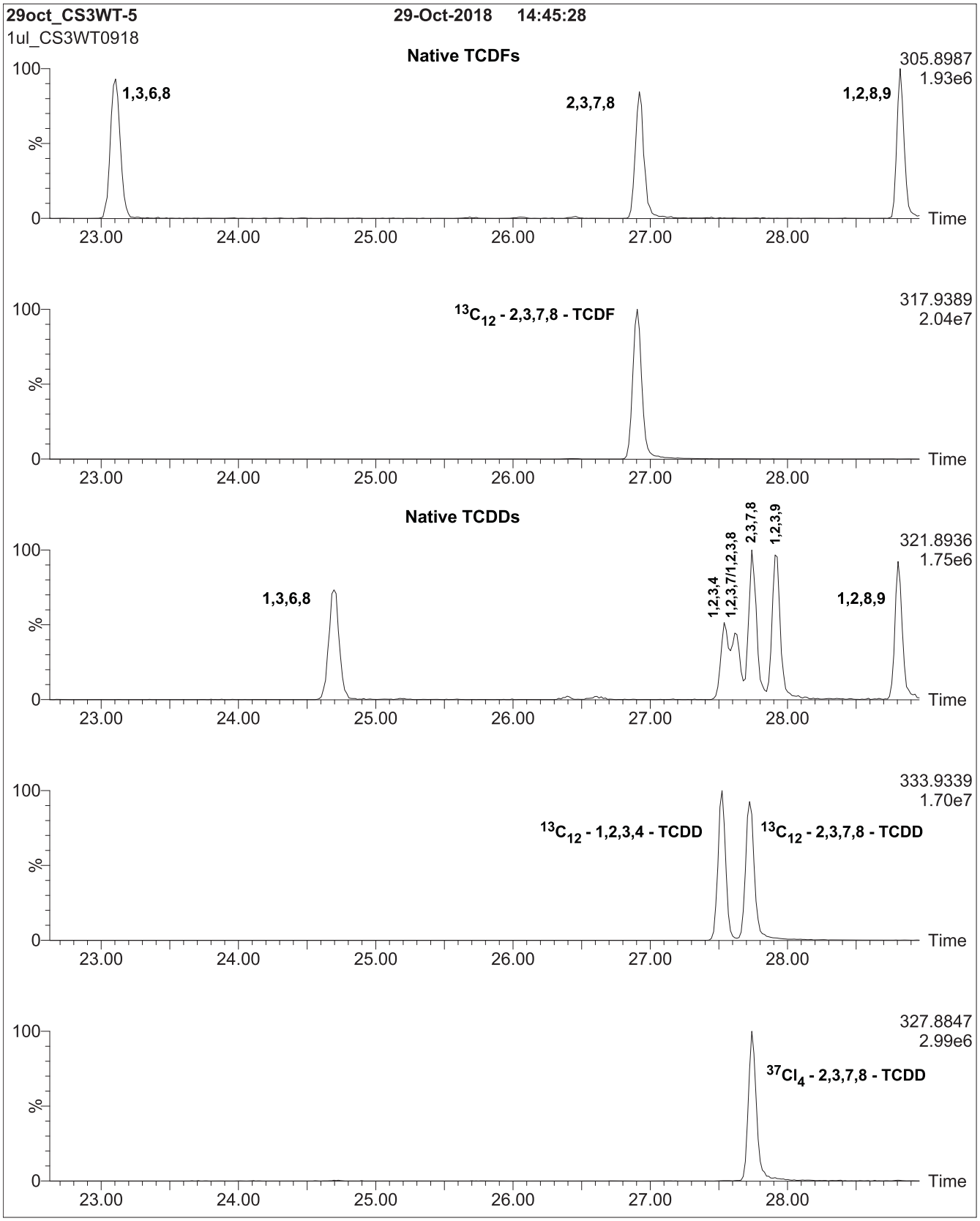


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

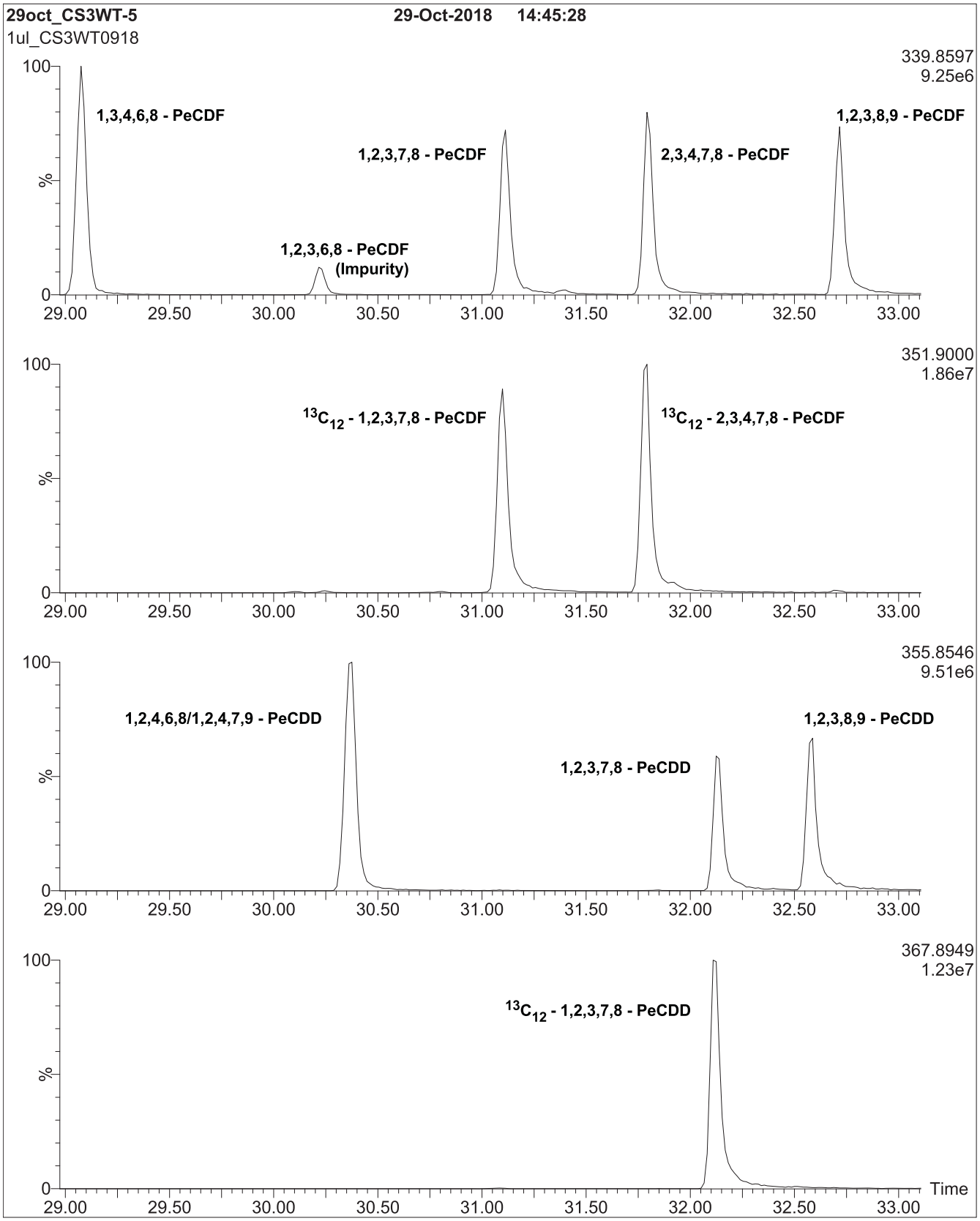


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

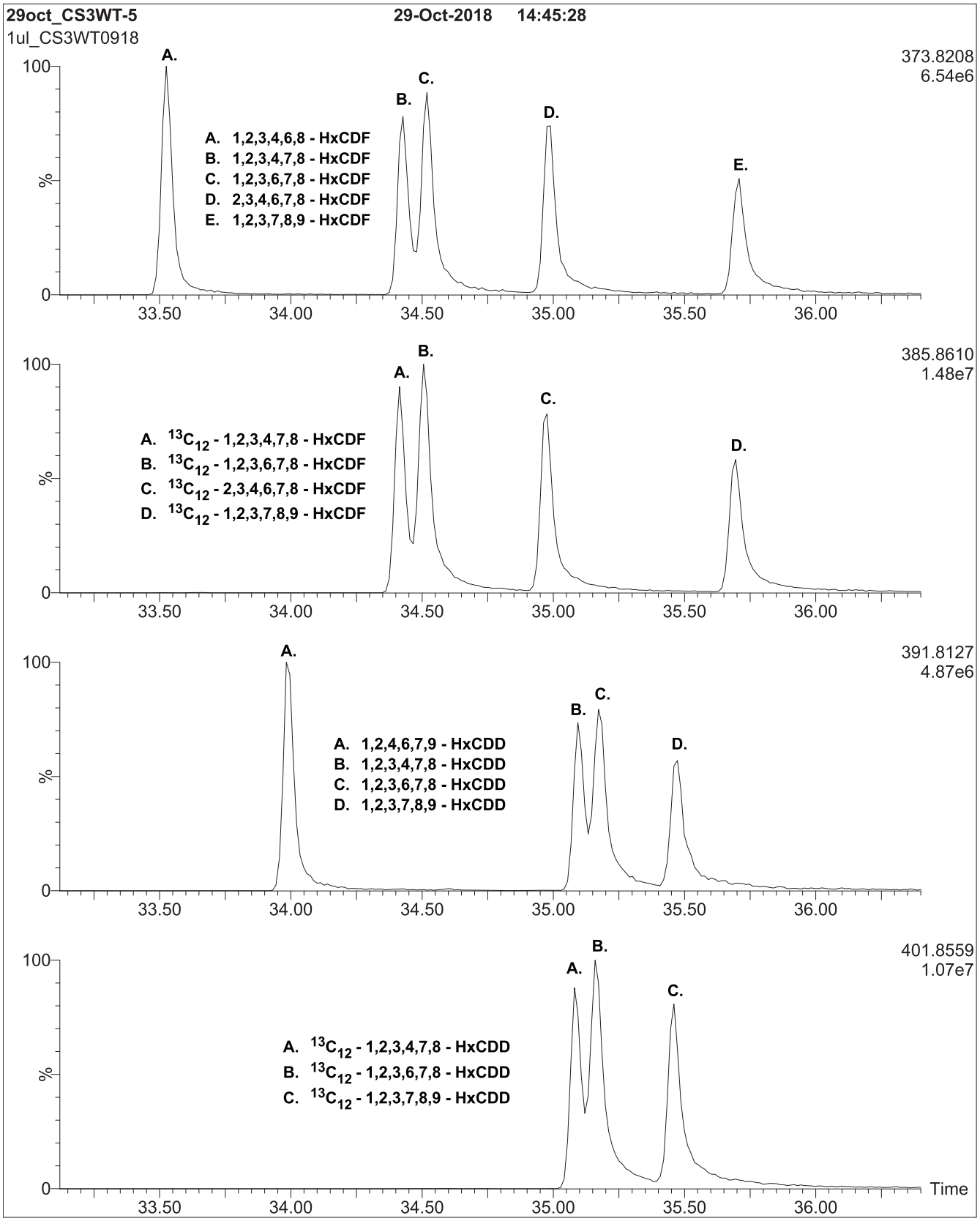


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

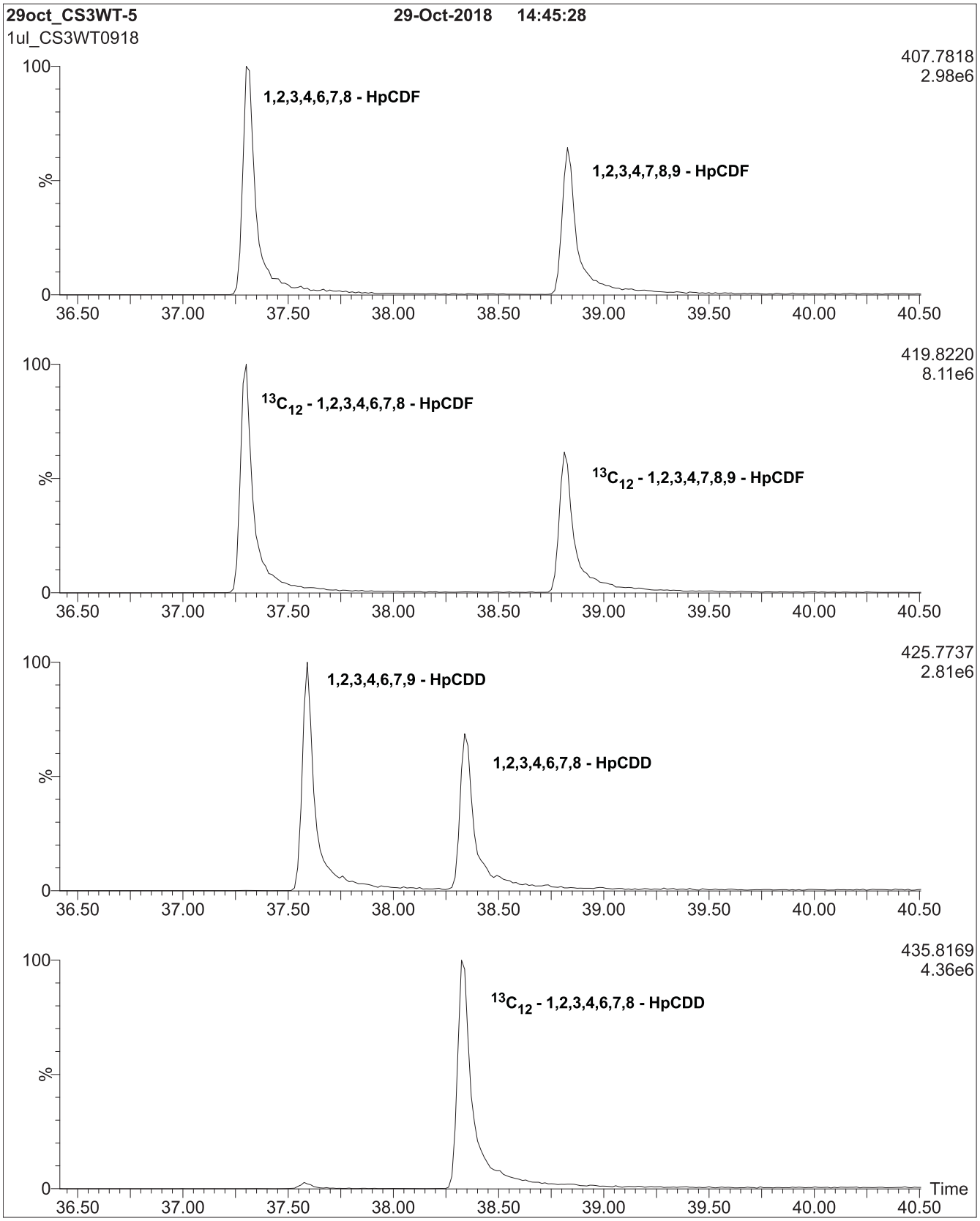
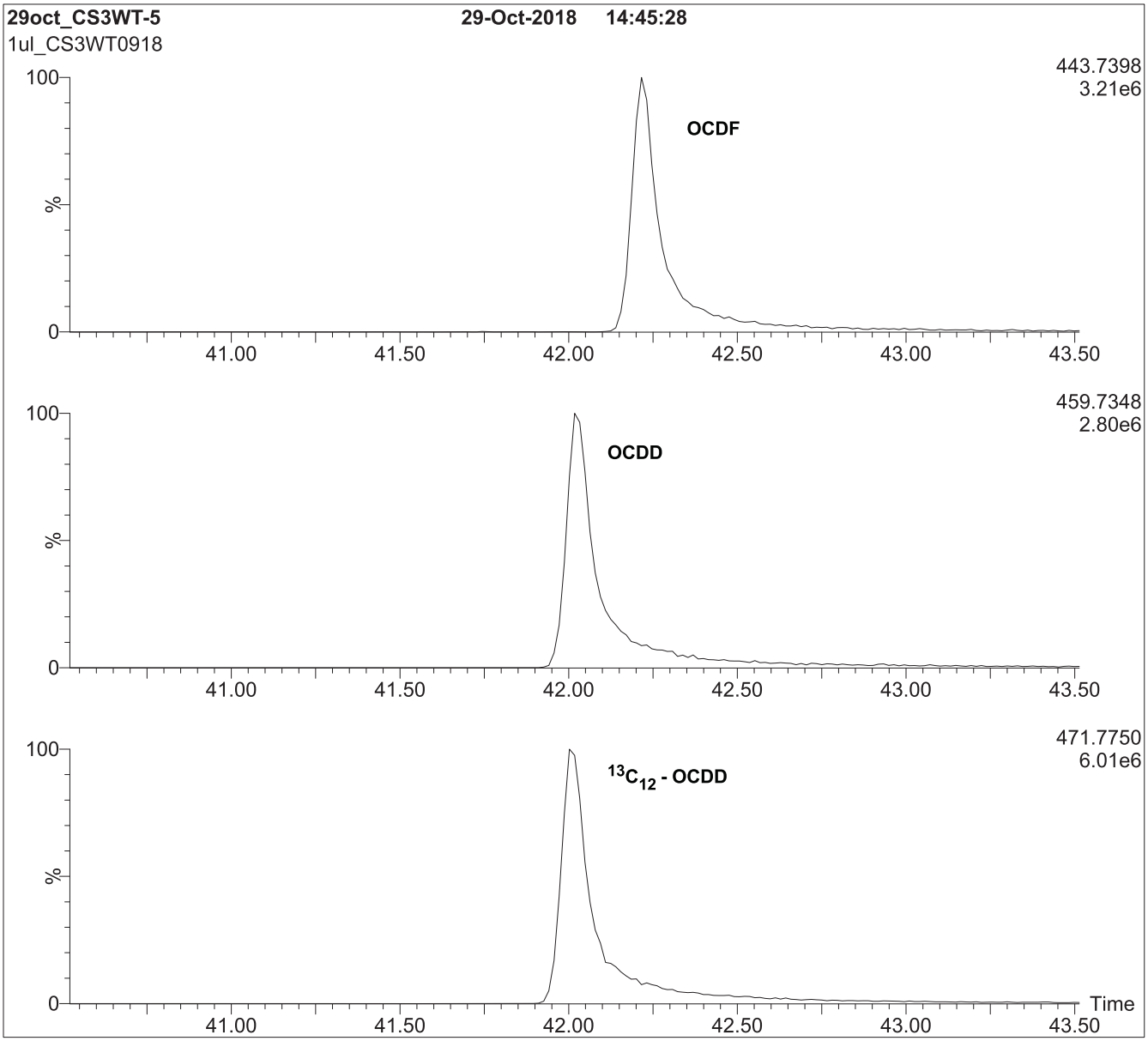


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow:	Constant at 1 ml/min	Oven:	150 °C (1 min)
Injector:	280 °C (Splitless Injection)		12 °C/min to 200 °C
Ionization:	EI+		3 °C/min to 235 °C
Detector:	280 °C		235 °C (8 min)
	SIR at 10,000 mass resolving power		8 °C/min to 310 °C
			310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

CS3WT

Calibration and Verification Solution (EPA-1613CS3) combined with Window Defining and 2,3,7,8-TCDD Resolution Testing Congeners

PRODUCT CODE:	CS3WT
LOT NUMBER:	CS3WT1019
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/30/2019
LAST TESTED: (mm/dd/yyyy)	10/31/2019
EXPIRY DATE: (mm/dd/yyyy)	10/31/2026
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

H 12366
Recd 12/20/19

DESCRIPTION:

CS3WT is a solution/mixture of native and $^{13}C_{12}$-labelled chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

CS3WT was designed and prepared to be used as a HRMS calibration standard according to U.S. EPA Method 1613B.

It is to be used for calibration verification in place of EPA-1613CS3 (Lot: 13CS31019). It also contains the PCDD and PCDF window defining congeners for a DB-5 (or equivalent) capillary column as well as the TCDD isomers required to test and confirm the resolution of 2,3,7,8-TCDD.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%. The individual native 2,3,7,8-substituted PCDD and PCDF congeners all have chemical purities of >98%; the other congeners (window defining and resolution testing) should only be considered semi-quantitative.

This current lot of CS3WT is to be used with the 1613 calibration solutions having the following lot numbers:

PRODUCT CODE	LOT NUMBER
EPA-1613CS1	13CS11019
EPA-1613CS2	13CS21019
EPA-1613CS3	13CS31019
EPA-1613CS4	13CS41019
EPA-1613CS5	13CS51019
EPA-1613CSL	13CSL1019
EPA-1613CS0.5	13CS0.51019

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Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.
- Only the 2,3,7,8-substituted PCDDs and PCDFs should be used for quantitation. The other congeners (window defining and 2378-TCDD resolution testing) should be considered semi-quantitative (within ±20% of their design value). Impurities have been identified where possible.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **CS3WT; Components and Concentrations (ng/ml, in nonane/4.5% toluene)**

QUANTITATIVE ANALYTES (ng/ml, ±5%)	
Native PCDDs & PCDFs:	
2,3,7,8-TCDD	10
2,3,7,8-TCDF	10
1,2,3,7,8-PeCDD	50
1,2,3,7,8-PeCDF	50
2,3,4,7,8-PeCDF	50
1,2,3,4,7,8-HxCDD	50
1,2,3,6,7,8-HxCDD	50
1,2,3,7,8,9-HxCDD	50
1,2,3,4,7,8-HxCDF	50
1,2,3,6,7,8-HxCDF	50
1,2,3,7,8,9-HxCDF	50
2,3,4,6,7,8-HxCDF	50
1,2,3,4,6,7,8-HpCDD *(WD)*	50
1,2,3,4,6,7,8-HpCDF *(WD)*	50
1,2,3,4,7,8,9-HpCDF *(WD)*	50
OCDD	100
OCDF	100
Labelled PCDDs & PCDFs:	
$^{13}C_{12}$-2,3,7,8-TCDD	100
$^{13}C_{12}$-2,3,7,8-TCDF	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100
$^{13}C_{12}$-OCDD	200
Cleanup Standard:	
$^{37}Cl_4$-2,3,7,8-TCDD	10
Internal Standards:	
$^{13}C_{12}$-1,2,3,4-TCDD	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100

WD – Window Definer

SEMI-QUANTITATIVE ANALYTES (ng/ml, ±20%)	
Window Definers:*	
1,3,6,8-TCDD	10
1,2,8,9-TCDD	10
1,3,6,8-TCDF	10
1,2,8,9-TCDF	10
1,2,4,6,8/1,2,4,7,9-PeCDD	50
1,2,3,8,9-PeCDD	50
1,3,4,6,8-PeCDF	50
1,2,3,8,9-PeCDF	50
1,2,4,6,7,9-HxCDD	50
1,2,3,4,6,8-HxCDF	50
1,2,3,4,6,7,9-HpCDD	50
2378-TCDD Resolution Testing Isomers:	
1,2,3,4-TCDD	5
1,2,3,7/1,2,3,8-TCDD	5
1,2,3,9-TCDD	10

** 1,2,3,4,6,7-HxCDD (last eluting HxCDD) not included; coelutes with 1,2,3,7,8,9-HxCDD. Use 1,2,3,4,6,7,9-HpCDD to set window.*

** 1,2,3,4,8,9-HxCDF (last eluting HxCDF) not included; can interfere with 1,2,3,7,8,9-HxCDF. Use 1,2,3,4,6,7,8-HpCDF to set window.*

Certified By: _____ **Date:** 11/07/2019 (mm/dd/yyyy)

B.G. Chittim, General Manager

Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

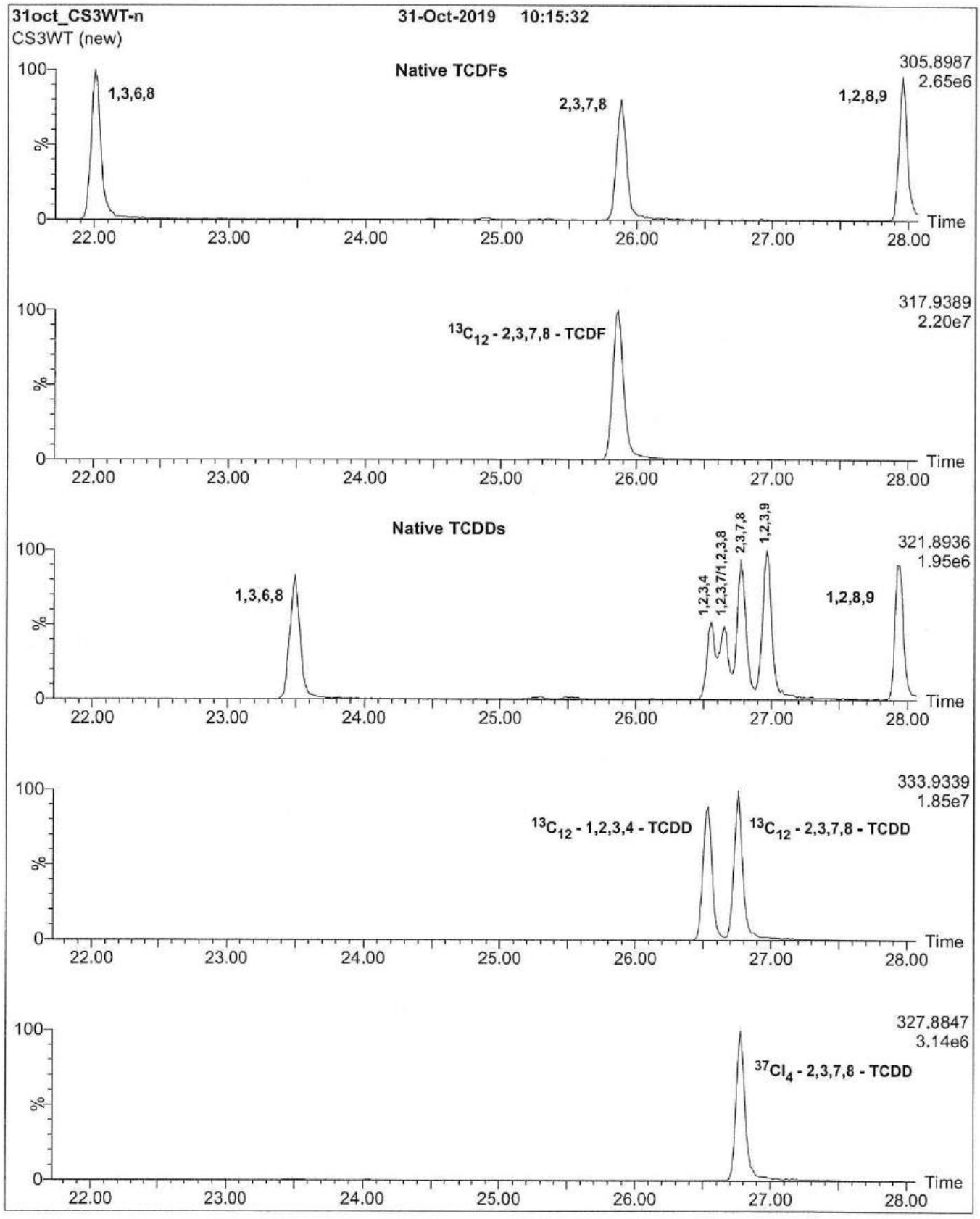


Figure 1: CS3WT; HRGC/HRMS Data (60 m DB-5 Column)

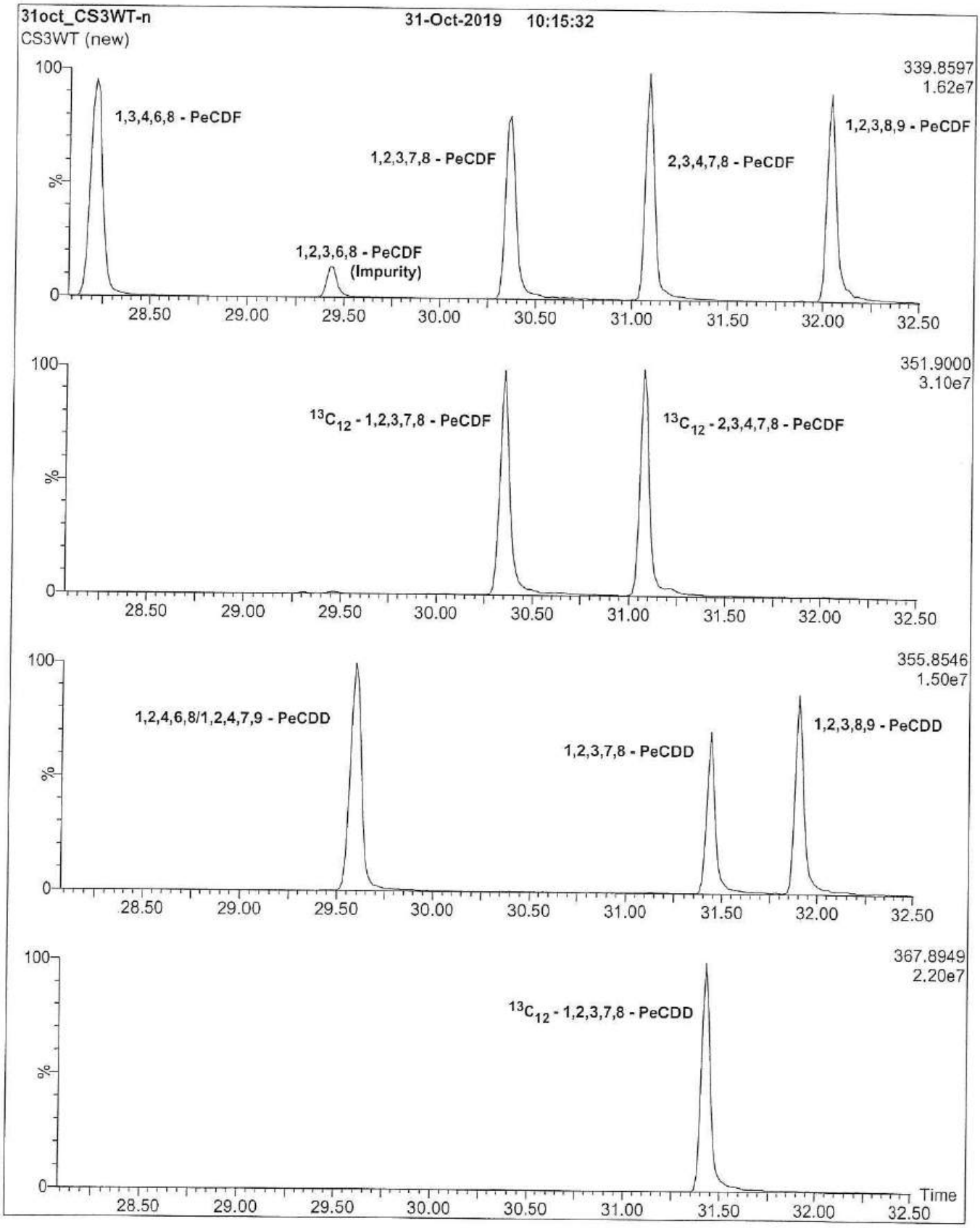


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

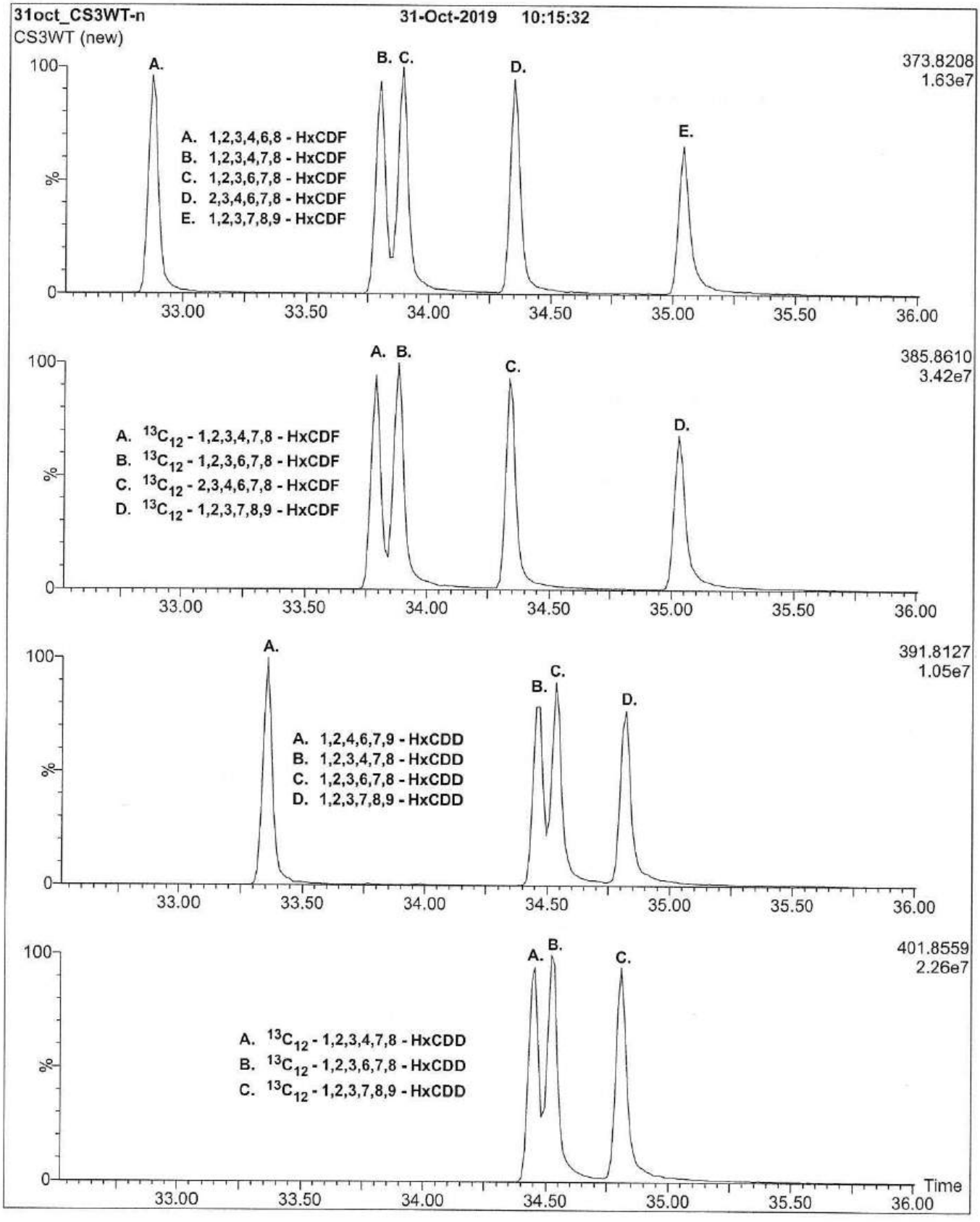


Figure 1: CS3WT; HRGC/HRMS Data (60 m DB-5 Column)

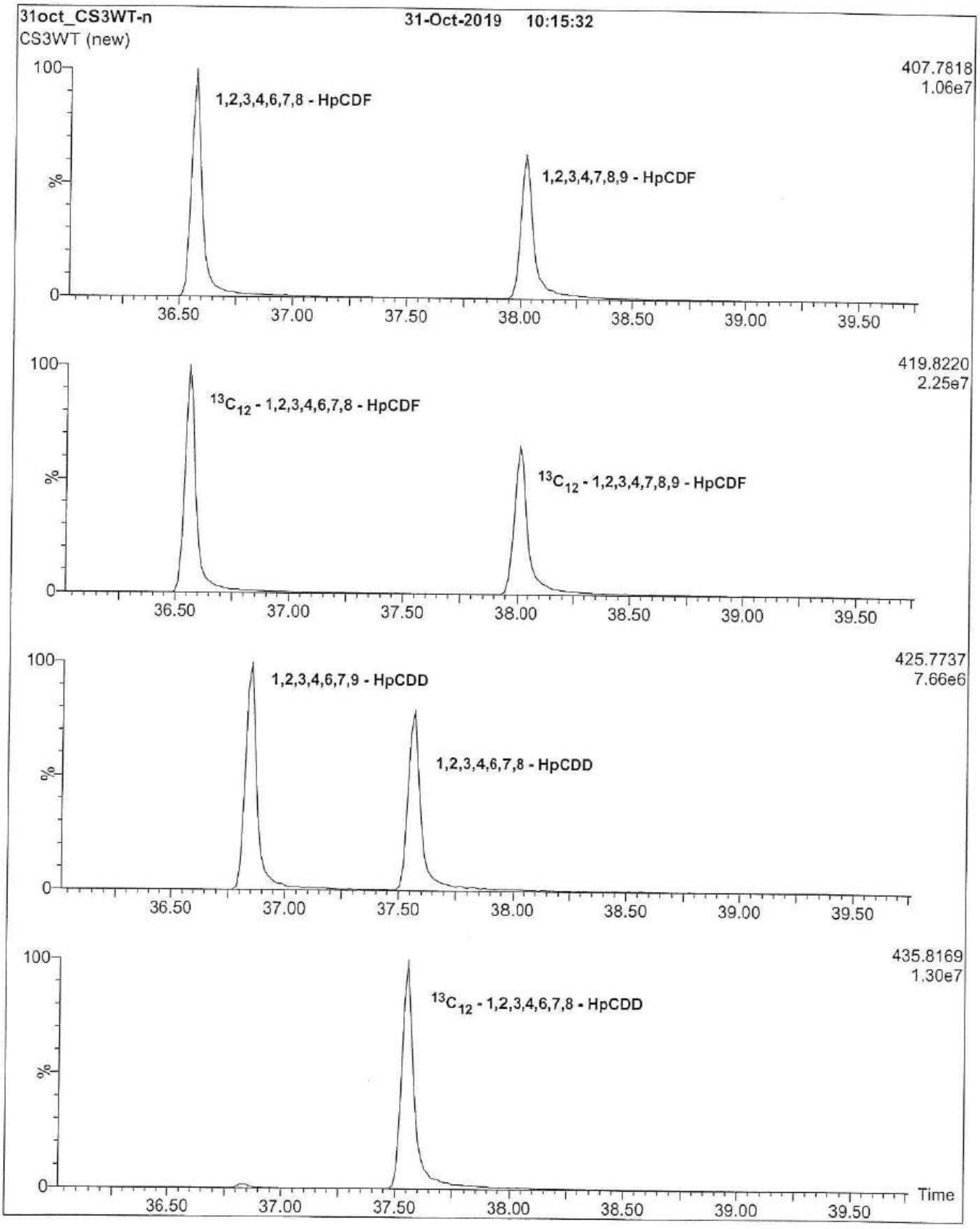
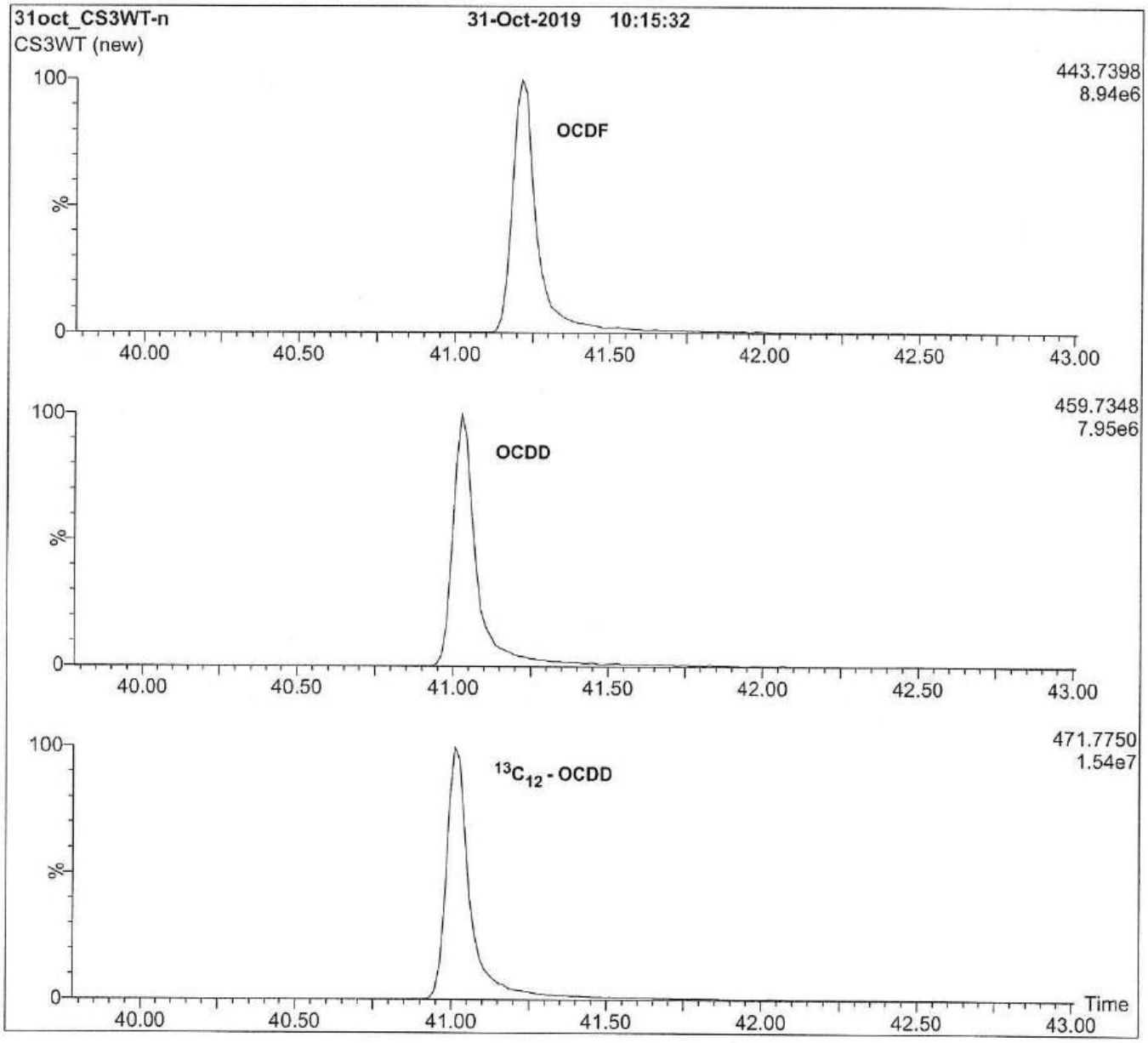


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005456
1613 CS1 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019
(mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

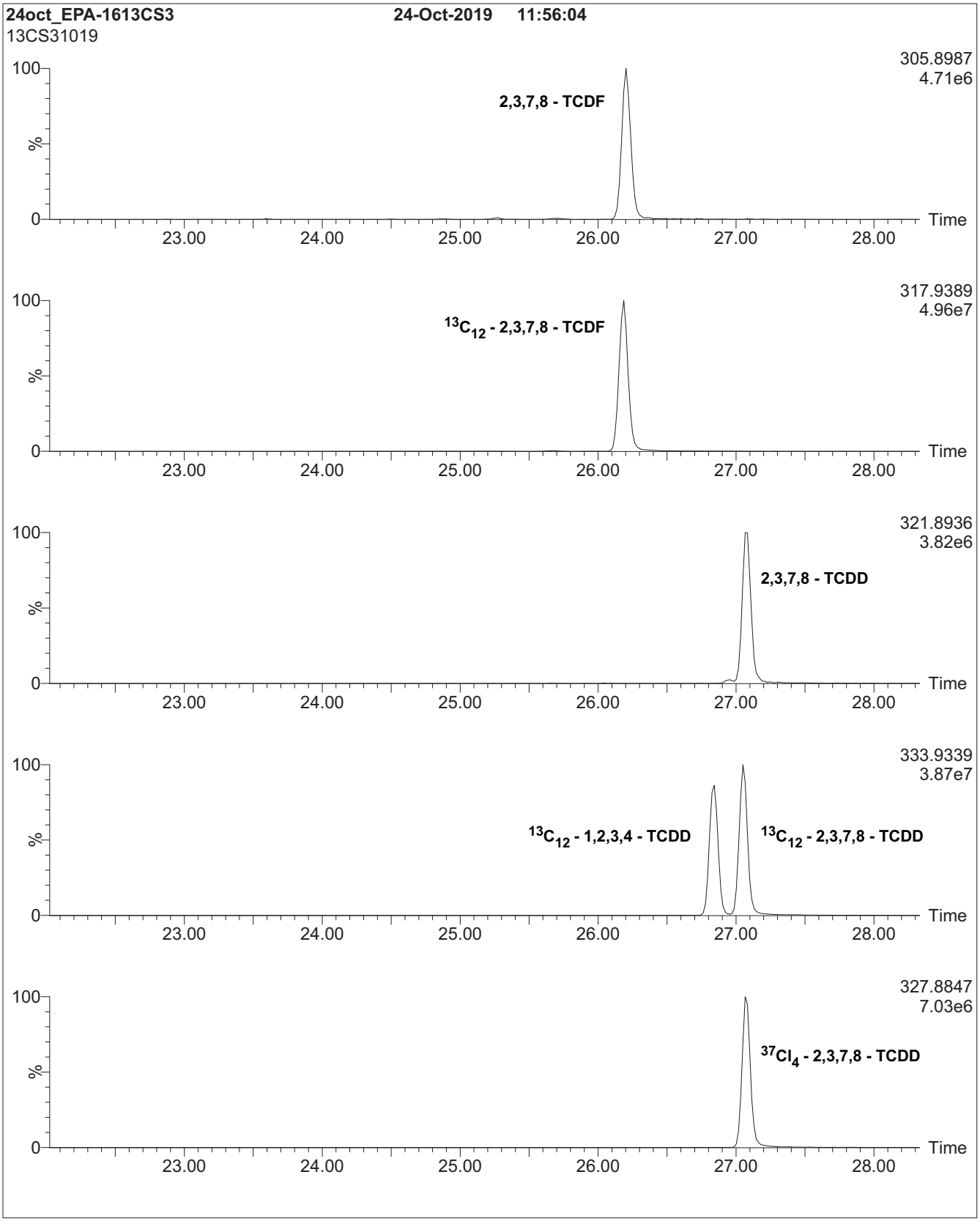


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

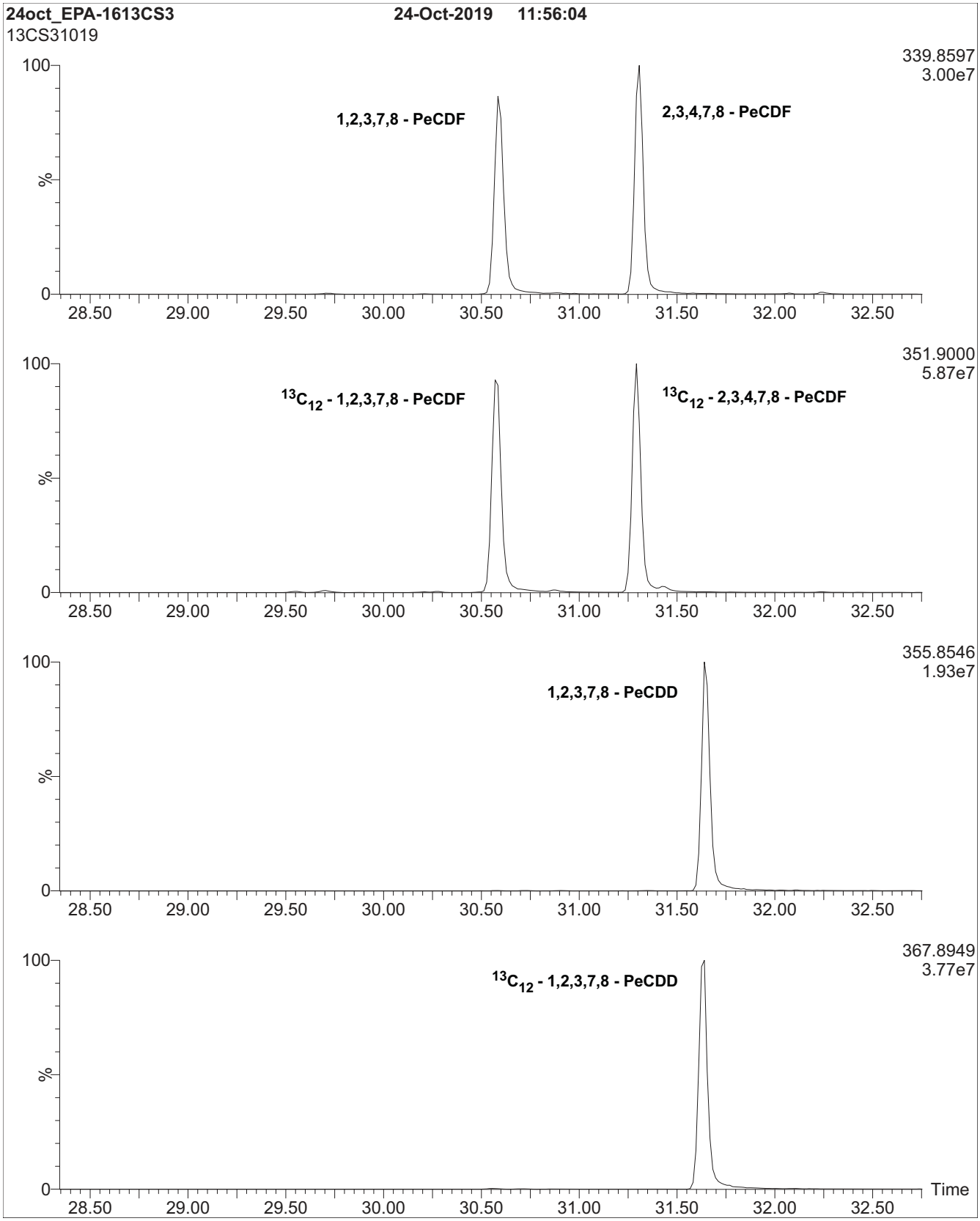


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

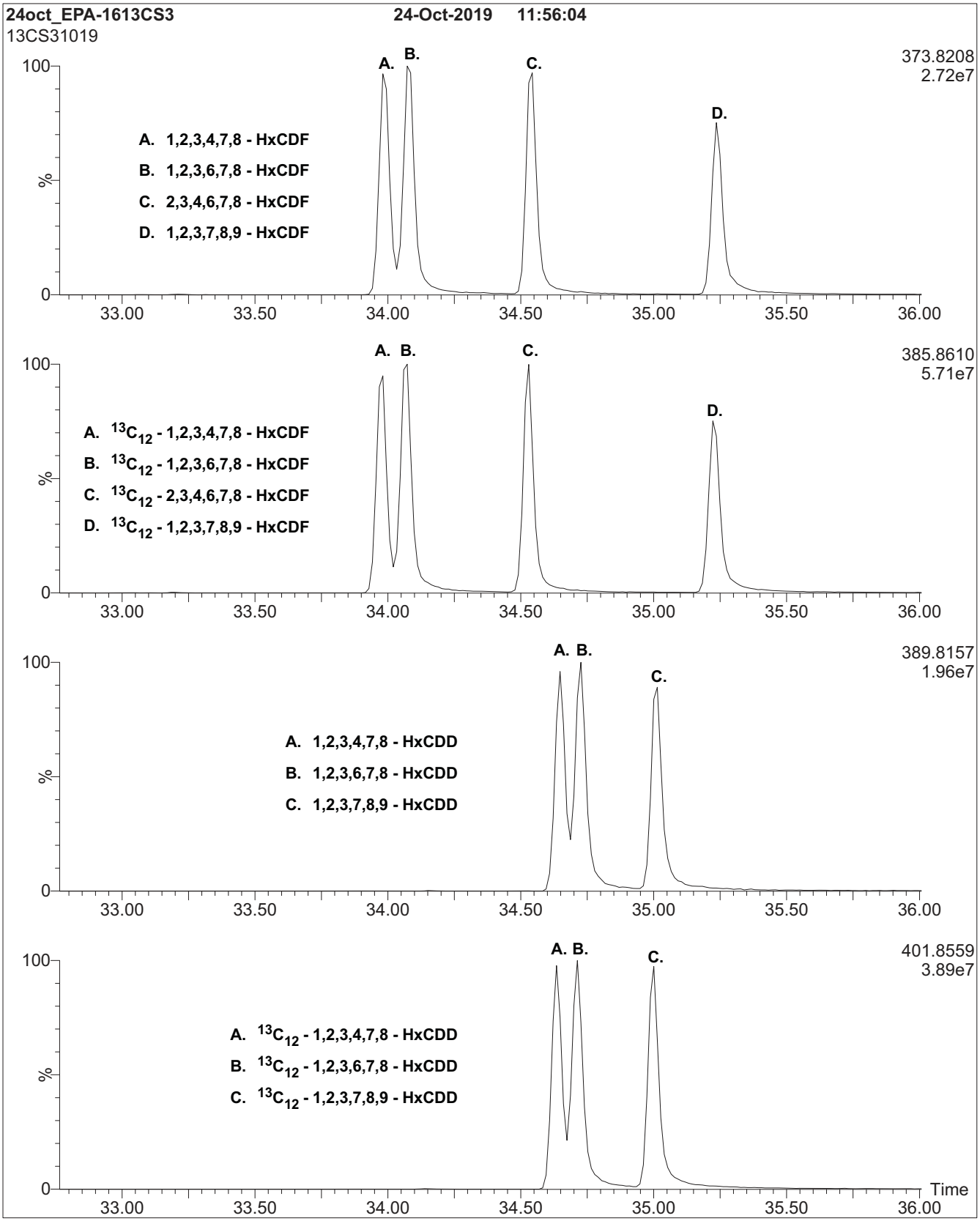


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

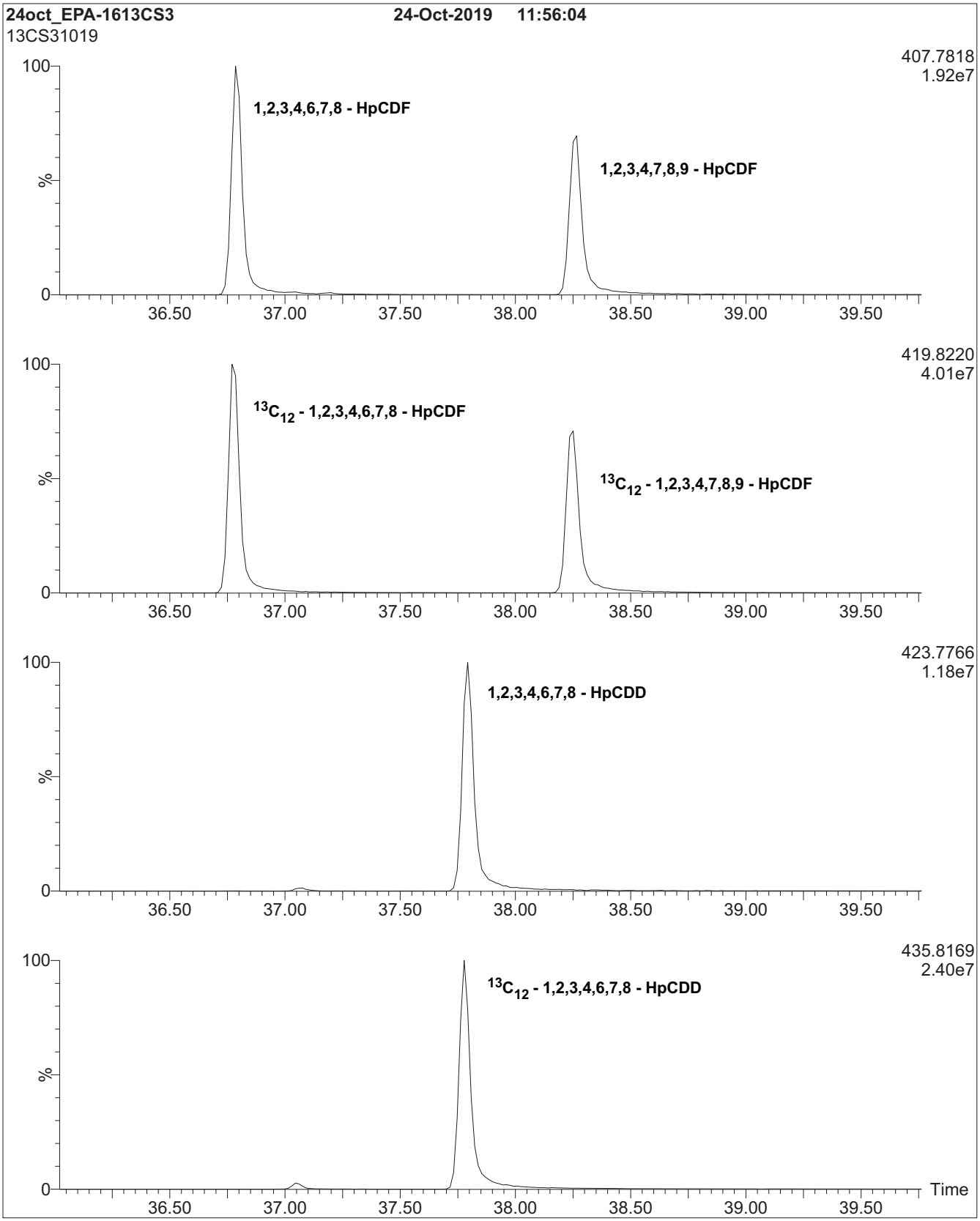
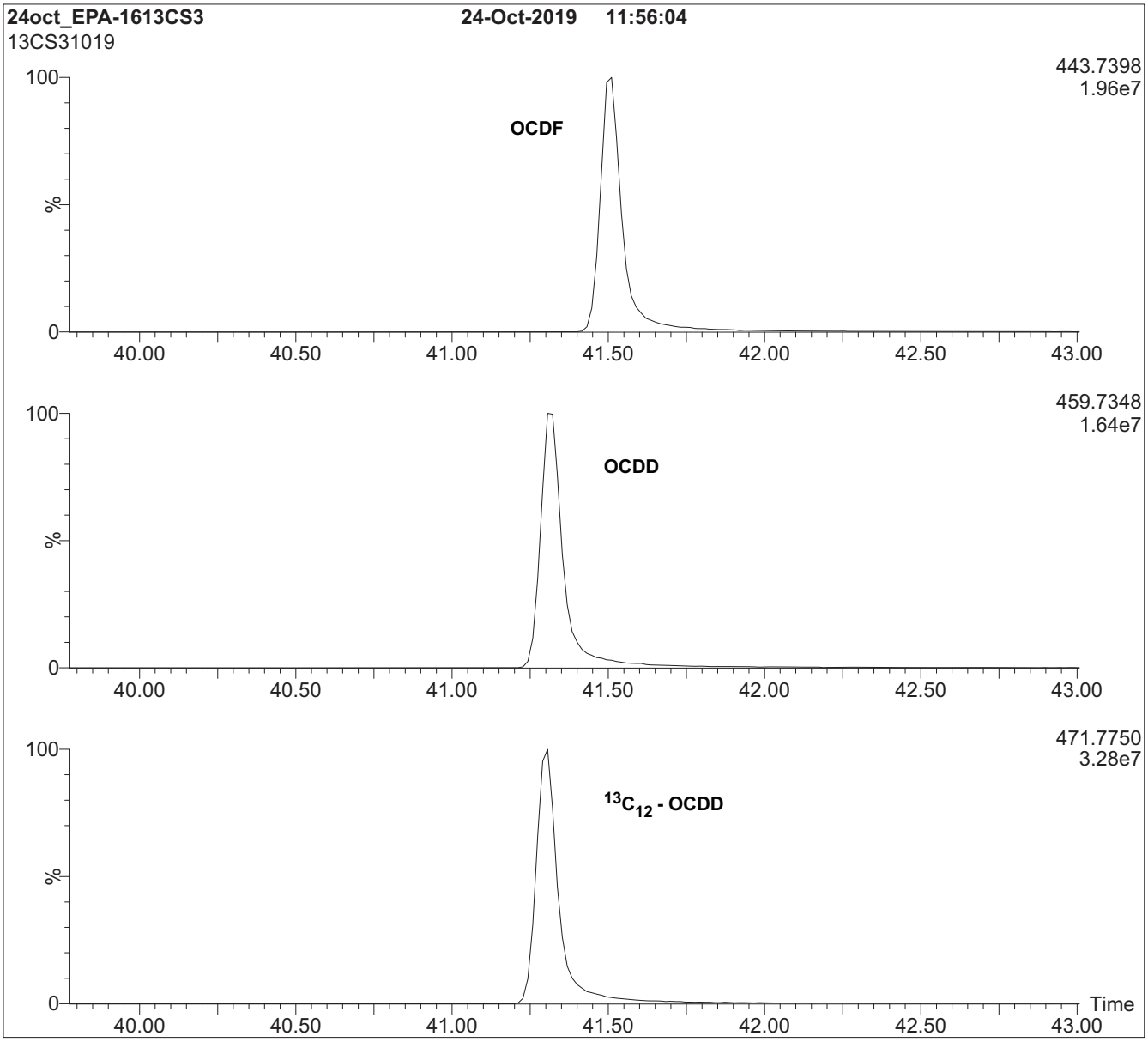


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005457
1613 CS2 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019
(mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

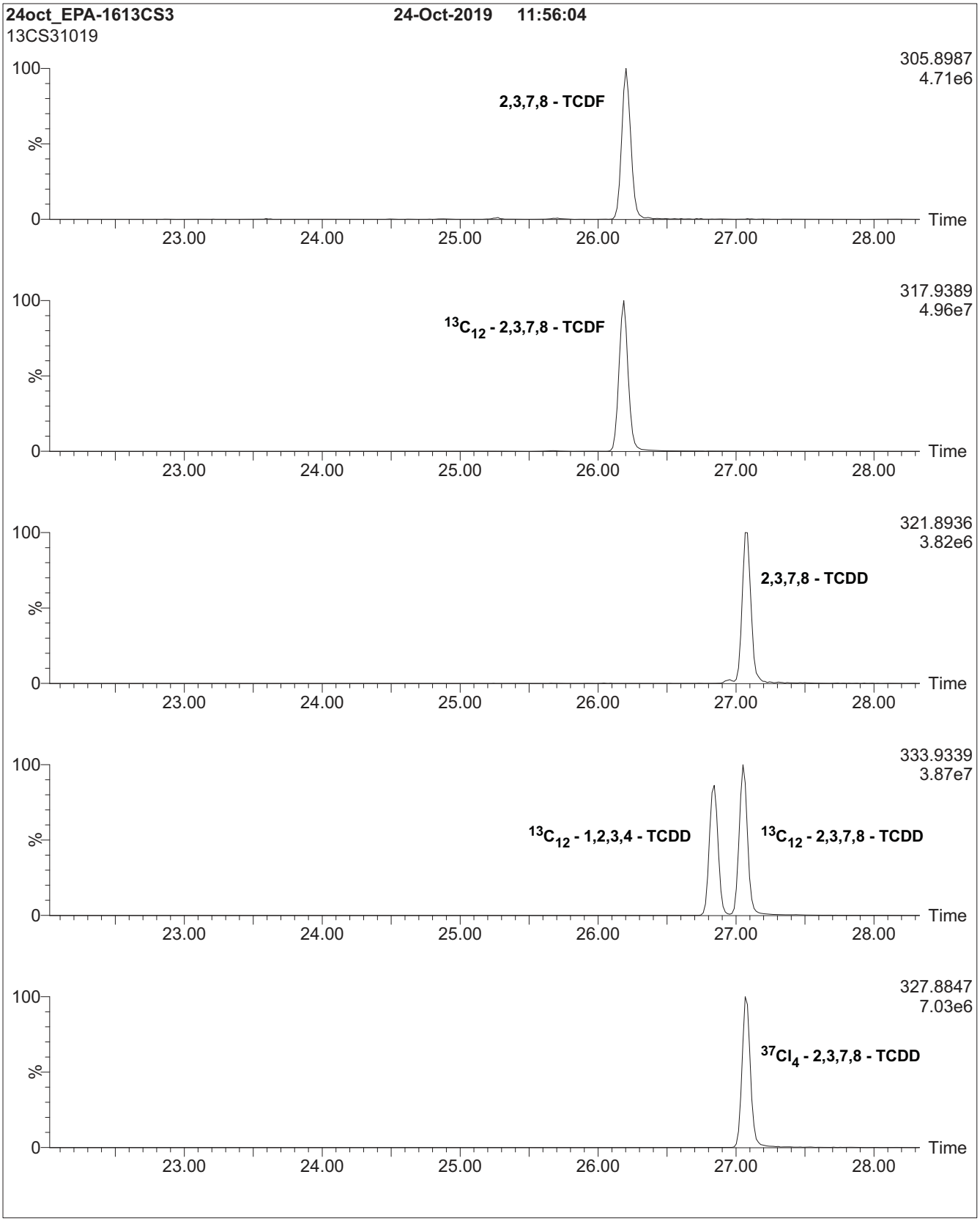


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

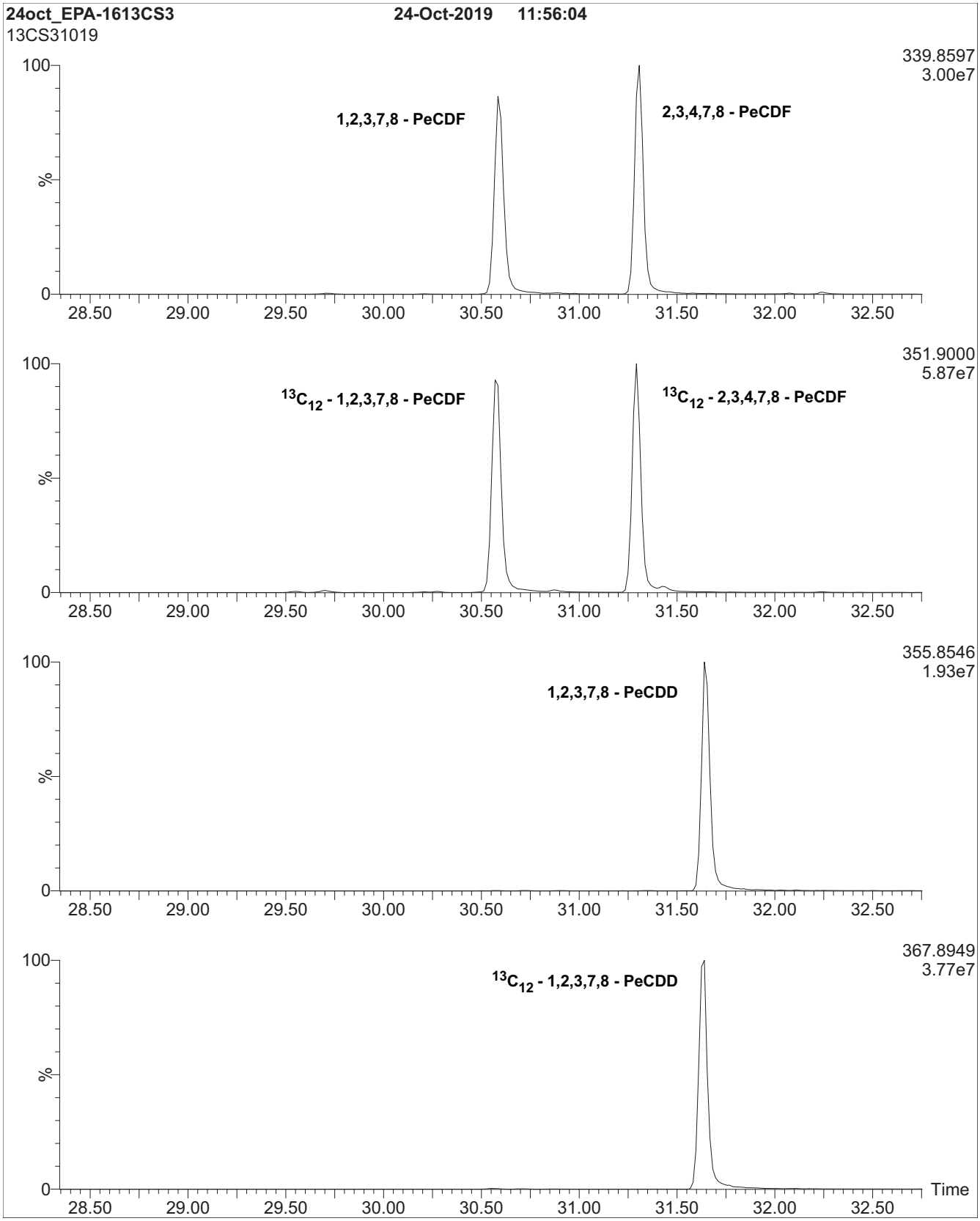


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

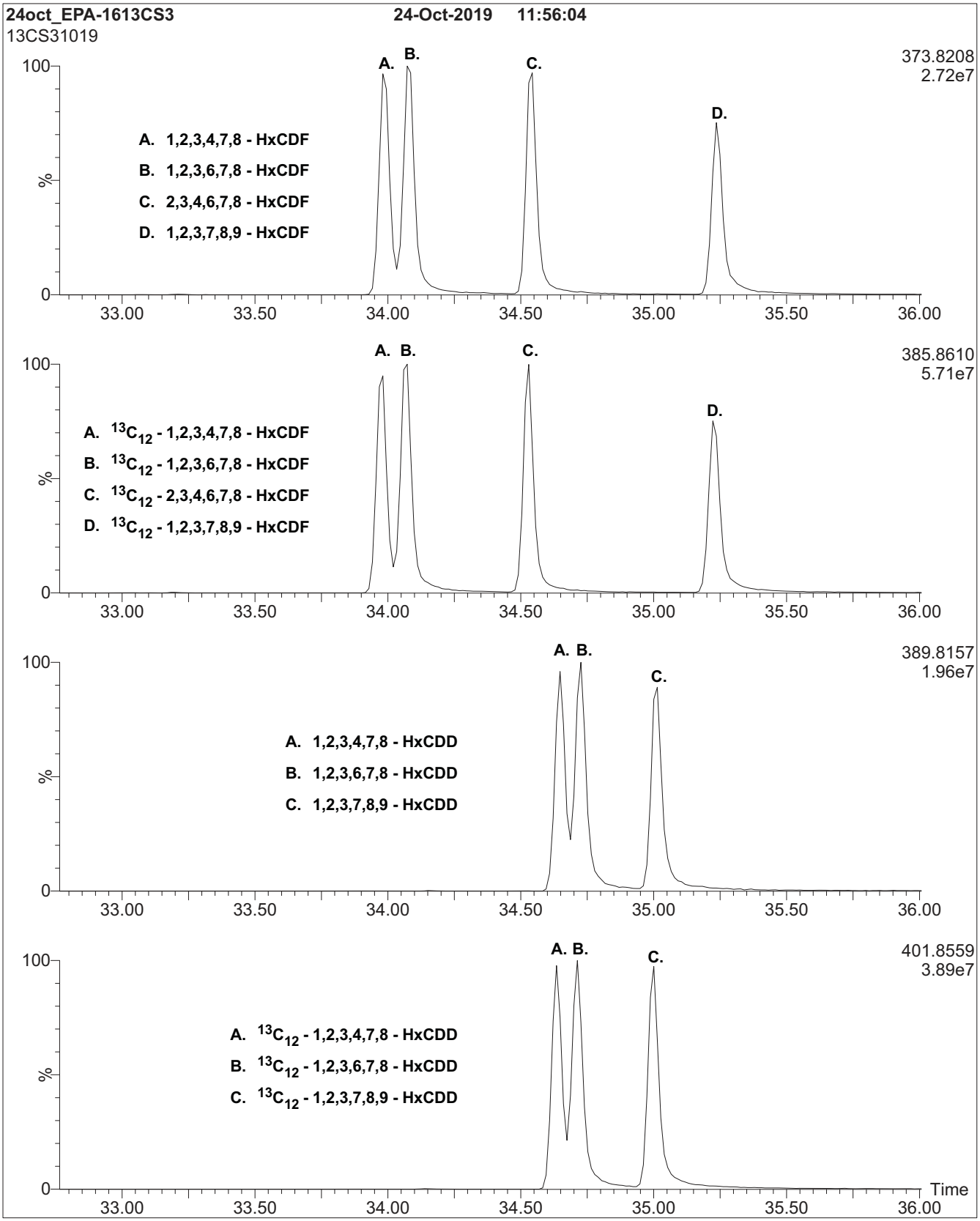


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

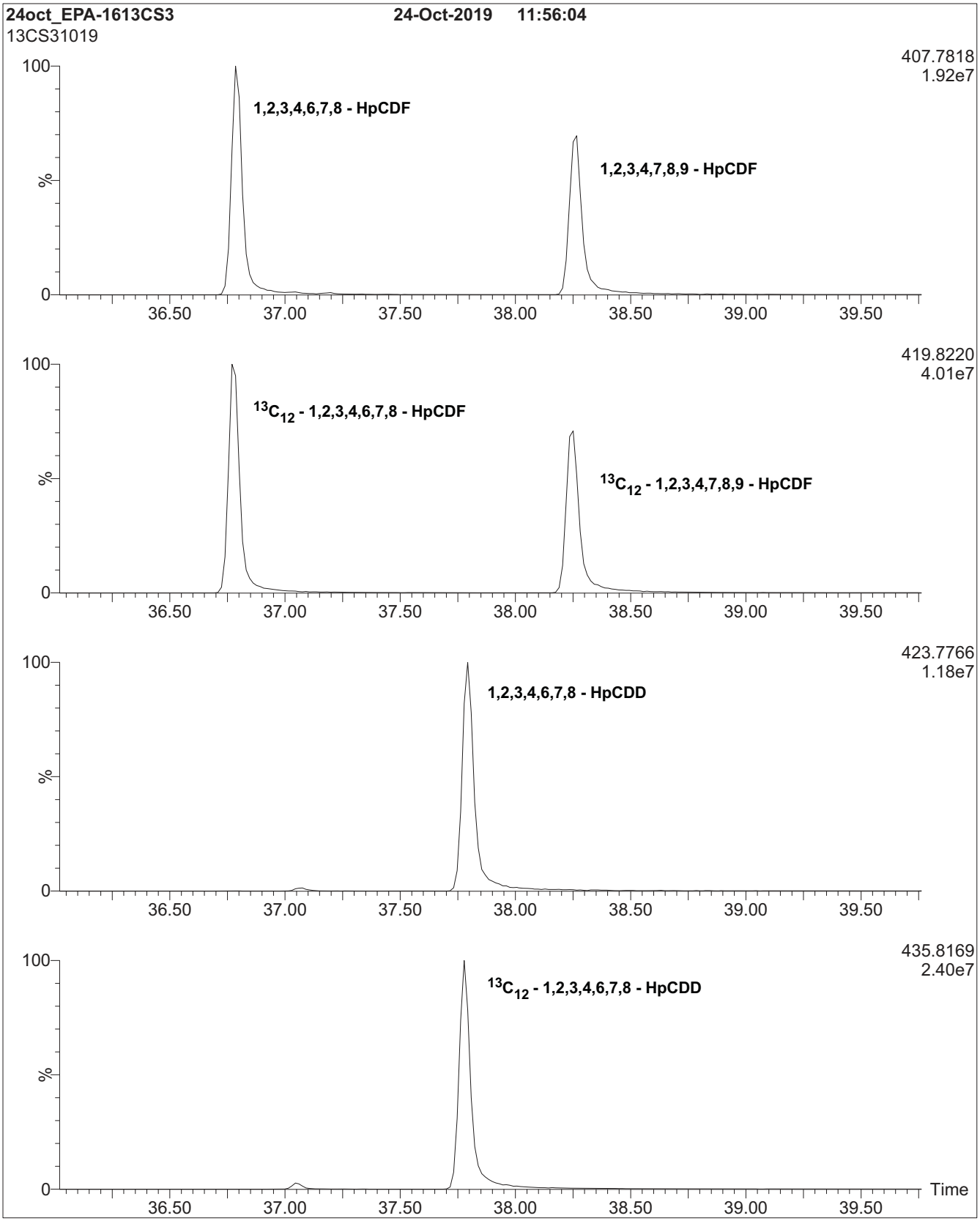
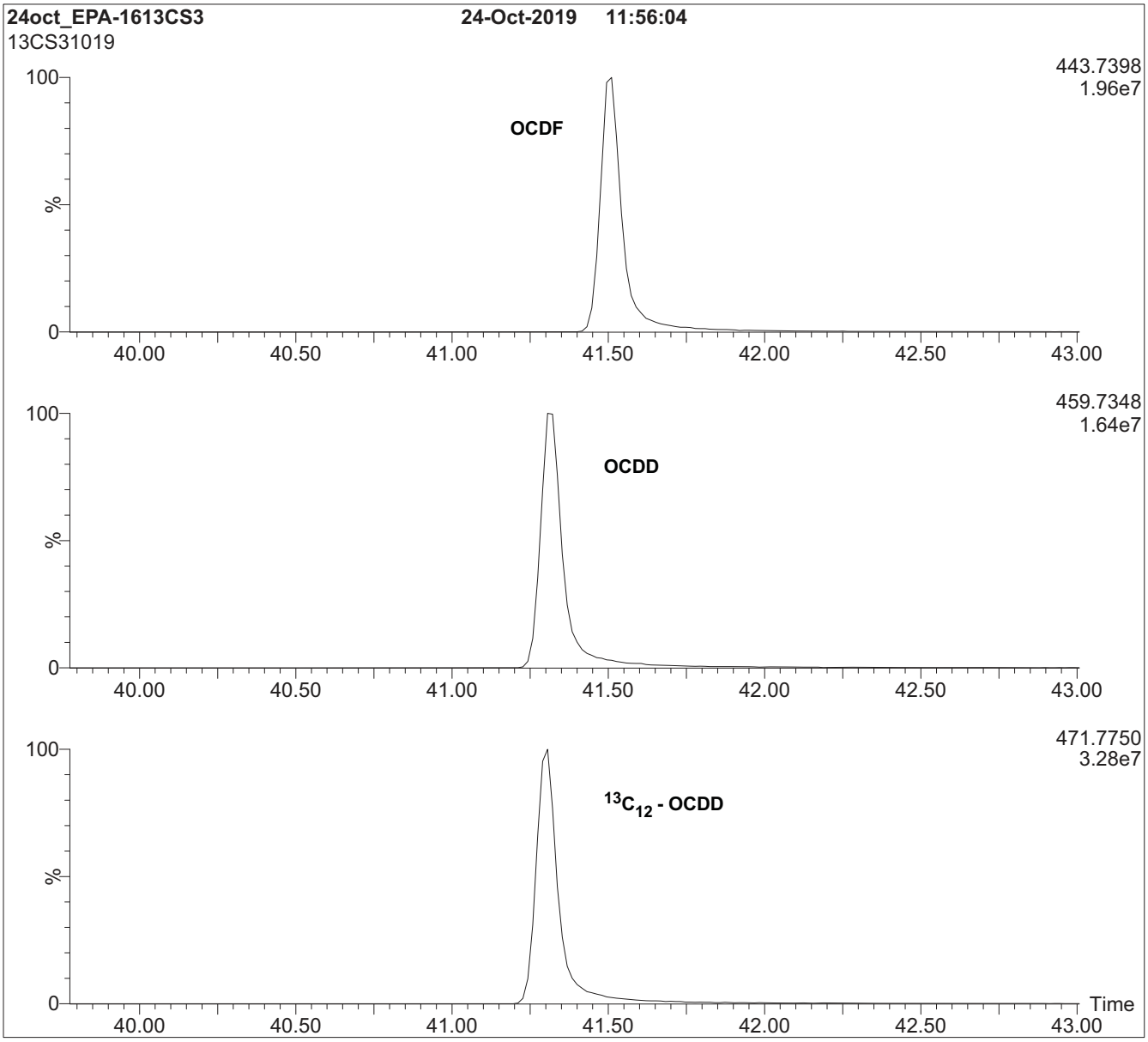


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005458
1613 CS4 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019
(mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

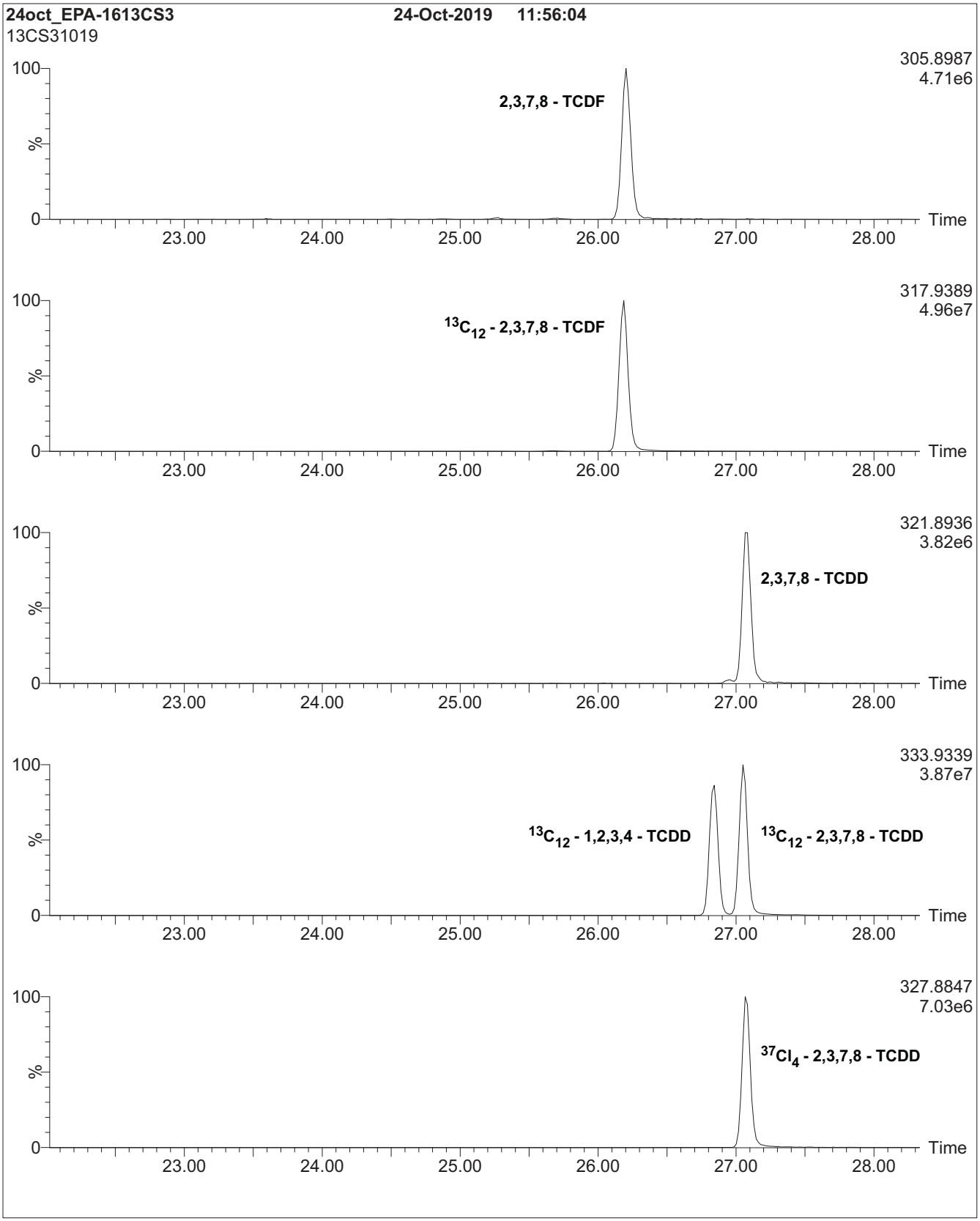


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

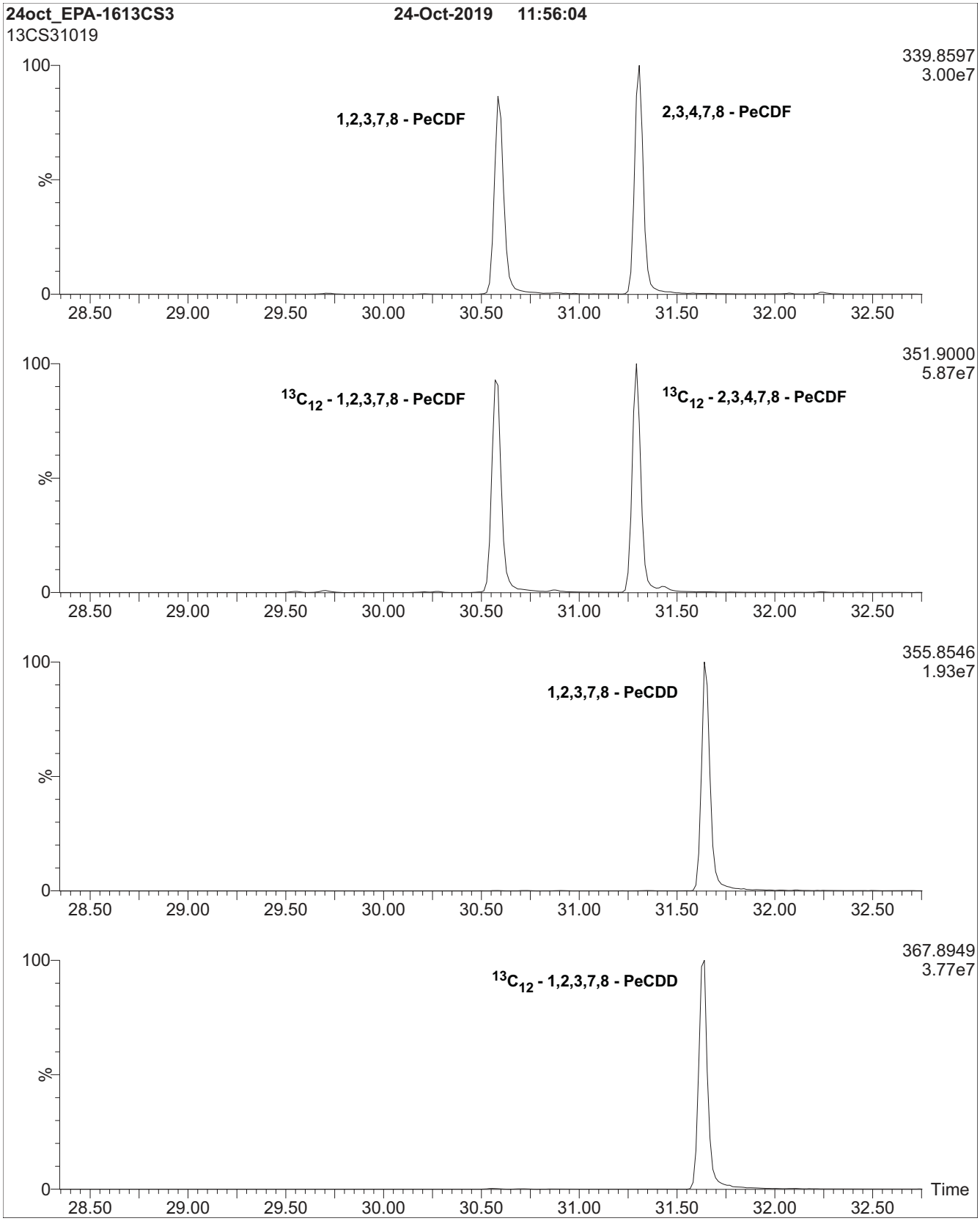


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

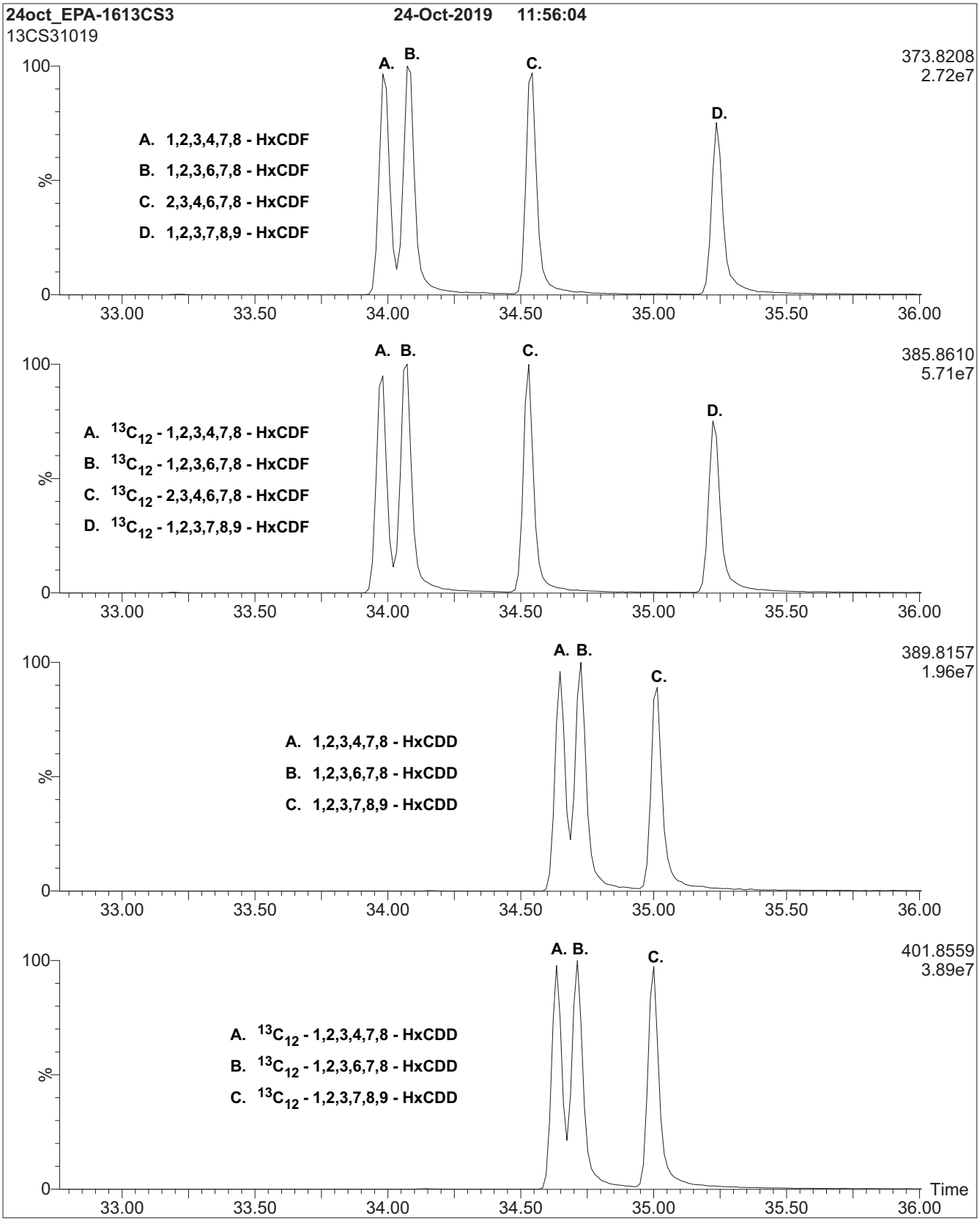


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

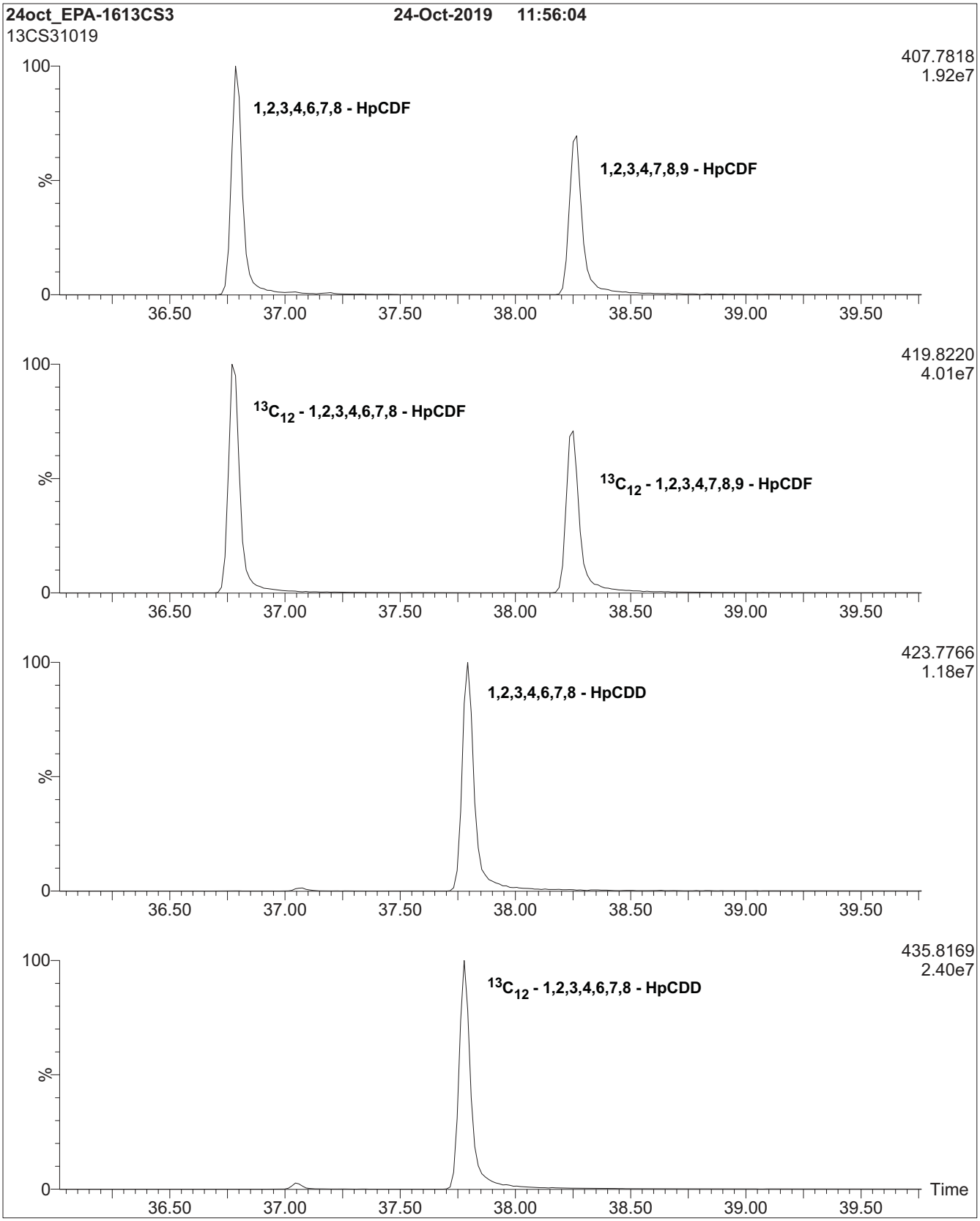
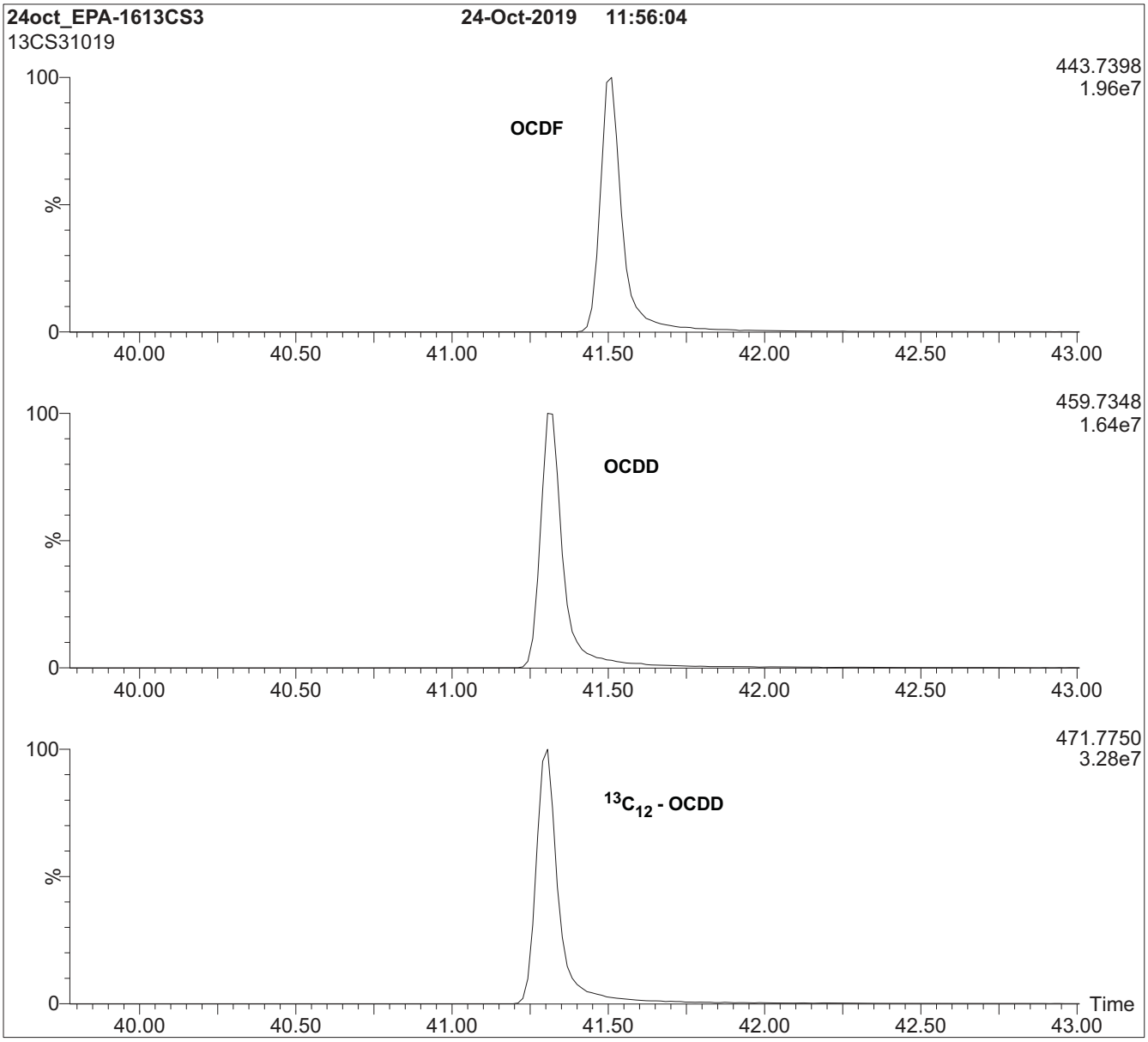


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005459
1613 CS5 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019
(mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

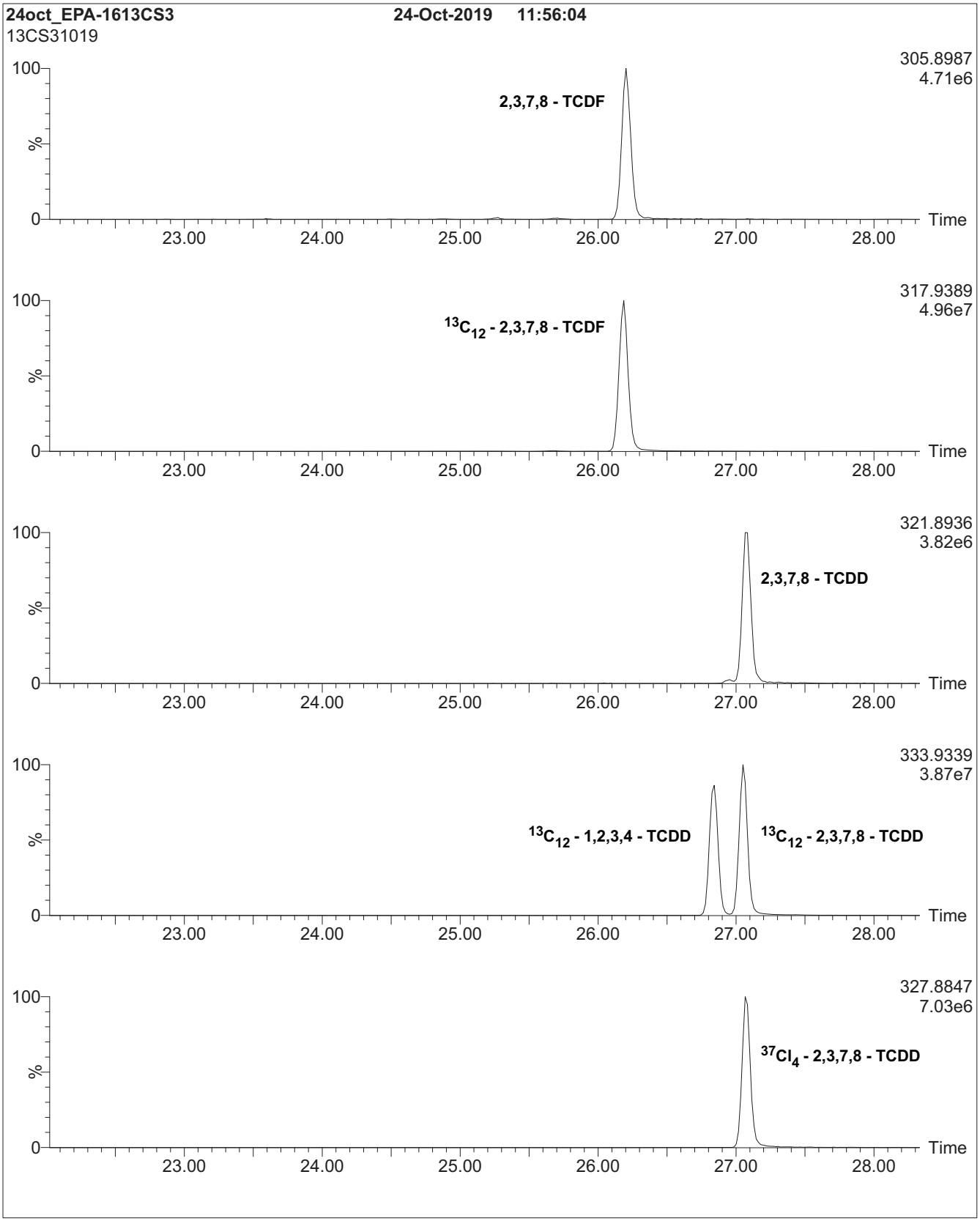


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

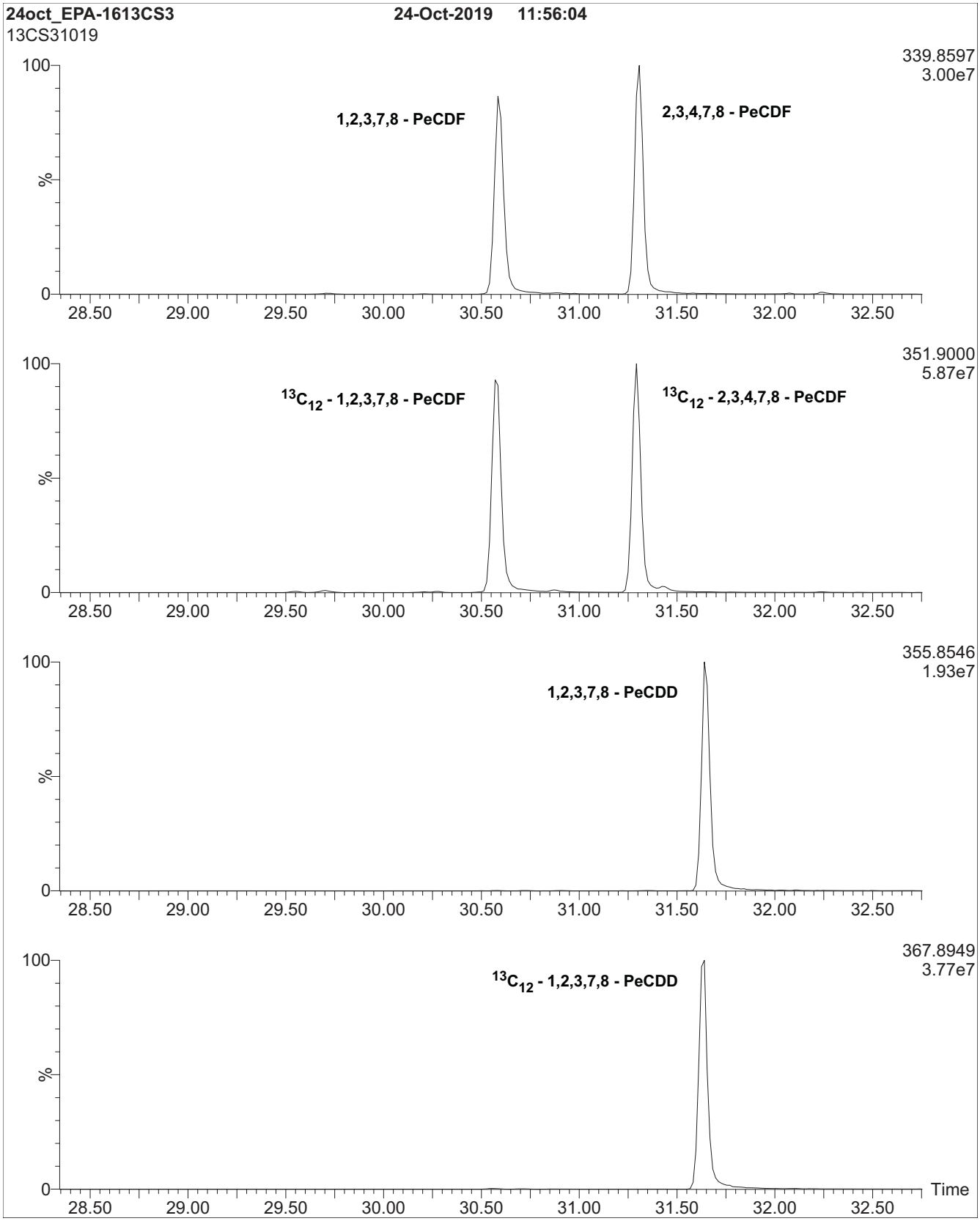


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

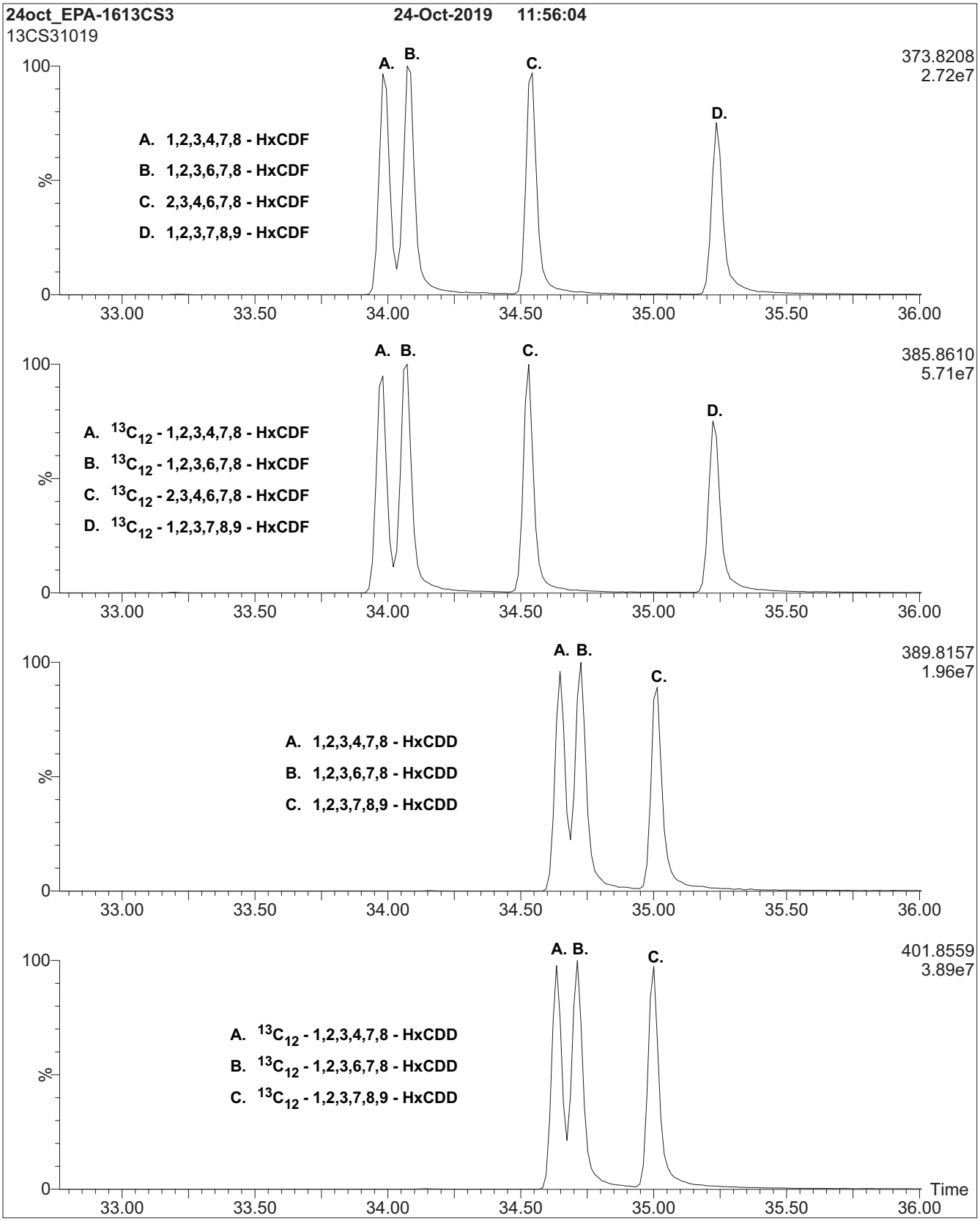


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

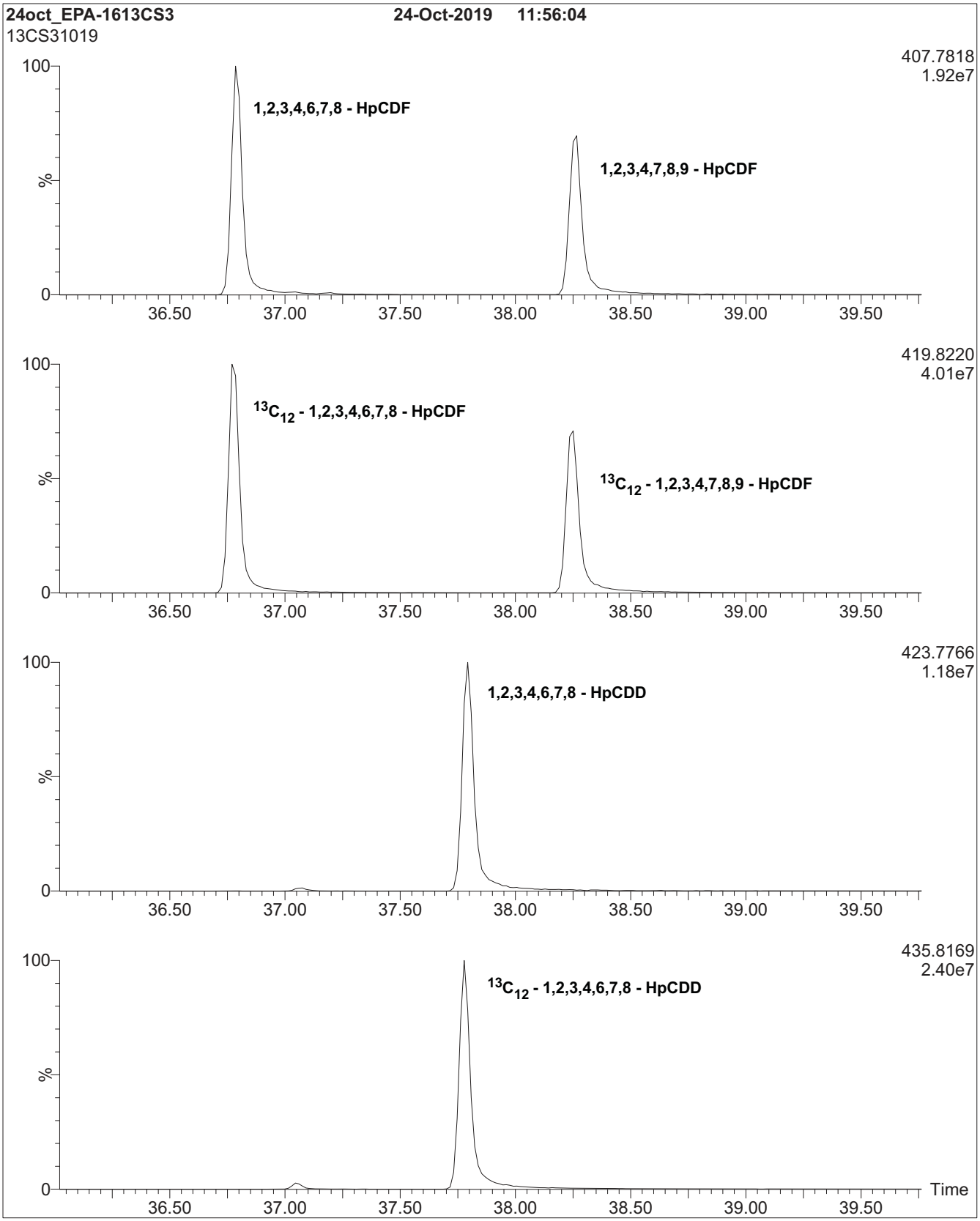
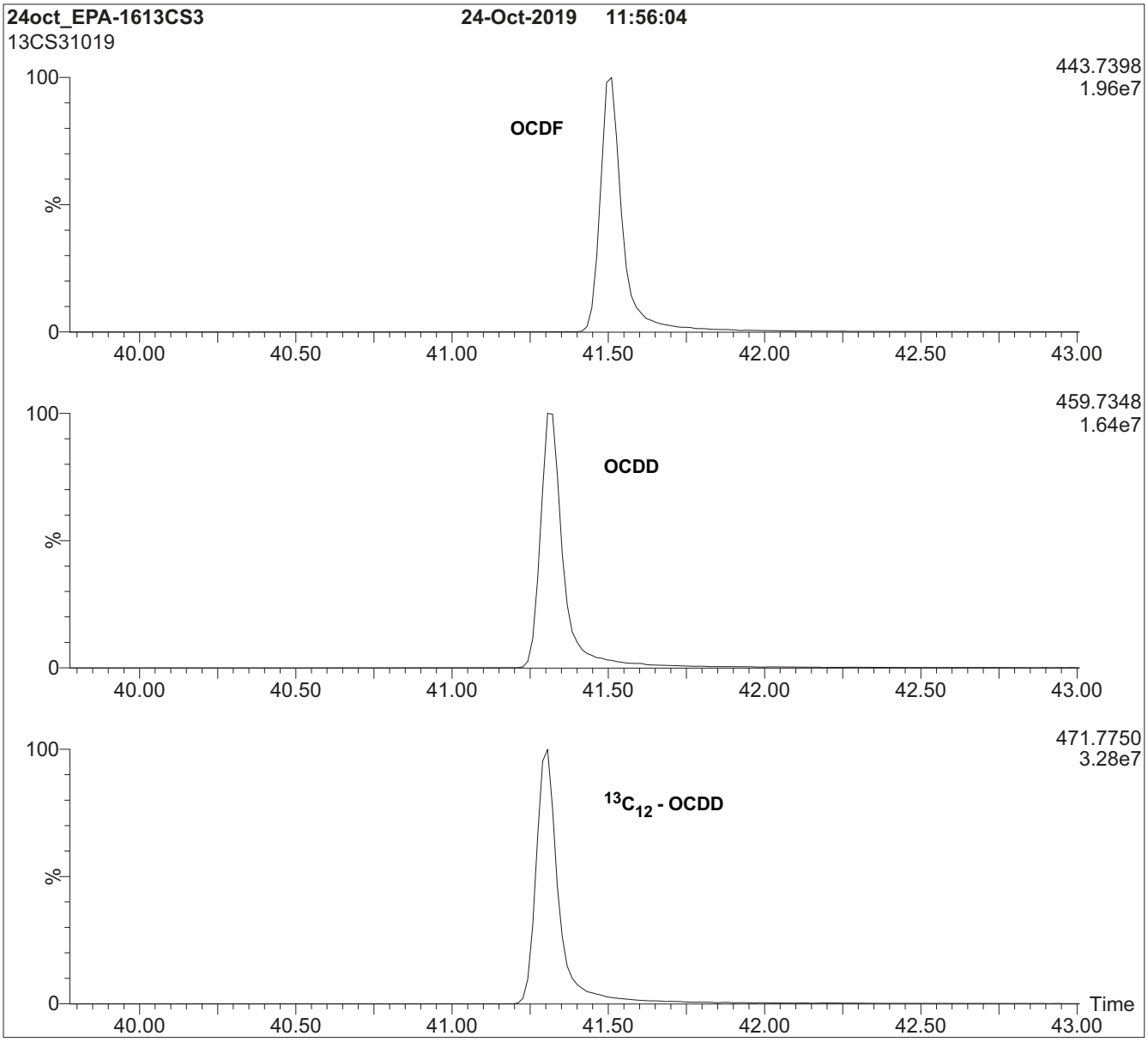


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005460
1613 CSL CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019
(mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

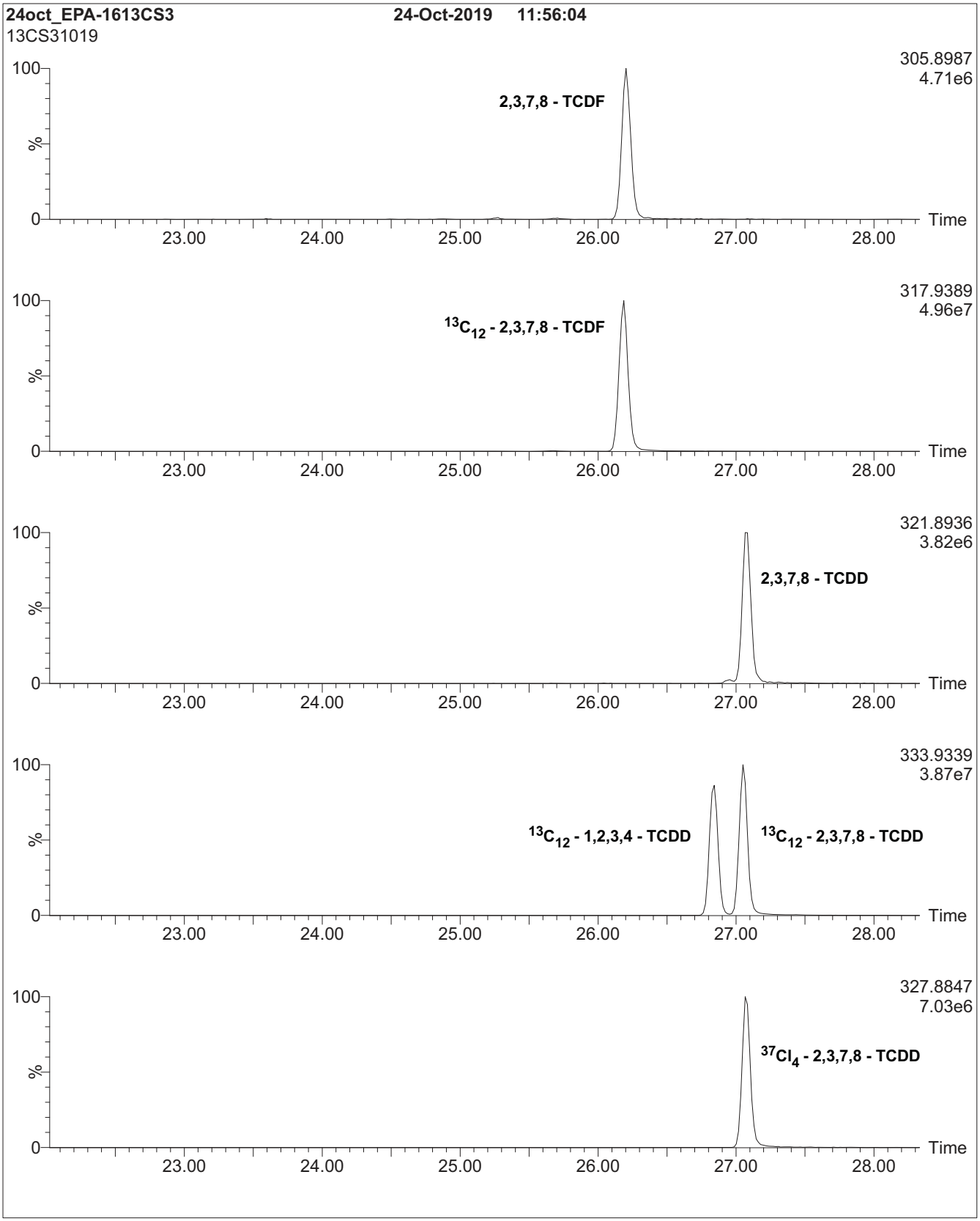


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

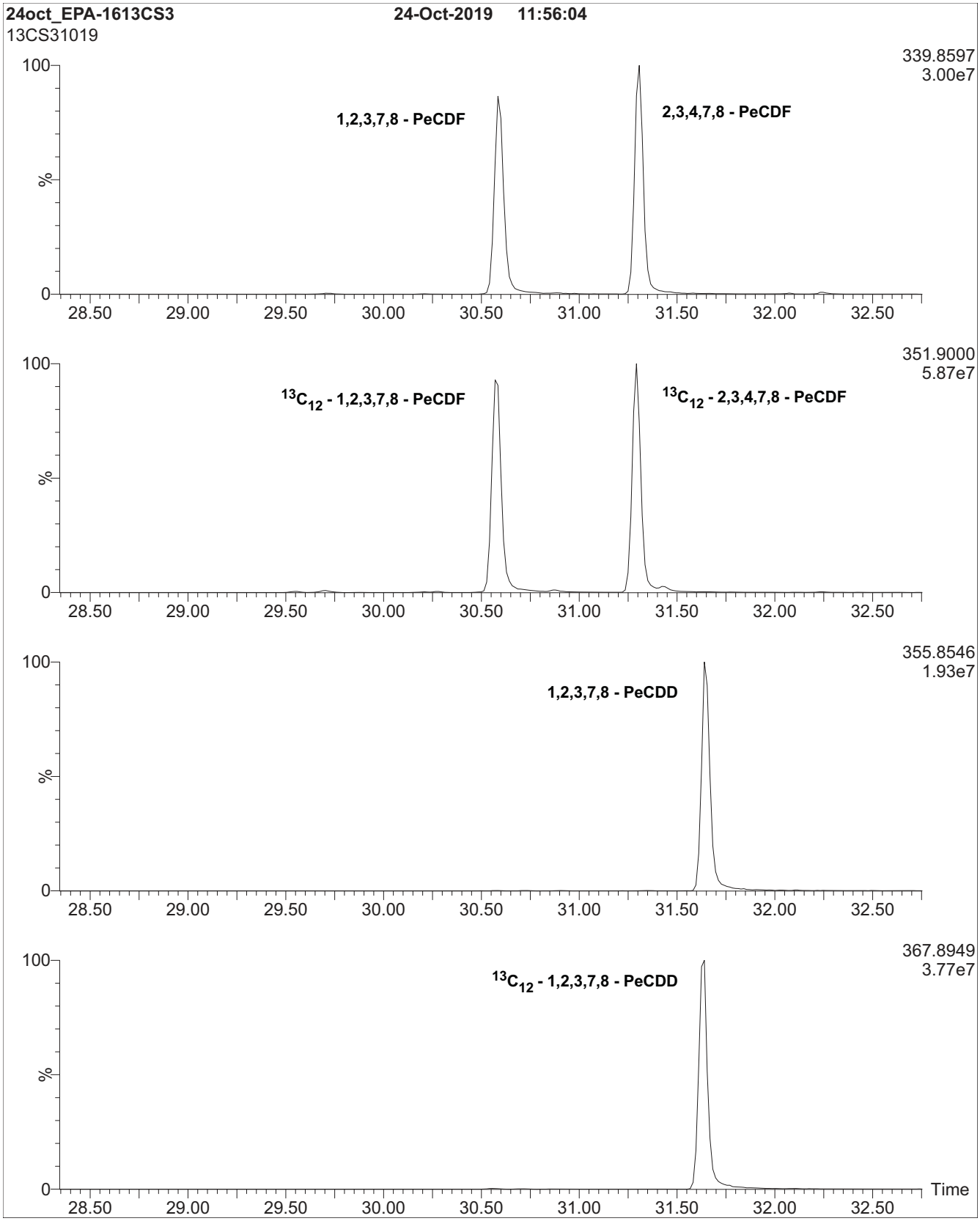


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

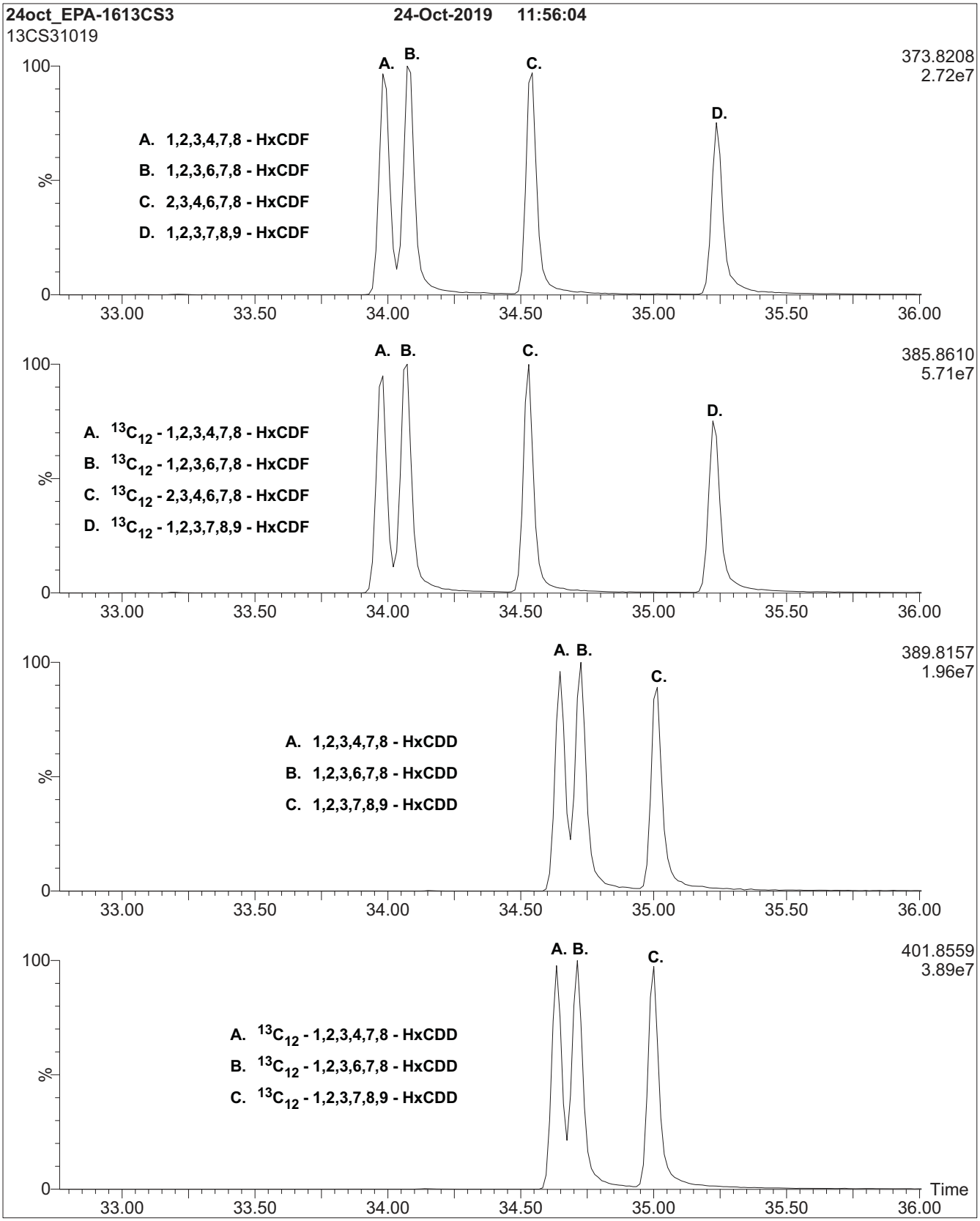


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

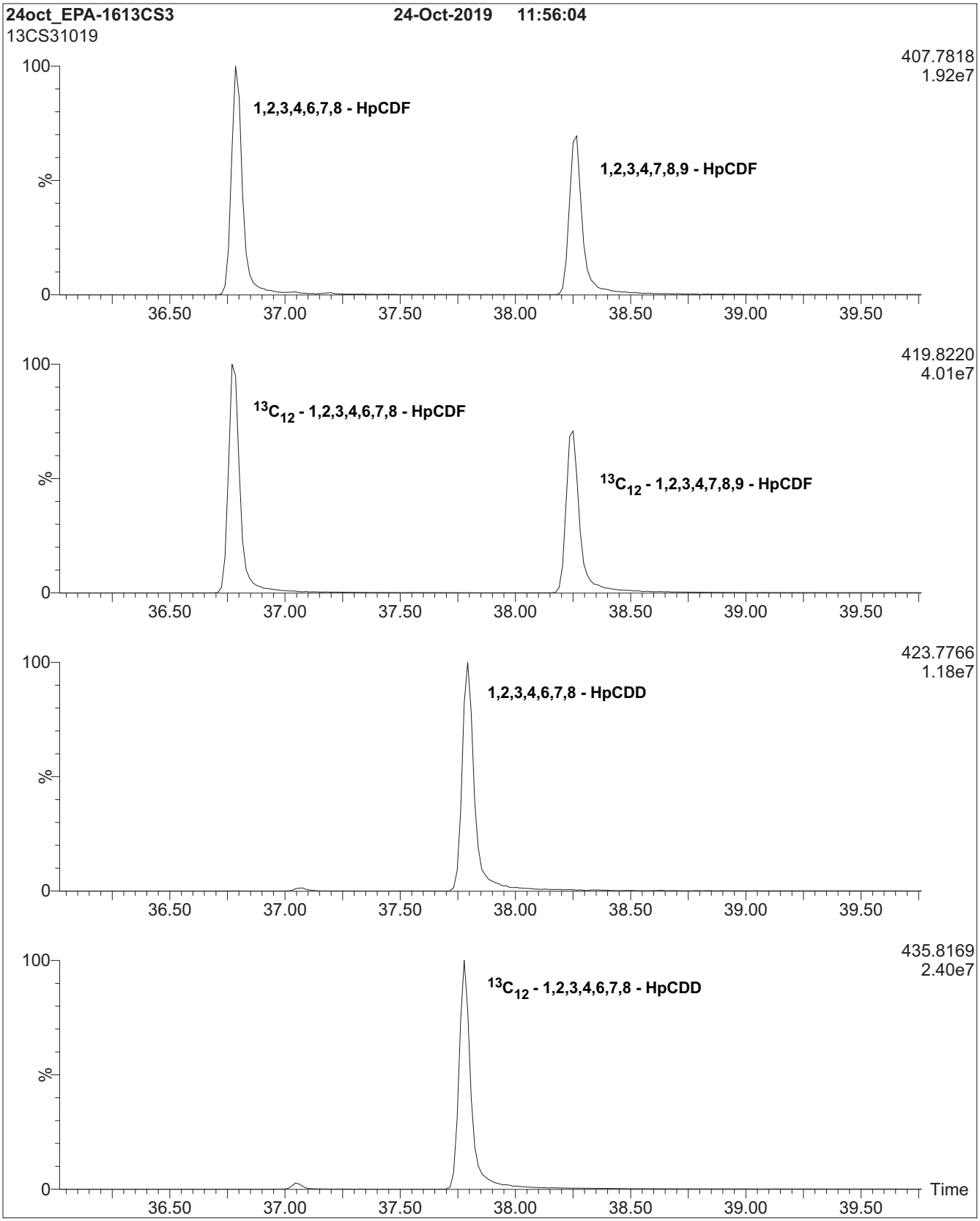
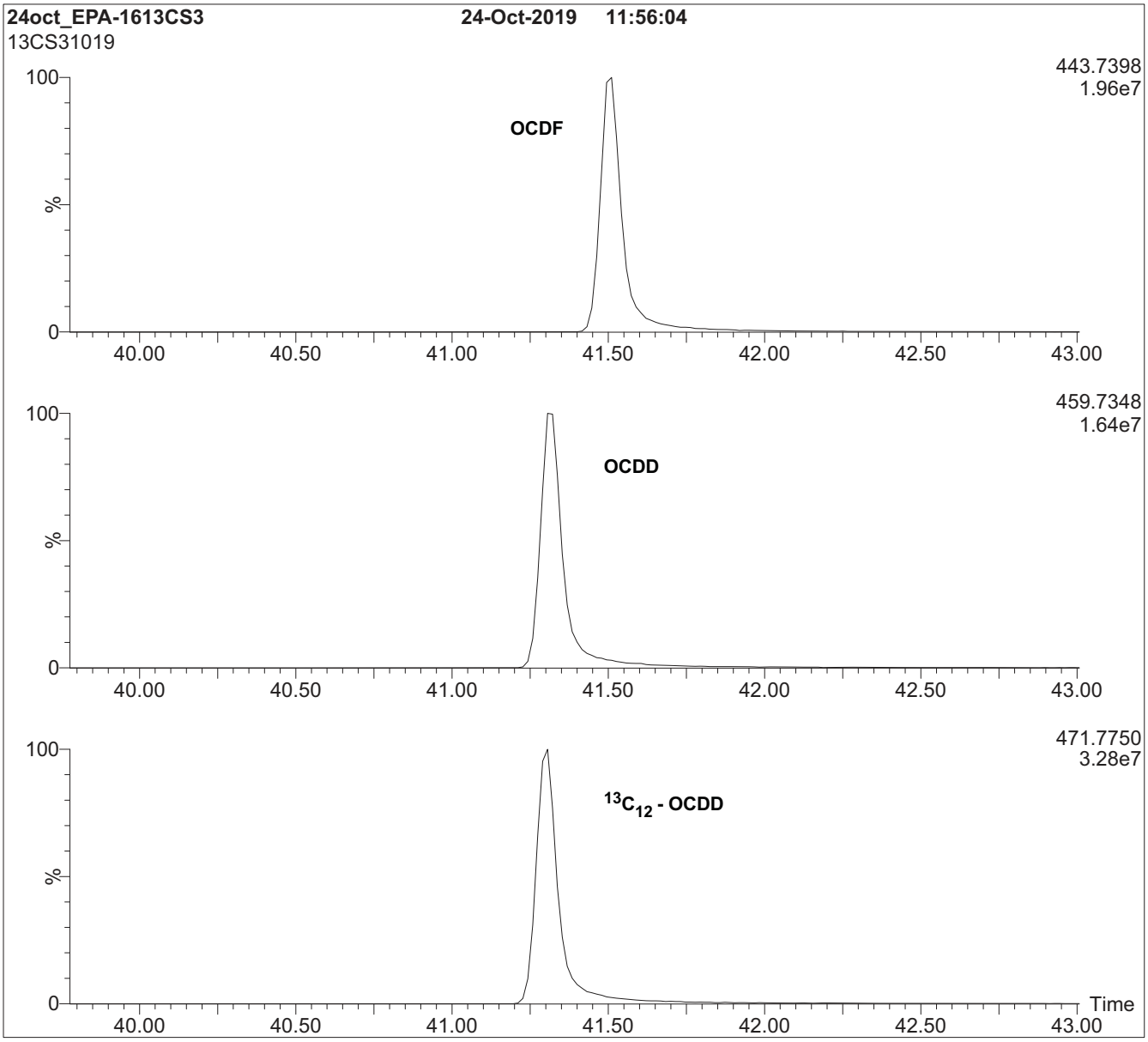


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

EPA-1613PAR

U.S. EPA Method 1613 Native PCDD/PCDF Precision and Recovery Stock Solution

PRODUCT CODE:	EPA-1613PAR
LOT NUMBER:	13PAR1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/25/2021
LAST TESTED: (mm/dd/yyyy)	11/03/2021
EXPIRY DATE: (mm/dd/yyyy)	11/03/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

J013397
Recd. JR
12/20/21

DESCRIPTION:

EPA-1613PAR is a solution/mixture of all the 2,3,7,8-substituted polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

EPA-1613PAR was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

The individual PCDDs and PCDFs all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

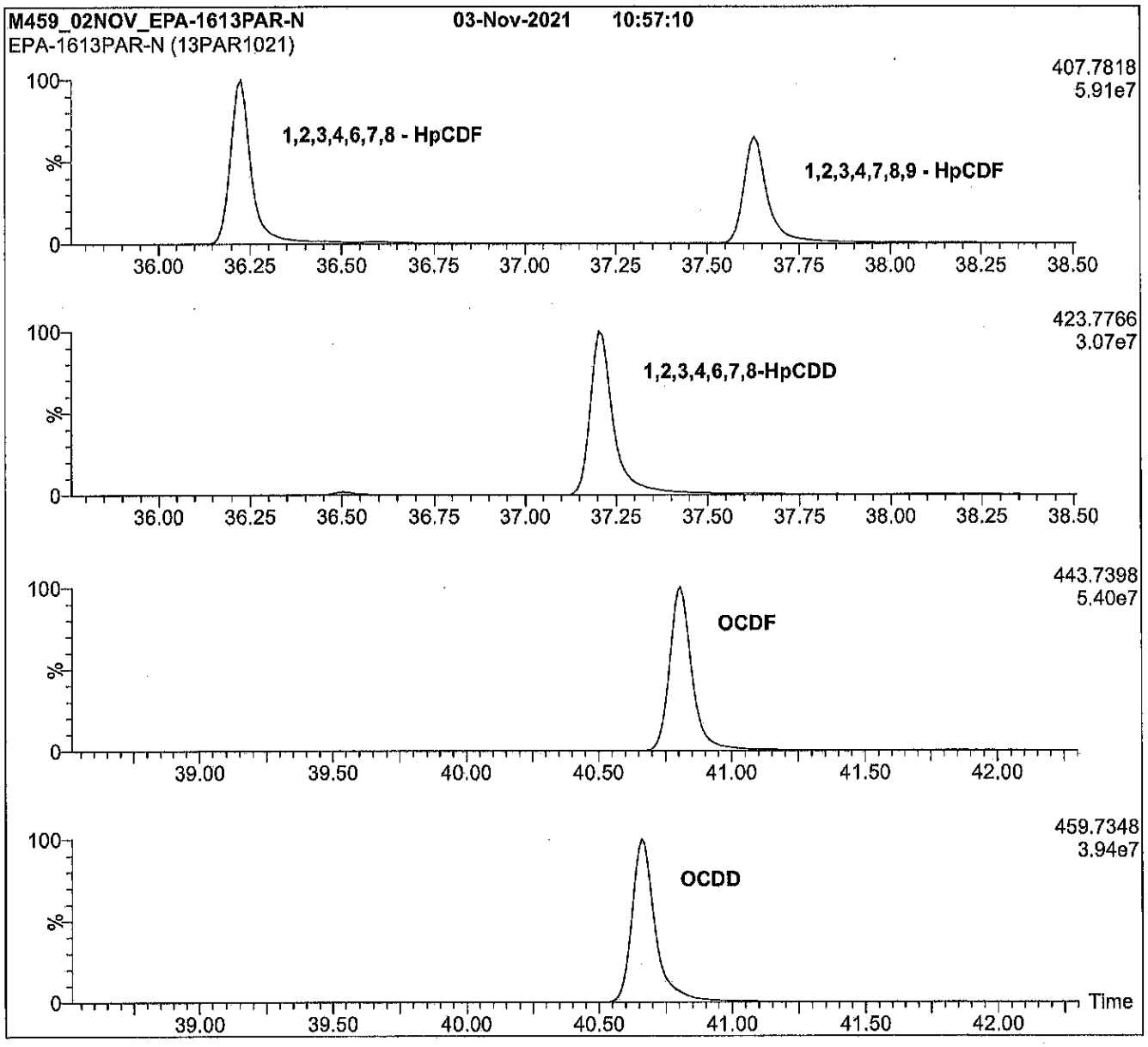
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Table A: **EPA-1613PAR; Components and Concentrations (ng/mL, ± 5% in nonane/2.4% toluene)**

Compound	Acronym	CAS #	Concentration (ng/mL)
PCDDs:			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin	2,3,7,8-TCDD	1746-01-6	40.0
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin	1,2,3,7,8-PeCDD	40321-76-4	200
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin	1,2,3,4,7,8-HxCDD	39227-28-6	200
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin	1,2,3,6,7,8-HxCDD	57653-85-7	200
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin	1,2,3,7,8,9-HxCDD	19408-74-3	200
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin	1,2,3,4,6,7,8-HpCDD	35822-46-9	200
Octachlorodibenzo-*p*-dioxin	OCDD	3268-87-9	400
PCDFs:			
2,3,7,8-Tetrachlorodibenzofuran	2,3,7,8-TCDF	51207-31-9	40.0
1,2,3,7,8-Pentachlorodibenzofuran	1,2,3,7,8-PeCDF	57117-41-6	200
2,3,4,7,8-Pentachlorodibenzofuran	2,3,4,7,8-PeCDF	57117-31-4	200
1,2,3,4,7,8-Hexachlorodibenzofuran	1,2,3,4,7,8-HxCDF	70648-26-9	200
1,2,3,6,7,8-Hexachlorodibenzofuran	1,2,3,6,7,8-HxCDF	57117-44-9	200
1,2,3,7,8,9-Hexachlorodibenzofuran	1,2,3,7,8,9-HxCDF	72918-21-9	200
2,3,4,6,7,8-Hexachlorodibenzofuran	2,3,4,6,7,8-HxCDF	60851-34-5	200
1,2,3,4,6,7,8-Heptachlorodibenzofuran	1,2,3,4,6,7,8-HpCDF	67562-39-4	200
1,2,3,4,7,8,9-Heptachlorodibenzofuran	1,2,3,4,7,8,9-HpCDF	55673-89-7	200
Octachlorodibenzofuran	OCDF	39001-02-0	400

Certified By: _____ **Date:** 11/05/2021
(mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: **EPA-1613PAR; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

EPA-1613PAR

U.S. EPA Method 1613 Native PCDD/PCDF Precision and Recovery Stock Solution

PRODUCT CODE:	EPA-1613PAR
LOT NUMBER:	13PAR1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/25/2021
LAST TESTED: (mm/dd/yyyy)	11/03/2021
EXPIRY DATE: (mm/dd/yyyy)	11/03/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

J013397
Recd. JR
12/20/21

DESCRIPTION:

EPA-1613PAR is a solution/mixture of all the 2,3,7,8-substituted polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

EPA-1613PAR was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

The individual PCDDs and PCDFs all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, ...x_n$ on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613PAR; Components and Concentrations (ng/mL, ± 5% in nonane/2.4% toluene)**

Compound	Acronym	CAS #	Concentration (ng/mL)
PCDDs:			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin	2,3,7,8-TCDD	1746-01-6	40.0
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin	1,2,3,7,8-PeCDD	40321-76-4	200
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin	1,2,3,4,7,8-HxCDD	39227-28-6	200
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin	1,2,3,6,7,8-HxCDD	57653-85-7	200
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin	1,2,3,7,8,9-HxCDD	19408-74-3	200
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin	1,2,3,4,6,7,8-HpCDD	35822-46-9	200
Octachlorodibenzo-*p*-dioxin	OCDD	3268-87-9	400
PCDFs:			
2,3,7,8-Tetrachlorodibenzofuran	2,3,7,8-TCDF	51207-31-9	40.0
1,2,3,7,8-Pentachlorodibenzofuran	1,2,3,7,8-PeCDF	57117-41-6	200
2,3,4,7,8-Pentachlorodibenzofuran	2,3,4,7,8-PeCDF	57117-31-4	200
1,2,3,4,7,8-Hexachlorodibenzofuran	1,2,3,4,7,8-HxCDF	70648-26-9	200
1,2,3,6,7,8-Hexachlorodibenzofuran	1,2,3,6,7,8-HxCDF	57117-44-9	200
1,2,3,7,8,9-Hexachlorodibenzofuran	1,2,3,7,8,9-HxCDF	72918-21-9	200
2,3,4,6,7,8-Hexachlorodibenzofuran	2,3,4,6,7,8-HxCDF	60851-34-5	200
1,2,3,4,6,7,8-Heptachlorodibenzofuran	1,2,3,4,6,7,8-HpCDF	67562-39-4	200
1,2,3,4,7,8,9-Heptachlorodibenzofuran	1,2,3,4,7,8,9-HpCDF	55673-89-7	200
Octachlorodibenzofuran	OCDF	39001-02-0	400

Certified By: _____ **Date:** 11/05/2021
(mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: **EPA-1613PAR; HRGC/HRMS Data (60 m DB-5 Column)**

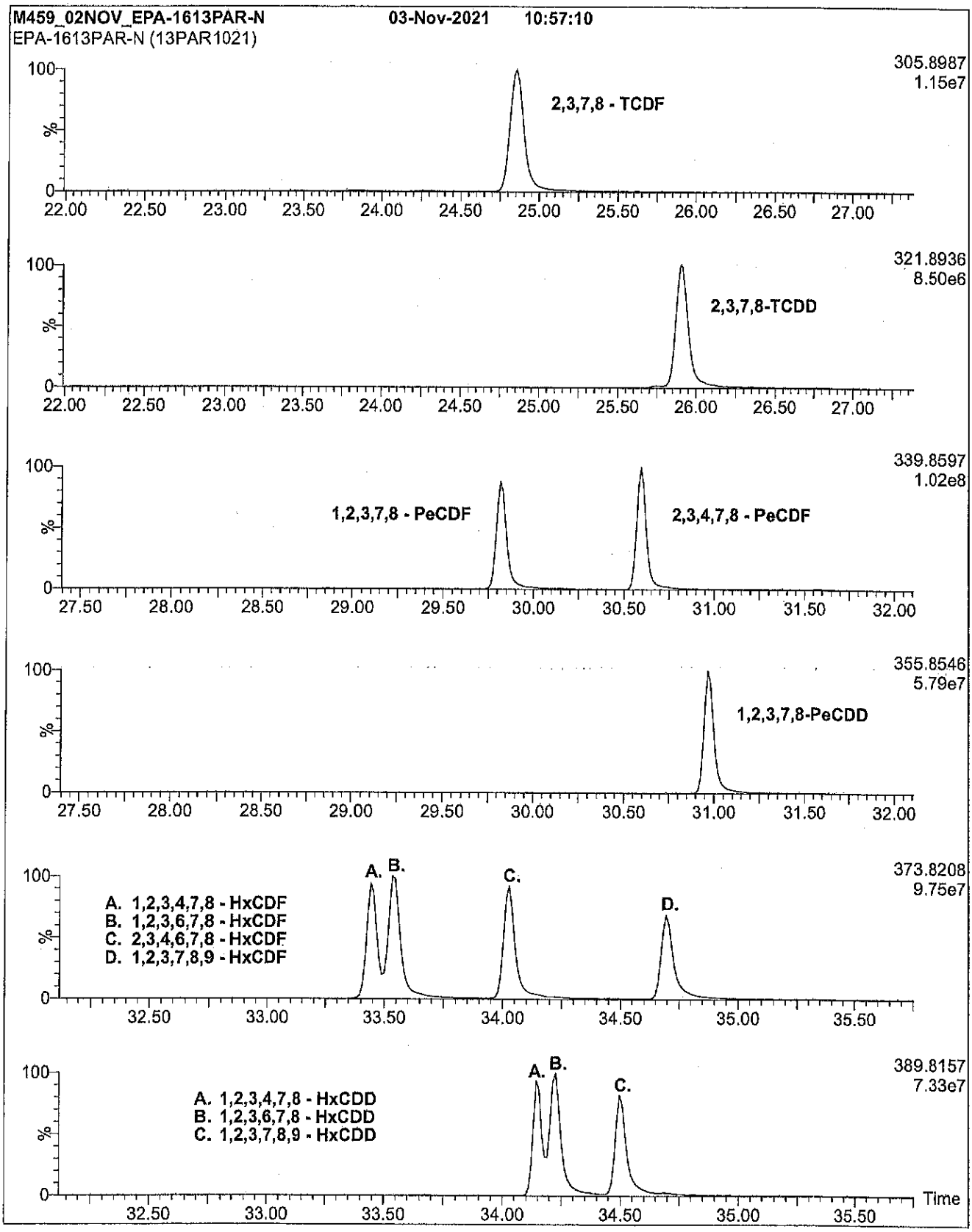
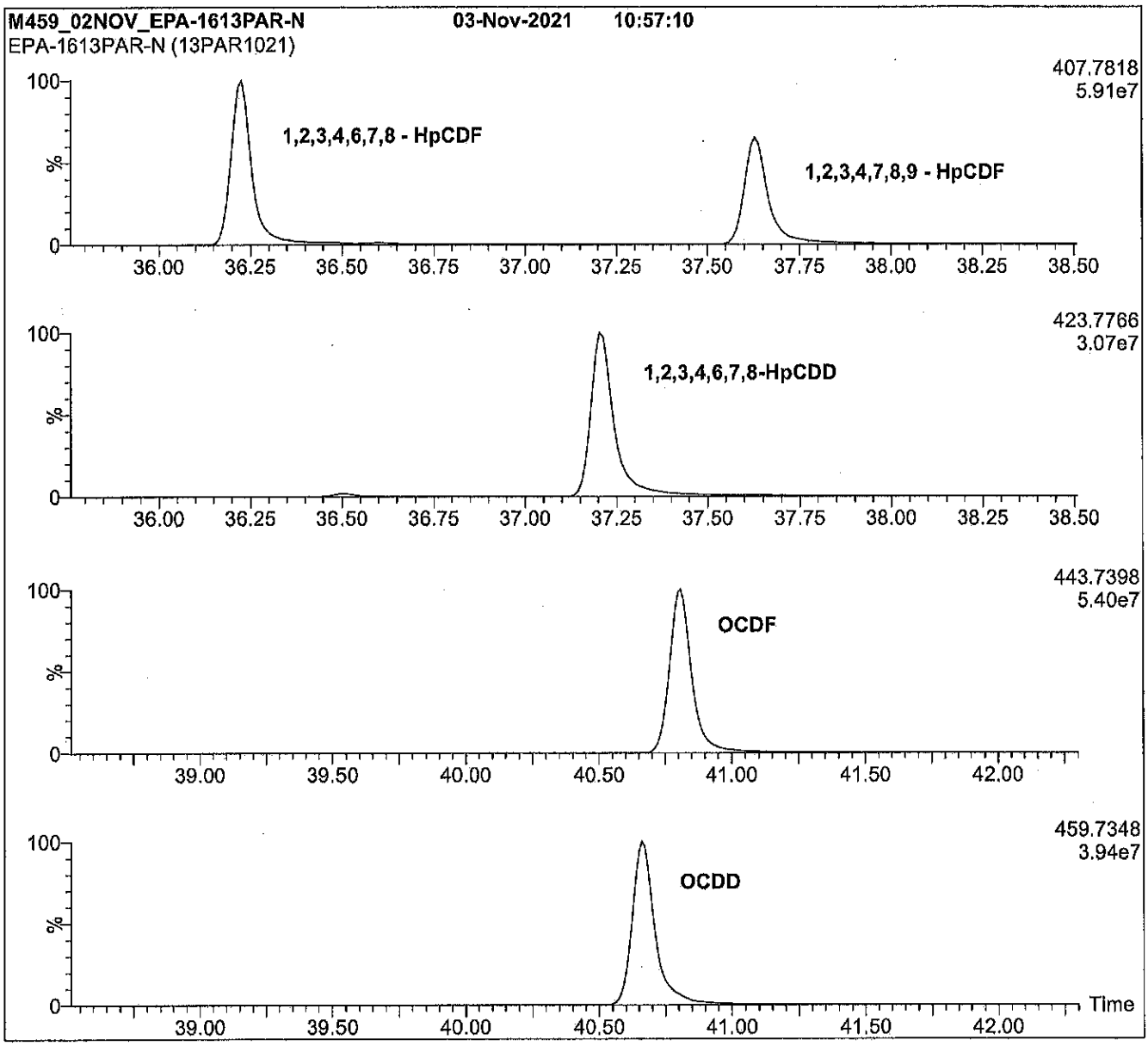


Figure 1: **EPA-1613PAR; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

K9821

CS3WT

Calibration and Verification Solution (EPA-1613CS3) combined with Window Defining and 2,3,7,8-TCDD Resolution Testing Congeners

PRODUCT CODE:	CS3WT
LOT NUMBER:	CS3WT1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	11/01/2021
LAST TESTED: (mm/dd/yyyy)	11/02/2021
EXPIRY DATE: (mm/dd/yyyy)	11/02/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

CS3WT is a solution/mixture of native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$) polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Tables A and B.

CS3WT is an HRGC/HRMS calibration solution that was designed and prepared to be used according to U.S. EPA Method 1613, Revision B, in place of EPA-1613CS3 (lot: 13CS31021). Additionally, it contains the PCDD and PCDF isomers required to set retention time windows as well as test and establish isomer specificity for 2,3,7,8-TCDD on a DB-5 (or equivalent) capillary column.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-($^{37}Cl_4$)tetrachlorodibenzo-*p*-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%. The individual native 2,3,7,8-substituted PCDD and PCDF congeners all have chemical purities of >98%; the other congeners (window defining and resolution testing) should only be considered semi-quantitative.

This current lot of CS3WT is to be used with the 1613 calibration solutions having the following lot numbers:

PRODUCT CODE	LOT NUMBER
EPA-1613CS1	13CS11021
EPA-1613CS2	13CS21021
EPA-1613CS3	13CS31021
EPA-1613CS4	13CS41021
EPA-1613CS5	13CS51021
EPA-1613CSL	13CSL1021
EPA-1613CS0.5	13CS0.51021

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INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) has been assigned to the quantitative components in this product. A maximum combined percent relative uncertainty of ±20% has been assigned to the semi-quantitative components in this product.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **CS3WT; Quantitative Components and Concentrations (ng/mL, ± 5%, in nonane/4.5% toluene)**

Compound		Acronym	CAS #	Concentration (ng/mL)
Native PCDDs:	**Designation[a]**			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin		2,3,7,8-TCDD	1746-01-6	10.0
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin		1,2,3,7,8-PeCDD	40321-76-4	50.0
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin		1,2,3,4,7,8-HxCDD	39227-28-6	50.0
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin		1,2,3,6,7,8-HxCDD	57653-85-7	50.0
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin	Last HxCDD[b]	1,2,3,7,8,9-HxCDD	19408-74-3	50.0
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin	Last HpCDD	1,2,3,4,6,7,8-HpCDD	35822-46-9	50.0
Octachlorodibenzo-*p*-dioxin		OCDD	3268-87-9	100
Native PCDFs:	**Designation[a]**			
2,3,7,8-Tetrachlorodibenzofuran		2,3,7,8-TCDF	51207-31-9	10.0
1,2,3,7,8-Pentachlorodibenzofuran		1,2,3,7,8-PeCDF	57117-41-6	50.0
2,3,4,7,8-Pentachlorodibenzofuran		2,3,4,7,8-PeCDF	57117-31-4	50.0
1,2,3,4,7,8-Hexachlorodibenzofuran		1,2,3,4,7,8-HxCDF	70648-26-9	50.0
1,2,3,6,7,8-Hexachlorodibenzofuran		1,2,3,6,7,8-HxCDF	57117-44-9	50.0
1,2,3,7,8,9-Hexachlorodibenzofuran		1,2,3,7,8,9-HxCDF	72918-21-9	50.0
2,3,4,6,7,8-Hexachlorodibenzofuran		2,3,4,6,7,8-HxCDF	60851-34-5	50.0
1,2,3,4,6,7,8-Heptachlorodibenzofuran	First HpCDF[c]	1,2,3,4,6,7,8-HpCDF	67562-39-4	50.0
1,2,3,4,7,8,9-Heptachlorodibenzofuran	Last HpCDF	1,2,3,4,7,8,9-HpCDF	55673-89-7	50.0
Octachlorodibenzofuran		OCDF	39001-02-0	100
Mass-Labelled PCDDs:				
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-2,3,7,8-TCDD	76523-40-5	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,7,8-PeCDD	109719-79-1	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	109719-80-4	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	109719-81-5	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	109719-83-7	100
Octachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-OCDD	114423-97-1	200
Mass-Labelled PCDFs:				
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,7,8-TCDF	89059-46-1	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,7,8-PeCDF	109719-77-9	100
2,3,4,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,4,7,8-PeCDF	116843-02-8	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	114423-98-2	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	116843-03-9	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	116843-04-0	100
2,3,4,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	116843-05-1	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	109719-84-8	100
1,2,3,4,7,8,9-Heptachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	109719-94-0	100
Cleanup Standard:				
2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin		$^{37}Cl_4$-2,3,7,8-TCDD	85508-50-5	10.0
Internal Standards:				
1,2,3,4-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4-TCDD	114423-99-3	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	109719-82-6	100

[a] First/Last eluting isomer for the specified homologue group (see Table B for additional Window Definers).
[b, c] – see Table B for footnote.

Table B: **CS3WT; Semi-Quantitative Components and Concentrations (ng/mL, ± 20%, in nonane/4.5% toluene)**

Compound		Acronym	CAS #	Concentration (ng/mL)
PCDD Window Definers:	**Designation[a]**			
1,3,6,8-Tetrachlorodibenzo-*p*-dioxin	First TCDD	1,3,6,8-TCDD	33423-92-6	10.0
1,2,8,9-Tetrachlorodibenzo-*p*-dioxin	Last TCDD	1,2,8,9-TCDD	62470-54-6	10.0
1,2,4,6,8-/1,2,4,7,9-Pentachlorodibenzo-*p*-dioxin	First PeCDD	1,2,4,6,8-PeCDD 1,2,4,7,9-PeCDD	71998-76-0 82291-37-0	50.0[d]
1,2,3,8,9-Pentachlorodibenzo-*p*-dioxin	Last PeCDD	1,2,3,8,9-PeCDD	71925-18-3	50.0
1,2,4,6,7,9-Hexachlorodibenzo-*p*-dioxin	First HxCDD	1,2,4,6,7,9-HxCDD	39227-62-8	50.0
1,2,3,4,6,7,9-Heptachlorodibenzo-*p*-dioxin	First HpCDD	1,2,3,4,6,7,9-HpCDD	58200-70-7	50.0
PCDF Window Definers:	**Designation[a]**			
1,3,6,8-Tetrachlorodibenzofuran	First TCDF	1,3,6,8-TCDF	71998-72-6	10.0
1,2,8,9-Tetrachlorodibenzofuran	Last TCDF	1,2,8,9-TCDF	70648-22-5	10.0
1,3,4,6,8-Pentachlorodibenzofuran	First PeCDF	1,3,4,6,8-PeCDF	83704-55-6	50.0
1,2,3,8,9-Pentachlorodibenzofuran	Last PeCDF	1,2,3,8,9-PeCDF	83704-54-5	50.0
1,2,3,4,6,8-Hexachlorodibenzofuran	First HxCDF	1,2,3,4,6,8-HxCDF	69698-60-8	50.0
2,3,7,8-TCDD Resolution Testing Isomers:				
1,2,3,4-Tetrachlorodibenzo-*p*-dioxin		1,2,3,4-TCDD	30746-58-8	5.00
1,2,3,7-/1,2,3,8-Tetrachlorodibenzo-*p*-dioxin		1,2,3,7-TCDD 1,2,3,8-TCDD	67028-18-6 53555-02-5	5.00[d]
1,2,3,9-Tetrachlorodibenzo-*p*-dioxin		1,2,3,9-TCDD	71669-26-6	10.0

[a] First/Last eluting isomer for the specified homologue group (see Table A for additional Window Definers).

[b] 1,2,3,4,6,7-HxCDD (last eluting HxCDD) not included; coelutes with 1,2,3,7,8,9-HxCDD on a 60 m DB-5 column. Use 1,2,3,7,8,9-HxCDD (see Table A) and 1,2,3,4,6,7,9-HpCDD to approximate the end of the HxCDD window.

[c] 1,2,3,4,8,9-HxCDF (last eluting HxCDF) not included; can interfere with 1,2,3,7,8,9-HxCDF on a 60 m DB-5 column. Use 1,2,3,4,6,7,8-HpCDF (see Table A) to approximate the end of the HxCDF window.

[d] Total concentration of isomers.

Certified By: _____ **Date:** 11/05/2021 (mm/dd/yyyy)

B.G. Chittim, General Manager

Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

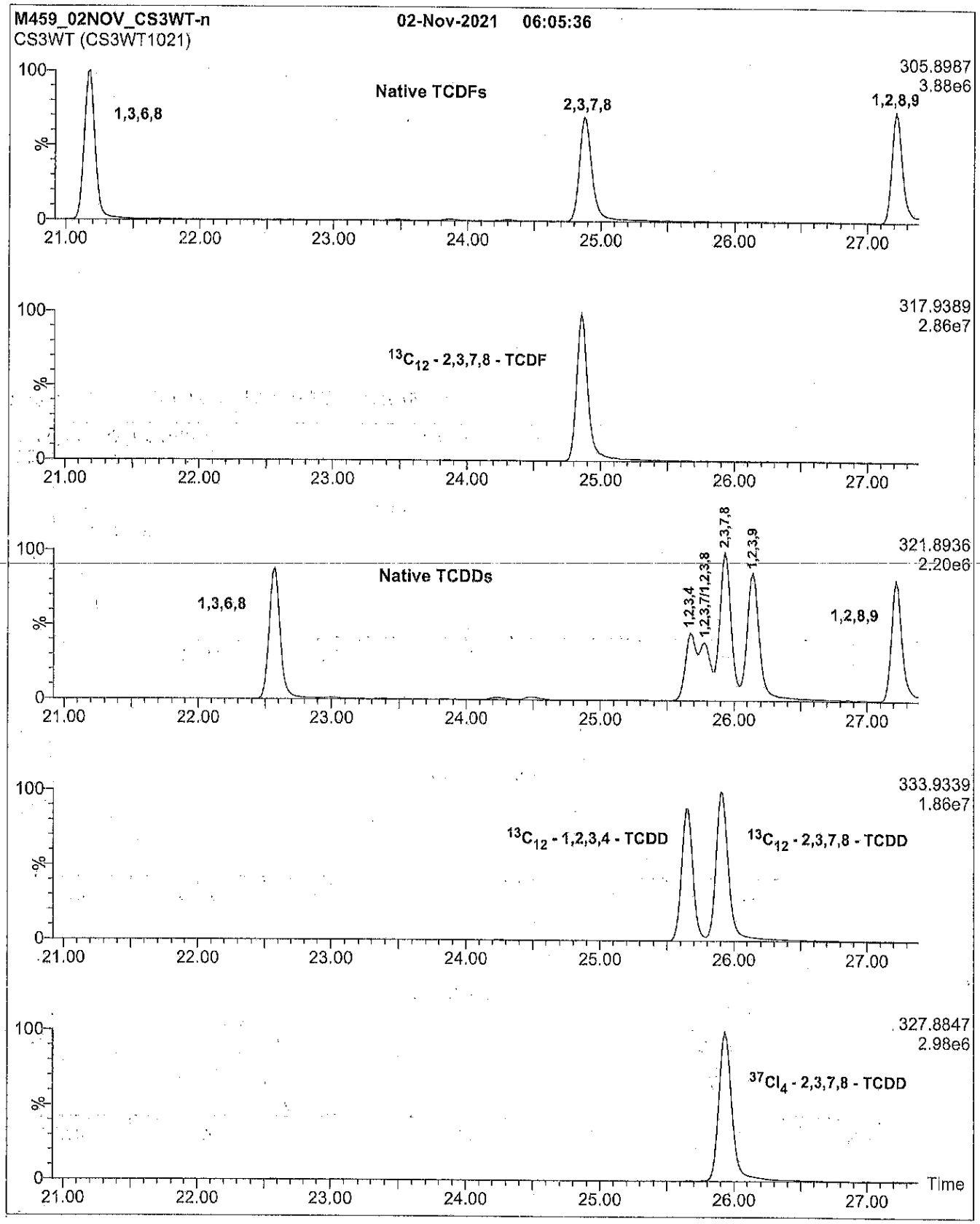


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

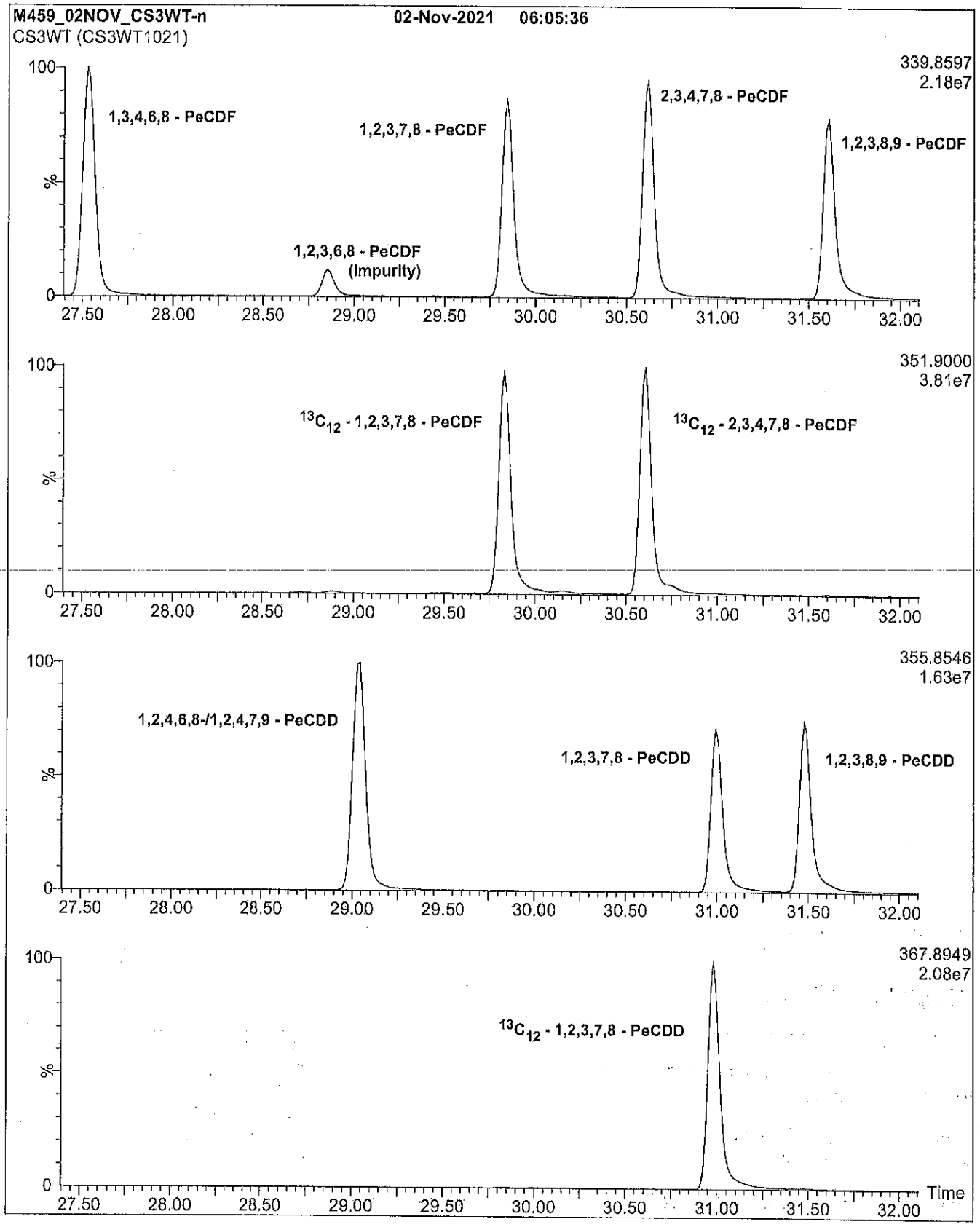


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

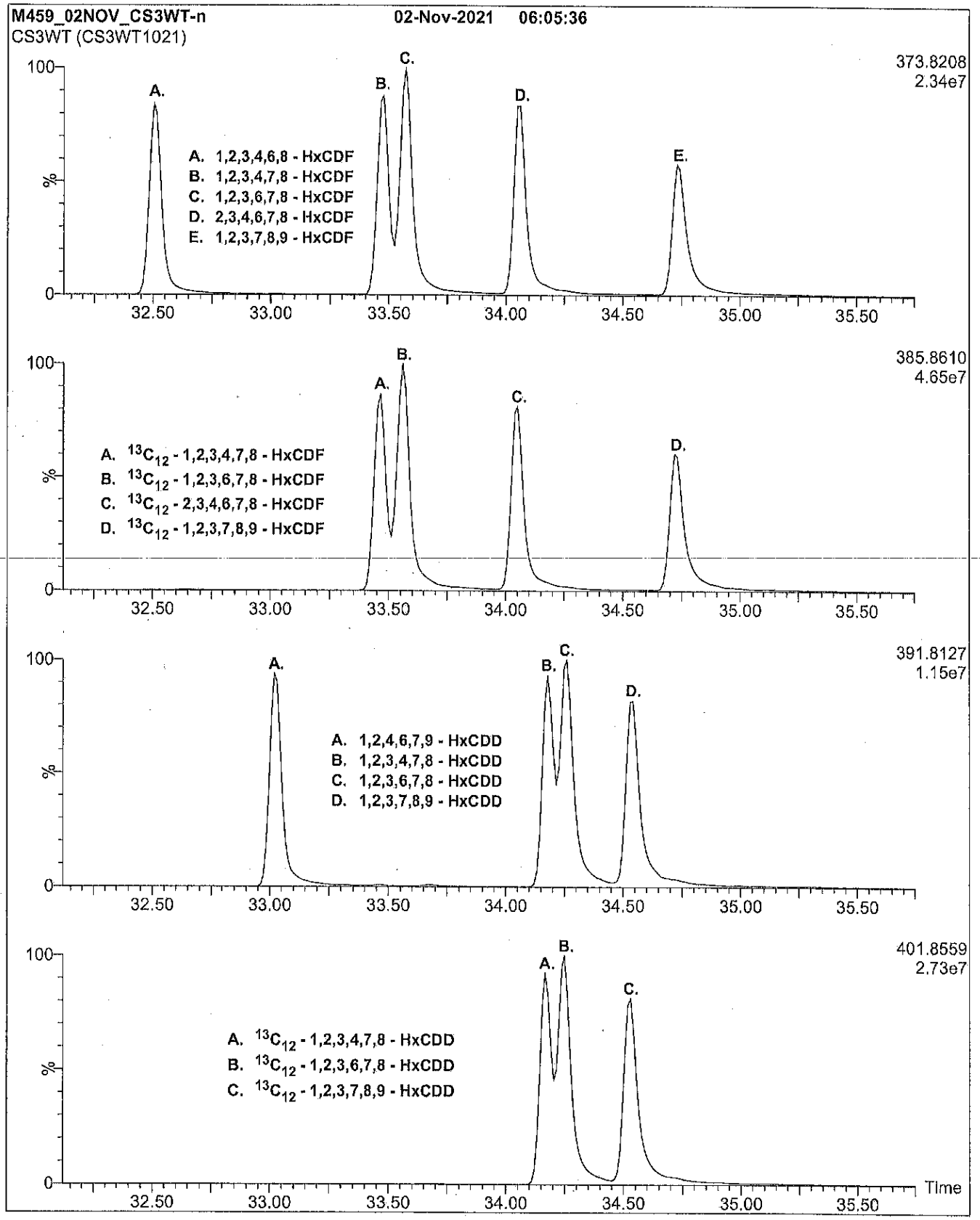


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

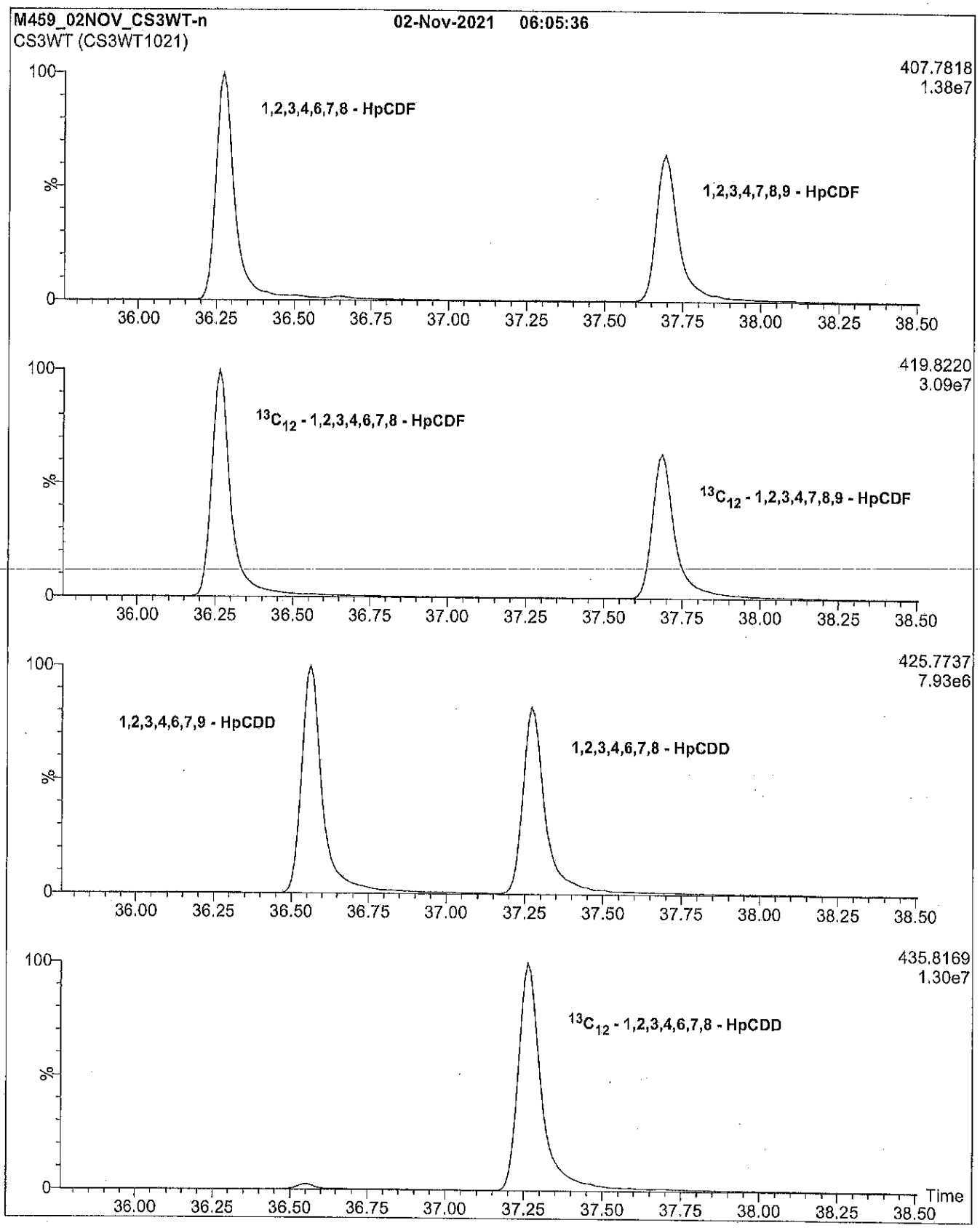
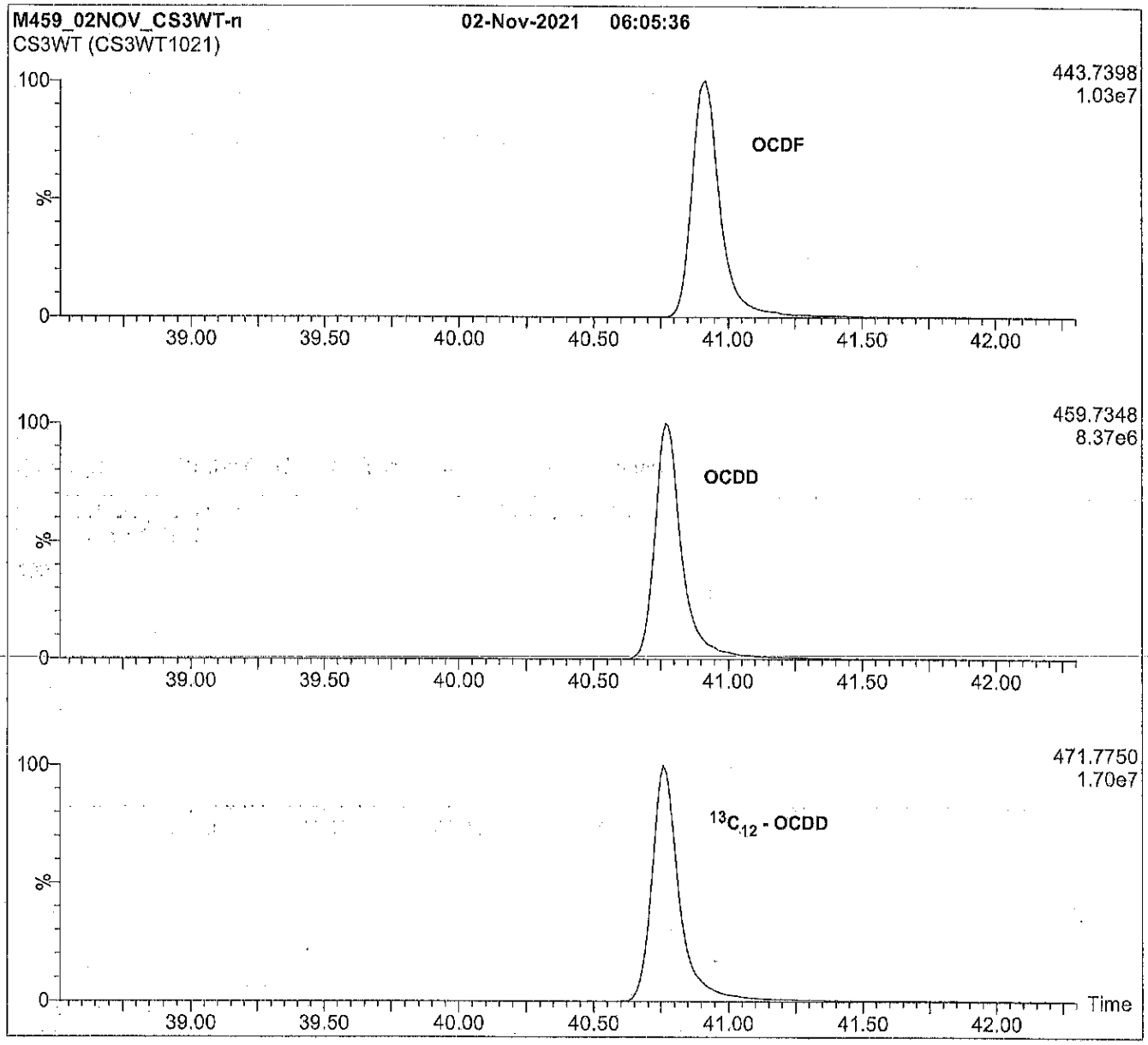


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Standard Record

Standard ID: L002084 **Printed: 3/2/2023 8:59:18AM**

Description:	Dioxin ISC Mix	Expires:	24-Feb-2024
Standard Type:	Other	Prepared:	24-Feb-2023
Solvent:	Nonane	Prepared By:	Peter Kepler
Final Volume (mls):	1	Department:	HRGCMS
Vials:	1	Last Edit:	24-Feb-2023 11:19 by PK
Vendor:	NA	Lot #:	1234
Vendor Catalog #:			

Comments

Stock: H9902: 2378-TCDF, 3467-TCDF, 2348-TCDF, 1278-TCDD, 2378-TCDD. each @ 1000 ng/mL

10 ul to 1 mL FV in Nonane. Final Conc = 10 ng/mL. Analytes and units not available in Element.

Analyte	CAS Number	Concentration	Units
2,3,7,8-TCDF	51207-31-9	10	ug/mL
2,3,7,8-TCDD	1746-01-6	10	ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

CS3WT

Calibration and Verification Solution (EPA-1613CS3) combined with Window Defining and 2,3,7,8-TCDD Resolution Testing Congeners

PRODUCT CODE:	CS3WT
LOT NUMBER:	CS3WT1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	11/01/2021
LAST TESTED: (mm/dd/yyyy)	11/02/2021
EXPIRY DATE: (mm/dd/yyyy)	11/02/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

LOO 6734

DESCRIPTION:

CS3WT is a solution/mixture of native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$) polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Tables A and B.

CS3WT is an HRGC/HRMS calibration solution that was designed and prepared to be used according to U.S. EPA Method 1613, Revision B, in place of EPA-1613CS3 (lot: 13CS31021). Additionally, it contains the PCDD and PCDF isomers required to set retention time windows as well as test and establish isomer specificity for 2,3,7,8-TCDD on a DB-5 (or equivalent) capillary column.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-($^{37}Cl_4$)tetrachlorodibenzo-*p*-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%. The individual native 2,3,7,8-substituted PCDD and PCDF congeners all have chemical purities of >98%; the other congeners (window defining and resolution testing) should only be considered semi-quantitative.

This current lot of CS3WT is to be used with the 1613 calibration solutions having the following lot numbers:

PRODUCT CODE	LOT NUMBER
EPA-1613CS1	13CS11021
EPA-1613CS2	13CS21021
EPA-1613CS3	13CS31021
EPA-1613CS4	13CS41021
EPA-1613CS5	13CS51021
EPA-1613CSL	13CSL1021
EPA-1613CS0.5	13CS0.51021

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Quantitative Components and Concentrations of the Solution/Mixture
Table B: Semi-Quantitative Components and Concentrations of the Solution/Mixture
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.
- Only the 2,3,7,8-substituted PCDDs and PCDFs should be used for quantitation. The other congeners (window defining and 2,3,7,8-TCDD resolution testing) should be considered semi-quantitative (within ±20% of their design value). Impurities have been identified where possible.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) has been assigned to the quantitative components in this product. A maximum combined percent relative uncertainty of ±20% has been assigned to the semi-quantitative components in this product.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **CS3WT; Quantitative Components and Concentrations (ng/mL, ± 5%, in nonane/4.5% toluene)**

Compound		Acronym	CAS #	Concentration (ng/mL)
Native PCDDs:	**Designation[a]**			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin		2,3,7,8-TCDD	1746-01-6	10.0
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin		1,2,3,7,8-PeCDD	40321-76-4	50.0
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin		1,2,3,4,7,8-HxCDD	39227-28-6	50.0
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin		1,2,3,6,7,8-HxCDD	57653-85-7	50.0
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin	Last HxCDD[b]	1,2,3,7,8,9-HxCDD	19408-74-3	50.0
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin	Last HpCDD	1,2,3,4,6,7,8-HpCDD	35822-46-9	50.0
Octachlorodibenzo-*p*-dioxin		OCDD	3268-87-9	100
Native PCDFs:	**Designation[a]**			
2,3,7,8-Tetrachlorodibenzofuran		2,3,7,8-TCDF	51207-31-9	10.0
1,2,3,7,8-Pentachlorodibenzofuran		1,2,3,7,8-PeCDF	57117-41-6	50.0
2,3,4,7,8-Pentachlorodibenzofuran		2,3,4,7,8-PeCDF	57117-31-4	50.0
1,2,3,4,7,8-Hexachlorodibenzofuran		1,2,3,4,7,8-HxCDF	70648-26-9	50.0
1,2,3,6,7,8-Hexachlorodibenzofuran		1,2,3,6,7,8-HxCDF	57117-44-9	50.0
1,2,3,7,8,9-Hexachlorodibenzofuran		1,2,3,7,8,9-HxCDF	72918-21-9	50.0
2,3,4,6,7,8-Hexachlorodibenzofuran		2,3,4,6,7,8-HxCDF	60851-34-5	50.0
1,2,3,4,6,7,8-Heptachlorodibenzofuran	First HpCDF[c]	1,2,3,4,6,7,8-HpCDF	67562-39-4	50.0
1,2,3,4,7,8,9-Heptachlorodibenzofuran	Last HpCDF	1,2,3,4,7,8,9-HpCDF	55673-89-7	50.0
Octachlorodibenzofuran		OCDF	39001-02-0	100
Mass-Labelled PCDDs:				
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-2,3,7,8-TCDD	76523-40-5	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,7,8-PeCDD	109719-79-1	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	109719-80-4	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	109719-81-5	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	109719-83-7	100
Octachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-OCDD	114423-97-1	200
Mass-Labelled PCDFs:				
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,7,8-TCDF	89059-46-1	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,7,8-PeCDF	109719-77-9	100
2,3,4,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,4,7,8-PeCDF	116843-02-8	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	114423-98-2	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	116843-03-9	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	116843-04-0	100
2,3,4,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	116843-05-1	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	109719-84-8	100
1,2,3,4,7,8,9-Heptachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	109719-94-0	100
Cleanup Standard:				
2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin		$^{37}Cl_4$-2,3,7,8-TCDD	85508-50-5	10.0
Internal Standards:				
1,2,3,4-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4-TCDD	114423-99-3	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	109719-82-6	100

[a] First/Last eluting isomer for the specified homologue group (see Table B for additional Window Definers).
[b, c] – see Table B for footnote.

Table B: **CS3WT; Semi-Quantitative Components and Concentrations (ng/mL, ± 20%, in nonane/4.5% toluene)**

Compound		Acronym	CAS #	Concentration (ng/mL)
PCDD Window Definers:	**Designation[a]**			
1,3,6,8-Tetrachlorodibenzo-*p*-dioxin	First TCDD	1,3,6,8-TCDD	33423-92-6	10.0
1,2,8,9-Tetrachlorodibenzo-*p*-dioxin	Last TCDD	1,2,8,9-TCDD	62470-54-6	10.0
1,2,4,6,8-/1,2,4,7,9-Pentachlorodibenzo-*p*-dioxin	First PeCDD	1,2,4,6,8-PeCDD 1,2,4,7,9-PeCDD	71998-76-0 82291-37-0	50.0[d]
1,2,3,8,9-Pentachlorodibenzo-*p*-dioxin	Last PeCDD	1,2,3,8,9-PeCDD	71925-18-3	50.0
1,2,4,6,7,9-Hexachlorodibenzo-*p*-dioxin	First HxCDD	1,2,4,6,7,9-HxCDD	39227-62-8	50.0
1,2,3,4,6,7,9-Heptachlorodibenzo-*p*-dioxin	First HpCDD	1,2,3,4,6,7,9-HpCDD	58200-70-7	50.0
PCDF Window Definers:	**Designation[a]**			
1,3,6,8-Tetrachlorodibenzofuran	First TCDF	1,3,6,8-TCDF	71998-72-6	10.0
1,2,8,9-Tetrachlorodibenzofuran	Last TCDF	1,2,8,9-TCDF	70648-22-5	10.0
1,3,4,6,8-Pentachlorodibenzofuran	First PeCDF	1,3,4,6,8-PeCDF	83704-55-6	50.0
1,2,3,8,9-Pentachlorodibenzofuran	Last PeCDF	1,2,3,8,9-PeCDF	83704-54-5	50.0
1,2,3,4,6,8-Hexachlorodibenzofuran	First HxCDF	1,2,3,4,6,8-HxCDF	69698-60-8	50.0
2,3,7,8-TCDD Resolution Testing Isomers:				
1,2,3,4-Tetrachlorodibenzo-*p*-dioxin		1,2,3,4-TCDD	30746-58-8	5.00
1,2,3,7-/1,2,3,8-Tetrachlorodibenzo-*p*-dioxin		1,2,3,7-TCDD 1,2,3,8-TCDD	67028-18-6 53555-02-5	5.00[d]
1,2,3,9-Tetrachlorodibenzo-*p*-dioxin		1,2,3,9-TCDD	71669-26-6	10.0

[a] First/Last eluting isomer for the specified homologue group (see Table A for additional Window Definers).

[b] 1,2,3,4,6,7-HxCDD (last eluting HxCDD) not included; coelutes with 1,2,3,7,8,9-HxCDD on a 60 m DB-5 column. Use 1,2,3,7,8,9-HxCDD (see Table A) and 1,2,3,4,6,7,9-HpCDD to approximate the end of the HxCDD window.

[c] 1,2,3,4,8,9-HxCDF (last eluting HxCDF) not included; can interfere with 1,2,3,7,8,9-HxCDF on a 60 m DB-5 column. Use 1,2,3,4,6,7,8-HpCDF (see Table A) to approximate the end of the HxCDF window.

[d] Total concentration of isomers.

Certified By: _____ **Date:** 11/05/2021 (mm/dd/yyyy)

B.G. Chittim, General Manager

Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

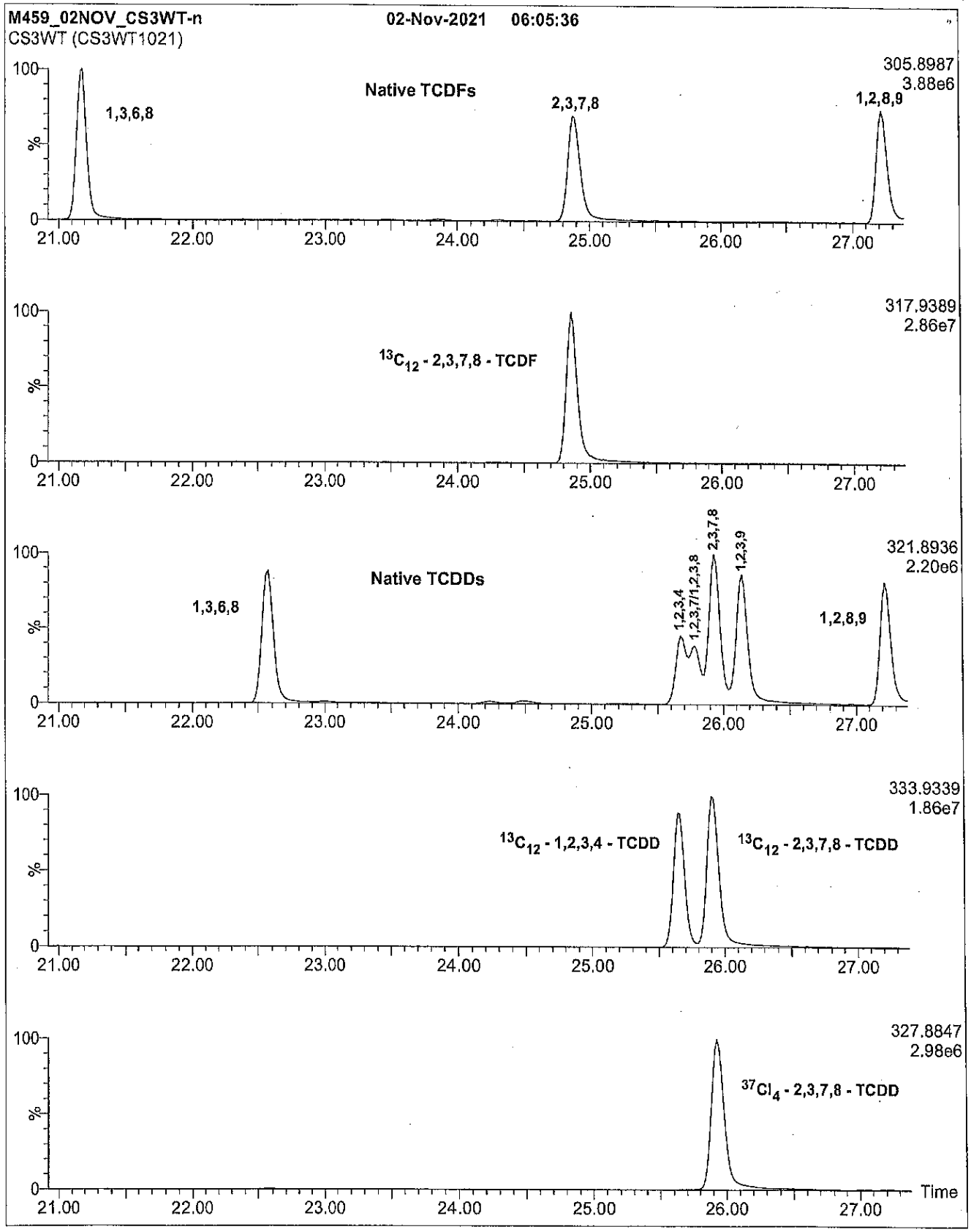


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

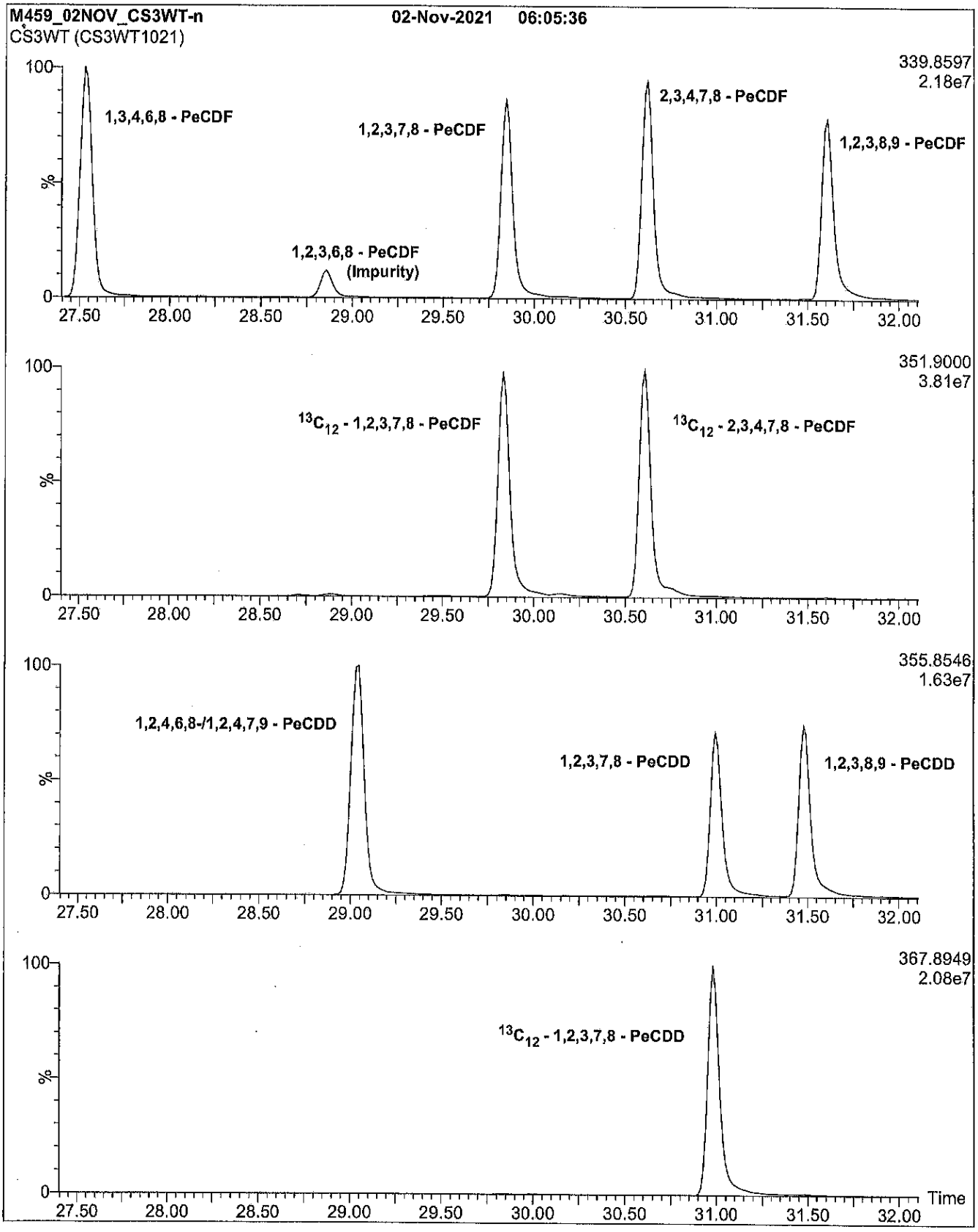


Figure 1: CS3WT; HRGC/HRMS Data (60 m DB-5 Column)

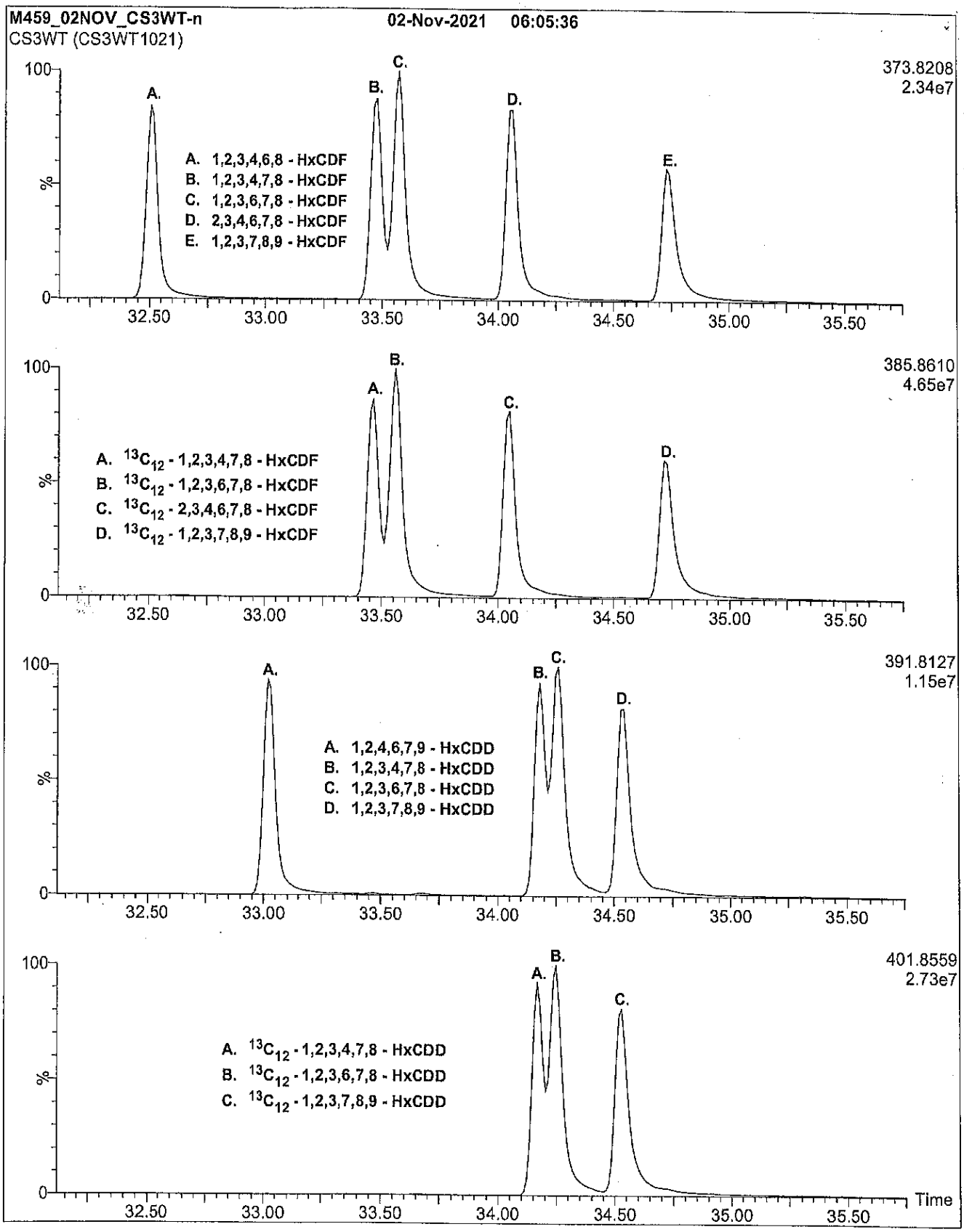


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

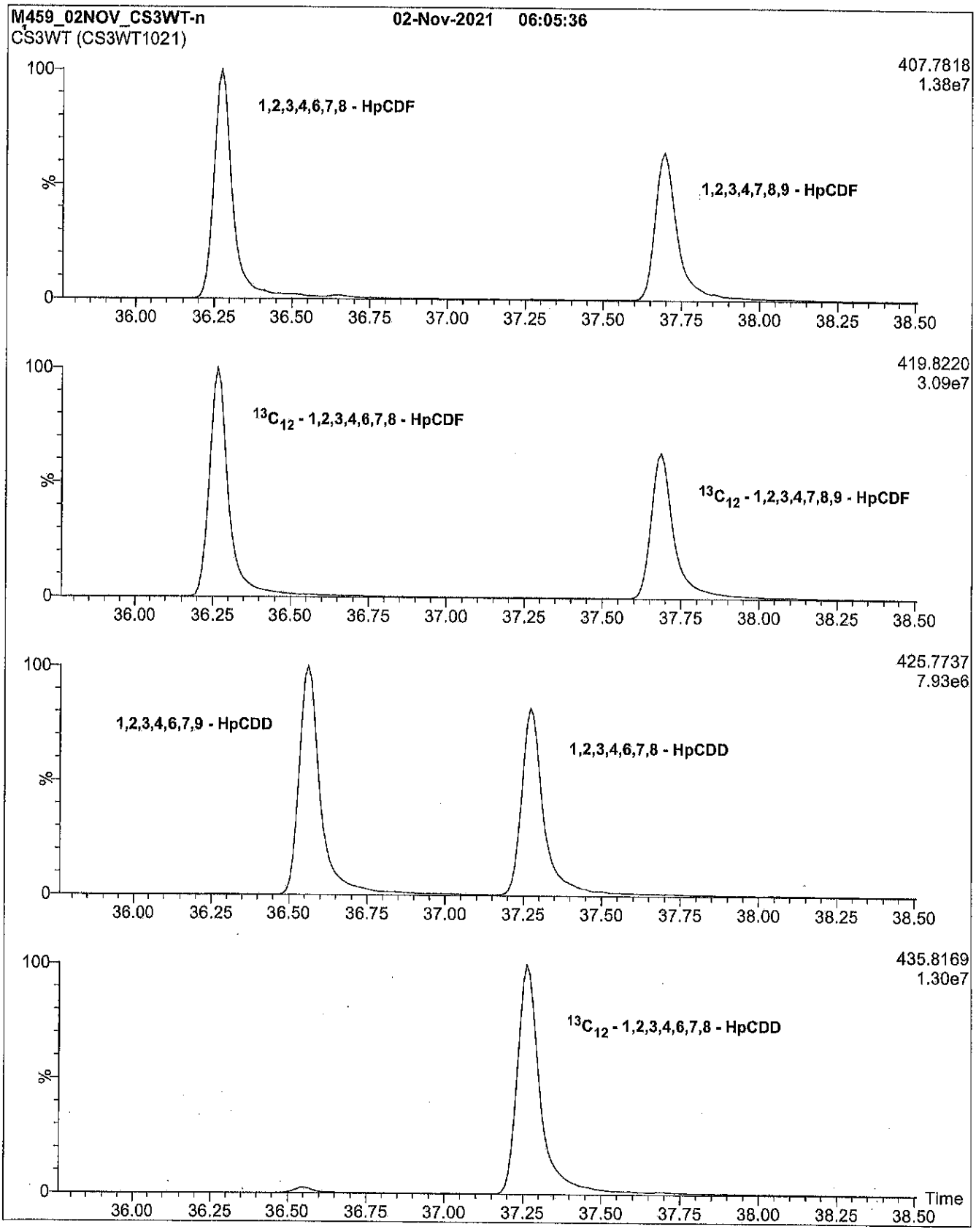
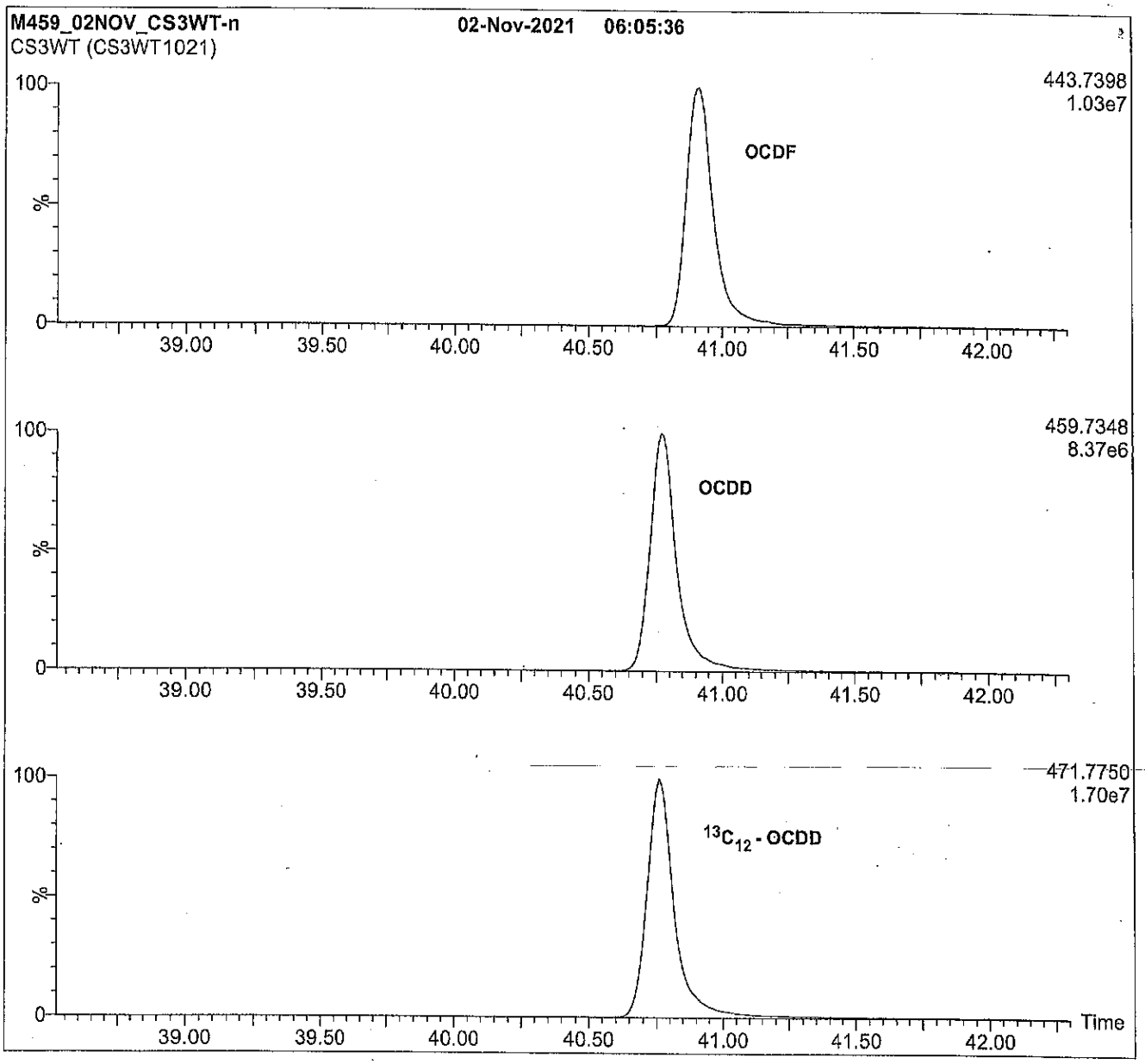


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613LCS

U.S. EPA Method 1613
Labelled Compound Stock Solution

PRODUCT CODE:	EPA-1613LCS
LOT NUMBER:	13LCS1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/29/2021
LAST TESTED: (mm/dd/yyyy)	10/31/2021
EXPIRY DATE: (mm/dd/yyyy)	10/31/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

L 10372

DESCRIPTION:

EPA-1613LCS is a solution/mixture of mass-labelled ($^{13}C_{12}$) polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

EPA-1613LCS was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613LCS; Components and Concentrations (ng/mL, ± 5% in nonane/3.2% toluene)**

Compound	Acronym	CAS #	Concentration (ng/mL)
Mass-Labelled PCDDs:			
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-2,3,7,8-TCDD	76523-40-5	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,7,8-PeCDD	109719-79-1	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	109719-80-4	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	109719-81-5	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	109719-83-7	100
Octachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-OCDD	114423-97-1	200
Mass-Labelled PCDFs:			
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-2,3,7,8-TCDF	89059-46-1	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,7,8-PeCDF	109719-77-9	100
2,3,4,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-2,3,4,7,8-PeCDF	116843-02-8	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	114423-98-2	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	116843-03-9	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	116843-04-0	100
2,3,4,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	116843-05-1	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	109719-84-8	100
1,2,3,4,7,8,9-Heptachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	109719-94-0	100

Certified By: _____ **Date:** 11/05/2021
(mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

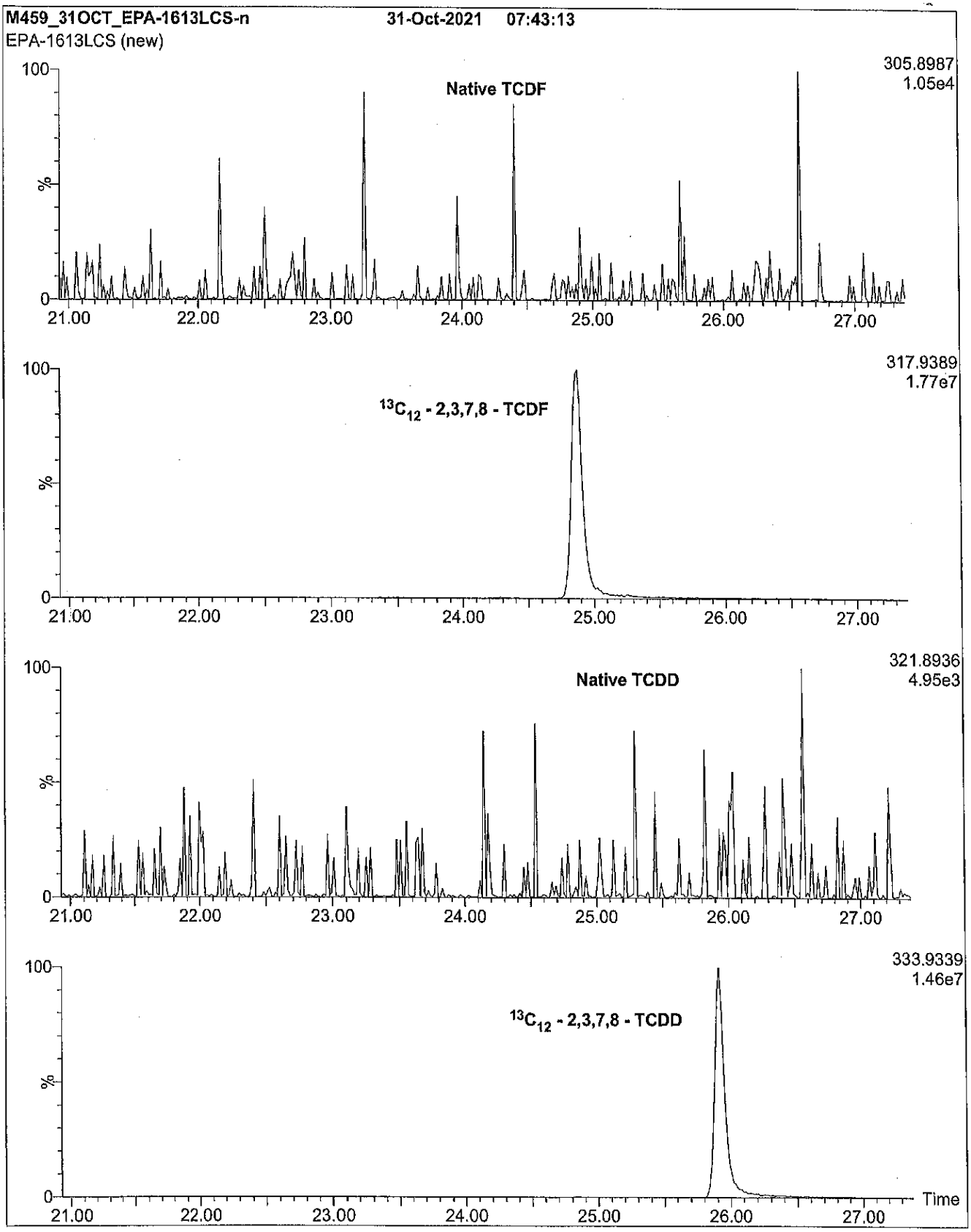


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

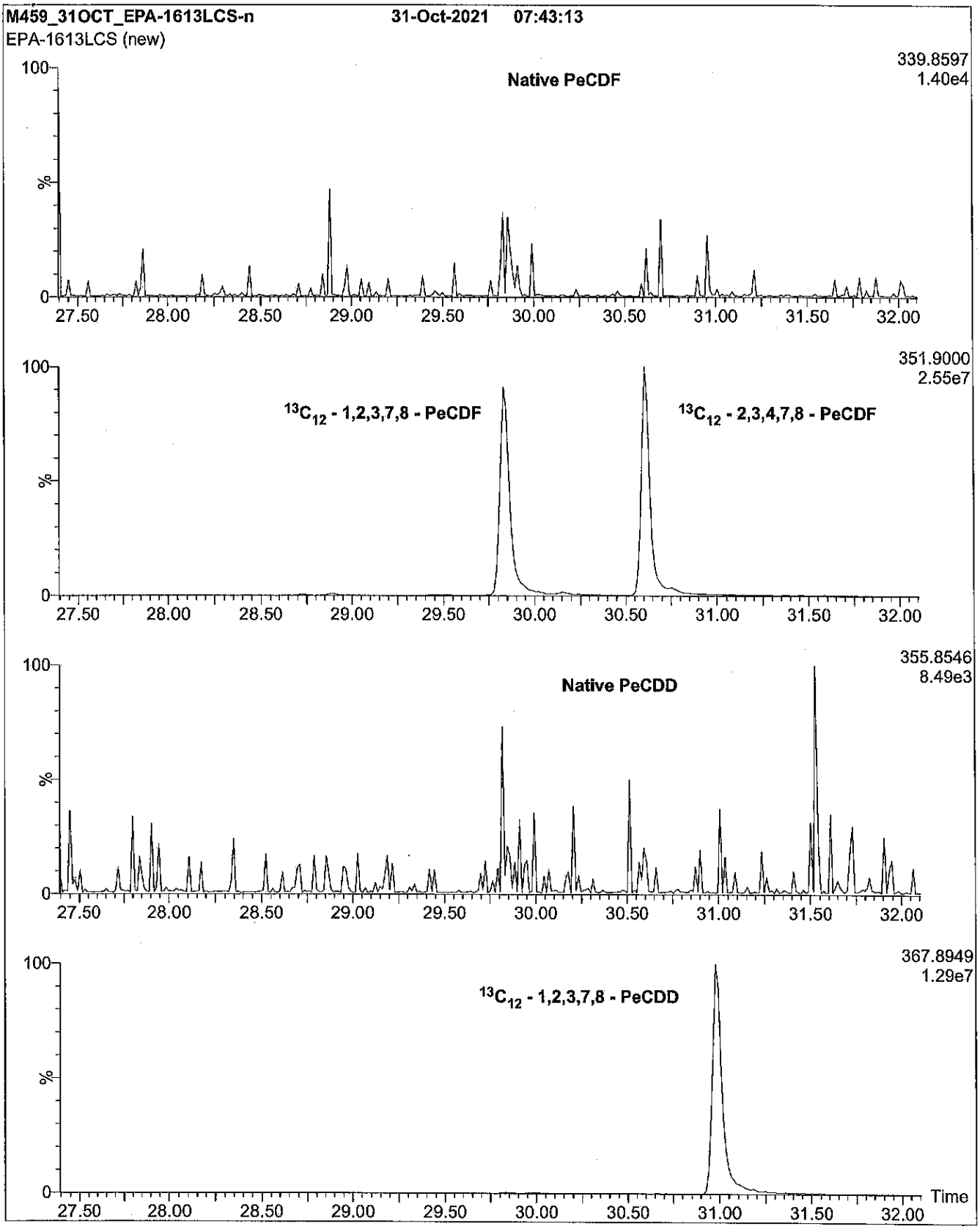


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

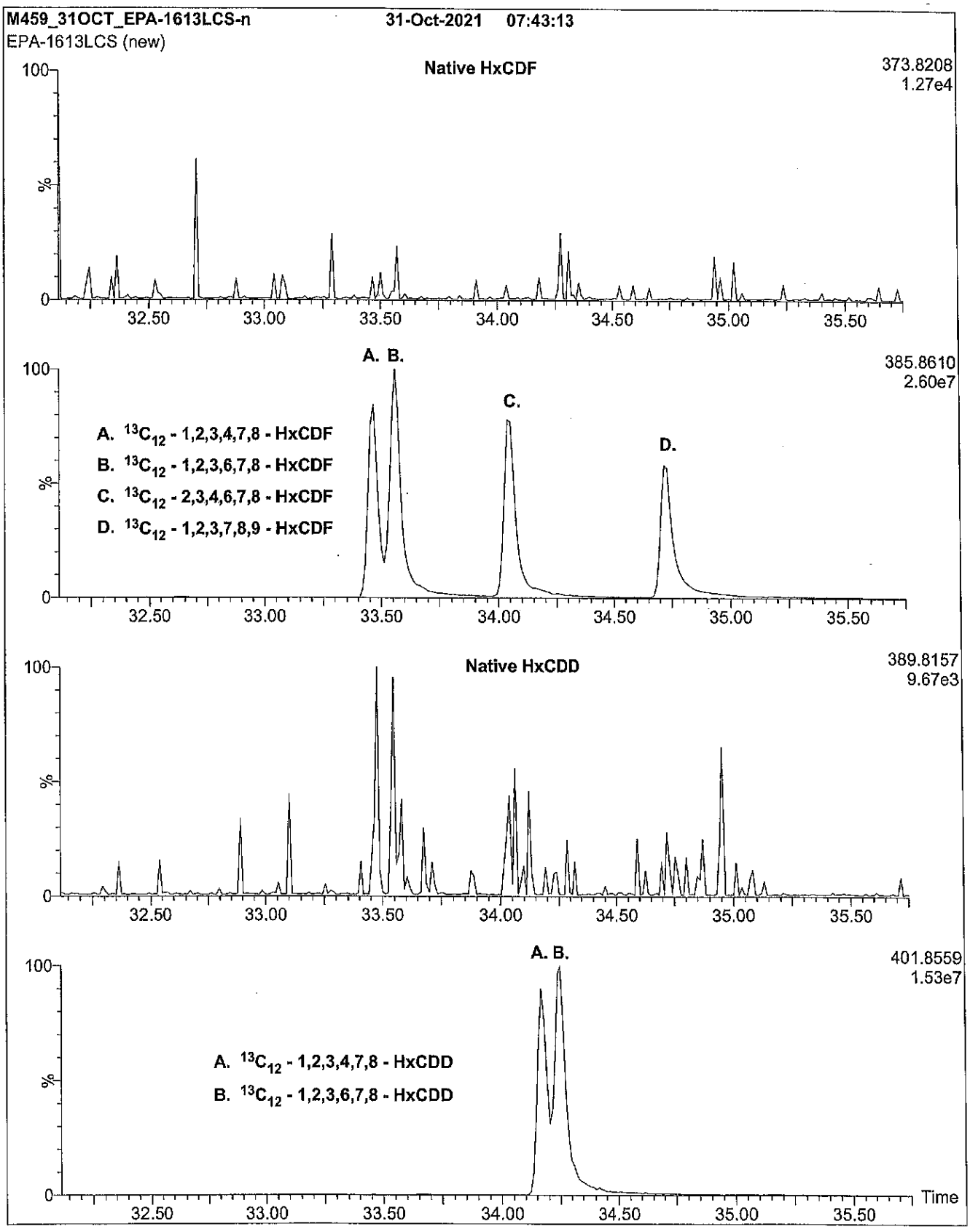


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

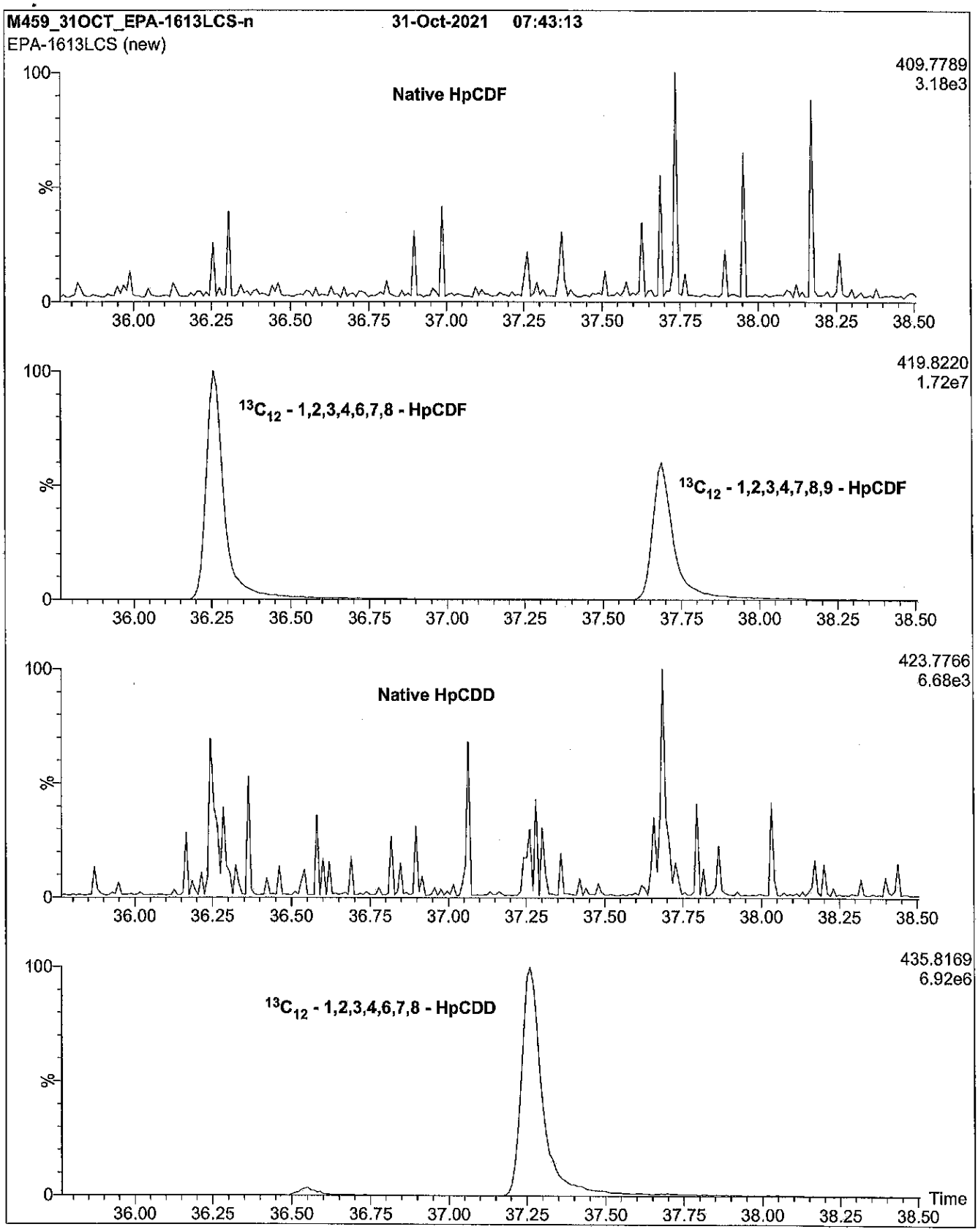
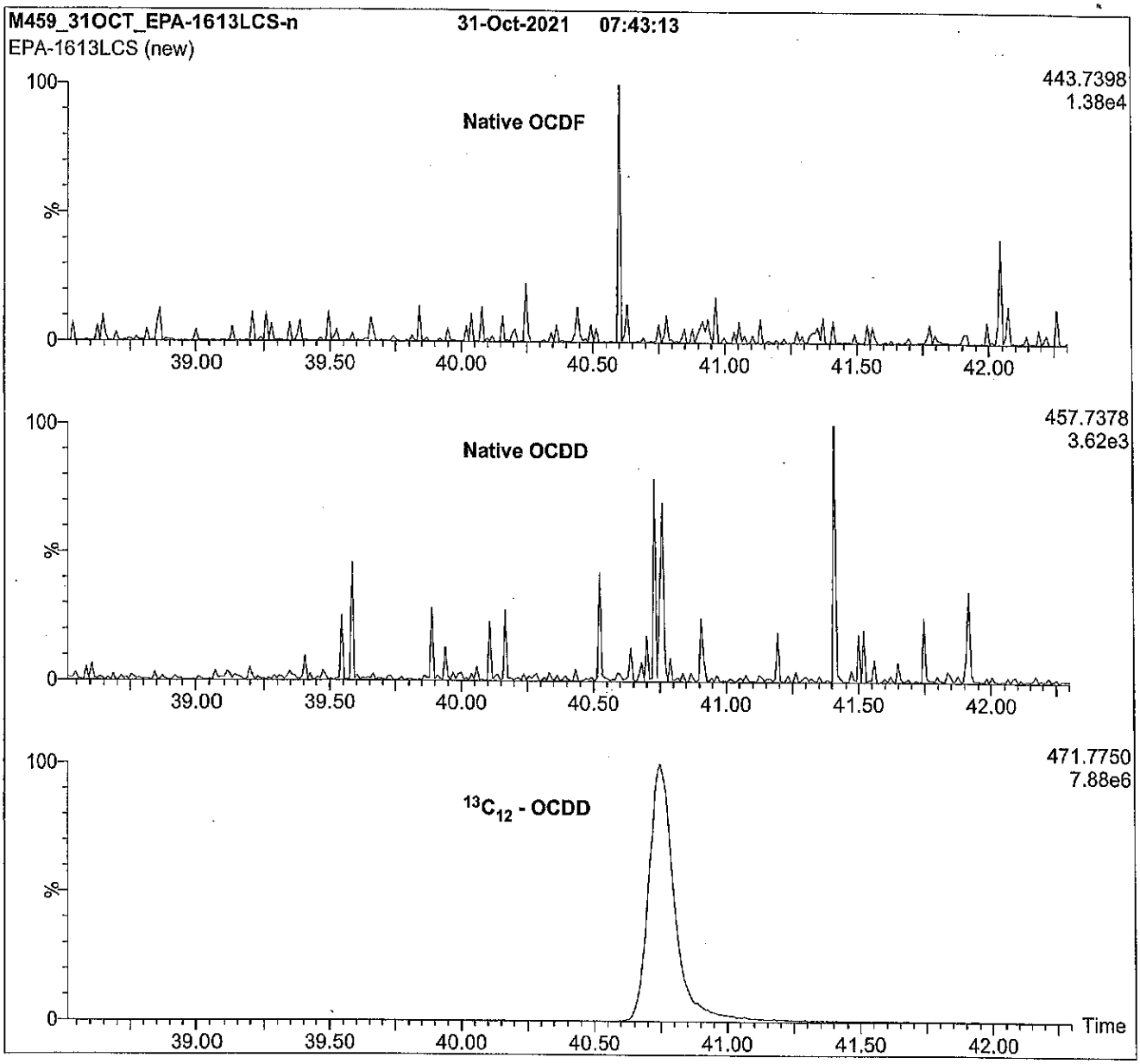


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

EPA-1613CSS

U.S. EPA Method 1613 Cleanup Standard Spiking Solution

PRODUCT CODE:	EPA-1613CSS
LOT NUMBER:	13CSS1021
SOLVENT(S):	Nonane
DATE PREPARED: (mm/dd/yyyy)	10/29/2021
LAST TESTED: (mm/dd/yyyy)	10/31/2021
EXPIRY DATE: (mm/dd/yyyy)	10/31/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

L 10373

DESCRIPTION:

EPA-1613CSS contains 2,3,7,8-($^{37}Cl_4$)tetrachlorodibenzo-*p*-dioxin at the concentration given in Table A.

EPA-1613CSS was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

Table A: EPA-1613CSS; Components and Concentrations (ng/mL, ± 5% in nonane)

Compound	Acronym	CAS #	Concentration (ng/mL)
2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin	$^{37}Cl_4$-2,3,7,8-TCDD	85508-50-5	40.0

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/05/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

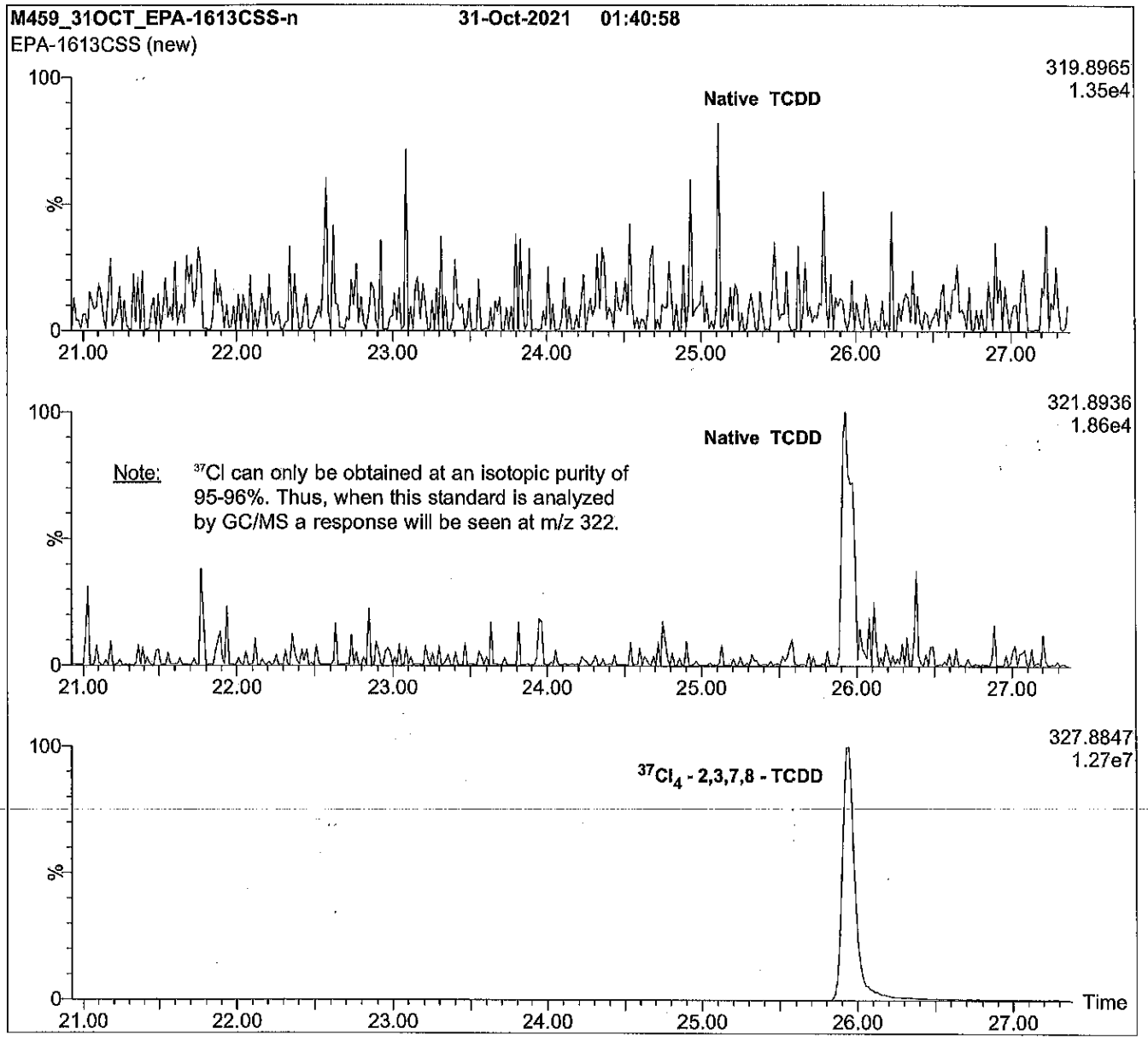
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **EPA-1613CSS; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Standard Record

Standard ID: L013640

Printed: 1/10/2024 1:53:03PM

Description:	Dioxin ISC Mix	Expires:	27-Nov-2024
Standard Type:	Other	Prepared:	27-Nov-2023
Solvent:	Nonane	Prepared By:	Peter Kepler
Final Volume (mls):	1	Department:	HRGCMS
Vials:	1	Last Edit:	27-Nov-2023 10:51 by PK
Vendor:	NA	Lot #:	1234
Vendor Catalog #:			

Comments

Stock: H9902: 2378-TCDF, 3467-TCDF, 2348-TCDF, 1278-TCDD, 2378-TCDD. each @ 1000 ng/mL

10 ul to 1 mL FV in Nonane. Final Conc = 10 ng/mL. Analytes and units not available in Element.

Analyte	CAS Number	Concentration	Units
2,3,7,8-TCDF	51207-31-9	10	ug/mL
2,3,7,8-TCDD	1746-01-6	10	ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

CS3WT

Calibration and Verification Solution (EPA-1613CS3) combined with Window Defining and 2,3,7,8-TCDD Resolution Testing Congeners

PRODUCT CODE:	CS3WT
LOT NUMBER:	CS3WT1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	11/01/2021
LAST TESTED: (mm/dd/yyyy)	11/02/2021
EXPIRY DATE: (mm/dd/yyyy)	11/02/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

L13952

DESCRIPTION:

CS3WT is a solution/mixture of native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$) polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Tables A and B.

CS3WT is an HRGC/HRMS calibration solution that was designed and prepared to be used according to U.S. EPA Method 1613, Revision B, in place of EPA-1613CS3 (lot: 13CS31021). Additionally, it contains the PCDD and PCDF isomers required to set retention time windows as well as test and establish isomer specificity for 2,3,7,8-TCDD on a DB-5 (or equivalent) capillary column.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-($^{37}Cl_4$)tetrachlorodibenzo-*p*-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%. The individual native 2,3,7,8-substituted PCDD and PCDF congeners all have chemical purities of >98%; the other congeners (window defining and resolution testing) should only be considered semi-quantitative.

This current lot of CS3WT is to be used with the 1613 calibration solutions having the following lot numbers:

PRODUCT CODE	LOT NUMBER
EPA-1613CS1	13CS11021
EPA-1613CS2	13CS21021
EPA-1613CS3	13CS31021
EPA-1613CS4	13CS41021
EPA-1613CS5	13CS51021
EPA-1613CSL	13CSL1021
EPA-1613CS0.5	13CS0.51021

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Quantitative Components and Concentrations of the Solution/Mixture
Table B: Semi-Quantitative Components and Concentrations of the Solution/Mixture
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.
- Only the 2,3,7,8-substituted PCDDs and PCDFs should be used for quantitation. The other congeners (window defining and 2,3,7,8-TCDD resolution testing) should be considered semi-quantitative (within ±20% of their design value). Impurities have been identified where possible.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) has been assigned to the quantitative components in this product. A maximum combined percent relative uncertainty of ±20% has been assigned to the semi-quantitative components in this product.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **CS3WT; Quantitative Components and Concentrations (ng/mL, ± 5%, in nonane/4.5% toluene)**

Compound		Acronym	CAS #	Concentration (ng/mL)
Native PCDDs:	**Designation[a]**			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin		2,3,7,8-TCDD	1746-01-6	10.0
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin		1,2,3,7,8-PeCDD	40321-76-4	50.0
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin		1,2,3,4,7,8-HxCDD	39227-28-6	50.0
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin		1,2,3,6,7,8-HxCDD	57653-85-7	50.0
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin	Last HxCDD[b]	1,2,3,7,8,9-HxCDD	19408-74-3	50.0
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin	Last HpCDD	1,2,3,4,6,7,8-HpCDD	35822-46-9	50.0
Octachlorodibenzo-*p*-dioxin		OCDD	3268-87-9	100
Native PCDFs:	**Designation[a]**			
2,3,7,8-Tetrachlorodibenzofuran		2,3,7,8-TCDF	51207-31-9	10.0
1,2,3,7,8-Pentachlorodibenzofuran		1,2,3,7,8-PeCDF	57117-41-6	50.0
2,3,4,7,8-Pentachlorodibenzofuran		2,3,4,7,8-PeCDF	57117-31-4	50.0
1,2,3,4,7,8-Hexachlorodibenzofuran		1,2,3,4,7,8-HxCDF	70648-26-9	50.0
1,2,3,6,7,8-Hexachlorodibenzofuran		1,2,3,6,7,8-HxCDF	57117-44-9	50.0
1,2,3,7,8,9-Hexachlorodibenzofuran		1,2,3,7,8,9-HxCDF	72918-21-9	50.0
2,3,4,6,7,8-Hexachlorodibenzofuran		2,3,4,6,7,8-HxCDF	60851-34-5	50.0
1,2,3,4,6,7,8-Heptachlorodibenzofuran	First HpCDF[c]	1,2,3,4,6,7,8-HpCDF	67562-39-4	50.0
1,2,3,4,7,8,9-Heptachlorodibenzofuran	Last HpCDF	1,2,3,4,7,8,9-HpCDF	55673-89-7	50.0
Octachlorodibenzofuran		OCDF	39001-02-0	100
Mass-Labelled PCDDs:				
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-2,3,7,8-TCDD	76523-40-5	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,7,8-PeCDD	109719-79-1	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	109719-80-4	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	109719-81-5	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	109719-83-7	100
Octachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-OCDD	114423-97-1	200
Mass-Labelled PCDFs:				
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,7,8-TCDF	89059-46-1	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,7,8-PeCDF	109719-77-9	100
2,3,4,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,4,7,8-PeCDF	116843-02-8	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	114423-98-2	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	116843-03-9	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	116843-04-0	100
2,3,4,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	116843-05-1	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	109719-84-8	100
1,2,3,4,7,8,9-Heptachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	109719-94-0	100
Cleanup Standard:				
2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin		$^{37}Cl_4$-2,3,7,8-TCDD	85508-50-5	10.0
Internal Standards:				
1,2,3,4-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4-TCDD	114423-99-3	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	109719-82-6	100

[a] First/Last eluting isomer for the specified homologue group (see Table B for additional Window Definers).
[b, c] – see Table B for footnote.

Table B: **CS3WT; Semi-Quantitative Components and Concentrations (ng/mL, ± 20%, in nonane/4.5% toluene)**

Compound		Acronym	CAS #	Concentration (ng/mL)
PCDD Window Definers:	**Designation[a]**			
1,3,6,8-Tetrachlorodibenzo-*p*-dioxin	First TCDD	1,3,6,8-TCDD	33423-92-6	10.0
1,2,8,9-Tetrachlorodibenzo-*p*-dioxin	Last TCDD	1,2,8,9-TCDD	62470-54-6	10.0
1,2,4,6,8-/1,2,4,7,9-Pentachlorodibenzo-*p*-dioxin	First PeCDD	1,2,4,6,8-PeCDD 1,2,4,7,9-PeCDD	71998-76-0 82291-37-0	50.0[d]
1,2,3,8,9-Pentachlorodibenzo-*p*-dioxin	Last PeCDD	1,2,3,8,9-PeCDD	71925-18-3	50.0
1,2,4,6,7,9-Hexachlorodibenzo-*p*-dioxin	First HxCDD	1,2,4,6,7,9-HxCDD	39227-62-8	50.0
1,2,3,4,6,7,9-Heptachlorodibenzo-*p*-dioxin	First HpCDD	1,2,3,4,6,7,9-HpCDD	58200-70-7	50.0
PCDF Window Definers:	**Designation[a]**			
1,3,6,8-Tetrachlorodibenzofuran	First TCDF	1,3,6,8-TCDF	71998-72-6	10.0
1,2,8,9-Tetrachlorodibenzofuran	Last TCDF	1,2,8,9-TCDF	70648-22-5	10.0
1,3,4,6,8-Pentachlorodibenzofuran	First PeCDF	1,3,4,6,8-PeCDF	83704-55-6	50.0
1,2,3,8,9-Pentachlorodibenzofuran	Last PeCDF	1,2,3,8,9-PeCDF	83704-54-5	50.0
1,2,3,4,6,8-Hexachlorodibenzofuran	First HxCDF	1,2,3,4,6,8-HxCDF	69698-60-8	50.0
2,3,7,8-TCDD Resolution Testing Isomers:				
1,2,3,4-Tetrachlorodibenzo-*p*-dioxin		1,2,3,4-TCDD	30746-58-8	5.00
1,2,3,7-/1,2,3,8-Tetrachlorodibenzo-*p*-dioxin		1,2,3,7-TCDD 1,2,3,8-TCDD	67028-18-6 53555-02-5	5.00[d]
1,2,3,9-Tetrachlorodibenzo-*p*-dioxin		1,2,3,9-TCDD	71669-26-6	10.0

[a] First/Last eluting isomer for the specified homologue group (see Table A for additional Window Definers).

[b] 1,2,3,4,6,7-HxCDD (last eluting HxCDD) not included; coelutes with 1,2,3,7,8,9-HxCDD on a 60 m DB-5 column. Use 1,2,3,7,8,9-HxCDD (see Table A) and 1,2,3,4,6,7,9-HpCDD to approximate the end of the HxCDD window.

[c] 1,2,3,4,8,9-HxCDF (last eluting HxCDF) not included; can interfere with 1,2,3,7,8,9-HxCDF on a 60 m DB-5 column. Use 1,2,3,4,6,7,8-HpCDF (see Table A) to approximate the end of the HxCDF window.

[d] Total concentration of isomers.

Certified By: _____ **Date:** 11/05/2021 (mm/dd/yyyy)

B.G. Chittim, General Manager

Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

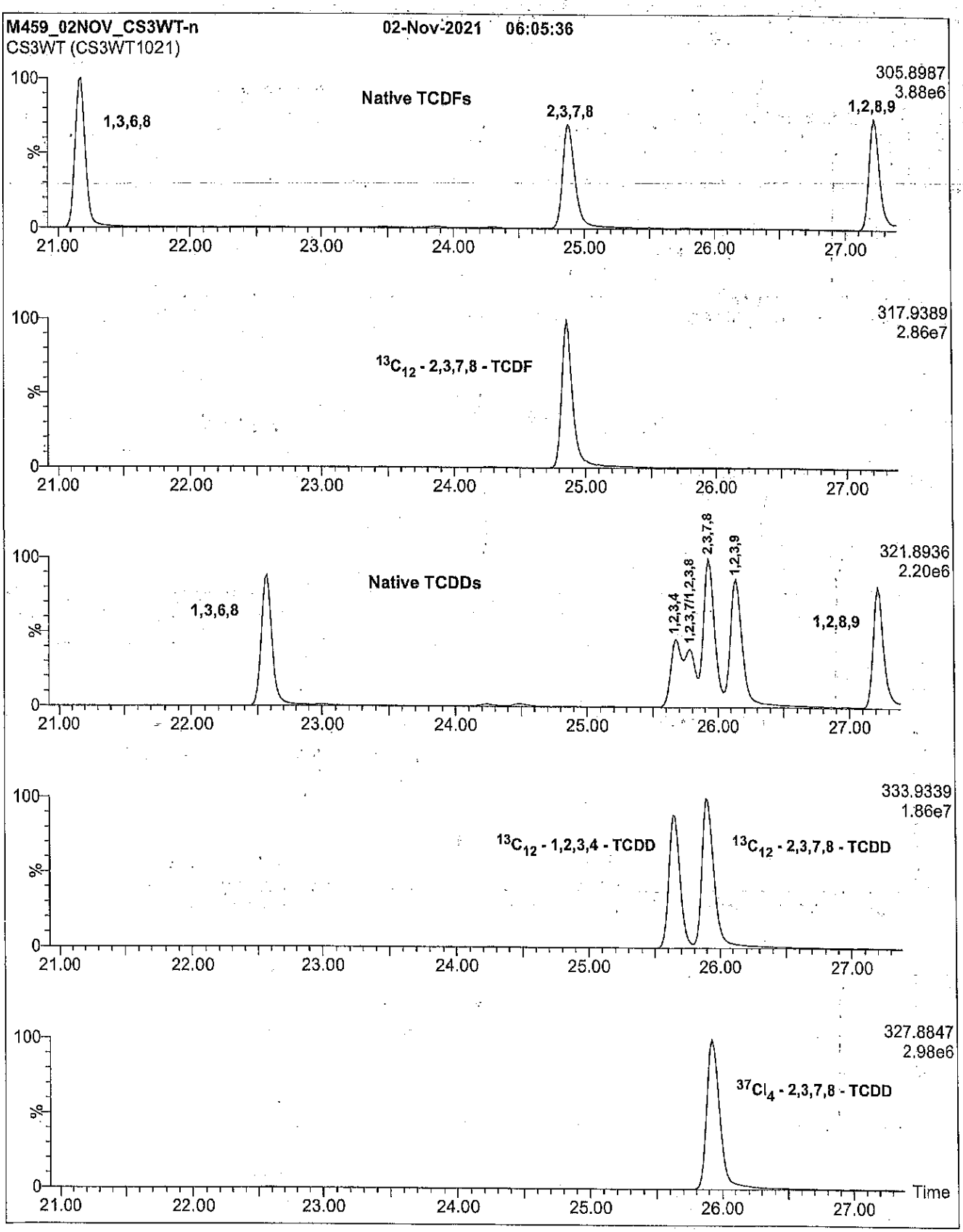


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

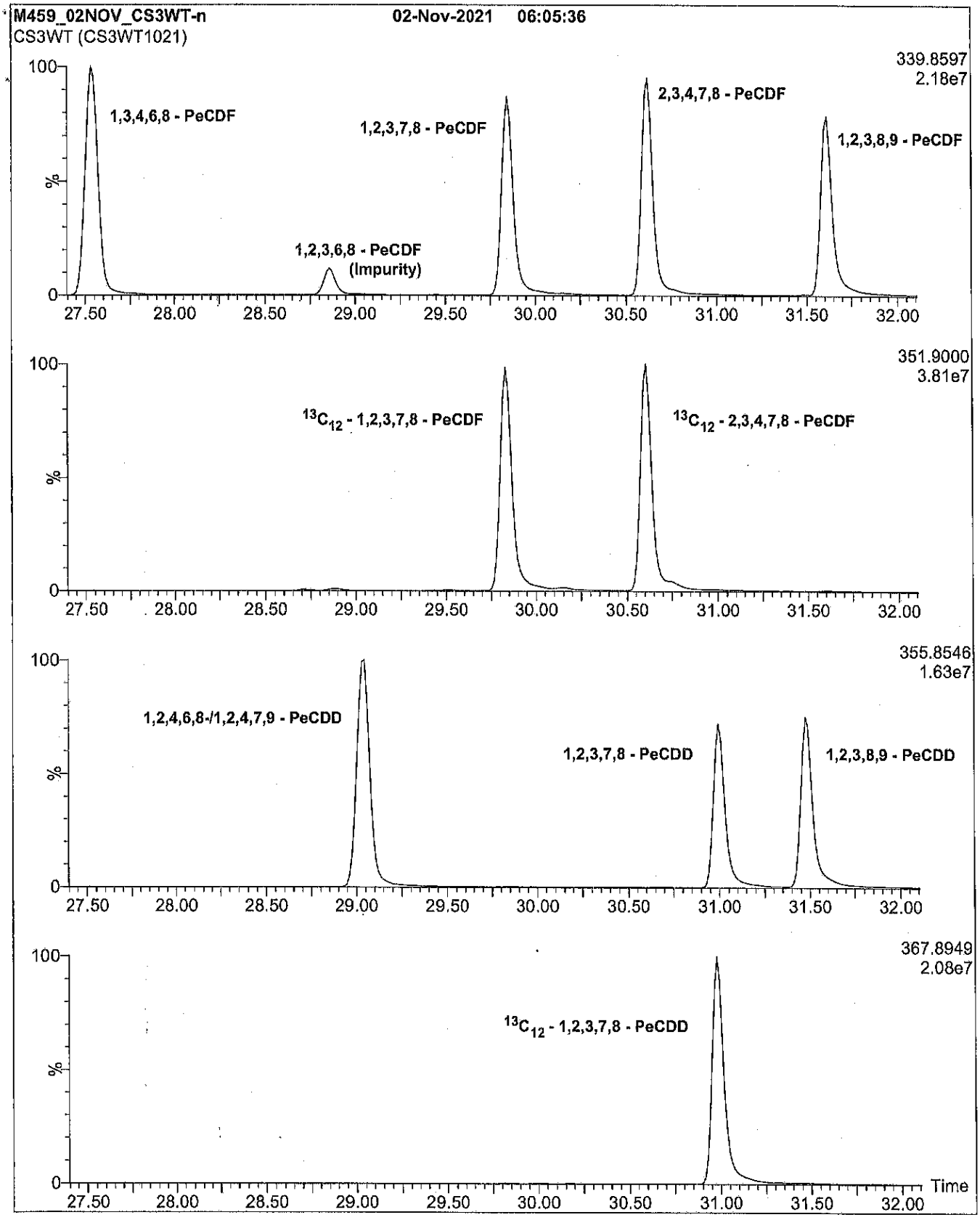


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

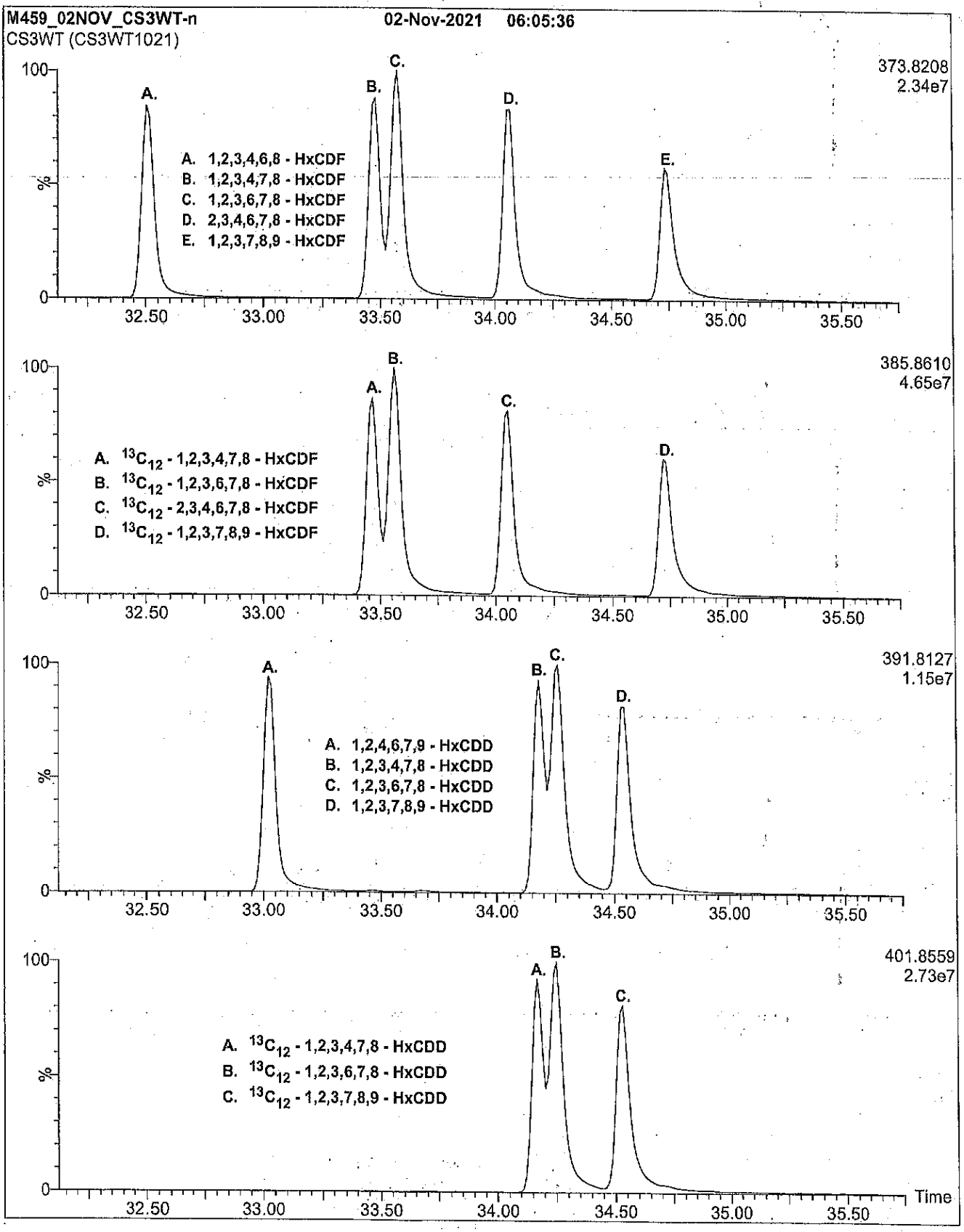


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

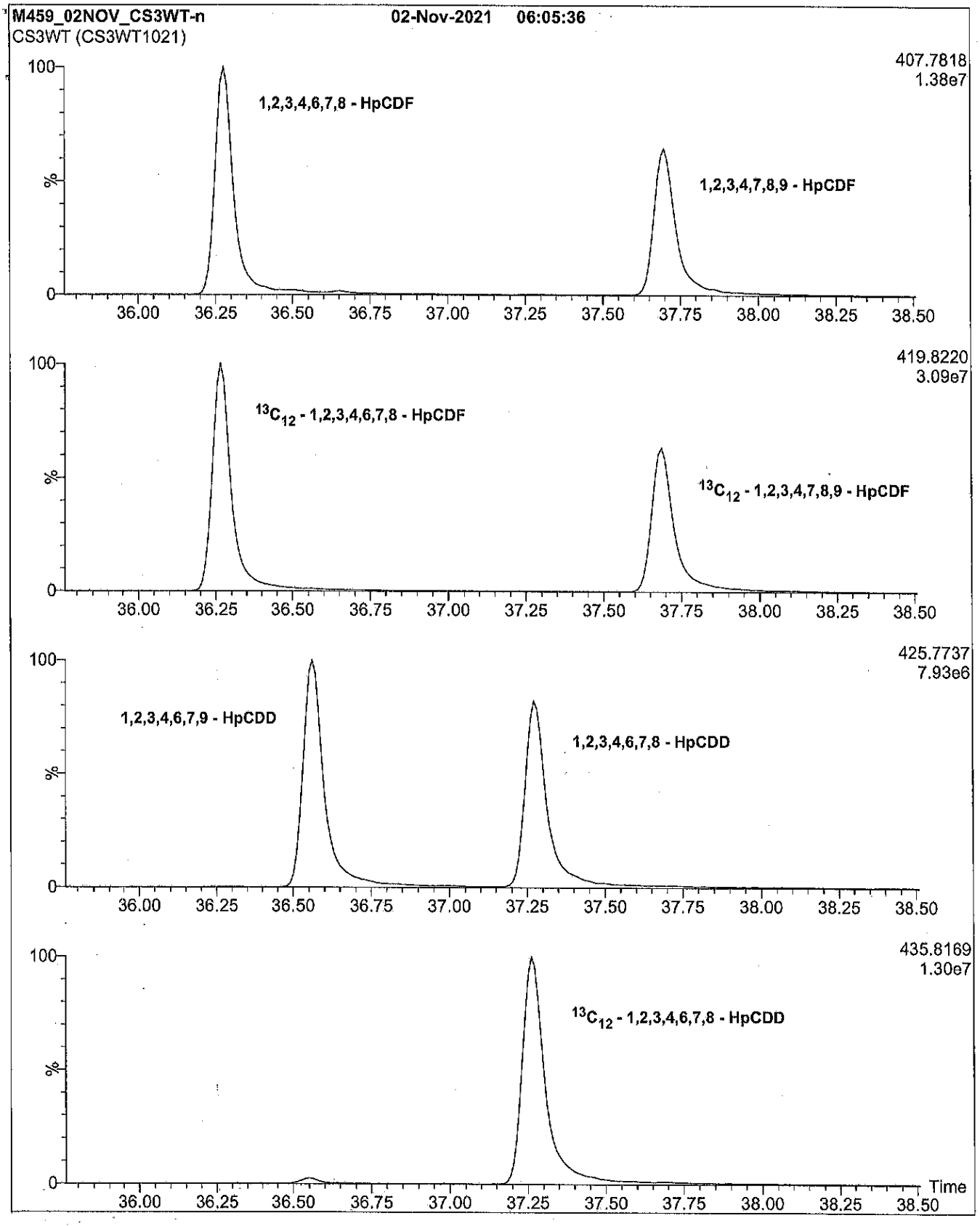
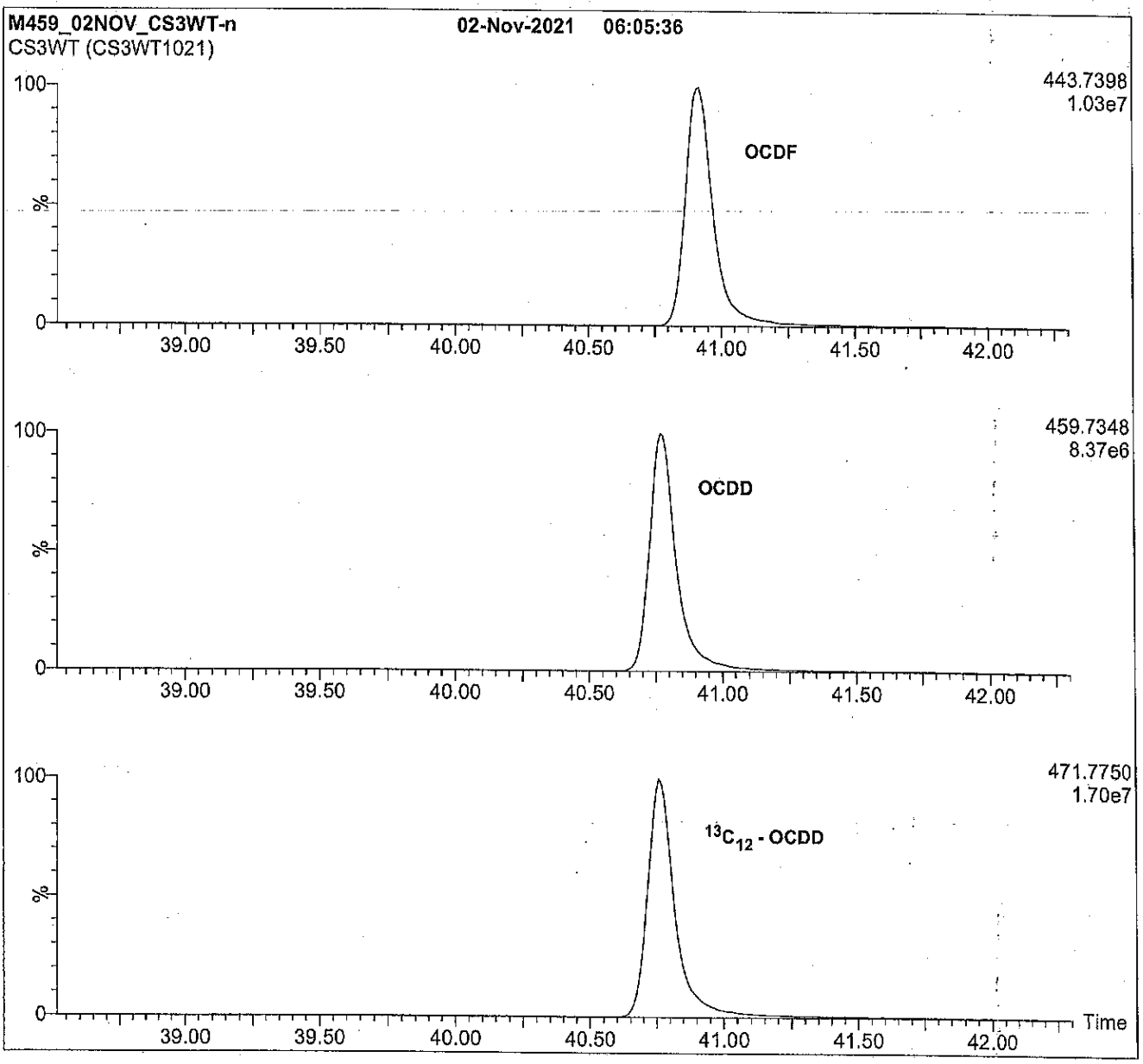


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

Analytical Resources, LLC
Analytical Chemists and Consultants

PREPARATION BATCH SUMMARY

ASTM D2216

Laboratory:	Analytical Resources, LLC			SDG:	23I0156
Client:	Floyd - Snider			Project:	Smith-Kem
Batch:	BMA0619	Batch Matrix:	Solid	Preparation:	No Prep-Organics

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
H4H-05-0.5-1.0	23I0156-20		01/25/24 06:01	

HOLDING TIME SUMMARY

Analysis: ASTM D2216

Laboratory: Analytical Resources, LLC SDG: 23I0156

Client: Floyd - Snider Project: Smith-Kem

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
H4H-05-0.5-1.0 23I0156-20	09/07/23 10:35	09/08/23 11:58	01/25/24 06:01	139	365	01/30/24 05:30	145	365	

* Indicates hold time exceedance.

Analytical Resources, LLC
Analytical Chemists and Consultants

METHOD DETECTION AND REPORTING LIMITS

ASTM D2216

Laboratory: Analytical Resources, LLC
SDG: 23I0156
Client: Floyd - Snider
Project: Smith-Kem
Matrix: Solid
Instrument:

Analyte	MDL	RL	Units
Total Solids		0.01	%

Analytical Resources, LLC
Analytical Chemists and Consultants

20 March 2024

Pamela Osterhout
Floyd - Snider
601 Union Street Two Union Square, Suite 600
Seattle, WA 98101-2341

RE: Smith-Kem ([none])

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
23L0564	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclosed Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC



Kelly Bottem, Client Services Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Cert# 100006-012

23E0156 / 23L0564 **SAMPLE CHAIN OF CUSTODY**

Page # 2 of 3

Report To Pamela Osterhout
Company Floyd Snider
Address
City, State, ZIP see page 1
Phone Email

SAMPLERS (signature)
PROJECT NAME: Smith Kem
PO #
REMARKS
Project specific RLs? - Yes / No
INVOICE TO

TURNAROUND TIME
X Standard turnaround
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
X Archive samples
Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Dioxins/Furans 1613B			Archive	Notes
ADC3-05-2.0		9/7/23	09:20	Soil	1											✓	
H4H-01-0.5-2.0			09:40		1											✓	
H4H-01-2.5			09:45		1											✓	
H4H-02-0.5-1.0			10:00		1											✓	
H4H-02-2.0			10:05		1											✓	
H4H-03-0.5-1.0			10:10		1											✓	
H4H-03-2.0			10:15		1											✓	
H4H-04-0.5-1.0			10:20		1											✓	
H4H-04-2.0			10:25		1											✓	
H4H-05-0.5-1.0			10:35		1											✓	

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	POsterhout	FIS	9/8/23	1155
Received by:	Jacobsen	ARI	09/08/23	1155
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Floyd - Snider Project Name: Smith Kern

COC No(s): 1 NA Delivered by: Fed-Ex UPS Courier Hand Delivered Other:

Assigned ARI Job No: 231196 / 232454 Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1153 5.7

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID# Thermo Fisher

Cooler Accepted by: [signature] Date: 09/08/23 Time: 1153

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
How were bottles sealed in plastic bags?	Individually	(Grouped)	Not
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		YES	(NO)
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	(NA)	YES	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		

Were the sample(s) split by ARI? (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: PJD Date: 09/11/23 Time: 7:21 Labels checked by: PJD

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC
H14-01-0.5-10	H14-01-0.5-2.0		

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

Analytical Resources, LLC
Analytical Chemists and Consultants

Floyd - Snider	Project: Smith-Kem	
601 Union Street Two Union Square, Suite 600	Project Number: [none]	**Reported:**
Seattle, WA 98101-2341	Project Manager: Pamela Osterhout	03/20/2024 14:03

ANALYTICAL REPORT FOR SAMPLES

Laboratory ID	Sample ID	Matrix	Date Sampled	Date Received
23L0564-01	H4H-01-0.5-1.0	Solid	09/07/23 09:40	09/08/23 11:58
23L0564-02	H4H-02-0.5-1.0	Solid	09/07/23 10:00	09/08/23 11:58
23L0564-03	H4H-03-0.5-1.0	Solid	09/07/23 10:10	09/08/23 11:58
23L0564-04	H4H-04-0.5-1.0	Solid	09/07/23 10:20	09/08/23 11:58

Floyd - Snider	Project: Smith-Kem	
601 Union Street Two Union Square, Suite 600	Project Number: [none]	**Reported:**
Seattle WA, 98101-2341	Project Manager: Pamela Osterhout	20-Mar-2024 14:03

Case Narrative

Dioxin/Furans - EPA Method 1613

This is a revised report. The initial report had incorrect sample weights and results may have been biased high.

The sample(s) were extracted and analyzed within the recommended holding times. Analysis was performed using an application specific column developed by Restek. The RTX-Dioxin2 column has unique isomer separation for the 2378-TCDF, eliminating the need for confirmation analysis.

Initial and continuing calibrations were within method requirements.

Labeled internal standard areas were within limits.

The cleanup surrogate percent recoveries were within control limits.

The method blank(s) contained analyte above the RLs. Samples that contain analyte have been flagged with a "B" qualifer.

The OPR (Ongoing Precision and Recovery) standard percent recoveries were within control limits.

The duplicate (DUP) relative percent difference (RPD) were outside advisory control limits and flagged on the associated forms.

QUALIFIERS AND NOTES

Qualifier	Definition
X	Indicates possible CDPE interference.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
J	Estimated concentration value detected below the reporting limit.
EMPC	Estimated Maximum Possible Concentration qualifier for HRGCMS Dioxin
B	This analyte was detected in the method blank.
*	Flagged value is not within established control limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Analytical Resources, LLC
Analytical Chemists and Consultants

H4H-01-0.5-1.0

Form 1
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23L0564
Client:	Floyd - Snider				
Project:	Smith-Kem				
Matrix:	Soil	Laboratory ID:	23L0564-01 A	File ID:	24011810
Sampled:	09/07/23 09:40	Prepared:	01/02/24 14:00	Analyzed:	01/18/24 17:11
% Solids:	91.01	Preparation:	EPA 1613	Initial/Final:	11 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SMA0233	Calibration:	GH00041
Batch:	BLL0751	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.798	0.655-0.886	1.89	0.999	10.4	ng/kg	X
1746-01-6	2,3,7,8-TCDD	1	0.777	0.655-0.886	0.171	0.999	28.2	ng/kg	
57117-41-6	1,2,3,7,8-PeCDF	1	2.194	1.318-1.783	0.684	0.999	1.50	ng/kg	EMPC
57117-31-4	2,3,4,7,8-PeCDF	1	1.482	1.318-1.783	0.676	0.999	6.15	ng/kg	
40321-76-4	1,2,3,7,8-PeCDD	1	1.383	1.318-1.783	0.240	0.999	2.53	ng/kg	
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.420	1.054-1.426	0.245	0.999	3.72	ng/kg	
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.355	1.054-1.426	0.261	0.999	6.59	ng/kg	
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.259	1.054-1.426	0.268	0.999	18.5	ng/kg	
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.267	1.054-1.426	0.340	0.999	3.05	ng/kg	
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.069	1.054-1.426	0.274	0.999	0.826	ng/kg	J
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.136	1.054-1.426	0.287	0.999	3.35	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.333	1.054-1.426	0.321	0.999	1.98	ng/kg	
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	0.999	0.893-1.208	0.293	0.999	16.2	ng/kg	B
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	0.957	0.893-1.208	0.512	0.999	2.00	ng/kg	
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.067	0.893-1.208	0.369	2.50	26.3	ng/kg	B
39001-02-0	OCDF	1	0.903	0.757-1.024	0.653	2.50	33.0	ng/kg	B
3268-87-9	OCDD	1	0.850	0.757-1.024	0.595	9.99	227	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			0.999	217	ng/kg	
41903-57-5	Total TCDD	1	0.000			0.999	28.5	ng/kg	
30402-15-4	Total PeCDF	1	0.000			0.999	488	ng/kg	
36088-22-9	Total PeCDD	1	0.000			0.999	16.0	ng/kg	
55684-94-1	Total HxCDF	1	0.000			0.999	237	ng/kg	
34465-46-8	Total HxCDD	1	0.000			0.999	37.3	ng/kg	
38998-75-3	Total HpCDF	1	0.000			0.999	50.2	ng/kg	
37871-00-4	Total HpCDD	1	0.000			0.999	49.9	ng/kg	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 37.98

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 37.98

Analytical Resources, Incorporated
Analytical Chemists and Consultants

H4H-01-0.5-1.0

Form 2

ORGANIC ANALYSIS DATA SHEET

EPA 1613B

Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23L0564
Client:	Floyd - Snider			Project:	Smith-Kem
Matrix:	Soil	Laboratory ID:	23L0564-01	File ID:	24011810
Sampled:	09/07/23 09:40	Prepared:	01/02/24 14:00	Analyzed:	01/18/24 17:11
Solids Wt%:	91.01	Preparation:	EPA 1613	Initial/Final:	11 g / 20 uL
Result Basis:	Dry	Sequence:	SMA0233	Calibration:	GH00041
Batch:	BLL0751	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.758	0.655-0.886	0.127	47.8	24 - 169 %	
13C12-2,3,7,8-TCDD		0.791	0.655-0.886	0.182	65.3	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.488	1.318-1.783	0.147	59.2	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.478	1.318-1.783	0.155	59.1	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.679	1.318-1.783	0.170	73.0	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.518	0.434-0.587	0.172	63.7	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.517	0.434-0.587	0.140	54.0	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.515	0.434-0.587	0.172	59.7	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.524	0.434-0.587	0.198	61.6	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.226	1.054-1.426	0.243	74.5	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.203	1.054-1.426	0.201	64.8	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.434	0.374-0.506	0.193	49.2	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.422	0.374-0.506	0.252	45.6	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.088	0.893-1.208	0.241	63.9	23 - 140 %	
13C12-OCDD		0.894	0.757-1.024	0.277	42.6	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.182	82.4	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:46:46 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240116.mdb 16 Jan 2024 11:29:56
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: 23L0564-01, Name: 24011810, Date: 18-Jan-2024, Time: 17:11:21, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.111	1.002	8.638e3	1.083e4	0.903	0.798	0.770	6000	11874	1.29e5	1.63e5	21.5	13.7	NO	dd	dd	5.202
12378-PeCDF	29.228	1.001	1.829e3	8.336e2	0.923	2.194	1.550	1930	4125	2.55e4	1.32e4	13.2	3.2	YES	MM	MM	0.750
23478-PeCDF	30.576	1.001	6.610e3	4.462e3	0.991	1.482	1.550	1930	4125	8.76e4	6.06e4	45.4	14.7	NO	dd	db	3.080
123478-HxCDF	34.241	1.000	3.407e3	2.399e3	1.128	1.420	1.240	1137	816	4.96e4	4.34e4	43.6	53.2	NO	dd	bb	1.862
234678-HxCDF	35.233	0.999	1.451e4	1.152e4	1.081	1.259	1.240	1137	816	1.50e5	1.18e5	132.0	144.3	NO	bb	bb	9.265
123678-HxCDF	34.386	1.001	5.635e3	4.159e3	1.032	1.355	1.240	1137	816	8.58e4	6.70e4	75.4	82.2	NO	db	bb	3.299
123789-HxCDF	36.280	0.999	1.963e3	1.550e3	0.988	1.267	1.240	1137	816	3.09e4	2.37e4	27.2	29.1	NO	bb	bb	1.527
1234678-HpCDF	38.196	1.000	9.062e3	9.072e3	1.164	0.999	1.050	1036	802	1.61e5	1.55e5	155.0	193.2	NO	bb	bb	8.086
1234789-HpCDF	40.369	1.001	7.388e2	7.720e2	1.104	0.957	1.050	1036	802	1.02e4	1.06e4	9.8	13.2	NO	bb	bb	0.999
OCDF	44.430	1.005	9.523e3	1.055e4	1.130	0.903	0.890	812	888	1.28e5	1.33e5	157.3	150.3	NO	bb	bb	16.509
2378-TCDD	25.704	1.001	2.626e4	3.378e4	1.243	0.777	0.770	1193	685	3.83e5	4.99e5	320.8	728.9	NO	bd	bd	14.135
12378-PeCDD	30.832	1.000	2.194e3	1.586e3	1.150	1.383	1.550	968	867	3.03e4	2.20e4	31.3	25.4	NO	bb	bb	1.265
123478-HxCDD	35.400	1.001	5.829e2	5.451e2	0.960	1.069	1.240	905	1045	9.74e3	8.96e3	10.8	8.6	NO	bd	bd	0.413
123678-HxCDD	35.511	1.000	2.352e3	2.071e3	0.883	1.136	1.240	905	1045	3.40e4	2.86e4	37.5	27.4	NO	dd	dd	1.678
123789-HxCDD	35.901	1.011	1.329e3	9.969e2	0.804	1.333	1.240	905	1045	2.01e4	1.45e4	22.1	13.9	NO	bb	bb	0.993
1234678-HpCDD	39.656	1.000	1.303e4	1.221e4	1.200	1.067	1.050	1089	802	2.00e5	1.99e5	183.6	247.8	NO	bd	bb	13.168
OCDD	44.201	1.000	5.953e4	7.000e4	1.059	0.850	0.890	708	742	7.31e5	8.51e5	1031.8	1146.5	NO	bb	bd	113.730
13C-2378-TCDF	25.054	1.007	1.786e5	2.357e5	1.835	0.758	0.770	1370	1545	2.70e6	3.67e6	1971.6	2372.7	NO	bb	bb	47.833
13C-12378-PeCDF	29.205	1.174	2.299e5	1.546e5	1.377	1.488	1.550	1327	1201	3.43e6	2.32e6	2589.3	1933.5	NO	bb	bb	59.184
13C-23478-PeCDF	30.553	1.228	2.165e5	1.464e5	1.301	1.478	1.550	1327	1201	3.23e6	2.18e6	2435.3	1811.9	NO	bb	bb	59.095
13C-123478-HxCDF	34.230	0.954	9.429e4	1.822e5	1.091	0.518	0.510	841	1101	1.45e6	2.75e6	1718.9	2497.4	NO	bd	bd	63.744
13C-123678-HxCDF	34.364	0.957	9.801e4	1.895e5	1.340	0.517	0.510	841	1101	1.48e6	2.90e6	1762.8	2634.0	NO	db	db	53.954
13C-234678-HxCDF	35.255	0.982	8.834e4	1.714e5	1.093	0.515	0.510	841	1101	1.37e6	2.67e6	1631.1	2419.7	NO	bb	bb	59.743
13C-123789-HxCDF	36.303	1.012	8.014e4	1.529e5	0.952	0.524	0.510	841	1101	1.20e6	2.28e6	1424.8	2074.3	NO	bb	bd	61.576
13C-1234678-HpCDF	38.185	1.064	5.835e4	1.344e5	0.985	0.434	0.440	858	1105	9.77e5	2.28e6	1138.9	2058.6	NO	bb	bb	49.208
13C-1234789-HpCDF	40.347	1.124	4.070e4	9.638e4	0.756	0.422	0.440	858	1105	5.79e5	1.36e6	674.1	1234.5	NO	bb	bb	45.613
13C-1234-TCDD	24.885	0.000	2.077e5	2.642e5	1.000	0.786	0.770	1543	985	3.30e6	4.19e6	2137.8	4249.2	NO	bb	bb	100.000
13C-2378-TCDD	25.690	1.032	1.509e5	1.908e5	1.110	0.791	0.770	1543	985	2.34e6	3.00e6	1515.1	3043.0	NO	bb	bb	65.256
13C-12378-PeCDD	30.821	1.239	1.628e5	9.693e4	0.754	1.679	1.550	692	907	2.49e6	1.48e6	3603.1	1631.4	NO	bb	bb	73.015
13C-123478-HxCDD	35.378	0.986	1.566e5	1.277e5	0.960	1.226	1.240	1016	1394	2.45e6	1.98e6	2409.0	1422.1	NO	bd	bd	74.486
13C-123678-HxCDD	35.500	0.989	1.630e5	1.355e5	1.159	1.203	1.240	1016	1394	2.52e6	2.07e6	2480.5	1488.0	NO	db	dd	64.772
13C-1234678-HpCDD	39.645	1.105	8.325e4	7.655e4	0.629	1.088	1.050	675	890	1.33e6	1.21e6	1975.4	1361.9	NO	bb	bb	63.863
13C-OCDD	44.192	1.231	1.015e5	1.136e5	0.635	0.894	0.890	680	1139	1.30e6	1.41e6	1915.5	1233.9	NO	bb	bb	85.193
13C-123789-HxCDD	35.890	0.000	2.190e5	1.786e5	1.000	1.226	1.240	1016	1394	3.41e6	2.78e6	3356.0	1994.5	NO	bb	bb	100.000
37CL-2378-TCDD	25.704	1.033	1.801e5		1.157			2635		2.72e6		1032.0			bb		32.969

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:46:46 Pacific Standard Time

ID: 23L0564-01, Name: 24011810, Date: 18-Jan-2024, Time: 17:11:21, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.508	0.859	1.105e4	7.704e3	1.170	1.434	0.770	6000	11874	1.50e5	9.81e4	25.0	8.3	YES	dd	db	3.867
1289-TCDF	26.537	1.059	6.369e3	6.063e3	0.847	1.051	0.770	6000	11874	7.98e4	7.88e4	13.3	6.6	YES	bd	bd	3.544
13468-PECDF	26.509	0.908	3.309e5	2.152e5	1.241	1.538	1.550	2527	2676	4.97e6	3.23e6	1966.2	1207.7	NO	bb	bb	114.436
12389-PECDF	31.545	1.080	1.398e4	9.231e3	0.880	1.514	1.550	1930	4125	1.78e5	1.27e5	92.1	30.7	NO	bb	bd	6.862
123468-HXCDF	32.548	0.951	1.688e4	1.384e4	1.206	1.220	1.240	1137	816	2.51e5	2.11e5	220.9	259.1	NO	db	db	9.217
1368-TCDD	22.865	0.890	9.575e2	9.075e2	1.181	1.055	0.770	1193	685	1.29e4	1.39e4	10.8	20.3	YES	db	bb	0.462
1289-TCDD					0.963		0.770	1193	685								
12479-PECDD	28.147	0.913	6.376e3	4.516e3	2.166	1.412	1.550	968	867	7.62e4	5.06e4	78.7	58.4	NO	bb	bb	1.936
12389-PECDD	31.222	1.013	3.978e2	3.229e2	1.326	1.232	1.550	968	867	7.92e3	4.85e3	8.2	5.6	YES	bb	bb	0.209
124679-HXCDD	33.339	0.942	1.582e4	1.342e4	1.127	1.179	1.240	905	1045	2.42e5	2.02e5	266.8	193.1	NO	bb	bb	9.128
1234679-HPCDD	38.642	0.975	1.263e4	1.195e4	1.303	1.057	1.050	1089	802	2.09e5	1.89e5	192.2	235.9	NO	bb	bb	11.806
Total-tetrafurans			1.967e5		0.973			6000		2.70e6							108.658
Total-penta1			3.368e5					2527		5.08e6							117.180
Total-pentafurans			2.708e5		0.931			1930		4.06e6							127.244
Total-hexafurans			1.915e5		1.087			1137		2.87e6							118.820
Total-heptafurans			2.540e4		1.134			1036		4.32e5							25.138
Total-Furans			1.037e6		1.053			6000		1.54e7							517.382
Total-tetradioxins			2.646e4		1.129			1193		3.87e5							14.250
Total-pentadioxins			1.998e4		1.548			968		2.72e5							7.986
Total-hexadioxins			2.966e4		0.943			905		4.25e5							18.661
Total-heptadioxins			2.566e4		1.251			1089		4.09e5							24.975
Total-Dioxins			1.613e5		1.182			1193		2.23e6							179.602
Total-TEQ			1.199e6					1193		1.76e7							696.984
FUNCTION1 PFK			3.027e6					439296		1.79e7							
FUNCTION2 PFK			1.913e6					156341		1.86e7							0.000
FUNCTION3 PFK			6.068e5					313122		1.06e7							0.000
FUNCTION4 PFK			6.537e6					223351		1.64e7							
FUNCTION5 PFK			3.774e3					164658		2.18e5							
FUNCTION1 HXCD...			3.003e5					8171		4.26e6							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			4.039e4					1811		6.37e5							0.000
FUNCTION3 OCDPE			2.491e3					466		4.12e4							0.000
FUNCTION4 NCDPE			4.837e2					640		8.34e3							0.000
FUNCTION5 DCDPE			0.000e0					521		0.00e0							

Method: T:\Autospec\Methods\Dioxin240116.mdb 16 Jan 2024 11:29:56
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: 23L0564-01, Name: 24011810, Date: 18-Jan-2024, Time: 17:11:21, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.54	2.880e3	3.426e3	0.973	0.84	0.77	8.3	YES	NO	dd	db	1.564
2	Total-tetrafurans	23.09	3.352e4	3.842e4	0.973	0.87	0.77	61.0	YES	NO	bb	bb	17.835
3	Total-tetrafurans	22.84	6.965e3	1.039e4	0.973	0.67	0.77	17.7	YES	NO	bb	db	4.304
4	Total-tetrafurans	22.43	4.301e4	5.369e4	0.973	0.80	0.77	111.8	YES	NO	bd	bd	23.976
5	Total-tetrafurans	21.83	5.670e3	6.469e3	0.973	0.88	0.77	13.8	YES	NO	dd	bd	3.010
6	Total-tetrafurans	26.13	9.274e3	1.239e4	0.973	0.75	0.77	21.0	YES	NO	dd	dd	5.372
7	Total-tetrafurans	25.46	2.172e4	2.476e4	0.973	0.88	0.77	45.9	YES	NO	db	db	11.523
8	Total-tetrafurans	25.35	1.133e4	1.415e4	0.973	0.80	0.77	33.8	YES	NO	dd	dd	6.317
9	2378-TCDF	25.11	8.638e3	1.083e4	0.903	0.80	0.77	21.5	YES	NO	dd	dd	5.202
10	Total-tetrafurans	24.43	6.350e3	7.895e3	0.973	0.80	0.77	14.0	YES	NO	dd	dd	3.532
11	Total-tetrafurans	23.98	2.371e4	2.889e4	0.973	0.82	0.77	62.2	YES	NO	bd	bd	13.041
12	Total-tetrafurans	26.96	2.361e4	2.875e4	0.973	0.82	0.77	38.6	YES	NO	db	dd	12.983

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.24	5.903e3	3.772e3		1.56	1.55	43.1	YES	NO	bb	bb	2.744
2	13468-PECDF	26.51	3.309e5	2.152e5	1.241	1.54	1.55	1966.2	YES	NO	bb	bb	114.436

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
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ID: 23L0564-01, Name: 24011810, Date: 18-Jan-2024, Time: 17:11:21, Conditions: AUTOSPEC01, User: pk

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.44	2.116e3	1.304e3	0.931	1.62	1.55	16.4	YES	NO	dd	bd	0.983
2	Total-pentafurans	28.29	2.374e4	1.489e4	0.931	1.59	1.55	195.5	YES	NO	dd	db	11.102
3	Total-pentafurans	28.16	8.692e4	5.378e4	0.931	1.62	1.55	636.3	YES	NO	dd	dd	40.431
4	Total-pentafurans	28.09	2.358e4	1.466e4	0.931	1.61	1.55	266.0	YES	NO	dd	dd	10.989
5	Total-pentafurans	27.78	5.068e3	3.038e3	0.931	1.67	1.55	30.9	YES	NO	bd	bb	2.329
6	Total-pentafurans	27.44	5.454e2	3.193e2	0.931	1.71	1.55	5.2	NO	NO	bd	bb	0.249
7	23478-PeCDF	30.58	6.610e3	4.462e3	0.991	1.48	1.55	45.4	YES	NO	dd	db	3.080
8	Total-pentafurans	30.42	3.918e4	2.498e4	0.931	1.57	1.55	277.7	YES	NO	dd	dd	18.437
9	Total-pentafurans	30.32	1.329e3	8.649e2	0.931	1.54	1.55	11.5	YES	NO	dd	bd	0.630
10	Total-pentafurans	30.17	5.977e3	4.068e3	0.931	1.47	1.55	50.0	YES	NO	dd	db	2.887
11	Total-pentafurans	29.95	1.629e4	9.406e3	0.931	1.73	1.55	120.6	YES	NO	bd	bd	7.383
12	Total-pentafurans	29.66	2.265e3	1.711e3	0.931	1.32	1.55	18.9	YES	NO	bb	bb	1.142
13	Total-pentafurans	29.43	1.174e4	8.314e3	0.931	1.41	1.55	94.3	YES	NO	bb	db	5.763
14	Total-pentafurans	28.87	3.142e4	2.070e4	0.931	1.52	1.55	243.7	YES	NO	dd	dd	14.977
15	12389-PECDF	31.54	1.398e4	9.231e3	0.880	1.51	1.55	92.1	YES	NO	bb	bd	6.862

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	234678-HxCDF	35.23	1.451e4	1.152e4	1.081	1.26	1.24	132.0	YES	NO	bb	bb	9.265
2	123678-HxCDF	34.39	5.635e3	4.159e3	1.032	1.35	1.24	75.4	YES	NO	db	bb	3.299
3	123478-HxCDF	34.24	3.407e3	2.399e3	1.128	1.42	1.24	43.6	YES	NO	dd	bb	1.862
4	Total-hexafurans	34.10	5.195e2	4.669e2	1.087	1.11	1.24	7.6	YES	NO	bd	bb	0.343
5	Total-hexafurans	33.62	7.062e4	5.632e4	1.087	1.25	1.24	962.5	YES	NO	bb	bb	44.203
6	Total-hexafurans	32.76	7.751e4	6.269e4	1.087	1.24	1.24	1051.3	YES	NO	bb	bb	48.818
7	123468-HXCDF	32.55	1.688e4	1.384e4	1.206	1.22	1.24	220.9	YES	NO	db	db	9.217
8	123789-HxCDF	36.28	1.963e3	1.550e3	0.988	1.27	1.24	27.2	YES	NO	bb	bb	1.527
9	Total-hexafurans	35.65	4.771e2	3.447e2	1.087	1.38	1.24	6.7	YES	NO	bb	bb	0.286

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.37	7.388e2	7.720e2	1.104	0.96	1.05	9.8	YES	NO	bb	bb	0.999
2	Total-heptafurans	38.84	1.560e4	1.441e4	1.134	1.08	1.05	251.7	YES	NO	bb	bb	16.053
3	1234678-HpCDF	38.20	9.062e3	9.072e3	1.164	1.00	1.05	155.0	YES	NO	bb	bb	8.086

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.54	2.880e3	3.426e3	0.973	0.84	0.77	8.3	YES	NO	dd	db	1.564
2	Total-tetrafurans	23.09	3.352e4	3.842e4	0.973	0.87	0.77	61.0	YES	NO	bb	bb	17.835
3	Total-tetrafurans	22.84	6.965e3	1.039e4	0.973	0.67	0.77	17.7	YES	NO	bb	db	4.304
4	Total-tetrafurans	22.43	4.301e4	5.369e4	0.973	0.80	0.77	111.8	YES	NO	bd	bd	23.976
5	Total-tetrafurans	21.83	5.670e3	6.469e3	0.973	0.88	0.77	13.8	YES	NO	dd	bd	3.010
6	Total-Furans	21.34	3.669e3	5.422e3	1.053	0.68	0.77	9.7	YES	NO	bd	bd	2.085
7	Total-tetrafurans	26.13	9.274e3	1.239e4	0.973	0.75	0.77	21.0	YES	NO	dd	dd	5.372
8	Total-tetrafurans	25.46	2.172e4	2.476e4	0.973	0.88	0.77	45.9	YES	NO	db	db	11.523
9	Total-tetrafurans	25.35	1.133e4	1.415e4	0.973	0.80	0.77	33.8	YES	NO	dd	dd	6.317
10	2378-TCDF	25.11	8.638e3	1.083e4	0.903	0.80	0.77	21.5	YES	NO	dd	dd	5.202
11	Total-tetrafurans	24.43	6.350e3	7.895e3	0.973	0.80	0.77	14.0	YES	NO	dd	dd	3.532
12	Total-tetrafurans	23.98	2.371e4	2.889e4	0.973	0.82	0.77	62.2	YES	NO	bd	bd	13.041
13	Total-Furans	27.20	3.123e3	4.507e3	1.053	0.69	0.77	6.0	YES	NO	bb	db	1.750
14	Total-tetrafurans	26.96	2.361e4	2.875e4	0.973	0.82	0.77	38.6	YES	NO	db	dd	12.983
15	Total-pentafurans	28.44	2.116e3	1.304e3	0.931	1.62	1.55	16.4	YES	NO	dd	bd	0.983
16	Total-pentafurans	28.29	2.374e4	1.489e4	0.931	1.59	1.55	195.5	YES	NO	dd	db	11.102
17	Total-pentafurans	28.16	8.692e4	5.378e4	0.931	1.62	1.55	636.3	YES	NO	dd	dd	40.431
18	Total-pentafurans	28.09	2.358e4	1.466e4	0.931	1.61	1.55	266.0	YES	NO	dd	dd	10.989
19	Total-pentafurans	27.78	5.068e3	3.038e3	0.931	1.67	1.55	30.9	YES	NO	bd	bb	2.329
20	Total-pentafurans	27.44	5.454e2	3.193e2	0.931	1.71	1.55	5.2	NO	NO	bd	bb	0.249
21	23478-PeCDF	30.58	6.610e3	4.462e3	0.991	1.48	1.55	45.4	YES	NO	dd	db	3.080
22	Total-pentafurans	30.42	3.918e4	2.498e4	0.931	1.57	1.55	277.7	YES	NO	dd	dd	18.437
23	Total-pentafurans	30.32	1.329e3	8.649e2	0.931	1.54	1.55	11.5	YES	NO	dd	bd	0.630
24	Total-pentafurans	30.17	5.977e3	4.068e3	0.931	1.47	1.55	50.0	YES	NO	dd	db	2.887
25	Total-pentafurans	29.95	1.629e4	9.406e3	0.931	1.73	1.55	120.6	YES	NO	bd	bd	7.383
26	Total-pentafurans	29.66	2.265e3	1.711e3	0.931	1.32	1.55	18.9	YES	NO	bb	bb	1.142
27	Total-pentafurans	29.43	1.174e4	8.314e3	0.931	1.41	1.55	94.3	YES	NO	bb	db	5.763
28	Total-pentafurans	28.87	3.142e4	2.070e4	0.931	1.52	1.55	243.7	YES	NO	dd	dd	14.977
29	12389-PECDF	31.54	1.398e4	9.231e3	0.880	1.51	1.55	92.1	YES	NO	bb	bd	6.862
30	234678-HxCDF	35.23	1.451e4	1.152e4	1.081	1.26	1.24	132.0	YES	NO	bb	bb	9.265
31	123678-HxCDF	34.39	5.635e3	4.159e3	1.032	1.35	1.24	75.4	YES	NO	db	bb	3.299
32	123478-HxCDF	34.24	3.407e3	2.399e3	1.128	1.42	1.24	43.6	YES	NO	dd	bb	1.862
33	Total-hexafurans	34.10	5.195e2	4.669e2	1.087	1.11	1.24	7.6	YES	NO	bd	bb	0.343
34	Total-hexafurans	33.62	7.062e4	5.632e4	1.087	1.25	1.24	962.5	YES	NO	bb	bb	44.203
35	Total-hexafurans	32.76	7.751e4	6.269e4	1.087	1.24	1.24	1051.3	YES	NO	bb	bb	48.818
36	123468-HXCDF	32.55	1.688e4	1.384e4	1.206	1.22	1.24	220.9	YES	NO	db	db	9.217
37	123789-HxCDF	36.28	1.963e3	1.550e3	0.988	1.27	1.24	27.2	YES	NO	bb	bb	1.527

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-hexafurans	35.65	4.771e2	3.447e2	1.087	1.38	1.24	6.7	YES	NO	bb	bb	0.286
39	1234789-HpCDF	40.37	7.388e2	7.720e2	1.104	0.96	1.05	9.8	YES	NO	bb	bb	0.999
40	Total-heptafurans	38.84	1.560e4	1.441e4	1.134	1.08	1.05	251.7	YES	NO	bb	bb	16.053
41	1234678-HpCDF	38.20	9.062e3	9.072e3	1.164	1.00	1.05	155.0	YES	NO	bb	bb	8.086
42	OCDF	44.43	9.523e3	1.055e4	1.130	0.90	0.89	157.3	YES	NO	bb	bb	16.509
43	Total-penta1	27.24	5.903e3	3.772e3		1.56	1.55	43.1	YES	NO	bb	bb	2.744
44	13468-PECDF	26.51	3.309e5	2.152e5	1.241	1.54	1.55	1966.2	YES	NO	bb	bb	114.436

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	23.91	1.980e2	2.471e2	1.129	0.80	0.77	4.1	YES	NO	bb	bd	0.115
2	2378-TCDD	25.70	2.626e4	3.378e4	1.243	0.78	0.77	320.8	YES	NO	bd	bd	14.135

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	29.58	2.684e3	1.947e3	1.548	1.38	1.55	43.3	YES	NO	dd	dd	1.152
2	Total-pentadioxins	29.45	8.250e3	5.572e3	1.548	1.48	1.55	118.6	YES	NO	bd	dd	3.439
3	Total-pentadioxins	28.61	4.770e2	2.990e2	1.548	1.60	1.55	9.4	YES	NO	bb	bb	0.193
4	12479-PECDD	28.15	6.376e3	4.516e3	2.166	1.41	1.55	78.7	YES	NO	bb	bb	1.936
5	12378-PeCDD	30.83	2.194e3	1.586e3	1.150	1.38	1.55	31.3	YES	NO	bb	bb	1.265

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.90	1.329e3	9.969e2	0.804	1.33	1.24	22.1	YES	NO	bb	bb	0.993
2	123678-HxCDD	35.51	2.352e3	2.071e3	0.883	1.14	1.24	37.5	YES	NO	dd	dd	1.678
3	123478-HxCDD	35.40	5.829e2	5.451e2	0.960	1.07	1.24	10.8	YES	NO	bd	bd	0.413
4	Total-hexadioxins	34.51	9.575e3	8.154e3	0.943	1.17	1.24	132.7	YES	NO	bb	bb	6.449
5	124679-HXCDD	33.34	1.582e4	1.342e4	1.127	1.18	1.24	266.8	YES	NO	bb	bb	9.128

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.66	1.303e4	1.221e4	1.200	1.07	1.05	183.6	YES	NO	bd	bb	13.168
2	1234679-HPCDD	38.64	1.263e4	1.195e4	1.303	1.06	1.05	192.2	YES	NO	bb	bb	11.806

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	23.91	1.980e2	2.471e2	1.129	0.80	0.77	4.1	YES	NO	bb	bd	0.115
2	2378-TCDD	25.70	2.626e4	3.378e4	1.243	0.78	0.77	320.8	YES	NO	bd	bd	14.135
3	Total-pentadioxins	29.58	2.684e3	1.947e3	1.548	1.38	1.55	43.3	YES	NO	dd	dd	1.152
4	Total-pentadioxins	29.45	8.250e3	5.572e3	1.548	1.48	1.55	118.6	YES	NO	bd	dd	3.439
5	Total-pentadioxins	28.61	4.770e2	2.990e2	1.548	1.60	1.55	9.4	YES	NO	bb	bb	0.193
6	12479-PECDD	28.15	6.376e3	4.516e3	2.166	1.41	1.55	78.7	YES	NO	bb	bb	1.936
7	12378-PeCDD	30.83	2.194e3	1.586e3	1.150	1.38	1.55	31.3	YES	NO	bb	bb	1.265
8	123789-HxCDD	35.90	1.329e3	9.969e2	0.804	1.33	1.24	22.1	YES	NO	bb	bb	0.993
9	123678-HxCDD	35.51	2.352e3	2.071e3	0.883	1.14	1.24	37.5	YES	NO	dd	dd	1.678
10	123478-HxCDD	35.40	5.829e2	5.451e2	0.960	1.07	1.24	10.8	YES	NO	bd	bd	0.413
11	Total-hexadioxins	34.51	9.575e3	8.154e3	0.943	1.17	1.24	132.7	YES	NO	bb	bb	6.449
12	124679-HXCDD	33.34	1.582e4	1.342e4	1.127	1.18	1.24	266.8	YES	NO	bb	bb	9.128
13	1234678-HpCDD	39.66	1.303e4	1.221e4	1.200	1.07	1.05	183.6	YES	NO	bd	bb	13.168
14	1234679-HPCDD	38.64	1.263e4	1.195e4	1.303	1.06	1.05	192.2	YES	NO	bb	bb	11.806
15	OCDD	44.20	5.953e4	7.000e4	1.059	0.85	0.89	1031.8	YES	NO	bb	bd	113.730

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.54	2.880e3	3.426e3	0.973	0.84	0.77	8.3	YES	NO	dd	db	1.564
2	Total-tetrafurans	23.09	3.352e4	3.842e4	0.973	0.87	0.77	61.0	YES	NO	bb	bb	17.835
3	Total-tetrafurans	22.84	6.965e3	1.039e4	0.973	0.67	0.77	17.7	YES	NO	bb	db	4.304
4	Total-tetrafurans	22.43	4.301e4	5.369e4	0.973	0.80	0.77	111.8	YES	NO	bd	bd	23.976
5	Total-tetrafurans	21.83	5.670e3	6.469e3	0.973	0.88	0.77	13.8	YES	NO	dd	bd	3.010
6	Total-Furans	21.34	3.669e3	5.422e3	1.053	0.68	0.77	9.7	YES	NO	bd	bd	2.085
7	Total-tetrafurans	26.13	9.274e3	1.239e4	0.973	0.75	0.77	21.0	YES	NO	dd	dd	5.372
8	Total-tetrafurans	25.46	2.172e4	2.476e4	0.973	0.88	0.77	45.9	YES	NO	db	db	11.523
9	Total-tetrafurans	25.35	1.133e4	1.415e4	0.973	0.80	0.77	33.8	YES	NO	dd	dd	6.317
10	2378-TCDF	25.11	8.638e3	1.083e4	0.903	0.80	0.77	21.5	YES	NO	dd	dd	5.202
11	Total-tetrafurans	24.43	6.350e3	7.895e3	0.973	0.80	0.77	14.0	YES	NO	dd	dd	3.532
12	Total-tetrafurans	23.98	2.371e4	2.889e4	0.973	0.82	0.77	62.2	YES	NO	bd	bd	13.041
13	Total-Furans	27.20	3.123e3	4.507e3	1.053	0.69	0.77	6.0	YES	NO	bb	db	1.750
14	Total-tetrafurans	26.96	2.361e4	2.875e4	0.973	0.82	0.77	38.6	YES	NO	db	dd	12.983
15	Total-pentafurans	28.44	2.116e3	1.304e3	0.931	1.62	1.55	16.4	YES	NO	dd	bd	0.983
16	Total-pentafurans	28.29	2.374e4	1.489e4	0.931	1.59	1.55	195.5	YES	NO	dd	db	11.102
17	Total-pentafurans	28.16	8.692e4	5.378e4	0.931	1.62	1.55	636.3	YES	NO	dd	dd	40.431
18	Total-pentafurans	28.09	2.358e4	1.466e4	0.931	1.61	1.55	266.0	YES	NO	dd	dd	10.989
19	Total-pentafurans	27.78	5.068e3	3.038e3	0.931	1.67	1.55	30.9	YES	NO	bd	bb	2.329
20	Total-pentafurans	27.44	5.454e2	3.193e2	0.931	1.71	1.55	5.2	NO	NO	bd	bb	0.249
21	23478-PeCDF	30.58	6.610e3	4.462e3	0.991	1.48	1.55	45.4	YES	NO	dd	db	3.080
22	Total-pentafurans	30.42	3.918e4	2.498e4	0.931	1.57	1.55	277.7	YES	NO	dd	dd	18.437
23	Total-pentafurans	30.32	1.329e3	8.649e2	0.931	1.54	1.55	11.5	YES	NO	dd	bd	0.630
24	Total-pentafurans	30.17	5.977e3	4.068e3	0.931	1.47	1.55	50.0	YES	NO	dd	db	2.887
25	Total-pentafurans	29.95	1.629e4	9.406e3	0.931	1.73	1.55	120.6	YES	NO	bd	bd	7.383
26	Total-pentafurans	29.66	2.265e3	1.711e3	0.931	1.32	1.55	18.9	YES	NO	bb	bb	1.142
27	Total-pentafurans	29.43	1.174e4	8.314e3	0.931	1.41	1.55	94.3	YES	NO	bb	db	5.763
28	Total-pentafurans	28.87	3.142e4	2.070e4	0.931	1.52	1.55	243.7	YES	NO	dd	dd	14.977
29	12389-PECDF	31.54	1.398e4	9.231e3	0.880	1.51	1.55	92.1	YES	NO	bb	bd	6.862
30	234678-HxCDF	35.23	1.451e4	1.152e4	1.081	1.26	1.24	132.0	YES	NO	bb	bb	9.265
31	123678-HxCDF	34.39	5.635e3	4.159e3	1.032	1.35	1.24	75.4	YES	NO	db	bb	3.299
32	123478-HxCDF	34.24	3.407e3	2.399e3	1.128	1.42	1.24	43.6	YES	NO	dd	bb	1.862
33	Total-hexafurans	34.10	5.195e2	4.669e2	1.087	1.11	1.24	7.6	YES	NO	bd	bb	0.343
34	Total-hexafurans	33.62	7.062e4	5.632e4	1.087	1.25	1.24	962.5	YES	NO	bb	bb	44.203
35	Total-hexafurans	32.76	7.751e4	6.269e4	1.087	1.24	1.24	1051.3	YES	NO	bb	bb	48.818
36	123468-HXCDF	32.55	1.688e4	1.384e4	1.206	1.22	1.24	220.9	YES	NO	db	db	9.217
37	123789-HxCDF	36.28	1.963e3	1.550e3	0.988	1.27	1.24	27.2	YES	NO	bb	bb	1.527

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-hexafurans	35.65	4.771e2	3.447e2	1.087	1.38	1.24	6.7	YES	NO	bb	bb	0.286
39	1234789-HpCDF	40.37	7.388e2	7.720e2	1.104	0.96	1.05	9.8	YES	NO	bb	bb	0.999
40	Total-heptafurans	38.84	1.560e4	1.441e4	1.134	1.08	1.05	251.7	YES	NO	bb	bb	16.053
41	1234678-HpCDF	38.20	9.062e3	9.072e3	1.164	1.00	1.05	155.0	YES	NO	bb	bb	8.086
42	OCDF	44.43	9.523e3	1.055e4	1.130	0.90	0.89	157.3	YES	NO	bb	bb	16.509
43	Total-penta1	27.24	5.903e3	3.772e3		1.56	1.55	43.1	YES	NO	bb	bb	2.744
44	13468-PECDF	26.51	3.309e5	2.152e5	1.241	1.54	1.55	1966.2	YES	NO	bb	bb	114.436
45	Total-tetradioxins	23.91	1.980e2	2.471e2	1.129	0.80	0.77	4.1	YES	NO	bb	bd	0.115
46	2378-TCDD	25.70	2.626e4	3.378e4	1.243	0.78	0.77	320.8	YES	NO	bd	bd	14.135
47	Total-pentadioxins	29.58	2.684e3	1.947e3	1.548	1.38	1.55	43.3	YES	NO	dd	dd	1.152
48	Total-pentadioxins	29.45	8.250e3	5.572e3	1.548	1.48	1.55	118.6	YES	NO	bd	dd	3.439
49	Total-pentadioxins	28.61	4.770e2	2.990e2	1.548	1.60	1.55	9.4	YES	NO	bb	bb	0.193
50	12479-PECDD	28.15	6.376e3	4.516e3	2.166	1.41	1.55	78.7	YES	NO	bb	bb	1.936
51	12378-PeCDD	30.83	2.194e3	1.586e3	1.150	1.38	1.55	31.3	YES	NO	bb	bb	1.265
52	123789-HxCDD	35.90	1.329e3	9.969e2	0.804	1.33	1.24	22.1	YES	NO	bb	bb	0.993
53	123678-HxCDD	35.51	2.352e3	2.071e3	0.883	1.14	1.24	37.5	YES	NO	dd	dd	1.678
54	123478-HxCDD	35.40	5.829e2	5.451e2	0.960	1.07	1.24	10.8	YES	NO	bd	bd	0.413
55	Total-hexadioxins	34.51	9.575e3	8.154e3	0.943	1.17	1.24	132.7	YES	NO	bb	bb	6.449
56	124679-HXCDD	33.34	1.582e4	1.342e4	1.127	1.18	1.24	266.8	YES	NO	bb	bb	9.128
57	1234678-HpCDD	39.66	1.303e4	1.221e4	1.200	1.07	1.05	183.6	YES	NO	bd	bb	13.168
58	1234679-HPCDD	38.64	1.263e4	1.195e4	1.303	1.06	1.05	192.2	YES	NO	bb	bb	11.806
59	OCDD	44.20	5.953e4	7.000e4	1.059	0.85	0.89	1031.8	YES	NO	bb	bd	113.730

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.59	1.074e6					8.4	YES		bb		
2	FUNCTION1 PFK	21.25	6.388e5					8.0	YES		bb		
3	FUNCTION1 PFK	25.52	1.717e5					3.5	YES		bb		
4	FUNCTION1 PFK	23.97	1.030e5					3.7	YES		bb		
5	FUNCTION1 PFK	23.13	3.902e5					4.4	YES		bb		
6	FUNCTION1 PFK	22.91	9.701e4					4.2	YES		bb		
7	FUNCTION1 PFK	22.71	5.017e5					6.1	YES		bb		
8	FUNCTION1 PFK	21.82	5.066e4					2.4	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.87	1.678e4					1.3	NO		db		0.000
2	FUNCTION2 PFK	28.77	1.804e5					5.8	YES		bd		0.000
3	FUNCTION2 PFK	28.45	1.515e5					5.2	YES		bb		0.000
4	FUNCTION2 PFK	28.02	1.055e4					2.0	NO		bb		0.000
5	FUNCTION2 PFK	27.83	2.098e5					8.9	YES		db		0.000
6	FUNCTION2 PFK	27.70	8.582e4					9.9	YES		dd		0.000
7	FUNCTION2 PFK	27.57	3.829e5					11.3	YES		dd		0.000
8	FUNCTION2 PFK	27.43	4.067e4					8.7	YES		dd		0.000
9	FUNCTION2 PFK	27.38	7.501e4					7.7	YES		bd		0.000
10	FUNCTION2 PFK	31.97	1.087e5					4.7	YES		bb		0.000
11	FUNCTION2 PFK	31.76	7.980e4					7.3	YES		db		0.000
12	FUNCTION2 PFK	31.72	7.188e4					7.3	YES		bd		0.000
13	FUNCTION2 PFK	31.18	9.513e4					1.7	NO		db		0.000
14	FUNCTION2 PFK	31.14	5.347e3					1.2	NO		bd		0.000
15	FUNCTION2 PFK	30.62	1.999e5					7.9	YES		bb		0.000
16	FUNCTION2 PFK	30.44	2.603e4					5.8	YES		db		0.000
17	FUNCTION2 PFK	30.41	6.429e4					7.1	YES		dd		0.000
18	FUNCTION2 PFK	30.36	2.239e4					5.1	YES		bd		0.000
19	FUNCTION2 PFK	30.31	3.224e3					1.1	NO		bb		0.000
20	FUNCTION2 PFK	30.04	7.456e3					1.3	NO		bb		0.000
21	FUNCTION2 PFK	29.81	1.768e4					1.7	NO		bb		0.000
22	FUNCTION2 PFK	29.62	1.791e4					2.0	NO		bb		0.000
23	FUNCTION2 PFK	29.45	3.962e4					4.2	YES		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	33.25	1.258e5					3.8	YES		bb		0.000
2	FUNCTION3 PFK	37.02	1.252e4					0.5	NO		bb		0.000
3	FUNCTION3 PFK	36.89	7.079e4					3.9	YES		bb		0.000
4	FUNCTION3 PFK	36.54	1.295e4					1.5	NO		bb		0.000
5	FUNCTION3 PFK	36.44	4.278e4					2.2	NO		db		0.000
6	FUNCTION3 PFK	36.31	3.768e4					1.9	NO		dd		0.000
7	FUNCTION3 PFK	36.24	6.372e3					0.9	NO		bd		0.000
8	FUNCTION3 PFK	35.83	1.854e3					0.5	NO		bb		0.000
9	FUNCTION3 PFK	35.58	4.152e4					2.1	NO		bb		0.000
10	FUNCTION3 PFK	35.44	3.036e4					2.5	NO		bb		0.000
11	FUNCTION3 PFK	35.24	8.193e4					3.3	YES		db		0.000
12	FUNCTION3 PFK	35.18	4.573e4					3.8	YES		bd		0.000
13	FUNCTION3 PFK	33.80	4.026e4					2.5	NO		bb		0.000
14	FUNCTION3 PFK	33.75	2.967e3					0.6	NO		bb		0.000
15	FUNCTION3 PFK	33.56	5.244e3					0.9	NO		bb		0.000
16	FUNCTION3 PFK	33.46	1.485e3					0.4	NO		bb		0.000
17	FUNCTION3 PFK	33.38	4.658e4					2.6	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	41.24	1.808e6					10.8	YES		bb		
2	FUNCTION4 PFK	40.31	5.032e5					7.1	YES		bb		
3	FUNCTION4 PFK	39.95	1.673e5					5.9	YES		bb		
4	FUNCTION4 PFK	39.21	1.987e6					26.9	YES		bb		
5	FUNCTION4 PFK	38.75	2.072e6					22.5	YES		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.82	3.774e3					1.3	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	21.93	1.458e3					2.7	NO		db		0.000
2	FUNCTION1 HXCD...	21.79	9.487e2					1.9	NO		dd		0.000
3	FUNCTION1 HXCD...	21.72	7.110e2					2.5	NO		dd		0.000
4	FUNCTION1 HXCD...	21.62	2.977e4					61.9	YES		dd		0.000
5	FUNCTION1 HXCD...	21.49	3.686e2					1.0	NO		bd		0.000
6	FUNCTION1 HXCD...	21.32	1.214e4					18.5	YES		db		0.000
7	FUNCTION1 HXCD...	21.16	9.145e3					17.2	YES		bd		0.000
8	FUNCTION1 HXCD...	24.32	2.765e4					45.4	YES		dd		0.000
9	FUNCTION1 HXCD...	24.12	1.646e4					25.8	YES		dd		0.000
10	FUNCTION1 HXCD...	24.01	7.675e3					13.8	YES		bd		0.000
11	FUNCTION1 HXCD...	23.80	2.218e3					3.2	YES		db		0.000
12	FUNCTION1 HXCD...	23.64	2.151e3					3.0	YES		dd		0.000
13	FUNCTION1 HXCD...	23.53	5.210e3					7.7	YES		dd		0.000
14	FUNCTION1 HXCD...	23.36	9.762e3					14.7	YES		dd		0.000
15	FUNCTION1 HXCD...	23.09	2.402e4					38.9	YES		bd		0.000
16	FUNCTION1 HXCD...	22.91	9.099e3					19.1	YES		bb		0.000
17	FUNCTION1 HXCD...	22.75	2.329e3					4.0	YES		db		0.000
18	FUNCTION1 HXCD...	22.57	1.877e4					30.7	YES		dd		0.000
19	FUNCTION1 HXCD...	22.48	4.463e2					1.4	NO		dd		0.000
20	FUNCTION1 HXCD...	22.36	3.243e3					4.9	YES		dd		0.000
21	FUNCTION1 HXCD...	22.31	1.469e3					4.2	YES		dd		0.000
22	FUNCTION1 HXCD...	22.20	4.781e3					9.2	YES		dd		0.000
23	FUNCTION1 HXCD...	22.09	7.716e3					14.0	YES		bd		0.000
24	FUNCTION1 HXCD...	26.31	2.908e3					4.3	YES		db		0.000
25	FUNCTION1 HXCD...	26.10	1.247e4					19.1	YES		dd		0.000
26	FUNCTION1 HXCD...	25.99	6.744e3					9.7	YES		dd		0.000
27	FUNCTION1 HXCD...	25.82	5.434e2					0.9	NO		dd		0.000
28	FUNCTION1 HXCD...	25.73	7.663e2					1.1	NO		bd		0.000
29	FUNCTION1 HXCD...	25.45	2.586e4					44.8	YES		db		0.000
30	FUNCTION1 HXCD...	25.36	1.305e3					3.3	YES		dd		0.000
31	FUNCTION1 HXCD...	25.28	1.202e3					2.6	NO		dd		0.000
32	FUNCTION1 HXCD...	25.22	4.841e2					1.5	NO		dd		0.000
33	FUNCTION1 HXCD...	25.20	4.754e2					1.5	NO		dd		0.000
34	FUNCTION1 HXCD...	25.10	7.322e3					13.2	YES		dd		0.000
35	FUNCTION1 HXCD...	24.97	2.336e2					0.7	NO		dd		0.000
36	FUNCTION1 HXCD...	24.87	1.190e4					23.6	YES		bd		0.000
37	FUNCTION1 HXCD...	24.70	2.839e3					5.3	YES		bb		0.000

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION1 HXCD...	24.53	6.652e3					10.3	YES		db		0.000
39	FUNCTION1 HXCD...	24.43	5.373e3					9.7	YES		dd		0.000
40	FUNCTION1 HXCD...	27.22	3.878e3					8.1	YES		bb		0.000
41	FUNCTION1 HXCD...	26.95	8.923e3					11.0	YES		db		0.000
42	FUNCTION1 HXCD...	26.81	5.106e2					1.2	NO		bd		0.000
43	FUNCTION1 HXCD...	26.64	1.695e3					3.0	NO		db		0.000
44	FUNCTION1 HXCD...	26.54	6.867e2					1.4	NO		bd		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	29.06	1.030e3					9.5	YES		db		0.000
2	FUNCTION2 HPCD...	28.99	1.083e3					9.2	YES		bd		0.000
3	FUNCTION2 HPCD...	28.82	6.346e2					5.6	YES		bb		0.000
4	FUNCTION2 HPCD...	28.64	2.142e2					3.3	YES		bb		0.000
5	FUNCTION2 HPCD...	28.50	5.150e2					5.2	YES		db		0.000
6	FUNCTION2 HPCD...	28.41	9.508e2					8.4	YES		dd		0.000
7	FUNCTION2 HPCD...	28.28	1.593e4					143.8	YES		dd		0.000
8	FUNCTION2 HPCD...	28.14	1.274e3					9.3	YES		bd		0.000
9	FUNCTION2 HPCD...	27.90	1.397e3					8.6	YES		bb		0.000
10	FUNCTION2 HPCD...	27.72	9.270e2					9.4	YES		bb		0.000
11	FUNCTION2 HPCD...	31.53	6.666e3					54.4	YES		bb		0.000
12	FUNCTION2 HPCD...	30.45	2.148e3					16.7	YES		bb		0.000
13	FUNCTION2 HPCD...	29.95	6.433e3					58.1	YES		bb		0.000
14	FUNCTION2 HPCD...	29.65	7.661e2					6.0	YES		bb		0.000
15	FUNCTION2 HPCD...	29.43	4.204e2					4.5	YES		bb		0.000

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ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.27	7.479e1					3.6	YES		bb		0.000
2	FUNCTION3 OCDPE	33.55	3.933e2					12.5	YES		bb		0.000
3	FUNCTION3 OCDPE	33.04	2.513e2					9.8	YES		bb		0.000
4	FUNCTION3 OCDPE	32.41	1.772e3					62.6	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	42.27	1.461e2					2.3	NO		bb		0.000
2	FUNCTION4 NCDPE	39.64	1.011e2					2.7	NO		bb		0.000
3	FUNCTION4 NCDPE	39.33	7.031e1					3.0	NO		bb		0.000
4	FUNCTION4 NCDPE	37.84	1.662e2					5.1	YES		bb		0.000

ETHERS6

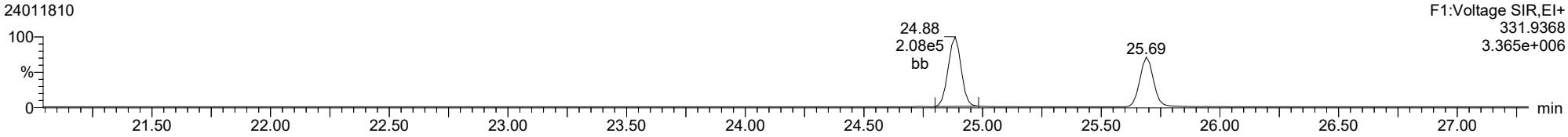
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Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
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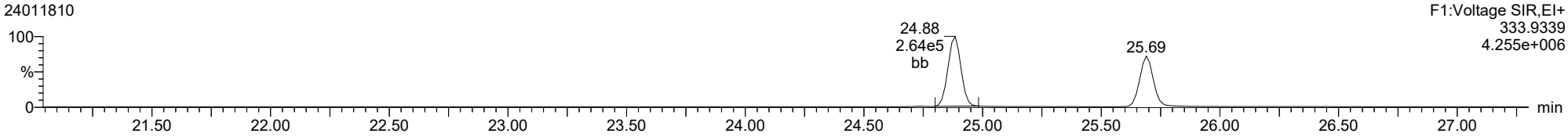
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ID: 23L0564-01, Name: 24011810, Date: 18-Jan-2024, Time: 17:11:21, Conditions: AUTOSPEC01, User: pk

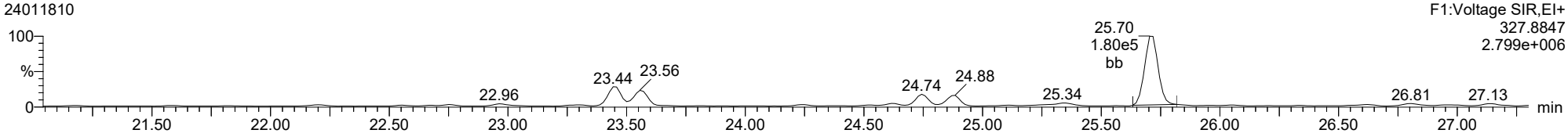
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13C-1234-TCDD

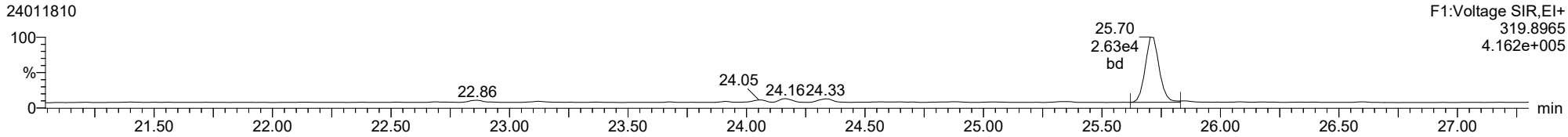


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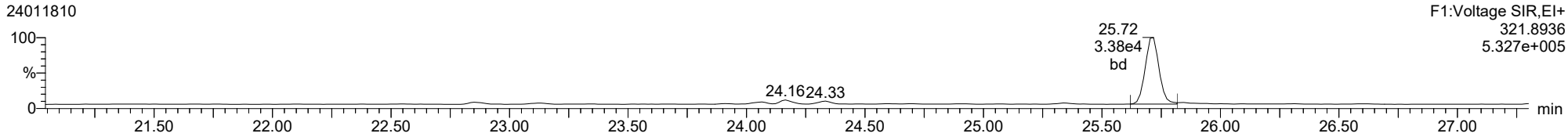


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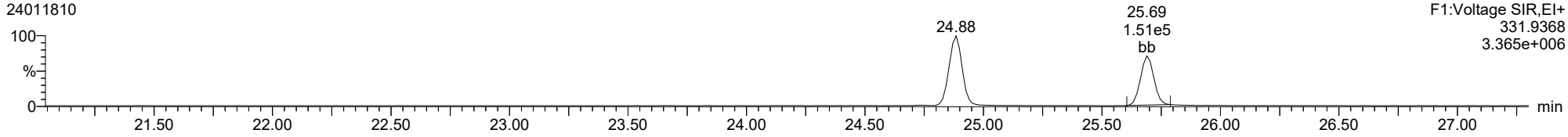
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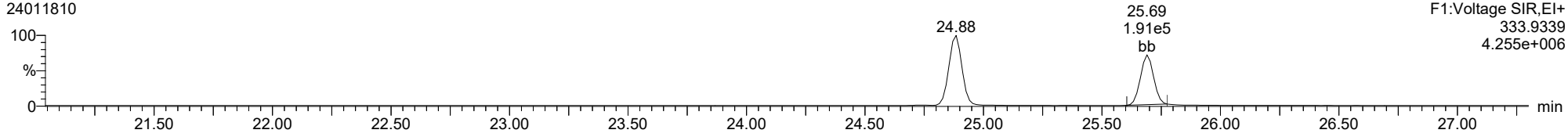
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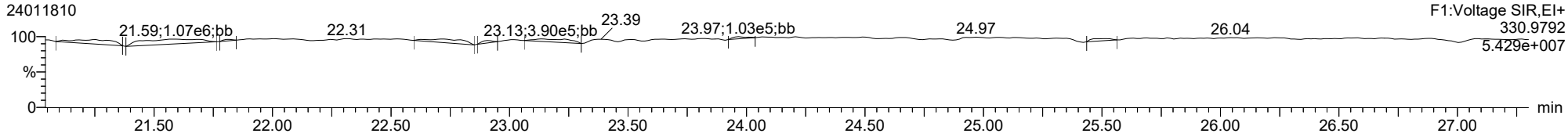
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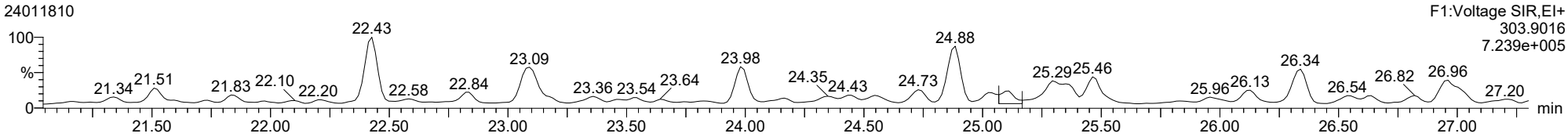
FUNCTION1 PFK



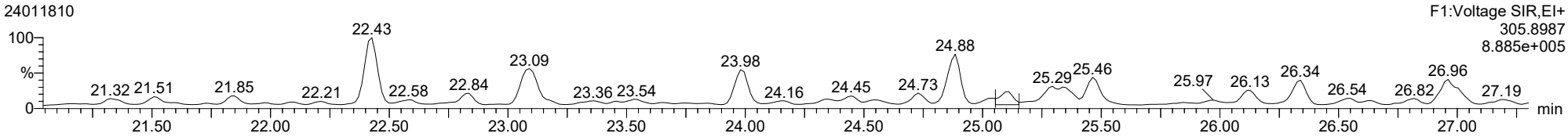
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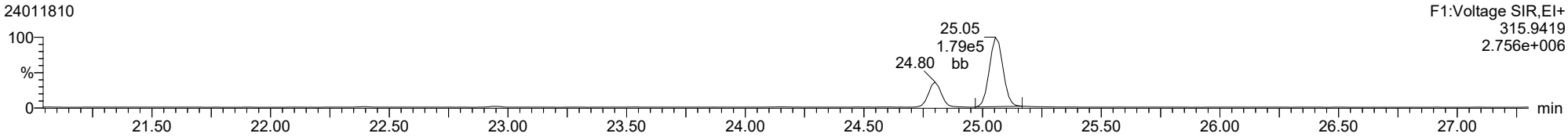
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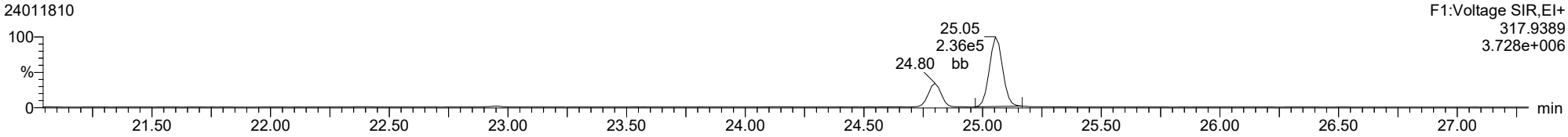
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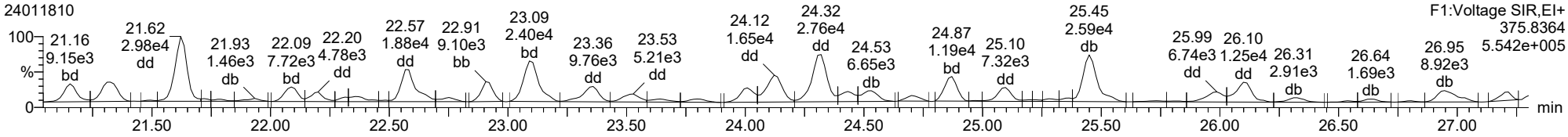
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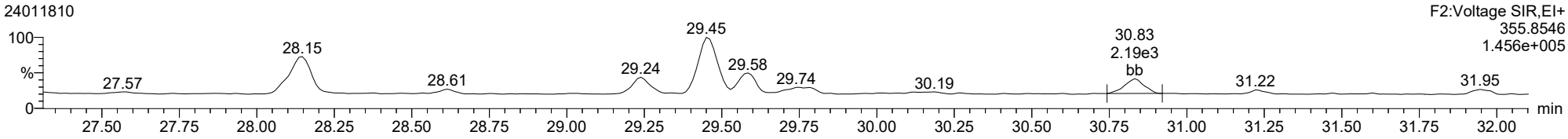


FUNCTION1 HXCDPE

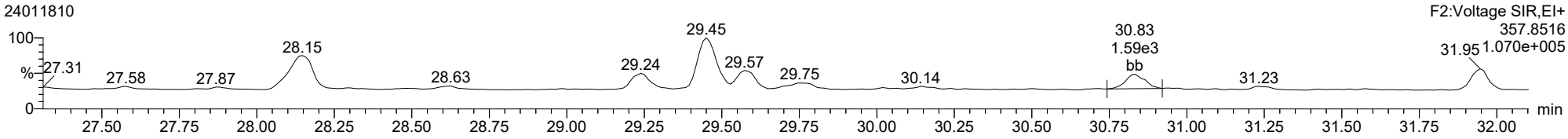


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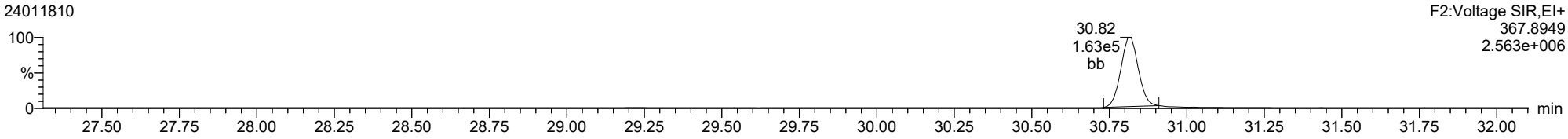
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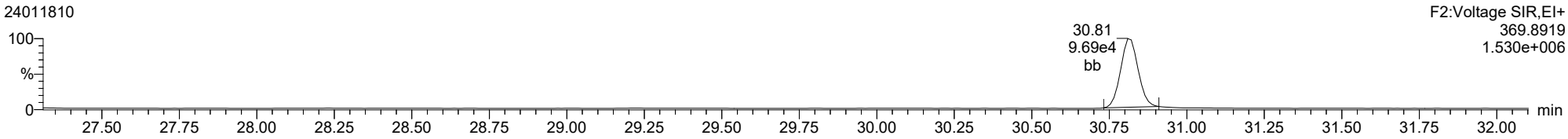
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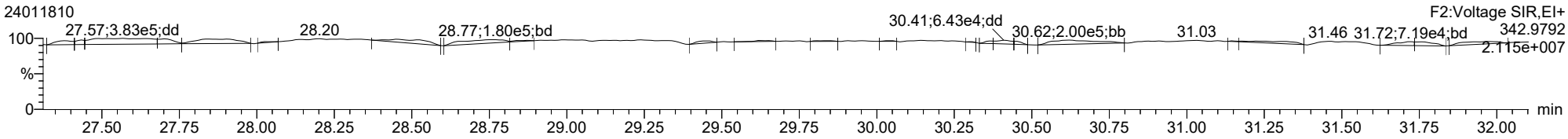
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13C-12378-PeCDD

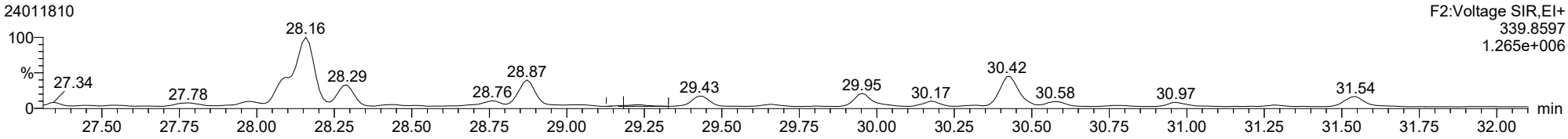


FUNCTION2 PFK

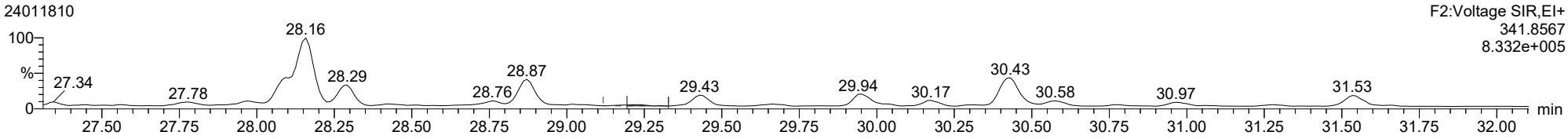


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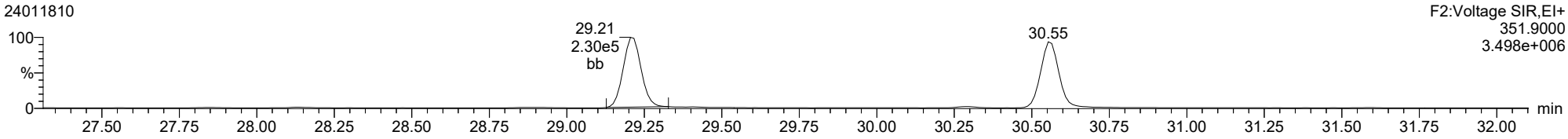
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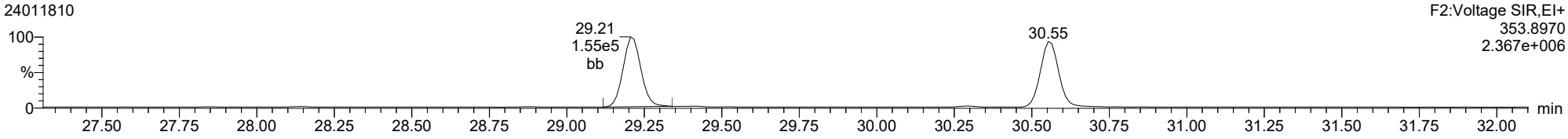
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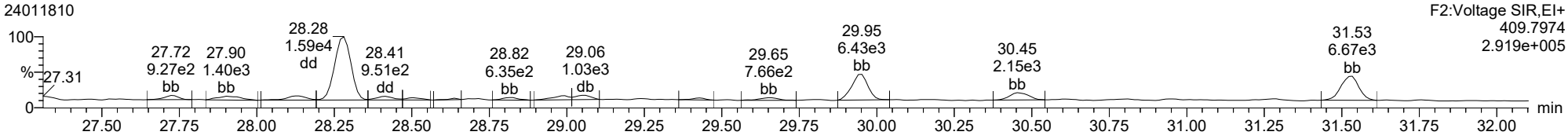
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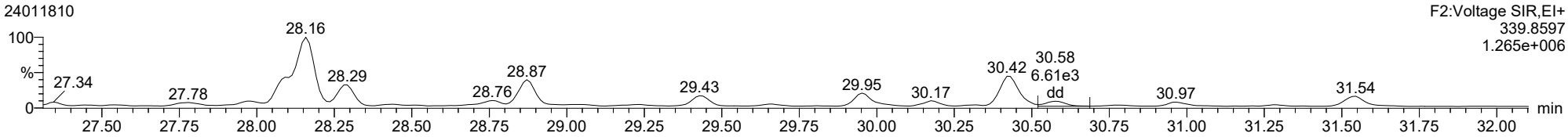


FUNCTION2 HPCDPE

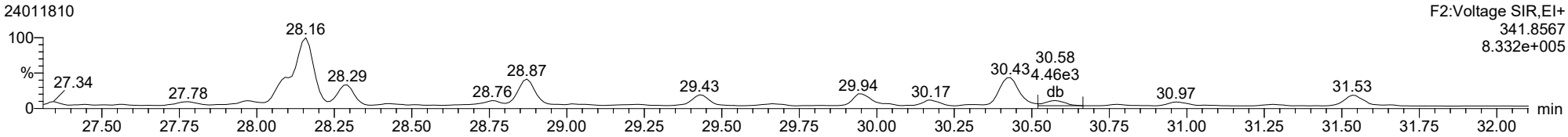


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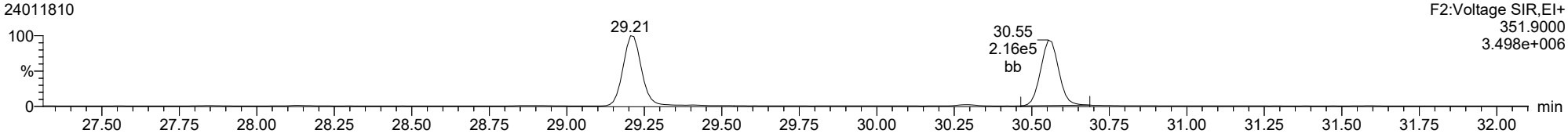
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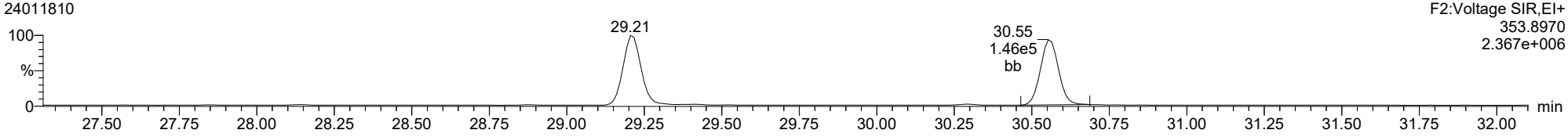
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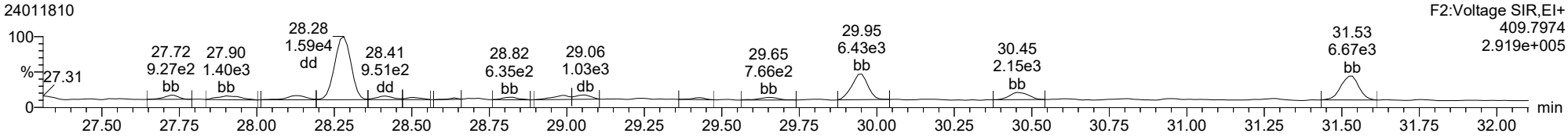
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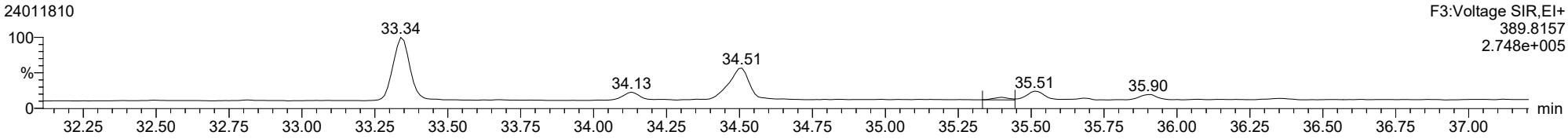


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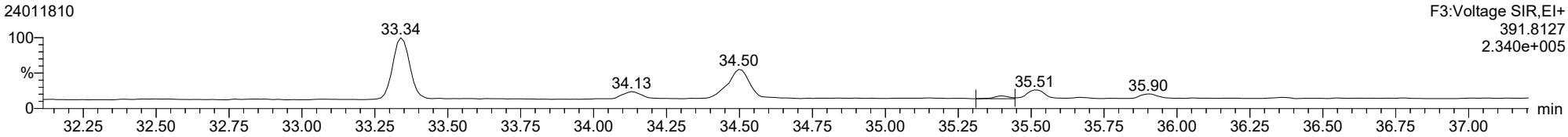


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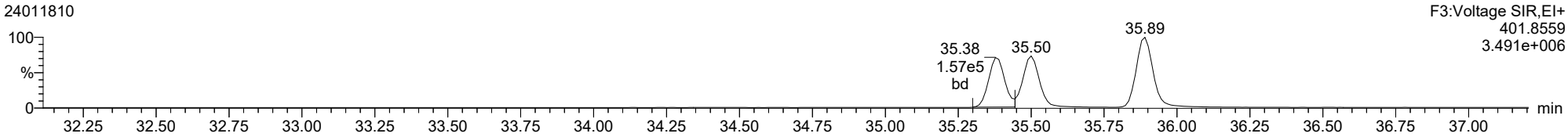
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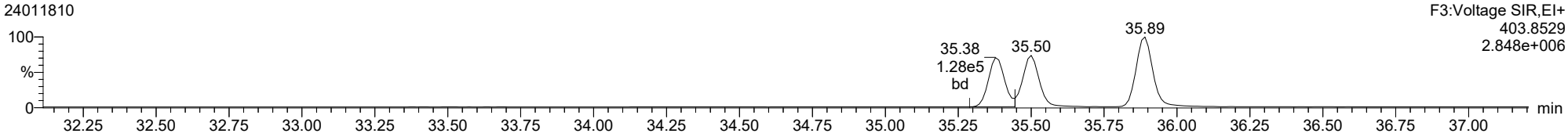
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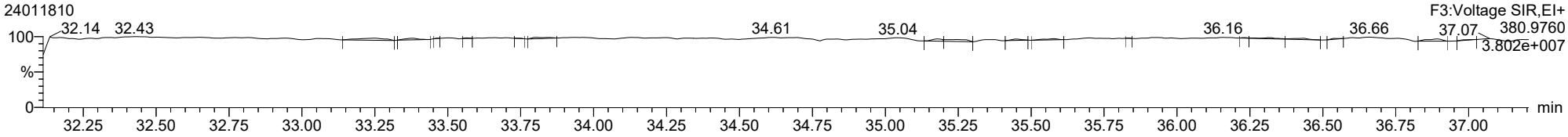
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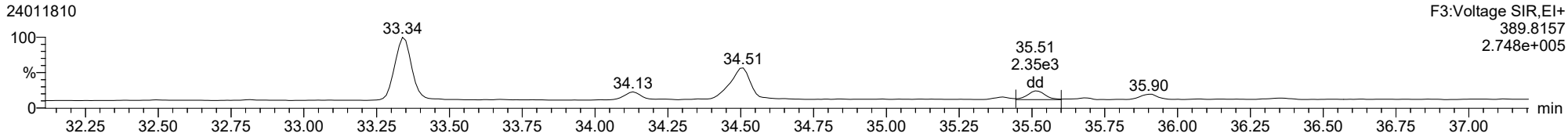


FUNCTION3 PFK

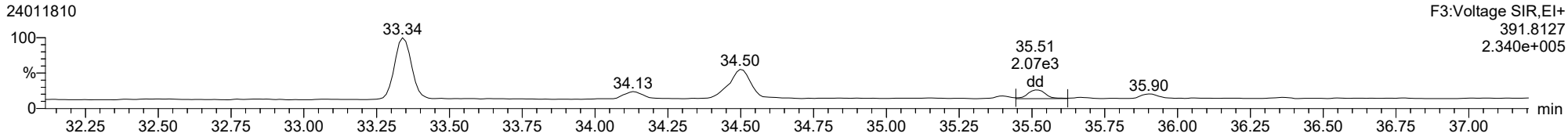


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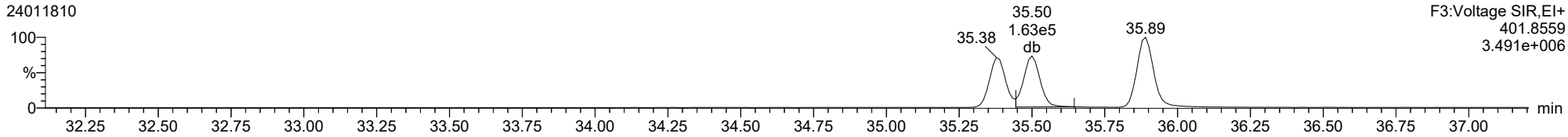
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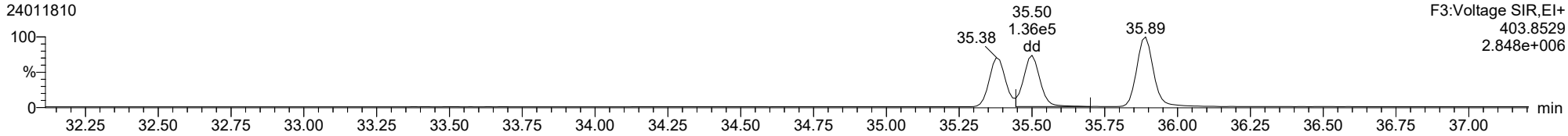
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13C-123678-HxCDD



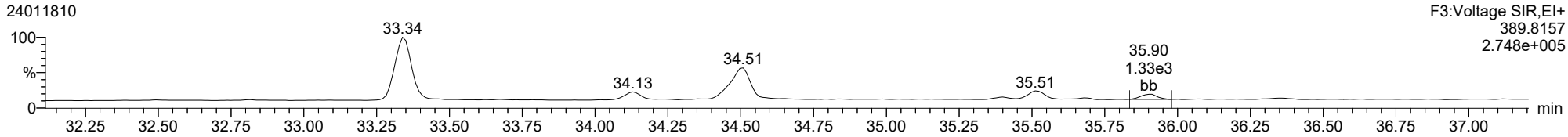
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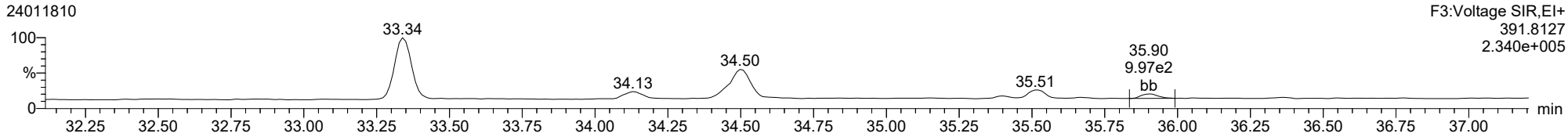
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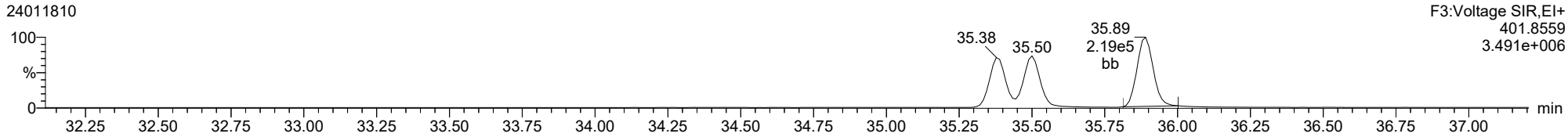
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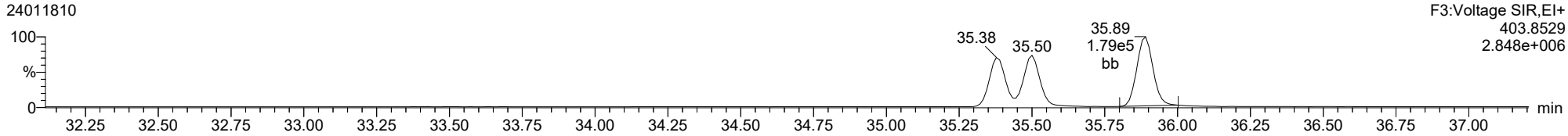
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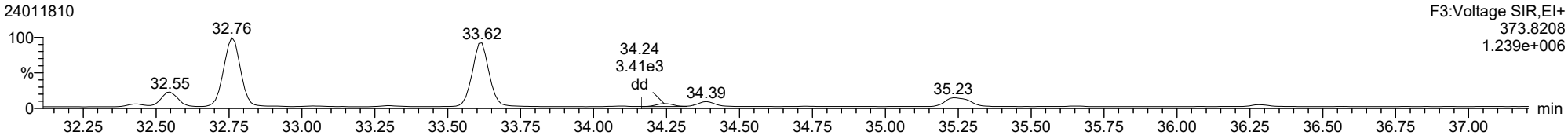


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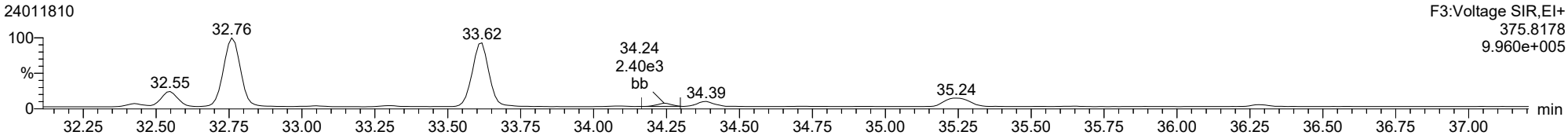


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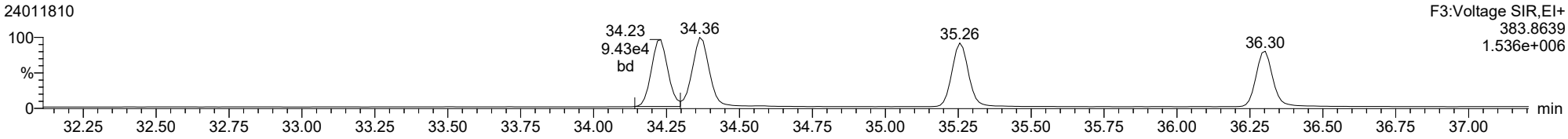
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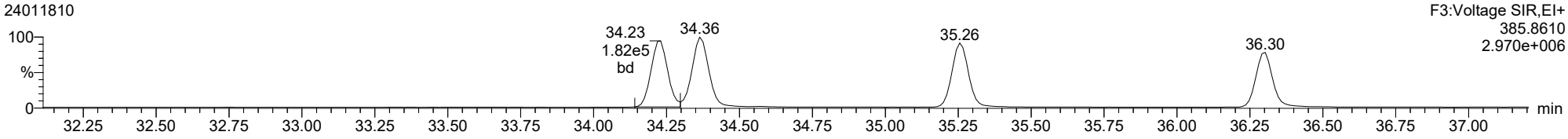
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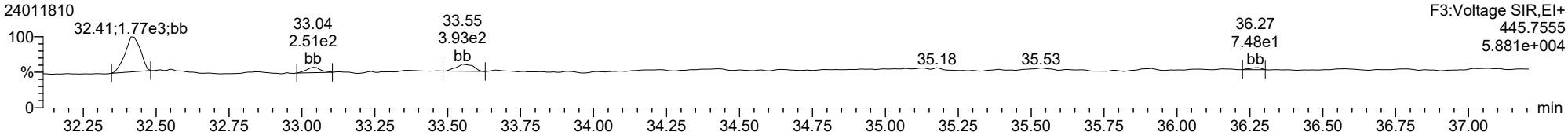
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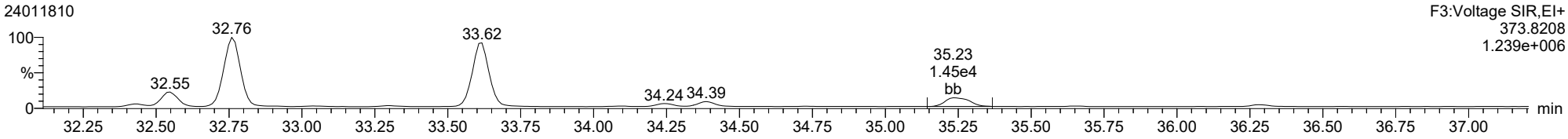


FUNCTION3 OCDPE

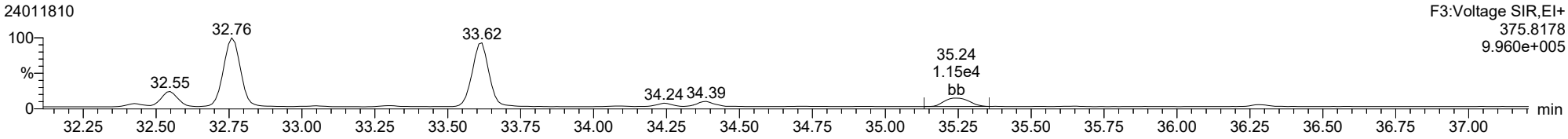


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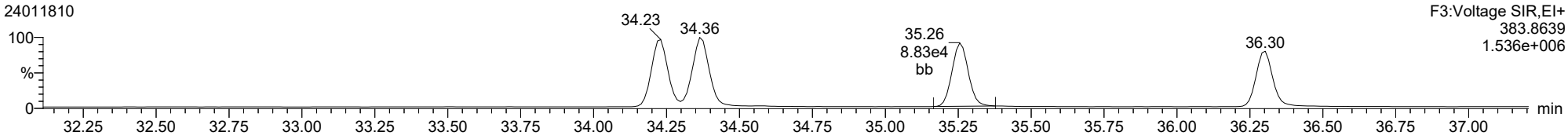
234678-HxCDF



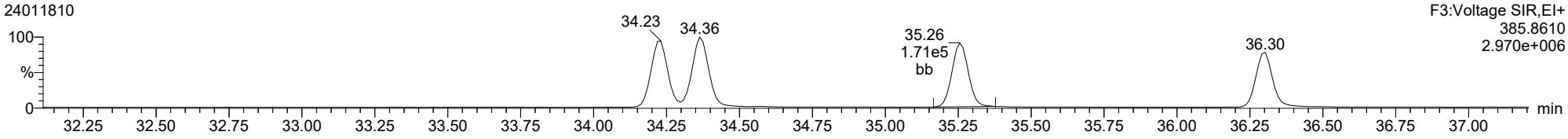
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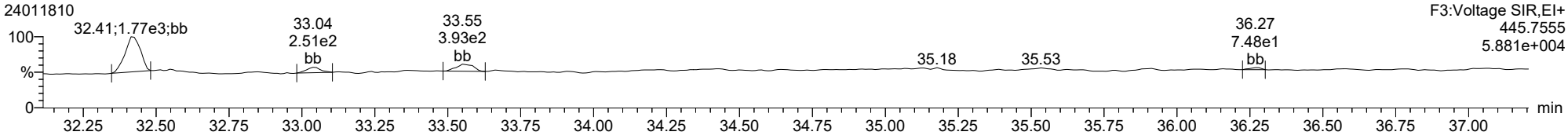
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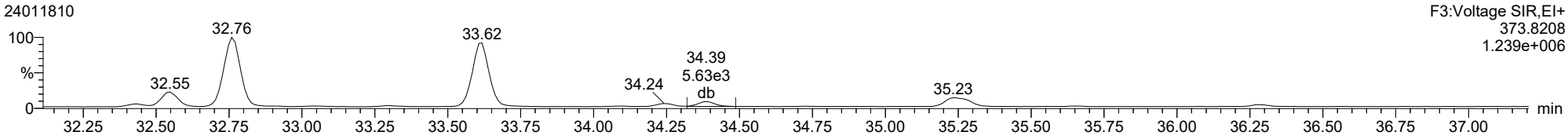


FUNCTION3 OCDPE

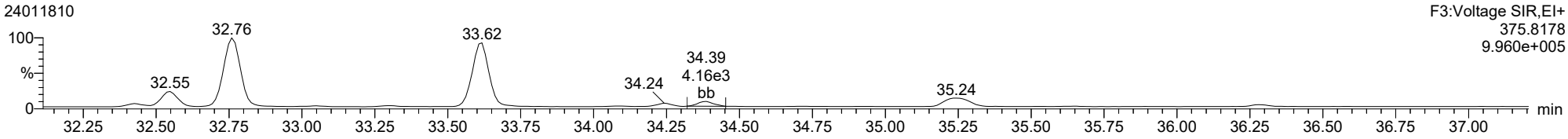


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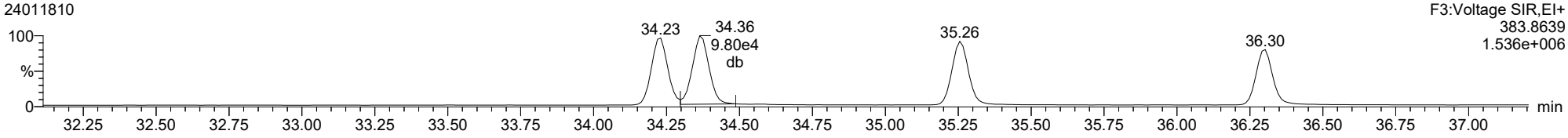
123678-HxCDF



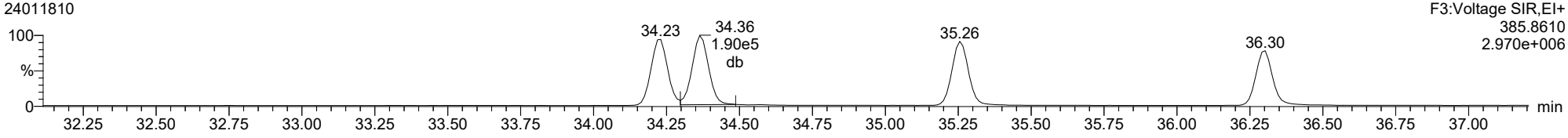
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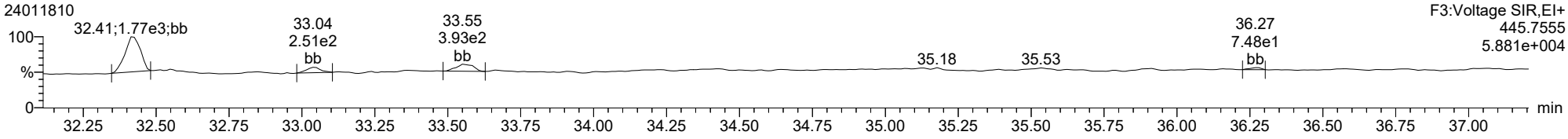
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13C-123678-HxCDF

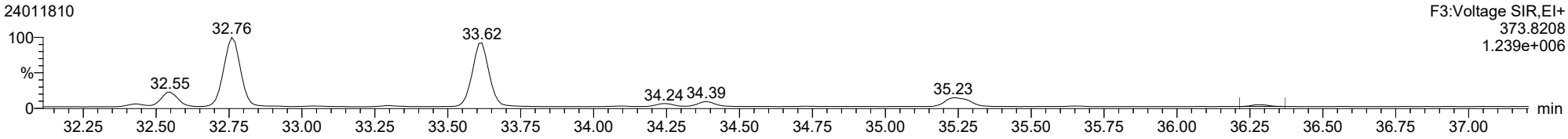


FUNCTION3 OCDPE

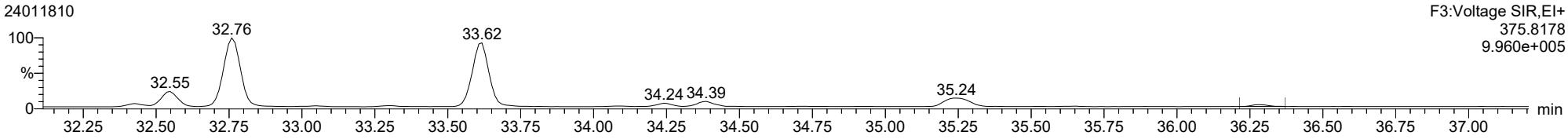


ID: 23L0564-01, Name: 24011810, Date: 18-Jan-2024, Time: 17:11:21, Conditions: AUTOSPEC01, User: pk

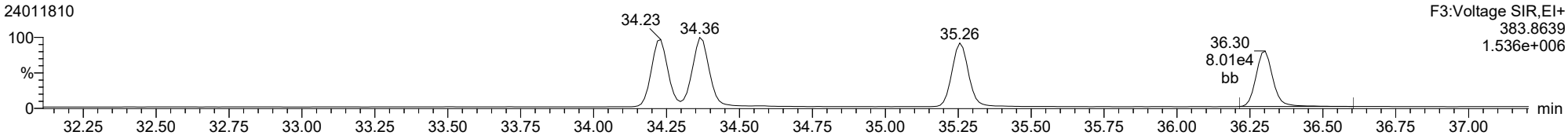
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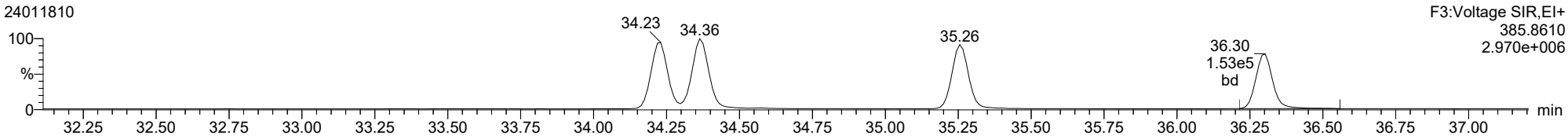
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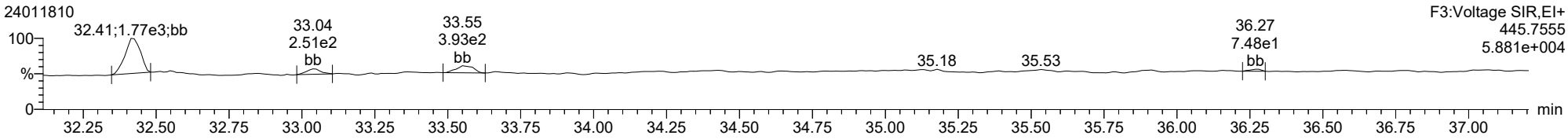
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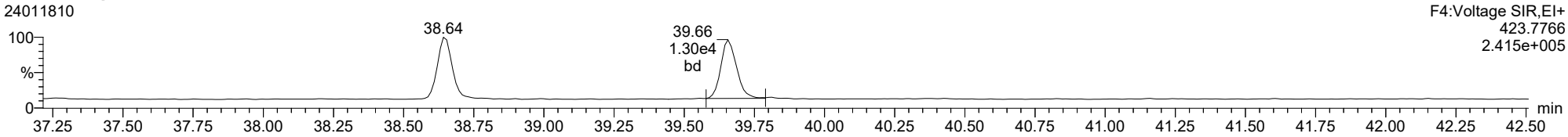


FUNCTION3 OCDPE

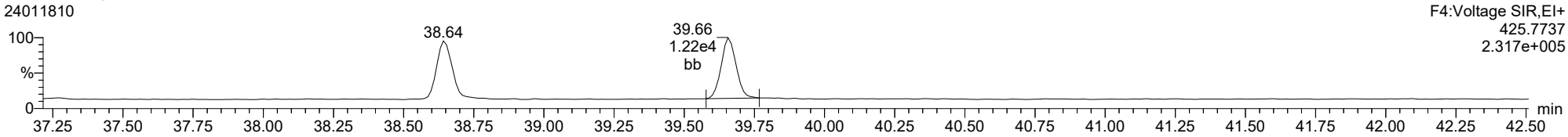


ID: 23L0564-01, Name: 24011810, Date: 18-Jan-2024, Time: 17:11:21, Conditions: AUTOSPEC01, User: pk

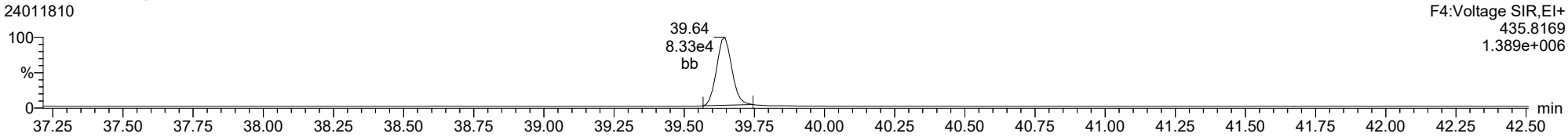
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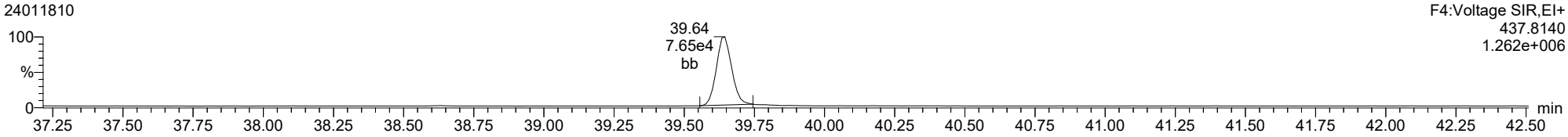
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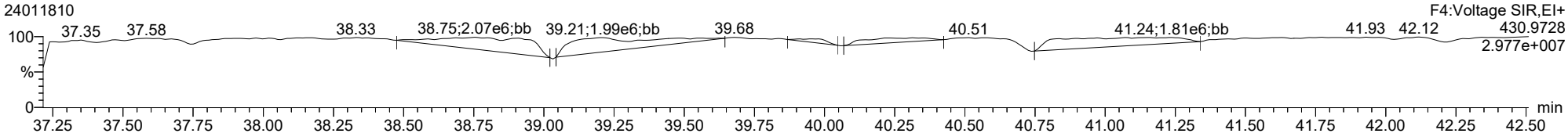
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13C-1234678-HpCDD

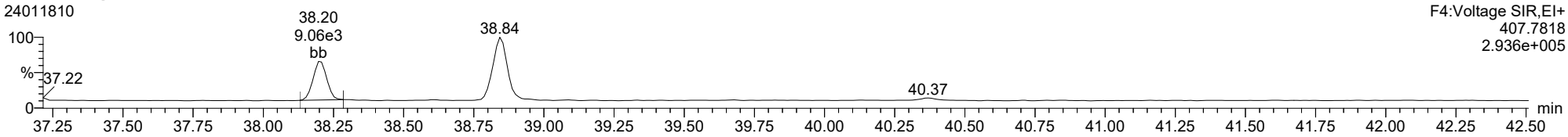


FUNCTION4 PFK

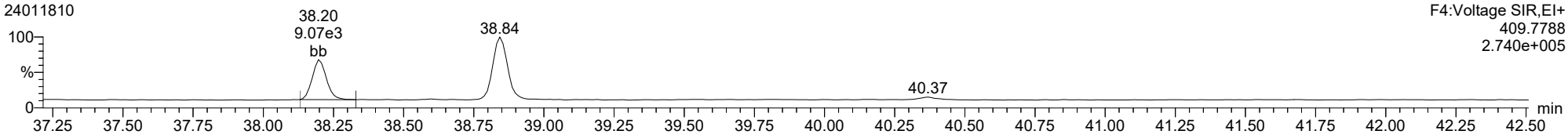


ID: 23L0564-01, Name: 24011810, Date: 18-Jan-2024, Time: 17:11:21, Conditions: AUTOSPEC01, User: pk

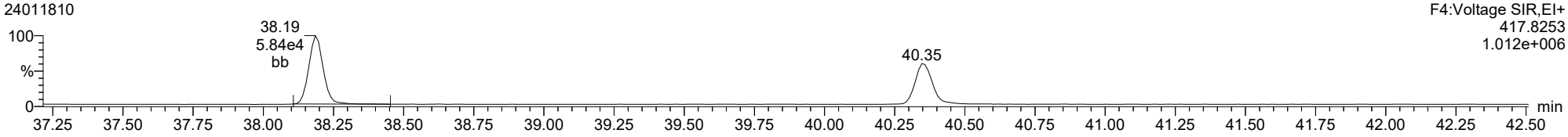
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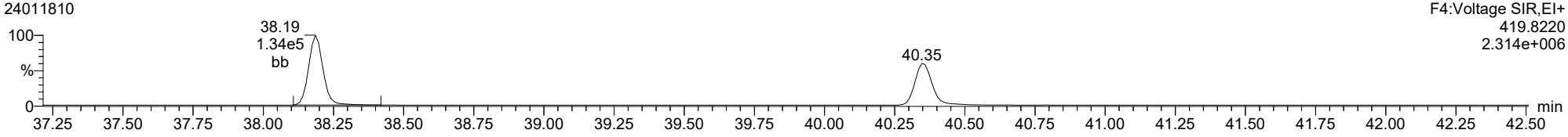
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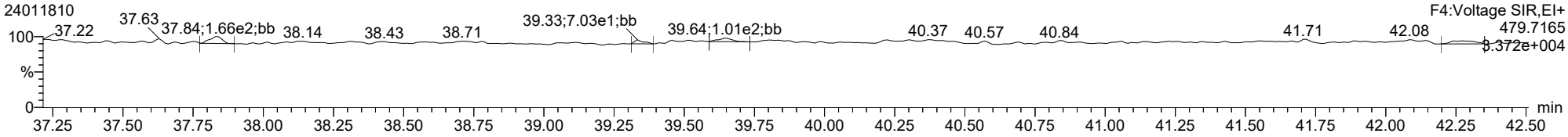
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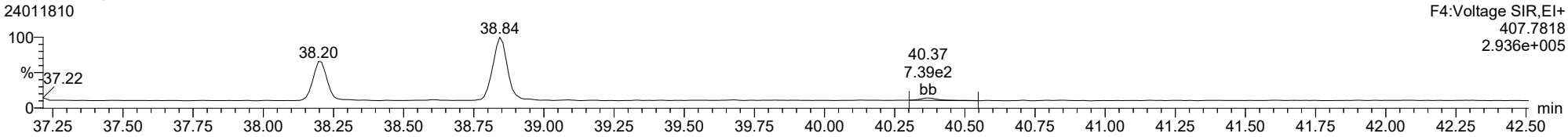


FUNCTION4 NCDPE

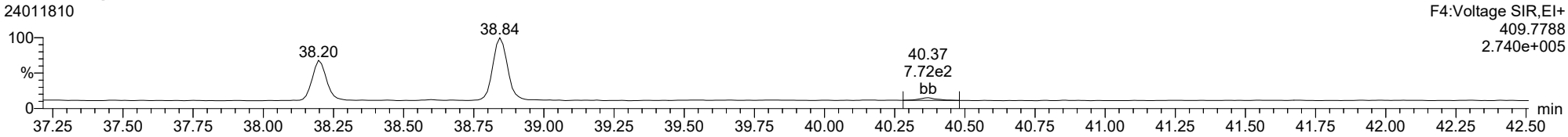


ID: 23L0564-01, Name: 24011810, Date: 18-Jan-2024, Time: 17:11:21, Conditions: AUTOSPEC01, User: pk

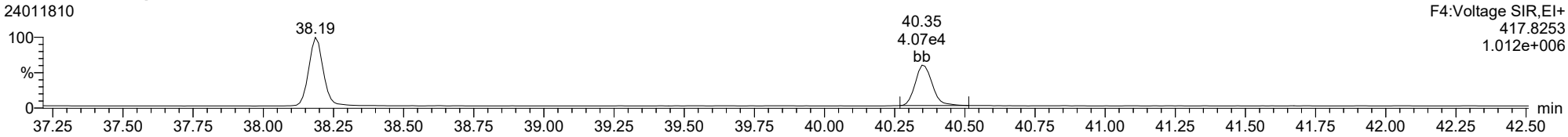
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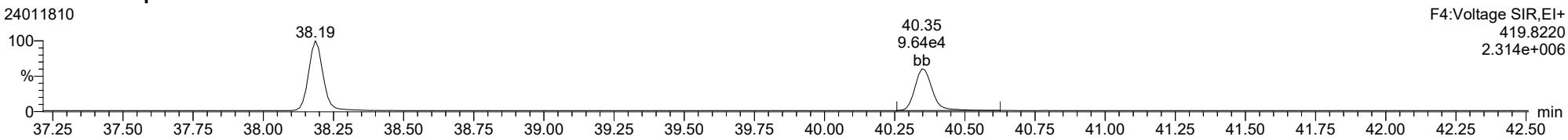
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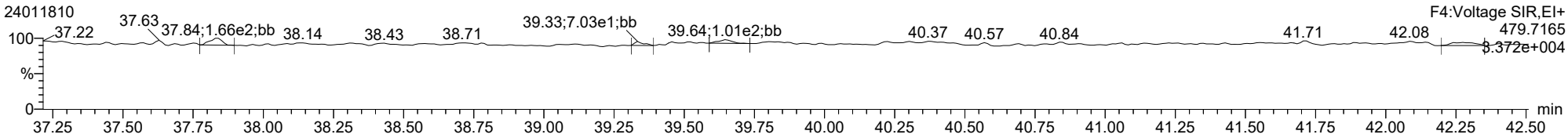
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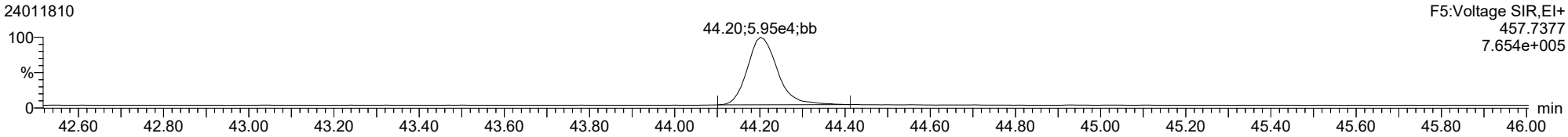


FUNCTION4 NCDPE

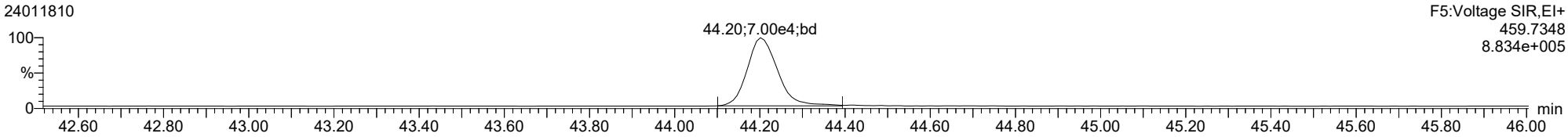


ID: 23L0564-01, Name: 24011810, Date: 18-Jan-2024, Time: 17:11:21, Conditions: AUTOSPEC01, User: pk

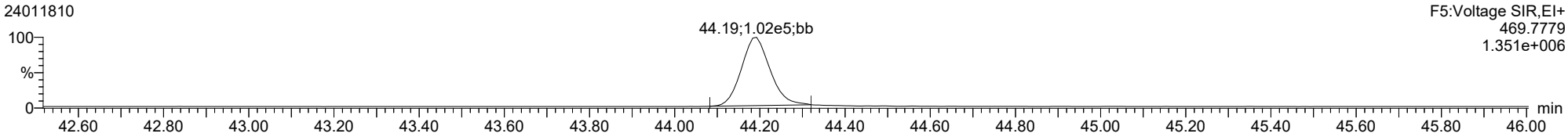
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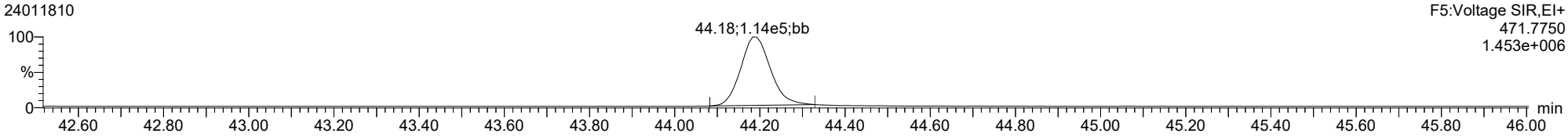
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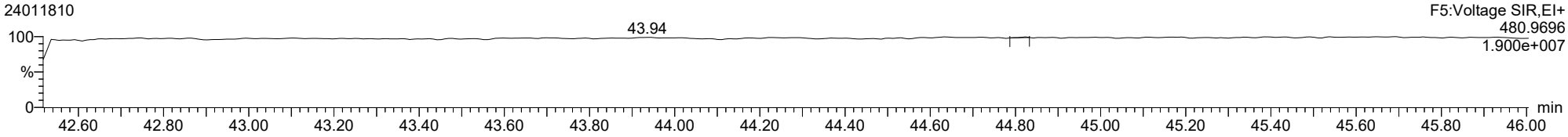
13C-OCDD



13C-OCDD

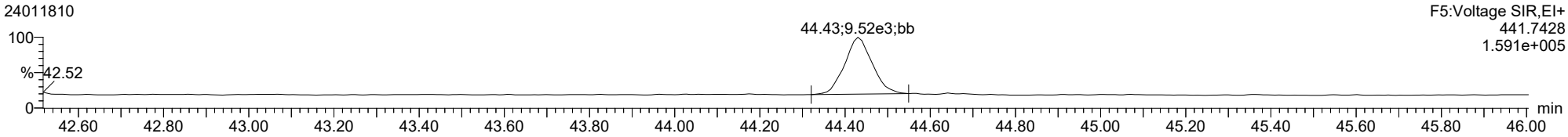


FUNCTION5 PFK

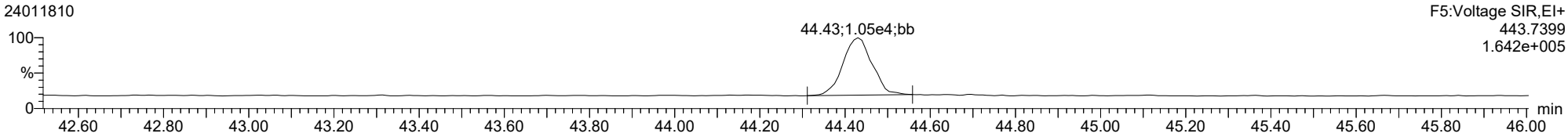


ID: 23L0564-01, Name: 24011810, Date: 18-Jan-2024, Time: 17:11:21, Conditions: AUTOSPEC01, User: pk

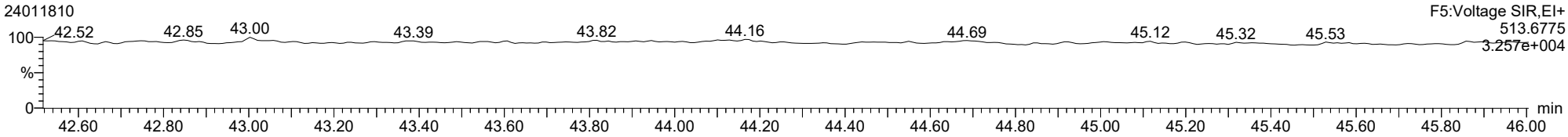
OCDF



OCDF

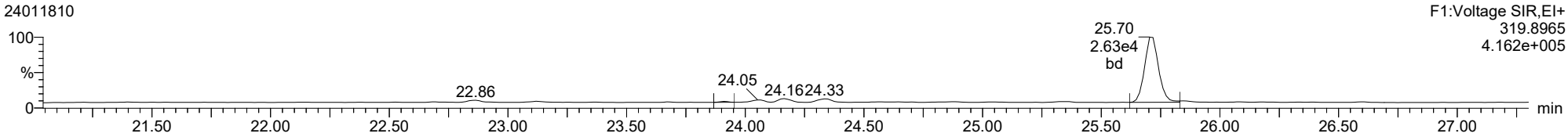


FUNCTION5 DCDPE

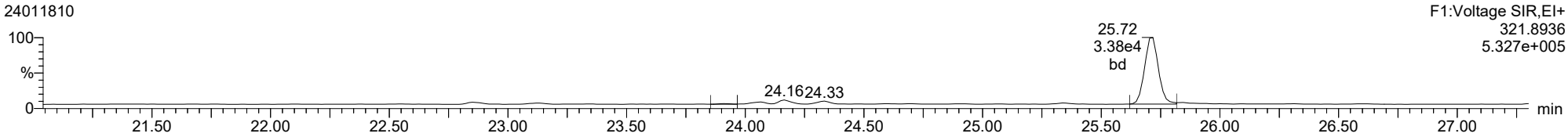


ID: 23L0564-01, Name: 24011810, Date: 18-Jan-2024, Time: 17:11:21, Conditions: AUTOSPEC01, User: pk

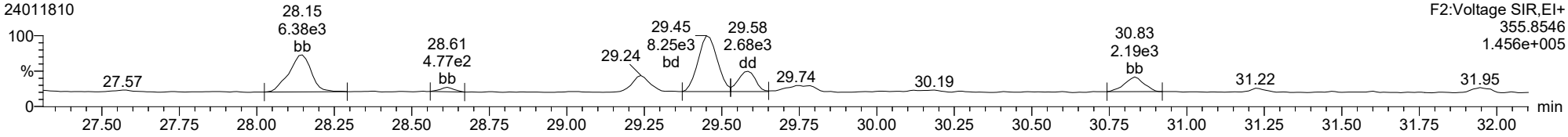
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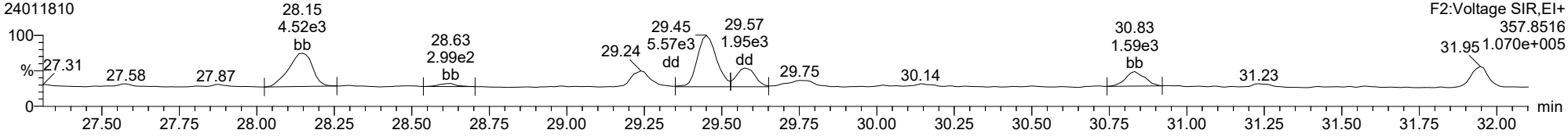
Total-tetradioxins



Total-pentadioxins

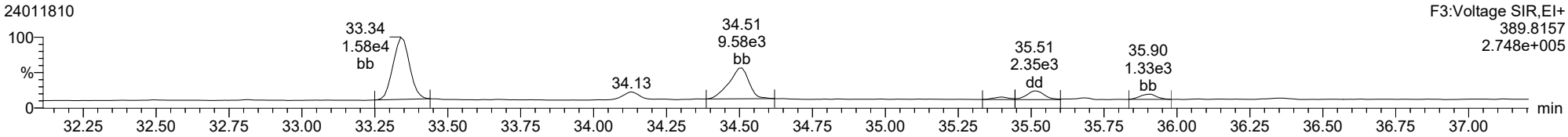


Total-pentadioxins

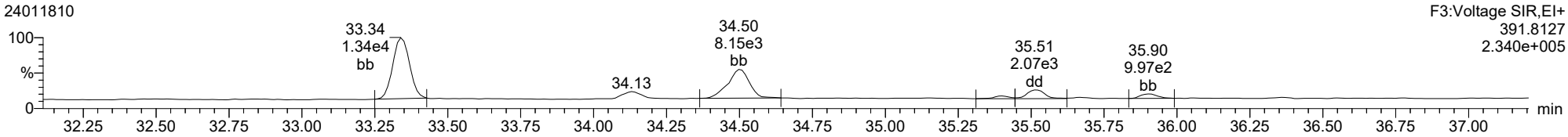


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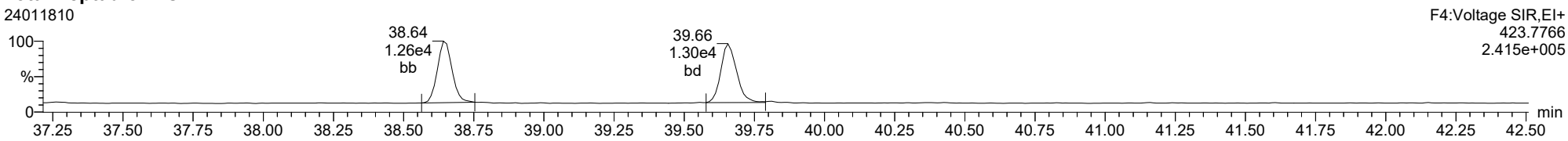
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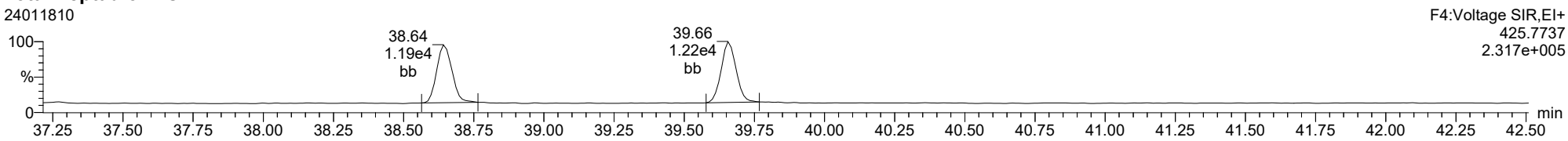
Total-hexadioxins



Total-heptadioxins



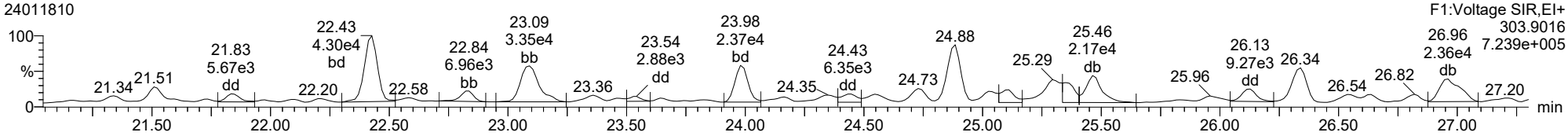
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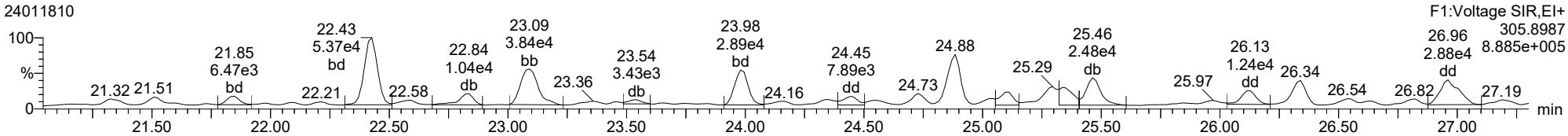
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Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:46:46 Pacific Standard Time

ID: 23L0564-01, Name: 24011810, Date: 18-Jan-2024, Time: 17:11:21, Conditions: AUTOSPEC01, User: pk

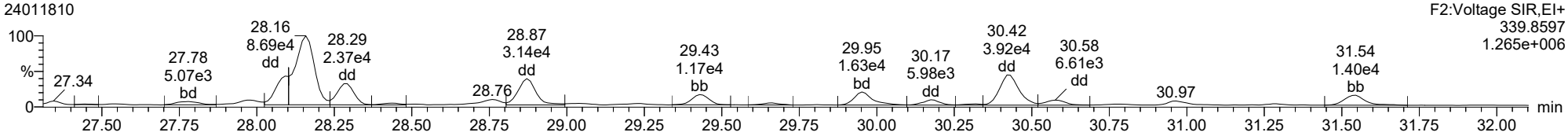
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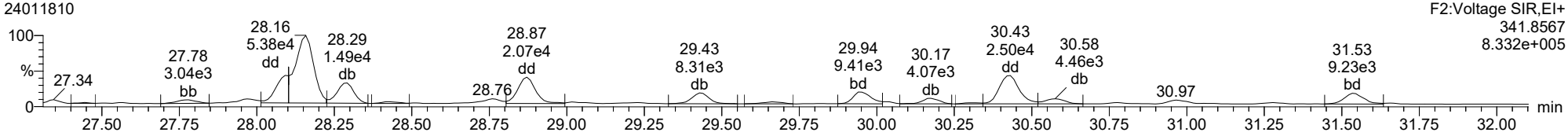
Total-tetrafurans



Total-pentafurans

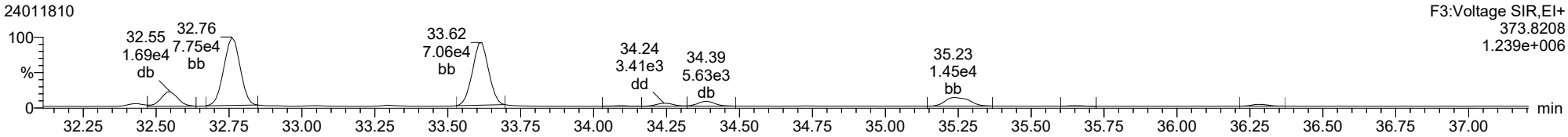


Total-pentafurans

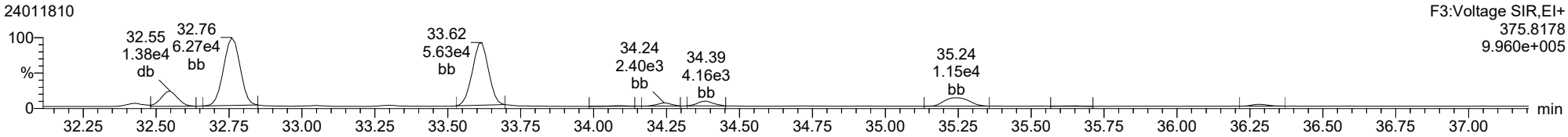


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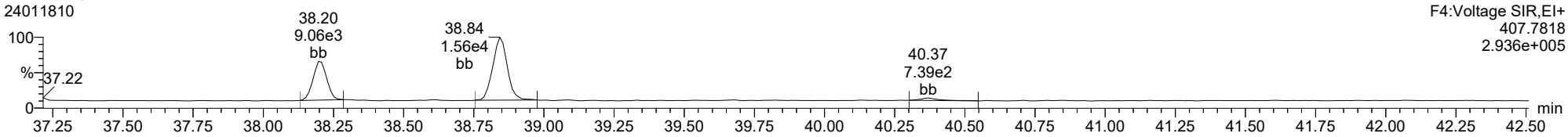
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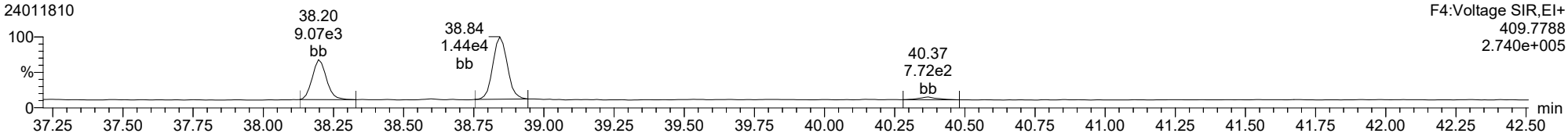
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

H4H-02-0.5-1.0

Form 1
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23L0564
Client:	Floyd - Snider				
Project:	Smith-Kem				
Matrix:	Soil	Laboratory ID:	23L0564-02 A	File ID:	24011811
Sampled:	09/07/23 10:00	Prepared:	01/02/24 14:00	Analyzed:	01/18/24 18:00
% Solids:	91.83	Preparation:	EPA 1613	Initial/Final:	10.94 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SMA0233	Calibration:	GH00041
Batch:	BLL0751	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.627	0.655-0.886	0.779	0.995	2.87	ng/kg	EMPC, X
1746-01-6	2,3,7,8-TCDD	1	0.717	0.655-0.886	0.150	0.995	3.56	ng/kg	
57117-41-6	1,2,3,7,8-PeCDF	1		1.318-1.783	0.632	0.995	ND	ng/kg	U
57117-31-4	2,3,4,7,8-PeCDF	1	1.737	1.318-1.783	0.625	0.995	3.34	ng/kg	
40321-76-4	1,2,3,7,8-PeCDD	1	1.327	1.318-1.783	0.229	0.995	1.13	ng/kg	
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.144	1.054-1.426	0.154	0.995	1.19	ng/kg	
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.215	1.054-1.426	0.163	0.995	3.08	ng/kg	
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.330	1.054-1.426	0.160	0.995	8.16	ng/kg	
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.126	1.054-1.426	0.204	0.995	1.16	ng/kg	
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.081	1.054-1.426	0.136	0.995	0.460	ng/kg	J
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.021	1.054-1.426	0.152	0.995	1.47	ng/kg	EMPC
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.168	1.054-1.426	0.165	0.995	0.805	ng/kg	J
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.101	0.893-1.208	0.160	0.995	12.6	ng/kg	B
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	1.217	0.893-1.208	0.243	0.995	0.760	ng/kg	EMPC, J
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.015	0.893-1.208	0.186	2.49	19.8	ng/kg	B
39001-02-0	OCDF	1	0.807	0.757-1.024	0.338	2.49	21.0	ng/kg	B
3268-87-9	OCDD	1	0.848	0.757-1.024	0.542	9.95	177	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			0.995	96.5	ng/kg	
41903-57-5	Total TCDD	1	0.000			0.995	7.80	ng/kg	
30402-15-4	Total PeCDF	1	0.000			0.995	226	ng/kg	
36088-22-9	Total PeCDD	1	0.000			0.995	12.8	ng/kg	
55684-94-1	Total HxCDF	1	0.000			0.995	105	ng/kg	
34465-46-8	Total HxCDD	1	0.000			0.995	20.9	ng/kg	
38998-75-3	Total HpCDF	1	0.000			0.995	30.0	ng/kg	
37871-00-4	Total HpCDD	1	0.000			0.995	36.9	ng/kg	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 8.00

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 8.01

Analytical Resources, Incorporated
Analytical Chemists and Consultants

H4H-02-0.5-1.0

Form 2

ORGANIC ANALYSIS DATA SHEET

EPA 1613B

Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23L0564
Client:	Floyd - Snider			Project:	Smith-Kem
Matrix:	Soil	Laboratory ID:	23L0564-02	File ID:	24011811
Sampled:	09/07/23 10:00	Prepared:	01/02/24 14:00	Analyzed:	01/18/24 18:00
Solids Wt%:	91.83	Preparation:	EPA 1613	Initial/Final:	10.94 g / 20 uL
Result Basis:	Dry	Sequence:	SMA0233	Calibration:	GH00041
Batch:	BLL0751	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.764	0.655-0.886	0.123	61.4	24 - 169 %	
13C12-2,3,7,8-TCDD		0.777	0.655-0.886	0.162	79.0	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.505	1.318-1.783	0.149	70.4	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.507	1.318-1.783	0.158	70.4	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.632	1.318-1.783	0.314	82.6	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.512	0.434-0.587	0.162	66.7	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.510	0.434-0.587	0.132	57.8	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.521	0.434-0.587	0.161	65.1	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.520	0.434-0.587	0.185	67.3	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.232	1.054-1.426	0.218	81.4	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.234	1.054-1.426	0.181	68.4	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.429	0.374-0.506	0.136	55.9	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.434	0.374-0.506	0.177	55.8	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.074	0.893-1.208	0.261	75.4	23 - 140 %	
13C12-OCDD		0.899	0.757-1.024	0.289	55.5	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.142	83.3	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:47:02 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240116.mdb 16 Jan 2024 11:29:56
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: 23L0564-02, Name: 24011811, Date: 18-Jan-2024, Time: 18:00:27, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.054	1.001	2.767e3	4.412e3	0.903	0.627	0.770	5169	4916	5.17e4	7.46e4	10.0	15.2	YES	MM	MM	1.440
12378-PeCDF					0.923		1.550	4290	2707								
23478-PeCDF	30.565	1.001	4.732e3	2.724e3	0.991	1.737	1.550	4290	2707	6.16e4	4.07e4	14.4	15.0	NO	db	db	1.677
123478-HxCDF	34.208	1.000	1.235e3	1.079e3	1.128	1.144	1.240	855	688	1.97e4	1.96e4	23.0	28.5	NO	bd	bb	0.598
234678-HxCDF	35.222	1.000	8.504e3	6.393e3	1.081	1.330	1.240	855	688	9.10e4	6.65e4	106.3	96.6	NO	bb	bb	4.101
123678-HxCDF	34.353	1.001	3.201e3	2.635e3	1.032	1.215	1.240	855	688	5.21e4	4.45e4	60.9	64.7	NO	db	bb	1.548
123789-HxCDF	36.258	1.000	9.201e2	8.170e2	0.988	1.126	1.240	855	688	1.38e4	1.35e4	16.1	19.6	NO	bb	bb	0.582
1234678-HpCDF	38.164	1.001	1.007e4	9.147e3	1.164	1.101	1.050	752	555	1.61e5	1.52e5	213.7	273.3	NO	bb	bd	6.354
1234789-HpCDF	40.325	1.000	4.602e2	3.782e2	1.104	1.217	1.050	752	555	7.08e3	5.25e3	9.4	9.5	YES	db	bb	0.382
OCDF	44.385	1.006	8.867e3	1.099e4	1.130	0.807	0.890	524	827	1.09e5	1.37e5	208.6	165.9	NO	bb	bb	10.563
2378-TCDD	25.704	1.001	3.989e3	5.560e3	1.243	0.717	0.770	1237	841	6.49e4	8.80e4	52.5	104.5	NO	bb	bd	1.789
12378-PeCDD	30.810	1.001	1.136e3	8.563e2	1.150	1.327	1.550	1254	826	1.56e4	1.02e4	12.4	12.4	NO	MM	bb	0.568
123478-HxCDD	35.367	1.000	4.251e2	3.931e2	0.960	1.081	1.240	662	646	7.40e3	5.73e3	11.2	8.9	NO	MM	bd	0.231
123678-HxCDD	35.478	1.000	1.231e3	1.207e3	0.883	1.021	1.240	662	646	2.04e4	2.19e4	30.8	33.8	YES	MM	db	0.738
123789-HxCDD	35.868	1.011	6.501e2	5.567e2	0.804	1.168	1.240	662	646	9.90e3	1.01e4	15.0	15.6	NO	bb	bb	0.404
1234678-HpCDD	39.612	1.000	1.348e4	1.329e4	1.200	1.015	1.050	622	708	1.98e5	2.02e5	319.0	285.8	NO	bb	bb	9.963
OCDD	44.156	1.000	7.189e4	8.482e4	1.059	0.848	0.890	937	1091	8.79e5	1.04e6	937.4	951.9	NO	bd	bd	89.008
13C-2378-TCDF	25.040	1.007	2.391e5	3.130e5	1.835	0.764	0.770	1374	1646	3.71e6	4.87e6	2695.9	2955.8	NO	bb	bb	61.380
13C-12378-PeCDF	29.194	1.174	2.852e5	1.895e5	1.377	1.505	1.550	1407	1333	4.30e6	2.89e6	3058.5	2165.0	NO	bb	bb	70.351
13C-23478-PeCDF	30.531	1.228	2.698e5	1.790e5	1.301	1.507	1.550	1407	1333	4.06e6	2.72e6	2885.0	2041.5	NO	bb	bb	70.371
13C-123478-HxCDF	34.197	0.954	1.161e5	2.270e5	1.091	0.512	0.510	882	1325	1.79e6	3.48e6	2031.5	2623.7	NO	bd	bd	66.697
13C-123678-HxCDF	34.331	0.957	1.233e5	2.419e5	1.340	0.510	0.510	882	1325	1.84e6	3.60e6	2092.1	2717.0	NO	db	db	57.763
13C-234678-HxCDF	35.222	0.982	1.151e5	2.208e5	1.093	0.521	0.510	882	1325	1.83e6	3.46e6	2069.9	2609.1	NO	bb	bb	65.116
13C-123789-HxCDF	36.269	1.012	1.034e5	1.989e5	0.952	0.520	0.510	882	1325	1.57e6	3.01e6	1775.4	2269.6	NO	bb	bb	67.335
13C-1234678-HpCDF	38.141	1.064	7.806e4	1.818e5	0.985	0.429	0.440	823	855	1.26e6	2.94e6	1530.3	3439.5	NO	bb	bb	55.928
13C-1234789-HpCDF	40.314	1.124	6.022e4	1.388e5	0.756	0.434	0.440	823	855	8.80e5	2.01e6	1070.0	2353.1	NO	bb	bd	55.829
13C-1234-TCDD	24.870	0.000	2.165e5	2.736e5	1.000	0.791	0.770	1467	932	3.52e6	4.47e6	2401.9	4791.7	NO	bb	bb	100.000
13C-2378-TCDD	25.675	1.032	1.878e5	2.417e5	1.110	0.777	0.770	1467	932	2.91e6	3.76e6	1984.1	4029.7	NO	bb	bb	78.981
13C-12378-PeCDD	30.787	1.238	1.892e5	1.159e5	0.754	1.632	1.550	2175	984	2.93e6	1.82e6	1345.7	1849.4	NO	bb	bb	82.606
13C-123478-HxCDD	35.356	0.986	2.035e5	1.652e5	0.960	1.232	1.240	1401	1223	3.31e6	2.68e6	2361.4	2191.8	NO	bd	bd	81.409
13C-123678-HxCDD	35.467	0.989	2.068e5	1.676e5	1.159	1.234	1.240	1401	1223	3.21e6	2.59e6	2291.3	2118.0	NO	db	db	68.449
13C-1234678-HpCDD	39.601	1.104	1.160e5	1.080e5	0.629	1.074	1.050	1091	965	1.85e6	1.69e6	1694.6	1750.8	NO	bb	bb	75.445
13C-OCDD	44.138	1.231	1.574e5	1.752e5	0.635	0.899	0.890	1215	1083	2.00e6	2.26e6	1646.0	2087.3	NO	bb	bb	111.005
13C-123789-HxCDD	35.857	0.000	2.598e5	2.120e5	1.000	1.225	1.240	1401	1223	4.11e6	3.36e6	2936.7	2746.1	NO	bb	bb	100.000
37CL-2378-TCDD	25.704	1.033	1.891e5		1.157			2193		2.93e6		1333.9			bb		33.339

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:47:02 Pacific Standard Time

ID: 23L0564-02, Name: 24011811, Date: 18-Jan-2024, Time: 18:00:27, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.508	0.859	1.253e4	7.656e3	1.170	1.637	0.770	5169	4916	1.33e5	8.52e4	25.7	17.3	YES	dd	bb	3.124
1289-TCDF	26.622	1.063	6.742e3	3.925e3	0.847	1.718	0.770	5169	4916	1.04e5	6.91e4	20.2	14.0	YES	dd	dd	2.282
13468-PECDF	26.495	0.908	1.653e5	1.113e5	1.241	1.485	1.550	2849	2289	2.53e6	1.67e6	888.0	727.9	NO	bb	bd	46.944
12389-PECDF	31.534	1.080	9.848e3	6.214e3	0.880	1.585	1.550	4290	2707	8.74e4	5.92e4	20.4	21.9	NO	bb	bd	3.847
123468-HXCDF	32.514	0.951	9.948e3	7.935e3	1.206	1.254	1.240	855	688	1.56e5	1.18e5	182.9	172.0	NO	db	db	4.322
1368-TCDD	22.850	0.890	3.539e3	4.171e3	1.181	0.849	0.770	1237	841	5.37e4	6.55e4	43.4	77.8	NO	bb	db	1.520
1289-TCDD					0.963		0.770	1237	841								
12479-PECDD	28.125	0.914	9.224e3	6.349e3	2.166	1.453	1.550	1254	826	1.11e5	7.14e4	88.8	86.5	NO	bb	bb	2.356
12389-PECDD					1.326		1.550	1254	826								
124679-HXCDD	33.306	0.942	1.424e4	1.186e4	1.127	1.201	1.240	662	646	2.28e5	1.85e5	344.0	286.2	NO	bb	bb	6.286
1234679-HPCDD	38.609	0.975	1.306e4	1.193e4	1.303	1.094	1.050	622	708	2.13e5	1.98e5	342.6	280.0	NO	bb	bb	8.567
Total-tetrafurans			1.165e5		0.973			5169		1.68e6							48.491
Total-penta1			1.653e5					2849		2.53e6							46.944
Total-pentafurans			1.721e5		0.931			4290		2.42e6							66.498
Total-hexafurans			1.088e5		1.087			855		1.62e6							52.703
Total-heptafurans			2.120e4		1.134			752		3.40e5							15.060
Total-Furans			5.994e5		1.053			5169		8.79e6							242.767
Total-tetradioxins			8.846e3		1.129			1237		1.38e5							3.917
Total-pentadioxins			2.037e4		1.548			1254		2.81e5							6.412
Total-hexadioxins			2.229e4		0.943			662		3.30e5							10.493
Total-heptadioxins			2.654e4		1.251			622		4.11e5							18.530
Total-Dioxins			1.499e5		1.182			1237		2.04e6							128.359
Total-TEQ			7.493e5					1237		1.08e7							371.126
FUNCTION1 PFK			1.039e6					436629		1.70e7							
FUNCTION2 PFK			2.804e5					199523		7.03e6							0.000
FUNCTION3 PFK			1.009e7					348981		1.34e8							0.000
FUNCTION4 PFK			5.971e5					259946		1.34e7							
FUNCTION5 PFK			1.069e5					167807		4.29e6							
FUNCTION1 HXCD...			3.473e5					21399		4.99e6							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			2.616e4					2265		3.92e5							0.000
FUNCTION3 OCDPE			6.769e2					842		1.20e4							0.000
FUNCTION4 NCDPE			1.324e3					583		2.17e4							0.000
FUNCTION5 DCDPE			0.000e0					402		0.00e0							

Method: T:\Autospec\Methods\Dioxin240116.mdb 16 Jan 2024 11:29:56
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: 23L0564-02, Name: 24011811, Date: 18-Jan-2024, Time: 18:00:27, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.08	2.479e4	3.152e4	0.973	0.79	0.77	63.1	YES	NO	bd	bd	10.476
2	Total-tetrafurans	22.82	9.341e3	1.202e4	0.973	0.78	0.77	24.9	YES	NO	db	db	3.974
3	Total-tetrafurans	22.41	3.436e4	4.174e4	0.973	0.82	0.77	98.9	YES	NO	dd	bd	14.159
4	Total-tetrafurans	26.11	1.496e3	1.847e3	0.973	0.81	0.77	4.8	YES	NO	bb	bd	0.622
5	Total-tetrafurans	25.45	1.007e4	1.296e4	0.973	0.78	0.77	21.7	YES	NO	db	db	4.284
6	Total-tetrafurans	23.97	1.728e4	2.101e4	0.973	0.82	0.77	50.8	YES	NO	bd	bb	7.125
7	Total-tetrafurans	26.95	1.921e4	2.300e4	0.973	0.84	0.77	61.6	YES	NO	dd	dd	7.852

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.49	1.653e5	1.113e5	1.241	1.49	1.55	888.0	YES	NO	bb	bd	46.944

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.28	7.083e3	4.700e3	0.931	1.51	1.55	24.8	YES	NO	db	db	2.741
2	Total-pentafurans	28.14	5.027e4	3.509e4	0.931	1.43	1.55	177.2	YES	NO	dd	dd	19.854
3	Total-pentafurans	27.96	6.757e3	4.743e3	0.931	1.42	1.55	16.5	YES	NO	dd	dd	2.675
4	Total-pentafurans	30.95	9.427e3	7.119e3	0.931	1.32	1.55	31.9	YES	NO	bd	bb	3.848
5	Total-pentafurans	30.76	1.937e3	1.244e3	0.931	1.56	1.55	6.8	YES	NO	bb	bb	0.740
6	23478-PeCDF	30.56	4.732e3	2.724e3	0.991	1.74	1.55	14.4	YES	NO	db	db	1.677
7	Total-pentafurans	30.40	1.870e4	1.160e4	0.931	1.61	1.55	59.6	YES	NO	dd	bd	7.047
8	Total-pentafurans	30.15	1.052e4	6.882e3	0.931	1.53	1.55	38.1	YES	NO	bb	bb	4.048
9	Total-pentafurans	29.94	1.500e4	9.876e3	0.931	1.52	1.55	44.4	YES	NO	bb	bb	5.786
10	Total-pentafurans	29.65	4.040e3	2.864e3	0.931	1.41	1.55	14.9	YES	NO	bb	bb	1.606
11	Total-pentafurans	29.42	1.094e4	7.169e3	0.931	1.53	1.55	36.2	YES	NO	bb	bb	4.211
12	Total-pentafurans	28.85	1.994e4	1.164e4	0.931	1.71	1.55	68.2	YES	NO	dd	db	7.343
13	12389-PECDF	31.53	9.848e3	6.214e3	0.880	1.58	1.55	20.4	YES	NO	bb	bd	3.847
14	Total-pentafurans	31.27	2.901e3	1.729e3	0.931	1.68	1.55	10.5	YES	NO	bd	bb	1.077

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:47:02 Pacific Standard Time

ID: 23L0564-02, Name: 24011811, Date: 18-Jan-2024, Time: 18:00:27, Conditions: AUTOSPEC01, User: pk

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexafurans	33.04	3.400e2	3.041e2	1.087	1.12	1.24	5.3	YES	NO	bb	bb	0.176
2	Total-hexafurans	32.73	4.669e4	3.590e4	1.087	1.30	1.24	832.4	YES	NO	bb	bb	22.570
3	123468-HXCDF	32.51	9.948e3	7.935e3	1.206	1.25	1.24	182.9	YES	NO	db	db	4.322
4	123789-HxCDF	36.26	9.201e2	8.170e2	0.988	1.13	1.24	16.1	YES	NO	bb	bb	0.582
5	234678-HxCDF	35.22	8.504e3	6.393e3	1.081	1.33	1.24	106.3	YES	NO	bb	bb	4.101
6	123678-HxCDF	34.35	3.201e3	2.635e3	1.032	1.21	1.24	60.9	YES	NO	db	bb	1.548
7	123478-HxCDF	34.21	1.235e3	1.079e3	1.128	1.14	1.24	23.0	YES	NO	bd	bb	0.598
8	Total-hexafurans	34.06	4.347e2	3.990e2	1.087	1.09	1.24	9.1	YES	NO	bb	bb	0.228
9	Total-hexafurans	33.57	3.755e4	3.044e4	1.087	1.23	1.24	661.1	YES	NO	bb	bb	18.578

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	38.81	1.114e4	1.151e4	1.134	0.97	1.05	239.1	YES	NO	bd	bb	8.706
2	1234678-HpCDF	38.16	1.007e4	9.147e3	1.164	1.10	1.05	213.7	YES	NO	bb	bd	6.354

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:47:02 Pacific Standard Time

ID: 23L0564-02, Name: 24011811, Date: 18-Jan-2024, Time: 18:00:27, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.08	2.479e4	3.152e4	0.973	0.79	0.77	63.1	YES	NO	bd	bd	10.476
2	Total-tetrafurans	22.82	9.341e3	1.202e4	0.973	0.78	0.77	24.9	YES	NO	db	db	3.974
3	Total-tetrafurans	22.41	3.436e4	4.174e4	0.973	0.82	0.77	98.9	YES	NO	dd	bd	14.159
4	Total-tetrafurans	26.11	1.496e3	1.847e3	0.973	0.81	0.77	4.8	YES	NO	bb	bd	0.622
5	Total-tetrafurans	25.45	1.007e4	1.296e4	0.973	0.78	0.77	21.7	YES	NO	db	db	4.284
6	Total-tetrafurans	23.97	1.728e4	2.101e4	0.973	0.82	0.77	50.8	YES	NO	bd	bb	7.125
7	Total-Furans	27.20	6.615e3	7.955e3	1.053	0.83	0.77	16.6	YES	NO	db	db	2.507
8	Total-tetrafurans	26.95	1.921e4	2.300e4	0.973	0.84	0.77	61.6	YES	NO	dd	dd	7.852
9	Total-pentafurans	28.28	7.083e3	4.700e3	0.931	1.51	1.55	24.8	YES	NO	db	db	2.741
10	Total-pentafurans	28.14	5.027e4	3.509e4	0.931	1.43	1.55	177.2	YES	NO	dd	dd	19.854
11	Total-pentafurans	27.96	6.757e3	4.743e3	0.931	1.42	1.55	16.5	YES	NO	dd	dd	2.675
12	Total-pentafurans	30.95	9.427e3	7.119e3	0.931	1.32	1.55	31.9	YES	NO	bd	bb	3.848
13	Total-pentafurans	30.76	1.937e3	1.244e3	0.931	1.56	1.55	6.8	YES	NO	bb	bb	0.740
14	23478-PeCDF	30.56	4.732e3	2.724e3	0.991	1.74	1.55	14.4	YES	NO	db	db	1.677
15	Total-pentafurans	30.40	1.870e4	1.160e4	0.931	1.61	1.55	59.6	YES	NO	dd	bd	7.047
16	Total-pentafurans	30.15	1.052e4	6.882e3	0.931	1.53	1.55	38.1	YES	NO	bb	bb	4.048
17	Total-pentafurans	29.94	1.500e4	9.876e3	0.931	1.52	1.55	44.4	YES	NO	bb	bb	5.786
18	Total-pentafurans	29.65	4.040e3	2.864e3	0.931	1.41	1.55	14.9	YES	NO	bb	bb	1.606
19	Total-pentafurans	29.42	1.094e4	7.169e3	0.931	1.53	1.55	36.2	YES	NO	bb	bb	4.211
20	Total-pentafurans	28.85	1.994e4	1.164e4	0.931	1.71	1.55	68.2	YES	NO	dd	db	7.343
21	12389-PECDF	31.53	9.848e3	6.214e3	0.880	1.58	1.55	20.4	YES	NO	bb	bd	3.847
22	Total-pentafurans	31.27	2.901e3	1.729e3	0.931	1.68	1.55	10.5	YES	NO	bd	bb	1.077
23	Total-hexafurans	33.04	3.400e2	3.041e2	1.087	1.12	1.24	5.3	YES	NO	bb	bb	0.176
24	Total-hexafurans	32.73	4.669e4	3.590e4	1.087	1.30	1.24	832.4	YES	NO	bb	bb	22.570
25	123468-HXCDF	32.51	9.948e3	7.935e3	1.206	1.25	1.24	182.9	YES	NO	db	db	4.322
26	123789-HxCDF	36.26	9.201e2	8.170e2	0.988	1.13	1.24	16.1	YES	NO	bb	bb	0.582
27	234678-HxCDF	35.22	8.504e3	6.393e3	1.081	1.33	1.24	106.3	YES	NO	bb	bb	4.101
28	123678-HxCDF	34.35	3.201e3	2.635e3	1.032	1.21	1.24	60.9	YES	NO	db	bb	1.548
29	123478-HxCDF	34.21	1.235e3	1.079e3	1.128	1.14	1.24	23.0	YES	NO	bd	bb	0.598
30	Total-hexafurans	34.06	4.347e2	3.990e2	1.087	1.09	1.24	9.1	YES	NO	bb	bb	0.228
31	Total-hexafurans	33.57	3.755e4	3.044e4	1.087	1.23	1.24	661.1	YES	NO	bb	bb	18.578
32	Total-heptafurans	38.81	1.114e4	1.151e4	1.134	0.97	1.05	239.1	YES	NO	bd	bb	8.706
33	1234678-HpCDF	38.16	1.007e4	9.147e3	1.164	1.10	1.05	213.7	YES	NO	bb	bd	6.354
34	OCDF	44.38	8.867e3	1.099e4	1.130	0.81	0.89	208.6	YES	NO	bb	bb	10.563
35	13468-PECDF	26.49	1.653e5	1.113e5	1.241	1.49	1.55	888.0	YES	NO	bb	bd	46.944

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TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.70	3.989e3	5.560e3	1.243	0.72	0.77	52.5	YES	NO	bb	bd	1.789
2	Total-tetradioxins	24.32	1.030e3	1.279e3	1.129	0.81	0.77	12.1	YES	NO	bb	db	0.476
3	Total-tetradioxins	23.33	2.879e2	3.525e2	1.129	0.82	0.77	3.3	YES	NO	db	db	0.132
4	1368-TCDD	22.85	3.539e3	4.171e3	1.181	0.85	0.77	43.4	YES	NO	bb	db	1.520

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	28.59	3.848e2	2.272e2	1.548	1.69	1.55	5.3	YES	NO	bb	bb	0.130
2	12479-PECDD	28.12	9.224e3	6.349e3	2.166	1.45	1.55	88.8	YES	NO	bb	bb	2.356
3	12378-PeCDD	30.81	1.136e3	8.563e2	1.150	1.33	1.55	12.4	YES	NO	MM	bb	0.568
4	Total-pentadioxins	30.12	2.357e2	1.327e2	1.548	1.78	1.55	3.1	YES	NO	bb	bb	0.078
5	Total-pentadioxins	29.57	2.200e3	1.480e3	1.548	1.49	1.55	25.6	YES	NO	dd	dd	0.779
6	Total-pentadioxins	29.43	5.805e3	3.821e3	1.548	1.52	1.55	71.0	YES	NO	dd	bd	2.038
7	Total-pentadioxins	29.21	1.381e3	8.050e2	1.548	1.72	1.55	17.6	YES	NO	bd	bb	0.463

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.87	6.501e2	5.567e2	0.804	1.17	1.24	15.0	YES	NO	bb	bb	0.404
2	Total-hexadioxins	35.63	1.548e2	1.448e2	0.943	1.07	1.24	4.7	YES	NO	bb	bb	0.085
3	123478-HxCDD	35.37	4.251e2	3.931e2	0.960	1.08	1.24	11.2	YES	NO	MM	bd	0.231
4	Total-hexadioxins	34.46	5.607e3	4.357e3	0.943	1.29	1.24	93.4	YES	NO	bb	bb	2.843
5	Total-hexadioxins	34.10	1.212e3	1.040e3	0.943	1.17	1.24	29.8	YES	NO	bb	bb	0.643
6	124679-HXCDD	33.31	1.424e4	1.186e4	1.127	1.20	1.24	344.0	YES	NO	bb	bb	6.286

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.61	1.348e4	1.329e4	1.200	1.01	1.05	319.0	YES	NO	bb	bb	9.963
2	1234679-HPCDD	38.61	1.306e4	1.193e4	1.303	1.09	1.05	342.6	YES	NO	bb	bb	8.567

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.70	3.989e3	5.560e3	1.243	0.72	0.77	52.5	YES	NO	bb	bd	1.789
2	Total-tetradioxins	24.32	1.030e3	1.279e3	1.129	0.81	0.77	12.1	YES	NO	bb	db	0.476
3	Total-tetradioxins	23.33	2.879e2	3.525e2	1.129	0.82	0.77	3.3	YES	NO	db	db	0.132
4	1368-TCDD	22.85	3.539e3	4.171e3	1.181	0.85	0.77	43.4	YES	NO	bb	db	1.520
5	Total-pentadioxins	28.59	3.848e2	2.272e2	1.548	1.69	1.55	5.3	YES	NO	bb	bb	0.130
6	12479-PECDD	28.12	9.224e3	6.349e3	2.166	1.45	1.55	88.8	YES	NO	bb	bb	2.356
7	12378-PeCDD	30.81	1.136e3	8.563e2	1.150	1.33	1.55	12.4	YES	NO	MM	bb	0.568
8	Total-pentadioxins	30.12	2.357e2	1.327e2	1.548	1.78	1.55	3.1	YES	NO	bb	bb	0.078
9	Total-pentadioxins	29.57	2.200e3	1.480e3	1.548	1.49	1.55	25.6	YES	NO	dd	dd	0.779
10	Total-pentadioxins	29.43	5.805e3	3.821e3	1.548	1.52	1.55	71.0	YES	NO	dd	bd	2.038
11	Total-pentadioxins	29.21	1.381e3	8.050e2	1.548	1.72	1.55	17.6	YES	NO	bd	bb	0.463
12	123789-HxCDD	35.87	6.501e2	5.567e2	0.804	1.17	1.24	15.0	YES	NO	bb	bb	0.404
13	Total-hexadioxins	35.63	1.548e2	1.448e2	0.943	1.07	1.24	4.7	YES	NO	bb	bb	0.085
14	123478-HxCDD	35.37	4.251e2	3.931e2	0.960	1.08	1.24	11.2	YES	NO	MM	bd	0.231
15	Total-hexadioxins	34.46	5.607e3	4.357e3	0.943	1.29	1.24	93.4	YES	NO	bb	bb	2.843
16	Total-hexadioxins	34.10	1.212e3	1.040e3	0.943	1.17	1.24	29.8	YES	NO	bb	bb	0.643
17	124679-HXCDD	33.31	1.424e4	1.186e4	1.127	1.20	1.24	344.0	YES	NO	bb	bb	6.286
18	1234678-HpCDD	39.61	1.348e4	1.329e4	1.200	1.01	1.05	319.0	YES	NO	bb	bb	9.963
19	1234679-HPCDD	38.61	1.306e4	1.193e4	1.303	1.09	1.05	342.6	YES	NO	bb	bb	8.567
20	OCDD	44.16	7.189e4	8.482e4	1.059	0.85	0.89	937.4	YES	NO	bd	bd	89.008

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.08	2.479e4	3.152e4	0.973	0.79	0.77	63.1	YES	NO	bd	bd	10.476
2	Total-tetrafurans	22.82	9.341e3	1.202e4	0.973	0.78	0.77	24.9	YES	NO	db	db	3.974
3	Total-tetrafurans	22.41	3.436e4	4.174e4	0.973	0.82	0.77	98.9	YES	NO	dd	bd	14.159
4	Total-tetrafurans	26.11	1.496e3	1.847e3	0.973	0.81	0.77	4.8	YES	NO	bb	bd	0.622
5	Total-tetrafurans	25.45	1.007e4	1.296e4	0.973	0.78	0.77	21.7	YES	NO	db	db	4.284
6	Total-tetrafurans	23.97	1.728e4	2.101e4	0.973	0.82	0.77	50.8	YES	NO	bd	bb	7.125
7	Total-Furans	27.20	6.615e3	7.955e3	1.053	0.83	0.77	16.6	YES	NO	db	db	2.507
8	Total-tetrafurans	26.95	1.921e4	2.300e4	0.973	0.84	0.77	61.6	YES	NO	dd	dd	7.852
9	Total-pentafurans	28.28	7.083e3	4.700e3	0.931	1.51	1.55	24.8	YES	NO	db	db	2.741
10	Total-pentafurans	28.14	5.027e4	3.509e4	0.931	1.43	1.55	177.2	YES	NO	dd	dd	19.854
11	Total-pentafurans	27.96	6.757e3	4.743e3	0.931	1.42	1.55	16.5	YES	NO	dd	dd	2.675
12	Total-pentafurans	30.95	9.427e3	7.119e3	0.931	1.32	1.55	31.9	YES	NO	bd	bb	3.848
13	Total-pentafurans	30.76	1.937e3	1.244e3	0.931	1.56	1.55	6.8	YES	NO	bb	bb	0.740
14	23478-PeCDF	30.56	4.732e3	2.724e3	0.991	1.74	1.55	14.4	YES	NO	db	db	1.677
15	Total-pentafurans	30.40	1.870e4	1.160e4	0.931	1.61	1.55	59.6	YES	NO	dd	bd	7.047
16	Total-pentafurans	30.15	1.052e4	6.882e3	0.931	1.53	1.55	38.1	YES	NO	bb	bb	4.048
17	Total-pentafurans	29.94	1.500e4	9.876e3	0.931	1.52	1.55	44.4	YES	NO	bb	bb	5.786
18	Total-pentafurans	29.65	4.040e3	2.864e3	0.931	1.41	1.55	14.9	YES	NO	bb	bb	1.606
19	Total-pentafurans	29.42	1.094e4	7.169e3	0.931	1.53	1.55	36.2	YES	NO	bb	bb	4.211
20	Total-pentafurans	28.85	1.994e4	1.164e4	0.931	1.71	1.55	68.2	YES	NO	dd	db	7.343
21	12389-PECDF	31.53	9.848e3	6.214e3	0.880	1.58	1.55	20.4	YES	NO	bb	bd	3.847
22	Total-pentafurans	31.27	2.901e3	1.729e3	0.931	1.68	1.55	10.5	YES	NO	bd	bb	1.077
23	Total-hexafurans	33.04	3.400e2	3.041e2	1.087	1.12	1.24	5.3	YES	NO	bb	bb	0.176
24	Total-hexafurans	32.73	4.669e4	3.590e4	1.087	1.30	1.24	832.4	YES	NO	bb	bb	22.570
25	123468-HXCDF	32.51	9.948e3	7.935e3	1.206	1.25	1.24	182.9	YES	NO	db	db	4.322
26	123789-HxCDF	36.26	9.201e2	8.170e2	0.988	1.13	1.24	16.1	YES	NO	bb	bb	0.582
27	234678-HxCDF	35.22	8.504e3	6.393e3	1.081	1.33	1.24	106.3	YES	NO	bb	bb	4.101
28	123678-HxCDF	34.35	3.201e3	2.635e3	1.032	1.21	1.24	60.9	YES	NO	db	bb	1.548
29	123478-HxCDF	34.21	1.235e3	1.079e3	1.128	1.14	1.24	23.0	YES	NO	bd	bb	0.598
30	Total-hexafurans	34.06	4.347e2	3.990e2	1.087	1.09	1.24	9.1	YES	NO	bb	bb	0.228
31	Total-hexafurans	33.57	3.755e4	3.044e4	1.087	1.23	1.24	661.1	YES	NO	bb	bb	18.578
32	Total-heptafurans	38.81	1.114e4	1.151e4	1.134	0.97	1.05	239.1	YES	NO	bd	bb	8.706
33	1234678-HpCDF	38.16	1.007e4	9.147e3	1.164	1.10	1.05	213.7	YES	NO	bb	bd	6.354
34	OCDF	44.38	8.867e3	1.099e4	1.130	0.81	0.89	208.6	YES	NO	bb	bb	10.563
35	13468-PECDF	26.49	1.653e5	1.113e5	1.241	1.49	1.55	888.0	YES	NO	bb	bd	46.944
36	2378-TCDD	25.70	3.989e3	5.560e3	1.243	0.72	0.77	52.5	YES	NO	bb	bd	1.789
37	Total-tetradioxins	24.32	1.030e3	1.279e3	1.129	0.81	0.77	12.1	YES	NO	bb	db	0.476

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-tetradioxins	23.33	2.879e2	3.525e2	1.129	0.82	0.77	3.3	YES	NO	db	db	0.132
39	1368-TCDD	22.85	3.539e3	4.171e3	1.181	0.85	0.77	43.4	YES	NO	bb	db	1.520
40	Total-pentadioxins	28.59	3.848e2	2.272e2	1.548	1.69	1.55	5.3	YES	NO	bb	bb	0.130
41	12479-PECDD	28.12	9.224e3	6.349e3	2.166	1.45	1.55	88.8	YES	NO	bb	bb	2.356
42	12378-PeCDD	30.81	1.136e3	8.563e2	1.150	1.33	1.55	12.4	YES	NO	MM	bb	0.568
43	Total-pentadioxins	30.12	2.357e2	1.327e2	1.548	1.78	1.55	3.1	YES	NO	bb	bb	0.078
44	Total-pentadioxins	29.57	2.200e3	1.480e3	1.548	1.49	1.55	25.6	YES	NO	dd	dd	0.779
45	Total-pentadioxins	29.43	5.805e3	3.821e3	1.548	1.52	1.55	71.0	YES	NO	dd	bd	2.038
46	Total-pentadioxins	29.21	1.381e3	8.050e2	1.548	1.72	1.55	17.6	YES	NO	bd	bb	0.463
47	123789-HxCDD	35.87	6.501e2	5.567e2	0.804	1.17	1.24	15.0	YES	NO	bb	bb	0.404
48	Total-hexadioxins	35.63	1.548e2	1.448e2	0.943	1.07	1.24	4.7	YES	NO	bb	bb	0.085
49	123478-HxCDD	35.37	4.251e2	3.931e2	0.960	1.08	1.24	11.2	YES	NO	MM	bd	0.231
50	Total-hexadioxins	34.46	5.607e3	4.357e3	0.943	1.29	1.24	93.4	YES	NO	bb	bb	2.843
51	Total-hexadioxins	34.10	1.212e3	1.040e3	0.943	1.17	1.24	29.8	YES	NO	bb	bb	0.643
52	124679-HXCDD	33.31	1.424e4	1.186e4	1.127	1.20	1.24	344.0	YES	NO	bb	bb	6.286
53	1234678-HpCDD	39.61	1.348e4	1.329e4	1.200	1.01	1.05	319.0	YES	NO	bb	bb	9.963
54	1234679-HPCDD	38.61	1.306e4	1.193e4	1.303	1.09	1.05	342.6	YES	NO	bb	bb	8.567
55	OCDD	44.16	7.189e4	8.482e4	1.059	0.85	0.89	937.4	YES	NO	bd	bd	89.008

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	22.91	1.681e4					1.1	NO		bb		
2	FUNCTION1 PFK	22.71	4.117e4					2.0	NO		bb		
3	FUNCTION1 PFK	22.60	9.354e4					2.6	NO		db		
4	FUNCTION1 PFK	22.51	2.985e4					1.7	NO		bd		
5	FUNCTION1 PFK	22.12	4.264e4					1.4	NO		bb		
6	FUNCTION1 PFK	22.06	9.429e3					0.9	NO		bb		
7	FUNCTION1 PFK	21.55	1.009e4					0.0	NO		bb		
8	FUNCTION1 PFK	21.44	1.240e4					1.1	NO		bb		
9	FUNCTION1 PFK	21.31	1.763e5					3.0	YES		db		
10	FUNCTION1 PFK	21.16	4.818e4					2.5	NO		bd		
11	FUNCTION1 PFK	25.96	2.800e3					0.5	NO		bb		
12	FUNCTION1 PFK	25.82	1.482e4					0.8	NO		bb		
13	FUNCTION1 PFK	25.38	2.036e4					1.1	NO		bb		
14	FUNCTION1 PFK	25.32	4.011e3					0.5	NO		bb		
15	FUNCTION1 PFK	24.97	4.271e4					1.0	NO		bb		
16	FUNCTION1 PFK	24.79	5.518e4					1.9	NO		bb		
17	FUNCTION1 PFK	24.52	5.096e3					0.5	NO		bb		
18	FUNCTION1 PFK	24.46	3.756e3					0.5	NO		bb		
19	FUNCTION1 PFK	24.38	7.569e3					0.7	NO		bb		
20	FUNCTION1 PFK	24.28	1.358e4					0.8	NO		bb		
21	FUNCTION1 PFK	24.07	2.622e4					1.2	NO		db		
22	FUNCTION1 PFK	23.95	5.801e4					1.7	NO		dd		
23	FUNCTION1 PFK	23.80	6.582e4					1.7	NO		bd		
24	FUNCTION1 PFK	23.63	5.498e4					1.9	NO		bb		
25	FUNCTION1 PFK	23.50	5.594e4					2.7	NO		bb		
26	FUNCTION1 PFK	23.39	7.860e4					2.5	NO		bb		
27	FUNCTION1 PFK	27.19	1.963e3					0.3	NO		bb		
28	FUNCTION1 PFK	26.42	2.344e3					0.4	NO		bb		
29	FUNCTION1 PFK	26.37	2.419e3					0.4	NO		bb		
30	FUNCTION1 PFK	26.24	3.893e4					1.2	NO		bb		
31	FUNCTION1 PFK	26.01	3.750e3					0.6	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.72	7.284e3					1.6	NO		bd		0.000
2	FUNCTION2 PFK	28.66	1.375e4					1.6	NO		bb		0.000
3	FUNCTION2 PFK	28.54	1.924e4					2.5	NO		bb		0.000
4	FUNCTION2 PFK	28.46	1.029e3					0.5	NO		bb		0.000
5	FUNCTION2 PFK	28.26	8.154e2					0.4	NO		bb		0.000
6	FUNCTION2 PFK	28.01	1.366e4					1.5	NO		bb		0.000
7	FUNCTION2 PFK	27.61	4.923e3					1.0	NO		db		0.000
8	FUNCTION2 PFK	27.57	1.134e4					1.5	NO		dd		0.000
9	FUNCTION2 PFK	27.49	2.975e3					0.8	NO		bd		0.000
10	FUNCTION2 PFK	27.38	1.471e4					1.0	NO		bb		0.000
11	FUNCTION2 PFK	32.00	4.665e3					1.0	NO		bb		0.000
12	FUNCTION2 PFK	31.77	2.280e4					3.0	NO		db		0.000
13	FUNCTION2 PFK	31.72	3.097e4					3.1	YES		dd		0.000
14	FUNCTION2 PFK	31.67	6.236e3					1.1	NO		bd		0.000
15	FUNCTION2 PFK	31.32	2.936e4					2.5	NO		bb		0.000
16	FUNCTION2 PFK	31.16	5.289e3					1.1	NO		bb		0.000
17	FUNCTION2 PFK	30.99	8.195e3					0.9	NO		bb		0.000
18	FUNCTION2 PFK	30.83	1.296e4					1.4	NO		bb		0.000
19	FUNCTION2 PFK	30.50	6.111e3					1.2	NO		bb		0.000
20	FUNCTION2 PFK	30.10	5.300e3					1.1	NO		bb		0.000
21	FUNCTION2 PFK	30.01	1.021e4					1.3	NO		bb		0.000
22	FUNCTION2 PFK	29.73	1.749e4					1.2	NO		bb		0.000
23	FUNCTION2 PFK	29.62	3.644e3					0.6	NO		bb		0.000
24	FUNCTION2 PFK	28.86	2.875e3					0.8	NO		db		0.000
25	FUNCTION2 PFK	28.79	1.595e4					1.5	NO		dd		0.000
26	FUNCTION2 PFK	28.75	8.617e3					1.3	NO		dd		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	33.41	9.396e4					6.5	YES		dd		0.000
2	FUNCTION3 PFK	33.34	1.320e5					7.6	YES		dd		0.000
3	FUNCTION3 PFK	33.29	1.940e5					8.9	YES		dd		0.000
4	FUNCTION3 PFK	33.22	5.748e5					10.2	YES		dd		0.000
5	FUNCTION3 PFK	33.02	7.655e5					14.9	YES		dd		0.000
6	FUNCTION3 PFK	32.84	8.140e5					19.4	YES		dd		0.000
7	FUNCTION3 PFK	32.70	1.045e6					22.2	YES		dd		0.000
8	FUNCTION3 PFK	32.66	2.612e5					22.5	YES		dd		0.000
9	FUNCTION3 PFK	32.61	2.727e5					24.0	YES		dd		0.000
10	FUNCTION3 PFK	32.44	1.942e6					28.3	YES		dd		0.000
11	FUNCTION3 PFK	32.37	3.382e5					29.5	YES		dd		0.000
12	FUNCTION3 PFK	32.33	8.265e5					31.1	YES		dd		0.000
13	FUNCTION3 PFK	32.26	4.750e5					31.1	YES		dd		0.000
14	FUNCTION3 PFK	32.20	6.251e5					32.9	YES		dd		0.000
15	FUNCTION3 PFK	32.16	6.510e5					34.5	YES		bd		0.000
16	FUNCTION3 PFK	34.74	2.967e3					0.6	NO		db		0.000
17	FUNCTION3 PFK	34.71	1.723e4					1.1	NO		bd		0.000
18	FUNCTION3 PFK	34.52	7.838e3					1.0	NO		bb		0.000
19	FUNCTION3 PFK	34.48	1.183e4					1.1	NO		bb		0.000
20	FUNCTION3 PFK	34.39	4.031e4					1.9	NO		db		0.000
21	FUNCTION3 PFK	34.31	3.111e4					2.1	NO		dd		0.000
22	FUNCTION3 PFK	34.24	4.107e4					1.8	NO		dd		0.000
23	FUNCTION3 PFK	34.19	1.434e4					1.2	NO		bd		0.000
24	FUNCTION3 PFK	34.07	1.569e4					1.5	NO		db		0.000
25	FUNCTION3 PFK	34.03	1.609e4					1.3	NO		bd		0.000
26	FUNCTION3 PFK	33.97	2.330e4					1.6	NO		bb		0.000
27	FUNCTION3 PFK	33.90	1.359e3					0.3	NO		bb		0.000
28	FUNCTION3 PFK	33.85	5.005e3					0.7	NO		bb		0.000
29	FUNCTION3 PFK	33.56	7.560e4					2.9	NO		db		0.000
30	FUNCTION3 PFK	33.51	5.065e4					3.7	YES		dd		0.000
31	FUNCTION3 PFK	33.44	8.818e4					5.5	YES		dd		0.000
32	FUNCTION3 PFK	36.48	7.606e4					3.9	YES		dd		0.000
33	FUNCTION3 PFK	36.41	6.079e4					3.1	YES		dd		0.000
34	FUNCTION3 PFK	36.35	2.427e4					2.3	NO		dd		0.000
35	FUNCTION3 PFK	36.29	4.854e4					2.5	NO		dd		0.000
36	FUNCTION3 PFK	36.24	2.850e4					1.6	NO		bd		0.000
37	FUNCTION3 PFK	36.14	3.018e4					1.8	NO		db		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION3 PFK	36.09	1.949e4					1.4	NO		dd		0.000
39	FUNCTION3 PFK	36.04	1.627e4					1.2	NO		bd		0.000
40	FUNCTION3 PFK	35.91	2.877e3					0.5	NO		bb		0.000
41	FUNCTION3 PFK	35.76	7.497e3					0.9	NO		db		0.000
42	FUNCTION3 PFK	35.70	1.058e4					0.9	NO		bd		0.000
43	FUNCTION3 PFK	35.47	2.298e3					0.4	NO		bb		0.000
44	FUNCTION3 PFK	35.33	5.204e3					0.7	NO		bb		0.000
45	FUNCTION3 PFK	34.94	9.378e3					1.1	NO		db		0.000
46	FUNCTION3 PFK	34.91	2.146e4					1.7	NO		bd		0.000
47	FUNCTION3 PFK	34.79	6.993e3					1.1	NO		bb		0.000
48	FUNCTION3 PFK	36.96	2.304e3					0.4	NO		bb		0.000
49	FUNCTION3 PFK	36.74	1.826e5					3.5	YES		bb		0.000
50	FUNCTION3 PFK	36.53	7.697e4					3.8	YES		db		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	39.31	8.020e3					1.1	NO		bd		
2	FUNCTION4 PFK	39.18	5.344e4					2.6	NO		db		
3	FUNCTION4 PFK	39.02	5.867e4					1.6	NO		bd		
4	FUNCTION4 PFK	38.95	8.716e2					0.3	NO		bb		
5	FUNCTION4 PFK	38.91	8.786e3					1.5	NO		db		
6	FUNCTION4 PFK	38.89	9.603e3					1.5	NO		bd		
7	FUNCTION4 PFK	38.36	7.991e3					1.4	NO		bb		
8	FUNCTION4 PFK	37.86	1.271e4					1.4	NO		bb		
9	FUNCTION4 PFK	37.62	1.407e4					1.2	NO		bb		
10	FUNCTION4 PFK	37.55	1.943e4					1.9	NO		bb		
11	FUNCTION4 PFK	37.35	2.736e3					0.9	NO		bb		
12	FUNCTION4 PFK	37.29	1.305e4					1.8	NO		bb		
13	FUNCTION4 PFK	41.12	2.761e4					1.3	NO		bb		
14	FUNCTION4 PFK	40.84	1.077e4					1.4	NO		bb		
15	FUNCTION4 PFK	40.76	6.708e3					1.2	NO		db		
16	FUNCTION4 PFK	40.71	2.863e4					2.6	NO		dd		
17	FUNCTION4 PFK	40.68	2.422e4					2.3	NO		bd		
18	FUNCTION4 PFK	40.35	8.100e3					1.2	NO		db		
19	FUNCTION4 PFK	40.29	1.273e4					1.5	NO		dd		
20	FUNCTION4 PFK	40.24	2.252e4					1.6	NO		dd		
21	FUNCTION4 PFK	40.16	1.722e4					1.9	NO		dd		
22	FUNCTION4 PFK	40.04	4.895e4					2.1	NO		dd		
23	FUNCTION4 PFK	39.97	2.544e4					2.3	NO		dd		
24	FUNCTION4 PFK	39.92	1.625e4					2.1	NO		bd		
25	FUNCTION4 PFK	39.88	2.020e3					0.7	NO		bb		
26	FUNCTION4 PFK	39.65	4.401e3					0.5	NO		bb		
27	FUNCTION4 PFK	39.46	3.792e4					1.6	NO		bb		
28	FUNCTION4 PFK	39.36	1.007e4					1.2	NO		db		
29	FUNCTION4 PFK	42.42	5.287e3					0.8	NO		db		
30	FUNCTION4 PFK	42.36	1.331e4					1.4	NO		dd		
31	FUNCTION4 PFK	42.33	6.372e3					1.1	NO		bd		
32	FUNCTION4 PFK	42.15	1.247e4					1.2	NO		bb		
33	FUNCTION4 PFK	42.05	2.654e3					0.5	NO		bb		
34	FUNCTION4 PFK	41.75	2.214e4					1.3	NO		db		
35	FUNCTION4 PFK	41.65	1.085e4					1.3	NO		bd		
36	FUNCTION4 PFK	41.49	8.202e3					0.5	NO		bb		
37	FUNCTION4 PFK	41.39	2.835e3					0.6	NO		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.34	5.767e3					1.0	NO		bb		
2	FUNCTION5 PFK	43.18	6.405e3					1.2	NO		db		
3	FUNCTION5 PFK	43.13	1.714e3					0.9	NO		bd		
4	FUNCTION5 PFK	43.09	1.070e4					2.2	NO		bb		
5	FUNCTION5 PFK	42.90	2.955e3					0.9	NO		bb		
6	FUNCTION5 PFK	42.78	5.476e3					1.3	NO		bb		
7	FUNCTION5 PFK	45.80	1.652e3					0.6	NO		bb		
8	FUNCTION5 PFK	45.45	6.804e2					0.4	NO		bb		
9	FUNCTION5 PFK	45.39	8.244e3					1.8	NO		bb		
10	FUNCTION5 PFK	45.35	4.506e3					1.3	NO		bb		
11	FUNCTION5 PFK	45.19	1.186e4					2.2	NO		bb		
12	FUNCTION5 PFK	44.95	3.589e3					0.9	NO		bb		
13	FUNCTION5 PFK	44.83	8.503e3					1.7	NO		bb		
14	FUNCTION5 PFK	44.77	3.782e3					1.4	NO		bb		
15	FUNCTION5 PFK	44.46	1.070e3					0.5	NO		bb		
16	FUNCTION5 PFK	44.28	1.302e3					0.5	NO		bb		
17	FUNCTION5 PFK	43.94	8.218e3					1.6	NO		db		
18	FUNCTION5 PFK	43.89	6.507e3					1.4	NO		dd		
19	FUNCTION5 PFK	43.86	5.448e3					1.8	NO		bd		
20	FUNCTION5 PFK	43.64	3.457e3					1.0	NO		bb		
21	FUNCTION5 PFK	43.52	5.108e3					1.0	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	23.51	4.423e3					2.5	NO		dd		0.000
2	FUNCTION1 HXCD...	23.34	1.286e4					7.1	YES		dd		0.000
3	FUNCTION1 HXCD...	23.15	5.908e3					5.8	YES		dd		0.000
4	FUNCTION1 HXCD...	23.09	1.525e4					9.5	YES		bd		0.000
5	FUNCTION1 HXCD...	22.91	1.276e3					1.1	NO		bb		0.000
6	FUNCTION1 HXCD...	22.74	2.706e3					2.1	NO		db		0.000
7	FUNCTION1 HXCD...	22.57	3.435e4					20.9	YES		bd		0.000
8	FUNCTION1 HXCD...	22.37	2.141e3					2.1	NO		db		0.000
9	FUNCTION1 HXCD...	22.31	2.350e3					1.9	NO		dd		0.000
10	FUNCTION1 HXCD...	22.19	8.145e3					7.0	YES		dd		0.000
11	FUNCTION1 HXCD...	22.09	3.397e3					2.8	NO		bd		0.000
12	FUNCTION1 HXCD...	21.92	8.476e2					0.6	NO		db		0.000
13	FUNCTION1 HXCD...	21.78	1.444e3					0.9	NO		dd		0.000
14	FUNCTION1 HXCD...	21.61	3.980e4					29.2	YES		bd		0.000
15	FUNCTION1 HXCD...	21.31	2.028e4					13.8	YES		db		0.000
16	FUNCTION1 HXCD...	21.16	1.354e4					8.2	YES		bd		0.000
17	FUNCTION1 HXCD...	26.54	1.068e3					0.8	NO		bd		0.000
18	FUNCTION1 HXCD...	26.31	3.301e3					1.8	NO		db		0.000
19	FUNCTION1 HXCD...	26.10	5.108e3					2.6	NO		dd		0.000
20	FUNCTION1 HXCD...	25.97	7.520e3					3.8	YES		bd		0.000
21	FUNCTION1 HXCD...	25.45	1.306e4					6.9	YES		db		0.000
22	FUNCTION1 HXCD...	25.28	1.686e3					1.3	NO		dd		0.000
23	FUNCTION1 HXCD...	25.21	2.201e3					1.5	NO		dd		0.000
24	FUNCTION1 HXCD...	25.08	4.713e3					2.9	NO		dd		0.000
25	FUNCTION1 HXCD...	24.86	2.293e4					15.1	YES		dd		0.000
26	FUNCTION1 HXCD...	24.70	4.038e3					2.7	NO		bd		0.000
27	FUNCTION1 HXCD...	24.53	5.609e3					4.0	YES		bb		0.000
28	FUNCTION1 HXCD...	24.31	4.575e4					34.0	YES		bb		0.000
29	FUNCTION1 HXCD...	24.12	2.229e4					15.5	YES		db		0.000
30	FUNCTION1 HXCD...	24.01	1.033e4					6.9	YES		bd		0.000
31	FUNCTION1 HXCD...	23.80	2.852e3					2.0	NO		db		0.000
32	FUNCTION1 HXCD...	23.63	2.192e3					1.5	NO		dd		0.000
33	FUNCTION1 HXCD...	27.20	6.910e3					5.7	YES		bb		0.000
34	FUNCTION1 HXCD...	26.93	1.298e4					6.1	YES		db		0.000
35	FUNCTION1 HXCD...	26.79	1.771e3					1.1	NO		dd		0.000
36	FUNCTION1 HXCD...	26.62	2.229e3					1.5	NO		dd		0.000

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ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	29.93	2.286e3					18.8	YES		bb		0.000
2	FUNCTION2 HPCD...	29.63	1.016e3					6.8	YES		bb		0.000
3	FUNCTION2 HPCD...	29.41	6.862e2					5.3	YES		bb		0.000
4	FUNCTION2 HPCD...	29.27	3.450e2					3.6	YES		bb		0.000
5	FUNCTION2 HPCD...	29.04	1.341e3					9.7	YES		db		0.000
6	FUNCTION2 HPCD...	28.97	1.448e3					10.6	YES		bd		0.000
7	FUNCTION2 HPCD...	28.80	8.146e2					6.6	YES		bb		0.000
8	FUNCTION2 HPCD...	28.27	4.718e3					30.9	YES		db		0.000
9	FUNCTION2 HPCD...	28.11	1.629e3					8.6	YES		dd		0.000
10	FUNCTION2 HPCD...	27.92	1.798e3					9.3	YES		bd		0.000
11	FUNCTION2 HPCD...	27.72	2.627e3					17.5	YES		bb		0.000
12	FUNCTION2 HPCD...	31.51	3.107e3					16.7	YES		bb		0.000
13	FUNCTION2 HPCD...	31.27	8.268e2					7.9	YES		bb		0.000
14	FUNCTION2 HPCD...	30.93	1.096e3					6.0	YES		bb		0.000
15	FUNCTION2 HPCD...	30.59	9.174e2					5.8	YES		db		0.000
16	FUNCTION2 HPCD...	30.43	7.970e2					4.6	YES		bd		0.000
17	FUNCTION2 HPCD...	30.14	7.105e2					4.5	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.86	8.094e1					1.8	NO		bb		0.000
2	FUNCTION3 OCDPE	33.56	1.160e2					2.3	NO		bb		0.000
3	FUNCTION3 OCDPE	32.40	4.800e2					10.3	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	39.21	8.282e1					3.3	YES		bb		0.000
2	FUNCTION4 NCDPE	37.81	1.241e3					34.0	YES		bb		0.000

ID: 23L0564-02, Name: 24011811, Date: 18-Jan-2024, Time: 18:00:27, Conditions: AUTOSPEC01, User: pk

ETHERS6

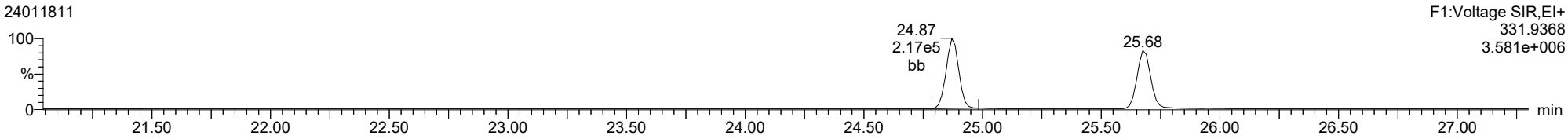
	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:47:02 Pacific Standard Time

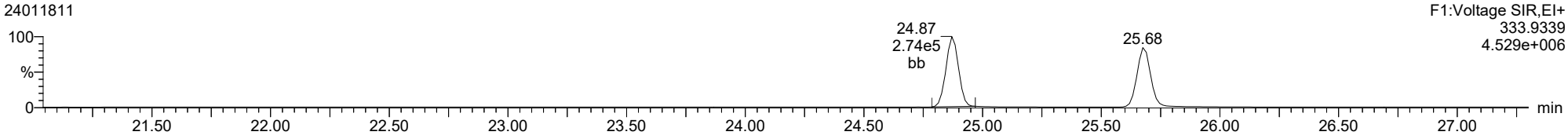
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ID: 23L0564-02, Name: 24011811, Date: 18-Jan-2024, Time: 18:00:27, Conditions: AUTOSPEC01, User: pk

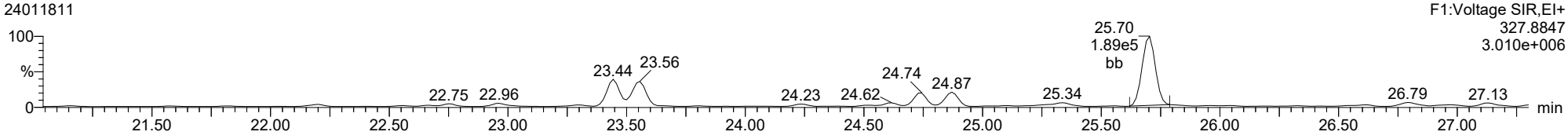
13C-1234-TCDD



13C-1234-TCDD

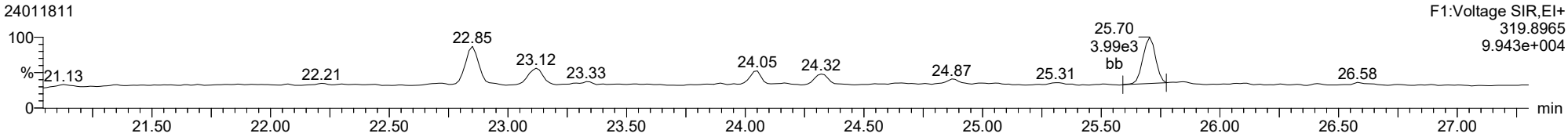


37CL-2378-TCDD

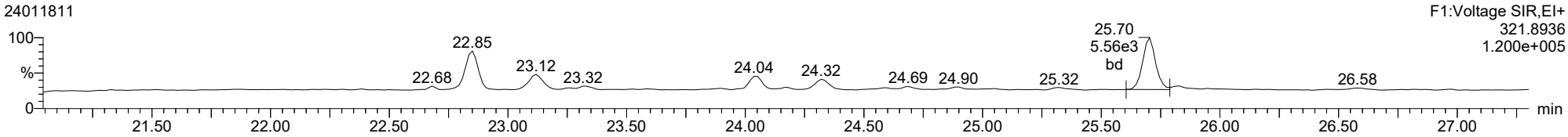


ID: 23L0564-02, Name: 24011811, Date: 18-Jan-2024, Time: 18:00:27, Conditions: AUTOSPEC01, User: pk

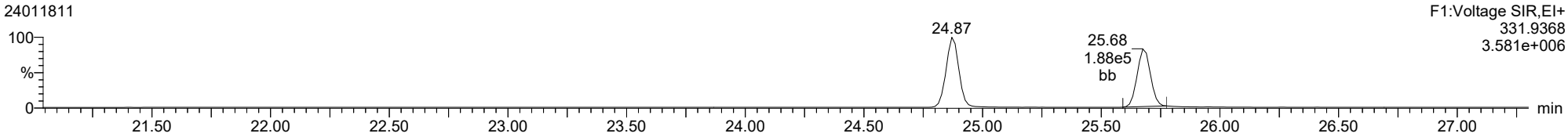
2378-TCDD



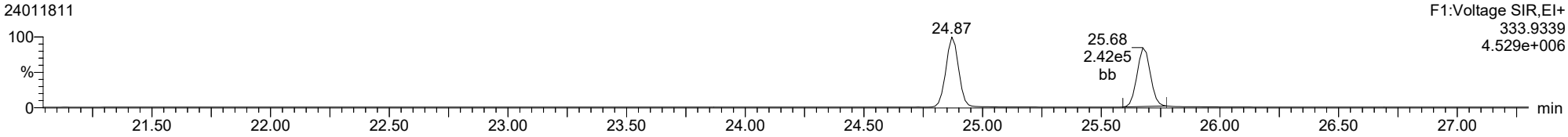
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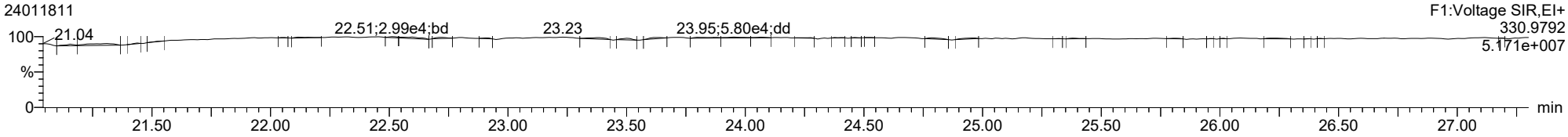
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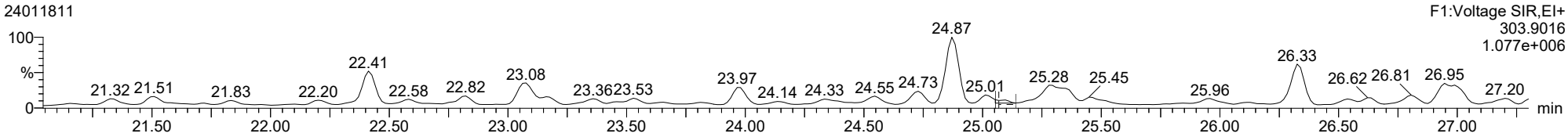


FUNCTION1 PFK

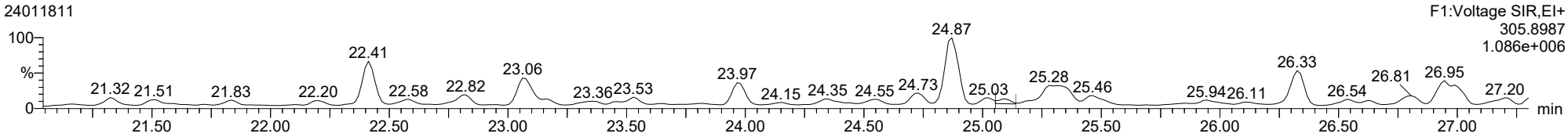


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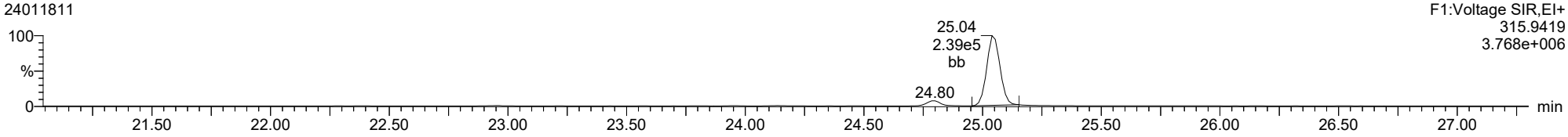
2378-TCDF



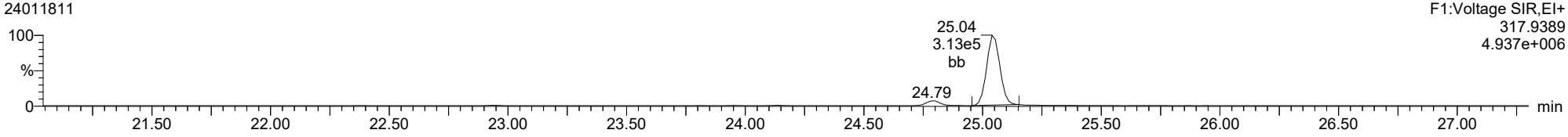
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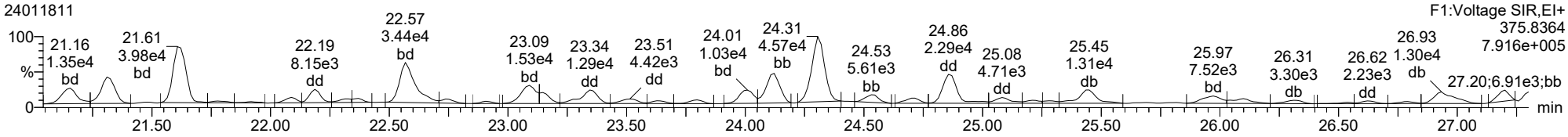
13C-2378-TCDF



13C-2378-TCDF

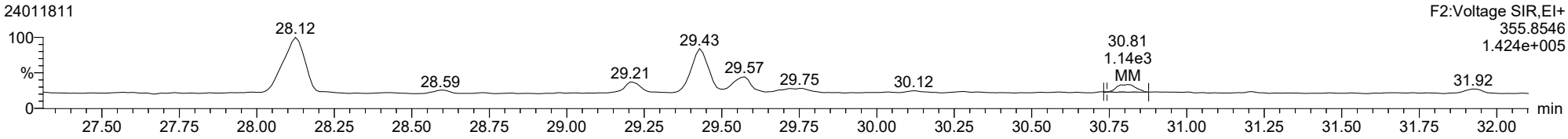


FUNCTION1 HXCDPE

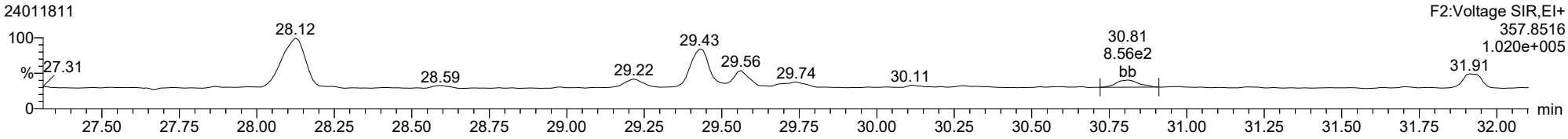


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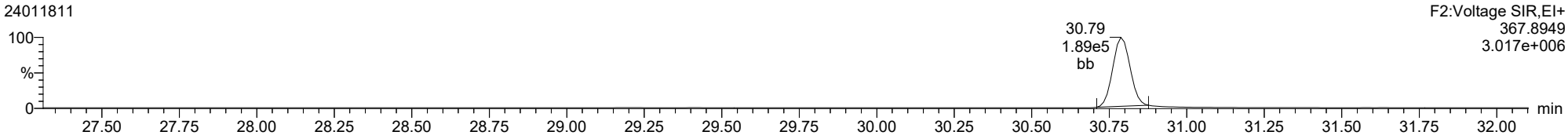
12378-PeCDD



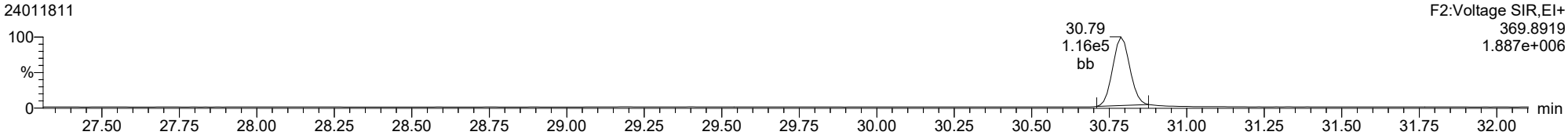
12378-PeCDD



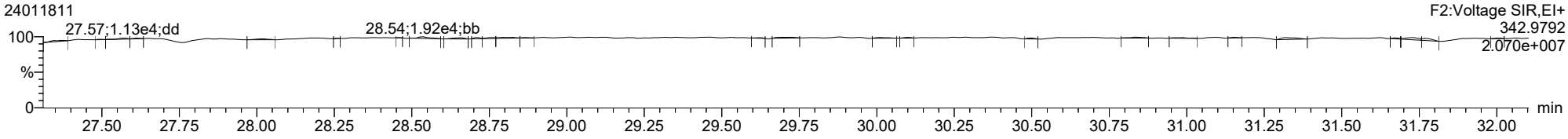
13C-12378-PeCDD



13C-12378-PeCDD

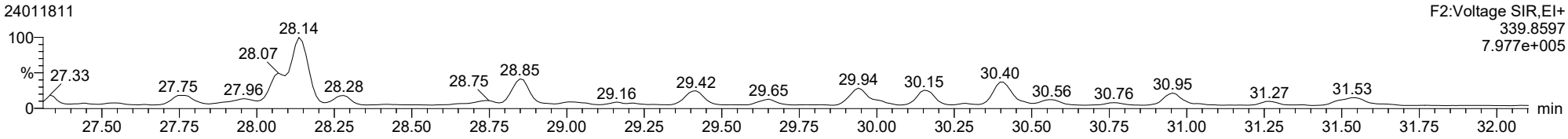


FUNCTION2 PFK

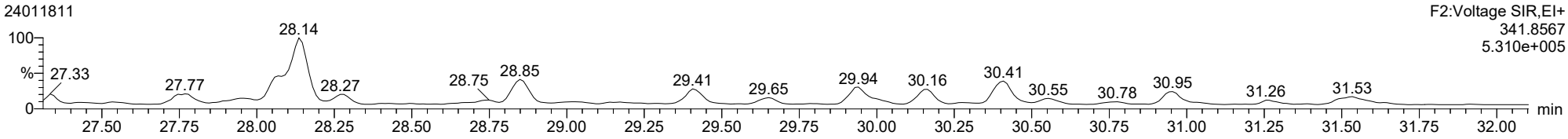


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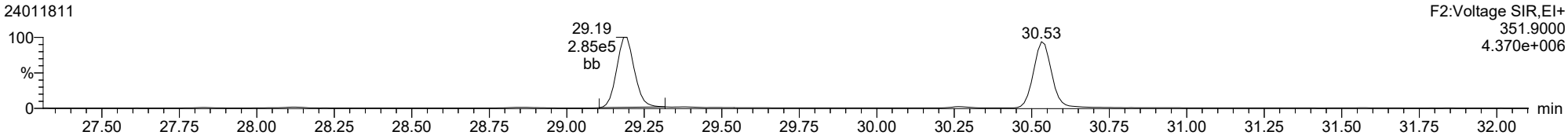
12378-PeCDF



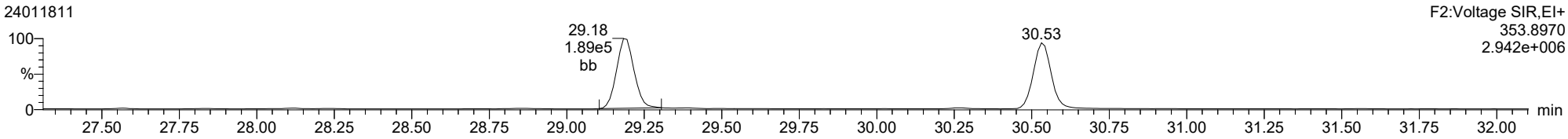
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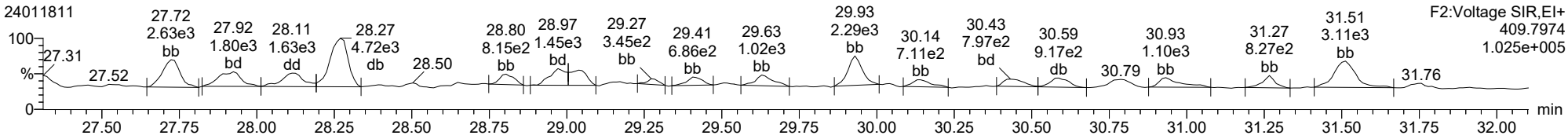
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13C-12378-PeCDF

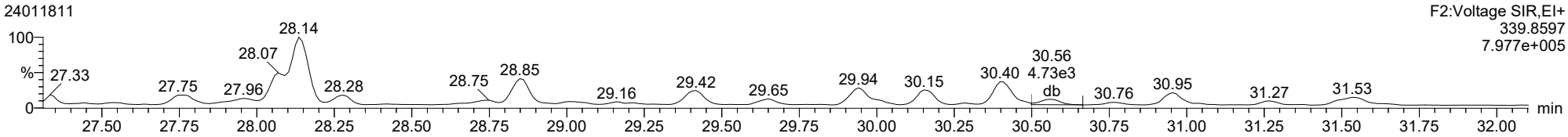


FUNCTION2 HPCDPE

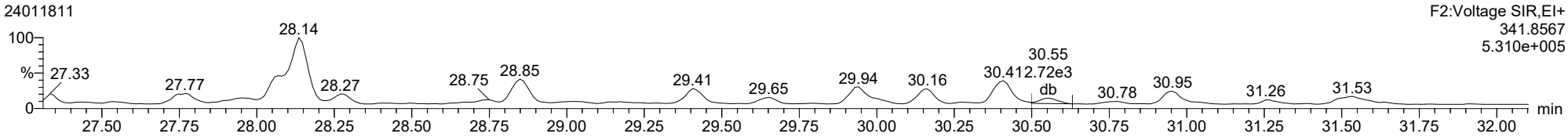


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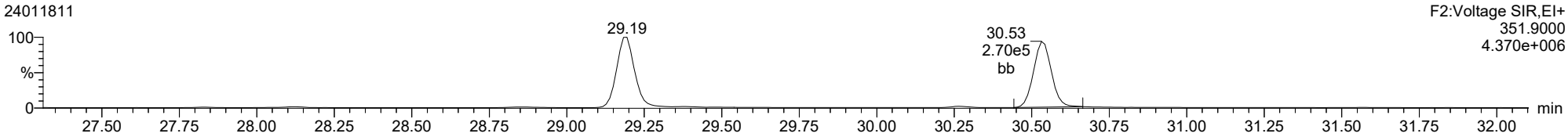
23478-PeCDF



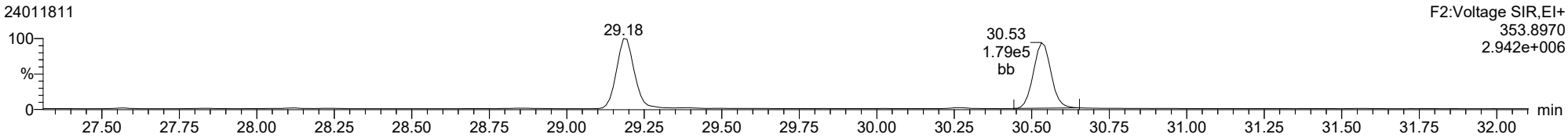
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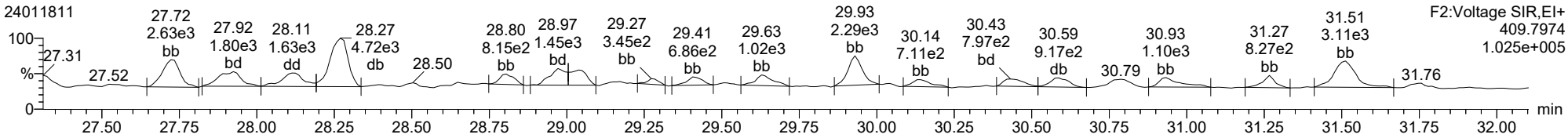
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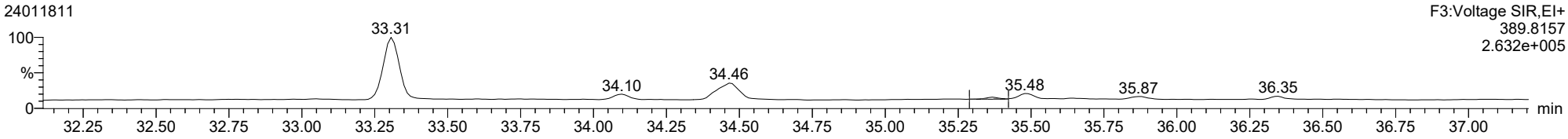


FUNCTION2 HPCDPE

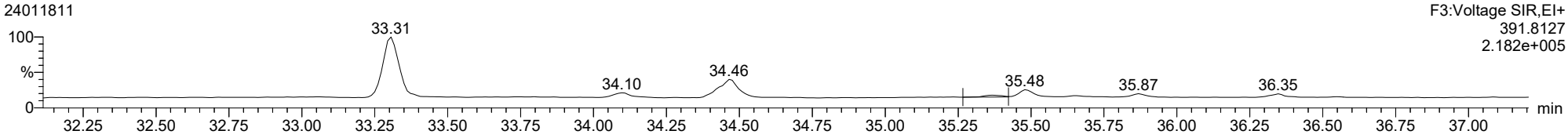


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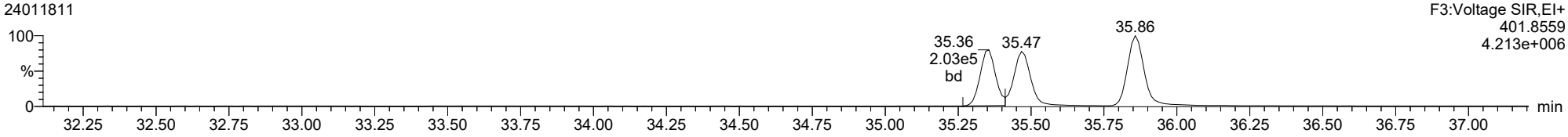
123478-HxCDD



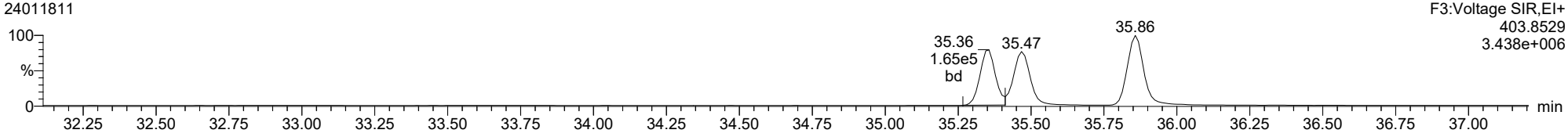
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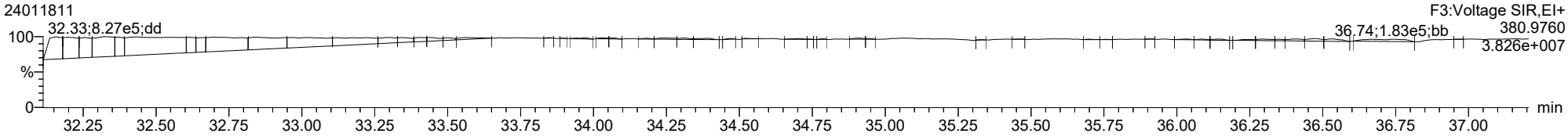
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13C-123478-HxCDD



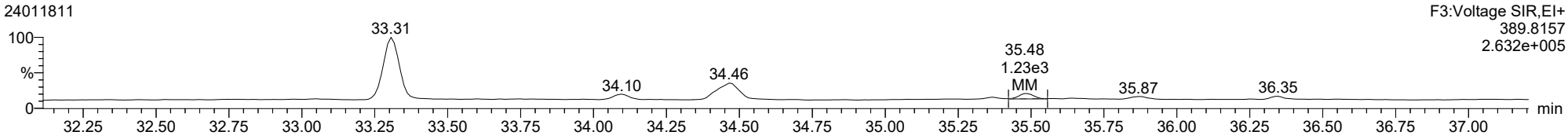
FUNCTION3 PFK



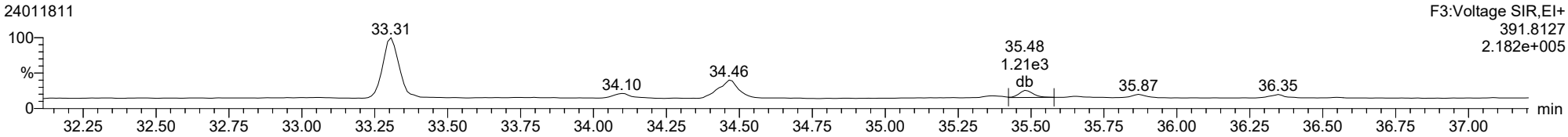
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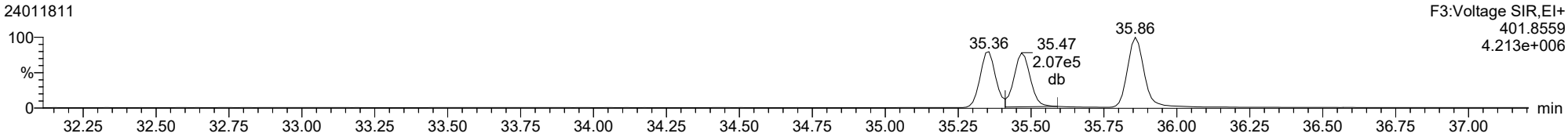
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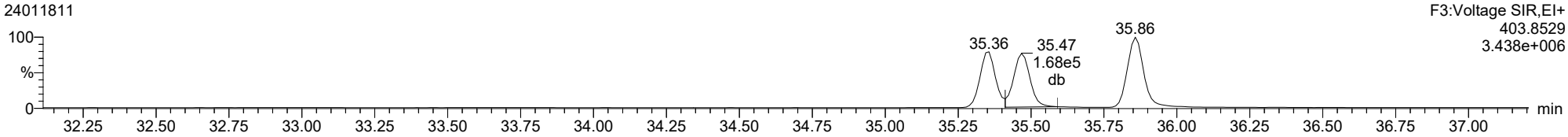
123678-HxCDD



13C-123678-HxCDD



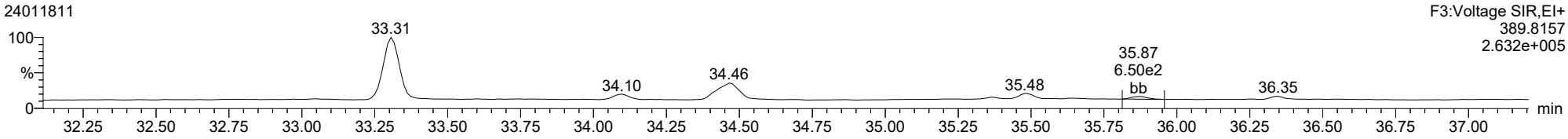
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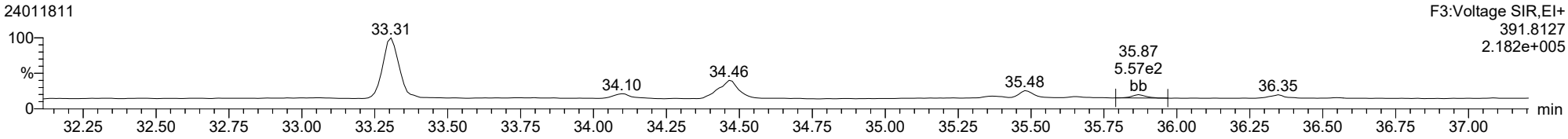
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ID: 23L0564-02, Name: 24011811, Date: 18-Jan-2024, Time: 18:00:27, Conditions: AUTOSPEC01, User: pk

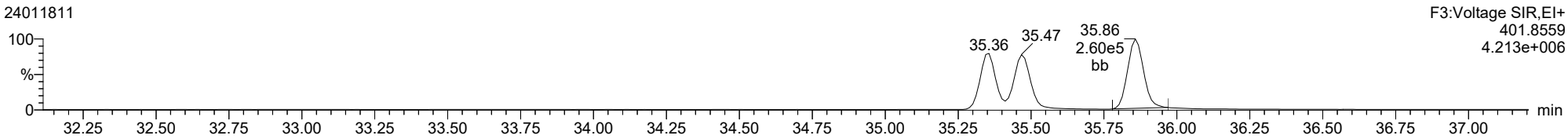
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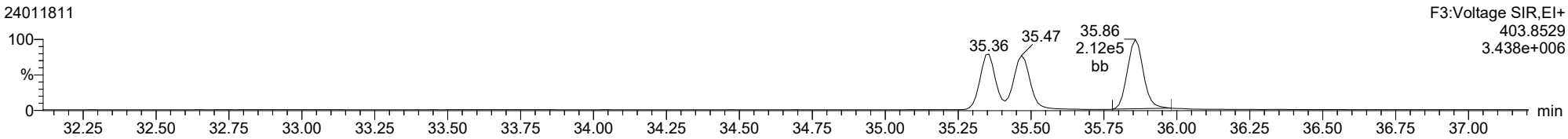
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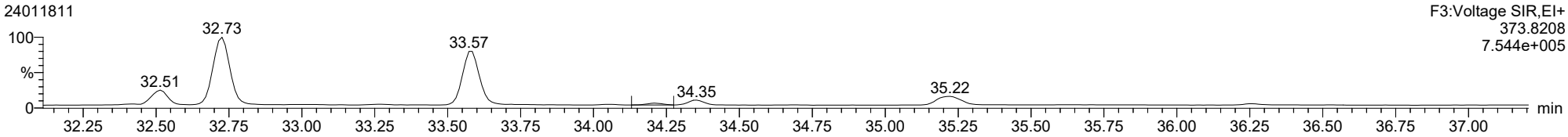


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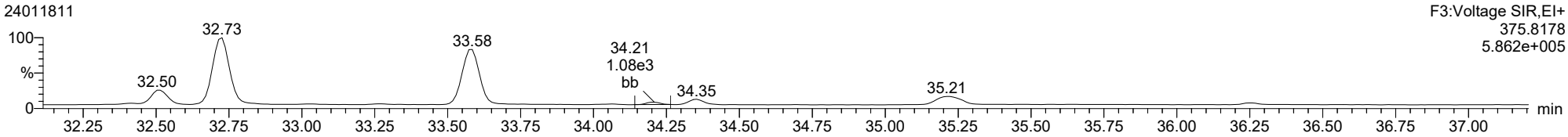


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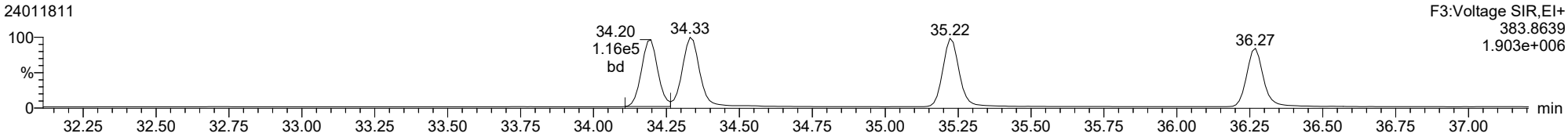
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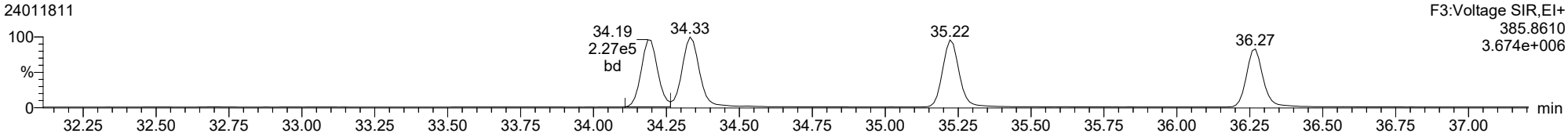
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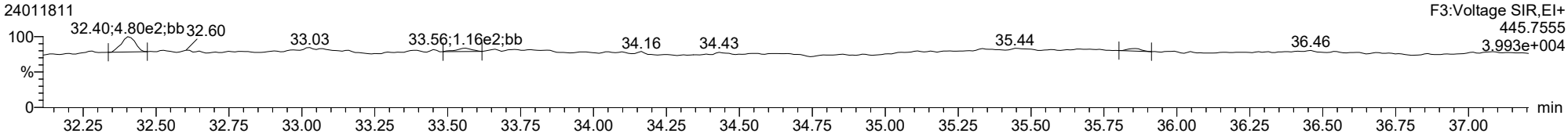
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13C-123478-HxCDF



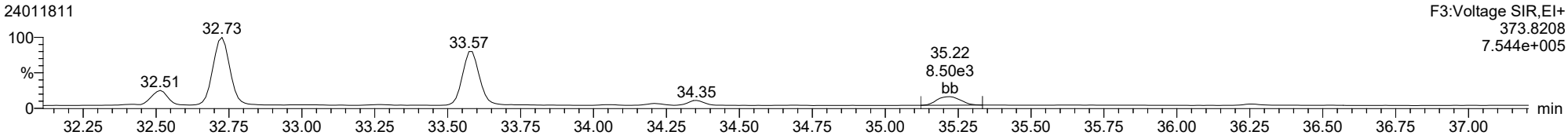
FUNCTION3 OCDPE



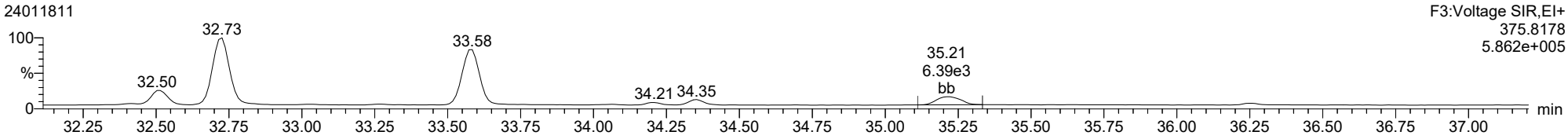
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Printed: Friday, January 19, 2024 09:47:02 Pacific Standard Time

ID: 23L0564-02, Name: 24011811, Date: 18-Jan-2024, Time: 18:00:27, Conditions: AUTOSPEC01, User: pk

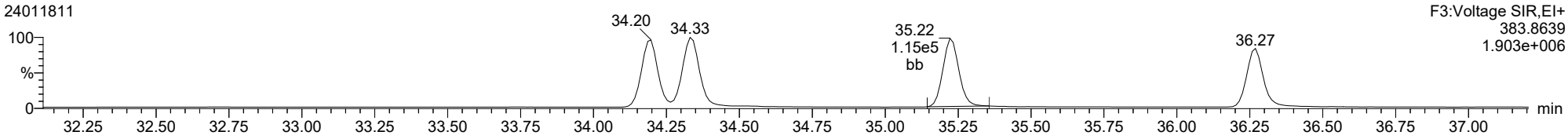
234678-HxCDF



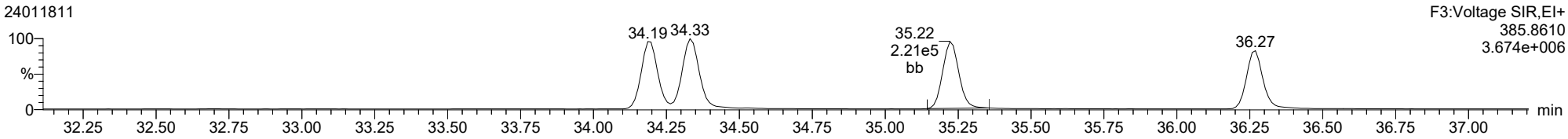
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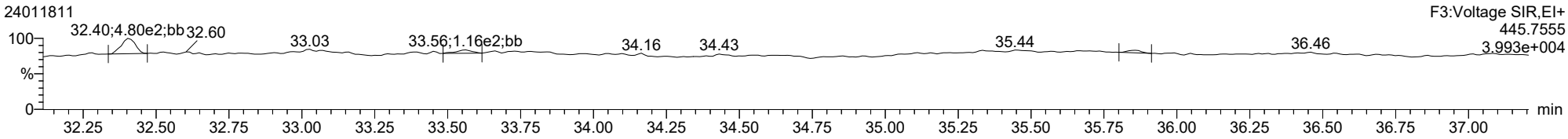
13C-234678-HxCDF



13C-234678-HxCDF

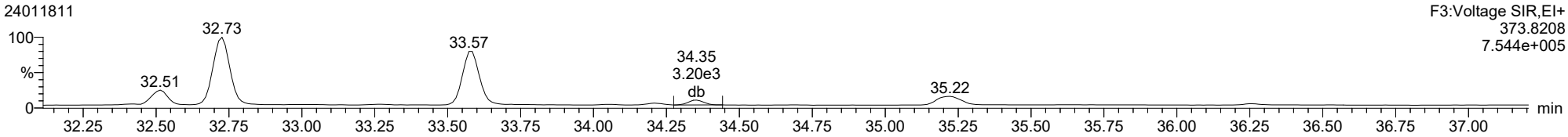


FUNCTION3 OCDPE

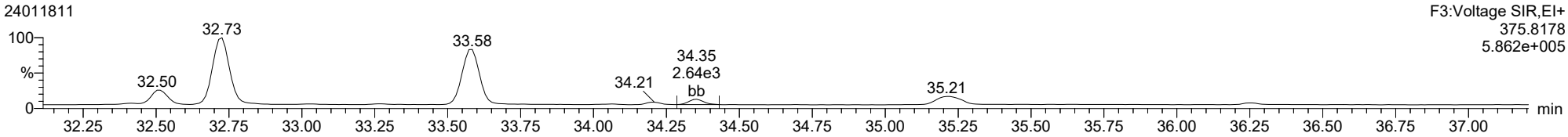


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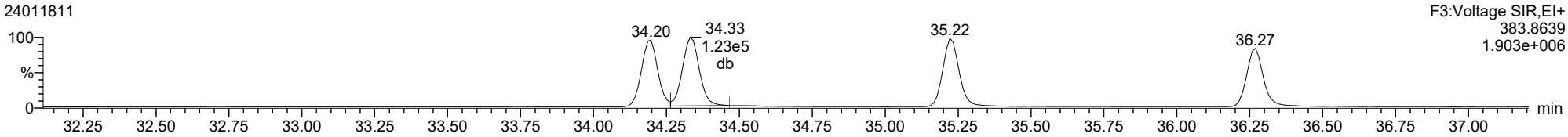
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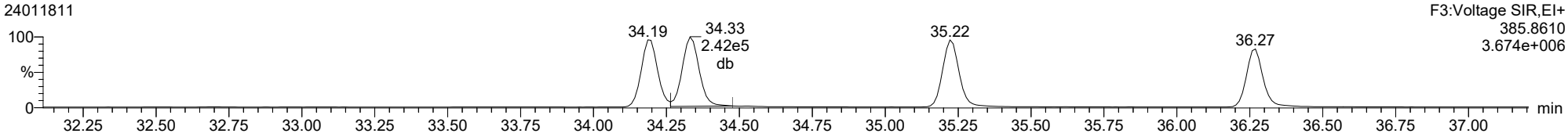
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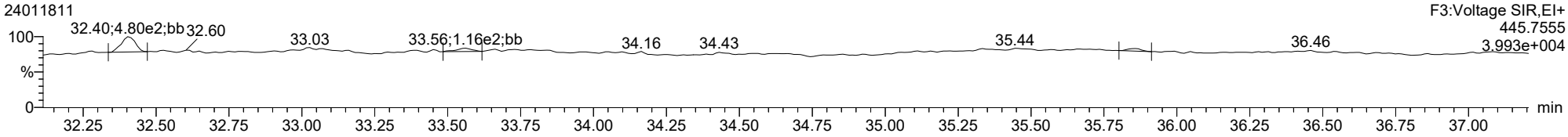
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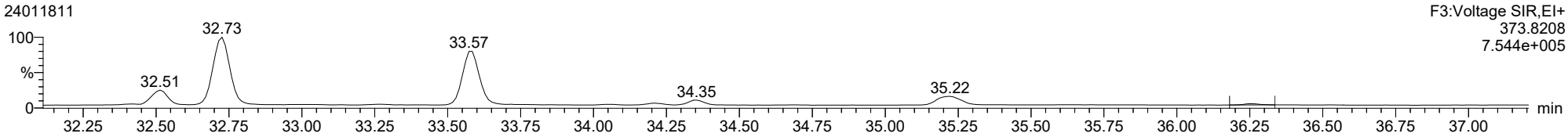


FUNCTION3 OCDPE

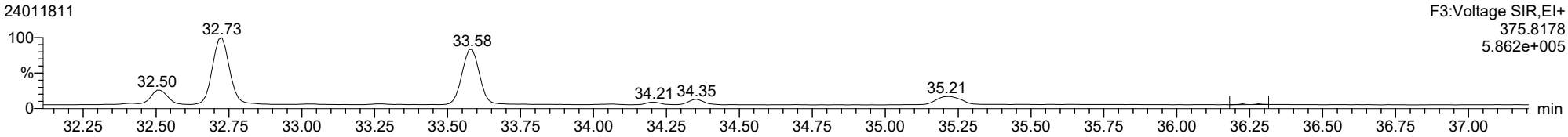


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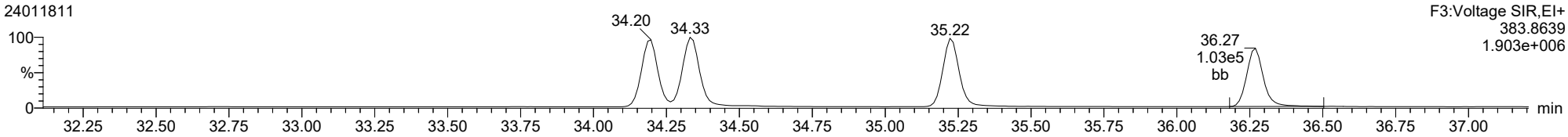
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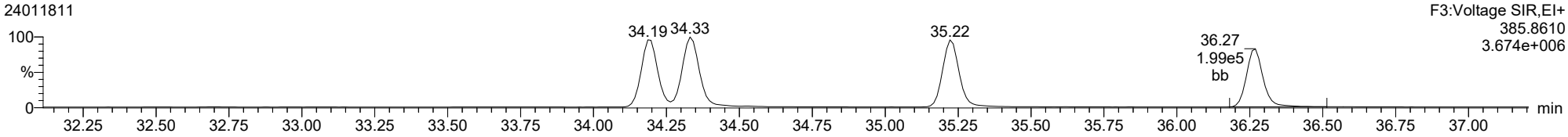
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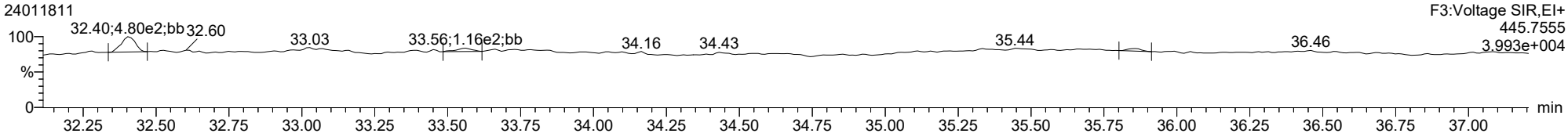
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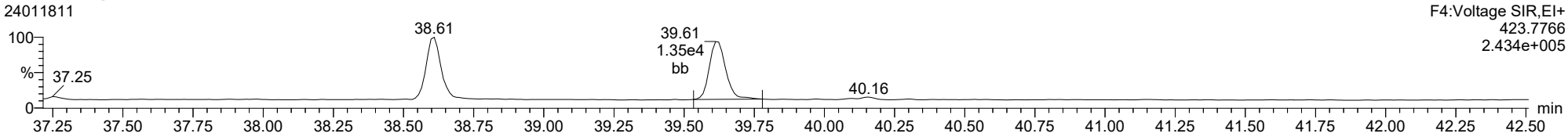


FUNCTION3 OCDPE

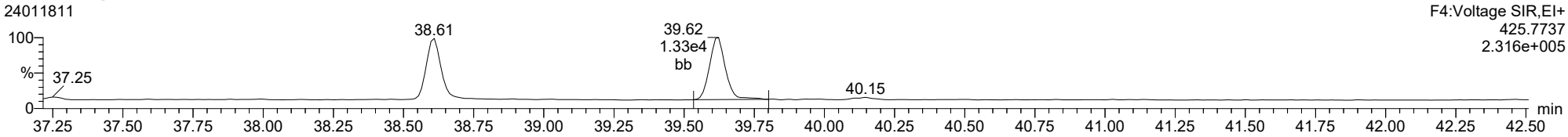


ID: 23L0564-02, Name: 24011811, Date: 18-Jan-2024, Time: 18:00:27, Conditions: AUTOSPEC01, User: pk

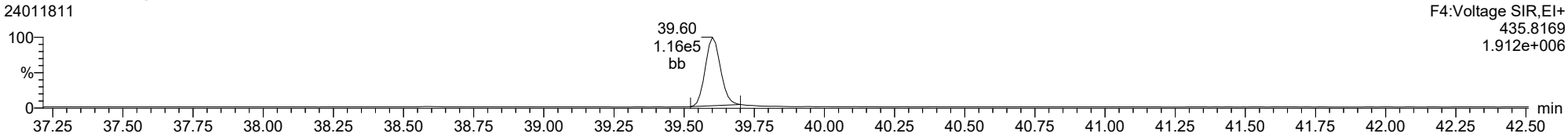
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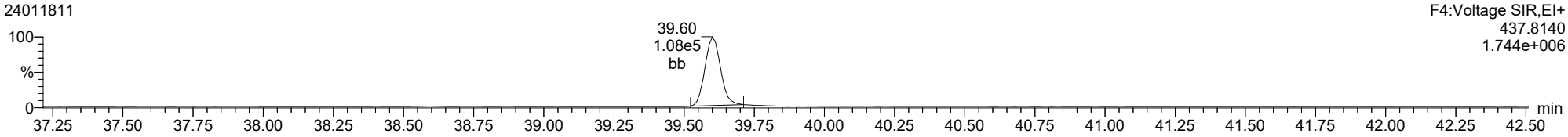
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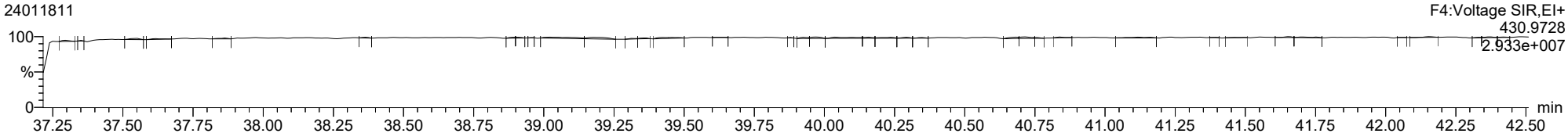
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13C-1234678-HpCDD



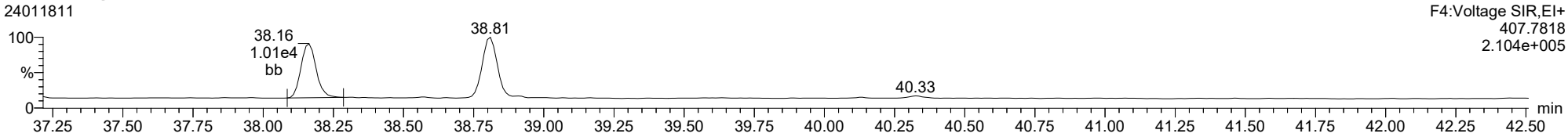
FUNCTION4 PFK



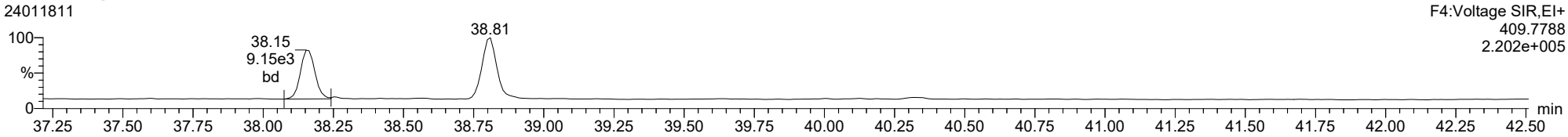
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ID: 23L0564-02, Name: 24011811, Date: 18-Jan-2024, Time: 18:00:27, Conditions: AUTOSPEC01, User: pk

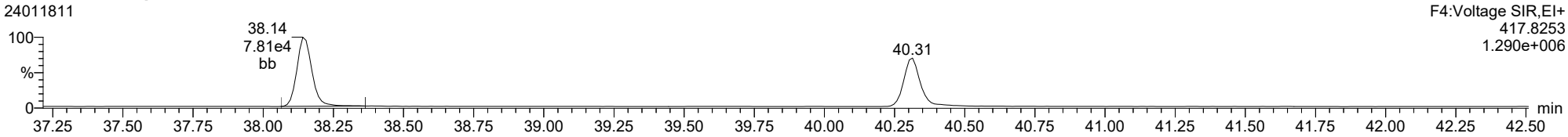
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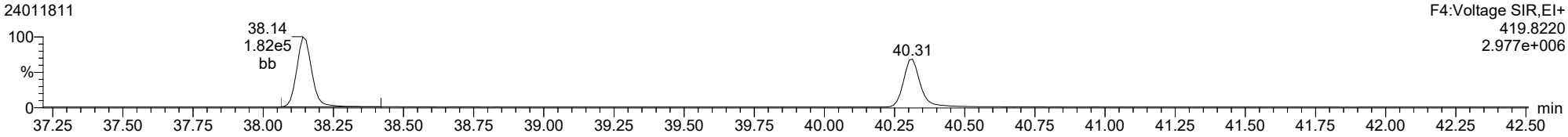
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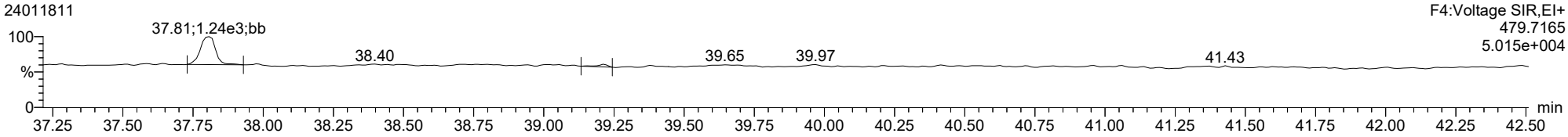
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13C-1234678-HpCDF

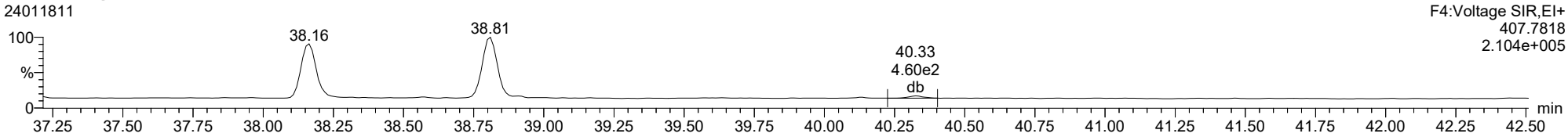


FUNCTION4 NCDPE

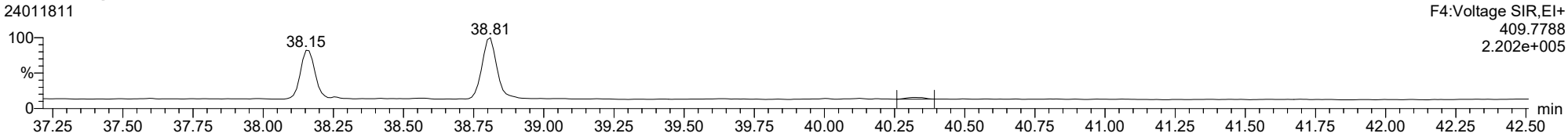


ID: 23L0564-02, Name: 24011811, Date: 18-Jan-2024, Time: 18:00:27, Conditions: AUTOSPEC01, User: pk

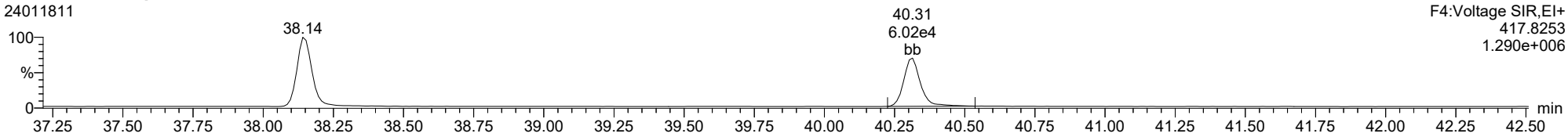
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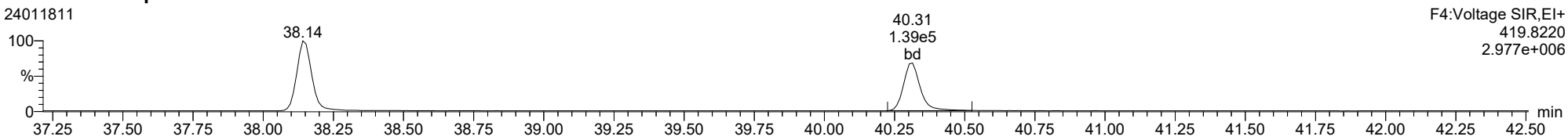
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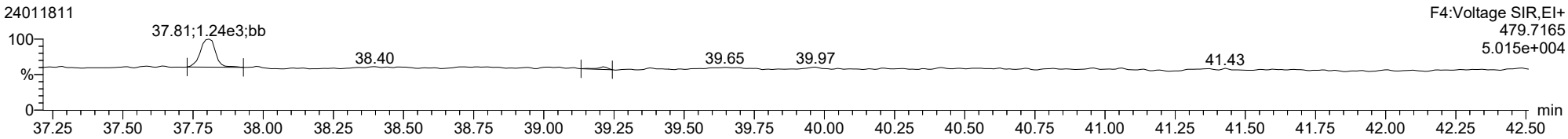
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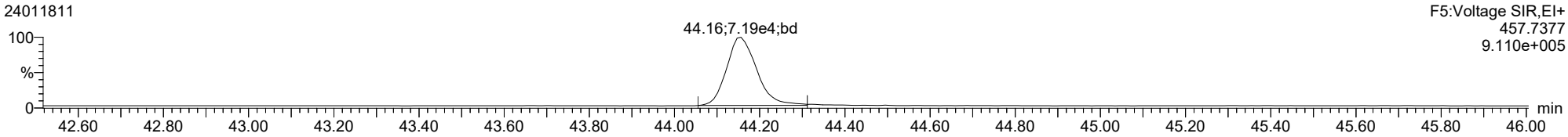


FUNCTION4 NCDPE

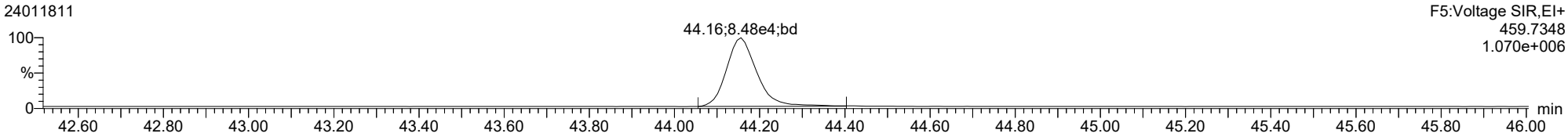


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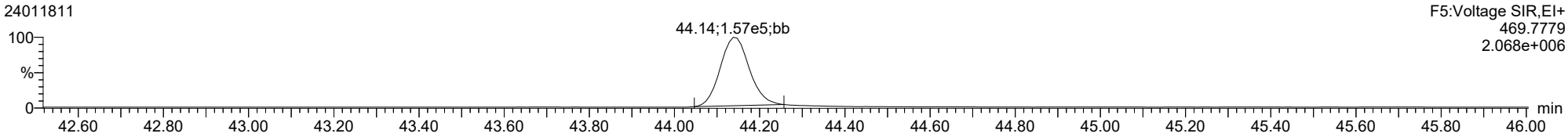
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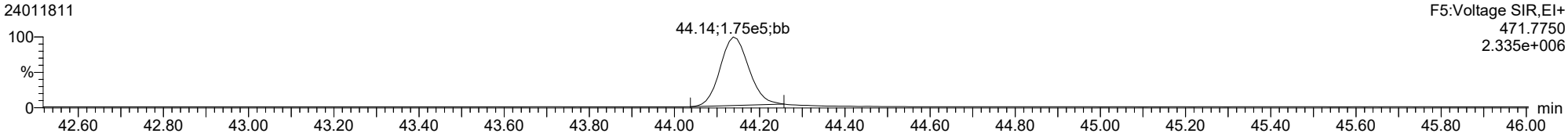
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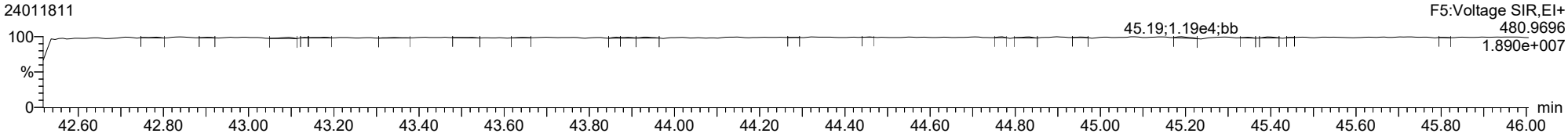
13C-OCDD



13C-OCDD



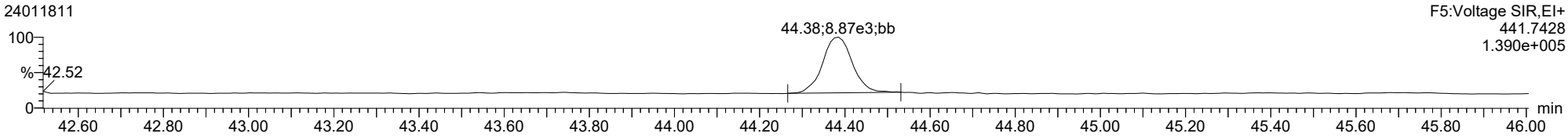
FUNCTION5 PFK



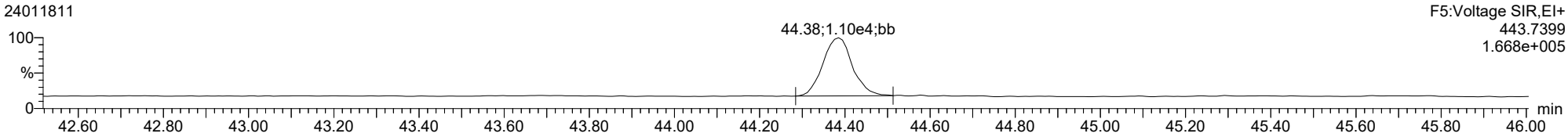
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ID: 23L0564-02, Name: 24011811, Date: 18-Jan-2024, Time: 18:00:27, Conditions: AUTOSPEC01, User: pk

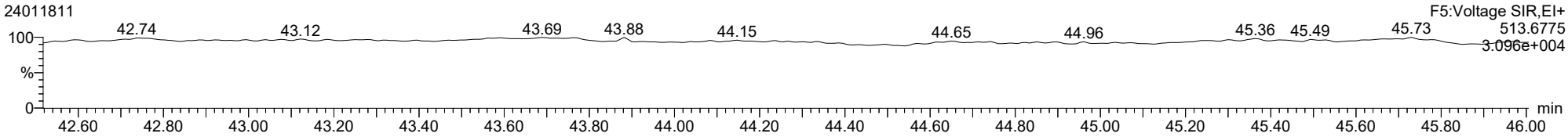
OCDF



OCDF

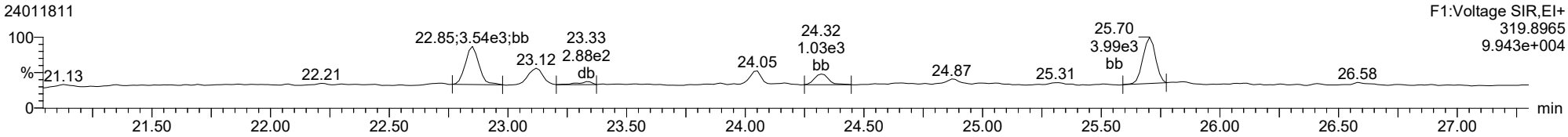


FUNCTION5 DCDPE

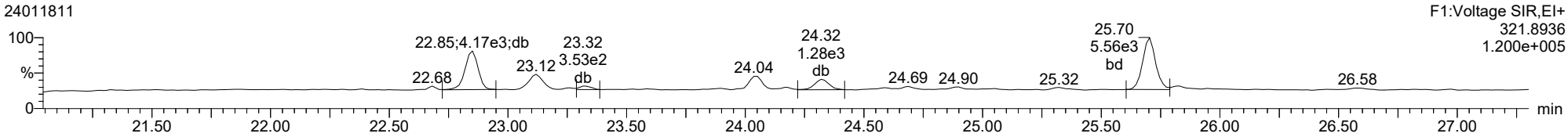


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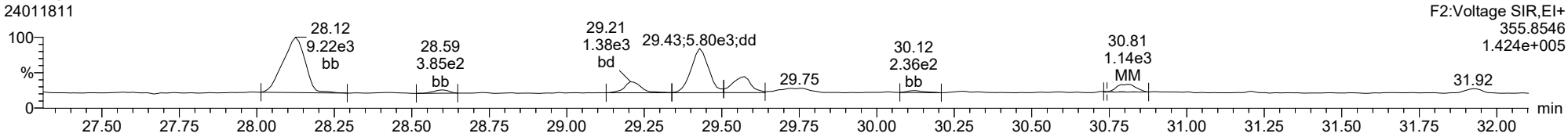
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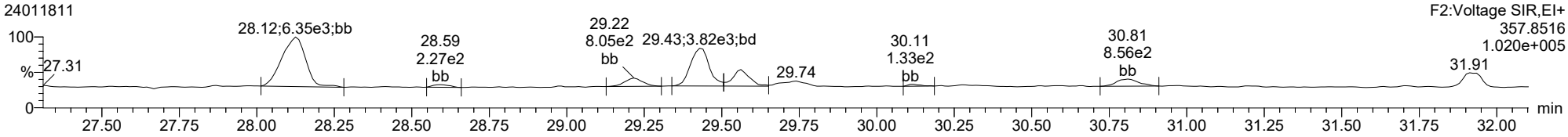
Total-tetradioxins



Total-pentadioxins

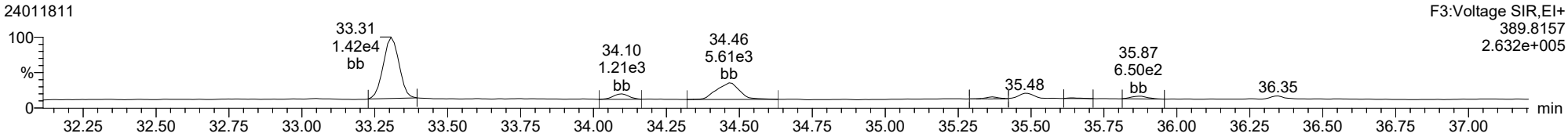


Total-pentadioxins

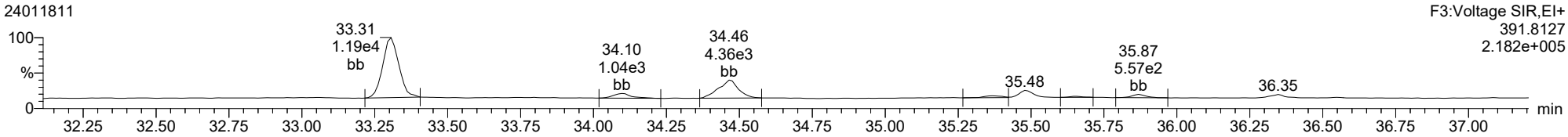


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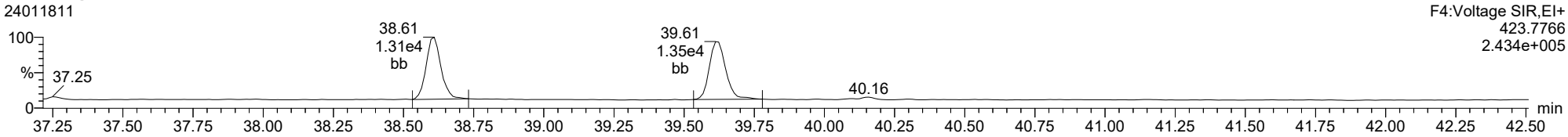
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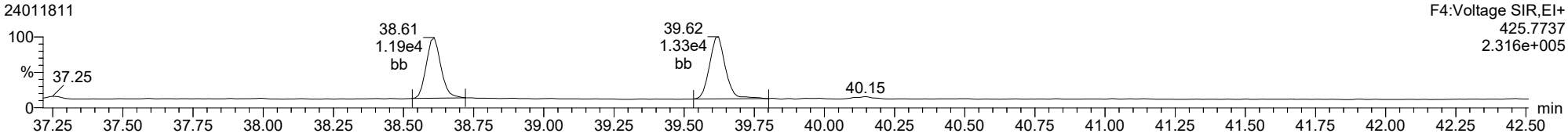
Total-hexadioxins



Total-heptadioxins



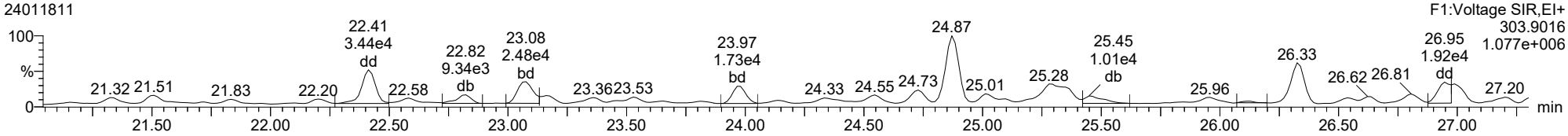
Total-heptadioxins



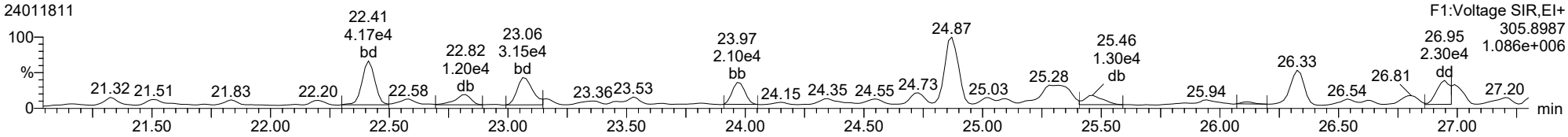
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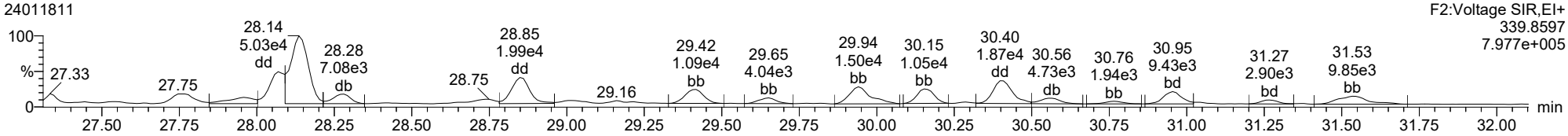
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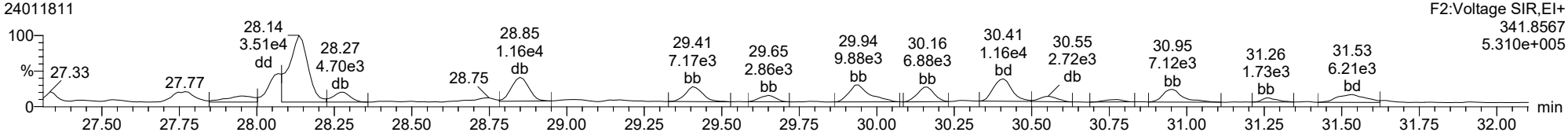
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Total-pentafurans



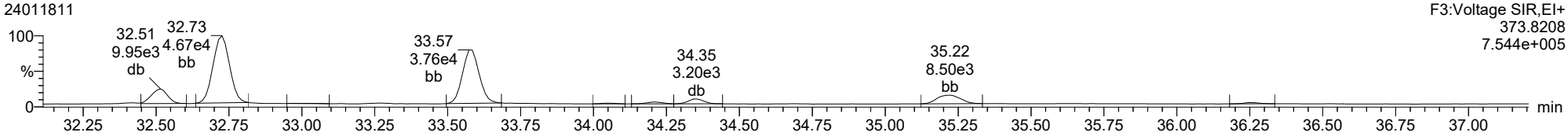
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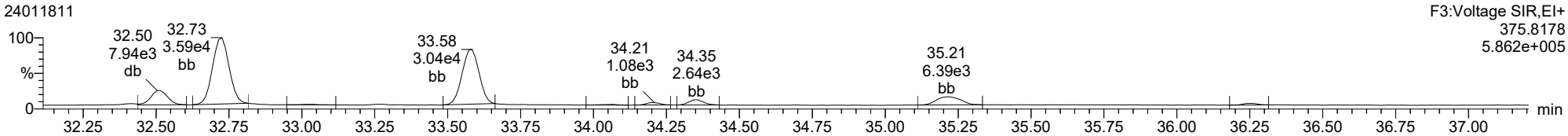
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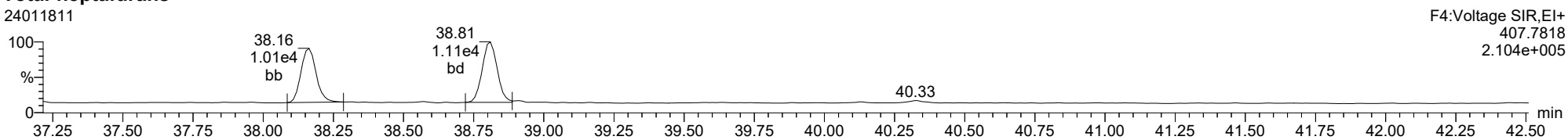
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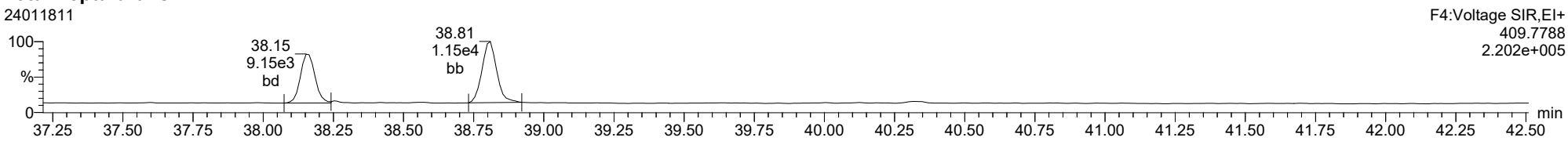
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

H4H-03-0.5-1.0

Form 1
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23L0564
Client:	Floyd - Snider				
Project:	Smith-Kem				
Matrix:	Soil	Laboratory ID:	23L0564-03 A	File ID:	24011812
Sampled:	09/07/23 10:10	Prepared:	01/02/24 14:00	Analyzed:	01/18/24 18:49
% Solids:	85.09	Preparation:	EPA 1613	Initial/Final:	11.77 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SMA0233	Calibration:	GH00041
Batch:	BLL0751	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	1.111	0.655-0.886	1.11	0.998	13.4	ng/kg	EMPC
1746-01-6	2,3,7,8-TCDD	1	0.742	0.655-0.886	0.189	0.998	4.34	ng/kg	
57117-41-6	1,2,3,7,8-PeCDF	1	1.715	1.318-1.783	1.16	0.998	3.76	ng/kg	
57117-31-4	2,3,4,7,8-PeCDF	1	1.610	1.318-1.783	1.18	0.998	4.41	ng/kg	
40321-76-4	1,2,3,7,8-PeCDD	1	1.833	1.318-1.783	0.150	0.998	2.03	ng/kg	EMPC
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.549	1.054-1.426	0.131	0.998	3.87	ng/kg	EMPC
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.370	1.054-1.426	0.135	0.998	4.71	ng/kg	
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.277	1.054-1.426	0.130	0.998	7.81	ng/kg	
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.301	1.054-1.426	0.158	0.998	1.56	ng/kg	
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.107	1.054-1.426	0.195	0.998	0.920	ng/kg	J
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.161	1.054-1.426	0.210	0.998	2.02	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.189	1.054-1.426	0.232	0.998	1.32	ng/kg	
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.043	0.893-1.208	0.158	0.998	30.6	ng/kg	B
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	1.125	0.893-1.208	0.224	0.998	1.92	ng/kg	
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.057	0.893-1.208	0.188	2.50	34.3	ng/kg	B
39001-02-0	OCDF	1	0.920	0.757-1.024	0.358	2.50	41.8	ng/kg	B
3268-87-9	OCDD	1	0.850	0.757-1.024	0.446	9.98	332	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			0.998	77.8	ng/kg	
41903-57-5	Total TCDD	1	0.000			0.998	22.0	ng/kg	
30402-15-4	Total PeCDF	1	0.000			0.998	226	ng/kg	
36088-22-9	Total PeCDD	1	0.000			0.998	22.2	ng/kg	
55684-94-1	Total HxCDF	1	0.000			0.998	93.7	ng/kg	
34465-46-8	Total HxCDD	1	0.000			0.998	31.3	ng/kg	
38998-75-3	Total HpCDF	1	0.000			0.998	62.0	ng/kg	
37871-00-4	Total HpCDD	1	0.000			0.998	62.3	ng/kg	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 12.15

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 12.15

Analytical Resources, Incorporated
Analytical Chemists and Consultants

H4H-03-0.5-1.0

Form 2

ORGANIC ANALYSIS DATA SHEET

EPA 1613B

Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23L0564
Client:	Floyd - Snider			Project:	Smith-Kem
Matrix:	Soil	Laboratory ID:	23L0564-03	File ID:	24011812
Sampled:	09/07/23 10:10	Prepared:	01/02/24 14:00	Analyzed:	01/18/24 18:49
Solids Wt%:	85.09	Preparation:	EPA 1613	Initial/Final:	11.77 g / 20 uL
Result Basis:	Dry	Sequence:	SMA0233	Calibration:	GH00041
Batch:	BLL0751	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.774	0.655-0.886	0.104	53.5	24 - 169 %	
13C12-2,3,7,8-TCDD		0.769	0.655-0.886	0.153	73.4	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.473	1.318-1.783	0.140	78.2	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.494	1.318-1.783	0.148	76.2	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.648	1.318-1.783	0.145	90.2	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.517	0.434-0.587	0.184	71.0	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.508	0.434-0.587	0.150	63.5	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.505	0.434-0.587	0.184	73.3	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.510	0.434-0.587	0.211	76.0	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.246	1.054-1.426	0.217	91.5	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.198	1.054-1.426	0.180	77.3	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.449	0.374-0.506	0.188	65.2	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.440	0.374-0.506	0.245	67.8	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.056	0.893-1.208	0.249	91.6	23 - 140 %	
13C12-OCDD		0.891	0.757-1.024	0.284	70.5	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.393	84.4	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:47:20 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240116.mdb 16 Jan 2024 11:29:56
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: 23L0564-03, Name: 24011812, Date: 18-Jan-2024, Time: 18:49:19, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.026	0.999	1.547e4	1.392e4	0.903	1.111	0.770	3421	9074	2.14e5	1.61e5	62.4	17.7	YES	dd	dd	6.695
12378-PeCDF	29.205	1.000	5.853e3	3.414e3	0.923	1.715	1.550	7517	7089	5.04e4	3.38e4	6.7	4.8	NO	dd	MM	1.884
23478-PeCDF	30.565	1.001	6.622e3	4.113e3	0.991	1.610	1.550	7517	7089	8.28e4	5.82e4	11.0	8.2	NO	db	db	2.207
123478-HxCDF	34.219	1.001	5.311e3	3.429e3	1.128	1.549	1.240	843	657	7.69e4	5.57e4	91.2	84.8	YES	dd	bb	1.936
234678-HxCDF	35.244	1.000	9.817e3	7.690e3	1.081	1.277	1.240	843	657	1.06e5	8.68e4	126.1	132.1	NO	bb	bb	3.911
123678-HxCDF	34.353	1.001	6.184e3	4.515e3	1.032	1.370	1.240	843	657	9.52e4	7.13e4	112.9	108.5	NO	db	MM	2.358
123789-HxCDF	36.258	1.000	1.631e3	1.254e3	0.988	1.301	1.240	843	657	2.25e4	1.64e4	26.6	25.0	NO	bb	bb	0.781
1234678-HpCDF	38.164	1.000	3.023e4	2.897e4	1.164	1.043	1.050	632	930	4.98e5	4.71e5	787.8	506.1	NO	bb	bb	15.330
1234789-HpCDF	40.325	1.000	1.490e3	1.325e3	1.104	1.125	1.050	632	930	2.29e4	1.87e4	36.2	20.1	NO	bb	bb	0.963
OCDF	44.395	1.006	2.624e4	2.852e4	1.130	0.920	0.890	858	1183	2.94e5	3.17e5	343.1	268.4	NO	bd	bd	20.938
2378-TCDD	25.704	1.001	4.640e3	6.257e3	1.243	0.742	0.770	1466	971	6.79e4	9.56e4	46.3	98.4	NO	bd	bd	2.172
12378-PeCDD	30.810	1.001	2.543e3	1.387e3	1.150	1.833	1.550	706	790	3.88e4	2.11e4	55.0	26.7	YES	bb	bb	1.014
123478-HxCDD	35.378	1.001	1.055e3	9.529e2	0.960	1.107	1.240	1028	1223	1.42e4	1.55e4	13.8	12.7	NO	bd	bd	0.461
123678-HxCDD	35.489	1.000	2.221e3	1.912e3	0.883	1.161	1.240	1028	1223	3.45e4	2.79e4	33.6	22.8	NO	dd	dd	1.011
123789-HxCDD	35.879	1.011	1.327e3	1.116e3	0.804	1.189	1.240	1028	1223	1.86e4	1.88e4	18.1	15.4	NO	bb	bb	0.663
1234678-HpCDD	39.623	1.001	3.157e4	2.986e4	1.200	1.057	1.050	819	984	4.85e5	4.55e5	592.9	462.1	NO	bd	bb	17.191
OCDD	44.166	1.000	1.874e5	2.204e5	1.059	0.850	0.890	970	1410	2.35e6	2.74e6	2425.9	1940.5	NO	bd	bd	166.480
13C-2378-TCDF	25.054	1.007	2.120e5	2.741e5	1.835	0.774	0.770	1188	1401	3.24e6	4.27e6	2729.2	3051.2	NO	bb	bb	53.475
13C-12378-PeCDF	29.194	1.173	3.174e5	2.155e5	1.377	1.473	1.550	1310	1314	4.86e6	3.23e6	3707.2	2461.7	NO	bb	bd	78.163
13C-23478-PeCDF	30.531	1.227	2.941e5	1.968e5	1.301	1.494	1.550	1310	1314	4.47e6	3.00e6	3408.5	2282.3	NO	bb	bb	76.176
13C-123478-HxCDF	34.197	0.953	1.364e5	2.638e5	1.091	0.517	0.510	1033	1654	2.07e6	4.02e6	2005.0	2429.2	NO	bd	bd	71.010
13C-123678-HxCDF	34.331	0.957	1.480e5	2.915e5	1.340	0.508	0.510	1033	1654	2.17e6	4.29e6	2095.6	2590.9	NO	db	db	63.454
13C-234678-HxCDF	35.233	0.982	1.388e5	2.751e5	1.093	0.505	0.510	1033	1654	2.14e6	4.25e6	2075.0	2568.1	NO	bb	bb	73.259
13C-123789-HxCDF	36.269	1.011	1.262e5	2.475e5	0.952	0.510	0.510	1033	1654	1.94e6	3.78e6	1880.1	2283.3	NO	bb	bb	76.012
13C-1234678-HpCDF	38.152	1.064	1.029e5	2.289e5	0.985	0.449	0.440	904	1579	1.58e6	3.58e6	1743.1	2268.6	NO	bd	bd	65.195
13C-1234789-HpCDF	40.314	1.124	8.087e4	1.840e5	0.756	0.440	0.440	904	1579	1.16e6	2.58e6	1280.8	1633.1	NO	bb	bd	67.822
13C-1234-TCDD	24.884	0.000	2.175e5	2.777e5	1.000	0.783	0.770	1359	950	3.58e6	4.59e6	2632.6	4834.8	NO	bb	bb	100.000
13C-2378-TCDD	25.690	1.032	1.755e5	2.281e5	1.110	0.769	0.770	1359	950	2.70e6	3.49e6	1984.4	3676.8	NO	bb	bb	73.445
13C-12378-PeCDD	30.788	1.237	2.096e5	1.272e5	0.754	1.648	1.550	764	719	3.23e6	2.00e6	4230.4	2786.0	NO	bb	bb	90.248
13C-123478-HxCDD	35.356	0.986	2.518e5	2.022e5	0.960	1.246	1.240	1148	1644	4.00e6	3.18e6	3487.4	1932.6	NO	bd	bd	91.527
13C-123678-HxCDD	35.478	0.989	2.524e5	2.107e5	1.159	1.198	1.240	1148	1644	3.96e6	3.22e6	3448.2	1958.3	NO	db	db	77.309
13C-1234678-HpCDD	39.601	1.104	1.530e5	1.449e5	0.629	1.056	1.050	1072	1030	2.46e6	2.33e6	2297.6	2262.0	NO	bb	bb	91.594
13C-OCDD	44.147	1.231	2.180e5	2.447e5	0.635	0.891	0.890	1052	1360	2.85e6	3.18e6	2706.1	2336.9	NO	bb	bb	141.003
13C-123789-HxCDD	35.868	0.000	2.855e5	2.312e5	1.000	1.235	1.240	1148	1644	4.43e6	3.63e6	3859.3	2205.7	NO	bb	bb	100.000
37CL-2378-TCDD	25.704	1.033	1.936e5		1.157			6178		2.93e6		475.0			bd		33.770

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:47:20 Pacific Standard Time

ID: 23L0564-03, Name: 24011812, Date: 18-Jan-2024, Time: 18:49:19, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.523	0.859	1.460e4	8.882e3	1.170	1.644	0.770	3421	9074	2.09e5	1.35e5	61.2	14.8	YES	dd	bd	4.128
1289-TCDF	26.551	1.060	1.075e4	1.103e4	0.847	0.974	0.770	3421	9074	1.48e5	1.57e5	43.4	17.3	YES	bd	bd	5.292
13468-PECDF	26.495	0.908	1.289e5	8.365e4	1.241	1.541	1.550	4851	3200	1.99e6	1.32e6	411.2	411.2	NO	bd	db	32.147
12389-PECDF	31.556	1.081	1.267e4	6.316e3	0.880	2.006	1.550	7517	7089	1.14e5	7.55e4	15.2	10.6	YES	bd	dd	4.051
123468-HXCDF	32.515	0.951	1.374e4	1.022e4	1.206	1.345	1.240	843	657	2.19e5	1.62e5	259.3	247.0	NO	db	db	4.965
1368-TCDD	22.865	0.890	5.151e3	6.864e3	1.181	0.750	0.770	1466	971	8.08e4	1.06e5	55.1	109.3	NO	db	bb	2.521
1289-TCDD					0.963		0.770	1466	971								
12479-PECDD	28.136	0.914	2.033e4	1.379e4	2.166	1.474	1.550	706	790	2.76e5	1.81e5	391.2	229.2	NO	bb	bb	4.676
12389-PECDD	31.200	1.013	1.898e2	8.489e1	1.326	2.236	1.550	706	790	3.70e3	2.52e3	5.2	3.2	YES	bb	bd	0.061
124679-HXCDD	33.306	0.942	2.523e4	2.028e4	1.127	1.244	1.240	1028	1223	3.80e5	3.09e5	369.6	252.3	NO	bb	bb	8.898
1234679-HPCDD	38.609	0.975	2.790e4	2.644e4	1.303	1.055	1.050	819	984	4.62e5	4.27e5	564.4	434.5	NO	bd	bb	14.006
Total-tetrafurans			8.399e4		0.973			3421		1.16e6							38.974
Total-penta1			1.289e5					4851		1.99e6							32.147
Total-pentafurans			2.347e5		0.931			7517		3.20e6							80.875
Total-hexafurans			1.168e5		1.087			843		1.70e6							46.935
Total-heptafurans			5.737e4		1.134			632		9.25e5							31.055
Total-Furans			6.581e5		1.053			3421		9.41e6							255.250
Total-tetradioxins			2.241e4		1.129			1466		3.43e5							11.021
Total-pentadioxins			4.049e4		1.548			706		5.97e5							11.096
Total-hexadioxins			4.065e4		0.943			1028		5.79e5							15.697
Total-heptadioxins			5.947e4		1.251			819		9.47e5							31.197
Total-Dioxins			3.504e5		1.182			1466		4.82e6							235.492
Total-TEQ			1.008e6					1466		1.42e7							490.742
FUNCTION1 PFK			6.582e6					446775		3.41e7							
FUNCTION2 PFK			9.250e5					190456		5.21e6							0.000
FUNCTION3 PFK			1.331e6					337758		2.62e7							0.000
FUNCTION4 PFK			1.258e7					235534		1.13e8							
FUNCTION5 PFK			2.626e6					162549		2.50e7							
FUNCTION1 HXCD...			6.292e5					16649		9.00e6							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			5.858e4					2174		8.61e5							0.000
FUNCTION3 OCDPE			1.442e3					601		2.48e4							0.000
FUNCTION4 NCDPE			7.755e2					560		1.59e4							0.000
FUNCTION5 DCDPE			2.300e2					414		4.45e3							0.000

Method: T:\Autospec\Methods\Dioxin240116.mdb 16 Jan 2024 11:29:56
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: 23L0564-03, Name: 24011812, Date: 18-Jan-2024, Time: 18:49:19, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.08	1.563e4	1.828e4	0.973	0.85	0.77	64.6	YES	NO	bd	bd	7.167
2	Total-tetrafurans	22.43	2.723e4	3.338e4	0.973	0.82	0.77	112.4	YES	NO	bb	dd	12.809
3	Total-tetrafurans	22.20	6.460e3	7.716e3	0.973	0.84	0.77	29.3	YES	NO	bb	bd	2.996
4	Total-tetrafurans	21.85	4.039e3	4.575e3	0.973	0.88	0.77	14.7	YES	NO	bd	bb	1.821
5	Total-tetrafurans	21.59	2.602e3	3.445e3	0.973	0.76	0.77	14.1	YES	NO	db	db	1.278
6	Total-tetrafurans	25.52	9.408e3	1.115e4	0.973	0.84	0.77	32.8	YES	NO	db	db	4.345
7	Total-tetrafurans	26.81	1.862e4	2.187e4	0.973	0.85	0.77	69.9	YES	NO	dd	dd	8.558

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.49	1.289e5	8.365e4	1.241	1.54	1.55	411.2	YES	NO	bd	db	32.147

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	27.96	1.337e4	8.735e3	0.931	1.53	1.55	14.9	YES	NO	dd	dd	4.638
2	Total-pentafurans	27.77	1.411e4	9.197e3	0.931	1.53	1.55	26.1	YES	NO	bd	bd	4.889
3	23478-PeCDF	30.56	6.622e3	4.113e3	0.991	1.61	1.55	11.0	YES	NO	db	db	2.207
4	Total-pentafurans	30.41	1.310e4	7.742e3	0.931	1.69	1.55	23.6	YES	NO	dd	dd	4.372
5	Total-pentafurans	30.29	3.387e3	2.121e3	0.931	1.60	1.55	7.3	YES	NO	dd	dd	1.156
6	Total-pentafurans	30.16	2.162e4	1.405e4	0.931	1.54	1.55	47.6	YES	NO	bd	dd	7.484
7	Total-pentafurans	29.94	3.788e4	2.282e4	0.931	1.66	1.55	70.0	YES	NO	bb	bd	12.733
8	Total-pentafurans	29.66	7.712e3	5.205e3	0.931	1.48	1.55	15.0	YES	NO	db	bb	2.710
9	Total-pentafurans	29.42	1.421e4	8.867e3	0.931	1.60	1.55	27.1	YES	NO	dd	bb	4.842
10	12378-PeCDF	29.21	5.853e3	3.414e3	0.923	1.71	1.55	6.7	YES	NO	dd	MM	1.884
11	Total-pentafurans	29.00	7.759e3	4.641e3	0.931	1.67	1.55	12.0	YES	NO	dd	dd	2.601
12	Total-pentafurans	28.85	2.131e4	1.341e4	0.931	1.59	1.55	35.3	YES	NO	dd	dd	7.283
13	Total-pentafurans	28.74	5.096e3	3.188e3	0.931	1.60	1.55	8.2	YES	NO	dd	dd	1.738
14	Total-pentafurans	28.28	3.195e3	2.159e3	0.931	1.48	1.55	6.7	YES	NO	db	db	1.123
15	Total-pentafurans	28.14	3.824e4	2.601e4	0.931	1.47	1.55	76.1	YES	NO	dd	dd	13.479
16	Total-pentafurans	31.27	4.131e3	2.816e3	0.931	1.47	1.55	9.1	YES	NO	bb	bb	1.458
17	Total-pentafurans	30.95	1.710e4	1.282e4	0.931	1.33	1.55	29.4	YES	NO	db	bb	6.277

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
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HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDF	34.35	6.184e3	4.515e3	1.032	1.37	1.24	112.9	YES	NO	db	MM	2.358
2	Total-hexafurans	34.05	5.104e3	3.789e3	1.087	1.35	1.24	96.3	YES	NO	bd	bb	2.011
3	Total-hexafurans	33.58	3.017e4	2.413e4	1.087	1.25	1.24	549.4	YES	NO	bb	bb	12.279
4	Total-hexafurans	33.27	1.536e3	1.201e3	1.087	1.28	1.24	26.4	YES	NO	bb	bb	0.619
5	Total-hexafurans	32.73	4.752e4	3.906e4	1.087	1.22	1.24	794.1	YES	NO	bb	bb	19.577
6	123468-HXCDF	32.51	1.374e4	1.022e4	1.206	1.34	1.24	259.3	YES	NO	db	db	4.965
7	Total-hexafurans	32.40	2.244e2	1.751e2	1.087	1.28	1.24	5.5	YES	NO	dd	dd	0.090
8	123789-HxCDF	36.26	1.631e3	1.254e3	0.988	1.30	1.24	26.6	YES	NO	bb	bb	0.781
9	234678-HxCDF	35.24	9.817e3	7.690e3	1.081	1.28	1.24	126.1	YES	NO	bb	bb	3.911
10	Total-hexafurans	34.70	8.440e2	6.727e2	1.087	1.25	1.24	14.9	YES	NO	bd	bd	0.343

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	38.81	2.299e4	2.175e4	1.134	1.06	1.05	572.4	YES	NO	bb	bd	13.228
2	Total-heptafurans	38.56	2.661e3	2.526e3	1.134	1.05	1.05	67.7	YES	NO	bb	bb	1.534
3	1234678-HpCDF	38.16	3.023e4	2.897e4	1.164	1.04	1.05	787.8	YES	NO	bb	bb	15.330
4	1234789-HpCDF	40.33	1.490e3	1.325e3	1.104	1.12	1.05	36.2	YES	NO	bb	bb	0.963

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.08	1.563e4	1.828e4	0.973	0.85	0.77	64.6	YES	NO	bd	bd	7.167
2	Total-tetrafurans	22.43	2.723e4	3.338e4	0.973	0.82	0.77	112.4	YES	NO	bb	dd	12.809
3	Total-tetrafurans	22.20	6.460e3	7.716e3	0.973	0.84	0.77	29.3	YES	NO	bb	bd	2.996
4	Total-tetrafurans	21.85	4.039e3	4.575e3	0.973	0.88	0.77	14.7	YES	NO	bd	bb	1.821
5	Total-tetrafurans	21.59	2.602e3	3.445e3	0.973	0.76	0.77	14.1	YES	NO	db	db	1.278
6	Total-Furans	21.34	1.006e4	1.207e4	1.053	0.83	0.77	40.8	YES	NO	dd	db	4.326
7	Total-tetrafurans	25.52	9.408e3	1.115e4	0.973	0.84	0.77	32.8	YES	NO	db	db	4.345
8	Total-tetrafurans	26.81	1.862e4	2.187e4	0.973	0.85	0.77	69.9	YES	NO	dd	dd	8.558
9	Total-pentafurans	27.96	1.337e4	8.735e3	0.931	1.53	1.55	14.9	YES	NO	dd	dd	4.638
10	Total-pentafurans	27.77	1.411e4	9.197e3	0.931	1.53	1.55	26.1	YES	NO	bd	bd	4.889
11	23478-PeCDF	30.56	6.622e3	4.113e3	0.991	1.61	1.55	11.0	YES	NO	db	db	2.207
12	Total-pentafurans	30.41	1.310e4	7.742e3	0.931	1.69	1.55	23.6	YES	NO	dd	dd	4.372
13	Total-pentafurans	30.29	3.387e3	2.121e3	0.931	1.60	1.55	7.3	YES	NO	dd	dd	1.156
14	Total-pentafurans	30.16	2.162e4	1.405e4	0.931	1.54	1.55	47.6	YES	NO	bd	dd	7.484
15	Total-pentafurans	29.94	3.788e4	2.282e4	0.931	1.66	1.55	70.0	YES	NO	bb	bd	12.733
16	Total-pentafurans	29.66	7.712e3	5.205e3	0.931	1.48	1.55	15.0	YES	NO	db	bb	2.710
17	Total-pentafurans	29.42	1.421e4	8.867e3	0.931	1.60	1.55	27.1	YES	NO	dd	bb	4.842
18	12378-PeCDF	29.21	5.853e3	3.414e3	0.923	1.71	1.55	6.7	YES	NO	dd	MM	1.884
19	Total-pentafurans	29.00	7.759e3	4.641e3	0.931	1.67	1.55	12.0	YES	NO	dd	dd	2.601
20	Total-pentafurans	28.85	2.131e4	1.341e4	0.931	1.59	1.55	35.3	YES	NO	dd	dd	7.283
21	Total-pentafurans	28.74	5.096e3	3.188e3	0.931	1.60	1.55	8.2	YES	NO	dd	dd	1.738
22	Total-pentafurans	28.28	3.195e3	2.159e3	0.931	1.48	1.55	6.7	YES	NO	db	db	1.123
23	Total-pentafurans	28.14	3.824e4	2.601e4	0.931	1.47	1.55	76.1	YES	NO	dd	dd	13.479
24	Total-pentafurans	31.27	4.131e3	2.816e3	0.931	1.47	1.55	9.1	YES	NO	bb	bb	1.458
25	Total-pentafurans	30.95	1.710e4	1.282e4	0.931	1.33	1.55	29.4	YES	NO	db	bb	6.277
26	123678-HxCDF	34.35	6.184e3	4.515e3	1.032	1.37	1.24	112.9	YES	NO	db	MM	2.358
27	Total-hexafurans	34.05	5.104e3	3.789e3	1.087	1.35	1.24	96.3	YES	NO	bd	bb	2.011
28	Total-hexafurans	33.58	3.017e4	2.413e4	1.087	1.25	1.24	549.4	YES	NO	bb	bb	12.279
29	Total-hexafurans	33.27	1.536e3	1.201e3	1.087	1.28	1.24	26.4	YES	NO	bb	bb	0.619
30	Total-hexafurans	32.73	4.752e4	3.906e4	1.087	1.22	1.24	794.1	YES	NO	bb	bb	19.577
31	123468-HXCDF	32.51	1.374e4	1.022e4	1.206	1.34	1.24	259.3	YES	NO	db	db	4.965
32	Total-hexafurans	32.40	2.244e2	1.751e2	1.087	1.28	1.24	5.5	YES	NO	dd	dd	0.090
33	123789-HxCDF	36.26	1.631e3	1.254e3	0.988	1.30	1.24	26.6	YES	NO	bb	bb	0.781
34	234678-HxCDF	35.24	9.817e3	7.690e3	1.081	1.28	1.24	126.1	YES	NO	bb	bb	3.911
35	Total-hexafurans	34.70	8.440e2	6.727e2	1.087	1.25	1.24	14.9	YES	NO	bd	bd	0.343
36	Total-heptafurans	38.81	2.299e4	2.175e4	1.134	1.06	1.05	572.4	YES	NO	bb	bd	13.228
37	Total-heptafurans	38.56	2.661e3	2.526e3	1.134	1.05	1.05	67.7	YES	NO	bb	bb	1.534

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	1234678-HpCDF	38.16	3.023e4	2.897e4	1.164	1.04	1.05	787.8	YES	NO	bb	bb	15.330
39	OCDF	44.39	2.624e4	2.852e4	1.130	0.92	0.89	343.1	YES	NO	bd	bd	20.938
40	1234789-HpCDF	40.33	1.490e3	1.325e3	1.104	1.12	1.05	36.2	YES	NO	bb	bb	0.963
41	13468-PECDF	26.49	1.289e5	8.365e4	1.241	1.54	1.55	411.2	YES	NO	bd	db	32.147

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.05	2.497e3	3.510e3	1.129	0.71	0.77	27.1	YES	NO	bb	bb	1.318
2	Total-tetradioxins	23.92	2.473e2	2.793e2	1.129	0.89	0.77	3.4	YES	NO	bb	bb	0.116
3	Total-tetradioxins	23.34	3.576e2	4.476e2	1.129	0.80	0.77	4.5	YES	NO	bd	bb	0.177
4	Total-tetradioxins	23.13	2.589e3	3.044e3	1.129	0.85	0.77	26.5	YES	NO	bb	bb	1.236
5	1368-TCDD	22.86	5.151e3	6.864e3	1.181	0.75	0.77	55.1	YES	NO	db	bb	2.521
6	Total-tetradioxins	26.59	6.932e3	8.927e3	1.129	0.78	0.77	71.3	YES	NO	bb	bb	3.481
7	2378-TCDD	25.70	4.640e3	6.257e3	1.243	0.74	0.77	46.3	YES	NO	bd	bd	2.172

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12479-PECDD	28.14	2.033e4	1.379e4	2.166	1.47	1.55	391.2	YES	NO	bb	bb	4.676
2	Total-pentadioxins	30.29	4.675e2	2.733e2	1.548	1.71	1.55	7.9	YES	NO	db	db	0.142
3	Total-pentadioxins	29.57	6.192e3	3.873e3	1.548	1.60	1.55	138.0	YES	NO	dd	dd	1.931
4	Total-pentadioxins	29.43	1.098e4	7.534e3	1.548	1.46	1.55	245.9	YES	NO	bd	bd	3.552
5	Total-pentadioxins	29.22	1.656e3	1.107e3	1.548	1.50	1.55	39.8	YES	NO	bb	bb	0.530
6	Total-pentadioxins	28.60	8.555e2	5.278e2	1.548	1.62	1.55	22.6	YES	NO	bb	bb	0.265

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.88	1.327e3	1.116e3	0.804	1.19	1.24	18.1	YES	NO	bb	bb	0.663
2	Total-hexadioxins	35.66	5.681e2	4.439e2	0.943	1.28	1.24	9.9	YES	NO	db	db	0.234
3	123678-HxCDD	35.49	2.221e3	1.912e3	0.883	1.16	1.24	33.6	YES	NO	dd	dd	1.011
4	123478-HxCDD	35.38	1.055e3	9.529e2	0.960	1.11	1.24	13.8	YES	NO	bd	bd	0.461
5	Total-hexadioxins	34.48	7.694e3	6.619e3	0.943	1.16	1.24	80.1	YES	NO	bb	bb	3.309
6	Total-hexadioxins	34.10	2.553e3	2.296e3	0.943	1.11	1.24	38.3	YES	NO	bb	bb	1.121
7	124679-HXCDD	33.31	2.523e4	2.028e4	1.127	1.24	1.24	369.6	YES	NO	bb	bb	8.898

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HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.62	3.157e4	2.986e4	1.200	1.06	1.05	592.9	YES	NO	bd	bb	17.191
2	1234679-HPCDD	38.61	2.790e4	2.644e4	1.303	1.06	1.05	564.4	YES	NO	bd	bb	14.006

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.05	2.497e3	3.510e3	1.129	0.71	0.77	27.1	YES	NO	bb	bb	1.318
2	Total-tetradioxins	23.92	2.473e2	2.793e2	1.129	0.89	0.77	3.4	YES	NO	bb	bb	0.116
3	Total-tetradioxins	23.34	3.576e2	4.476e2	1.129	0.80	0.77	4.5	YES	NO	bd	bb	0.177
4	Total-tetradioxins	23.13	2.589e3	3.044e3	1.129	0.85	0.77	26.5	YES	NO	bb	bb	1.236
5	1368-TCDD	22.86	5.151e3	6.864e3	1.181	0.75	0.77	55.1	YES	NO	db	bb	2.521
6	Total-tetradioxins	26.59	6.932e3	8.927e3	1.129	0.78	0.77	71.3	YES	NO	bb	bb	3.481
7	2378-TCDD	25.70	4.640e3	6.257e3	1.243	0.74	0.77	46.3	YES	NO	bd	bd	2.172
8	12479-PECDD	28.14	2.033e4	1.379e4	2.166	1.47	1.55	391.2	YES	NO	bb	bb	4.676
9	Total-pentadioxins	30.29	4.675e2	2.733e2	1.548	1.71	1.55	7.9	YES	NO	db	db	0.142
10	Total-pentadioxins	29.57	6.192e3	3.873e3	1.548	1.60	1.55	138.0	YES	NO	dd	dd	1.931
11	Total-pentadioxins	29.43	1.098e4	7.534e3	1.548	1.46	1.55	245.9	YES	NO	bd	bd	3.552
12	Total-pentadioxins	29.22	1.656e3	1.107e3	1.548	1.50	1.55	39.8	YES	NO	bb	bb	0.530
13	Total-pentadioxins	28.60	8.555e2	5.278e2	1.548	1.62	1.55	22.6	YES	NO	bb	bb	0.265
14	123789-HxCDD	35.88	1.327e3	1.116e3	0.804	1.19	1.24	18.1	YES	NO	bb	bb	0.663
15	Total-hexadioxins	35.66	5.681e2	4.439e2	0.943	1.28	1.24	9.9	YES	NO	db	db	0.234
16	123678-HxCDD	35.49	2.221e3	1.912e3	0.883	1.16	1.24	33.6	YES	NO	dd	dd	1.011
17	123478-HxCDD	35.38	1.055e3	9.529e2	0.960	1.11	1.24	13.8	YES	NO	bd	bd	0.461
18	Total-hexadioxins	34.48	7.694e3	6.619e3	0.943	1.16	1.24	80.1	YES	NO	bb	bb	3.309
19	Total-hexadioxins	34.10	2.553e3	2.296e3	0.943	1.11	1.24	38.3	YES	NO	bb	bb	1.121
20	124679-HXCDD	33.31	2.523e4	2.028e4	1.127	1.24	1.24	369.6	YES	NO	bb	bb	8.898
21	1234678-HpCDD	39.62	3.157e4	2.986e4	1.200	1.06	1.05	592.9	YES	NO	bd	bb	17.191
22	1234679-HPCDD	38.61	2.790e4	2.644e4	1.303	1.06	1.05	564.4	YES	NO	bd	bb	14.006
23	OCDD	44.17	1.874e5	2.204e5	1.059	0.85	0.89	2425.9	YES	NO	bd	bd	166.480

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.08	1.563e4	1.828e4	0.973	0.85	0.77	64.6	YES	NO	bd	bd	7.167
2	Total-tetrafurans	22.43	2.723e4	3.338e4	0.973	0.82	0.77	112.4	YES	NO	bb	dd	12.809
3	Total-tetrafurans	22.20	6.460e3	7.716e3	0.973	0.84	0.77	29.3	YES	NO	bb	bd	2.996
4	Total-tetrafurans	21.85	4.039e3	4.575e3	0.973	0.88	0.77	14.7	YES	NO	bd	bb	1.821
5	Total-tetrafurans	21.59	2.602e3	3.445e3	0.973	0.76	0.77	14.1	YES	NO	db	db	1.278
6	Total-Furans	21.34	1.006e4	1.207e4	1.053	0.83	0.77	40.8	YES	NO	dd	db	4.326
7	Total-tetrafurans	25.52	9.408e3	1.115e4	0.973	0.84	0.77	32.8	YES	NO	db	db	4.345
8	Total-tetrafurans	26.81	1.862e4	2.187e4	0.973	0.85	0.77	69.9	YES	NO	dd	dd	8.558
9	Total-pentafurans	27.96	1.337e4	8.735e3	0.931	1.53	1.55	14.9	YES	NO	dd	dd	4.638
10	Total-pentafurans	27.77	1.411e4	9.197e3	0.931	1.53	1.55	26.1	YES	NO	bd	bd	4.889
11	23478-PeCDF	30.56	6.622e3	4.113e3	0.991	1.61	1.55	11.0	YES	NO	db	db	2.207
12	Total-pentafurans	30.41	1.310e4	7.742e3	0.931	1.69	1.55	23.6	YES	NO	dd	dd	4.372
13	Total-pentafurans	30.29	3.387e3	2.121e3	0.931	1.60	1.55	7.3	YES	NO	dd	dd	1.156
14	Total-pentafurans	30.16	2.162e4	1.405e4	0.931	1.54	1.55	47.6	YES	NO	bd	dd	7.484
15	Total-pentafurans	29.94	3.788e4	2.282e4	0.931	1.66	1.55	70.0	YES	NO	bb	bd	12.733
16	Total-pentafurans	29.66	7.712e3	5.205e3	0.931	1.48	1.55	15.0	YES	NO	db	bb	2.710
17	Total-pentafurans	29.42	1.421e4	8.867e3	0.931	1.60	1.55	27.1	YES	NO	dd	bb	4.842
18	12378-PeCDF	29.21	5.853e3	3.414e3	0.923	1.71	1.55	6.7	YES	NO	dd	MM	1.884
19	Total-pentafurans	29.00	7.759e3	4.641e3	0.931	1.67	1.55	12.0	YES	NO	dd	dd	2.601
20	Total-pentafurans	28.85	2.131e4	1.341e4	0.931	1.59	1.55	35.3	YES	NO	dd	dd	7.283
21	Total-pentafurans	28.74	5.096e3	3.188e3	0.931	1.60	1.55	8.2	YES	NO	dd	dd	1.738
22	Total-pentafurans	28.28	3.195e3	2.159e3	0.931	1.48	1.55	6.7	YES	NO	db	db	1.123
23	Total-pentafurans	28.14	3.824e4	2.601e4	0.931	1.47	1.55	76.1	YES	NO	dd	dd	13.479
24	Total-pentafurans	31.27	4.131e3	2.816e3	0.931	1.47	1.55	9.1	YES	NO	bb	bb	1.458
25	Total-pentafurans	30.95	1.710e4	1.282e4	0.931	1.33	1.55	29.4	YES	NO	db	bb	6.277
26	123678-HxCDF	34.35	6.184e3	4.515e3	1.032	1.37	1.24	112.9	YES	NO	db	MM	2.358
27	Total-hexafurans	34.05	5.104e3	3.789e3	1.087	1.35	1.24	96.3	YES	NO	bd	bb	2.011
28	Total-hexafurans	33.58	3.017e4	2.413e4	1.087	1.25	1.24	549.4	YES	NO	bb	bb	12.279
29	Total-hexafurans	33.27	1.536e3	1.201e3	1.087	1.28	1.24	26.4	YES	NO	bb	bb	0.619
30	Total-hexafurans	32.73	4.752e4	3.906e4	1.087	1.22	1.24	794.1	YES	NO	bb	bb	19.577
31	123468-HXCDF	32.51	1.374e4	1.022e4	1.206	1.34	1.24	259.3	YES	NO	db	db	4.965
32	Total-hexafurans	32.40	2.244e2	1.751e2	1.087	1.28	1.24	5.5	YES	NO	dd	dd	0.090
33	123789-HxCDF	36.26	1.631e3	1.254e3	0.988	1.30	1.24	26.6	YES	NO	bb	bb	0.781
34	234678-HxCDF	35.24	9.817e3	7.690e3	1.081	1.28	1.24	126.1	YES	NO	bb	bb	3.911
35	Total-hexafurans	34.70	8.440e2	6.727e2	1.087	1.25	1.24	14.9	YES	NO	bd	bd	0.343
36	Total-heptafurans	38.81	2.299e4	2.175e4	1.134	1.06	1.05	572.4	YES	NO	bb	bd	13.228
37	Total-heptafurans	38.56	2.661e3	2.526e3	1.134	1.05	1.05	67.7	YES	NO	bb	bb	1.534

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	1234678-HpCDF	38.16	3.023e4	2.897e4	1.164	1.04	1.05	787.8	YES	NO	bb	bb	15.330
39	OCDF	44.39	2.624e4	2.852e4	1.130	0.92	0.89	343.1	YES	NO	bd	bd	20.938
40	1234789-HpCDF	40.33	1.490e3	1.325e3	1.104	1.12	1.05	36.2	YES	NO	bb	bb	0.963
41	13468-PECDF	26.49	1.289e5	8.365e4	1.241	1.54	1.55	411.2	YES	NO	bd	db	32.147
42	Total-tetradioxins	24.05	2.497e3	3.510e3	1.129	0.71	0.77	27.1	YES	NO	bb	bb	1.318
43	Total-tetradioxins	23.92	2.473e2	2.793e2	1.129	0.89	0.77	3.4	YES	NO	bb	bb	0.116
44	Total-tetradioxins	23.34	3.576e2	4.476e2	1.129	0.80	0.77	4.5	YES	NO	bd	bb	0.177
45	Total-tetradioxins	23.13	2.589e3	3.044e3	1.129	0.85	0.77	26.5	YES	NO	bb	bb	1.236
46	1368-TCDD	22.86	5.151e3	6.864e3	1.181	0.75	0.77	55.1	YES	NO	db	bb	2.521
47	Total-tetradioxins	26.59	6.932e3	8.927e3	1.129	0.78	0.77	71.3	YES	NO	bb	bb	3.481
48	2378-TCDD	25.70	4.640e3	6.257e3	1.243	0.74	0.77	46.3	YES	NO	bd	bd	2.172
49	12479-PECDD	28.14	2.033e4	1.379e4	2.166	1.47	1.55	391.2	YES	NO	bb	bb	4.676
50	Total-pentadioxins	30.29	4.675e2	2.733e2	1.548	1.71	1.55	7.9	YES	NO	db	db	0.142
51	Total-pentadioxins	29.57	6.192e3	3.873e3	1.548	1.60	1.55	138.0	YES	NO	dd	dd	1.931
52	Total-pentadioxins	29.43	1.098e4	7.534e3	1.548	1.46	1.55	245.9	YES	NO	bd	bd	3.552
53	Total-pentadioxins	29.22	1.656e3	1.107e3	1.548	1.50	1.55	39.8	YES	NO	bb	bb	0.530
54	Total-pentadioxins	28.60	8.555e2	5.278e2	1.548	1.62	1.55	22.6	YES	NO	bb	bb	0.265
55	123789-HxCDD	35.88	1.327e3	1.116e3	0.804	1.19	1.24	18.1	YES	NO	bb	bb	0.663
56	Total-hexadioxins	35.66	5.681e2	4.439e2	0.943	1.28	1.24	9.9	YES	NO	db	db	0.234
57	123678-HxCDD	35.49	2.221e3	1.912e3	0.883	1.16	1.24	33.6	YES	NO	dd	dd	1.011
58	123478-HxCDD	35.38	1.055e3	9.529e2	0.960	1.11	1.24	13.8	YES	NO	bd	bd	0.461
59	Total-hexadioxins	34.48	7.694e3	6.619e3	0.943	1.16	1.24	80.1	YES	NO	bb	bb	3.309
60	Total-hexadioxins	34.10	2.553e3	2.296e3	0.943	1.11	1.24	38.3	YES	NO	bb	bb	1.121
61	124679-HXCDD	33.31	2.523e4	2.028e4	1.127	1.24	1.24	369.6	YES	NO	bb	bb	8.898
62	1234678-HpCDD	39.62	3.157e4	2.986e4	1.200	1.06	1.05	592.9	YES	NO	bd	bb	17.191
63	1234679-HPCDD	38.61	2.790e4	2.644e4	1.303	1.06	1.05	564.4	YES	NO	bd	bb	14.006
64	OCDD	44.17	1.874e5	2.204e5	1.059	0.85	0.89	2425.9	YES	NO	bd	bd	166.480

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.07	6.821e5					2.3	NO		bd		
2	FUNCTION1 PFK	24.97	4.684e5					8.3	YES		bb		
3	FUNCTION1 PFK	24.81	2.224e5					7.4	YES		bb		
4	FUNCTION1 PFK	23.94	2.200e6					8.4	YES		bb		
5	FUNCTION1 PFK	23.51	2.064e5					9.1	YES		bb		
6	FUNCTION1 PFK	23.39	2.688e5					6.5	YES		bb		
7	FUNCTION1 PFK	22.72	8.130e4					3.4	YES		bb		
8	FUNCTION1 PFK	22.62	8.817e4					4.1	YES		bb		
9	FUNCTION1 PFK	21.61	1.772e6					11.2	YES		bb		
10	FUNCTION1 PFK	21.30	5.921e5					15.7	YES		db		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.20	4.431e4					1.4	NO		bb		0.000
2	FUNCTION2 PFK	27.86	5.086e5					14.9	YES		bb		0.000
3	FUNCTION2 PFK	27.65	3.721e5					11.1	YES		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	32.31	1.527e4					1.4	NO		bd		0.000
2	FUNCTION3 PFK	32.17	4.569e3					0.6	NO		bb		0.000
3	FUNCTION3 PFK	34.67	3.129e3					0.5	NO		bb		0.000
4	FUNCTION3 PFK	34.52	3.359e3					0.5	NO		bb		0.000
5	FUNCTION3 PFK	34.06	2.537e4					1.3	NO		bb		0.000
6	FUNCTION3 PFK	34.01	1.386e3					0.4	NO		bb		0.000
7	FUNCTION3 PFK	33.96	2.170e3					0.6	NO		bb		0.000
8	FUNCTION3 PFK	33.70	3.282e4					1.0	NO		bb		0.000
9	FUNCTION3 PFK	33.56	5.264e4					2.4	NO		db		0.000
10	FUNCTION3 PFK	33.48	5.372e4					2.3	NO		dd		0.000
11	FUNCTION3 PFK	33.35	3.419e4					1.5	NO		bd		0.000
12	FUNCTION3 PFK	33.13	1.959e3					0.5	NO		bb		0.000
13	FUNCTION3 PFK	33.05	1.028e4					1.1	NO		db		0.000
14	FUNCTION3 PFK	33.00	1.488e3					0.3	NO		bd		0.000
15	FUNCTION3 PFK	32.90	1.833e3					0.5	NO		bb		0.000
16	FUNCTION3 PFK	32.76	1.843e4					1.2	NO		bb		0.000
17	FUNCTION3 PFK	32.44	9.592e3					1.3	NO		db		0.000
18	FUNCTION3 PFK	32.40	3.561e4					1.7	NO		dd		0.000
19	FUNCTION3 PFK	36.12	5.259e4					3.4	YES		dd		0.000
20	FUNCTION3 PFK	36.08	9.814e4					3.4	YES		dd		0.000
21	FUNCTION3 PFK	35.98	4.725e4					3.2	YES		dd		0.000
22	FUNCTION3 PFK	35.89	7.396e4					3.2	YES		dd		0.000
23	FUNCTION3 PFK	35.83	5.163e4					3.3	YES		dd		0.000
24	FUNCTION3 PFK	35.78	5.413e4					3.3	YES		dd		0.000
25	FUNCTION3 PFK	35.73	4.172e4					3.5	YES		dd		0.000
26	FUNCTION3 PFK	35.69	4.631e4					2.5	NO		bd		0.000
27	FUNCTION3 PFK	35.61	2.387e4					1.4	NO		bb		0.000
28	FUNCTION3 PFK	35.42	6.303e3					0.6	NO		bb		0.000
29	FUNCTION3 PFK	35.34	6.390e3					0.8	NO		bb		0.000
30	FUNCTION3 PFK	35.17	1.949e4					1.1	NO		bb		0.000
31	FUNCTION3 PFK	35.07	2.777e4					1.9	NO		db		0.000
32	FUNCTION3 PFK	34.95	5.767e4					2.0	NO		bd		0.000
33	FUNCTION3 PFK	34.90	1.544e4					1.2	NO		db		0.000
34	FUNCTION3 PFK	34.84	1.190e4					1.1	NO		bd		0.000
35	FUNCTION3 PFK	37.15	1.596e4					1.4	NO		bb		0.000
36	FUNCTION3 PFK	37.00	1.090e3					0.3	NO		bb		0.000
37	FUNCTION3 PFK	36.92	4.032e3					0.6	NO		db		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION3 PFK	36.88	7.354e3					0.8	NO		bd		0.000
39	FUNCTION3 PFK	36.63	1.029e4					1.3	NO		bb		0.000
40	FUNCTION3 PFK	36.55	9.107e4					3.3	YES		db		0.000
41	FUNCTION3 PFK	36.43	1.098e5					4.0	YES		dd		0.000
42	FUNCTION3 PFK	36.34	7.981e4					4.0	YES		dd		0.000
43	FUNCTION3 PFK	36.29	4.024e4					3.7	YES		dd		0.000
44	FUNCTION3 PFK	36.24	9.288e3					1.2	NO		bd		0.000
45	FUNCTION3 PFK	36.17	2.018e4					2.2	NO		db		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.58	2.453e6					50.3	YES		dd		
2	FUNCTION4 PFK	37.38	5.651e5					55.1	YES		dd		
3	FUNCTION4 PFK	37.34	5.864e5					57.4	YES		dd		
4	FUNCTION4 PFK	37.31	1.199e6					57.9	YES		bd		
5	FUNCTION4 PFK	41.21	7.076e3					1.1	NO		bb		
6	FUNCTION4 PFK	40.46	1.795e3					0.7	NO		bb		
7	FUNCTION4 PFK	40.41	2.776e3					0.6	NO		bb		
8	FUNCTION4 PFK	40.22	6.217e3					1.0	NO		bb		
9	FUNCTION4 PFK	39.44	5.134e3					0.9	NO		bb		
10	FUNCTION4 PFK	39.14	2.982e4					2.0	NO		bb		
11	FUNCTION4 PFK	39.04	1.467e4					1.9	NO		db		
12	FUNCTION4 PFK	38.99	1.601e4					1.9	NO		bd		
13	FUNCTION4 PFK	38.65	3.790e5					11.6	YES		db		
14	FUNCTION4 PFK	38.62	8.734e4					11.1	YES		dd		
15	FUNCTION4 PFK	38.28	1.539e6					25.9	YES		dd		
16	FUNCTION4 PFK	38.15	8.081e5					29.9	YES		dd		
17	FUNCTION4 PFK	37.97	1.391e6					36.4	YES		dd		
18	FUNCTION4 PFK	37.93	7.945e5					37.5	YES		dd		
19	FUNCTION4 PFK	37.78	9.700e5					42.8	YES		dd		
20	FUNCTION4 PFK	37.63	1.680e6					48.7	YES		dd		
21	FUNCTION4 PFK	42.33	8.922e3					1.5	NO		bb		
22	FUNCTION4 PFK	42.21	4.851e3					0.9	NO		bb		
23	FUNCTION4 PFK	41.52	1.474e4					1.6	NO		db		
24	FUNCTION4 PFK	41.47	1.218e4					1.6	NO		bd		
25	FUNCTION4 PFK	41.35	3.150e3					0.7	NO		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.89	5.000e3					1.4	NO		bd		
2	FUNCTION5 PFK	43.79	2.465e3					0.9	NO		bb		
3	FUNCTION5 PFK	43.38	7.225e4					5.2	YES		db		
4	FUNCTION5 PFK	43.31	4.639e4					7.0	YES		dd		
5	FUNCTION5 PFK	43.20	1.658e5					11.3	YES		dd		
6	FUNCTION5 PFK	43.16	9.052e4					13.0	YES		dd		
7	FUNCTION5 PFK	42.96	6.246e5					19.2	YES		dd		
8	FUNCTION5 PFK	42.88	3.478e5					21.3	YES		dd		
9	FUNCTION5 PFK	42.69	9.230e5					26.9	YES		dd		
10	FUNCTION5 PFK	42.56	2.565e5					30.2	YES		bd		
11	FUNCTION5 PFK	45.88	6.401e3					1.6	NO		bb		
12	FUNCTION5 PFK	45.75	6.240e3					1.4	NO		bb		
13	FUNCTION5 PFK	45.69	8.459e3					1.4	NO		bb		
14	FUNCTION5 PFK	45.04	1.794e3					0.6	NO		bb		
15	FUNCTION5 PFK	45.00	4.735e3					1.3	NO		bb		
16	FUNCTION5 PFK	44.71	5.796e3					1.4	NO		db		
17	FUNCTION5 PFK	44.67	1.593e4					2.1	NO		bd		
18	FUNCTION5 PFK	44.45	5.751e3					1.3	NO		bb		
19	FUNCTION5 PFK	44.20	6.236e3					1.6	NO		bb		
20	FUNCTION5 PFK	44.17	1.643e3					0.6	NO		bb		
21	FUNCTION5 PFK	44.02	8.739e3					2.3	NO		db		
22	FUNCTION5 PFK	43.94	1.936e4					1.9	NO		dd		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	21.48	2.304e3					2.4	NO		db		0.000
2	FUNCTION1 HXCD...	21.32	2.888e4					27.3	YES		dd		0.000
3	FUNCTION1 HXCD...	21.16	2.656e4					20.2	YES		bd		0.000
4	FUNCTION1 HXCD...	24.01	1.772e4					13.7	YES		bd		0.000
5	FUNCTION1 HXCD...	23.81	4.719e3					4.2	YES		db		0.000
6	FUNCTION1 HXCD...	23.63	6.612e3					4.8	YES		dd		0.000
7	FUNCTION1 HXCD...	23.53	1.350e4					12.0	YES		dd		0.000
8	FUNCTION1 HXCD...	23.36	2.567e4					20.2	YES		dd		0.000
9	FUNCTION1 HXCD...	23.16	8.550e3					8.8	YES		dd		0.000
10	FUNCTION1 HXCD...	23.09	1.767e4					15.7	YES		bd		0.000
11	FUNCTION1 HXCD...	22.92	5.529e4					52.6	YES		bb		0.000
12	FUNCTION1 HXCD...	22.75	6.446e3					5.2	YES		db		0.000
13	FUNCTION1 HXCD...	22.57	5.252e4					46.2	YES		bd		0.000
14	FUNCTION1 HXCD...	22.31	1.031e4					6.5	YES		db		0.000
15	FUNCTION1 HXCD...	22.19	1.278e4					11.9	YES		dd		0.000
16	FUNCTION1 HXCD...	22.09	4.264e3					3.9	YES		bd		0.000
17	FUNCTION1 HXCD...	21.95	2.835e3					2.4	NO		db		0.000
18	FUNCTION1 HXCD...	21.79	2.824e3					3.0	NO		bd		0.000
19	FUNCTION1 HXCD...	21.62	6.922e4					70.8	YES		bb		0.000
20	FUNCTION1 HXCD...	27.20	1.042e4					10.8	YES		bb		0.000
21	FUNCTION1 HXCD...	26.93	2.221e4					14.1	YES		bb		0.000
22	FUNCTION1 HXCD...	26.79	1.922e3					2.1	NO		bb		0.000
23	FUNCTION1 HXCD...	26.64	2.582e3					3.0	YES		bb		0.000
24	FUNCTION1 HXCD...	26.33	5.903e3					4.8	YES		bb		0.000
25	FUNCTION1 HXCD...	26.17	1.855e3					1.8	NO		db		0.000
26	FUNCTION1 HXCD...	25.99	1.924e4					12.0	YES		bd		0.000
27	FUNCTION1 HXCD...	25.52	1.081e4					7.9	YES		db		0.000
28	FUNCTION1 HXCD...	25.38	3.664e3					3.4	YES		dd		0.000
29	FUNCTION1 HXCD...	25.29	6.038e2					1.0	NO		bd		0.000
30	FUNCTION1 HXCD...	25.08	1.236e3					1.6	NO		bb		0.000
31	FUNCTION1 HXCD...	24.87	3.722e4					35.5	YES		bb		0.000
32	FUNCTION1 HXCD...	24.71	7.782e3					7.2	YES		bb		0.000
33	FUNCTION1 HXCD...	24.53	1.925e4					15.2	YES		db		0.000
34	FUNCTION1 HXCD...	24.32	6.874e4					56.0	YES		dd		0.000
35	FUNCTION1 HXCD...	24.14	4.713e4					32.0	YES		dd		0.000

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ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	29.93	2.052e4					154.3	YES		bb		0.000
2	FUNCTION2 HPCD...	29.64	1.893e3					13.0	YES		bb		0.000
3	FUNCTION2 HPCD...	29.41	1.788e3					12.5	YES		db		0.000
4	FUNCTION2 HPCD...	29.28	9.620e2					8.3	YES		dd		0.000
5	FUNCTION2 HPCD...	29.22	7.040e2					5.5	YES		dd		0.000
6	FUNCTION2 HPCD...	29.13	2.216e2					3.3	YES		dd		0.000
7	FUNCTION2 HPCD...	28.98	6.802e3					38.2	YES		bd		0.000
8	FUNCTION2 HPCD...	28.82	2.952e2					3.4	YES		bb		0.000
9	FUNCTION2 HPCD...	28.61	1.872e3					14.2	YES		bb		0.000
10	FUNCTION2 HPCD...	28.51	3.395e2					2.7	NO		bb		0.000
11	FUNCTION2 HPCD...	28.27	2.233e3					15.2	YES		db		0.000
12	FUNCTION2 HPCD...	28.12	3.300e3					19.7	YES		dd		0.000
13	FUNCTION2 HPCD...	27.91	3.226e3					16.7	YES		bd		0.000
14	FUNCTION2 HPCD...	27.73	2.653e3					17.1	YES		db		0.000
15	FUNCTION2 HPCD...	27.56	7.103e2					5.6	YES		bd		0.000
16	FUNCTION2 HPCD...	31.62	3.959e2					3.7	YES		db		0.000
17	FUNCTION2 HPCD...	31.49	3.392e3					14.9	YES		bd		0.000
18	FUNCTION2 HPCD...	31.27	1.228e3					7.9	YES		bb		0.000
19	FUNCTION2 HPCD...	30.93	1.206e3					8.6	YES		bb		0.000
20	FUNCTION2 HPCD...	30.78	6.050e2					3.7	YES		bb		0.000
21	FUNCTION2 HPCD...	30.59	1.833e3					11.7	YES		db		0.000
22	FUNCTION2 HPCD...	30.46	1.231e3					6.6	YES		bd		0.000
23	FUNCTION2 HPCD...	30.15	1.172e3					9.1	YES		bb		0.000

ID: 23L0564-03, Name: 24011812, Date: 18-Jan-2024, Time: 18:49:19, Conditions: AUTOSPEC01, User: pk

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.26	1.373e2					3.3	YES		bb		0.000
2	FUNCTION3 OCDPE	34.43	1.509e2					6.5	YES		bb		0.000
3	FUNCTION3 OCDPE	33.37	8.403e1					3.3	YES		bb		0.000
4	FUNCTION3 OCDPE	33.10	1.012e2					3.2	YES		bb		0.000
5	FUNCTION3 OCDPE	32.51	5.991e2					15.1	YES		db		0.000
6	FUNCTION3 OCDPE	32.41	3.697e2					9.8	YES		bd		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	42.10	1.022e2					3.5	YES		bb		0.000
2	FUNCTION4 NCDPE	39.13	7.167e1					4.1	YES		bb		0.000
3	FUNCTION4 NCDPE	37.80	6.016e2					20.9	YES		bb		0.000

ETHERS6

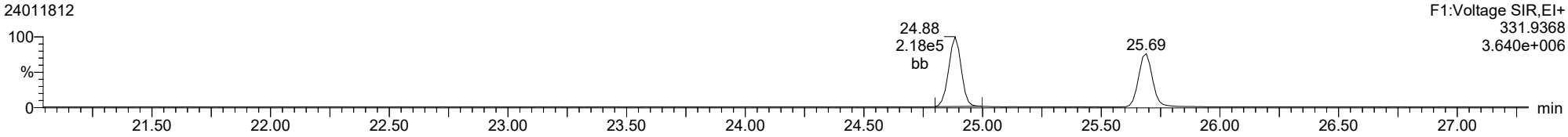
	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.17	7.348e1					4.0	YES		db		0.000
2	FUNCTION5 DCDPE	44.13	7.058e1					3.5	YES		bd		0.000
3	FUNCTION5 DCDPE	43.51	8.594e1					3.3	YES		bb		0.000

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Printed: Friday, January 19, 2024 09:47:20 Pacific Standard Time

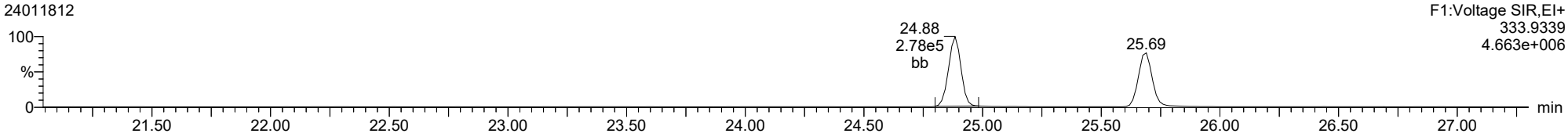
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ID: 23L0564-03, Name: 24011812, Date: 18-Jan-2024, Time: 18:49:19, Conditions: AUTOSPEC01, User: pk

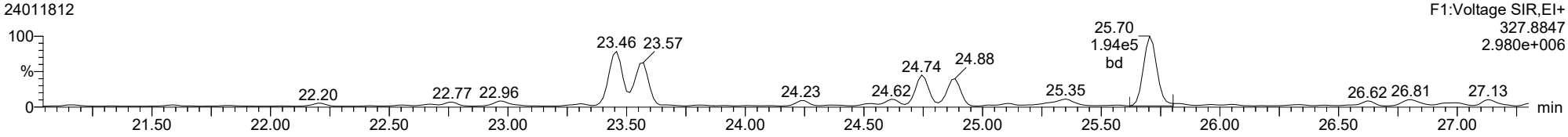
13C-1234-TCDD



13C-1234-TCDD

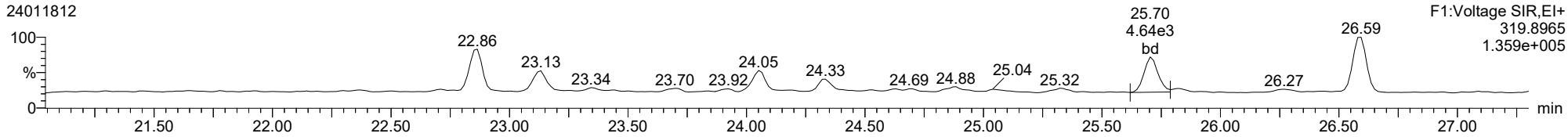


37CL-2378-TCDD

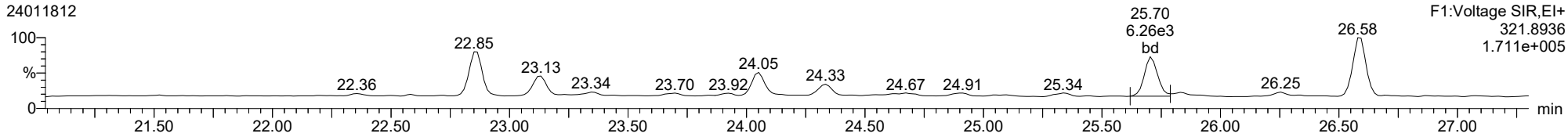


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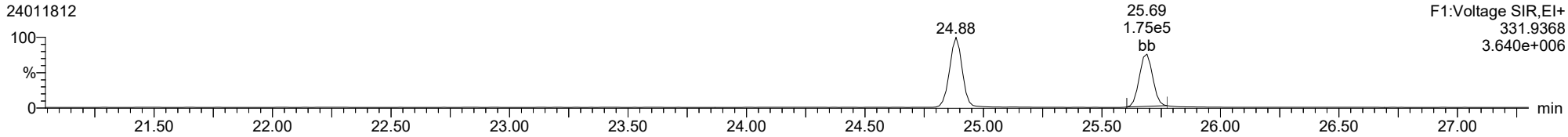
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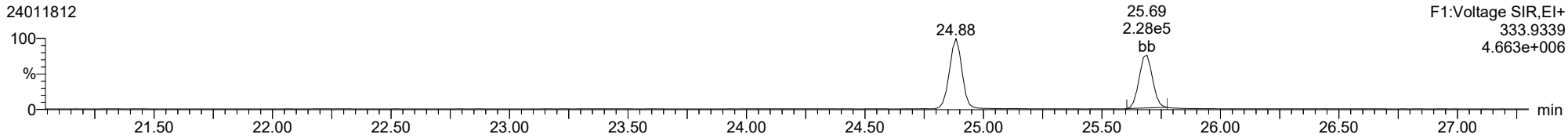
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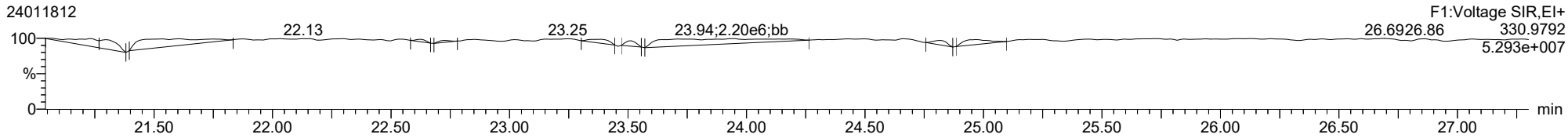
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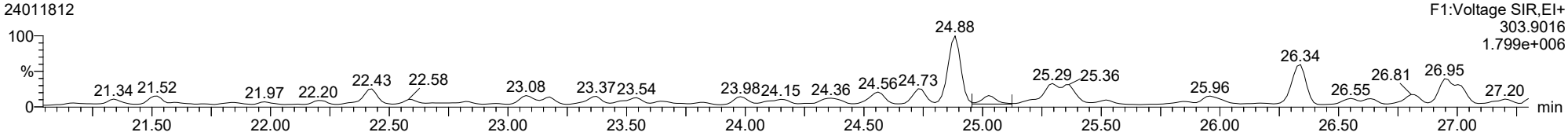


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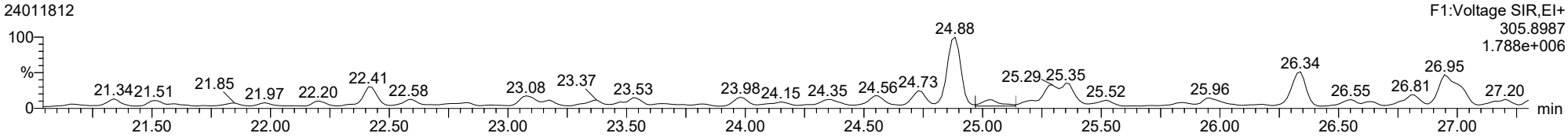


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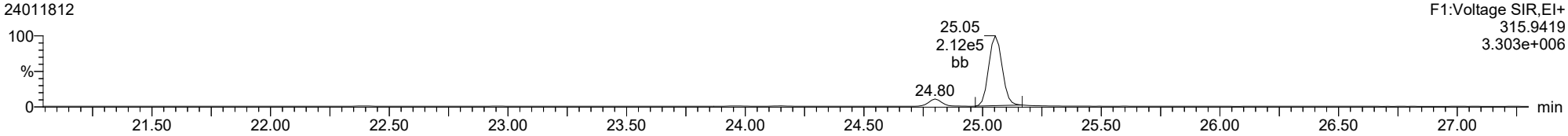
2378-TCDF



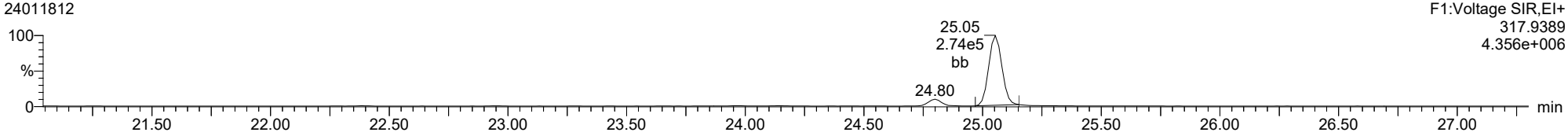
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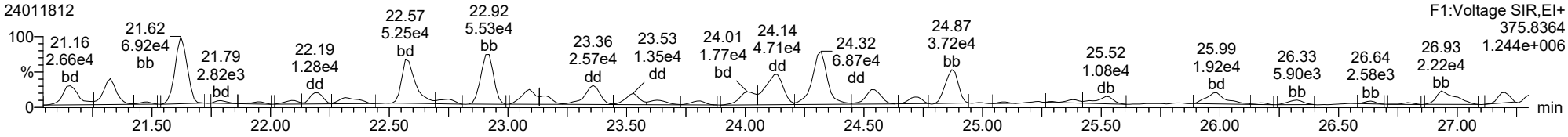
13C-2378-TCDF



13C-2378-TCDF

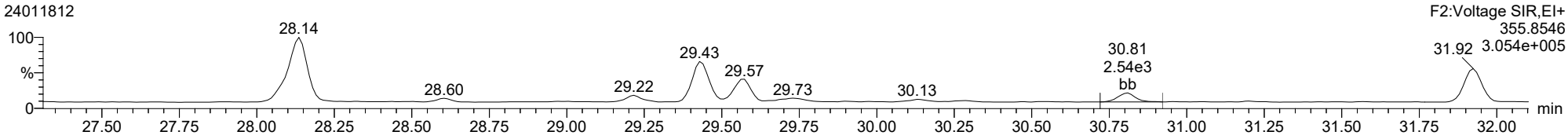


FUNCTION1 HXCDPE

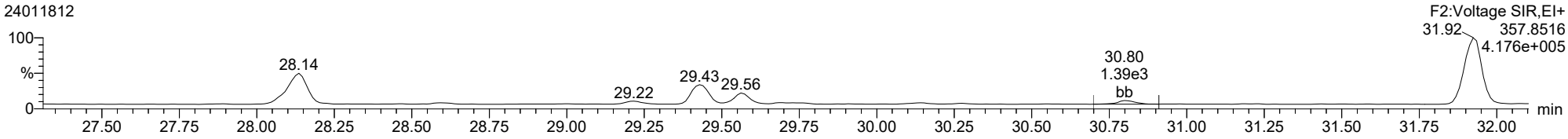


ID: 23L0564-03, Name: 24011812, Date: 18-Jan-2024, Time: 18:49:19, Conditions: AUTOSPEC01, User: pk

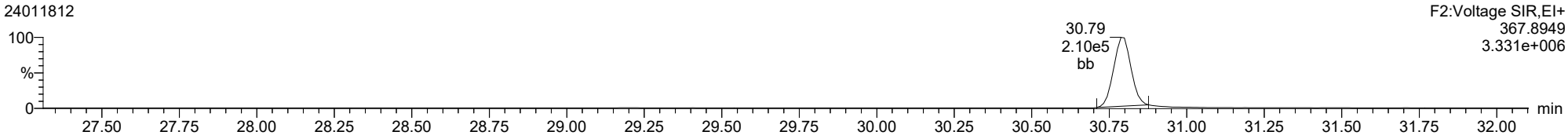
12378-PeCDD



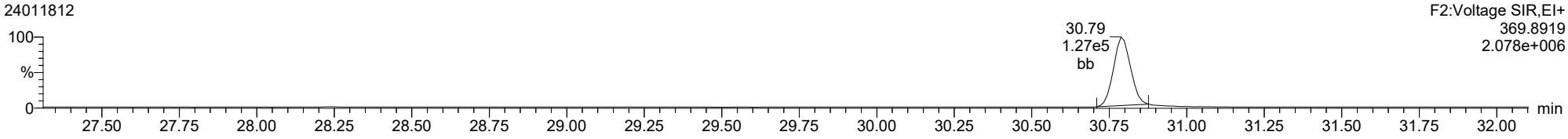
12378-PeCDD



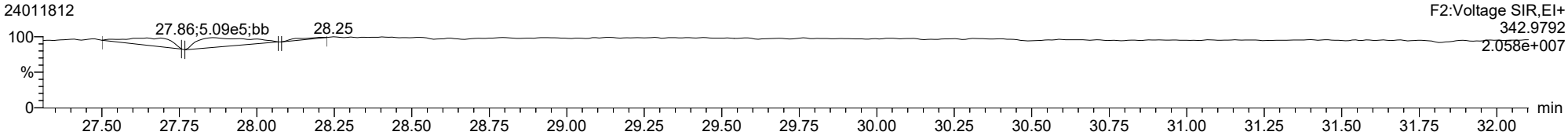
13C-12378-PeCDD



13C-12378-PeCDD

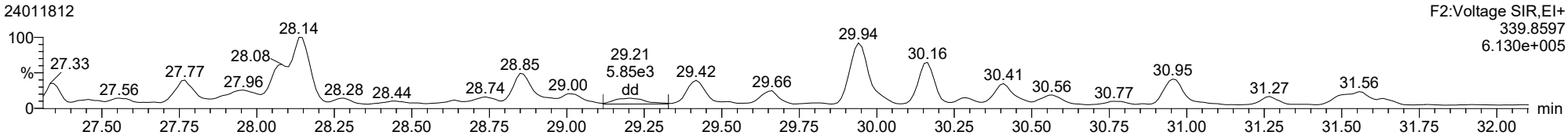


FUNCTION2 PFK

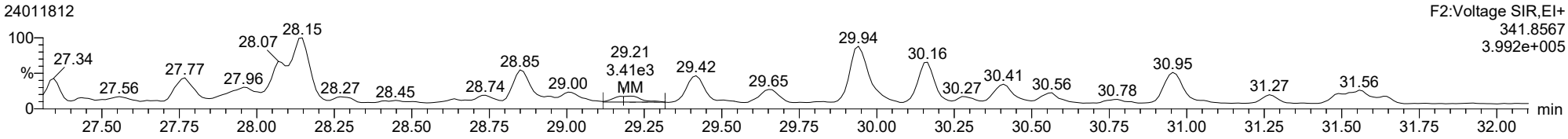


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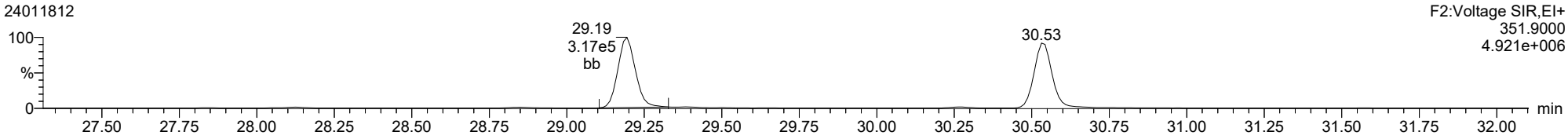
12378-PeCDF



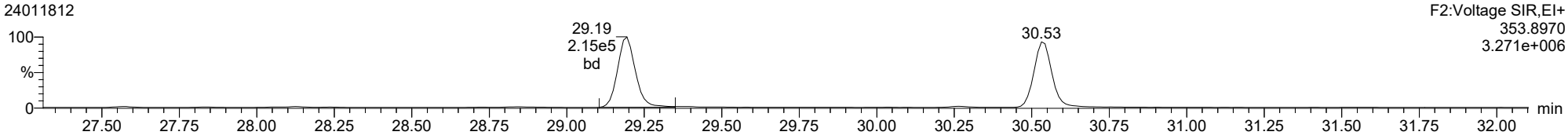
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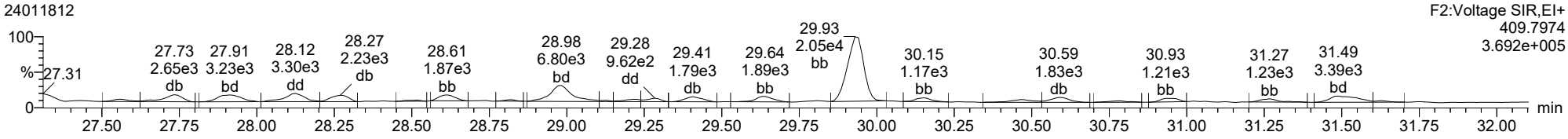
13C-12378-PeCDF



13C-12378-PeCDF



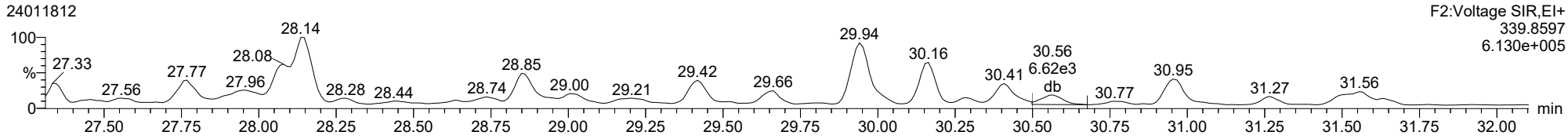
FUNCTION2 HPCDPE



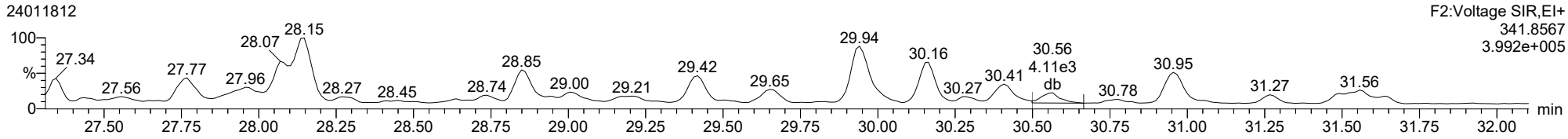
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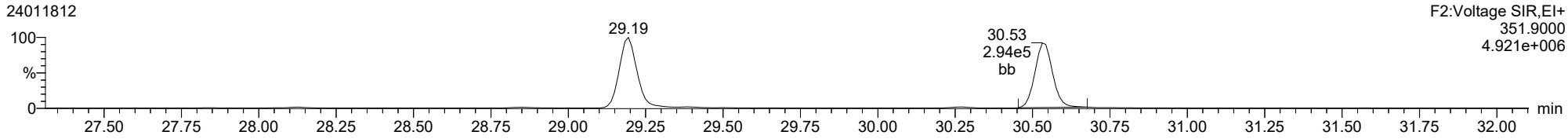
23478-PeCDF



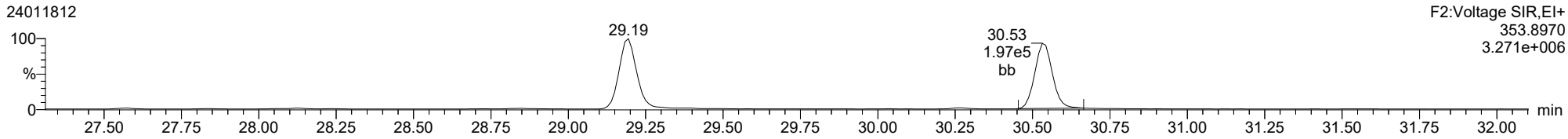
23478-PeCDF



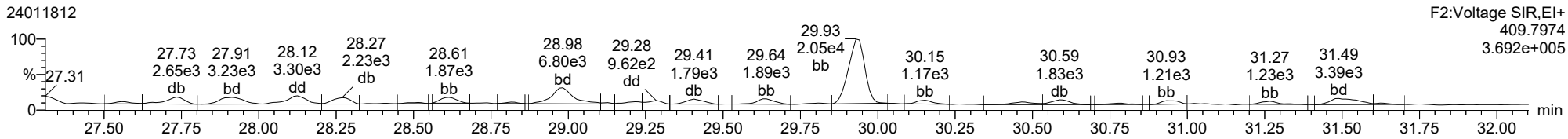
13C-23478-PeCDF



13C-23478-PeCDF

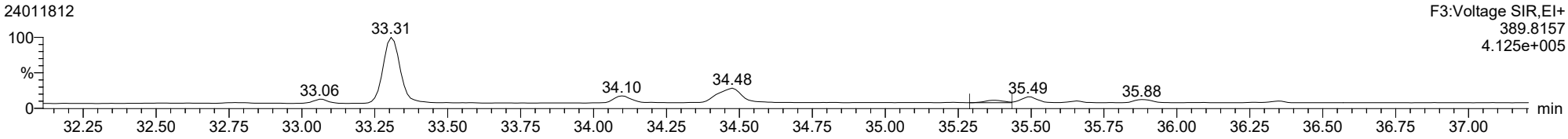


FUNCTION2 HPCDPE

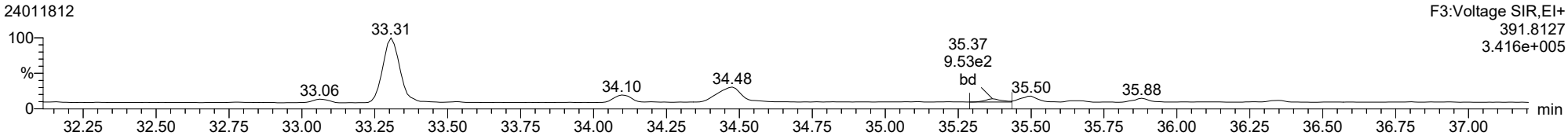


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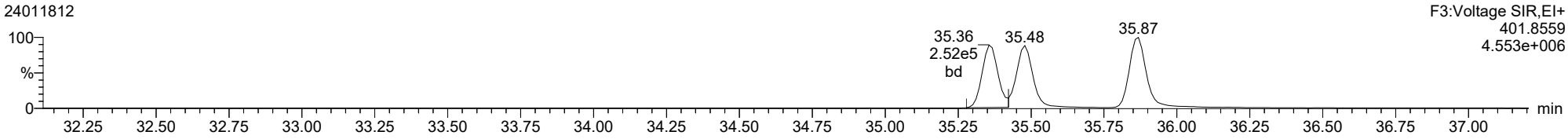
123478-HxCDD



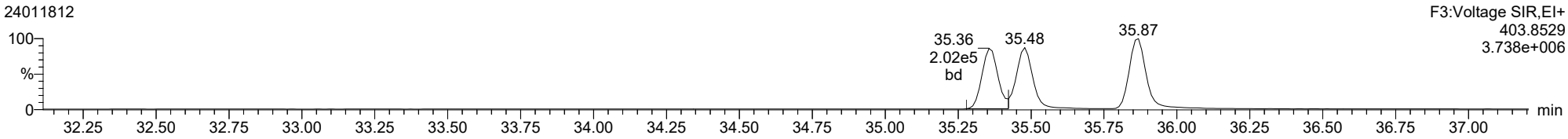
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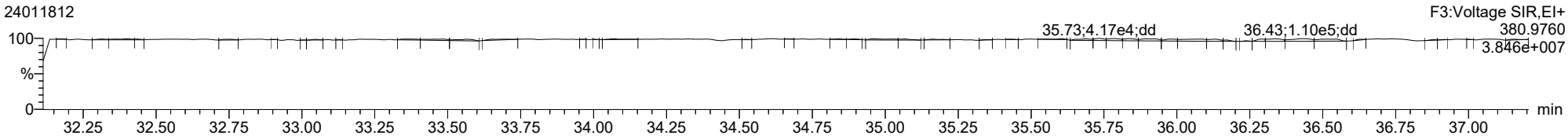
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13C-123478-HxCDD

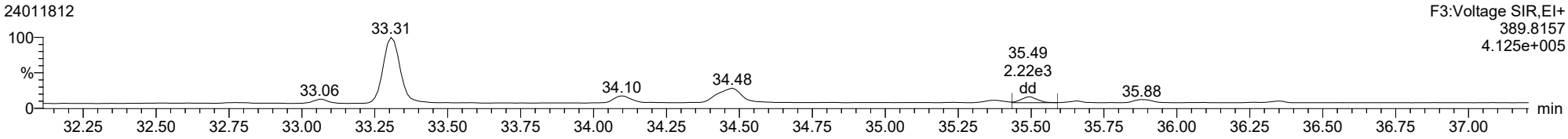


FUNCTION3 PFK

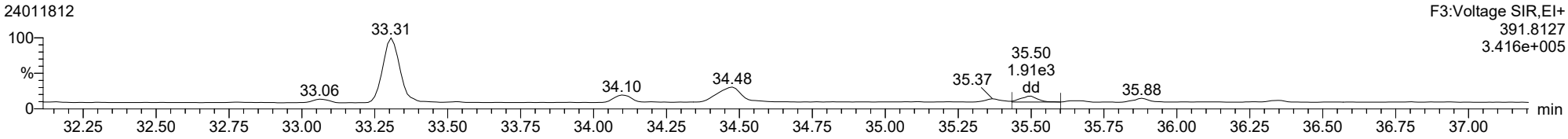


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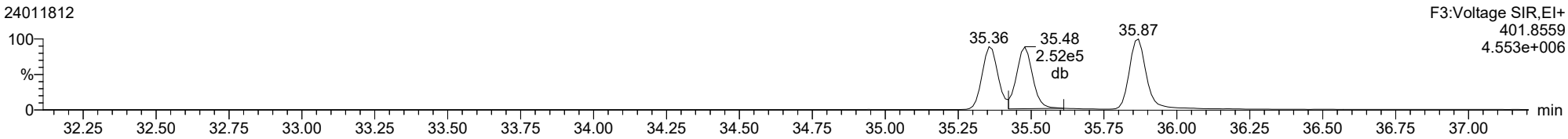
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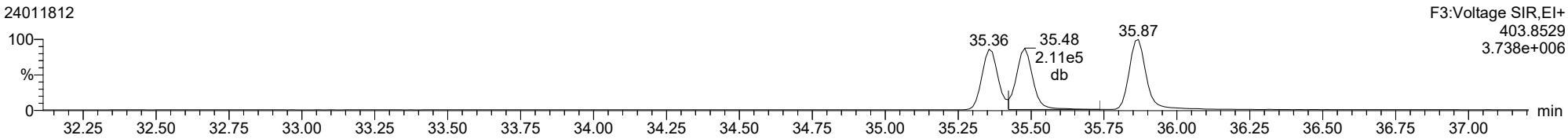
123678-HxCDD



13C-123678-HxCDD



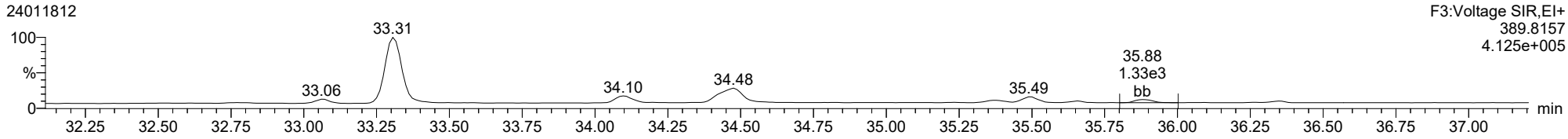
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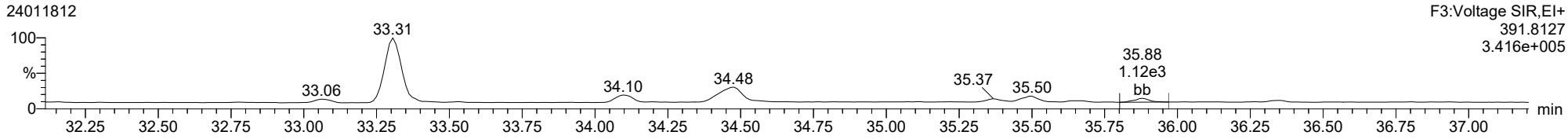
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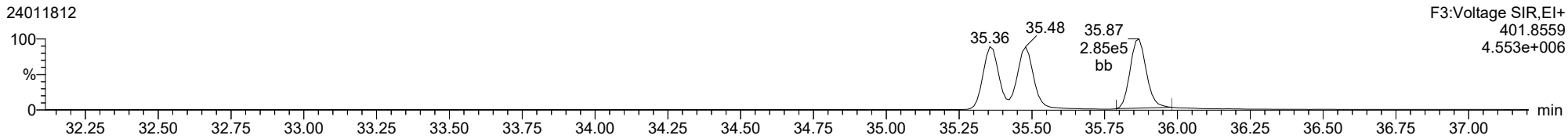
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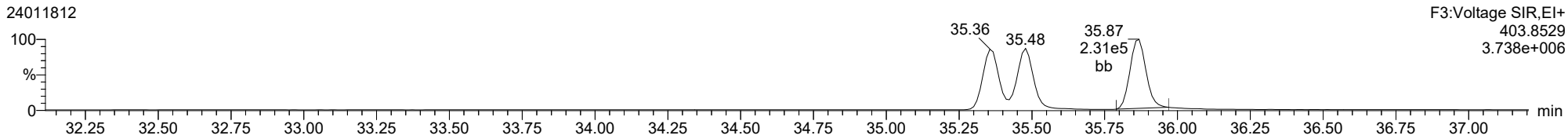
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13C-123789-HxCDD

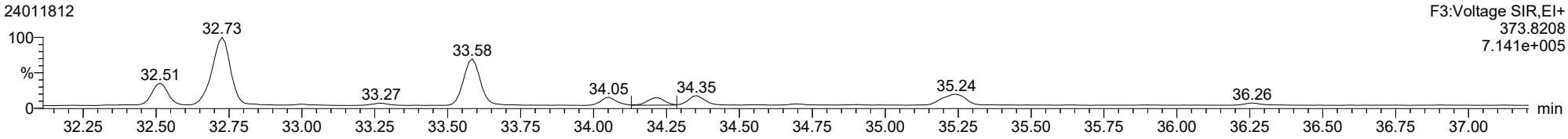


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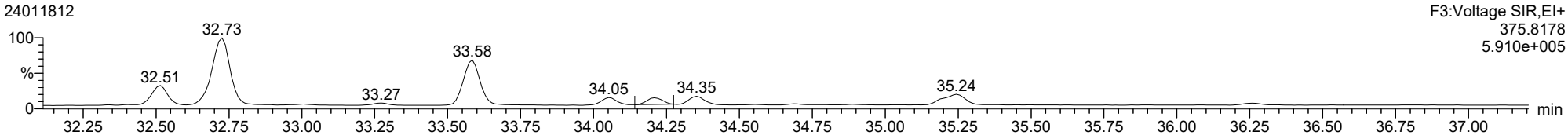


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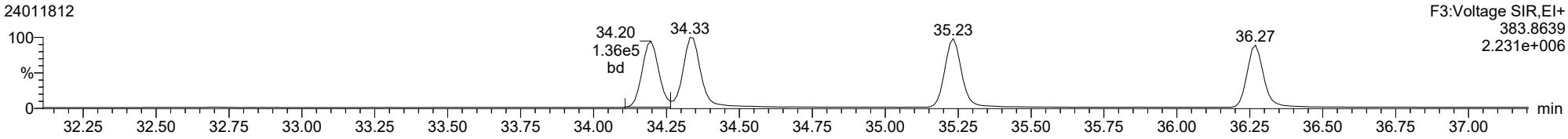
123478-HxCDF



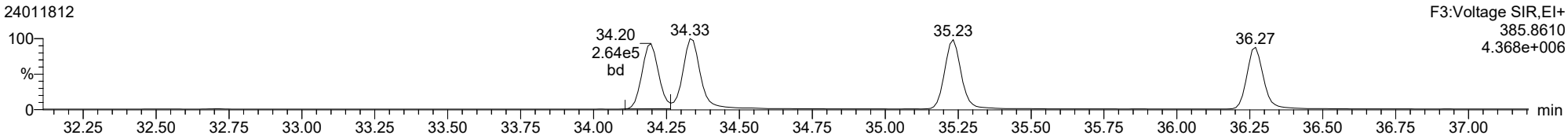
123478-HxCDF



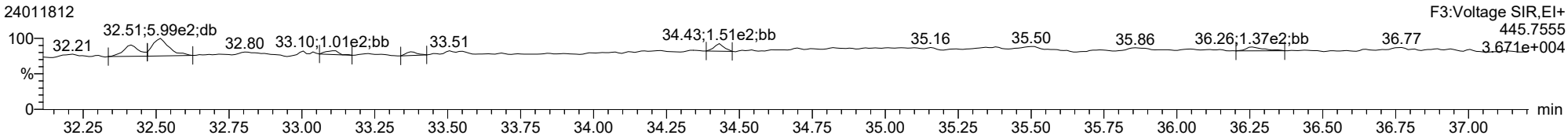
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13C-123478-HxCDF

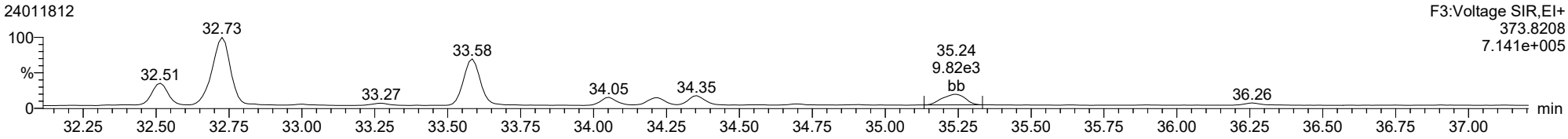


FUNCTION3 OCDPE

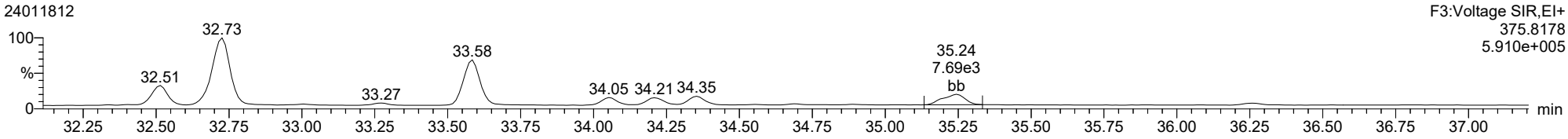


ID: 23L0564-03, Name: 24011812, Date: 18-Jan-2024, Time: 18:49:19, Conditions: AUTOSPEC01, User: pk

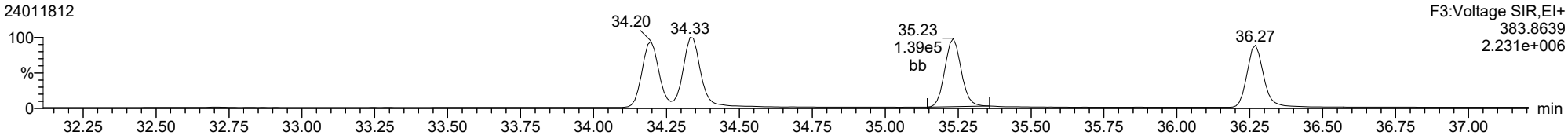
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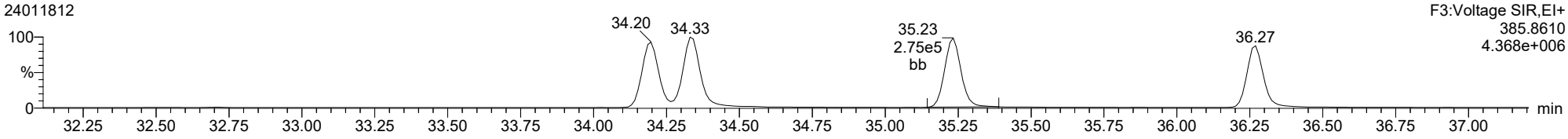
234678-HxCDF



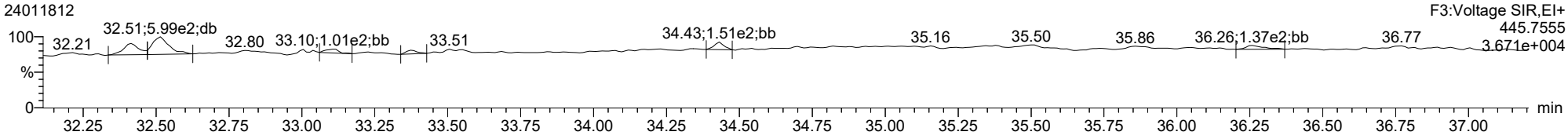
13C-234678-HxCDF



13C-234678-HxCDF

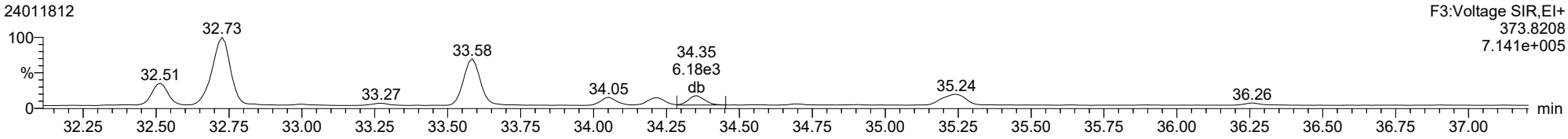


FUNCTION3 OCDPE

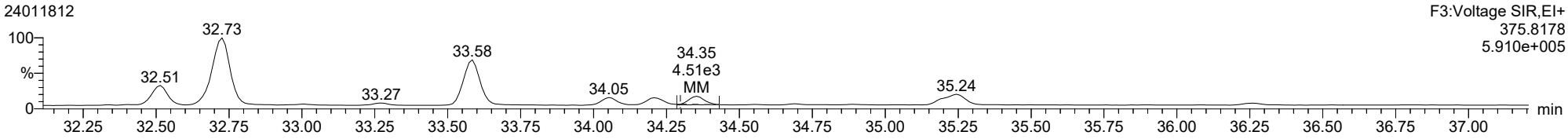


ID: 23L0564-03, Name: 24011812, Date: 18-Jan-2024, Time: 18:49:19, Conditions: AUTOSPEC01, User: pk

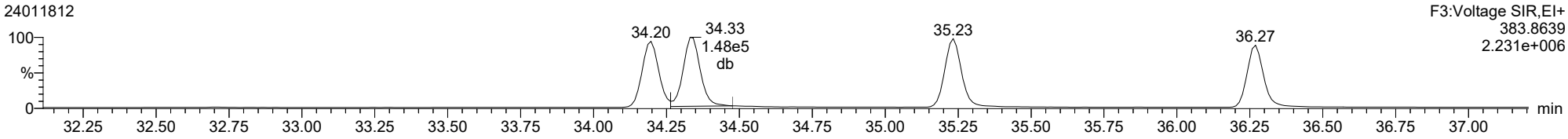
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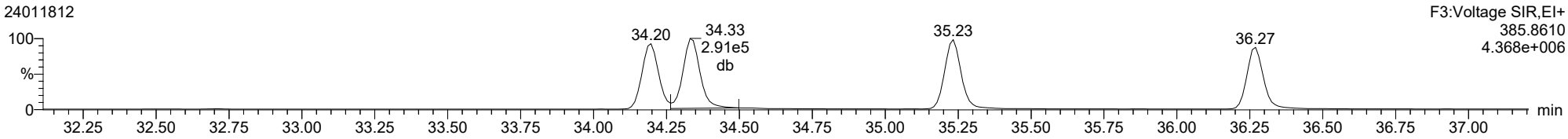
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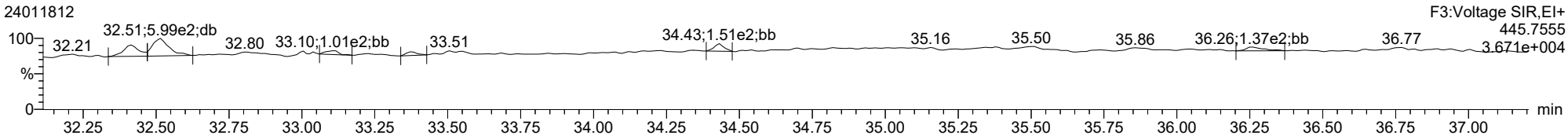
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13C-123678-HxCDF

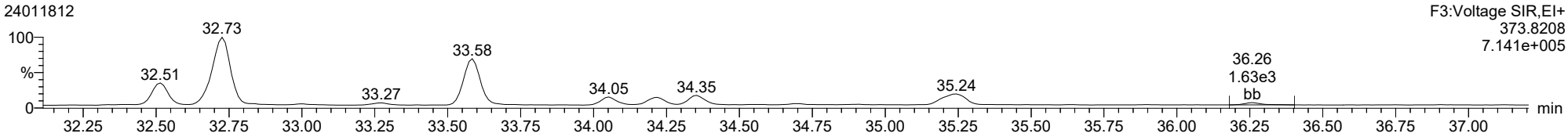


FUNCTION3 OCDPE

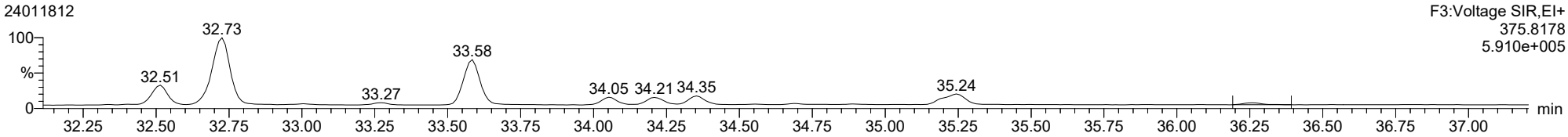


ID: 23L0564-03, Name: 24011812, Date: 18-Jan-2024, Time: 18:49:19, Conditions: AUTOSPEC01, User: pk

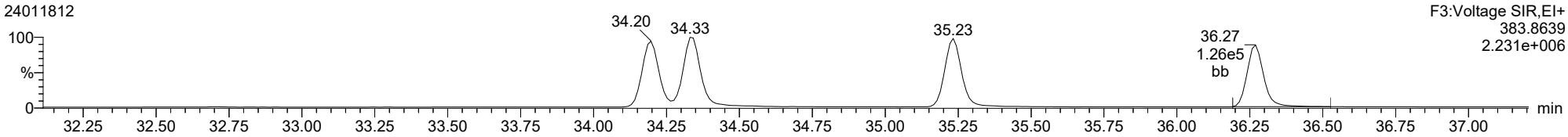
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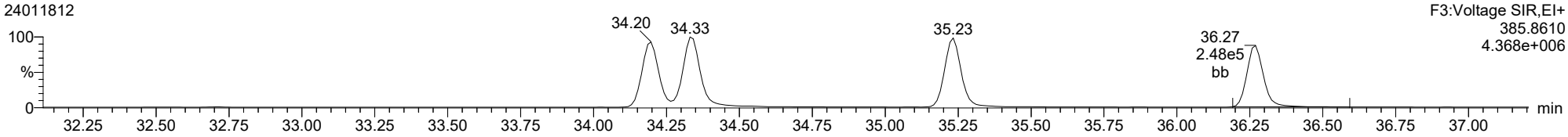
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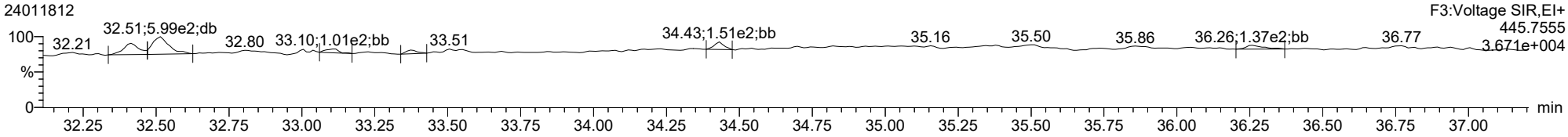
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13C-123789-HxCDF

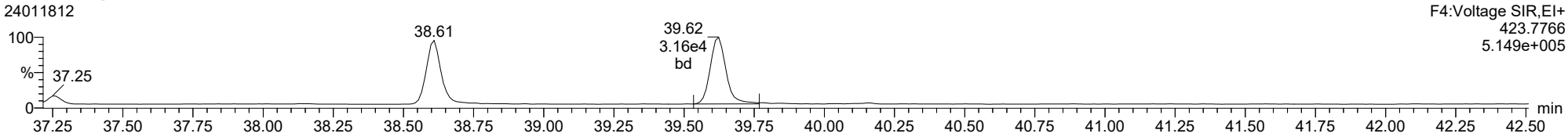


FUNCTION3 OCDPE

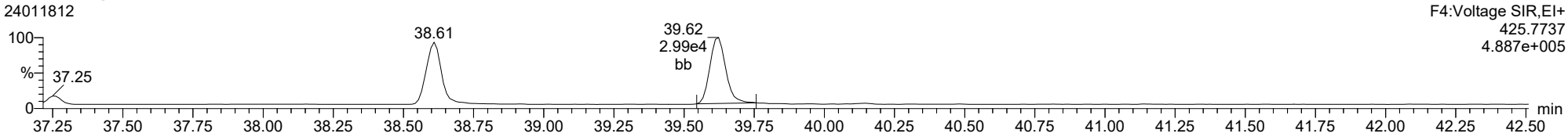


ID: 23L0564-03, Name: 24011812, Date: 18-Jan-2024, Time: 18:49:19, Conditions: AUTOSPEC01, User: pk

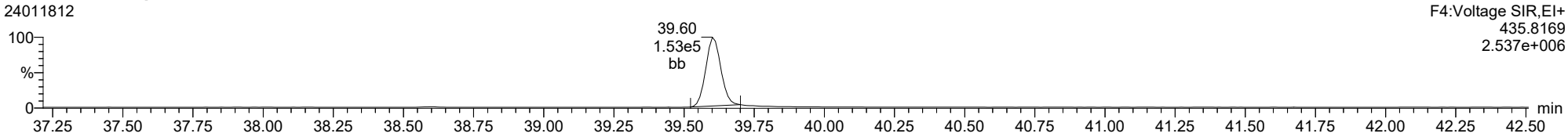
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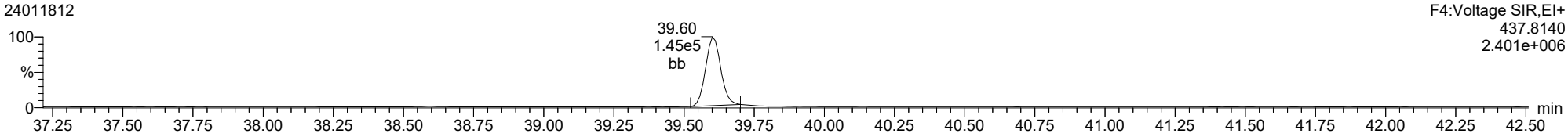
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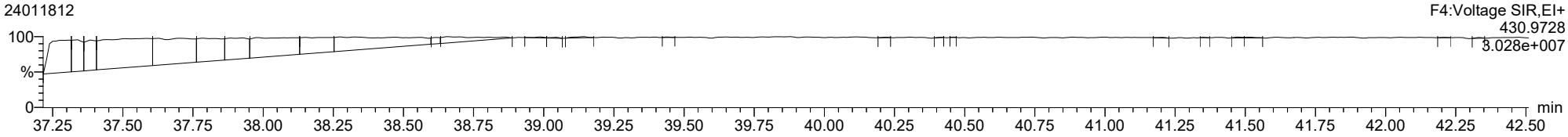
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13C-1234678-HpCDD

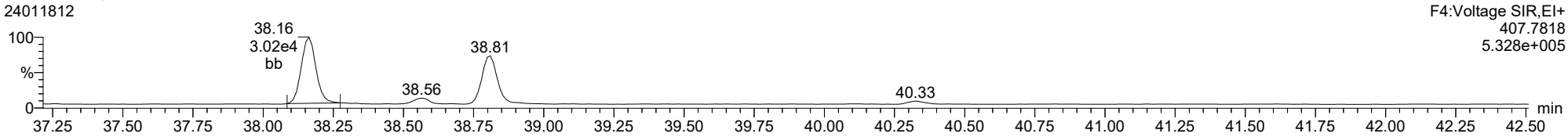


FUNCTION4 PFK

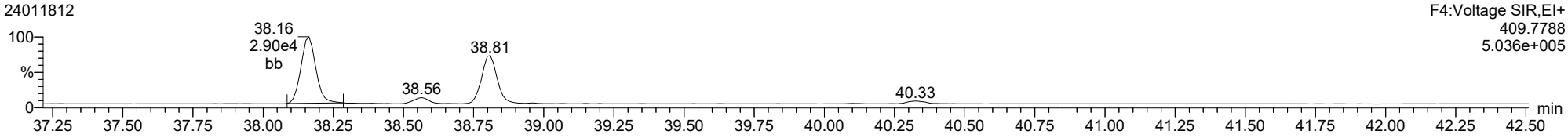


ID: 23L0564-03, Name: 24011812, Date: 18-Jan-2024, Time: 18:49:19, Conditions: AUTOSPEC01, User: pk

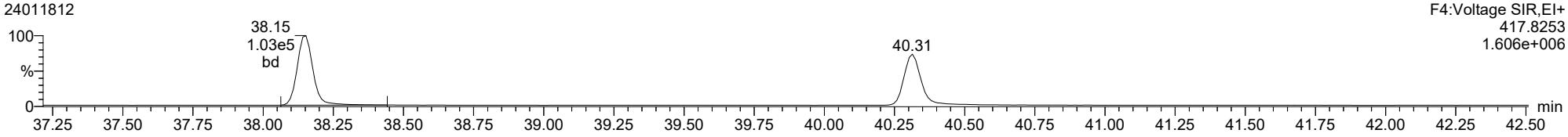
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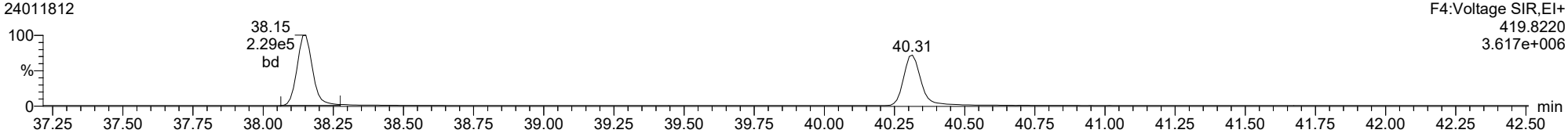
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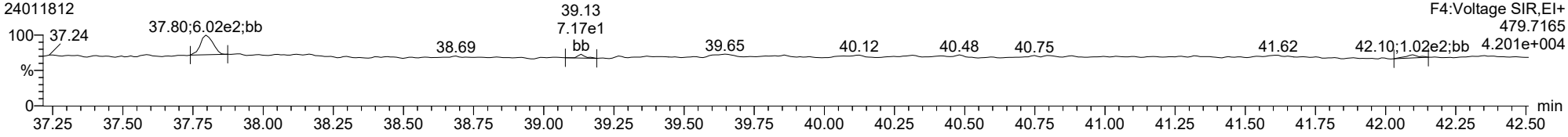
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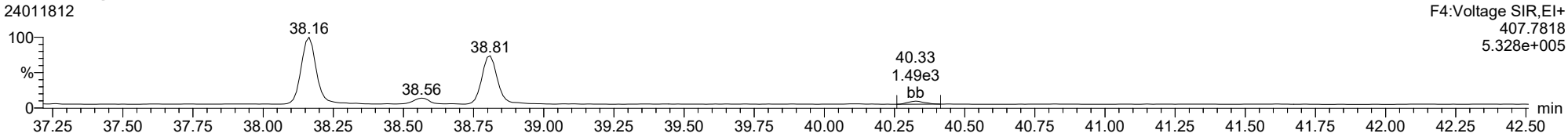


FUNCTION4 NCDPE

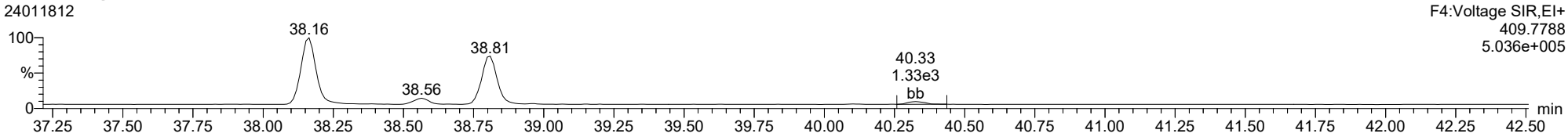


ID: 23L0564-03, Name: 24011812, Date: 18-Jan-2024, Time: 18:49:19, Conditions: AUTOSPEC01, User: pk

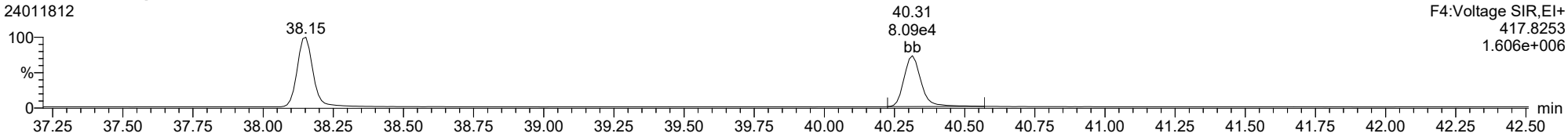
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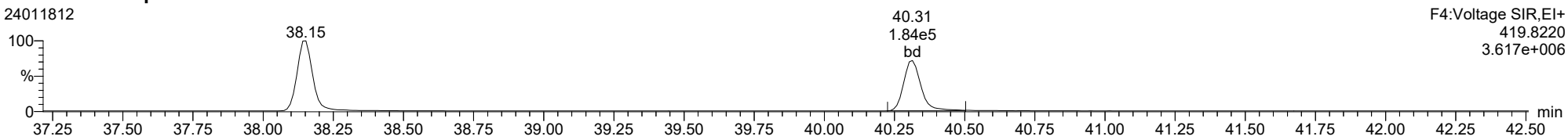
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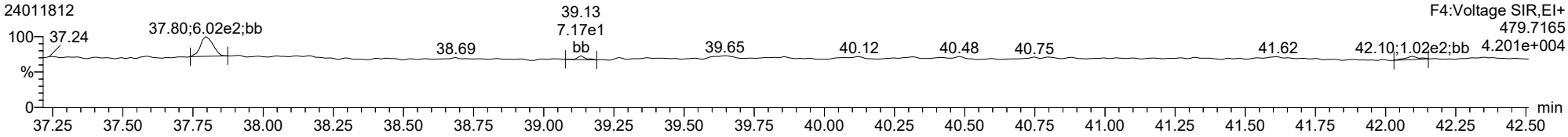
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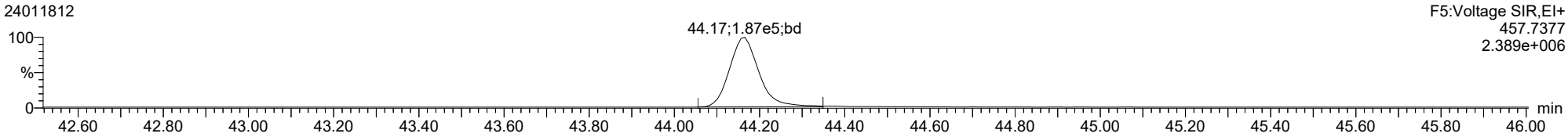


FUNCTION4 NCDPE

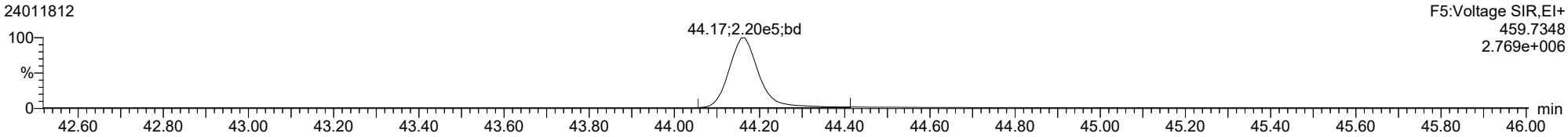


ID: 23L0564-03, Name: 24011812, Date: 18-Jan-2024, Time: 18:49:19, Conditions: AUTOSPEC01, User: pk

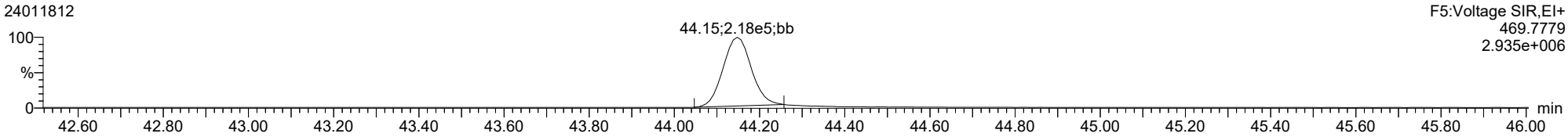
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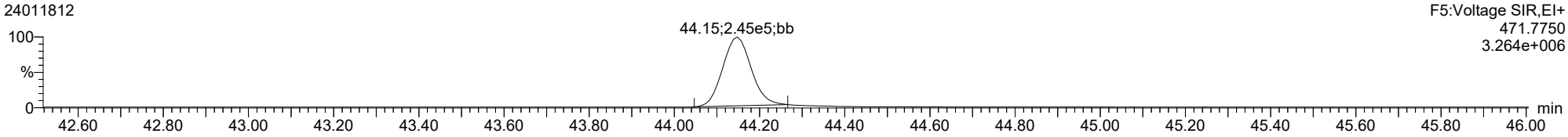
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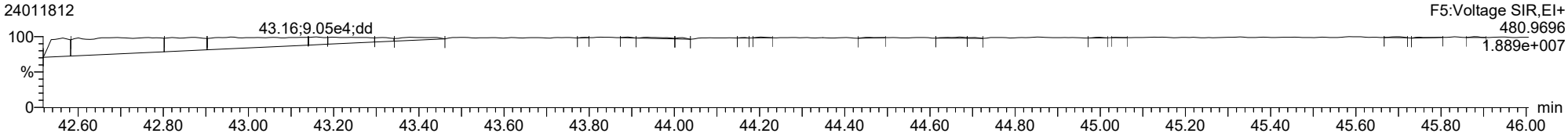
13C-OCDD



13C-OCDD



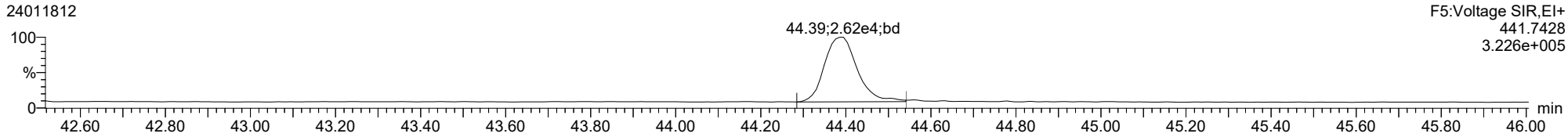
FUNCTION5 PFK



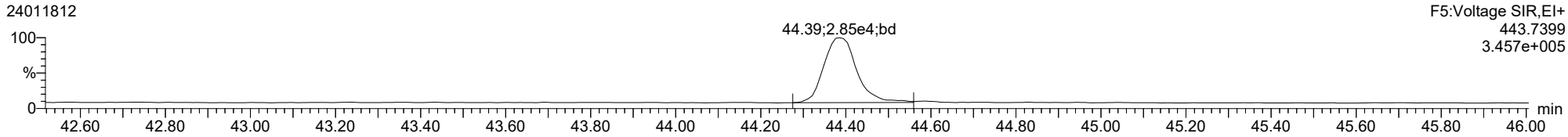
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Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:47:20 Pacific Standard Time

ID: 23L0564-03, Name: 24011812, Date: 18-Jan-2024, Time: 18:49:19, Conditions: AUTOSPEC01, User: pk

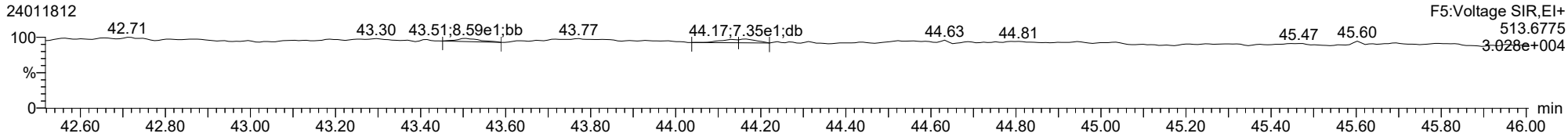
OCDF



OCDF



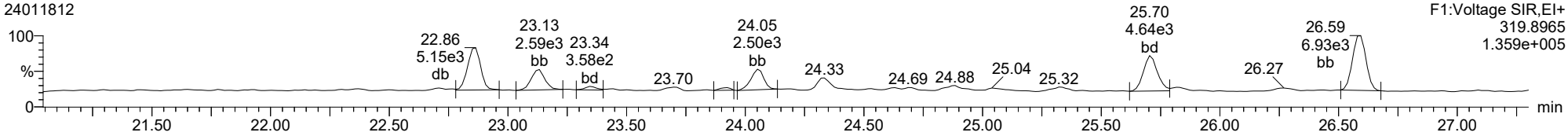
FUNCTION5 DCDPE



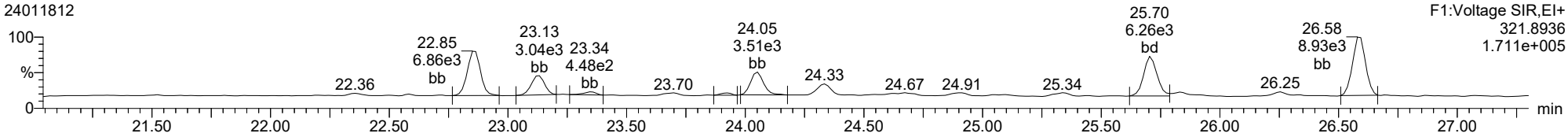
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Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:47:20 Pacific Standard Time

ID: 23L0564-03, Name: 24011812, Date: 18-Jan-2024, Time: 18:49:19, Conditions: AUTOSPEC01, User: pk

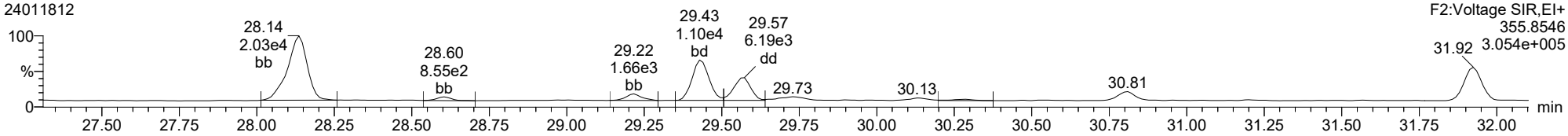
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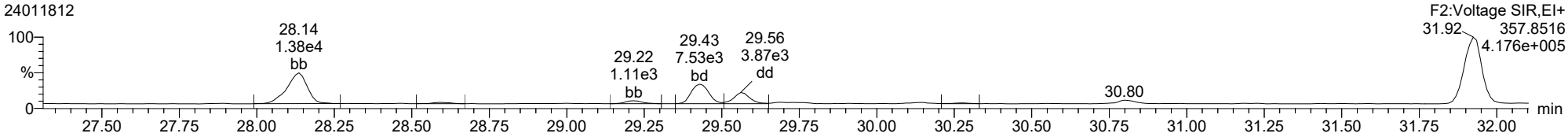
Total-tetradioxins



Total-pentadioxins

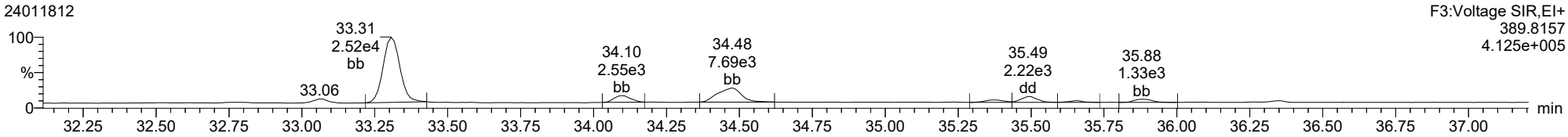


Total-pentadioxins

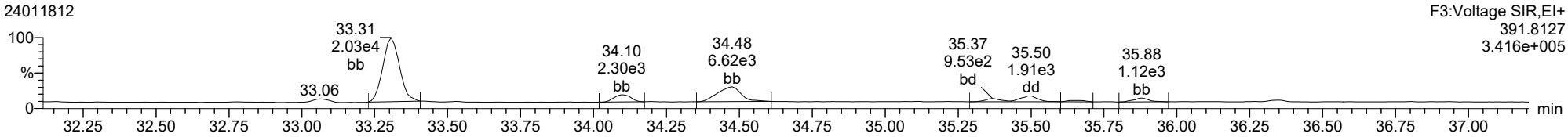


ID: 23L0564-03, Name: 24011812, Date: 18-Jan-2024, Time: 18:49:19, Conditions: AUTOSPEC01, User: pk

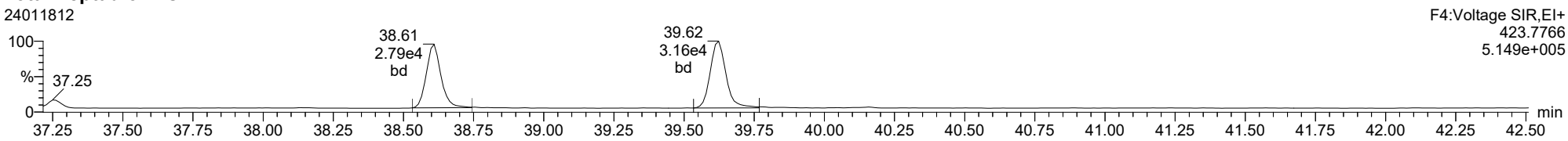
Total-hexadioxins



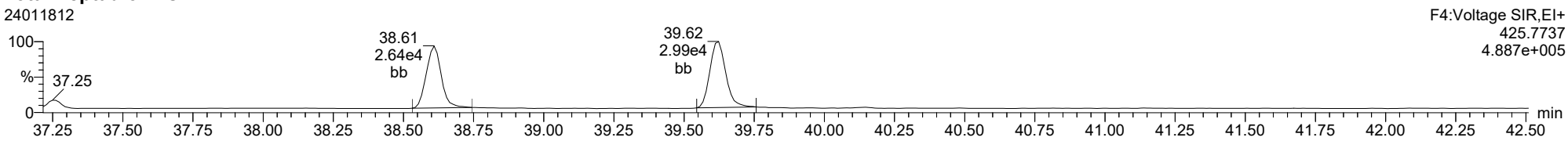
Total-hexadioxins



Total-heptadioxins

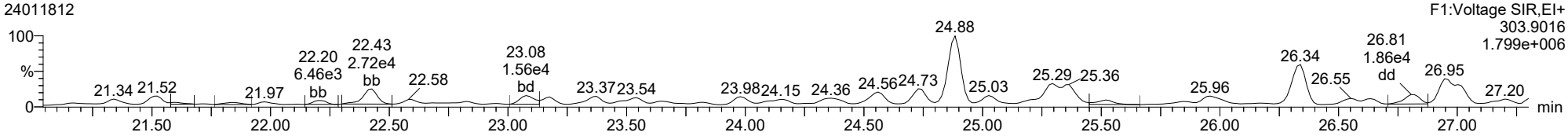


Total-heptadioxins

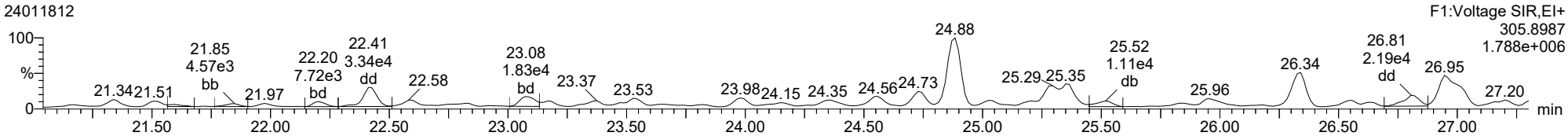


ID: 23L0564-03, Name: 24011812, Date: 18-Jan-2024, Time: 18:49:19, Conditions: AUTOSPEC01, User: pk

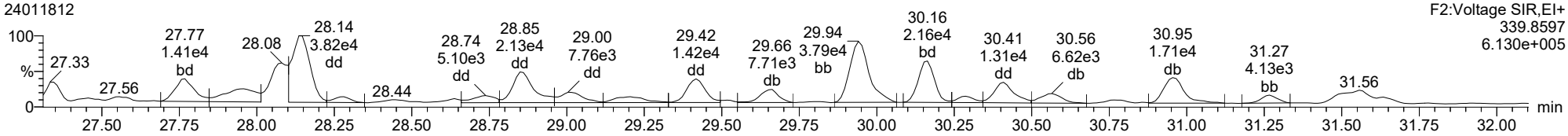
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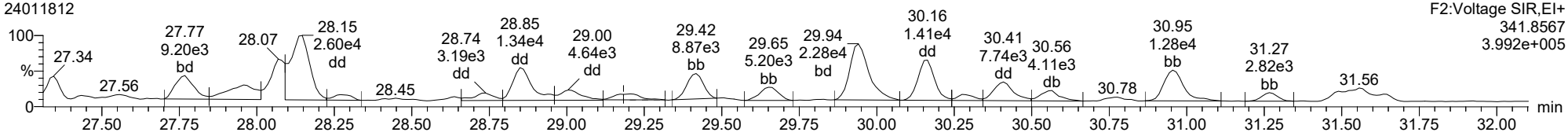
Total-tetrafurans



Total-pentafurans

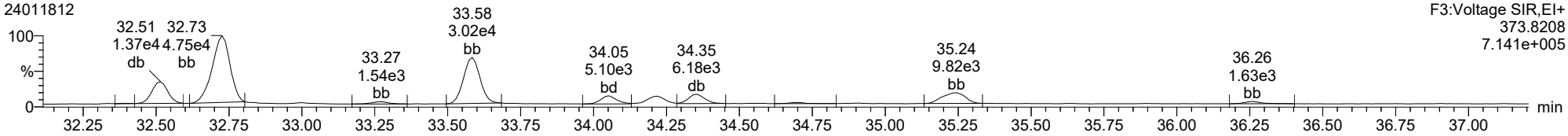


Total-pentafurans

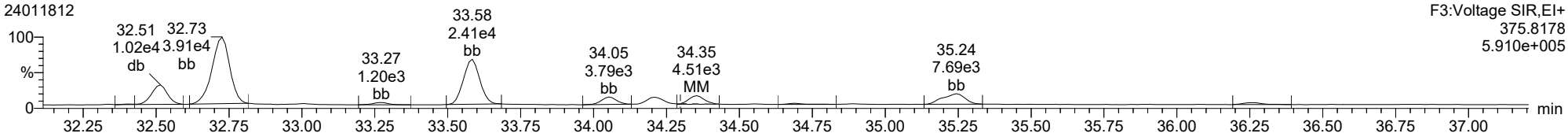


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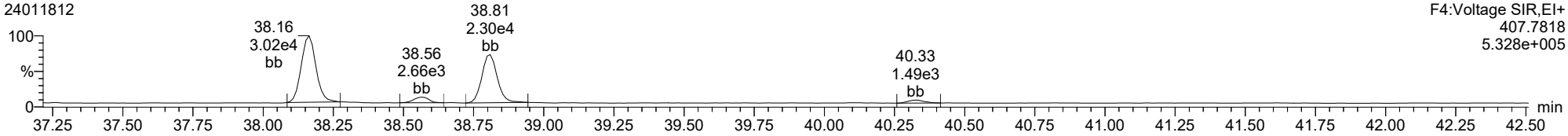
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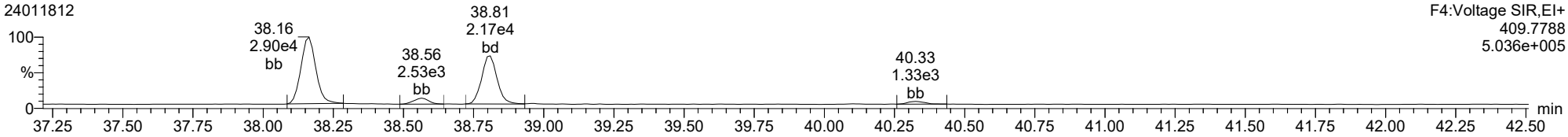
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

H4H-04-0.5-1.0

Form 1
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23L0564
Client:	Floyd - Snider				
Project:	Smith-Kem				
Matrix:	Soil	Laboratory ID:	23L0564-04 A	File ID:	24011813
Sampled:	09/07/23 10:20	Prepared:	01/02/24 14:00	Analyzed:	01/18/24 19:38
% Solids:	82.59	Preparation:	EPA 1613	Initial/Final:	12.13 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SMA0233	Calibration:	GH00041
Batch:	BLL0751	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.933	0.655-0.886	0.721	0.998	4.89	ng/kg	EMPC, X
1746-01-6	2,3,7,8-TCDD	1	0.708	0.655-0.886	0.125	0.998	3.51	ng/kg	
57117-41-6	1,2,3,7,8-PeCDF	1	1.481	1.318-1.783	0.507	0.998	2.77	ng/kg	
57117-31-4	2,3,4,7,8-PeCDF	1	1.571	1.318-1.783	0.509	0.998	5.04	ng/kg	
40321-76-4	1,2,3,7,8-PeCDD	1	1.405	1.318-1.783	0.179	0.998	2.51	ng/kg	
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.167	1.054-1.426	0.182	0.998	5.55	ng/kg	
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.105	1.054-1.426	0.193	0.998	6.03	ng/kg	
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.254	1.054-1.426	0.185	0.998	10.3	ng/kg	
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.346	1.054-1.426	0.234	0.998	1.90	ng/kg	
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.127	1.054-1.426	0.200	0.998	1.47	ng/kg	
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.160	1.054-1.426	0.217	0.998	3.81	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.188	1.054-1.426	0.238	0.998	2.46	ng/kg	
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.084	0.893-1.208	0.202	0.998	41.9	ng/kg	B
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	1.093	0.893-1.208	0.300	0.998	2.76	ng/kg	
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.069	0.893-1.208	0.285	2.50	84.0	ng/kg	B
39001-02-0	OCDF	1	0.914	0.757-1.024	0.470	2.50	68.0	ng/kg	B
3268-87-9	OCDD	1	0.877	0.757-1.024	0.918	9.98	813	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			0.998	128	ng/kg
41903-57-5	Total TCDD	1	0.000			0.998	21.4	ng/kg
30402-15-4	Total PeCDF	1	0.000			0.998	185	ng/kg
36088-22-9	Total PeCDD	1	0.000			0.998	22.9	ng/kg
55684-94-1	Total HxCDF	1	0.000			0.998	115	ng/kg
34465-46-8	Total HxCDD	1	0.000			0.998	45.2	ng/kg
38998-75-3	Total HpCDF	1	0.000			0.998	88.2	ng/kg
37871-00-4	Total HpCDD	1	0.000			0.998	151	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 12.81

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 12.81

Analytical Resources, Incorporated
Analytical Chemists and Consultants

H4H-04-0.5-1.0

Form 2

ORGANIC ANALYSIS DATA SHEET

EPA 1613B

Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23L0564
Client:	Floyd - Snider			Project:	Smith-Kem
Matrix:	Soil	Laboratory ID:	23L0564-04	File ID:	24011813
Sampled:	09/07/23 10:20	Prepared:	01/02/24 14:00	Analyzed:	01/18/24 19:38
Solids Wt%:	82.59	Preparation:	EPA 1613	Initial/Final:	12.13 g / 20 uL
Result Basis:	Dry	Sequence:	SMA0233	Calibration:	GH00041
Batch:	BLL0751	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.760	0.655-0.886	0.105	66.7	24 - 169 %	
13C12-2,3,7,8-TCDD		0.768	0.655-0.886	0.136	85.5	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.485	1.318-1.783	0.152	72.4	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.513	1.318-1.783	0.160	71.7	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.688	1.318-1.783	0.188	85.8	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.518	0.434-0.587	0.177	72.5	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.517	0.434-0.587	0.144	68.1	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.500	0.434-0.587	0.176	74.5	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.520	0.434-0.587	0.203	76.8	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.251	1.054-1.426	0.166	87.6	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.233	1.054-1.426	0.138	78.2	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.438	0.374-0.506	0.180	64.1	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.431	0.374-0.506	0.235	65.3	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.097	0.893-1.208	0.235	84.7	23 - 140 %	
13C12-OCDD		0.893	0.757-1.024	0.261	67.5	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.169	89.2	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:47:38 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240116.mdb 16 Jan 2024 11:29:56
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: 23L0564-04, Name: 24011813, Date: 18-Jan-2024, Time: 19:38:24, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.082	1.002	6.385e3	6.844e3	0.903	0.933	0.770	6180	3670	6.77e4	8.24e4	10.9	22.4	YES	bd	bd	2.447
12378-PeCDF	29.205	1.001	3.730e3	2.519e3	0.923	1.481	1.550	3812	1840	5.26e4	3.61e4	13.8	19.6	NO	db	bb	1.389
23478-PeCDF	30.542	1.001	6.979e3	4.443e3	0.991	1.571	1.550	3812	1840	9.90e4	5.86e4	26.0	31.9	NO	dd	db	2.526
123478-HxCDF	34.208	1.001	6.152e3	5.272e3	1.128	1.167	1.240	1049	857	9.71e4	8.44e4	92.6	98.5	NO	dd	dd	2.781
234678-HxCDF	35.233	1.000	1.165e4	9.295e3	1.081	1.254	1.240	1049	857	1.30e5	1.12e5	124.1	130.1	NO	bb	bb	5.167
123678-HxCDF	34.342	1.000	6.885e3	6.232e3	1.032	1.105	1.240	1049	857	1.06e5	9.18e4	100.6	107.1	NO	db	db	3.023
123789-HxCDF	36.236	0.999	1.814e3	1.347e3	0.988	1.346	1.240	1049	857	2.63e4	2.17e4	25.0	25.3	NO	bd	MM	0.951
1234678-HpCDF	38.152	1.000	3.691e4	3.405e4	1.164	1.084	1.050	1074	741	6.00e5	5.61e5	558.5	757.8	NO	bd	bb	20.983
1234789-HpCDF	40.302	1.000	1.810e3	1.655e3	1.104	1.093	1.050	1074	741	2.49e4	2.16e4	23.2	29.1	NO	db	db	1.383
OCDF	44.375	1.005	3.625e4	3.964e4	1.130	0.914	0.890	1183	1016	4.22e5	4.79e5	356.4	471.9	NO	bd	bb	34.040
2378-TCDD	25.690	1.001	4.203e3	5.939e3	1.243	0.708	0.770	1094	713	6.09e4	9.11e4	55.7	127.8	NO	bd	bd	1.759
12378-PeCDD	30.799	1.001	2.672e3	1.902e3	1.150	1.405	1.550	777	866	3.72e4	2.54e4	47.9	29.3	NO	bb	MM	1.258
123478-HxCDD	35.355	1.000	1.455e3	1.291e3	0.960	1.127	1.240	923	1061	2.52e4	1.97e4	27.3	18.6	NO	bd	bd	0.739
123678-HxCDD	35.478	1.000	3.776e3	3.256e3	0.883	1.160	1.240	923	1061	6.01e4	5.01e4	65.1	47.2	NO	dd	dd	1.909
123789-HxCDD	35.868	1.011	2.167e3	1.824e3	0.804	1.188	1.240	923	1061	3.61e4	3.00e4	39.2	28.3	NO	bb	bb	1.234
1234678-HpCDD	39.612	1.000	6.399e4	5.989e4	1.200	1.069	1.050	1254	983	9.68e5	9.28e5	771.9	943.8	NO	bd	bb	42.072
OCDD	44.156	1.000	3.974e5	4.533e5	1.059	0.877	0.890	1431	2597	4.71e6	5.44e6	3289.9	2095.2	NO	bd	bd	407.333
13C-2378-TCDF	25.040	1.007	2.585e5	3.400e5	1.835	0.760	0.770	1262	1205	3.91e6	5.15e6	3102.4	4269.7	NO	bb	bb	66.689
13C-12378-PeCDF	29.183	1.174	2.911e5	1.961e5	1.377	1.485	1.550	1570	1092	4.32e6	2.89e6	2750.7	2643.1	NO	bd	bd	72.382
13C-23478-PeCDF	30.520	1.228	2.748e5	1.817e5	1.301	1.513	1.550	1570	1092	4.04e6	2.67e6	2576.7	2447.2	NO	bb	bb	71.726
13C-123478-HxCDF	34.186	0.954	1.243e5	2.399e5	1.091	0.518	0.510	994	1339	1.89e6	3.65e6	1906.5	2730.0	NO	bd	bd	72.513
13C-123678-HxCDF	34.331	0.958	1.432e5	2.771e5	1.340	0.517	0.510	994	1339	1.95e6	3.81e6	1959.9	2846.2	NO	dd	dd	68.113
13C-234678-HxCDF	35.222	0.983	1.250e5	2.499e5	1.093	0.500	0.510	994	1339	1.90e6	3.68e6	1910.9	2752.2	NO	bb	bd	74.459
13C-123789-HxCDF	36.258	1.012	1.151e5	2.216e5	0.952	0.520	0.510	994	1339	1.69e6	3.30e6	1699.8	2467.6	NO	bb	bb	76.848
13C-1234678-HpCDF	38.141	1.064	8.851e4	2.021e5	0.985	0.438	0.440	950	1197	1.41e6	3.25e6	1484.6	2715.9	NO	bd	bb	64.074
13C-1234789-HpCDF	40.302	1.124	6.845e4	1.587e5	0.756	0.431	0.440	950	1197	9.89e5	2.20e6	1041.8	1841.3	NO	bb	bd	65.255
13C-1234-TCDD	24.856	0.000	2.164e5	2.726e5	1.000	0.794	0.770	1035	891	3.38e6	4.31e6	3266.7	4839.0	NO	bb	bb	100.000
13C-2378-TCDD	25.676	1.033	2.016e5	2.624e5	1.110	0.768	0.770	1035	891	3.03e6	3.99e6	2931.2	4485.2	NO	bb	bb	85.497
13C-12378-PeCDD	30.776	1.238	1.985e5	1.176e5	0.754	1.688	1.550	1050	753	2.99e6	1.79e6	2851.1	2373.2	NO	bb	bb	85.761
13C-123478-HxCDD	35.344	0.986	2.152e5	1.720e5	0.960	1.251	1.240	1080	847	3.44e6	2.75e6	3184.7	3250.1	NO	bd	bd	87.594
13C-123678-HxCDD	35.467	0.989	2.305e5	1.869e5	1.159	1.233	1.240	1080	847	3.43e6	2.75e6	3177.4	3249.4	NO	db	db	78.199
13C-1234678-HpCDD	39.600	1.105	1.284e5	1.171e5	0.629	1.097	1.050	1084	700	2.05e6	1.88e6	1891.8	2683.3	NO	bb	bb	84.708
13C-OCDD	44.138	1.231	1.861e5	2.085e5	0.635	0.893	0.890	1055	945	2.34e6	2.61e6	2218.3	2759.3	NO	bb	bb	134.900
13C-123789-HxCDD	35.846	0.000	2.523e5	2.081e5	1.000	1.212	1.240	1080	847	3.97e6	3.29e6	3673.2	3880.7	NO	bb	bb	100.000
37CL-2378-TCDD	25.690	1.033	2.018e5		1.157			2493		3.16e6		1266.7			bb		35.663

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:47:38 Pacific Standard Time

ID: 23L0564-04, Name: 24011813, Date: 18-Jan-2024, Time: 19:38:24, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.466	0.857	9.042e3	4.923e3	1.170	1.837	0.770	6180	3670	1.14e5	6.78e4	18.5	18.5	YES	dd	dd	1.993
1289-TCDF	26.523	1.059	1.645e3	2.961e3	0.847	0.556	0.770	6180	3670	2.69e4	3.76e4	4.3	10.3	YES	bb	bd	0.909
13468-PECDF	26.481	0.907	1.320e5	8.547e4	1.241	1.544	1.550	2537	2386	2.00e6	1.30e6	790.0	545.9	NO	bb	bb	35.956
12389-PECDF	31.523	1.080	4.159e3	1.396e3	0.880	2.979	1.550	3812	1840	4.72e4	2.38e4	12.4	13.0	YES	dd	db	1.296
123468-HXCDF	32.503	0.951	1.270e4	1.040e4	1.206	1.222	1.240	1049	857	1.87e5	1.60e5	178.7	186.2	NO	bb	db	5.263
1368-TCDD	22.836	0.889	8.760e3	1.065e4	1.181	0.823	0.770	1094	713	1.32e5	1.62e5	121.0	226.6	NO	bb	bd	3.542
1289-TCDD					0.963		0.770	1094	713								
12479-PECDD	28.113	0.914	1.447e4	9.193e3	2.166	1.574	1.550	777	866	1.68e5	1.10e5	216.3	126.6	NO	bb	bb	3.455
12389-PECDD	31.188	1.013	6.763e2	4.688e2	1.326	1.443	1.550	777	866	1.03e4	8.45e3	13.2	9.8	NO	bb	bb	0.273
124679-HXCDD	33.294	0.942	1.807e4	1.509e4	1.127	1.197	1.240	923	1061	2.77e5	2.33e5	300.6	219.4	NO	bb	bb	7.600
1234679-HPCDD	38.598	0.975	5.403e4	5.339e4	1.303	1.012	1.050	1254	983	8.72e5	8.65e5	694.8	880.6	NO	bb	bb	33.596
Total-tetrafurans			1.645e5		0.973			6180		2.37e6							63.924
Total-penta1			1.320e5					2537		2.00e6							35.956
Total-pentafurans			1.539e5		0.931			3812		2.21e6							56.849
Total-hexafurans			1.300e5		1.087			1049		1.87e6							57.777
Total-heptafurans			7.100e4		1.134			1074		1.16e6							44.199
Total-Furans			6.980e5		1.053			6180		1.02e7							296.599
Total-tetradioxins			2.549e4		1.129			1094		3.81e5							10.728
Total-pentadioxins			3.750e4		1.548			777		5.12e5							11.460
Total-hexadioxins			4.881e4		0.943			923		6.97e5							22.646
Total-heptadioxins			1.180e5		1.251			1254		1.84e6							75.668
Total-Dioxins			6.272e5		1.182			1094		8.14e6							527.835
Total-TEQ			1.325e6					1094		1.83e7							824.434
FUNCTION1 PFK			4.143e6					462391		4.42e7							
FUNCTION2 PFK			8.505e5					164625		1.41e7							0.000
FUNCTION3 PFK			2.225e6					408652		1.85e7							0.000
FUNCTION4 PFK			5.348e5					215578		3.18e6							
FUNCTION5 PFK			6.041e4					165679		2.49e6							
FUNCTION1 HXCD...			3.834e5					12817		5.90e6							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			7.784e3					1075		1.25e5							0.000
FUNCTION3 OCDPE			5.556e2					451		1.45e4							0.000
FUNCTION4 NCDPE			1.562e3					474		2.59e4							0.000
FUNCTION5 DCDPE			0.000e0					536		0.00e0							

Method: T:\Autospec\Methods\Dioxin240116.mdb 16 Jan 2024 11:29:56
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: 23L0564-04, Name: 24011813, Date: 18-Jan-2024, Time: 19:38:24, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.06	1.836e4	2.437e4	0.973	0.75	0.77	40.6	YES	NO	bd	bd	7.334
2	Total-tetrafurans	22.81	8.657e3	1.045e4	0.973	0.83	0.77	21.4	YES	NO	dd	dd	3.279
3	Total-tetrafurans	22.58	8.666e3	1.139e4	0.973	0.76	0.77	11.9	YES	NO	dd	dd	3.442
4	Total-tetrafurans	22.40	2.805e4	3.438e4	0.973	0.82	0.77	66.6	YES	NO	bd	bd	10.714
5	Total-tetrafurans	21.57	4.554e3	6.828e3	0.973	0.67	0.77	9.2	YES	NO	dd	dd	1.954
6	Total-tetrafurans	25.45	6.800e3	8.065e3	0.973	0.84	0.77	11.8	YES	NO	db	db	2.551
7	Total-tetrafurans	24.86	4.677e4	5.566e4	0.973	0.84	0.77	118.9	YES	NO	bb	db	17.581
8	Total-tetrafurans	24.72	4.702e3	6.631e3	0.973	0.71	0.77	13.8	YES	NO	bb	bd	1.945
9	Total-tetrafurans	24.55	4.465e3	5.190e3	0.973	0.86	0.77	9.8	YES	NO	db	db	1.657
10	Total-tetrafurans	24.38	6.085e3	7.605e3	0.973	0.80	0.77	11.2	YES	NO	bd	bd	2.350
11	Total-tetrafurans	24.14	4.330e3	6.163e3	0.973	0.70	0.77	11.8	YES	NO	bb	dd	1.801
12	Total-tetrafurans	23.97	1.609e4	2.160e4	0.973	0.74	0.77	40.5	YES	NO	bb	dd	6.469
13	Total-tetrafurans	23.81	4.704e3	6.631e3	0.973	0.71	0.77	10.6	YES	NO	db	dd	1.945
14	Total-tetrafurans	26.10	2.284e3	2.971e3	0.973	0.77	0.77	5.1	YES	NO	db	dd	0.902

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.48	1.320e5	8.547e4	1.241	1.54	1.55	790.0	YES	NO	bb	bb	35.956

ID: 23L0564-04, Name: 24011813, Date: 18-Jan-2024, Time: 19:38:24, Conditions: AUTOSPEC01, User: pk

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.21	3.730e3	2.519e3	0.923	1.48	1.55	13.8	YES	NO	db	bb	1.389
2	Total-pentafurans	28.84	2.162e4	1.305e4	0.931	1.66	1.55	69.3	YES	NO	dd	db	7.891
3	Total-pentafurans	28.61	3.385e3	1.906e3	0.931	1.78	1.55	13.8	YES	NO	bd	bd	1.204
4	Total-pentafurans	28.27	5.097e3	3.167e3	0.931	1.61	1.55	20.3	YES	NO	db	db	1.881
5	Total-pentafurans	28.12	4.351e4	2.646e4	0.931	1.64	1.55	159.9	YES	NO	dd	dd	15.926
6	Total-pentafurans	28.07	1.771e4	1.157e4	0.931	1.53	1.55	88.4	YES	NO	dd	dd	6.666
7	Total-pentafurans	27.94	1.062e4	6.824e3	0.931	1.56	1.55	29.1	YES	NO	dd	dd	3.971
8	Total-pentafurans	27.75	2.751e3	1.704e3	0.931	1.61	1.55	10.4	YES	NO	bd	bd	1.014
9	23478-PeCDF	30.54	6.979e3	4.443e3	0.991	1.57	1.55	26.0	YES	NO	dd	db	2.526
10	Total-pentafurans	30.40	1.400e4	8.975e3	0.931	1.56	1.55	49.3	YES	NO	dd	dd	5.230
11	Total-pentafurans	30.27	6.482e3	4.236e3	0.931	1.53	1.55	24.9	YES	NO	dd	dd	2.439
12	Total-pentafurans	30.15	7.169e3	4.586e3	0.931	1.56	1.55	31.2	YES	NO	dd	dd	2.675
13	Total-pentafurans	29.51	2.515e3	1.609e3	0.931	1.56	1.55	11.1	YES	NO	dd	db	0.939
14	Total-pentafurans	29.41	8.306e3	5.306e3	0.931	1.57	1.55	32.7	YES	NO	bd	bd	3.098

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexafurans	34.04	6.860e3	5.941e3	1.087	1.15	1.24	97.2	YES	NO	bd	bd	3.148
2	Total-hexafurans	33.57	3.180e4	2.556e4	1.087	1.24	1.24	447.3	YES	NO	bb	bb	14.107
3	Total-hexafurans	33.26	1.378e3	1.067e3	1.087	1.29	1.24	18.3	YES	NO	bb	bb	0.601
4	Total-hexafurans	32.72	4.989e4	4.107e4	1.087	1.21	1.24	685.7	YES	NO	bb	bb	22.373
5	123468-HXCDF	32.50	1.270e4	1.040e4	1.206	1.22	1.24	178.7	YES	NO	bb	db	5.263
6	123789-HxCDF	36.24	1.814e3	1.347e3	0.988	1.35	1.24	25.0	YES	NO	bd	MM	0.951
7	234678-HxCDF	35.23	1.165e4	9.295e3	1.081	1.25	1.24	124.1	YES	NO	bb	bb	5.167
8	Total-hexafurans	34.69	8.367e2	6.457e2	1.087	1.30	1.24	12.8	YES	NO	db	bb	0.365
9	123678-HxCDF	34.34	6.885e3	6.232e3	1.032	1.10	1.24	100.6	YES	NO	db	db	3.023
10	123478-HxCDF	34.21	6.152e3	5.272e3	1.128	1.17	1.24	92.6	YES	NO	dd	dd	2.781

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.15	3.691e4	3.405e4	1.164	1.08	1.05	558.5	YES	NO	bd	bb	20.983
2	1234789-HpCDF	40.30	1.810e3	1.655e3	1.104	1.09	1.05	23.2	YES	NO	db	db	1.383
3	Total-heptafurans	38.80	3.228e4	3.179e4	1.134	1.02	1.05	493.3	YES	NO	bb	bb	21.834

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.06	1.836e4	2.437e4	0.973	0.75	0.77	40.6	YES	NO	bd	bd	7.334
2	Total-tetrafurans	22.81	8.657e3	1.045e4	0.973	0.83	0.77	21.4	YES	NO	dd	dd	3.279
3	Total-tetrafurans	22.58	8.666e3	1.139e4	0.973	0.76	0.77	11.9	YES	NO	dd	dd	3.442
4	Total-tetrafurans	22.40	2.805e4	3.438e4	0.973	0.82	0.77	66.6	YES	NO	bd	bd	10.714
5	Total-tetrafurans	21.57	4.554e3	6.828e3	0.973	0.67	0.77	9.2	YES	NO	dd	dd	1.954
6	Total-Furans	21.32	4.644e3	6.909e3	1.053	0.67	0.77	9.5	YES	NO	dd	dd	1.834
7	Total-Furans	21.16	5.755e3	6.970e3	1.053	0.83	0.77	11.7	YES	NO	bd	bd	2.020
8	Total-tetrafurans	25.45	6.800e3	8.065e3	0.973	0.84	0.77	11.8	YES	NO	db	db	2.551
9	Total-tetrafurans	24.86	4.677e4	5.566e4	0.973	0.84	0.77	118.9	YES	NO	bb	db	17.581
10	Total-tetrafurans	24.72	4.702e3	6.631e3	0.973	0.71	0.77	13.8	YES	NO	bb	bd	1.945
11	Total-tetrafurans	24.55	4.465e3	5.190e3	0.973	0.86	0.77	9.8	YES	NO	db	db	1.657
12	Total-tetrafurans	24.38	6.085e3	7.605e3	0.973	0.80	0.77	11.2	YES	NO	bd	bd	2.350
13	Total-tetrafurans	24.14	4.330e3	6.163e3	0.973	0.70	0.77	11.8	YES	NO	bb	dd	1.801
14	Total-tetrafurans	23.97	1.609e4	2.160e4	0.973	0.74	0.77	40.5	YES	NO	bb	dd	6.469
15	Total-tetrafurans	23.81	4.704e3	6.631e3	0.973	0.71	0.77	10.6	YES	NO	db	dd	1.945
16	Total-tetrafurans	26.10	2.284e3	2.971e3	0.973	0.77	0.77	5.1	YES	NO	db	dd	0.902
17	12378-PeCDF	29.21	3.730e3	2.519e3	0.923	1.48	1.55	13.8	YES	NO	db	bb	1.389
18	Total-pentafurans	28.84	2.162e4	1.305e4	0.931	1.66	1.55	69.3	YES	NO	dd	db	7.891
19	Total-pentafurans	28.61	3.385e3	1.906e3	0.931	1.78	1.55	13.8	YES	NO	bd	bd	1.204
20	Total-pentafurans	28.27	5.097e3	3.167e3	0.931	1.61	1.55	20.3	YES	NO	db	db	1.881
21	Total-pentafurans	28.12	4.351e4	2.646e4	0.931	1.64	1.55	159.9	YES	NO	dd	dd	15.926
22	Total-pentafurans	28.07	1.771e4	1.157e4	0.931	1.53	1.55	88.4	YES	NO	dd	dd	6.666
23	Total-pentafurans	27.94	1.062e4	6.824e3	0.931	1.56	1.55	29.1	YES	NO	dd	dd	3.971
24	Total-pentafurans	27.75	2.751e3	1.704e3	0.931	1.61	1.55	10.4	YES	NO	bd	bd	1.014
25	23478-PeCDF	30.54	6.979e3	4.443e3	0.991	1.57	1.55	26.0	YES	NO	dd	db	2.526
26	Total-pentafurans	30.40	1.400e4	8.975e3	0.931	1.56	1.55	49.3	YES	NO	dd	dd	5.230
27	Total-pentafurans	30.27	6.482e3	4.236e3	0.931	1.53	1.55	24.9	YES	NO	dd	dd	2.439
28	Total-pentafurans	30.15	7.169e3	4.586e3	0.931	1.56	1.55	31.2	YES	NO	dd	dd	2.675
29	Total-pentafurans	29.51	2.515e3	1.609e3	0.931	1.56	1.55	11.1	YES	NO	dd	db	0.939
30	Total-pentafurans	29.41	8.306e3	5.306e3	0.931	1.57	1.55	32.7	YES	NO	bd	bd	3.098
31	Total-hexafurans	34.04	6.860e3	5.941e3	1.087	1.15	1.24	97.2	YES	NO	bd	bd	3.148
32	Total-hexafurans	33.57	3.180e4	2.556e4	1.087	1.24	1.24	447.3	YES	NO	bb	bb	14.107
33	Total-hexafurans	33.26	1.378e3	1.067e3	1.087	1.29	1.24	18.3	YES	NO	bb	bb	0.601
34	Total-hexafurans	32.72	4.989e4	4.107e4	1.087	1.21	1.24	685.7	YES	NO	bb	bb	22.373
35	123468-HXCDF	32.50	1.270e4	1.040e4	1.206	1.22	1.24	178.7	YES	NO	bb	db	5.263
36	123789-HxCDF	36.24	1.814e3	1.347e3	0.988	1.35	1.24	25.0	YES	NO	bd	MM	0.951
37	234678-HxCDF	35.23	1.165e4	9.295e3	1.081	1.25	1.24	124.1	YES	NO	bb	bb	5.167

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-hexafurans	34.69	8.367e2	6.457e2	1.087	1.30	1.24	12.8	YES	NO	db	bb	0.365
39	123678-HxCDF	34.34	6.885e3	6.232e3	1.032	1.10	1.24	100.6	YES	NO	db	db	3.023
40	123478-HxCDF	34.21	6.152e3	5.272e3	1.128	1.17	1.24	92.6	YES	NO	dd	dd	2.781
41	1234678-HpCDF	38.15	3.691e4	3.405e4	1.164	1.08	1.05	558.5	YES	NO	bd	bb	20.983
42	1234789-HpCDF	40.30	1.810e3	1.655e3	1.104	1.09	1.05	23.2	YES	NO	db	db	1.383
43	Total-heptafurans	38.80	3.228e4	3.179e4	1.134	1.02	1.05	493.3	YES	NO	bb	bb	21.834
44	OCDF	44.38	3.625e4	3.964e4	1.130	0.91	0.89	356.4	YES	NO	bd	bb	34.040
45	13468-PECDF	26.48	1.320e5	8.547e4	1.241	1.54	1.55	790.0	YES	NO	bb	bb	35.956

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.69	4.203e3	5.939e3	1.243	0.71	0.77	55.7	YES	NO	bd	bd	1.759
2	Total-tetradioxins	25.32	1.526e3	1.965e3	1.129	0.78	0.77	15.9	YES	NO	bb	bb	0.667
3	Total-tetradioxins	24.87	7.122e2	8.582e2	1.129	0.83	0.77	8.4	YES	NO	bd	bd	0.300
4	Total-tetradioxins	24.67	5.740e2	7.328e2	1.129	0.78	0.77	9.2	YES	NO	bb	db	0.250
5	Total-tetradioxins	24.31	2.709e3	3.352e3	1.129	0.81	0.77	34.3	YES	NO	bb	bb	1.157
6	Total-tetradioxins	24.04	3.279e3	4.201e3	1.129	0.78	0.77	48.8	YES	NO	bb	bd	1.428
7	Total-tetradioxins	23.12	3.730e3	4.781e3	1.129	0.78	0.77	54.8	YES	NO	bd	dd	1.625
8	1368-TCDD	22.84	8.760e3	1.065e4	1.181	0.82	0.77	121.0	YES	NO	bb	bd	3.542

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12479-PECDD	28.11	1.447e4	9.193e3	2.166	1.57	1.55	216.3	YES	NO	bb	bb	3.455
2	12389-PECDD	31.19	6.763e2	4.688e2	1.326	1.44	1.55	13.2	YES	NO	bb	bb	0.273
3	12378-PeCDD	30.80	2.672e3	1.902e3	1.150	1.41	1.55	47.9	YES	NO	bb	MM	1.258
4	Total-pentadioxins	30.12	1.614e3	9.069e2	1.548	1.78	1.55	31.8	YES	NO	bb	bb	0.515
5	Total-pentadioxins	29.55	3.865e3	2.527e3	1.548	1.53	1.55	74.1	YES	NO	dd	dd	1.307
6	Total-pentadioxins	29.42	9.608e3	5.872e3	1.548	1.64	1.55	191.5	YES	NO	dd	dd	3.165
7	Total-pentadioxins	29.21	4.594e3	2.676e3	1.548	1.72	1.55	84.7	YES	NO	dd	bd	1.486

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.87	2.167e3	1.824e3	0.804	1.19	1.24	39.2	YES	NO	bb	bb	1.234
2	Total-hexadioxins	35.63	1.308e3	1.147e3	0.943	1.14	1.24	22.6	YES	NO	db	db	0.647
3	123678-HxCDD	35.48	3.776e3	3.256e3	0.883	1.16	1.24	65.1	YES	NO	dd	dd	1.909
4	123478-HxCDD	35.36	1.455e3	1.291e3	0.960	1.13	1.24	27.3	YES	NO	bd	bd	0.739
5	Total-hexadioxins	34.45	1.341e4	1.090e4	0.943	1.23	1.24	158.5	YES	NO	bd	bd	6.407
6	Total-hexadioxins	34.09	8.633e3	6.964e3	0.943	1.24	1.24	141.8	YES	NO	bb	bb	4.110
7	124679-HXCDD	33.29	1.807e4	1.509e4	1.127	1.20	1.24	300.6	YES	NO	bb	bb	7.600

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.61	6.399e4	5.989e4	1.200	1.07	1.05	771.9	YES	NO	bd	bb	42.072
2	1234679-HPCDD	38.60	5.403e4	5.339e4	1.303	1.01	1.05	694.8	YES	NO	bb	bb	33.596

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.69	4.203e3	5.939e3	1.243	0.71	0.77	55.7	YES	NO	bd	bd	1.759
2	Total-tetradioxins	25.32	1.526e3	1.965e3	1.129	0.78	0.77	15.9	YES	NO	bb	bb	0.667
3	Total-tetradioxins	24.87	7.122e2	8.582e2	1.129	0.83	0.77	8.4	YES	NO	bd	bd	0.300
4	Total-tetradioxins	24.67	5.740e2	7.328e2	1.129	0.78	0.77	9.2	YES	NO	bb	db	0.250
5	Total-tetradioxins	24.31	2.709e3	3.352e3	1.129	0.81	0.77	34.3	YES	NO	bb	bb	1.157
6	Total-tetradioxins	24.04	3.279e3	4.201e3	1.129	0.78	0.77	48.8	YES	NO	bb	bd	1.428
7	Total-tetradioxins	23.12	3.730e3	4.781e3	1.129	0.78	0.77	54.8	YES	NO	bd	dd	1.625
8	1368-TCDD	22.84	8.760e3	1.065e4	1.181	0.82	0.77	121.0	YES	NO	bb	bd	3.542
9	12479-PECDD	28.11	1.447e4	9.193e3	2.166	1.57	1.55	216.3	YES	NO	bb	bb	3.455
10	12389-PECDD	31.19	6.763e2	4.688e2	1.326	1.44	1.55	13.2	YES	NO	bb	bb	0.273
11	12378-PeCDD	30.80	2.672e3	1.902e3	1.150	1.41	1.55	47.9	YES	NO	bb	MM	1.258
12	Total-pentadioxins	30.12	1.614e3	9.069e2	1.548	1.78	1.55	31.8	YES	NO	bb	bb	0.515
13	Total-pentadioxins	29.55	3.865e3	2.527e3	1.548	1.53	1.55	74.1	YES	NO	dd	dd	1.307
14	Total-pentadioxins	29.42	9.608e3	5.872e3	1.548	1.64	1.55	191.5	YES	NO	dd	dd	3.165
15	Total-pentadioxins	29.21	4.594e3	2.676e3	1.548	1.72	1.55	84.7	YES	NO	dd	bd	1.486
16	123789-HxCDD	35.87	2.167e3	1.824e3	0.804	1.19	1.24	39.2	YES	NO	bb	bb	1.234
17	Total-hexadioxins	35.63	1.308e3	1.147e3	0.943	1.14	1.24	22.6	YES	NO	db	db	0.647
18	123678-HxCDD	35.48	3.776e3	3.256e3	0.883	1.16	1.24	65.1	YES	NO	dd	dd	1.909
19	123478-HxCDD	35.36	1.455e3	1.291e3	0.960	1.13	1.24	27.3	YES	NO	bd	bd	0.739
20	Total-hexadioxins	34.45	1.341e4	1.090e4	0.943	1.23	1.24	158.5	YES	NO	bd	bd	6.407
21	Total-hexadioxins	34.09	8.633e3	6.964e3	0.943	1.24	1.24	141.8	YES	NO	bb	bb	4.110
22	124679-HXCDD	33.29	1.807e4	1.509e4	1.127	1.20	1.24	300.6	YES	NO	bb	bb	7.600
23	1234678-HpCDD	39.61	6.399e4	5.989e4	1.200	1.07	1.05	771.9	YES	NO	bd	bb	42.072
24	1234679-HPCDD	38.60	5.403e4	5.339e4	1.303	1.01	1.05	694.8	YES	NO	bb	bb	33.596
25	OCDD	44.16	3.974e5	4.533e5	1.059	0.88	0.89	3289.9	YES	NO	bd	bd	407.333

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.06	1.836e4	2.437e4	0.973	0.75	0.77	40.6	YES	NO	bd	bd	7.334
2	Total-tetrafurans	22.81	8.657e3	1.045e4	0.973	0.83	0.77	21.4	YES	NO	dd	dd	3.279
3	Total-tetrafurans	22.58	8.666e3	1.139e4	0.973	0.76	0.77	11.9	YES	NO	dd	dd	3.442
4	Total-tetrafurans	22.40	2.805e4	3.438e4	0.973	0.82	0.77	66.6	YES	NO	bd	bd	10.714
5	Total-tetrafurans	21.57	4.554e3	6.828e3	0.973	0.67	0.77	9.2	YES	NO	dd	dd	1.954
6	Total-Furans	21.32	4.644e3	6.909e3	1.053	0.67	0.77	9.5	YES	NO	dd	dd	1.834
7	Total-Furans	21.16	5.755e3	6.970e3	1.053	0.83	0.77	11.7	YES	NO	bd	bd	2.020
8	Total-tetrafurans	25.45	6.800e3	8.065e3	0.973	0.84	0.77	11.8	YES	NO	db	db	2.551
9	Total-tetrafurans	24.86	4.677e4	5.566e4	0.973	0.84	0.77	118.9	YES	NO	bb	db	17.581
10	Total-tetrafurans	24.72	4.702e3	6.631e3	0.973	0.71	0.77	13.8	YES	NO	bb	bd	1.945
11	Total-tetrafurans	24.55	4.465e3	5.190e3	0.973	0.86	0.77	9.8	YES	NO	db	db	1.657
12	Total-tetrafurans	24.38	6.085e3	7.605e3	0.973	0.80	0.77	11.2	YES	NO	bd	bd	2.350
13	Total-tetrafurans	24.14	4.330e3	6.163e3	0.973	0.70	0.77	11.8	YES	NO	bb	dd	1.801
14	Total-tetrafurans	23.97	1.609e4	2.160e4	0.973	0.74	0.77	40.5	YES	NO	bb	dd	6.469
15	Total-tetrafurans	23.81	4.704e3	6.631e3	0.973	0.71	0.77	10.6	YES	NO	db	dd	1.945
16	Total-tetrafurans	26.10	2.284e3	2.971e3	0.973	0.77	0.77	5.1	YES	NO	db	dd	0.902
17	12378-PeCDF	29.21	3.730e3	2.519e3	0.923	1.48	1.55	13.8	YES	NO	db	bb	1.389
18	Total-pentafurans	28.84	2.162e4	1.305e4	0.931	1.66	1.55	69.3	YES	NO	dd	db	7.891
19	Total-pentafurans	28.61	3.385e3	1.906e3	0.931	1.78	1.55	13.8	YES	NO	bd	bd	1.204
20	Total-pentafurans	28.27	5.097e3	3.167e3	0.931	1.61	1.55	20.3	YES	NO	db	db	1.881
21	Total-pentafurans	28.12	4.351e4	2.646e4	0.931	1.64	1.55	159.9	YES	NO	dd	dd	15.926
22	Total-pentafurans	28.07	1.771e4	1.157e4	0.931	1.53	1.55	88.4	YES	NO	dd	dd	6.666
23	Total-pentafurans	27.94	1.062e4	6.824e3	0.931	1.56	1.55	29.1	YES	NO	dd	dd	3.971
24	Total-pentafurans	27.75	2.751e3	1.704e3	0.931	1.61	1.55	10.4	YES	NO	bd	bd	1.014
25	23478-PeCDF	30.54	6.979e3	4.443e3	0.991	1.57	1.55	26.0	YES	NO	dd	db	2.526
26	Total-pentafurans	30.40	1.400e4	8.975e3	0.931	1.56	1.55	49.3	YES	NO	dd	dd	5.230
27	Total-pentafurans	30.27	6.482e3	4.236e3	0.931	1.53	1.55	24.9	YES	NO	dd	dd	2.439
28	Total-pentafurans	30.15	7.169e3	4.586e3	0.931	1.56	1.55	31.2	YES	NO	dd	dd	2.675
29	Total-pentafurans	29.51	2.515e3	1.609e3	0.931	1.56	1.55	11.1	YES	NO	dd	db	0.939
30	Total-pentafurans	29.41	8.306e3	5.306e3	0.931	1.57	1.55	32.7	YES	NO	bd	bd	3.098
31	Total-hexafurans	34.04	6.860e3	5.941e3	1.087	1.15	1.24	97.2	YES	NO	bd	bd	3.148
32	Total-hexafurans	33.57	3.180e4	2.556e4	1.087	1.24	1.24	447.3	YES	NO	bb	bb	14.107
33	Total-hexafurans	33.26	1.378e3	1.067e3	1.087	1.29	1.24	18.3	YES	NO	bb	bb	0.601
34	Total-hexafurans	32.72	4.989e4	4.107e4	1.087	1.21	1.24	685.7	YES	NO	bb	bb	22.373
35	123468-HXCDF	32.50	1.270e4	1.040e4	1.206	1.22	1.24	178.7	YES	NO	bb	db	5.263
36	123789-HxCDF	36.24	1.814e3	1.347e3	0.988	1.35	1.24	25.0	YES	NO	bd	MM	0.951
37	234678-HxCDF	35.23	1.165e4	9.295e3	1.081	1.25	1.24	124.1	YES	NO	bb	bb	5.167

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-hexafurans	34.69	8.367e2	6.457e2	1.087	1.30	1.24	12.8	YES	NO	db	bb	0.365
39	123678-HxCDF	34.34	6.885e3	6.232e3	1.032	1.10	1.24	100.6	YES	NO	db	db	3.023
40	123478-HxCDF	34.21	6.152e3	5.272e3	1.128	1.17	1.24	92.6	YES	NO	dd	dd	2.781
41	1234678-HpCDF	38.15	3.691e4	3.405e4	1.164	1.08	1.05	558.5	YES	NO	bd	bb	20.983
42	1234789-HpCDF	40.30	1.810e3	1.655e3	1.104	1.09	1.05	23.2	YES	NO	db	db	1.383
43	Total-heptafurans	38.80	3.228e4	3.179e4	1.134	1.02	1.05	493.3	YES	NO	bb	bb	21.834
44	OCDF	44.38	3.625e4	3.964e4	1.130	0.91	0.89	356.4	YES	NO	bd	bb	34.040
45	13468-PECDF	26.48	1.320e5	8.547e4	1.241	1.54	1.55	790.0	YES	NO	bb	bb	35.956
46	2378-TCDD	25.69	4.203e3	5.939e3	1.243	0.71	0.77	55.7	YES	NO	bd	bd	1.759
47	Total-tetradioxins	25.32	1.526e3	1.965e3	1.129	0.78	0.77	15.9	YES	NO	bb	bb	0.667
48	Total-tetradioxins	24.87	7.122e2	8.582e2	1.129	0.83	0.77	8.4	YES	NO	bd	bd	0.300
49	Total-tetradioxins	24.67	5.740e2	7.328e2	1.129	0.78	0.77	9.2	YES	NO	bb	db	0.250
50	Total-tetradioxins	24.31	2.709e3	3.352e3	1.129	0.81	0.77	34.3	YES	NO	bb	bb	1.157
51	Total-tetradioxins	24.04	3.279e3	4.201e3	1.129	0.78	0.77	48.8	YES	NO	bb	bd	1.428
52	Total-tetradioxins	23.12	3.730e3	4.781e3	1.129	0.78	0.77	54.8	YES	NO	bd	dd	1.625
53	1368-TCDD	22.84	8.760e3	1.065e4	1.181	0.82	0.77	121.0	YES	NO	bb	bd	3.542
54	12479-PECDD	28.11	1.447e4	9.193e3	2.166	1.57	1.55	216.3	YES	NO	bb	bb	3.455
55	12389-PECDD	31.19	6.763e2	4.688e2	1.326	1.44	1.55	13.2	YES	NO	bb	bb	0.273
56	12378-PeCDD	30.80	2.672e3	1.902e3	1.150	1.41	1.55	47.9	YES	NO	bb	MM	1.258
57	Total-pentadioxins	30.12	1.614e3	9.069e2	1.548	1.78	1.55	31.8	YES	NO	bb	bb	0.515
58	Total-pentadioxins	29.55	3.865e3	2.527e3	1.548	1.53	1.55	74.1	YES	NO	dd	dd	1.307
59	Total-pentadioxins	29.42	9.608e3	5.872e3	1.548	1.64	1.55	191.5	YES	NO	dd	dd	3.165
60	Total-pentadioxins	29.21	4.594e3	2.676e3	1.548	1.72	1.55	84.7	YES	NO	dd	bd	1.486
61	123789-HxCDD	35.87	2.167e3	1.824e3	0.804	1.19	1.24	39.2	YES	NO	bb	bb	1.234
62	Total-hexadioxins	35.63	1.308e3	1.147e3	0.943	1.14	1.24	22.6	YES	NO	db	db	0.647
63	123678-HxCDD	35.48	3.776e3	3.256e3	0.883	1.16	1.24	65.1	YES	NO	dd	dd	1.909
64	123478-HxCDD	35.36	1.455e3	1.291e3	0.960	1.13	1.24	27.3	YES	NO	bd	bd	0.739
65	Total-hexadioxins	34.45	1.341e4	1.090e4	0.943	1.23	1.24	158.5	YES	NO	bd	bd	6.407
66	Total-hexadioxins	34.09	8.633e3	6.964e3	0.943	1.24	1.24	141.8	YES	NO	bb	bb	4.110
67	124679-HXCDD	33.29	1.807e4	1.509e4	1.127	1.20	1.24	300.6	YES	NO	bb	bb	7.600
68	1234678-HpCDD	39.61	6.399e4	5.989e4	1.200	1.07	1.05	771.9	YES	NO	bd	bb	42.072
69	1234679-HPCDD	38.60	5.403e4	5.339e4	1.303	1.01	1.05	694.8	YES	NO	bb	bb	33.596
70	OCDD	44.16	3.974e5	4.533e5	1.059	0.88	0.89	3289.9	YES	NO	bd	bd	407.333

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.30	5.268e4					3.3	YES		db		
2	FUNCTION1 PFK	21.27	8.307e4					3.6	YES		dd		
3	FUNCTION1 PFK	21.21	7.428e4					3.3	YES		bd		
4	FUNCTION1 PFK	21.13	2.426e4					1.8	NO		bb		
5	FUNCTION1 PFK	23.34	4.992e3					0.5	NO		bb		
6	FUNCTION1 PFK	23.20	1.529e5					1.7	NO		db		
7	FUNCTION1 PFK	23.08	4.441e5					6.3	YES		bd		
8	FUNCTION1 PFK	22.85	4.701e5					11.5	YES		db		
9	FUNCTION1 PFK	22.79	4.341e5					12.1	YES		dd		
10	FUNCTION1 PFK	22.72	2.227e5					10.1	YES		bd		
11	FUNCTION1 PFK	22.29	1.163e6					4.1	YES		db		
12	FUNCTION1 PFK	22.19	5.946e4					2.2	NO		bd		
13	FUNCTION1 PFK	22.03	1.681e4					1.0	NO		db		
14	FUNCTION1 PFK	21.96	4.221e4					1.8	NO		bd		
15	FUNCTION1 PFK	21.85	2.851e4					1.9	NO		db		
16	FUNCTION1 PFK	21.73	1.182e5					2.7	NO		dd		
17	FUNCTION1 PFK	21.68	6.081e4					2.8	NO		dd		
18	FUNCTION1 PFK	21.58	1.478e5					4.0	YES		dd		
19	FUNCTION1 PFK	21.52	1.788e5					4.2	YES		dd		
20	FUNCTION1 PFK	21.42	1.118e5					4.1	YES		bd		
21	FUNCTION1 PFK	27.23	2.219e4					1.6	NO		bb		
22	FUNCTION1 PFK	27.03	1.725e4					1.1	NO		bb		
23	FUNCTION1 PFK	26.20	3.634e4					1.3	NO		bb		
24	FUNCTION1 PFK	26.14	1.171e4					1.0	NO		bb		
25	FUNCTION1 PFK	25.97	2.927e4					1.0	NO		bb		
26	FUNCTION1 PFK	25.35	1.419e4					0.9	NO		bb		
27	FUNCTION1 PFK	24.80	4.845e4					1.5	NO		bb		
28	FUNCTION1 PFK	23.90	1.263e4					0.8	NO		bb		
29	FUNCTION1 PFK	23.78	2.084e4					0.8	NO		bb		
30	FUNCTION1 PFK	23.61	2.239e4					1.6	NO		bb		
31	FUNCTION1 PFK	23.40	1.669e4					1.0	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	27.57	7.383e3					1.4	NO		bd		0.000
2	FUNCTION2 PFK	27.43	3.834e3					1.1	NO		bb		0.000
3	FUNCTION2 PFK	27.38	1.809e3					0.7	NO		db		0.000
4	FUNCTION2 PFK	27.34	1.027e4					1.9	NO		bd		0.000
5	FUNCTION2 PFK	29.08	1.476e4					1.7	NO		db		0.000
6	FUNCTION2 PFK	28.99	2.817e4					2.8	NO		dd		0.000
7	FUNCTION2 PFK	28.93	3.125e4					3.6	YES		dd		0.000
8	FUNCTION2 PFK	28.88	3.158e4					3.4	YES		dd		0.000
9	FUNCTION2 PFK	28.82	1.926e4					3.1	YES		dd		0.000
10	FUNCTION2 PFK	28.73	5.142e4					4.2	YES		dd		0.000
11	FUNCTION2 PFK	28.68	2.879e4					3.9	YES		dd		0.000
12	FUNCTION2 PFK	28.63	2.205e4					3.0	YES		bd		0.000
13	FUNCTION2 PFK	28.49	6.044e4					4.7	YES		db		0.000
14	FUNCTION2 PFK	28.39	6.581e4					3.4	YES		dd		0.000
15	FUNCTION2 PFK	28.31	1.054e4					1.8	NO		bd		0.000
16	FUNCTION2 PFK	28.02	8.839e2					0.5	NO		bb		0.000
17	FUNCTION2 PFK	27.88	1.131e4					1.4	NO		db		0.000
18	FUNCTION2 PFK	27.83	2.280e3					0.7	NO		bd		0.000
19	FUNCTION2 PFK	27.68	2.265e4					2.8	NO		db		0.000
20	FUNCTION2 PFK	27.62	2.464e4					2.8	NO		dd		0.000
21	FUNCTION2 PFK	30.99	6.850e3					1.2	NO		bb		0.000
22	FUNCTION2 PFK	30.91	9.009e3					1.4	NO		bb		0.000
23	FUNCTION2 PFK	30.68	2.824e3					1.0	NO		db		0.000
24	FUNCTION2 PFK	30.64	9.528e3					1.5	NO		dd		0.000
25	FUNCTION2 PFK	30.55	2.403e4					2.5	NO		bd		0.000
26	FUNCTION2 PFK	30.40	2.652e4					2.1	NO		db		0.000
27	FUNCTION2 PFK	30.34	3.321e3					0.9	NO		bd		0.000
28	FUNCTION2 PFK	30.12	1.582e3					0.5	NO		bb		0.000
29	FUNCTION2 PFK	29.99	5.211e3					1.1	NO		bb		0.000
30	FUNCTION2 PFK	29.78	1.844e4					1.2	NO		bb		0.000
31	FUNCTION2 PFK	29.58	3.160e3					0.9	NO		db		0.000
32	FUNCTION2 PFK	29.55	3.650e3					0.8	NO		bd		0.000
33	FUNCTION2 PFK	29.48	8.229e3					1.8	NO		db		0.000
34	FUNCTION2 PFK	29.45	8.461e3					1.6	NO		bd		0.000
35	FUNCTION2 PFK	29.28	8.702e3					1.7	NO		bb		0.000
36	FUNCTION2 PFK	29.23	2.426e3					0.6	NO		bb		0.000
37	FUNCTION2 PFK	31.99	7.360e4					2.1	NO		bb		0.000

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION2 PFK	31.73	1.523e5					5.5	YES		db		0.000
39	FUNCTION2 PFK	31.53	8.860e3					2.0	NO		bd		0.000
40	FUNCTION2 PFK	31.44	3.409e3					0.9	NO		bb		0.000
41	FUNCTION2 PFK	31.38	2.266e3					0.7	NO		bb		0.000
42	FUNCTION2 PFK	31.13	5.928e3					1.2	NO		db		0.000
43	FUNCTION2 PFK	31.10	5.296e3					1.4	NO		bd		0.000
44	FUNCTION2 PFK	31.04	7.746e3					1.8	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.03	4.793e5					3.5	YES		bb		0.000
2	FUNCTION3 PFK	36.74	4.159e5					11.5	YES		db		0.000
3	FUNCTION3 PFK	36.67	4.184e5					12.1	YES		bd		0.000
4	FUNCTION3 PFK	36.53	5.705e5					9.7	YES		bb		0.000
5	FUNCTION3 PFK	35.23	2.060e5					4.9	YES		bb		0.000
6	FUNCTION3 PFK	34.32	1.282e5					2.9	NO		bb		0.000
7	FUNCTION3 PFK	33.65	6.646e3					0.7	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	39.20	5.188e5					12.1	YES		bb		
2	FUNCTION4 PFK	38.55	1.599e4					2.6	NO		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.61	2.152e4					1.9	NO		bb		
2	FUNCTION5 PFK	45.31	4.445e3					1.4	NO		bb		
3	FUNCTION5 PFK	45.06	1.064e4					2.4	NO		bb		
4	FUNCTION5 PFK	44.70	1.177e3					0.8	NO		bb		
5	FUNCTION5 PFK	44.26	7.900e2					0.5	NO		bb		
6	FUNCTION5 PFK	43.71	8.941e2					0.6	NO		bb		
7	FUNCTION5 PFK	43.59	1.628e3					0.7	NO		bb		
8	FUNCTION5 PFK	43.47	4.853e3					1.4	NO		bb		
9	FUNCTION5 PFK	43.09	3.970e3					0.8	NO		bb		
10	FUNCTION5 PFK	42.67	1.143e3					0.8	NO		bb		
11	FUNCTION5 PFK	42.64	3.218e3					1.1	NO		bb		
12	FUNCTION5 PFK	42.58	2.442e3					1.6	NO		bb		
13	FUNCTION5 PFK	45.75	3.689e3					1.1	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	23.08	7.133e3					8.7	YES		bd		0.000
2	FUNCTION1 HXCD...	22.74	3.180e3					3.9	YES		db		0.000
3	FUNCTION1 HXCD...	22.62	7.135e3					9.5	YES		dd		0.000
4	FUNCTION1 HXCD...	22.57	1.556e4					17.5	YES		dd		0.000
5	FUNCTION1 HXCD...	22.45	6.436e2					1.0	NO		dd		0.000
6	FUNCTION1 HXCD...	22.34	4.712e3					3.7	YES		dd		0.000
7	FUNCTION1 HXCD...	22.20	6.277e3					6.4	YES		dd		0.000
8	FUNCTION1 HXCD...	22.07	2.067e3					2.5	NO		bd		0.000
9	FUNCTION1 HXCD...	21.90	8.456e2					0.9	NO		db		0.000
10	FUNCTION1 HXCD...	21.76	5.776e3					4.6	YES		dd		0.000
11	FUNCTION1 HXCD...	21.61	1.035e5					140.1	YES		dd		0.000
12	FUNCTION1 HXCD...	21.45	5.269e4					65.8	YES		dd		0.000
13	FUNCTION1 HXCD...	21.31	1.509e4					14.5	YES		dd		0.000
14	FUNCTION1 HXCD...	21.14	5.326e4					61.6	YES		bd		0.000
15	FUNCTION1 HXCD...	25.21	2.109e3					1.8	NO		dd		0.000
16	FUNCTION1 HXCD...	25.08	3.330e3					3.8	YES		dd		0.000
17	FUNCTION1 HXCD...	24.94	9.295e2					1.3	NO		dd		0.000
18	FUNCTION1 HXCD...	24.84	1.308e4					15.9	YES		dd		0.000
19	FUNCTION1 HXCD...	24.70	1.775e3					1.8	NO		dd		0.000
20	FUNCTION1 HXCD...	24.52	2.284e3					2.1	NO		dd		0.000
21	FUNCTION1 HXCD...	24.42	1.274e3					2.1	NO		dd		0.000
22	FUNCTION1 HXCD...	24.29	1.187e4					11.2	YES		dd		0.000
23	FUNCTION1 HXCD...	24.11	2.049e4					24.5	YES		dd		0.000
24	FUNCTION1 HXCD...	23.99	3.759e3					4.2	YES		bd		0.000
25	FUNCTION1 HXCD...	23.78	1.683e3					1.8	NO		db		0.000
26	FUNCTION1 HXCD...	23.61	3.313e3					3.8	YES		dd		0.000
27	FUNCTION1 HXCD...	23.51	1.842e3					1.6	NO		dd		0.000
28	FUNCTION1 HXCD...	23.33	7.974e3					9.4	YES		dd		0.000
29	FUNCTION1 HXCD...	23.26	8.155e2					1.8	NO		dd		0.000
30	FUNCTION1 HXCD...	23.13	5.003e3					6.8	YES		dd		0.000
31	FUNCTION1 HXCD...	27.19	1.196e3					1.8	NO		bb		0.000
32	FUNCTION1 HXCD...	26.95	3.825e3					2.5	NO		db		0.000
33	FUNCTION1 HXCD...	26.78	7.843e2					0.9	NO		bd		0.000
34	FUNCTION1 HXCD...	26.61	1.041e3					1.1	NO		db		0.000
35	FUNCTION1 HXCD...	26.51	1.847e2					0.4	NO		bd		0.000
36	FUNCTION1 HXCD...	26.31	7.177e2					0.6	NO		db		0.000
37	FUNCTION1 HXCD...	26.09	2.836e3					3.0	YES		dd		0.000

ID: 23L0564-04, Name: 24011813, Date: 18-Jan-2024, Time: 19:38:24, Conditions: AUTOSPEC01, User: pk

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION1 HXCD...	25.96	3.174e3					2.8	NO		bd		0.000
39	FUNCTION1 HXCD...	25.55	2.264e3					2.8	NO		db		0.000
40	FUNCTION1 HXCD...	25.44	7.248e3					8.4	YES		dd		0.000
41	FUNCTION1 HXCD...	25.35	7.395e2					1.2	NO		dd		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	29.05	4.247e2					5.7	YES		bb		0.000
2	FUNCTION2 HPCD...	28.26	2.919e3					48.8	YES		db		0.000
3	FUNCTION2 HPCD...	28.10	9.064e2					12.0	YES		bd		0.000
4	FUNCTION2 HPCD...	27.88	6.006e2					8.3	YES		bb		0.000
5	FUNCTION2 HPCD...	31.51	1.620e3					19.3	YES		bb		0.000
6	FUNCTION2 HPCD...	30.44	5.774e2					8.2	YES		bb		0.000
7	FUNCTION2 HPCD...	30.15	2.786e2					4.3	YES		bb		0.000
8	FUNCTION2 HPCD...	29.62	2.427e2					5.9	YES		bb		0.000
9	FUNCTION2 HPCD...	29.41	2.149e2					3.8	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	33.53	1.902e2					9.5	YES		bb		0.000
2	FUNCTION3 OCDPE	32.43	1.247e2					7.0	YES		db		0.000
3	FUNCTION3 OCDPE	32.39	2.407e2					15.6	YES		bd		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	39.70	7.156e1					3.9	YES		bb		0.000
2	FUNCTION4 NCDPE	37.80	1.491e3					50.7	YES		bb		0.000

ID: 23L0564-04, Name: 24011813, Date: 18-Jan-2024, Time: 19:38:24, Conditions: AUTOSPEC01, User: pk

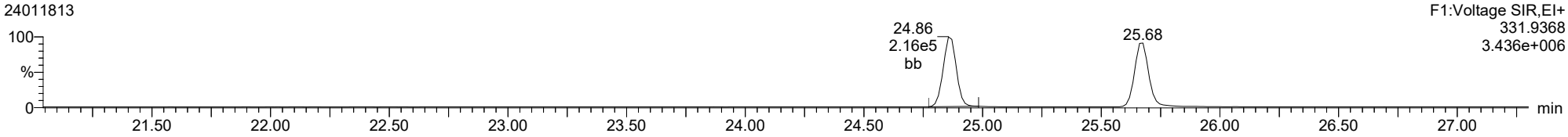
ETHERS6

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1													

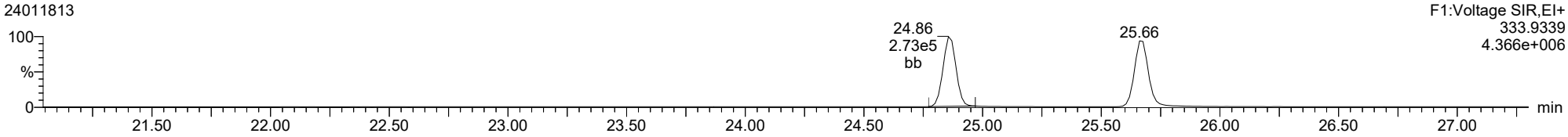
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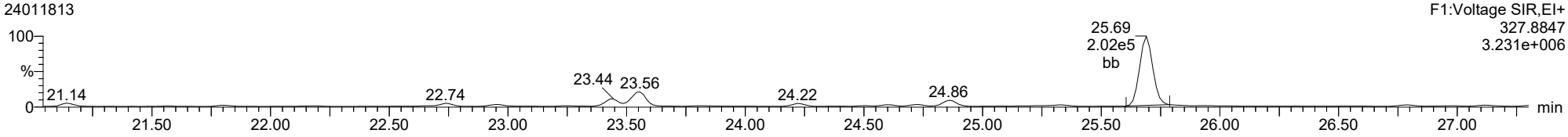
13C-1234-TCDD



13C-1234-TCDD



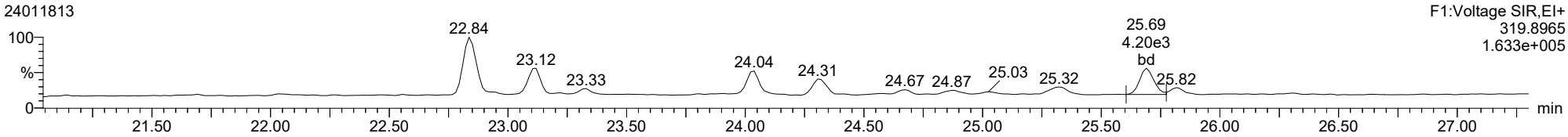
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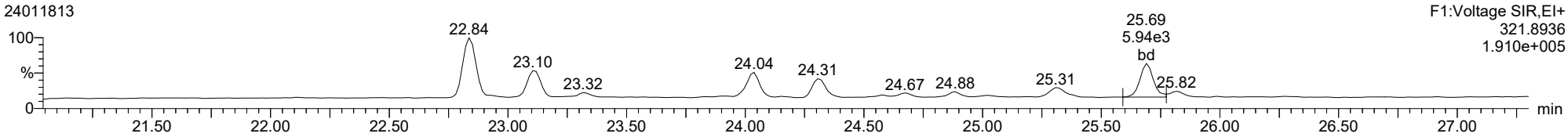
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ID: 23L0564-04, Name: 24011813, Date: 18-Jan-2024, Time: 19:38:24, Conditions: AUTOSPEC01, User: pk

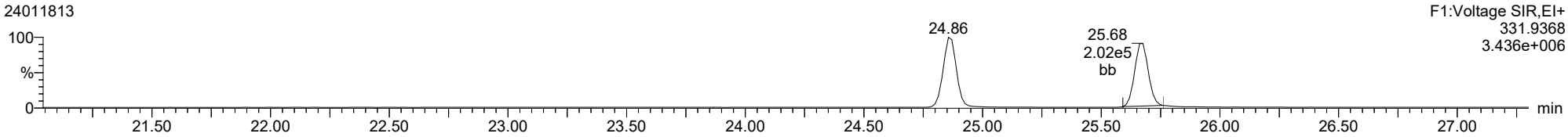
2378-TCDD



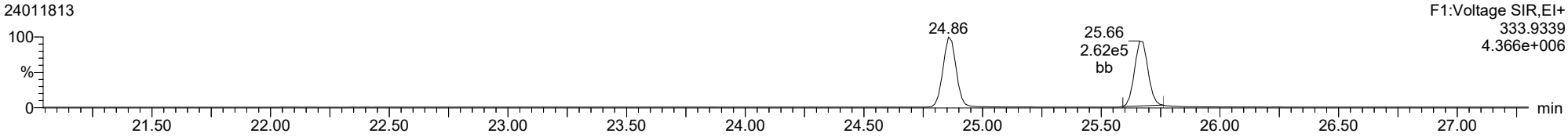
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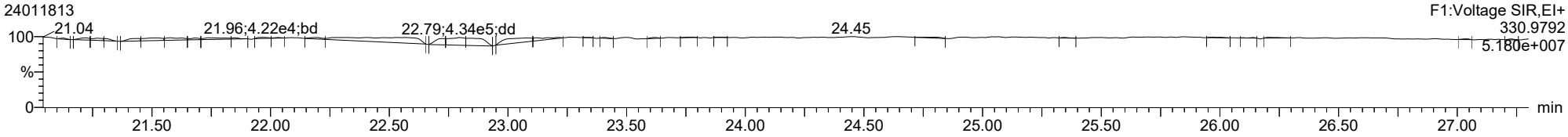
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13C-2378-TCDD

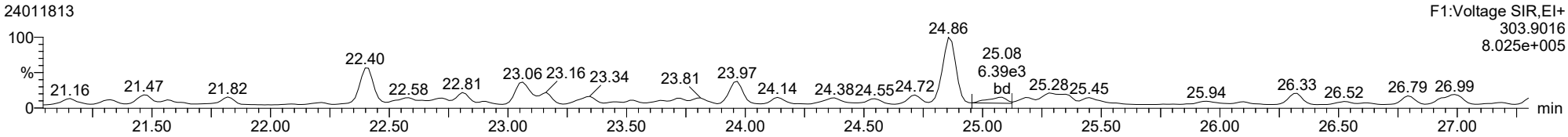


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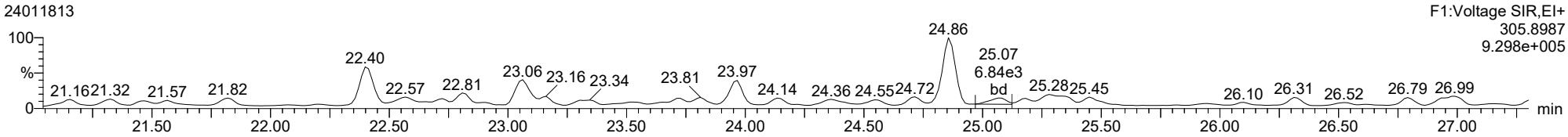


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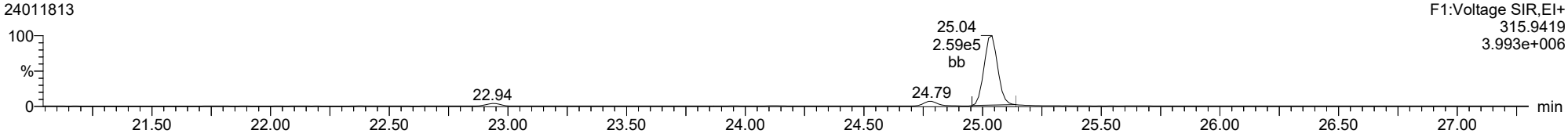
2378-TCDF



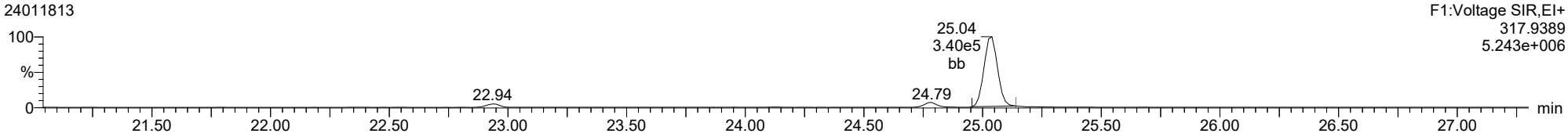
2378-TCDF



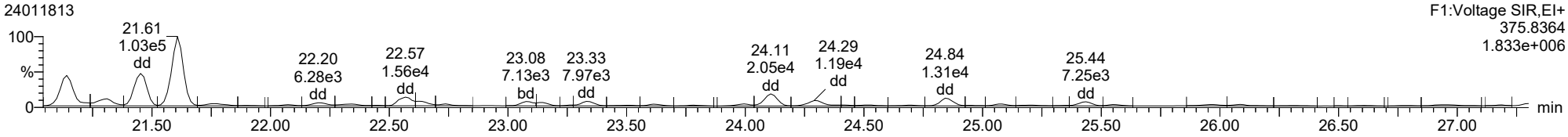
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13C-2378-TCDF

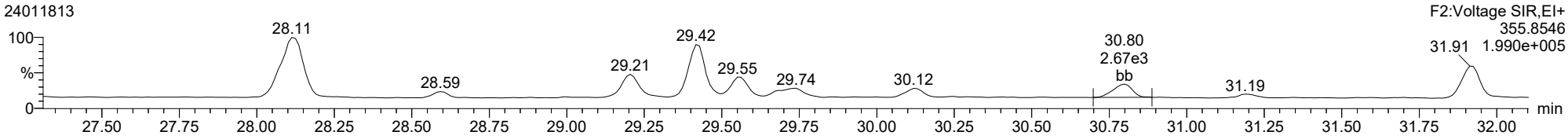


FUNCTION1 HXCDPE

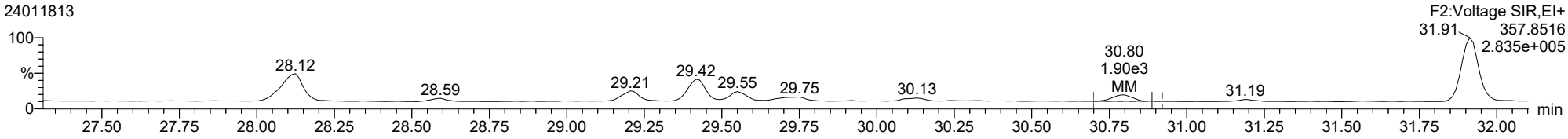


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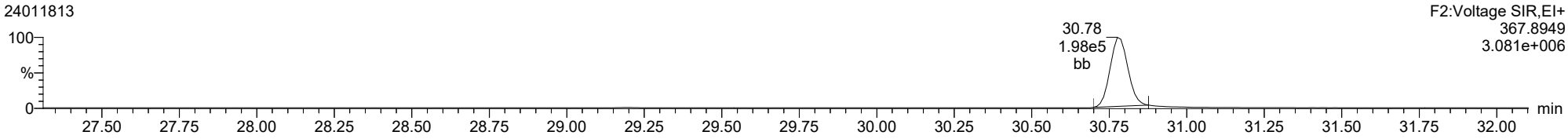
12378-PeCDD



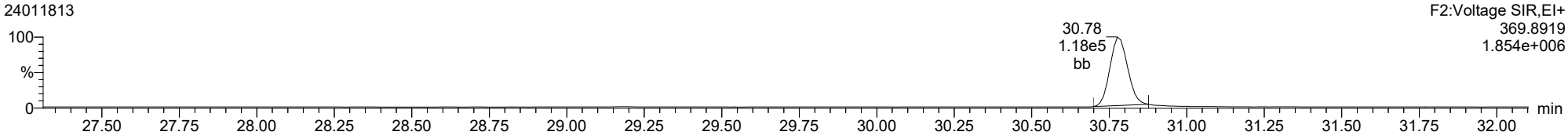
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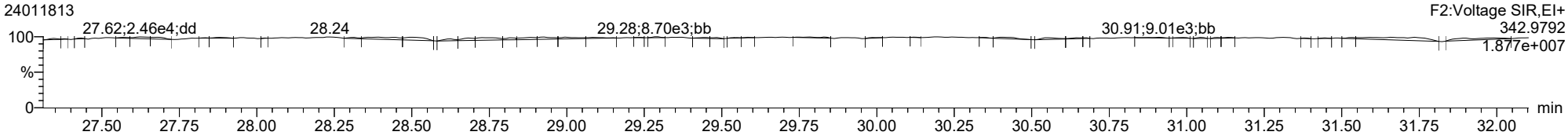
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13C-12378-PeCDD

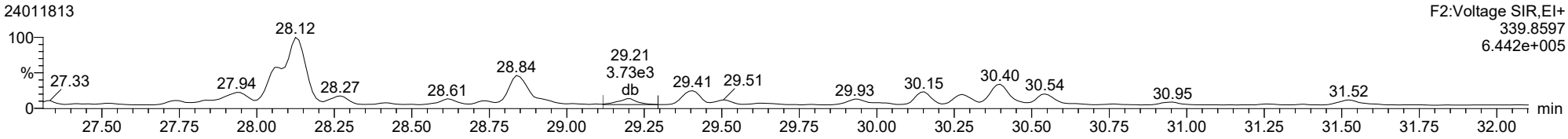


FUNCTION2 PFK

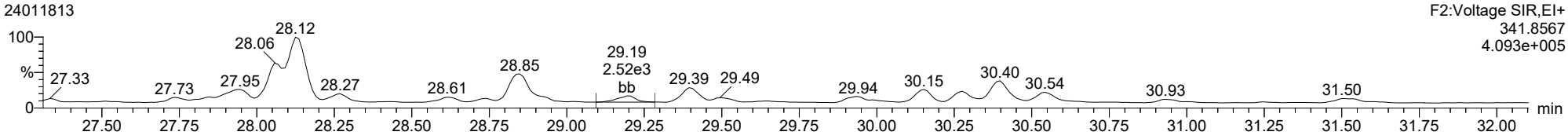


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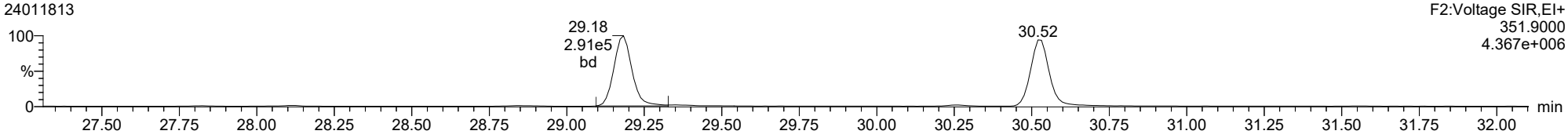
12378-PeCDF



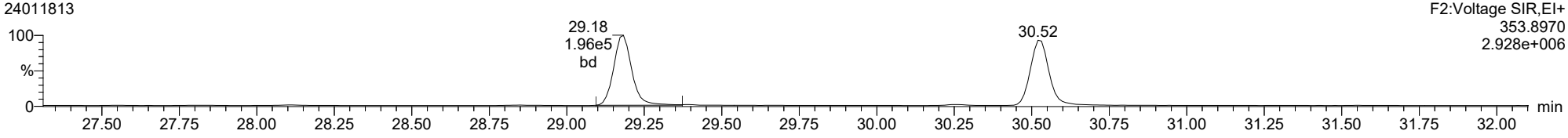
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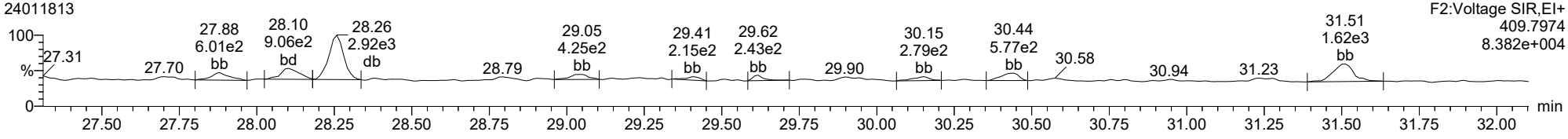
13C-12378-PeCDF



13C-12378-PeCDF

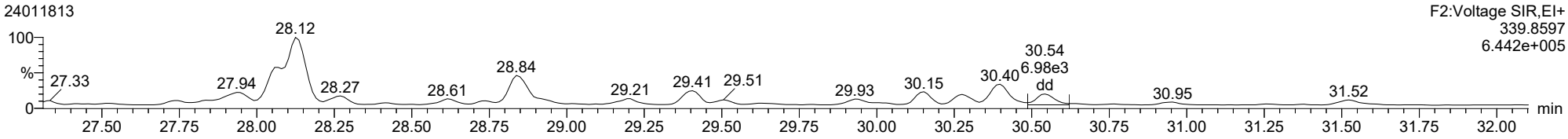


FUNCTION2 HPCDPE

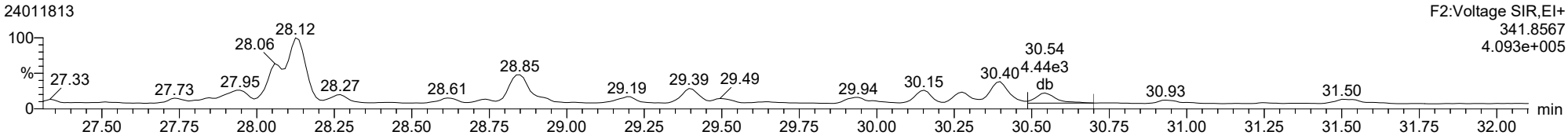


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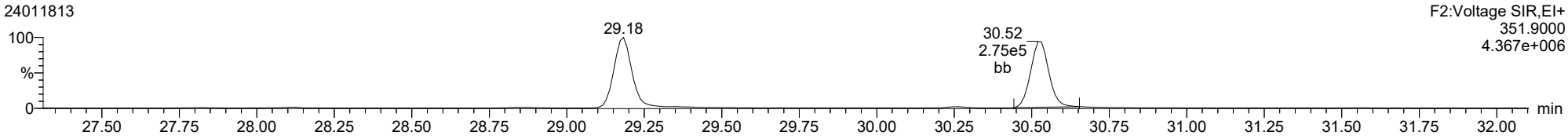
23478-PeCDF



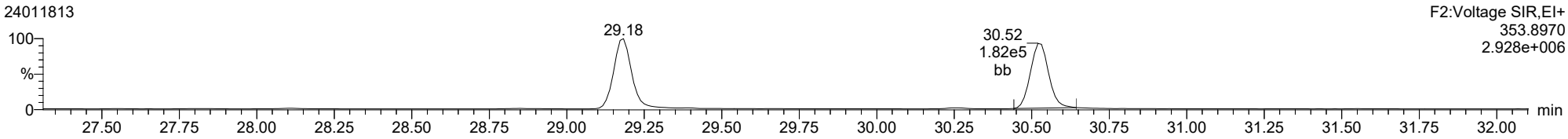
23478-PeCDF



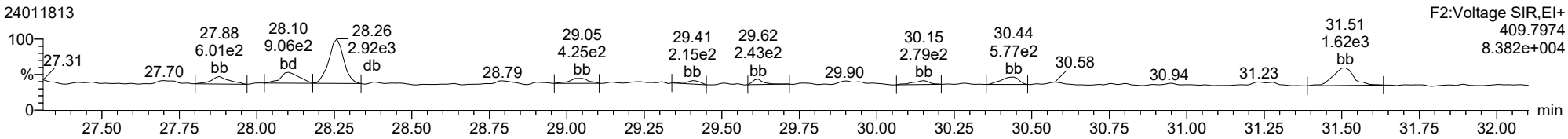
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13C-23478-PeCDF

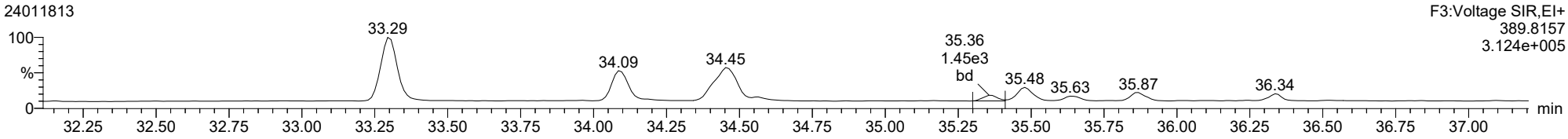


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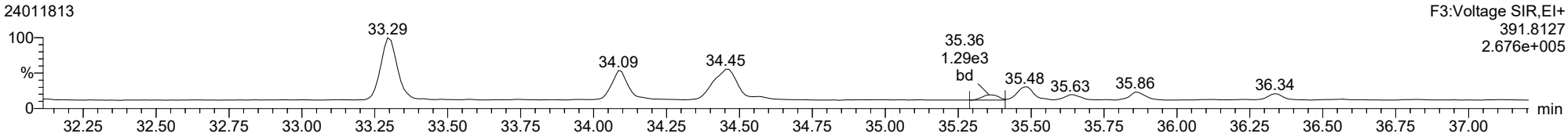


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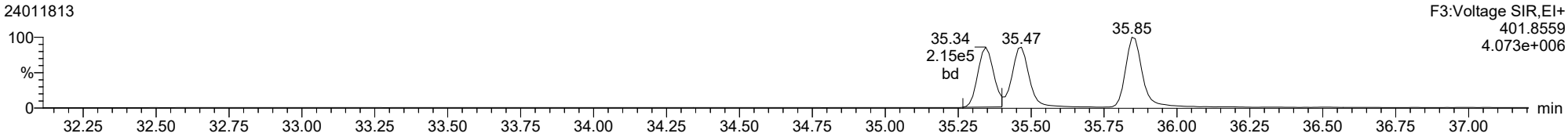
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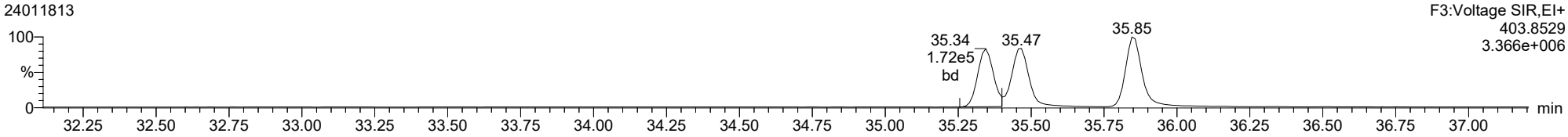
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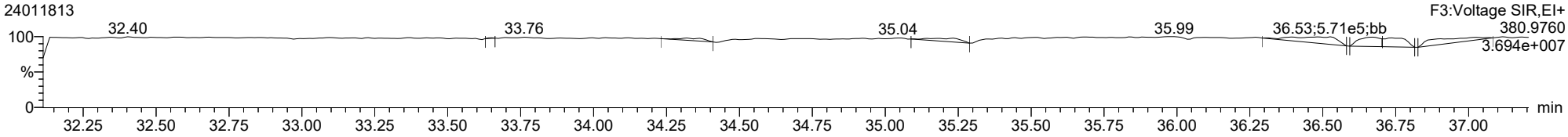
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13C-123478-HxCDD



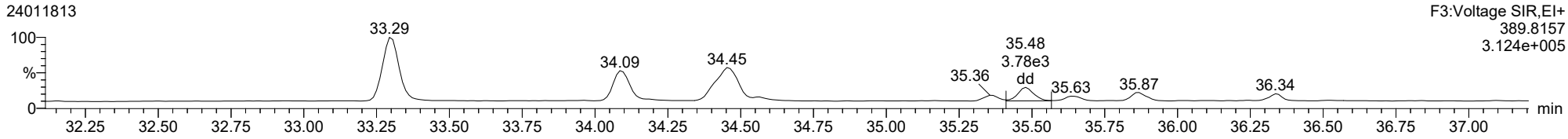
FUNCTION3 PFK



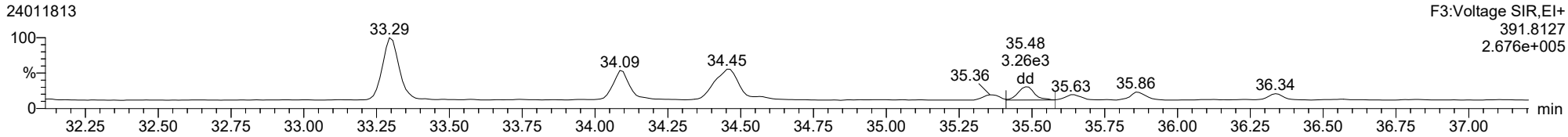
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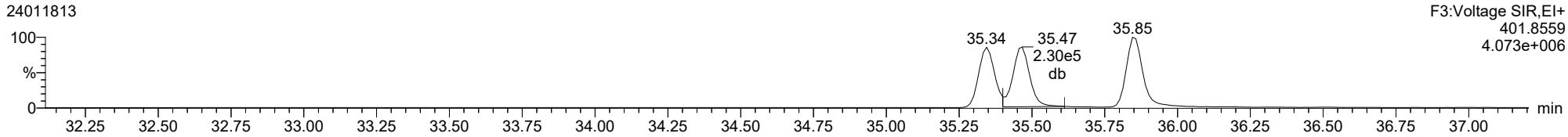
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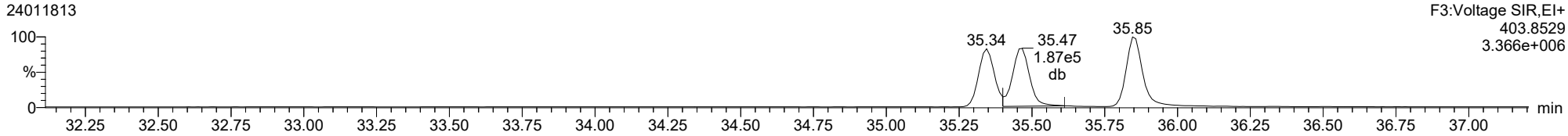
123678-HxCDD



13C-123678-HxCDD



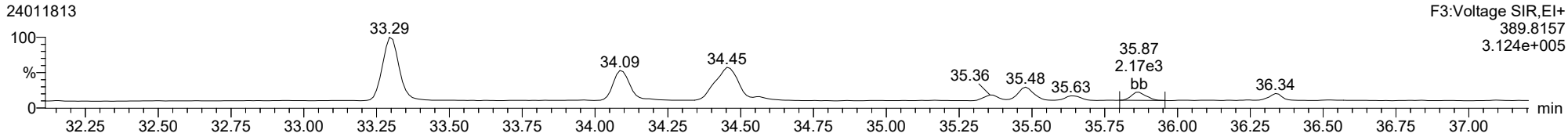
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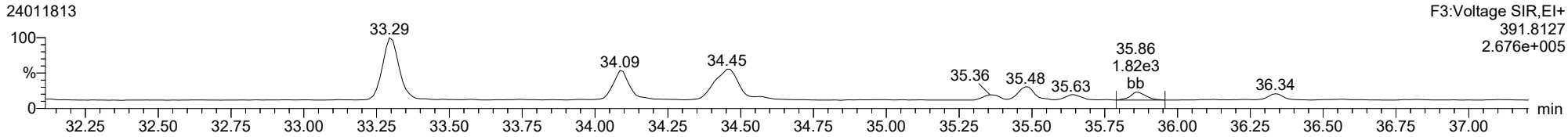
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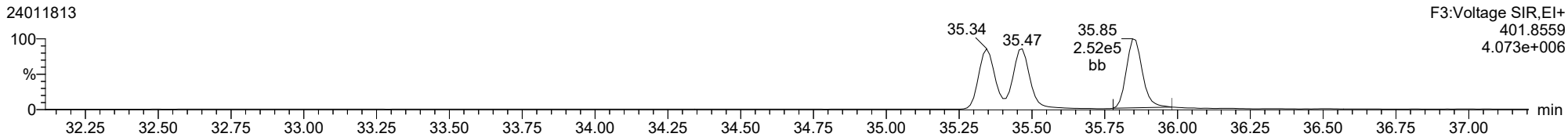
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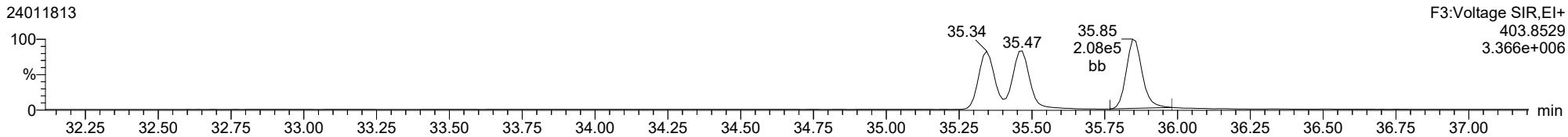
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13C-123789-HxCDD

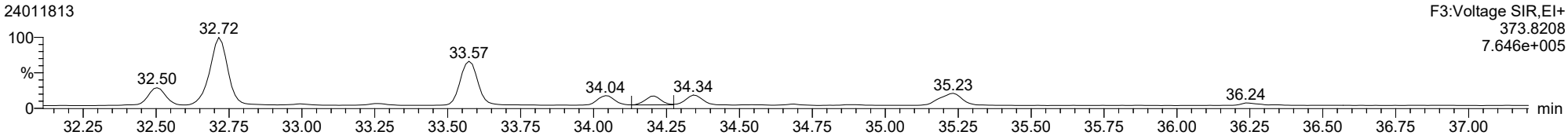


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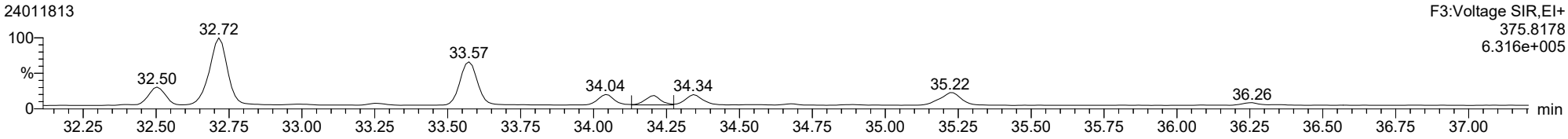


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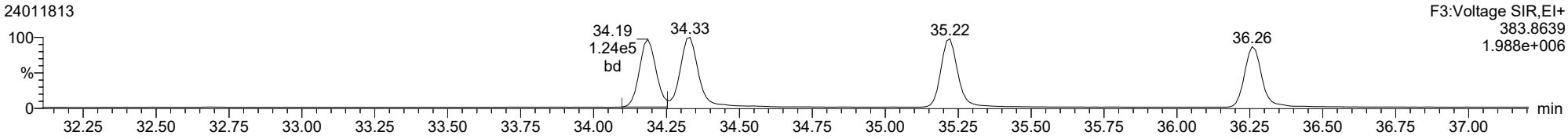
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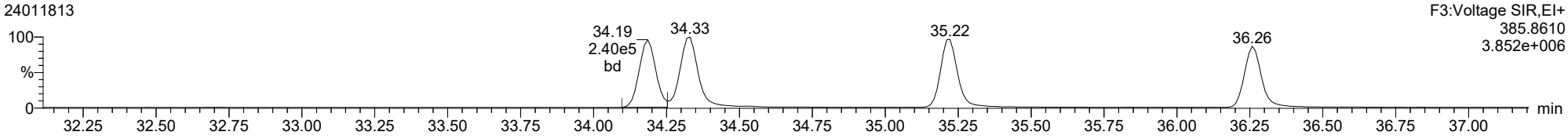
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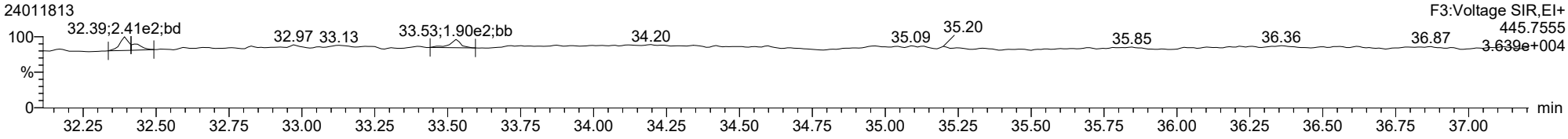
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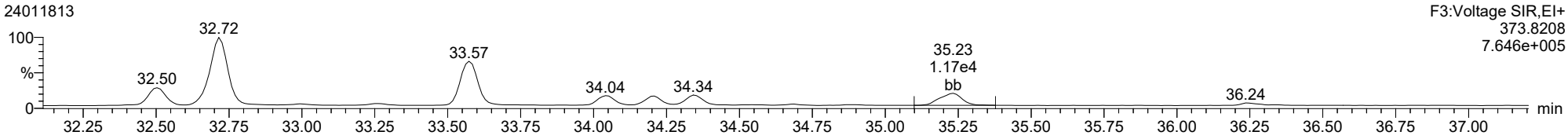


FUNCTION3 OCDPE

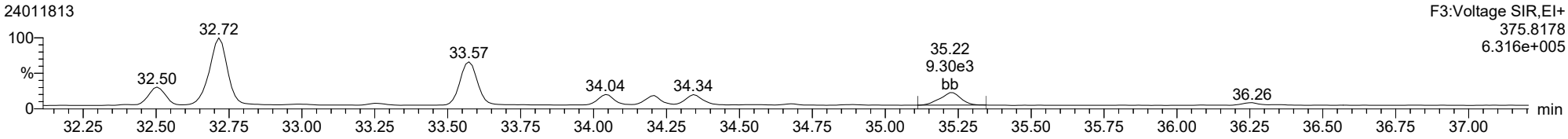


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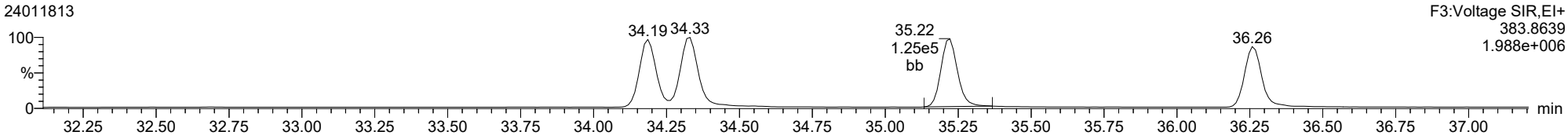
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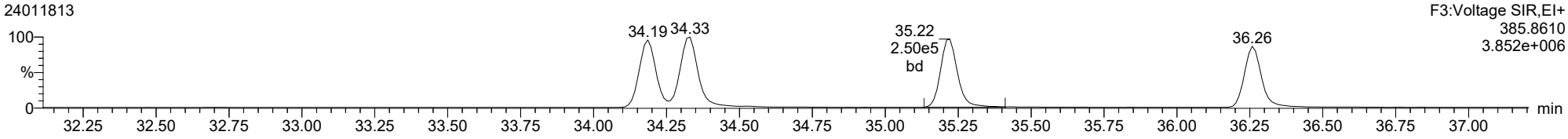
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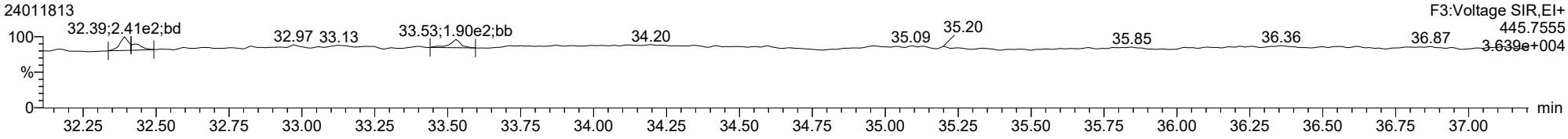
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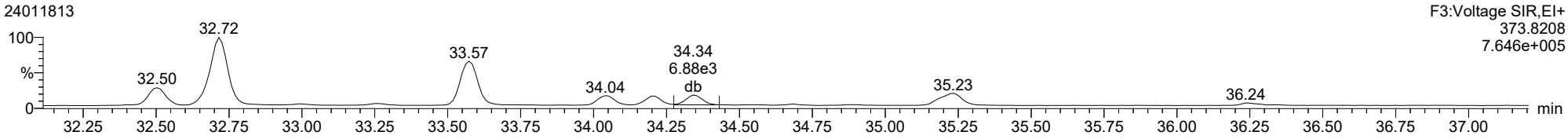


FUNCTION3 OCDPE

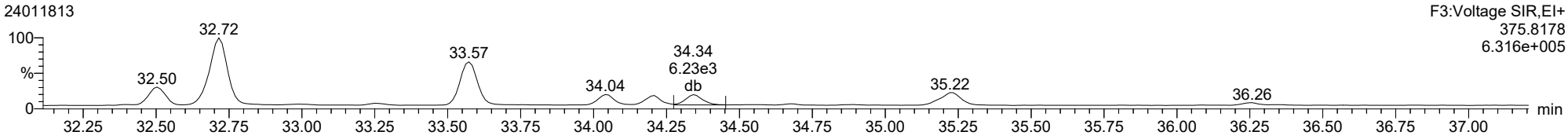


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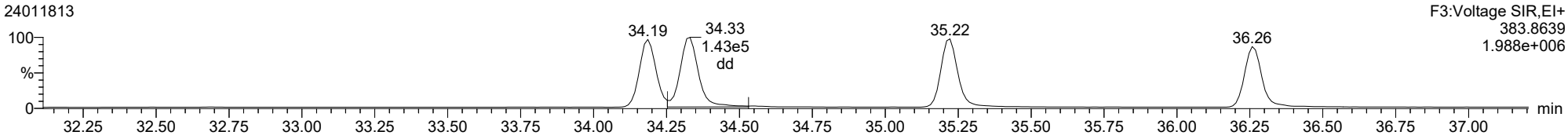
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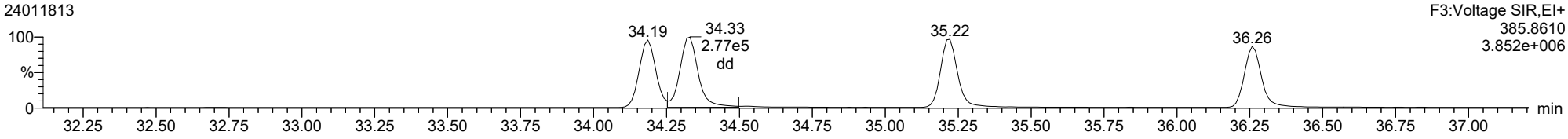
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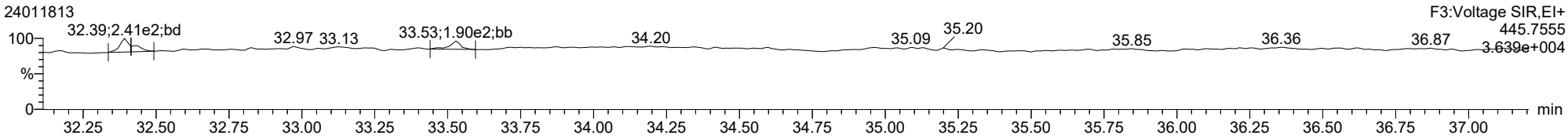
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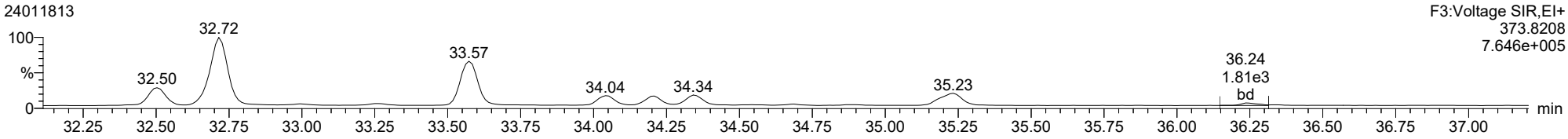


FUNCTION3 OCDPE

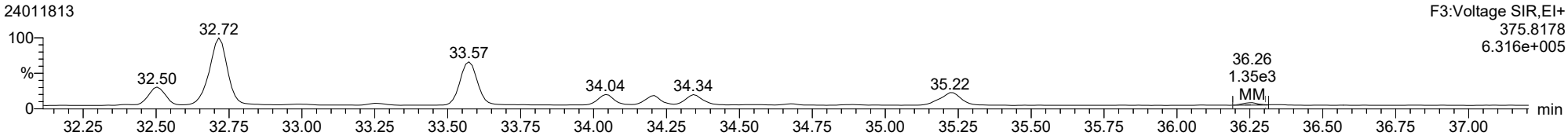


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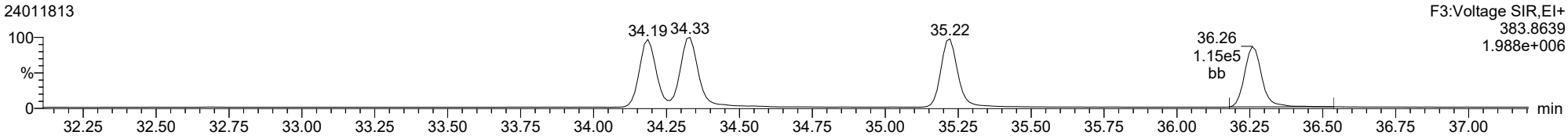
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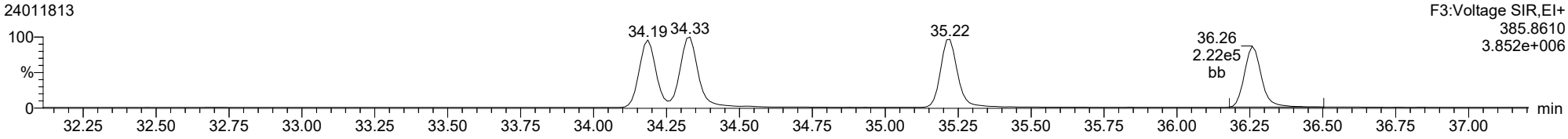
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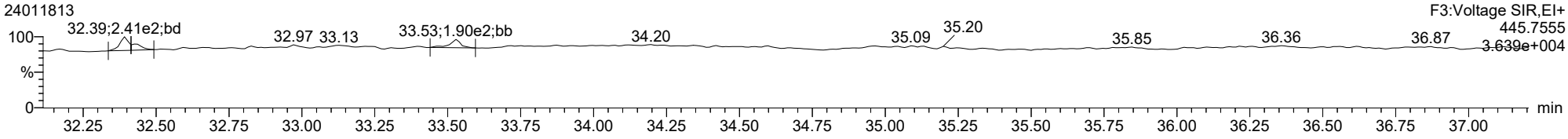
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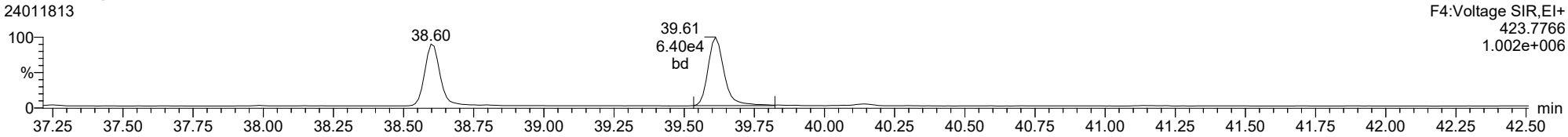


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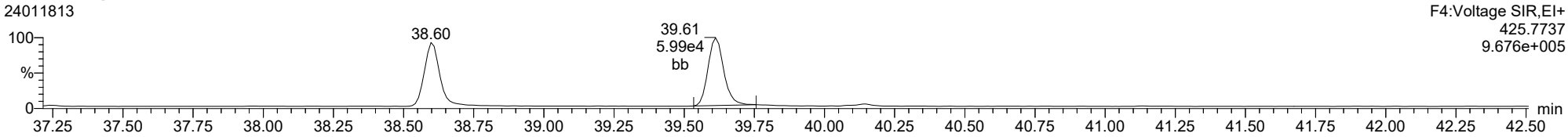


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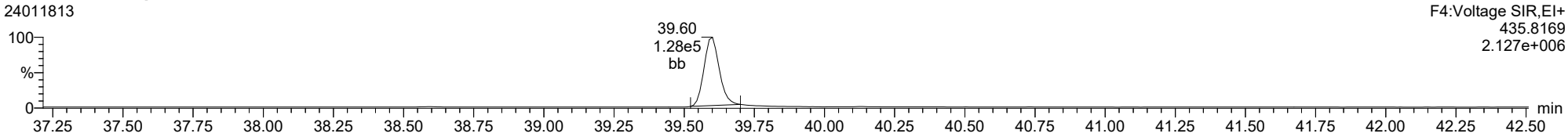
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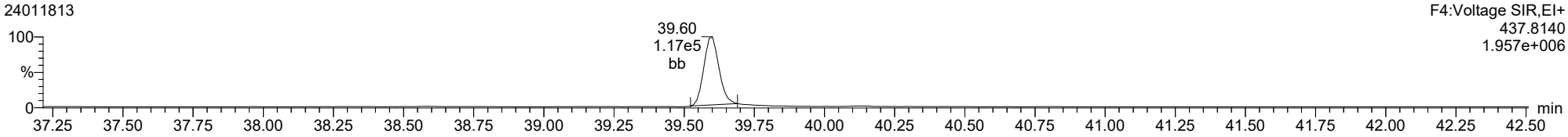
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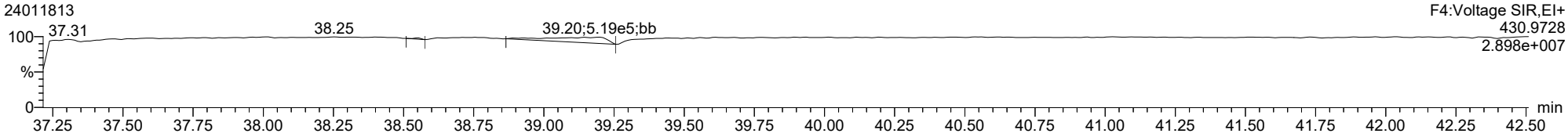
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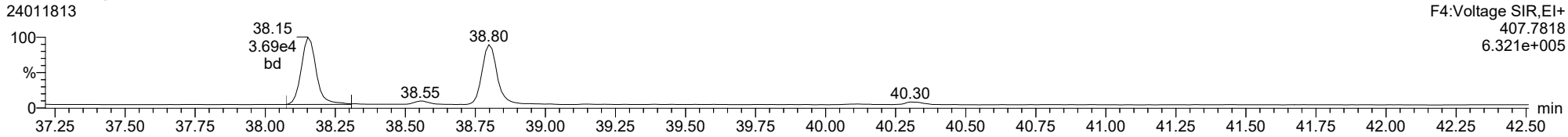


FUNCTION4 PFK

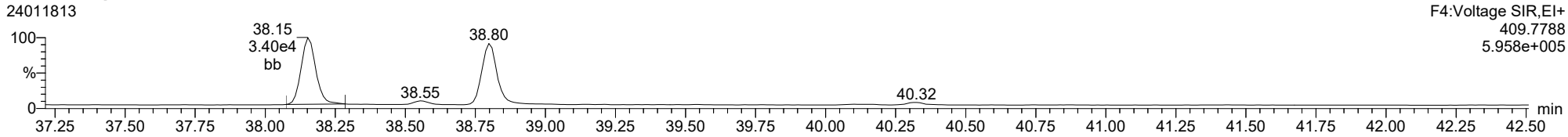


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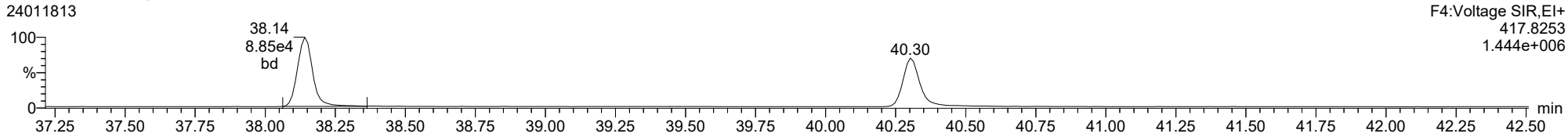
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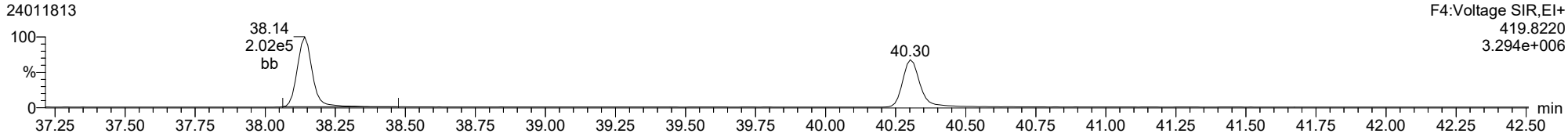
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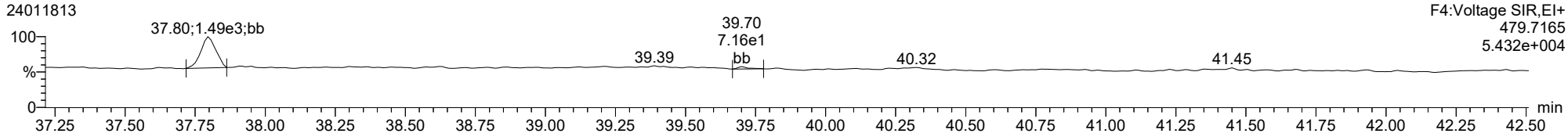
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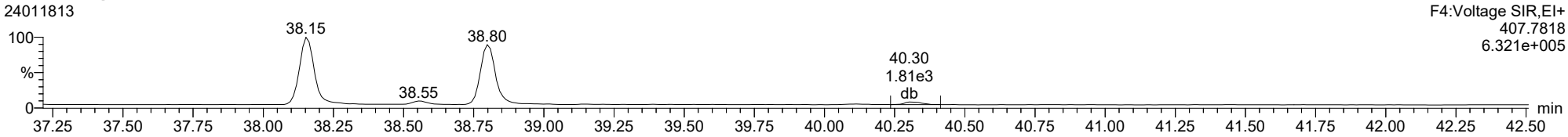


FUNCTION4 NCDPE

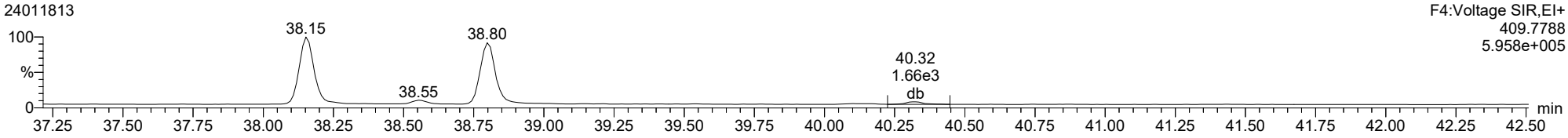


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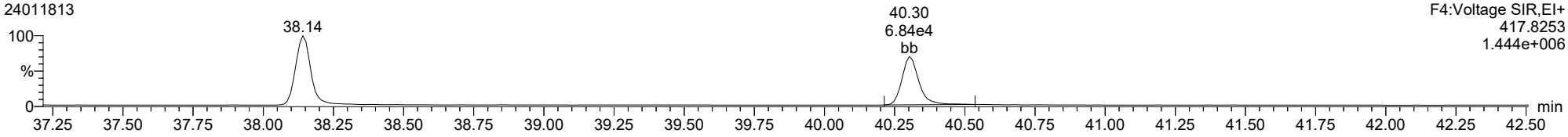
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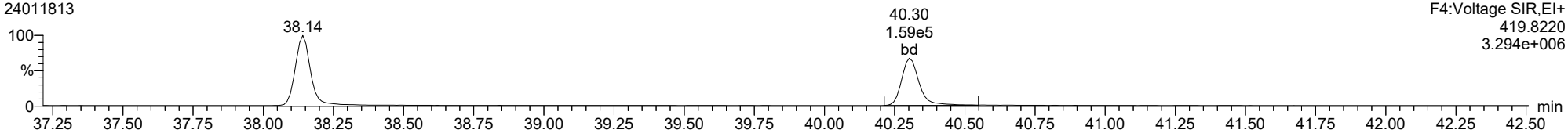
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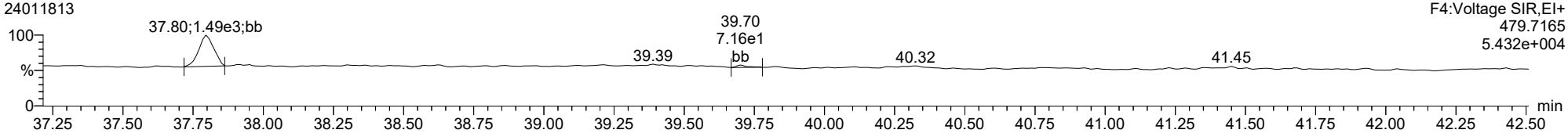
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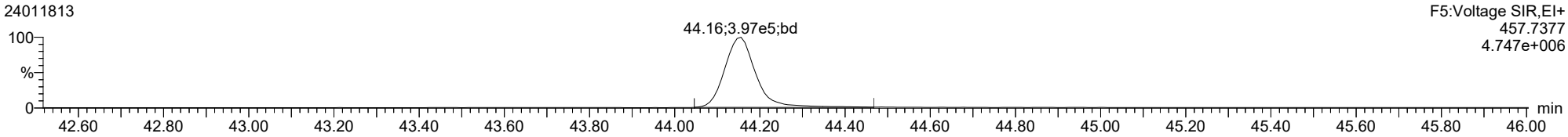


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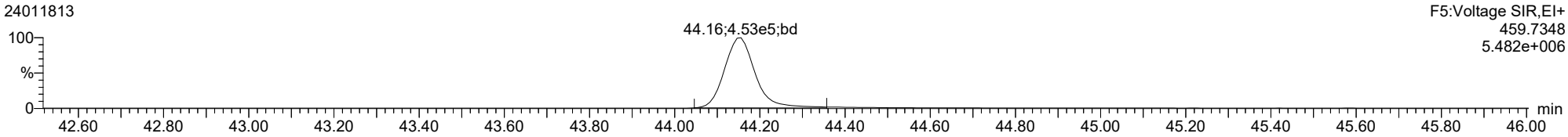


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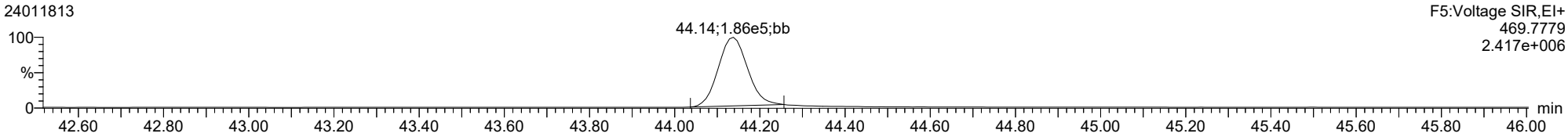
OCDD



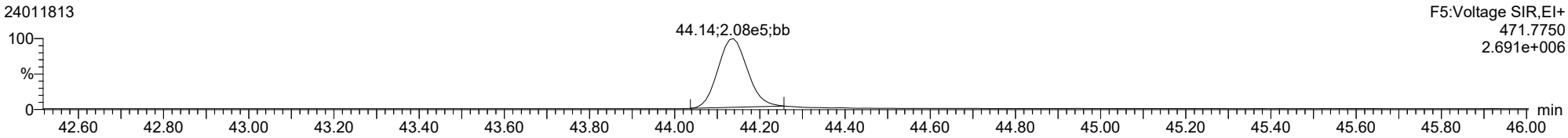
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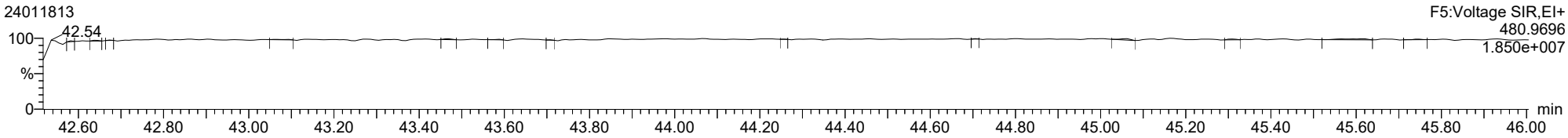
13C-OCDD



13C-OCDD



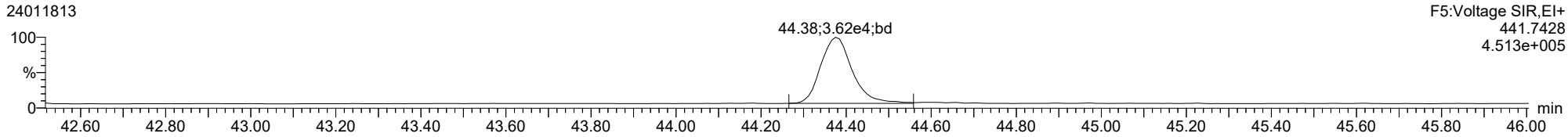
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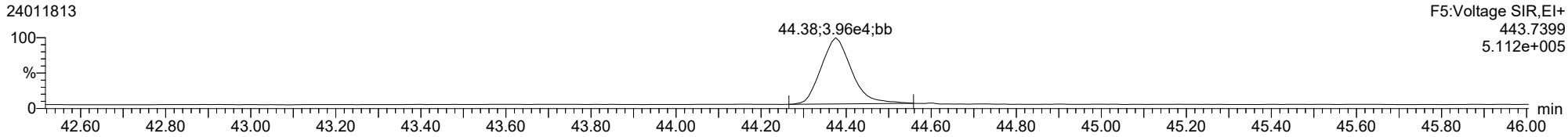
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Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:47:38 Pacific Standard Time

ID: 23L0564-04, Name: 24011813, Date: 18-Jan-2024, Time: 19:38:24, Conditions: AUTOSPEC01, User: pk

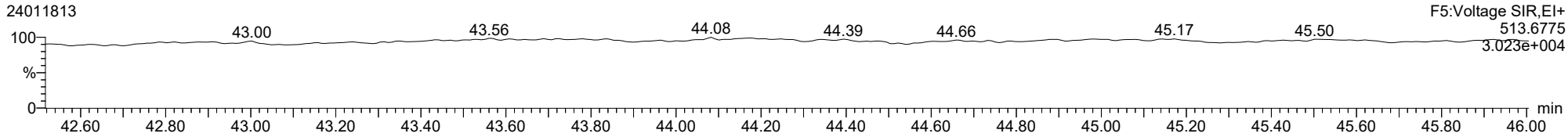
OCDF



OCDF

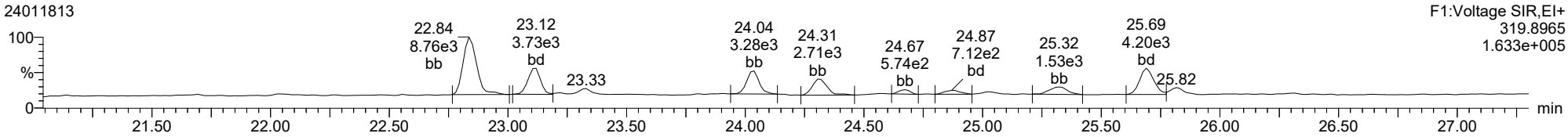


FUNCTION5 DCDPE

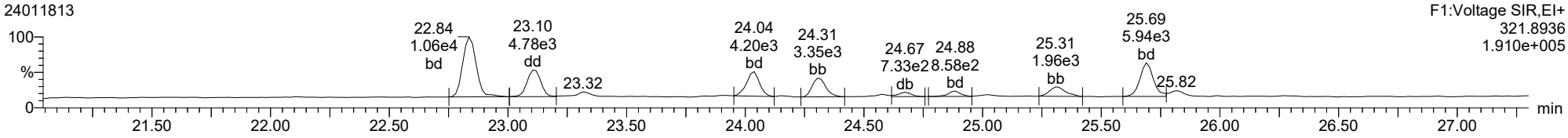


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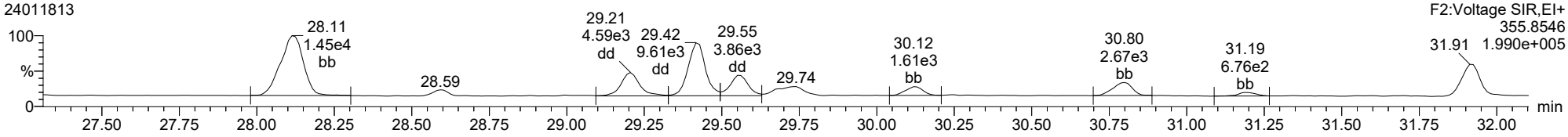
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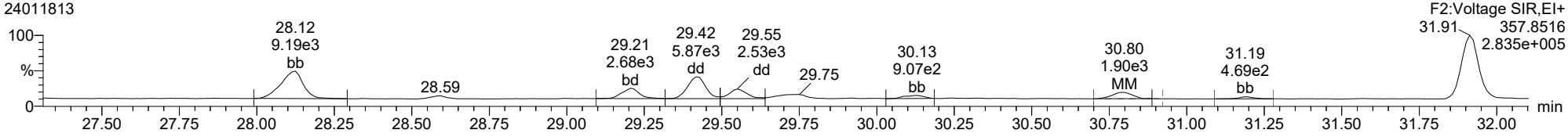
Total-tetradioxins



Total-pentadioxins

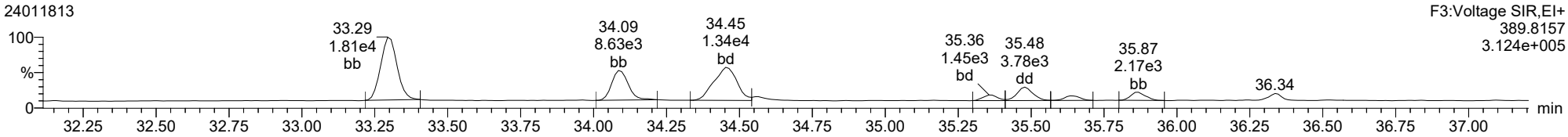


Total-pentadioxins

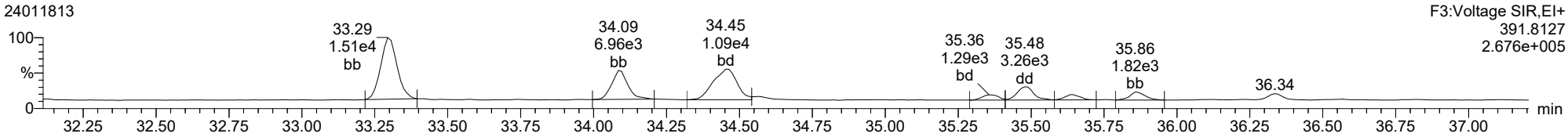


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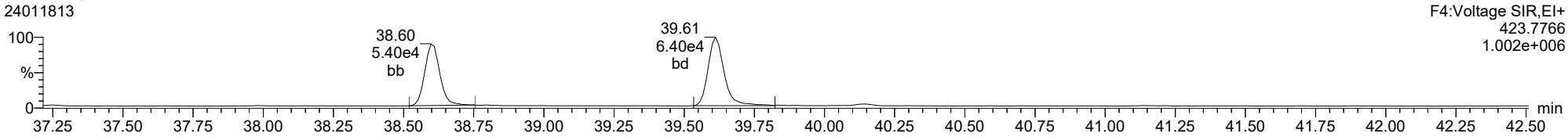
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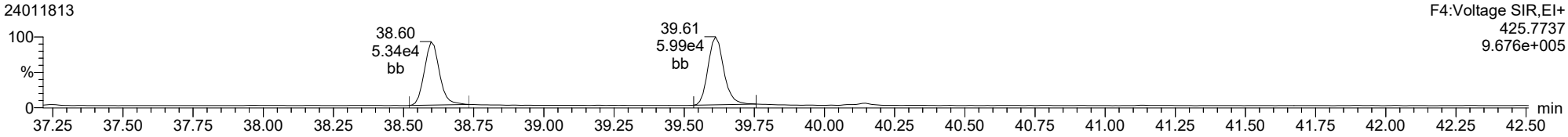
Total-hexadioxins



Total-heptadioxins



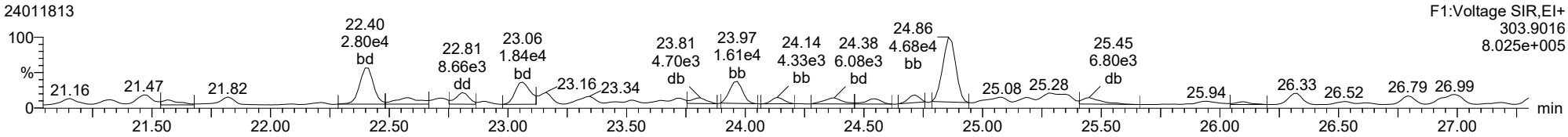
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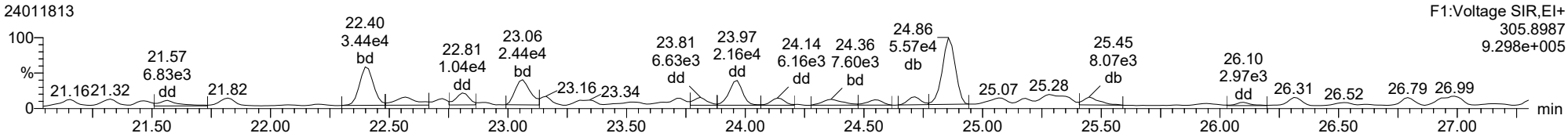
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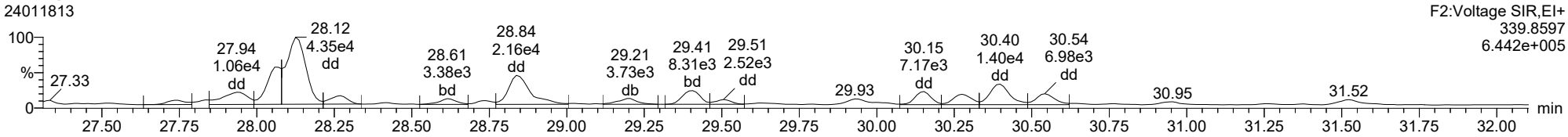
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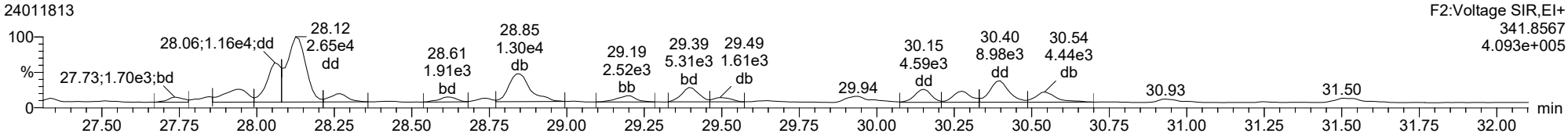
Total-tetrafurans



Total-pentafurans

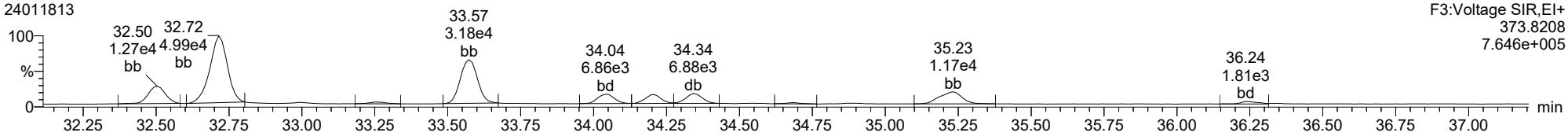


Total-pentafurans

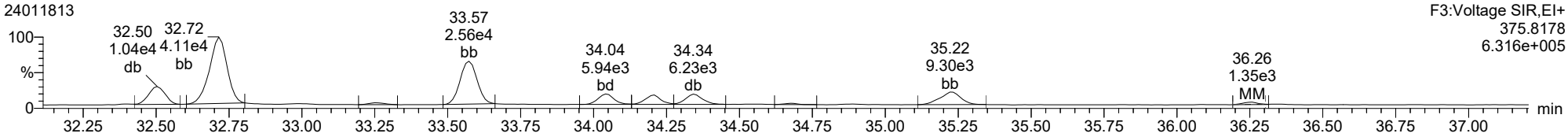


ID: 23L0564-04, Name: 24011813, Date: 18-Jan-2024, Time: 19:38:24, Conditions: AUTOSPEC01, User: pk

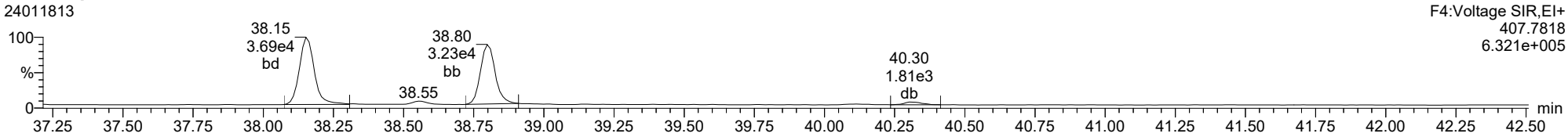
Total-hexafurans



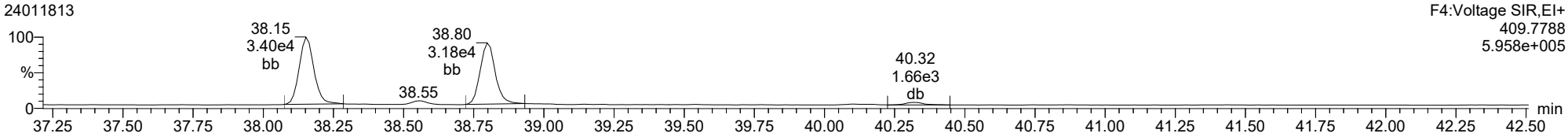
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

PREPARATION BATCH SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC			SDG:	23L0564
Client:	Floyd - Snider			Project:	Smith-Kem
Batch:	BLL0751	Batch Matrix:	Solid	Preparation:	EPA 1613

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
H4H-01-0.5-1.0	23L0564-01	24011810	01/02/24 14:00	
H4H-02-0.5-1.0	23L0564-02	24011811	01/02/24 14:00	
H4H-03-0.5-1.0	23L0564-03	24011812	01/02/24 14:00	
H4H-04-0.5-1.0	23L0564-04	24011813	01/02/24 14:00	
Blank	BLL0751-BLK2	24011804	01/02/24 14:00	
LCS	BLL0751-BS2	24011805	01/02/24 14:00	
H4H-01-0.5-1.0	BLL0751-DUP2	24011807	01/02/24 14:00	

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HRGCMS Dioxin/Furan Preparation Bench Sheet EPA Methods 8290A, 1613B or HRSM02.1

Batch: BLL0751

Solid Samples

ARI Work Orders: 23L0215, 23L0361, 23L0564

Matrix (circle one)	(Soil) Sediment Oil Tissue	
Extraction Method	Start Date/Time:	End Date/Time:
(Soxhlet) SepF Shake out	1/2/24 19:00 NG	1/3/24 06:00

Reagents/Equipment Used	NA	ID / Lot Number	Initials	Date
Glasswool		L014553	NG	1/4/24
Basic Silica		L011032	NG	1/4/24
Acid Silica		L013549	NG	1/4/24
Activated Florisil		L009480	NG	1/4/24
Balance		24650344	NG	1/2/24
Toluene		L011547	NG	1/3/24
Hexane		L014901	NG	1/3/24
CH2Cl2		L005741	NG	1/4/24
H2SO4		L010375	NG	1/4/24
Na2SO4		L014902	NG	1/4/24
Other (Sand)		L000033	NG	1/3/24
0% Silica		L009563	NG	1/4/24
Nonane		L006176	NG	1/5/24

Lab Number & Container	Sample Name	% Solids	Sample Weight Equal to dry (g) (Target Dry)	Actual	RotoVap 45 °C	Water Trap Vol (mL)	Final Vol. (uL)
23L0215-01 A	DCLH0	84.58	(11.82)	11.86	(1)/2	1.75	20
23L0215-02 A	DCLH1	85.39	(11.71)	11.72	1 (2)	2.00	20
23L0215-03 A	DCLH2	82.03	(12.19)	12.22	(1)/2	2.00	20
23L0215-04 A	DCLH3	85.78	(11.66)	11.66	(1)/2	2.00	20
23L0215-05 A	DCLH4	84.23	(11.87)	11.88	1 (2)	2.00	20
23L0215-06 A	DCLH5	73.92	(13.53)	13.53	(1)/2	2.75	20
23L0215-07 A	DCLH6	75.54	(13.24)	13.28	(1)/2	3.50	20
23L0215-08 A	DCLH7	85.85	(11.65)	11.66	1 (2)	1.50	20
23L0361-01 D	BW23-TOTE-1-C	75.85	(13.18)	13.20	(1)/2	2.25	20
~~23L0361-01 D~~	~~BW23-TOTE-1-C~~	~~75.85~~	~~(13.18)~~		~~1/2~~		~~20~~
23L0361-02 D	BW23-TOTE-2-C	79.2	(12.63)	12.66	(1)/2	2.50	20
23L0564-01 A	H4H-01-0.5-1.0	91.01	(10.99)	11.00	1 (2)	0.30	20
~~23L0564-01 A~~	~~H4H-01-0.5-1.0~~	~~91.01~~	~~(10.99)~~		~~1/2~~		~~20~~
23L0564-02 A	H4H-02-0.5-1.0	91.83	(10.89)	10.94	(1)/2	1.20	20
23L0564-03 A	H4H-03-0.5-1.0	85.09	(11.75)	11.77	1 (2)	1.50	20
23L0564-04 A	H4H-04-0.5-1.0	82.59	(12.11)	12.13	(1)/2	1.75	20
BLL0751-BLK1	DBLK03	100	0	10.00	(1)/2	0	20
BLL0751-BS1	DLCS03	100	0	10.00	1 (2)	0	20
BLL0751-BSD1	DLCSD03	100	0	10.00	(1)/2	0	20
BLL0751-DUP1	Duplicate 23L0361-01D	75.85	(13.18)	13.21	1 (2)	3.00	20
BLL0751-DUP2	Duplicate 23L0564-01A	91.01	(10.99)	11.00	(1)/2	0.50	20
Prep Analyst / Date:							

Standards Used	Vol	ID / Lot Number	Concentration	Expiration Date	Analyst	Witness	Date
Recovery Standard	1.0 mL	L014213	2/4 ng/mL	12/8/24	NG	M	1/2/24
OPR	1.0 mL	L012262	0.2/1.0/2.0 ng/mL	10/23/24	NG	M	1/2/24
~~QCS Standard~~	~~1.0 mL~~		~~30/0.05/0.1ng/mL ng/l~~				
Cleanu-up Standard	1.0 mL	L014214	0.8 ng/mL	12/8/24	NG	NG	1/4/24

NG 1/2/24 **Verify Client ID**
Analyst / Date:

NG 1/4/24 **Acid Clean** (Y) N
Analyst / Date:

NG 1/4/24 **Silica-Florisil Clean** (Y) N
Analyst / Date:

2/20/24
Supervisor Review By Date

Printed: 1/2/2024 7:29:12AM

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Dioxin Extraction Laboratory – Glassware

Batch ID: BLL0751 Work Order: 23L0215, 23L0361, 23L0569 Extraction Parameter: Dioxin ARI Analyst NG

ARI Sample ID	300 mL Flat Bottom	Small Soxhlet	Large Soxhlet	250 mL Beaker	Funnel	Column	Florisil Column	Turbo Tube	Sep Funnel	Erlenmeyer Flask	Centrifuge Bottle	Turbo-Vap	Vortex Mixer	Heating Mantle
BLL0751-BLK1	32	17		21	19	9	3	47				4	4	A-1
-BS1	48	31		177	79	41	54	69				4	4	A2
-BSD1	23	56		60	95	119	2	23				4	4	A3
-DUP1	6	10		28	42	191	60	35				4	4	A5
-DUP2	53	75		52	96	~~227~~ 177 NG	50	71				4	4	A6
23L0215-01A	67	26		4	88	224	115	68				4	4	B1
-02A	18	116		38	38	204	64	13				4	4	B2
-03A	4	79		26	66	48	16	31				4	4	B3
-04A	21	32		30	36	70	8	18				4	4	B4
-05A	73	11		13	14	172	128	101				4	4	B5
-06A	20	29		8	69	37	164	3				4	4	B6
-07A	30	62		256	49	26	5	50				4	4	C1
-08A	51	13		57	~~10~~ 15 NG	212	173	10				4	4	C2
23L0361-01D	5	114		61	51	143	24	5				4	4	C3
-02D	12	111		47	48	42	70	1				4	4	C4
23L0569-01A	83	50		220	1	222	55	49				4	4	C5
-02A	77	70		70	29	16	77	74				4	4	C6
-03A	11	64		53	~~15~~ 10 NG	57	68	77				4	4	D1
-04A	24	60		7	85	17	4	34				4	4	D2
												4	4	
												4	4	
												4	4	
												4	4	

Analytical Chemists and Consultants

Analyst Notes

Extraction Parameter: Dioxin Extraction Batch

Total Solids Batch: BLL0727 Work Order(s): 23L0533, 23L0564

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☒ No Anomalies (standard soil/wet sediment/sand/gravel)=23L0564-02A	XL 12/28/23
☐ Standing Water Decanted (Not shared)=	
☐ Standing Water Homogenized (Shared samples)=	
☒ Clay/Clumps (Difficult to homogenize)=23L0533-05A	
☒ Rocks (%+size)? 23L0533 02A ~5% 1/8-1/2, 03A = few Rocks 1/4in	M 12/28/23
☒ Organics (Leaves/sticks/grass)=23L0533-01A, 03A, 04A	M 12/28/23
☒ Oily, obvious fuel/sulfur odors=23L0533-05A	M 12/28/23
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☒ Other (Details)=23L0533-04A=3% Rocks 1/8-1/2in / 23L0564-01A~3% Rocks 1/8-1/2in, 03A=few Rocks 1/8-1/2in 04A=few Rocks 1/8-1/2in	M 12/28/23 M 12/28/23
Aqueous: 23L0564-DUP2 and S6to1A transfered to new vial after acid wash dropping	NG 1/5/24 NG 1/5/24
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☐ Other Notes/Comments= (Note problems, concerns, corrective actions).	
☐ Share Samples Y / N	
☐ Multiple Jars Y / N	
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

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Organic Extractions Laboratory Analyst Notes

Extraction Parameter: Dioxin Extraction Batch BLL0751

Total Solids Batch: BLL0396 Work Order(s): 23L0361

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☐ No Anomalies (standard soil/wet sediment/sand/gravel)=	
☒ Standing Water Decanted (Not shared)= 361-01,02	NG 1/2/24
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☐ Rocks (%+size)?	
☐ Organics (Leaves/sticks/grass)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☒ Other (Details)= 361-01,02 after extraction, thimble not set on round bottom	NG 1/5/24
Flask to finish dripping	NG 1/5/24
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☐ Other Notes/Comments= (Note problems, concerns, corrective actions).	
☐ Share Samples Y / N	
☐ Multiple Jars Y / N	
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

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Organic Extractions Laboratory Analyst Notes

Extraction Parameter: Dioxin Extraction Batch: BLL0751

Total Solids Batch: BLL0314 Work Order(s): 23L0215

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☐ No Anomalies (standard soil/wet sediment/sand/gravel)=	
☐ Standing Water Decanted (Not shared)=	
☐ Standing Water Homogenized (Shared samples)=	
☒ Clay/Clumps (Difficult to homogenize)= 215-01,02,03,04,05,06,08 | clay | 215-07 clump	LN 12/13/23
☒ Rocks (%+size)? 215-02,03,04,05,07,08 | 2% - 0.25 in	LN 12/13/23
☐ Organics (Leaves/sticks/grass)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☒ Other (Details)= 215-01,02,03,04,05,06,07,08 after extraction, thimble not set on round bottom flask to finish dripping	NG Ys/24
	NG Ys/24
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☐ Other Notes/Comments= (Note problems, concerns, corrective actions).	
☐ Share Samples Y / N	
☐ Multiple Jars Y / N	
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

TOTAL SOLIDS BENCHSHEET

Method: PSEP 1986

(dry at 103-105 C)

Instrumentation

Batch:	BLL0396
Date:	12/14/2023 10:09
Analyst:	CT
Drying Oven:	Φ15
Analytical Balance:	B146462614

Batch drying time

Record times as mm/dd/yy hh:mm

		Oven Temp, C
Date/time in oven:	12/15/23 9:53	103
Date/time out:	12/18/23 7:35	102
Elapsed hrs:	0.0	

TS (%) calculated as:

Final dry wt (g) = (Dry Wt - Tare Wt)

TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)

Oven Temps, °C	
Start Temp:	103
End Temp:	102

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23L0361-01 C	Φ.81	12.94	10.01			~~No~~ yes
23L0361-02 C	Φ.80	12.44	9.67			~~No~~ yes
23L0390-01 A	Φ.81	12.86	7.15			No
23L0390-02	Φ.80	12.82	8.08			No
23L0390-03	Φ.79	12.25	8.13			No
23L0390-04	Φ.79	12.26	8.71			No
23L0390-05	Φ.80	12.45	8.17			No
23L0390-06	Φ.81	12.89	8.91			No
23L0390-07	Φ.81	12.98	5.84			No
23L0390-08	Φ.80	12.46	5.75			~~No~~ yes
23L0390-09	Φ.79	12.12	5.04			~~No~~ yes
23L0390-10	Φ.80	12.43	5.17			~~No~~ yes
23L0390-11 ↓	Φ.79	12.80	8.05			~~No~~ yes
23L0390-12 A	Φ.81	12.31	5.54			~~No~~ yes

T/S + Screens

361 - 3 copies

390 - No copies

TOTAL SOLIDS BENCHSHEET

Method: PSEP 1986

(dry at 103-105 C)

Instrumentation

Batch:	BLL0396
Date:	12/14/2023 10:09
Analyst:	ct
Drying Oven:	15
Analytical Balance:	B146462614

Batch drying time		
Record times as mm/dd/yy hh:mm		
Date/time in oven:	12/15/2023 9:53	
Date/time out:	12/18/2023 7:35	
Elapsed hrs:	69.7	> 24 hr

Oven Temp, C	TS (%) calculated as:
103	Final dry wt (g) = (Dry Wt - Tare Wt)
102	TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)

Oven Temps, °C	
Start Temp:	103
End Temp:	102

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23L0361-01	0.8100	12.9400	10.0100	9.20	**75.85%**	Yes
23L0361-02	0.8000	12.0000	9.6700	8.87	**79.20%**	Yes
23L0390-01	0.8100	12.8600	7.1500	6.34	**52.61%**	No
23L0390-02	0.8000	12.2500	8.1300	7.33	**64.02%**	No
23L0390-03	0.7900	12.2600	8.7100	7.92	**69.05%**	No
23L0390-04	0.8000	12.4500	8.1700	7.37	**63.26%**	No
23L0390-05	0.8100	12.8900	8.9100	8.10	**67.05%**	No
23L0390-06	0.8100	12.0800	5.8400	5.03	**44.63%**	No
23L0390-07	0.8000	12.0600	5.7500	4.95	**43.96%**	Yes
23L0390-08	0.7900	12.1200	5.0400	4.25	**37.51%**	Yes
23L0390-09	0.8000	12.4300	5.1700	4.37	**37.58%**	Yes
23L0390-10	0.7900	12.8000	8.0500	7.26	**60.45%**	Yes
23L0390-11	0.8100	12.3100	5.5000	4.69	**40.78%**	Yes
23L0390-12						No

TOTAL SOLIDS BENCHSHEET

Method HRSM02.1

(dry at 110 C)

Instrumentation

Batch:	BLL0737
Date:	12/29/2023 5:05
Analyst:	NL
Drying Oven:	18
Analytical Balance:	24650344

Batch drying time

Record times as mm/dd/yy hh:mm

Date/time in oven:	12/28/2023 12:38
Date/time out:	12/29/2023 5:05
Elapsed hrs:	16.5

Oven Temp, C: 110

TS (%) calculated as:

Final dry wt (g) = (Dry Wt - Tare Wt)

TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)

Oven Temps, °C	
Start Temp:	110
End Temp:	110

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23L0533-01	0.7900	11.7300	10.1300	9.34	**85.37%**	No
23L0533-02	0.7900	11.2000	7.8600	7.07	**67.92%**	No
23L0533-03	0.8000	11.8500	11.6700	10.87	**98.37%**	No
23L0533-04	0.8000	11.1000	9.2300	8.43	**81.84%**	No
23L0533-05	0.7800	10.9300	9.1400	8.36	**82.36%**	No
23L0564-01	0.7900	11.5800	10.6100	9.82	**91.01%**	No
23L0564-02	0.7900	12.1700	11.2400	10.45	**91.83%**	No
23L0564-03	0.7900	11.8600	10.2100	9.42	**85.09%**	No
23L0564-04	0.8000	11.3700	9.5300	8.73	**82.59%**	No

TOTAL SOLIDS BENCHSHEET

Method HRSM02.1

(dry at 110 C)

Instrumentation

Batch:	BLL0737
Date:	12/29/23 0505
Analyst:	M
Drying Oven:	018
Analytical Balance:	2463044

Batch drying time

Record times as mm/dd/yy hh:mm

			Oven Temp, C
Date/time in oven:	12/28/23	1238	110
Date/time out:	12/29/23	0505	110
Elapsed hrs:	0.0		

TS (%) calculated as:

Final dry wt (g) = (Dry Wt - Tare Wt)

TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)

Oven Temps, °C	
Start Temp:	110
End Temp:	110

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23L0533-01	0.79	11.73	10.13			No
23L0533-02	0.79	11.20	7.86			No
23L0533-03	0.80	11.85	11.67			No
23L0533-04	0.80	11.10	9.23			No
23L0533-05	0.78	10.93	9.14			No
23L0564-01	0.79	11.58	10.64			No
23L0564-02	0.79	12.17	11.24			No
23L0564-03	0.79	11.86	10.21			No
23L0564-04	0.80	11.37	9.53			No

TOTAL SOLIDS BENCHSHEET

Method HRSM02.1

(dry at 110 C)

Instrumentation

Batch:	BLL0314
Date:	12/14/2023 5:07
Analyst:	LN
Drying Oven:	18
Analytical Balance:	24650344

Batch drying time

Record times as mm/dd/yy hh:mm

Date/time in oven:	12/13/2023 13:21	110
Date/time out:	12/14/2023 5:07	111
Elapsed hrs:	15.8	

Oven Temp, C

TS (%) calculated as:

Final dry wt (g) = (Dry Wt - Tare Wt)

TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)

Oven Temps, °C	
Start Temp:	110
End Temp:	111

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23L0215-01	0.8200	11.0000	9.4300	8.61	**84.58%**	No
23L0215-02	0.8100	11.0100	9.5200	8.71	**85.39%**	No
23L0215-03	0.8100	11.0500	9.2100	8.40	**82.03%**	No
23L0215-04	0.8200	11.0200	9.5700	8.75	**85.78%**	No
23L0215-05	0.8100	11.0800	9.4600	8.65	**84.23%**	No
23L0215-06	0.8000	11.0000	8.3400	7.54	**73.92%**	No
23L0215-07	0.8000	11.0200	8.5200	7.72	**75.54%**	No
23L0215-08	0.8100	10.9900	9.5500	8.74	**85.85%**	No

TOTAL SOLIDS BENCHSHEET	Batch:	BLL0314
Method HRSM02.1	Date:	~~12/13/23~~ MC 12/13/23
(dry at 110 C)	Analyst:	LN
Instrumentation	Drying Oven:	18
	Analytical Balance:	24650344

Batch drying time			Oven Temp, C	TS (%) calculated as:	Oven Temps, °C	
Record times as mm/dd/yy hh:mm						
Date/time in oven:	12/13/23	13:21	110	Final dry wt (g) = (Dry Wt - Tare Wt)	Start Temp:	110
Date/time out:	12/14/23	0807	111	TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)	End Temp:	111
Elapsed hrs:	0.0					

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23L0215-01 A	0.82	11.00	9.43			No
23L0215-02 A	0.81	11.01	9.52			No
23L0215-03 A	0.81	11.05	9.21			No
23L0215-04 A	0.82	11.02	9.57			No
23L0215-05 A	0.81	11.08	9.46			No
23L0215-06 A	0.80	11.00	8.34			No
23L0215-07 A	0.80	11.02	8.52			No
23L0215-08 A	0.81	10.99	9.55			No

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23L0564
Client:	Floyd - Snider	Project:	Smith-Kem
Cleanup Batch:	CMA0017	Cleanup Type:	Sulfuric Acid
Cleanup Method:	EPA 3665 Sulfuric Acid Cleanup - uL	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
H4H-01-0.5-1.0	23L0564-01	24011810	01/04/2024	
H4H-02-0.5-1.0	23L0564-02	24011811	01/04/2024	
H4H-03-0.5-1.0	23L0564-03	24011812	01/04/2024	
H4H-04-0.5-1.0	23L0564-04	24011813	01/04/2024	
Duplicate	BLL0751-DUP2	24011807	01/04/2024	

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CLEANUP BENCH SHEET

CMA0017

Matrix: Solid **Cleanup using: Organics - EPA 3665 Sulfuric Acid Cleanup - uL** **Printed: 1/5/2024 12:22:46PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23L0215-01	A	DCLH0	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0215-02	A	DCLH1	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0215-03	A	DCLH2	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0215-04	A	DCLH3	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0215-05	A	DCLH4	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0215-06	A	DCLH5	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0215-07	A	DCLH6	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0215-08	A	DCLH7	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0361-01	D	BW23-TOTE-1-C	D 01	20	20	1613B Dioxin	1/4/2024	NG	
23L0361-01	D	BW23-TOTE-1-C	D 01	20	20	HRSM02.x	1/4/2024	NG	
23L0361-02	D	BW23-TOTE-2-C	D 01	20	20	1613B Dioxin	1/4/2024	NG	
23L0564-01	A	H4H-01-0.5-1.0	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0564-01	A	H4H-01-0.5-1.0	A 01	20	20	1613B Dioxin	1/4/2024	NG	
23L0564-02	A	H4H-02-0.5-1.0	A 01	20	20	1613B Dioxin	1/4/2024	NG	
23L0564-03	A	H4H-03-0.5-1.0	A 01	20	20	1613B Dioxin	1/4/2024	NG	
23L0564-04	A	H4H-04-0.5-1.0	A 01	20	20	1613B Dioxin	1/4/2024	NG	
BLL0751-BLK1	-	DBLK03	-	20	20	-	1/4/2024	NG	
BLL0751-BS1	-	DLCS03	-	20	20	-	1/4/2024	NG	
BLL0751-BSD1	-	DLCSD03	-	20	20	-	1/4/2024	NG	
BLL0751-DUP1	-	Duplicate	-	20	20	-	1/4/2024	NG	
BLL0751-DUP2	-	Duplicate	-	20	20	-	1/4/2024	NG	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23L0564
Client:	Floyd - Snider	Project:	Smith-Kem
Cleanup Batch:	CMA0018	Cleanup Type:	Silica Gel
Cleanup Method:	EPA 3630C Silica Gel Cleanup - uL	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
H4H-01-0.5-1.0	23L0564-01	24011810	01/04/2024	
H4H-02-0.5-1.0	23L0564-02	24011811	01/04/2024	
H4H-03-0.5-1.0	23L0564-03	24011812	01/04/2024	
H4H-04-0.5-1.0	23L0564-04	24011813	01/04/2024	
Duplicate	BLL0751-DUP2	24011807	01/04/2024	

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CLEANUP BENCH SHEET

CMA0018

Matrix: Solid **Cleanup using: Organics - EPA 3630C Silica Gel Cleanup - uL** **Printed: 1/5/2024 12:23:44PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23L0215-01	A	DCLH0	A	20	20	HRSM02.x	1/4/2024	NG	
23L0215-02	A	DCLH1	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0215-03	A	DCLH2	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0215-04	A	DCLH3	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0215-05	A	DCLH4	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0215-06	A	DCLH5	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0215-07	A	DCLH6	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0215-08	A	DCLH7	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0361-01	D	BW23-TOTE-1-C	D 01	20	20	1613B Dioxin	1/4/2024	NG	
23L0361-01	D	BW23-TOTE-1-C	D 01	20	20	HRSM02.x	1/4/2024	NG	
23L0361-02	D	BW23-TOTE-2-C	D 01	20	20	1613B Dioxin	1/4/2024	NG	
23L0564-01	A	H4H-01-0.5-1.0	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0564-01	A	H4H-01-0.5-1.0	A 01	20	20	1613B Dioxin	1/4/2024	NG	
23L0564-02	A	H4H-02-0.5-1.0	A 01	20	20	1613B Dioxin	1/4/2024	NG	
23L0564-03	A	H4H-03-0.5-1.0	A 01	20	20	1613B Dioxin	1/4/2024	NG	
23L0564-04	A	H4H-04-0.5-1.0	A 01	20	20	1613B Dioxin	1/4/2024	NG	
BLL0751-BLK1	-	DBLK03	-	20	20	-	1/4/2024	NG	
BLL0751-BS1	-	DLCS03	-	20	20	-	1/4/2024	NG	
BLL0751-BSD1	-	DLCSD03	-	20	20	-	1/4/2024	NG	
BLL0751-DUP1	-	Duplicate	-	20	20	-	1/4/2024	NG	
BLL0751-DUP2	-	Duplicate	-	20	20	-	1/4/2024	NG	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23L0564
Client:	Floyd - Snider	Project:	Smith-Kem
Cleanup Batch:	CMA0019	Cleanup Type:	Florisil
Cleanup Method:	EPA 3620B Florisil Cleanup (uL)	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
H4H-01-0.5-1.0	23L0564-01	24011810	01/04/2024	
H4H-02-0.5-1.0	23L0564-02	24011811	01/04/2024	
H4H-03-0.5-1.0	23L0564-03	24011812	01/04/2024	
H4H-04-0.5-1.0	23L0564-04	24011813	01/04/2024	
Duplicate	BLL0751-DUP2	24011807	01/04/2024	

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CLEANUP BENCH SHEET

CMA0019

Matrix: Solid **Cleanup using: Organics - EPA 3620B Florisil Cleanup (uL)** **Printed: 1/5/2024 12:24:15PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23L0215-01	A	DCLH0	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0215-02	A	DCLH1	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0215-03	A	DCLH2	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0215-04	A	DCLH3	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0215-05	A	DCLH4	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0215-06	A	DCLH5	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0215-07	A	DCLH6	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0215-08	A	DCLH7	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0361-01	D	BW23-TOTE-1-C	D 01	20	20	1613B Dioxin	1/4/2024	NG	
23L0361-01	D	BW23-TOTE-1-C	D 01	20	20	HRSM02.x	1/4/2024	NG	
23L0361-02	D	BW23-TOTE-2-C	D 01	20	20	1613B Dioxin	1/4/2024	NG	
23L0564-01	A	H4H-01-0.5-1.0	A 01	20	20	HRSM02.x	1/4/2024	NG	
23L0564-01	A	H4H-01-0.5-1.0	A 01	20	20	1613B Dioxin	1/4/2024	NG	
23L0564-02	A	H4H-02-0.5-1.0	A 01	20	20	1613B Dioxin	1/4/2024	NG	
23L0564-03	A	H4H-03-0.5-1.0	A 01	20	20	1613B Dioxin	1/4/2024	NG	
23L0564-04	A	H4H-04-0.5-1.0	A 01	20	20	1613B Dioxin	1/4/2024	NG	
BLL0751-BLK1	-	DBLK03	-	20	20	-	1/4/2024	NG	
BLL0751-BS1	-	DLCS03	-	20	20	-	1/4/2024	NG	
BLL0751-BSD1	-	DLCSD03	-	20	20	-	1/4/2024	NG	
BLL0751-DUP1	-	Duplicate	-	20	20	-	1/4/2024	NG	
BLL0751-DUP2	-	Duplicate	-	20	20	-	1/4/2024	NG	

Analytical Resources, LLC
Analytical Chemists and Consultants

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Form 1
METHOD BLANK DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23L0564
Client:	Floyd - Snider			Project:	Smith-Kem
Matrix:	Solid	Laboratory ID:	BLL0751-BLK2	File ID:	24011804
Sampled:	N/A	Prepared:	01/02/24 14:00	Analyzed:	01/18/24 12:06
Solids Wt%:		Preparation:	EPA 1613	Initial/Final:	10 g / 20 uL
Result Basis:	Dry	Sequence:	SMA0233	Calibration:	GH00041
Batch:	BLL0751	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.000	0.655-0.886	0.179	1.00	ND	ng/kg	U
1746-01-6	2,3,7,8-TCDD	1	0.000	0.655-0.886	0.129	1.00	ND	ng/kg	U
57117-41-6	1,2,3,7,8-PeCDF	1	0.000	1.318-1.783	0.157	1.00	ND	ng/kg	U
57117-31-4	2,3,4,7,8-PeCDF	1	0.000	1.318-1.783	0.156	1.00	ND	ng/kg	U
40321-76-4	1,2,3,7,8-PeCDD	1	0.000	1.318-1.783	0.194	1.00	ND	ng/kg	U
70648-26-9	1,2,3,4,7,8-HxCDF	1	0.000	1.054-1.426	0.173	1.00	ND	ng/kg	U
57117-44-9	1,2,3,6,7,8-HxCDF	1	0.000	1.054-1.426	0.173	1.00	ND	ng/kg	U
60851-34-5	2,3,4,6,7,8-HxCDF	1	0.000	1.054-1.426	0.184	1.00	ND	ng/kg	U
72918-21-9	1,2,3,7,8,9-HxCDF	1	0.000	1.054-1.426	0.256	1.00	ND	ng/kg	U
39227-28-6	1,2,3,4,7,8-HxCDD	1	0.000	1.054-1.426	0.219	1.00	ND	ng/kg	U
57653-85-7	1,2,3,6,7,8-HxCDD	1	0.000	1.054-1.426	0.224	1.00	ND	ng/kg	U
19408-74-3	1,2,3,7,8,9-HxCDD	1	0.000	1.054-1.426	0.253	1.00	ND	ng/kg	U
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	0.947	0.893-1.208	0.185	1.00	1.70	ng/kg	
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	0.000	0.893-1.208	0.310	1.00	ND	ng/kg	U
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.141	0.893-1.208	0.274	2.50	8.37	ng/kg	
39001-02-0	OCDF	1	0.819	0.757-1.024	0.446	2.50	2.26	ng/kg	J
3268-87-9	OCDD	1	0.874	0.757-1.024	0.759	10.0	95.9	ng/kg	

Homologue Groups

55722-27-5	Total TCDF	1	0.000			1.00	ND	ng/kg
41903-57-5	Total TCDD	1	0.000			1.00	ND	ng/kg
30402-15-4	Total PeCDF	1	0.000			1.00	ND	ng/kg
36088-22-9	Total PeCDD	1	0.000			1.00	ND	ng/kg
55684-94-1	Total HxCDF	1	0.000			1.00	0.845	ng/kg
34465-46-8	Total HxCDD	1	0.000			1.00	ND	ng/kg
38998-75-3	Total HpCDF	1	0.000			1.00	4.80	ng/kg
37871-00-4	Total HpCDD	1	0.000			1.00	16.1	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.130
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.402

Analytical Resources, Incorporated
Analytical Chemists and Consultants

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Form 2

METHOD BLANK DATA SHEET

EPA 1613B

Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23L0564
Client:	Floyd - Snider			Project:	Smith-Kem
Matrix:	Solid	Laboratory ID:	BLL0751-BLK2	File ID:	24011804
Sampled:	N/A	Prepared:	01/02/24 14:00	Analyzed:	01/18/24 12:06
Solids Wt%:	0.00	Preparation:	EPA 1613	Initial/Final:	10 g / 20 uL
Result Basis:	Dry	Sequence:	SMA0233	Calibration:	GH00041
Batch:	BLL0751	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF	1	0.765	0.655-0.886	0.13	51.8	24 - 169 %	
13C12-2,3,7,8-TCDD	1	0.784	0.655-0.886	0.21	65.2	25 - 164 %	
13C12-1,2,3,7,8-PeCDF	1	1.491	1.318-1.783	0.24	64.2	24 - 185 %	
13C12-2,3,4,7,8-PeCDF	1	1.486	1.318-1.783	0.26	60.1	21 - 178 %	
13C12-1,2,3,7,8-PeCDD	1	1.589	1.318-1.783	0.25	70.4	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF	1	0.517	0.434-0.587	0.37	64.8	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF	1	0.521	0.434-0.587	0.30	67.2	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF	1	0.484	0.434-0.587	0.37	65.2	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF	1	0.509	0.434-0.587	0.42	63.6	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD	1	1.250	1.054-1.426	0.30	72.2	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD	1	1.190	1.054-1.426	0.25	73.0	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF	1	0.437	0.374-0.506	0.41	61.5	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF	1	0.435	0.374-0.506	0.53	60.1	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD	1	1.087	0.893-1.208	0.50	74.3	23 - 140 %	
13C12-OCDD	1	0.913	0.757-1.024	0.65	55.7	17 - 157 %	
37Cl4-2,3,7,8-TCDD	1	328.000		0.09	89.6	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:45:14 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240116.mdb 16 Jan 2024 11:29:56
Calibration: T:\Autospec\Curves\230811IClH.cdb 12 Aug 2023 09:45:18

ID: BLL0751-BLK1, Name: 24011804, Date: 18-Jan-2024, Time: 12:06:48, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF					0.903		0.770	757	1019								
12378-PeCDF					0.923		1.550	614	744								
23478-PeCDF					0.991		1.550	614	744								
123478-HxCDF					1.128		1.240	665	678								
234678-HxCDF					1.081		1.240	665	678								
123678-HxCDF					1.032		1.240	665	678								
123789-HxCDF					0.988		1.240	665	678								
1234678-HpCDF	38.154	1.000	1.172e3	1.238e3	1.164	0.947	1.050	641	631	1.70e4	1.95e4	26.6	30.9	NO	bb	bd	0.849
1234789-HpCDF					1.104		1.050	641	631								
OCDF	44.359	1.005	8.170e2	9.971e2	1.130	0.819	0.890	665	756	1.10e4	1.41e4	16.5	18.6	NO	bb	bb	1.128
2378-TCDD					1.243		0.770	836	563								
12378-PeCDD					1.150		1.550	750	631								
123478-HxCDD					0.960		1.240	669	819								
123678-HxCDD					0.883		1.240	669	819								
123789-HxCDD					0.804		1.240	669	819								
1234678-HpCDD	39.613	1.001	5.036e3	4.413e3	1.200	1.141	1.050	642	767	7.10e4	6.22e4	110.7	81.1	NO	bd	bb	4.185
OCDD	44.148	1.000	3.369e4	3.857e4	1.059	0.874	0.890	792	1474	3.73e5	4.44e5	471.6	300.8	NO	bb	bd	47.953
13C-2378-TCDF	25.054	1.007	1.963e5	2.566e5	1.835	0.765	0.770	1795	1090	2.86e6	3.73e6	1594.6	3422.9	NO	bb	bb	51.781
13C-12378-PeCDF	29.197	1.174	2.520e5	1.690e5	1.377	1.491	1.550	1913	1993	3.37e6	2.24e6	1759.5	1124.2	NO	bd	bd	64.175
13C-23478-PeCDF	30.534	1.228	2.227e5	1.499e5	1.301	1.486	1.550	1913	1993	3.14e6	2.11e6	1643.1	1056.7	NO	bb	bb	60.077
13C-123478-HxCDF	34.188	0.954	9.694e4	1.875e5	1.091	0.517	0.510	1639	2078	1.41e6	2.70e6	858.2	1297.1	NO	bd	bd	64.807
13C-123678-HxCDF	34.333	0.958	1.242e5	2.385e5	1.340	0.521	0.510	1639	2078	1.54e6	2.91e6	940.4	1399.1	NO	dd	dd	67.248
13C-234678-HxCDF	35.224	0.983	9.361e4	1.934e5	1.093	0.484	0.510	1639	2078	1.32e6	2.53e6	807.0	1219.8	NO	bb	bb	65.230
13C-123789-HxCDF	36.260	1.012	8.215e4	1.614e5	0.952	0.509	0.510	1639	2078	1.07e6	2.13e6	655.0	1022.6	NO	bb	bb	63.599
13C-1234678-HpCDF	38.143	1.064	7.418e4	1.696e5	0.985	0.437	0.440	1766	1956	1.08e6	2.37e6	612.6	1209.0	NO	bb	bb	61.510
13C-1234789-HpCDF	40.304	1.124	5.538e4	1.274e5	0.756	0.435	0.440	1766	1956	6.76e5	1.54e6	382.9	787.5	NO	bd	bd	60.099
13C-1234-TCDD	24.870	0.000	2.092e5	2.673e5	1.000	0.783	0.770	1481	1234	3.07e6	3.91e6	2075.5	3172.5	NO	bb	bb	100.000
13C-2378-TCDD	25.690	1.033	1.516e5	1.933e5	1.110	0.784	0.770	1481	1234	2.30e6	2.94e6	1551.0	2379.2	NO	bb	bb	65.227
13C-12378-PeCDD	30.790	1.238	1.551e5	9.766e4	0.754	1.589	1.550	1104	1088	2.28e6	1.44e6	2063.5	1321.5	NO	bb	bb	70.388
13C-123478-HxCDD	35.347	0.986	1.549e5	1.239e5	0.960	1.250	1.240	1631	1071	2.35e6	1.90e6	1443.1	1770.7	NO	bd	bd	72.172
13C-123678-HxCDD	35.458	0.989	1.850e5	1.554e5	1.159	1.190	1.240	1631	1071	2.45e6	1.98e6	1502.4	1852.5	NO	db	dd	72.973
13C-1234678-HpCDD	39.591	1.104	9.803e4	9.020e4	0.629	1.087	1.050	1458	1455	1.34e6	1.27e6	919.8	872.8	NO	bb	bb	74.332
13C-OCDD	44.130	1.231	1.359e5	1.488e5	0.635	0.913	0.890	2211	1618	1.61e6	1.81e6	730.3	1115.6	NO	bb	bb	111.377
13C-123789-HxCDD	35.848	0.000	2.246e5	1.778e5	1.000	1.264	1.240	1631	1071	3.10e6	2.48e6	1902.1	2318.8	NO	bb	bb	100.000
37CL-2378-TCDD	25.704	1.033	1.976e5		1.157			1261		2.92e6		2313.6			bb		35.826

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ID: BLL0751-BLK1, Name: 24011804, Date: 18-Jan-2024, Time: 12:06:48, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.170		0.770	757	1019								
1289-TCDF					0.847		0.770	757	1019								
13468-PECDF					1.241		1.550	622	775								
12389-PECDF					0.880		1.550	614	744								
123468-HXCDF					1.206		1.240	665	678								
1368-TCDD					1.181		0.770	836	563								
1289-TCDD					0.963		0.770	836	563								
12479-PECDD					2.166		1.550	750	631								
12389-PECDD					1.326		1.550	750	631								
124679-HXCDD					1.127		1.240	669	819								
1234679-HPCDD	38.600	0.975	4.605e3	4.893e3	1.303	0.941	1.050	642	767	7.04e4	6.86e4	109.6	89.4	NO	bd	bb	3.873
Total-tetrafurans			0.000e0		0.973			757		0.00e0							
Total-penta1			0.000e0					622		0.00e0							
Total-pentafurans			0.000e0		0.931			614		0.00e0							
Total-hexafurans			7.492e2		1.087			665		1.02e4							0.423
Total-heptafurans			3.135e3		1.134			641		4.72e4							2.398
Total-Furans			4.702e3		1.053			757		6.83e4							3.949
Total-tetradioxins			0.000e0		1.129			836		0.00e0							
Total-pentadioxins			0.000e0		1.548			750		0.00e0							
Total-hexadioxins			0.000e0		0.943			669		0.00e0							
Total-heptadioxins			9.641e3		1.251			642		1.41e5							8.058
Total-Dioxins			4.333e4		1.182			836		5.15e5							56.011
Total-TEQ			4.803e4					836		5.83e5							59.960
FUNCTION1 PFK			2.136e7					584269		6.79e7							
FUNCTION2 PFK			1.410e5					349608		4.27e6							0.000
FUNCTION3 PFK			7.574e5					460437		1.78e7							0.000
FUNCTION4 PFK			1.018e7					314226		1.01e8							
FUNCTION5 PFK			5.017e5					217731		1.27e7							
FUNCTION1 HXCD...			8.613e1					634		1.63e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			0.000e0					696		0.00e0							
FUNCTION3 OCDPE			0.000e0					679		0.00e0							
FUNCTION4 NCDPE			4.677e2					590		8.09e3							0.000
FUNCTION5 DCDPE			4.311e2					620		5.55e3							0.000

Method: T:\Autospec\Methods\Dioxin240116.mdb 16 Jan 2024 11:29:56
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexafurans	33.56	7.492e2	6.031e2	1.087	1.24	1.24	15.3	YES	NO	bb	bb	0.423

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	38.80	1.964e3	1.782e3	1.134	1.10	1.05	47.0	YES	NO	bb	bb	1.549
2	1234678-HpCDF	38.15	1.172e3	1.238e3	1.164	0.95	1.05	26.6	YES	NO	bb	bd	0.849

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexafurans	33.56	7.492e2	6.031e2	1.087	1.24	1.24	15.3	YES	NO	bb	bb	0.423
2	OCDF	44.36	8.170e2	9.971e2	1.130	0.82	0.89	16.5	YES	NO	bb	bb	1.128
3	Total-heptafurans	38.80	1.964e3	1.782e3	1.134	1.10	1.05	47.0	YES	NO	bb	bb	1.549
4	1234678-HpCDF	38.15	1.172e3	1.238e3	1.164	0.95	1.05	26.6	YES	NO	bb	bd	0.849

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.61	5.036e3	4.413e3	1.200	1.14	1.05	110.7	YES	NO	bd	bb	4.185
2	1234679-HPCDD	38.60	4.605e3	4.893e3	1.303	0.94	1.05	109.6	YES	NO	bd	bb	3.873

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	OCDD	44.15	3.369e4	3.857e4	1.059	0.87	0.89	471.6	YES	NO	bb	bd	47.953
2	1234678-HpCDD	39.61	5.036e3	4.413e3	1.200	1.14	1.05	110.7	YES	NO	bd	bb	4.185
3	1234679-HPCDD	38.60	4.605e3	4.893e3	1.303	0.94	1.05	109.6	YES	NO	bd	bb	3.873

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexafurans	33.56	7.492e2	6.031e2	1.087	1.24	1.24	15.3	YES	NO	bb	bb	0.423
2	OCDF	44.36	8.170e2	9.971e2	1.130	0.82	0.89	16.5	YES	NO	bb	bb	1.128
3	Total-heptafurans	38.80	1.964e3	1.782e3	1.134	1.10	1.05	47.0	YES	NO	bb	bb	1.549
4	1234678-HpCDF	38.15	1.172e3	1.238e3	1.164	0.95	1.05	26.6	YES	NO	bb	bd	0.849
5	OCDD	44.15	3.369e4	3.857e4	1.059	0.87	0.89	471.6	YES	NO	bb	bd	47.953
6	1234678-HpCDD	39.61	5.036e3	4.413e3	1.200	1.14	1.05	110.7	YES	NO	bd	bb	4.185
7	1234679-HPCDD	38.60	4.605e3	4.893e3	1.303	0.94	1.05	109.6	YES	NO	bd	bb	3.873

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	22.41	5.760e5					8.4	YES		db		
2	FUNCTION1 PFK	22.10	6.320e6					17.7	YES		dd		
3	FUNCTION1 PFK	21.31	9.019e6					41.2	YES		dd		
4	FUNCTION1 PFK	21.07	5.440e6					49.0	YES		bd		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	31.78	1.593e4					1.5	NO		bb		0.000
2	FUNCTION2 PFK	31.35	7.920e3					0.8	NO		bb		0.000
3	FUNCTION2 PFK	30.43	2.903e4					1.6	NO		db		0.000
4	FUNCTION2 PFK	30.37	7.086e3					0.9	NO		bd		0.000
5	FUNCTION2 PFK	28.59	2.235e4					1.7	NO		bb		0.000
6	FUNCTION2 PFK	28.06	2.830e3					0.7	NO		bb		0.000
7	FUNCTION2 PFK	27.95	5.238e3					0.7	NO		bb		0.000
8	FUNCTION2 PFK	27.71	2.504e4					2.0	NO		bb		0.000
9	FUNCTION2 PFK	27.41	2.553e4					2.2	NO		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	32.83	5.856e3					0.6	NO		bb		0.000
2	FUNCTION3 PFK	32.72	1.714e4					0.8	NO		bb		0.000
3	FUNCTION3 PFK	32.61	5.153e4					1.8	NO		bb		0.000
4	FUNCTION3 PFK	32.39	9.550e3					0.7	NO		db		0.000
5	FUNCTION3 PFK	32.32	6.177e4					1.5	NO		bd		0.000
6	FUNCTION3 PFK	32.23	1.214e4					1.5	NO		bb		0.000
7	FUNCTION3 PFK	35.49	3.009e4					1.2	NO		bb		0.000
8	FUNCTION3 PFK	35.29	1.764e4					1.3	NO		db		0.000
9	FUNCTION3 PFK	35.20	3.798e4					1.4	NO		dd		0.000
10	FUNCTION3 PFK	35.15	1.464e4					1.1	NO		bd		0.000
11	FUNCTION3 PFK	35.09	2.431e3					0.5	NO		bb		0.000
12	FUNCTION3 PFK	34.76	4.375e4					1.5	NO		bb		0.000
13	FUNCTION3 PFK	34.54	2.365e4					1.4	NO		db		0.000
14	FUNCTION3 PFK	34.44	5.062e4					1.7	NO		bd		0.000
15	FUNCTION3 PFK	33.94	4.872e4					2.1	NO		db		0.000
16	FUNCTION3 PFK	33.89	2.381e4					1.5	NO		dd		0.000
17	FUNCTION3 PFK	33.84	1.487e4					0.9	NO		bd		0.000
18	FUNCTION3 PFK	33.63	2.202e3					0.3	NO		bb		0.000
19	FUNCTION3 PFK	33.59	2.178e3					0.4	NO		bb		0.000
20	FUNCTION3 PFK	33.43	3.025e3					0.6	NO		bb		0.000
21	FUNCTION3 PFK	33.17	7.670e3					0.8	NO		bb		0.000
22	FUNCTION3 PFK	33.13	1.595e3					0.3	NO		bb		0.000
23	FUNCTION3 PFK	37.13	4.449e3					0.4	NO		bb		0.000
24	FUNCTION3 PFK	36.82	3.123e4					1.0	NO		bb		0.000
25	FUNCTION3 PFK	36.77	2.966e4					1.4	NO		db		0.000
26	FUNCTION3 PFK	36.69	5.756e4					2.6	NO		dd		0.000
27	FUNCTION3 PFK	36.62	2.799e4					1.8	NO		bd		0.000
28	FUNCTION3 PFK	36.42	1.304e4					1.3	NO		db		0.000
29	FUNCTION3 PFK	36.35	3.667e4					1.8	NO		dd		0.000
30	FUNCTION3 PFK	36.33	1.526e4					1.4	NO		bd		0.000
31	FUNCTION3 PFK	36.06	6.437e3					0.6	NO		bb		0.000
32	FUNCTION3 PFK	35.65	2.043e4					0.9	NO		bb		0.000
33	FUNCTION3 PFK	35.56	3.177e4					1.6	NO		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.60	1.040e6					37.0	YES		dd		
2	FUNCTION4 PFK	37.50	6.872e5					40.0	YES		dd		
3	FUNCTION4 PFK	37.44	1.475e6					41.9	YES		dd		
4	FUNCTION4 PFK	37.35	1.870e6					43.6	YES		bd		
5	FUNCTION4 PFK	39.87	5.758e3					0.7	NO		bb		
6	FUNCTION4 PFK	39.76	4.623e3					0.7	NO		bb		
7	FUNCTION4 PFK	39.61	1.649e4					1.6	NO		db		
8	FUNCTION4 PFK	39.56	1.303e4					1.6	NO		bd		
9	FUNCTION4 PFK	39.32	2.064e3					0.6	NO		bb		
10	FUNCTION4 PFK	39.28	4.675e3					0.9	NO		bb		
11	FUNCTION4 PFK	39.11	5.133e4					1.9	NO		bb		
12	FUNCTION4 PFK	38.93	4.581e3					0.7	NO		bb		
13	FUNCTION4 PFK	38.64	1.906e4					1.7	NO		bb		
14	FUNCTION4 PFK	38.57	1.007e4					1.4	NO		bb		
15	FUNCTION4 PFK	38.44	2.654e5					2.6	NO		db		
16	FUNCTION4 PFK	38.04	1.123e6					18.5	YES		dd		
17	FUNCTION4 PFK	37.93	7.339e5					23.3	YES		dd		
18	FUNCTION4 PFK	37.88	9.922e5					25.0	YES		dd		
19	FUNCTION4 PFK	37.75	5.174e5					30.5	YES		dd		
20	FUNCTION4 PFK	37.64	1.164e6					35.2	YES		dd		
21	FUNCTION4 PFK	42.45	1.475e4					0.8	NO		bb		
22	FUNCTION4 PFK	41.85	5.223e3					0.8	NO		bb		
23	FUNCTION4 PFK	41.79	1.665e4					1.5	NO		bb		
24	FUNCTION4 PFK	41.52	2.628e4					1.1	NO		bb		
25	FUNCTION4 PFK	41.42	8.606e3					1.0	NO		bb		
26	FUNCTION4 PFK	41.30	1.384e4					1.2	NO		bb		
27	FUNCTION4 PFK	40.98	1.583e3					0.5	NO		bb		
28	FUNCTION4 PFK	40.91	9.719e3					1.2	NO		bb		
29	FUNCTION4 PFK	40.66	4.809e4					1.6	NO		bb		
30	FUNCTION4 PFK	40.39	1.323e4					1.5	NO		db		
31	FUNCTION4 PFK	40.35	1.064e4					1.2	NO		dd		
32	FUNCTION4 PFK	40.32	1.097e4					1.3	NO		bd		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	42.66	4.489e4					4.6	YES		dd		
2	FUNCTION5 PFK	42.60	3.091e4					4.7	YES		dd		
3	FUNCTION5 PFK	42.57	7.950e4					7.2	YES		bd		
4	FUNCTION5 PFK	44.10	9.416e3					1.3	NO		bb		
5	FUNCTION5 PFK	44.04	4.388e3					1.0	NO		db		
6	FUNCTION5 PFK	44.00	1.214e4					1.4	NO		dd		
7	FUNCTION5 PFK	43.95	9.233e3					1.6	NO		bd		
8	FUNCTION5 PFK	43.74	9.011e3					1.0	NO		bb		
9	FUNCTION5 PFK	43.52	5.810e3					1.2	NO		db		
10	FUNCTION5 PFK	43.49	1.693e3					0.6	NO		bd		
11	FUNCTION5 PFK	43.45	1.098e4					2.1	NO		db		
12	FUNCTION5 PFK	43.42	9.599e3					1.8	NO		dd		
13	FUNCTION5 PFK	43.39	1.432e4					1.7	NO		dd		
14	FUNCTION5 PFK	43.33	8.297e3					1.4	NO		dd		
15	FUNCTION5 PFK	43.24	7.583e4					3.3	YES		dd		
16	FUNCTION5 PFK	43.15	1.064e4					1.9	NO		bd		
17	FUNCTION5 PFK	43.01	1.311e4					1.5	NO		bb		
18	FUNCTION5 PFK	42.81	4.934e3					1.0	NO		db		
19	FUNCTION5 PFK	42.71	5.647e4					3.7	YES		dd		
20	FUNCTION5 PFK	45.84	7.035e2					0.4	NO		bb		
21	FUNCTION5 PFK	45.81	3.075e3					0.9	NO		bb		
22	FUNCTION5 PFK	45.77	3.693e3					0.9	NO		bb		
23	FUNCTION5 PFK	45.62	5.646e3					1.1	NO		db		
24	FUNCTION5 PFK	45.59	3.896e3					0.9	NO		bd		
25	FUNCTION5 PFK	45.44	7.274e2					0.4	NO		bb		
26	FUNCTION5 PFK	45.35	1.925e4					1.7	NO		db		
27	FUNCTION5 PFK	45.22	9.438e3					1.3	NO		bd		
28	FUNCTION5 PFK	45.16	1.219e3					0.6	NO		bb		
29	FUNCTION5 PFK	45.13	9.432e2					0.5	NO		bb		
30	FUNCTION5 PFK	44.94	2.880e3					0.8	NO		bb		
31	FUNCTION5 PFK	44.80	1.580e4					1.6	NO		db		
32	FUNCTION5 PFK	44.68	1.394e4					1.5	NO		bd		
33	FUNCTION5 PFK	44.49	3.073e3					0.6	NO		bb		
34	FUNCTION5 PFK	44.43	8.846e2					0.4	NO		bb		
35	FUNCTION5 PFK	44.40	7.055e2					0.4	NO		bb		
36	FUNCTION5 PFK	45.94	3.378e3					0.8	NO		db		
37	FUNCTION5 PFK	45.91	1.221e3					0.5	NO		bd		

ID: BLL0751-BLK1, Name: 24011804, Date: 18-Jan-2024, Time: 12:06:48, Conditions: AUTOSPEC01, User: pk

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	25.72	8.613e1					2.6	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	41.42	1.213e2					3.9	YES		bb		0.000
2	FUNCTION4 NCDPE	39.74	1.091e2					2.1	NO		bb		0.000
3	FUNCTION4 NCDPE	38.22	8.816e1					2.7	NO		db		0.000
4	FUNCTION4 NCDPE	38.17	7.655e1					2.7	NO		bd		0.000
5	FUNCTION4 NCDPE	37.81	7.257e1					2.4	NO		bb		0.000

ETHERS6

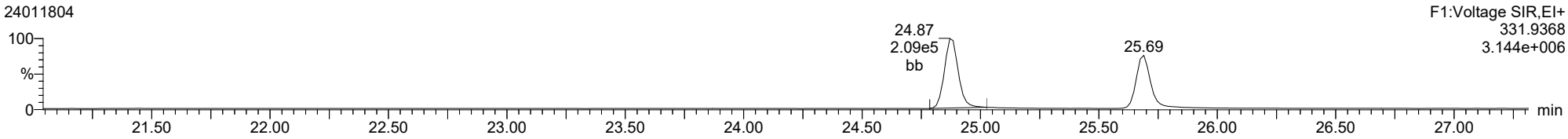
	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.16	8.732e1					3.0	NO		bb		0.000
2	FUNCTION5 DCDPE	42.90	1.688e2					3.3	YES		db		0.000
3	FUNCTION5 DCDPE	42.75	1.750e2					2.6	NO		bd		0.000

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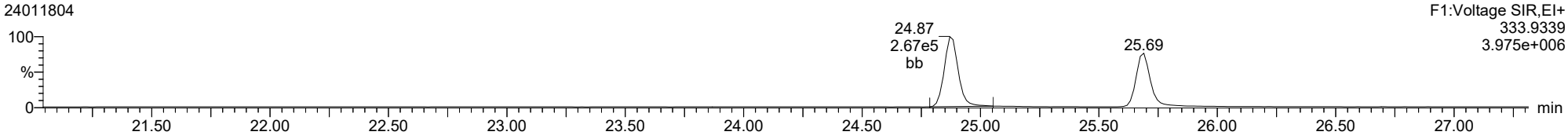
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ID: BLL0751-BLK1, Name: 24011804, Date: 18-Jan-2024, Time: 12:06:48, Conditions: AUTOSPEC01, User: pk

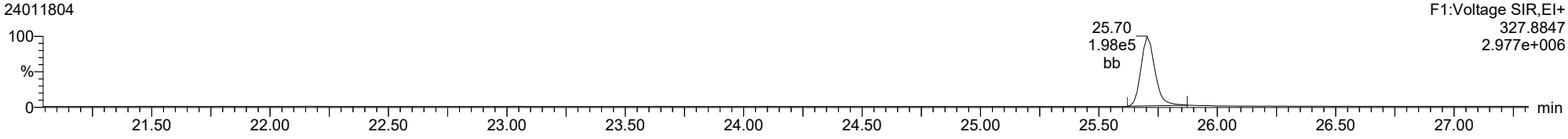
13C-1234-TCDD



13C-1234-TCDD

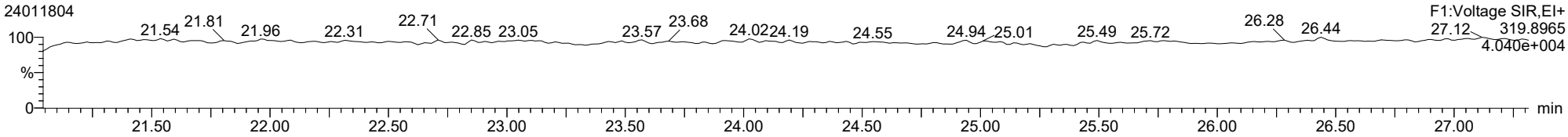


37CL-2378-TCDD

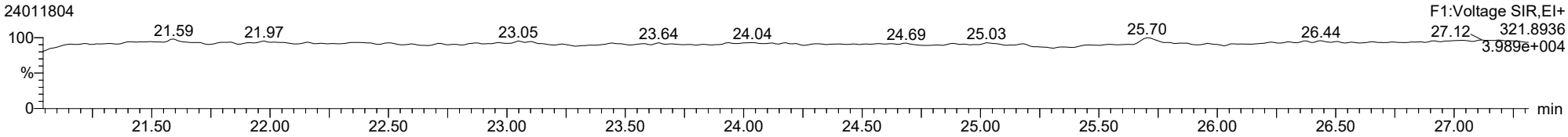


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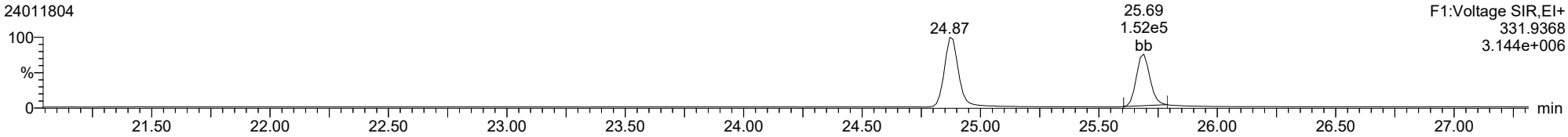
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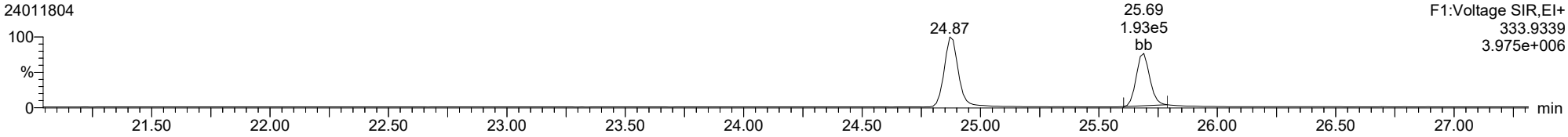
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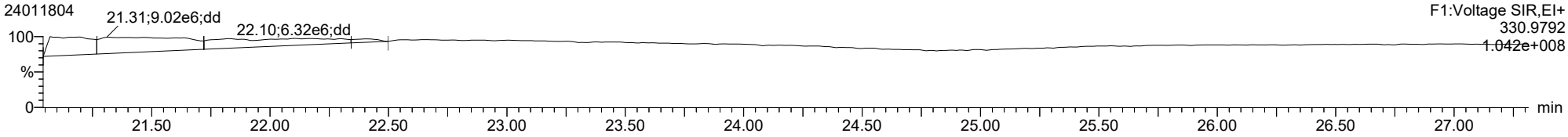
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13C-2378-TCDD

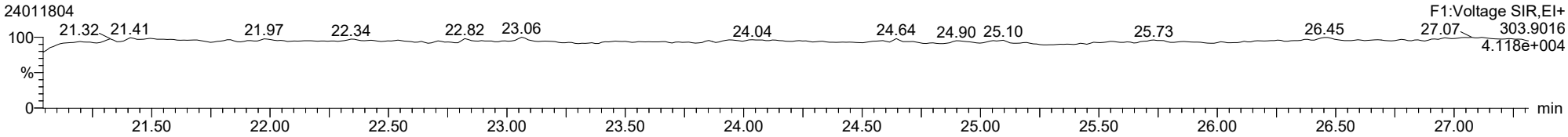


FUNCTION1 PFK

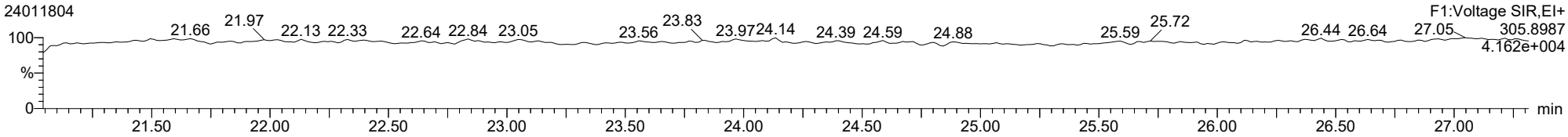


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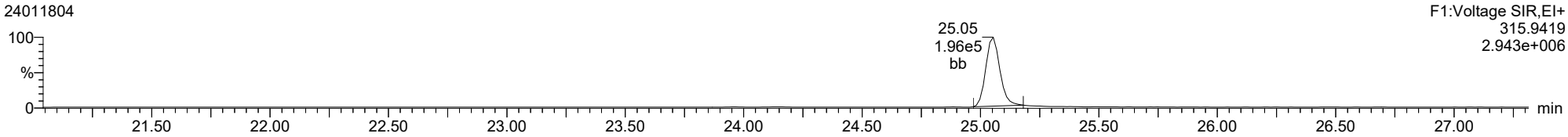
2378-TCDF



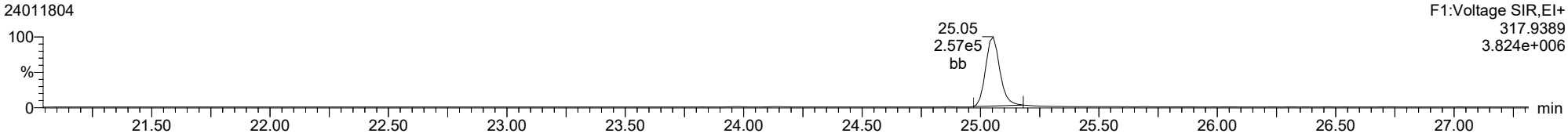
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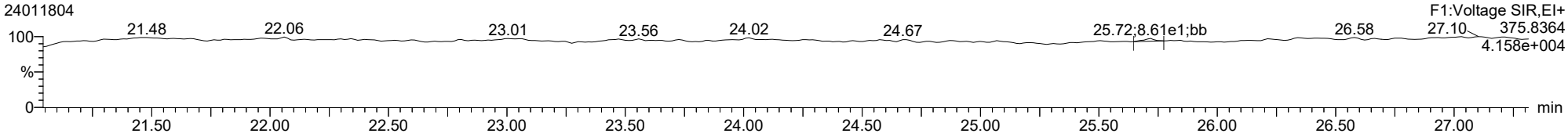
13C-2378-TCDF



13C-2378-TCDF

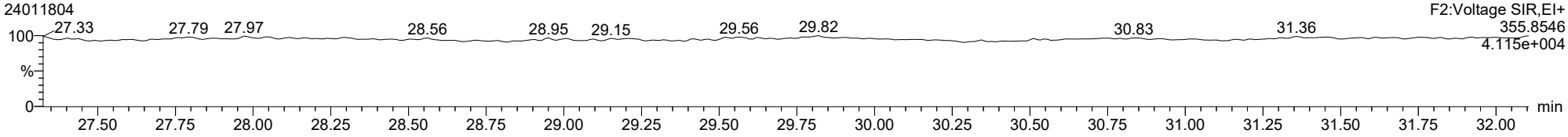


FUNCTION1 HXCDPE

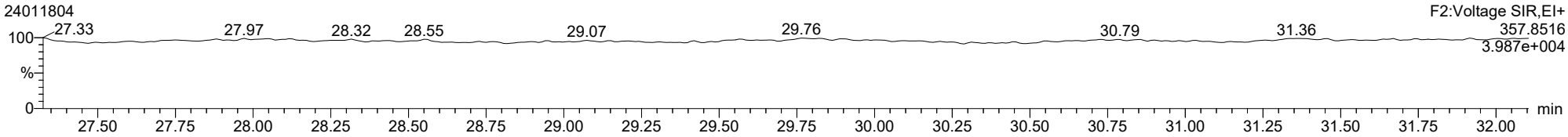


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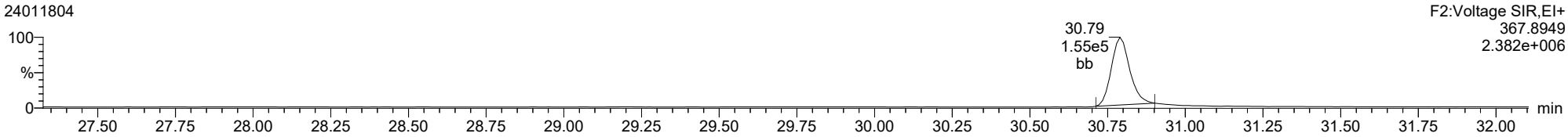
12378-PeCDD



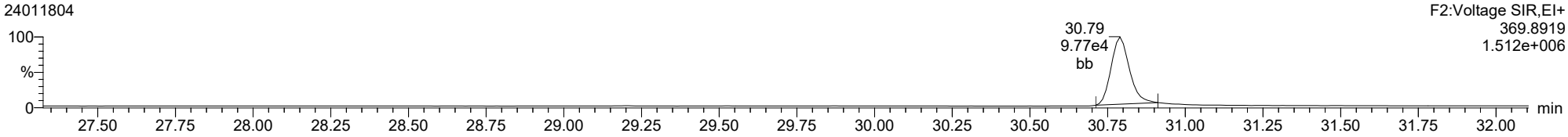
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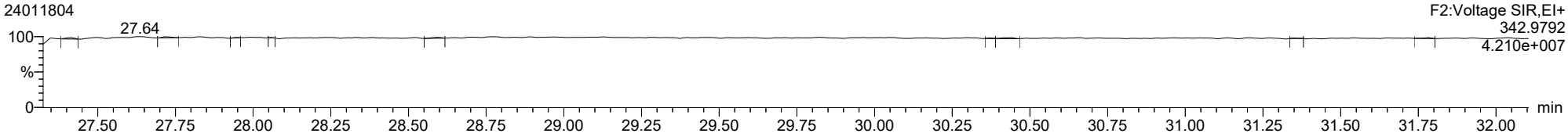
13C-12378-PeCDD



13C-12378-PeCDD



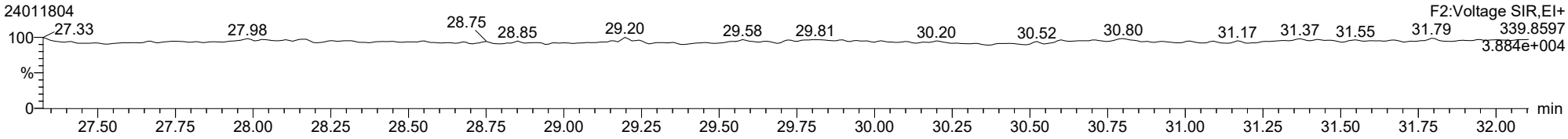
FUNCTION2 PFK



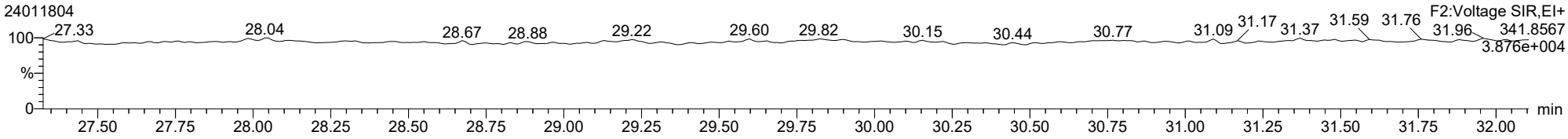
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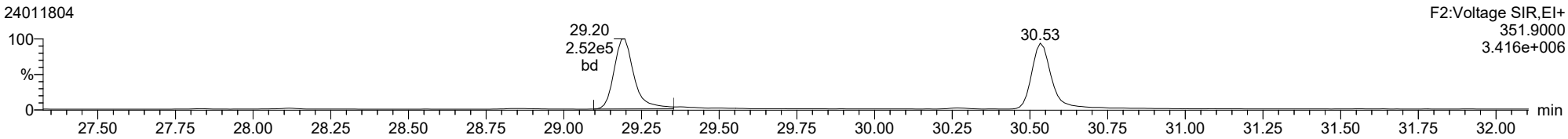
12378-PeCDF



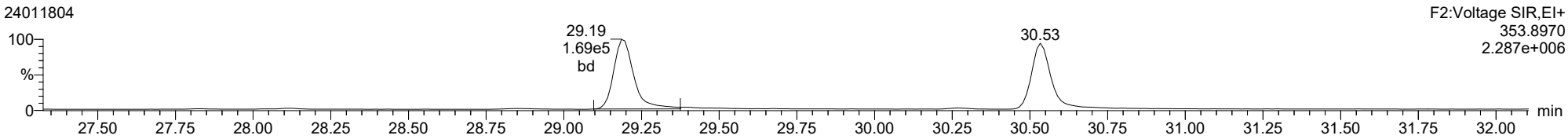
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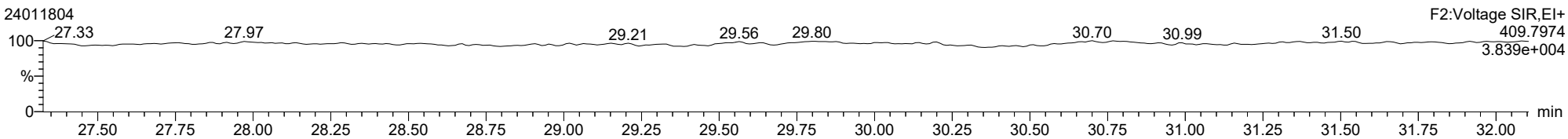
13C-12378-PeCDF



13C-12378-PeCDF

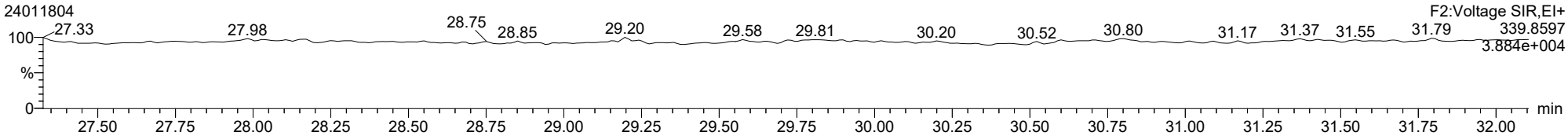


FUNCTION2 HPCDPE

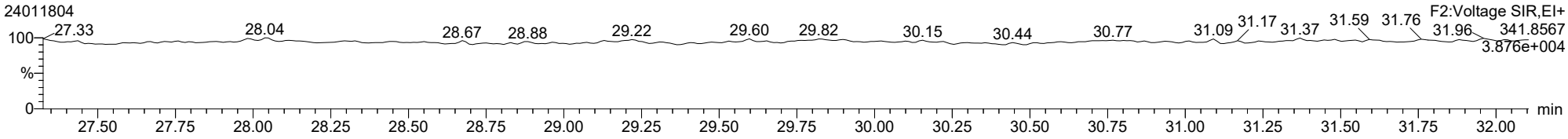


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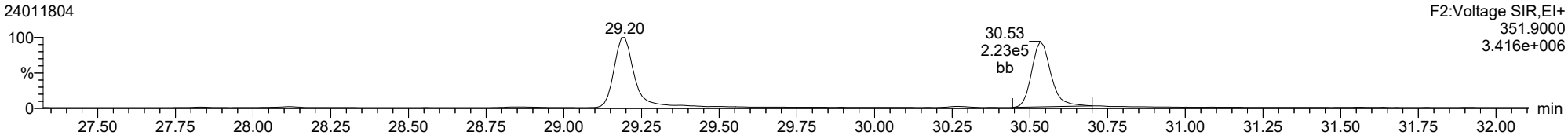
23478-PeCDF



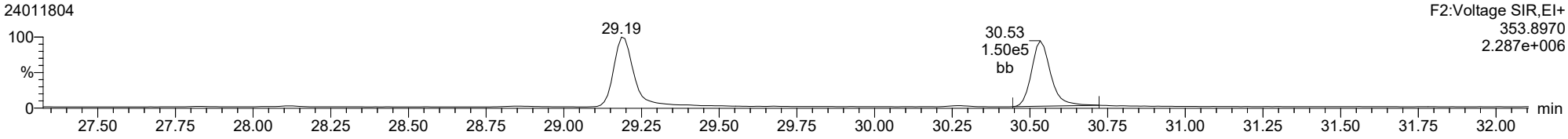
23478-PeCDF



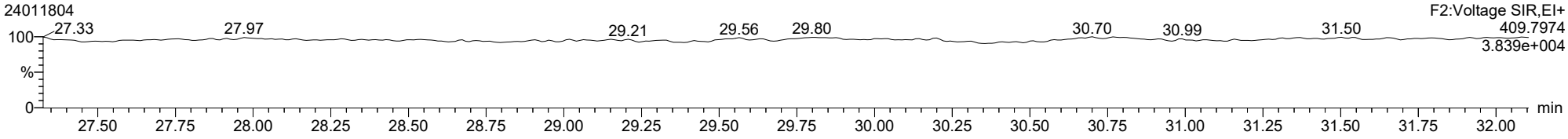
13C-23478-PeCDF



13C-23478-PeCDF

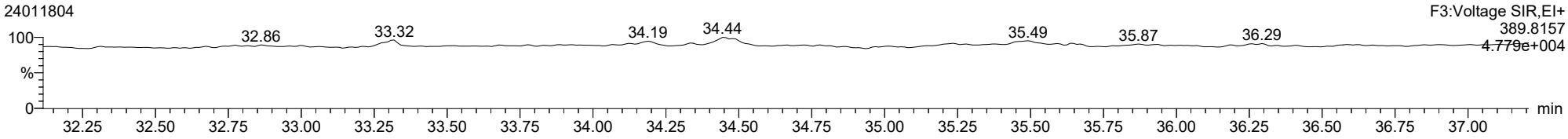


FUNCTION2 HPCDPE

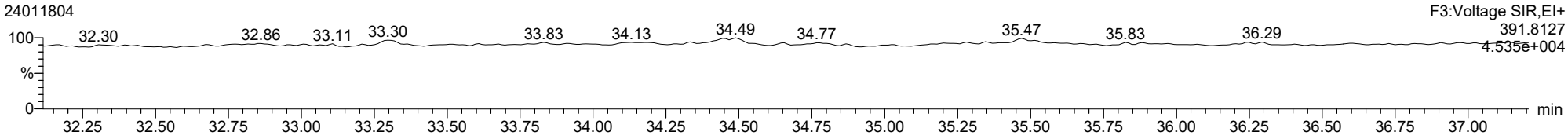


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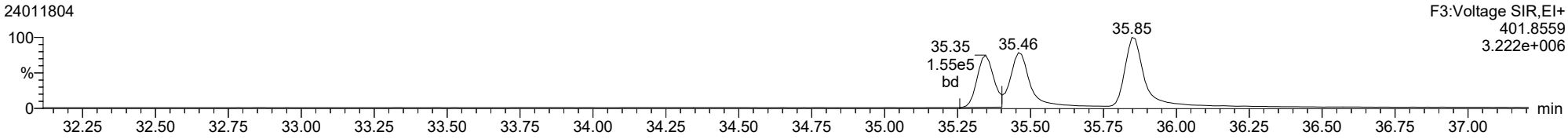
123478-HxCDD



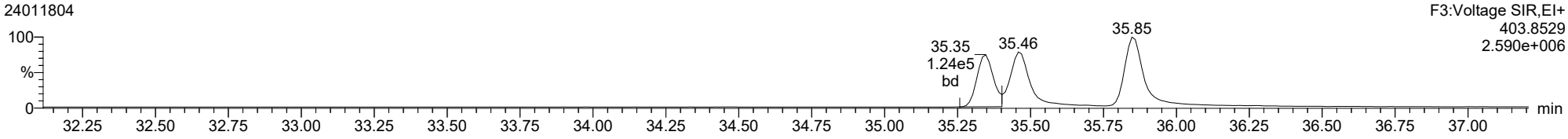
123478-HxCDD



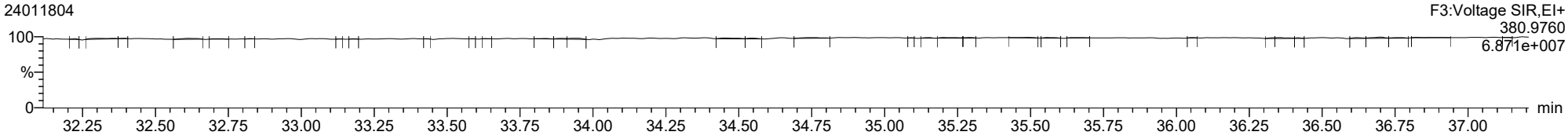
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13C-123478-HxCDD

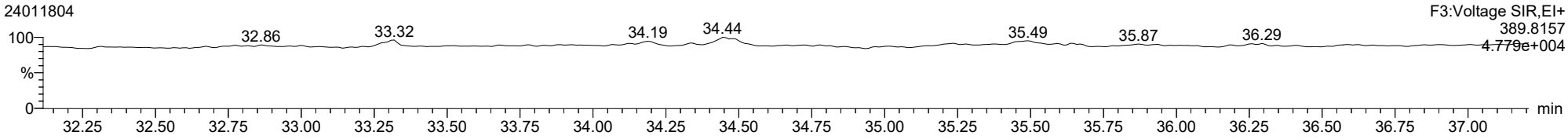


FUNCTION3 PFK

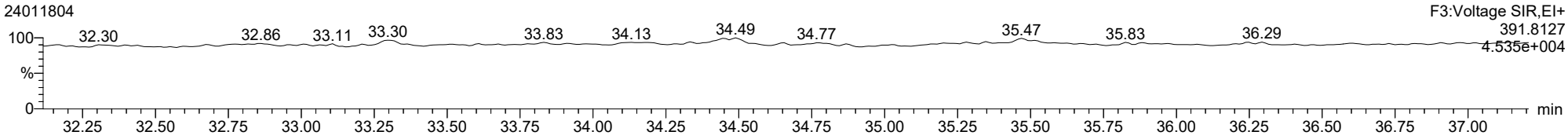


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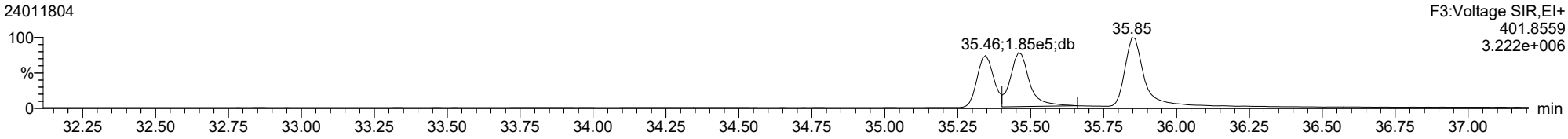
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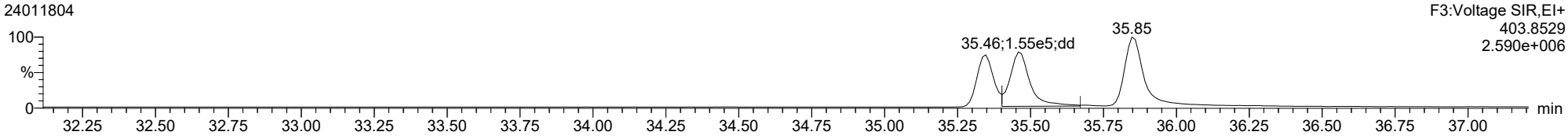
123678-HxCDD



13C-123678-HxCDD

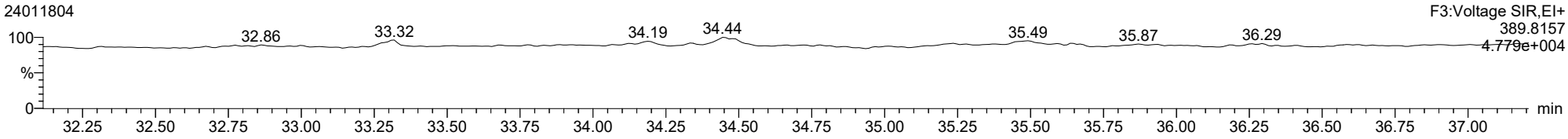


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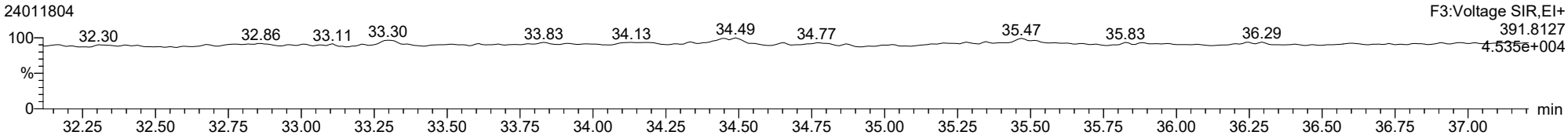


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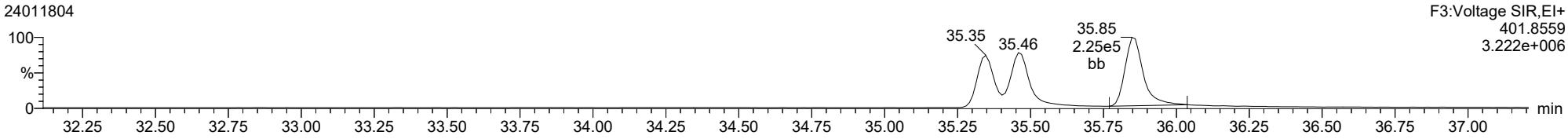
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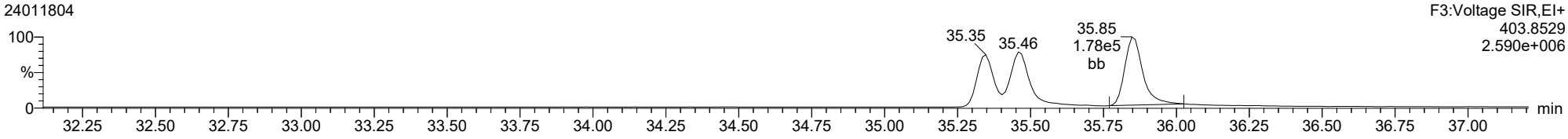
123789-HxCDD



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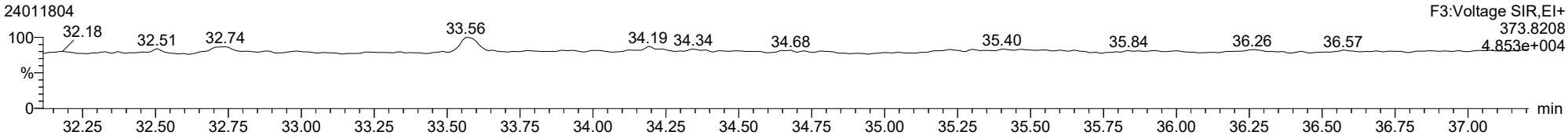


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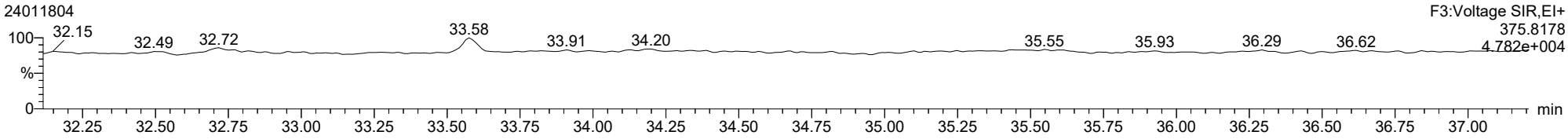


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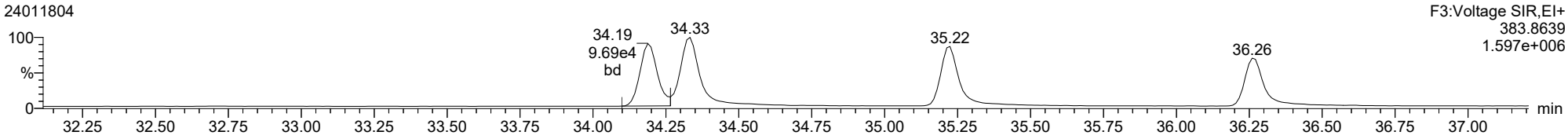
123478-HxCDF



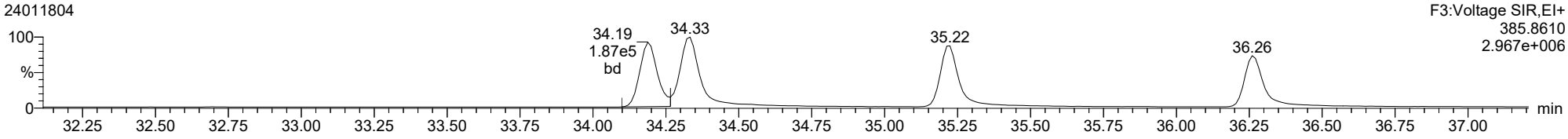
123478-HxCDF



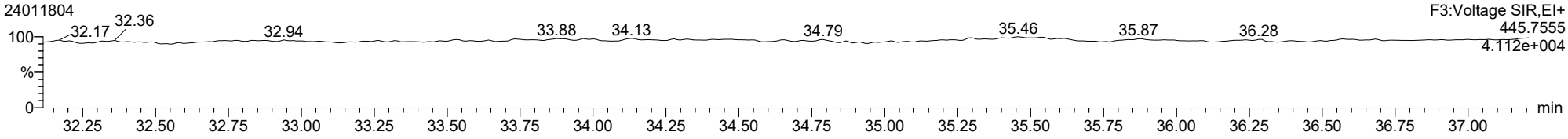
13C-123478-HxCDF



13C-123478-HxCDF

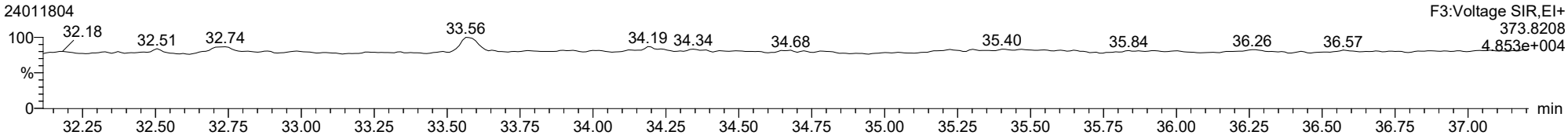


FUNCTION3 OCDPE

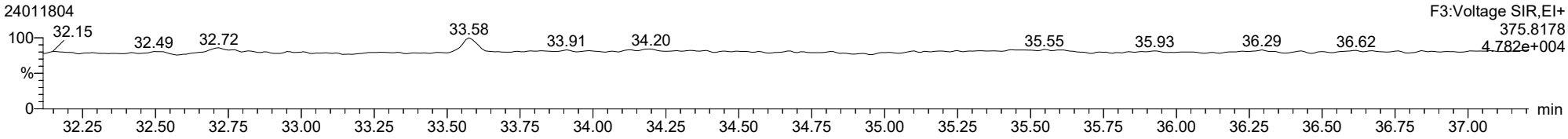


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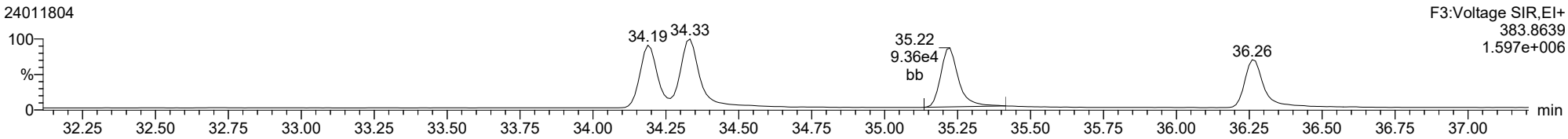
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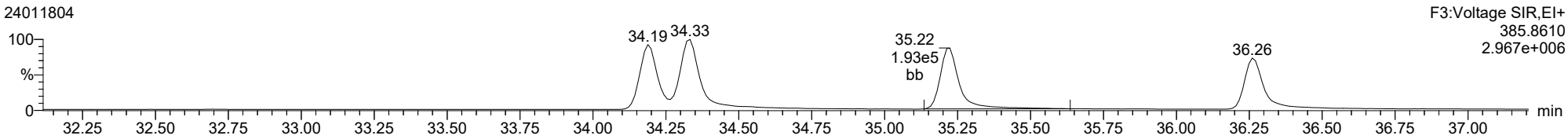
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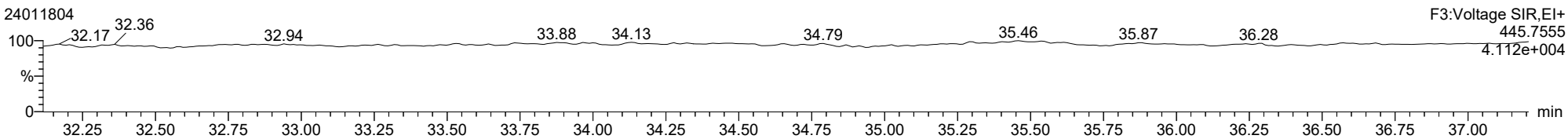
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13C-234678-HxCDF

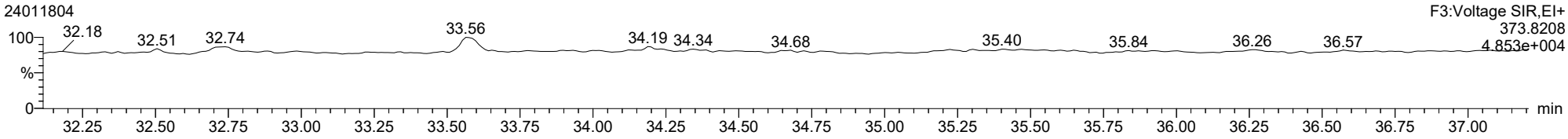


FUNCTION3 OCDPE

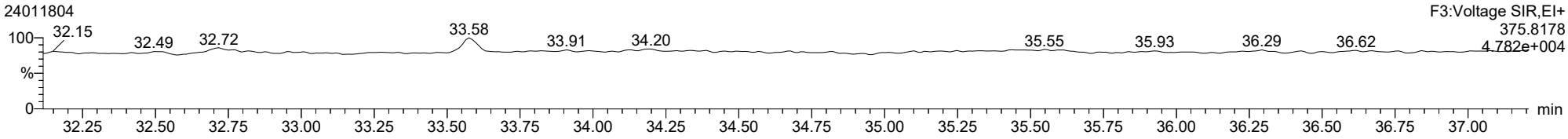


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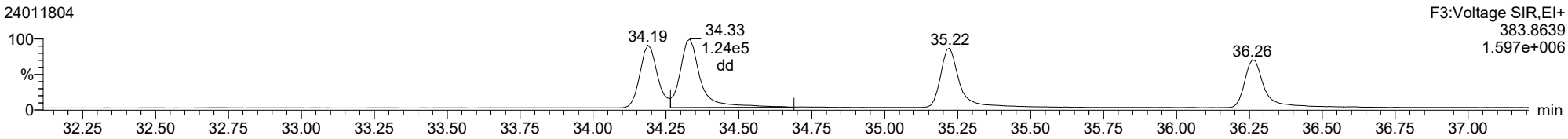
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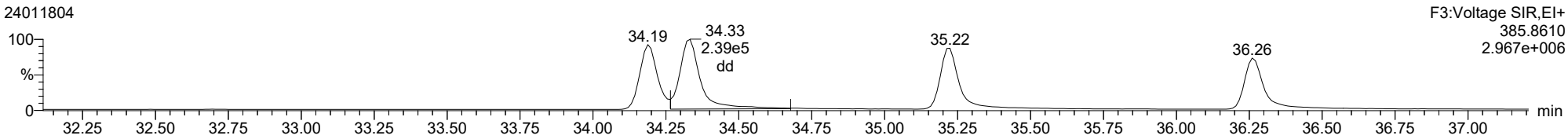
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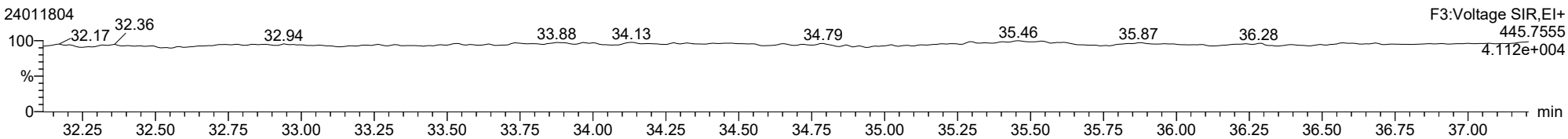
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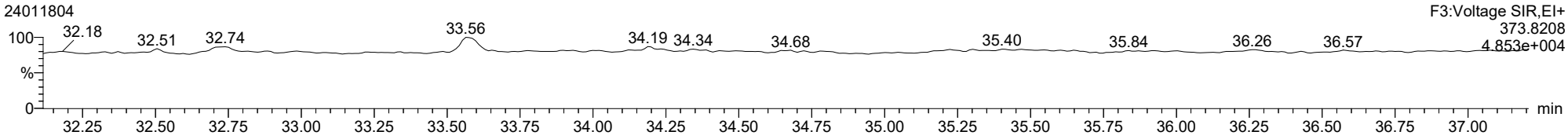


FUNCTION3 OCDPE

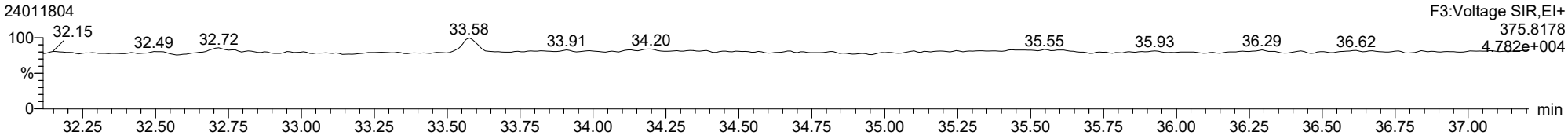


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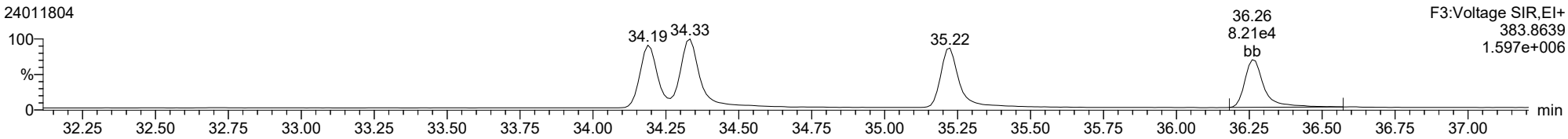
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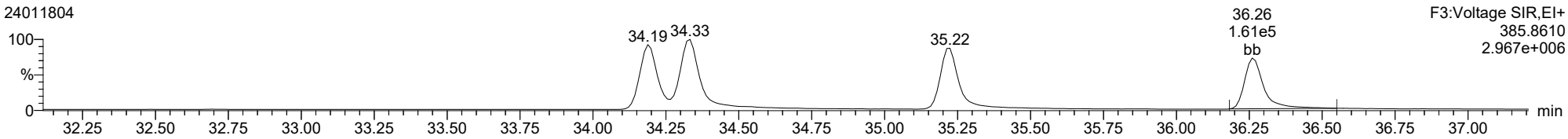
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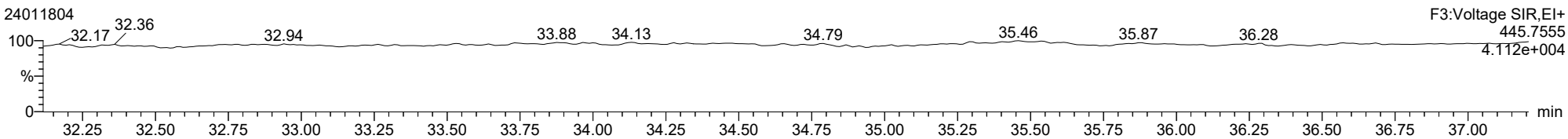
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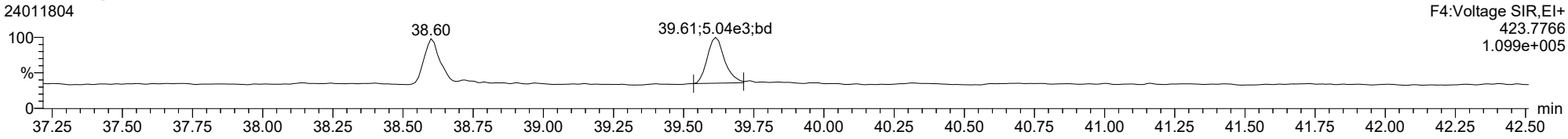
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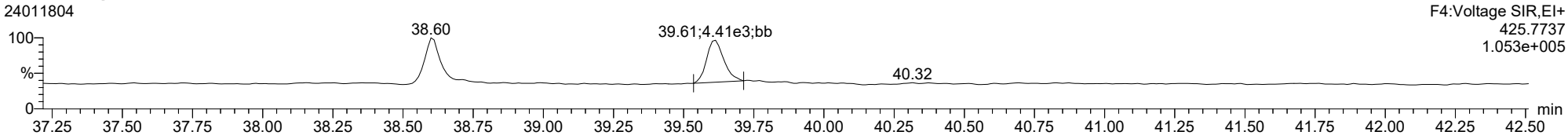
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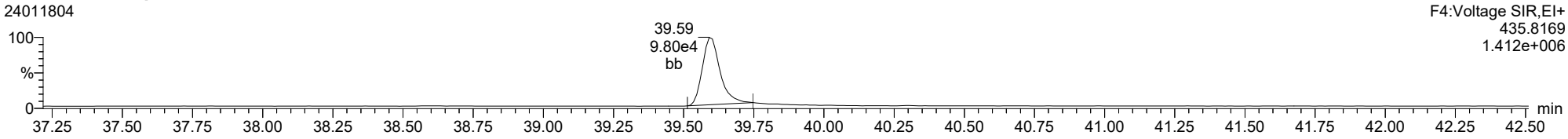
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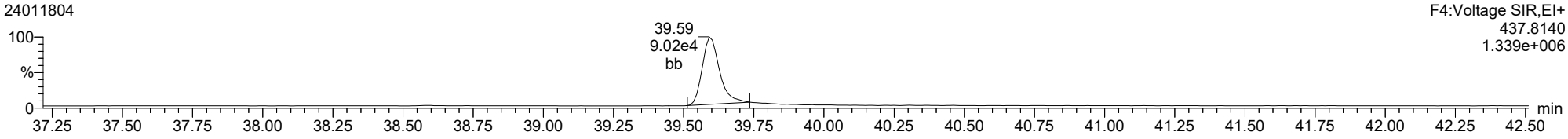
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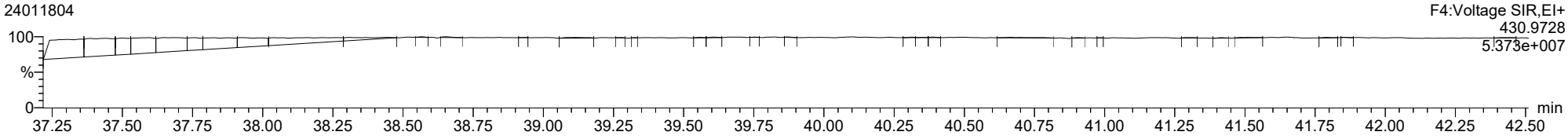
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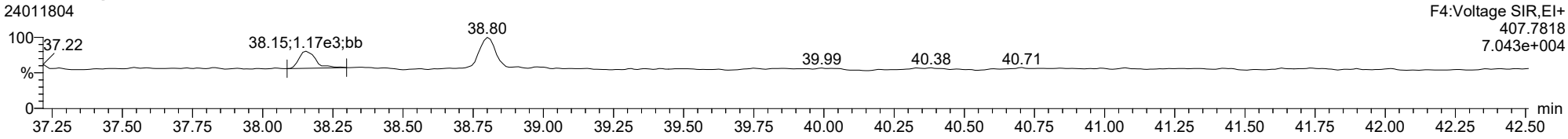


FUNCTION4 PFK

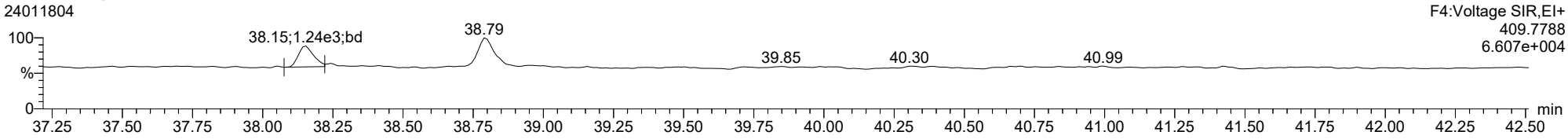


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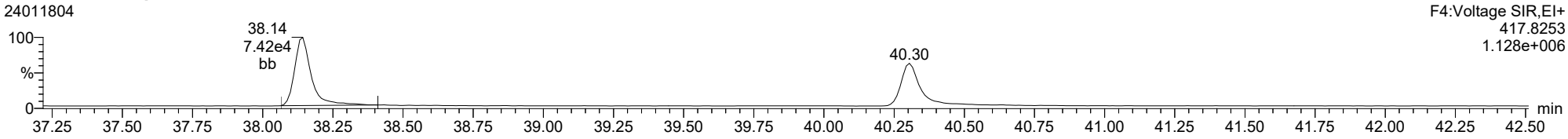
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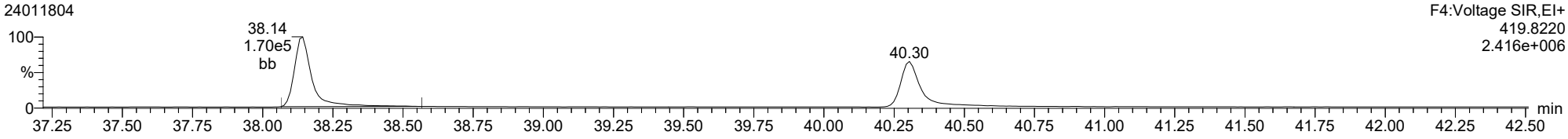
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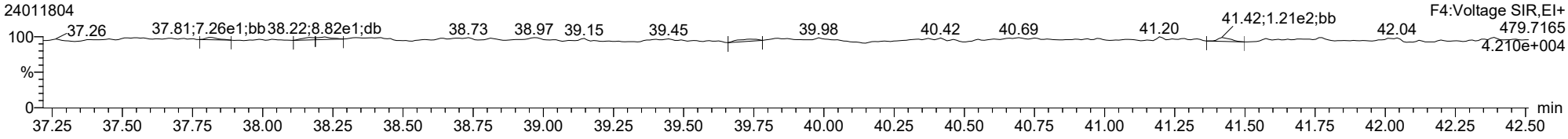
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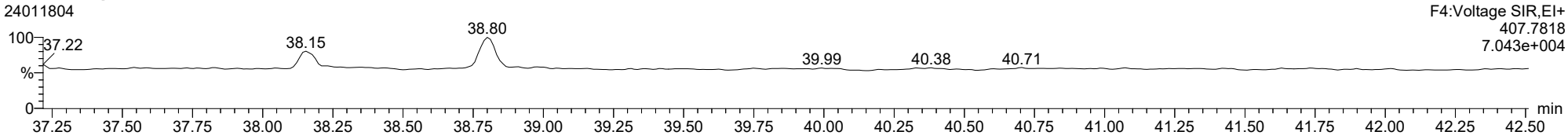


FUNCTION4 NCDPE

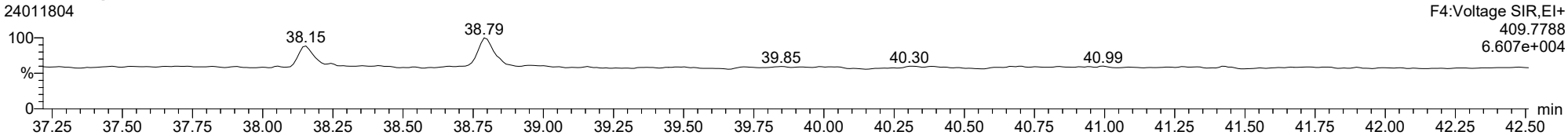


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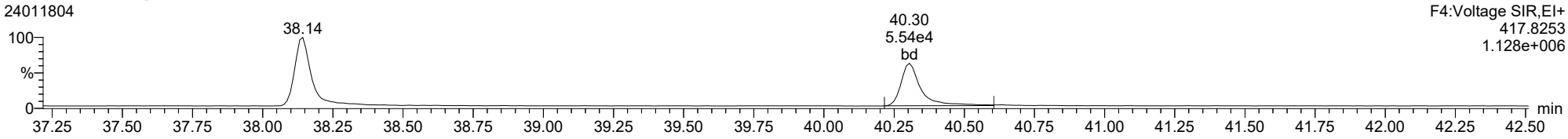
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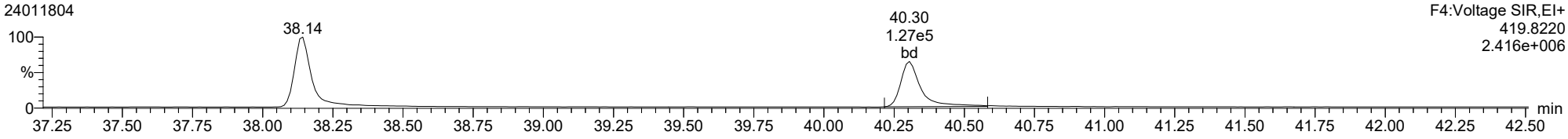
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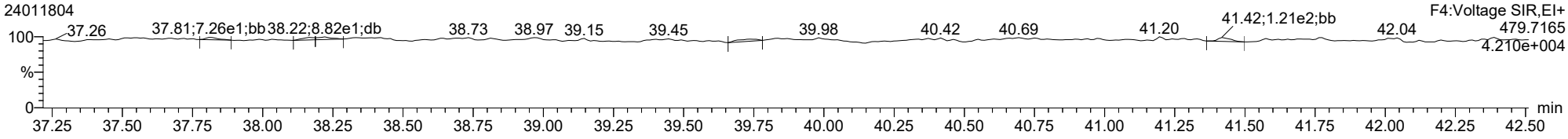
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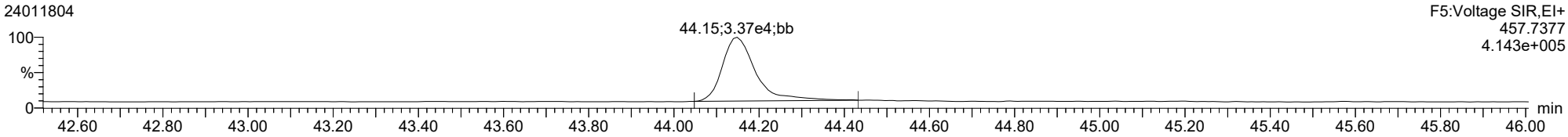


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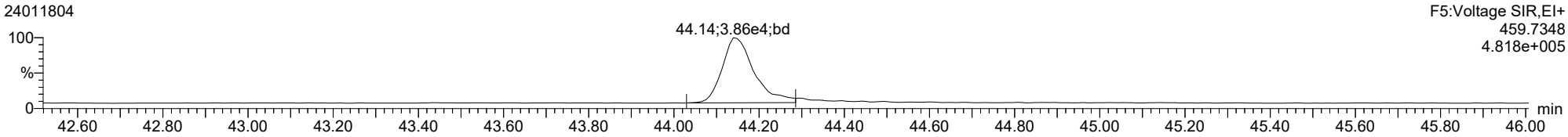


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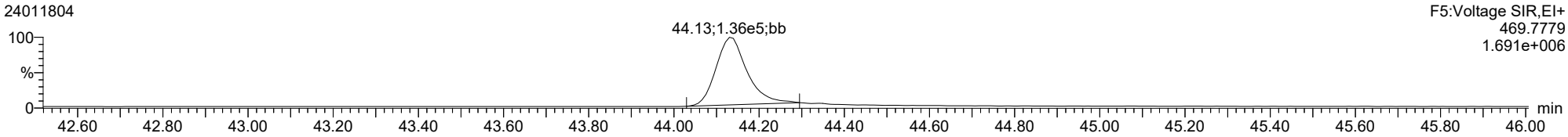
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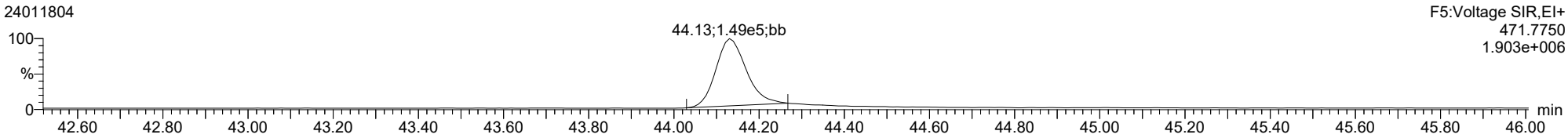
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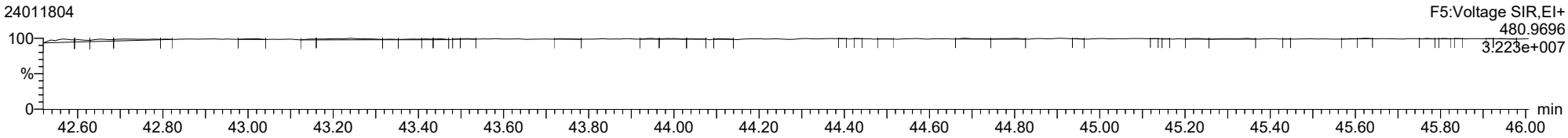
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13C-OCDD



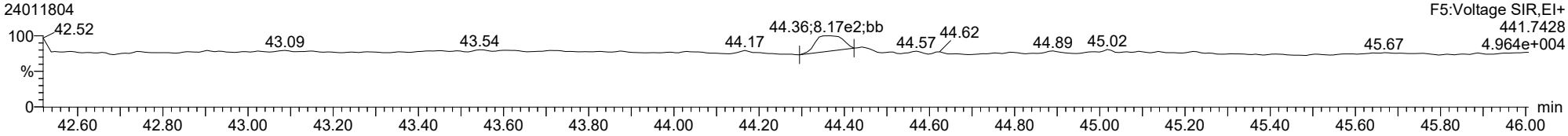
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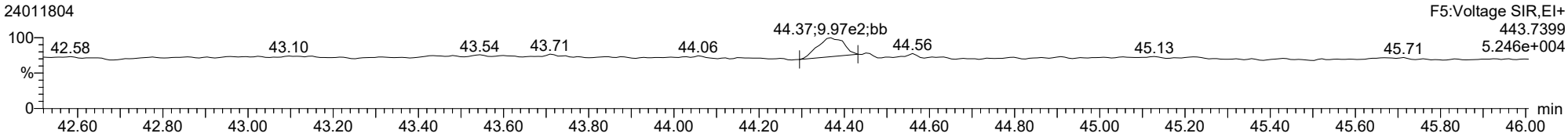
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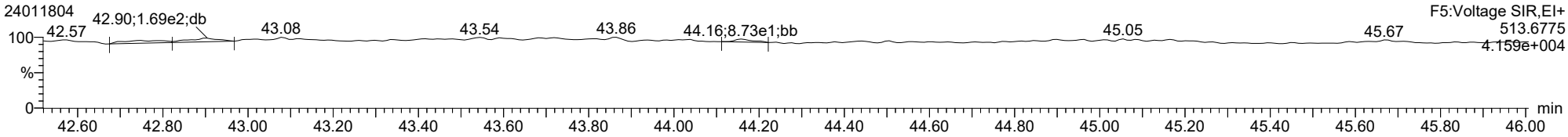
OCDF



OCDF



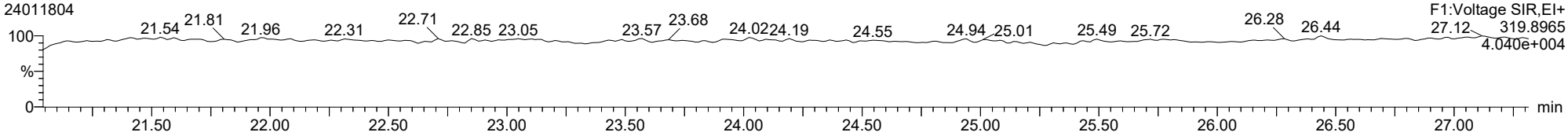
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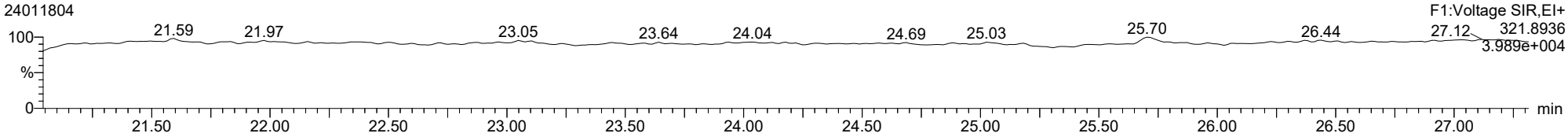
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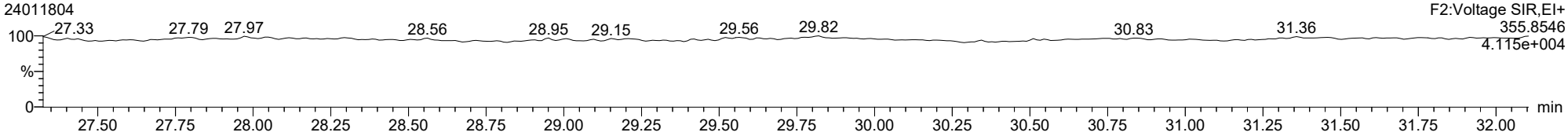
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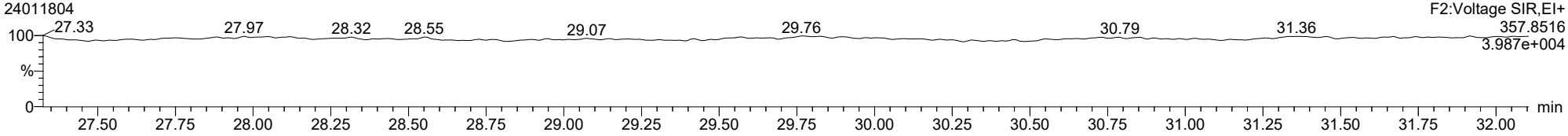
Total-tetradioxins



Total-pentadioxins

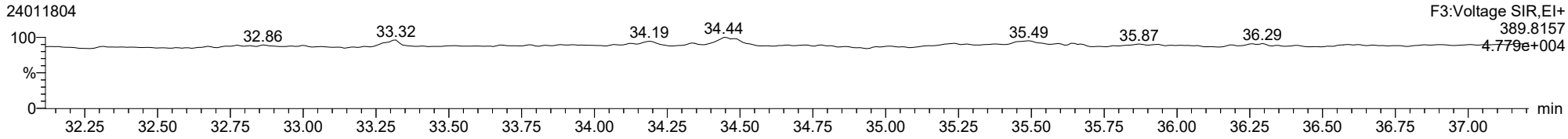


Total-pentadioxins

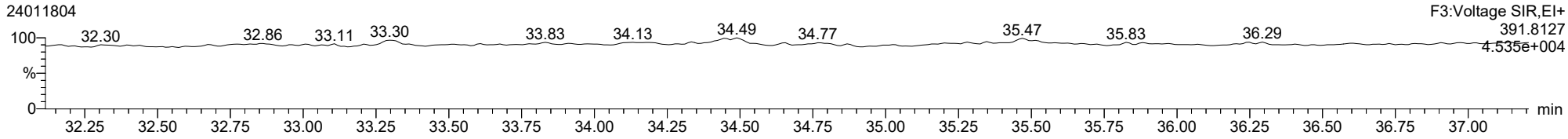


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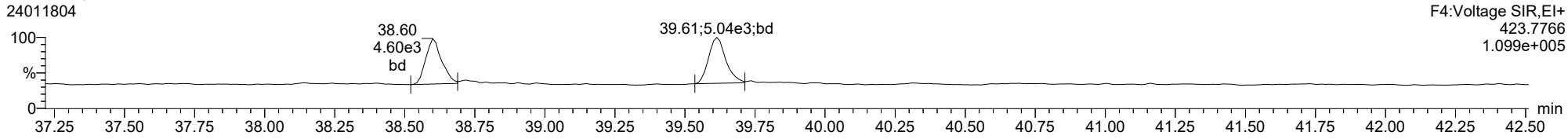
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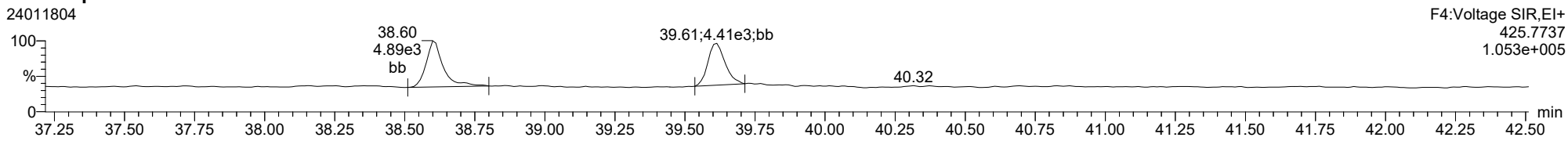
Total-hexadioxins



Total-heptadioxins



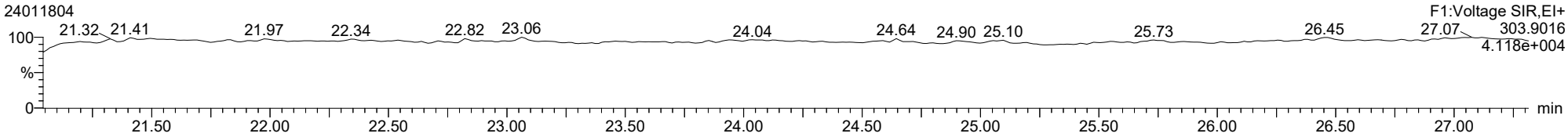
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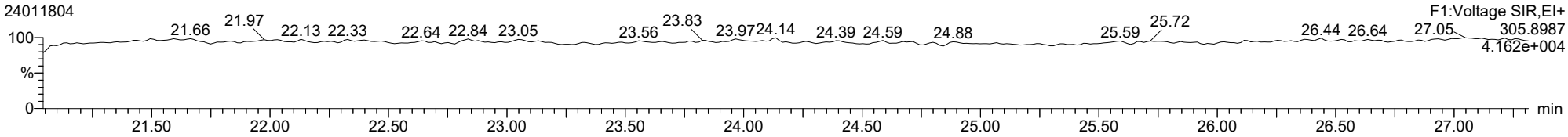
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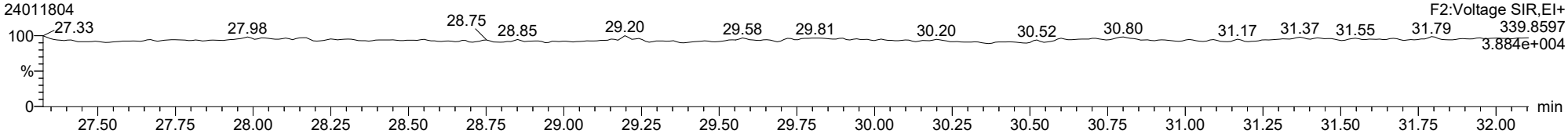
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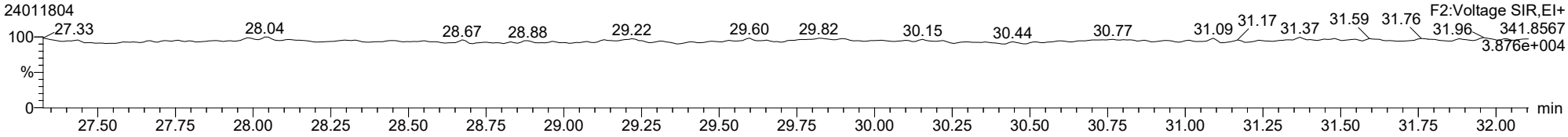
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Total-pentafurans



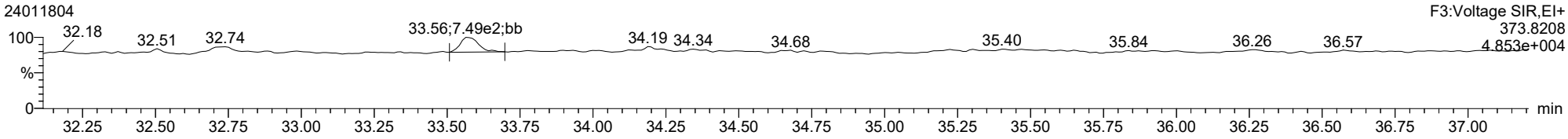
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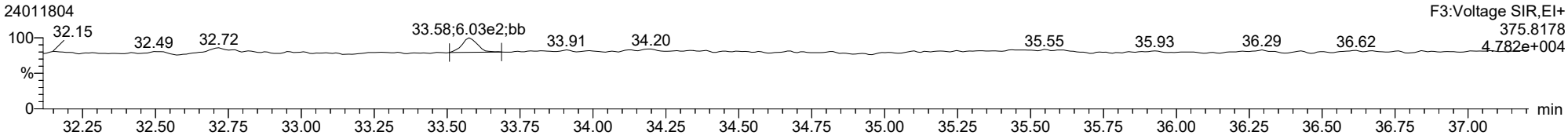
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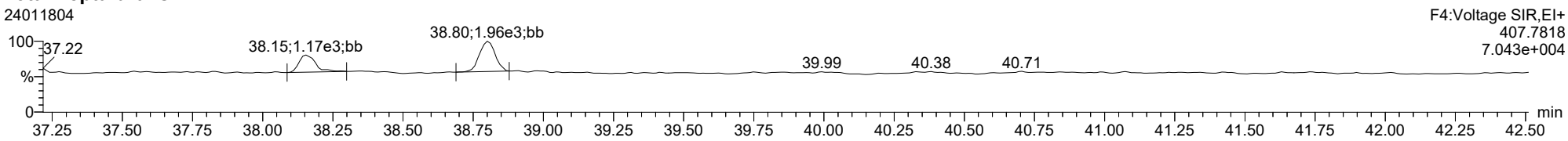
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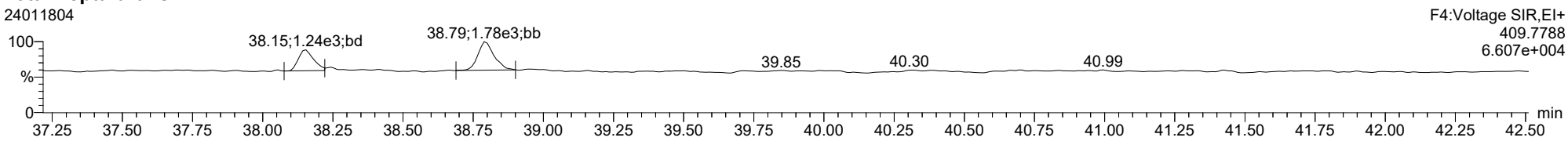
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

LCS RECOVERY
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23L0564
Client:	Floyd - Snider	Project:	Smith-Kem
Matrix:	Solid	Analyzed:	01/18/24 12:55
Batch:	BLL0751	Laboratory ID:	BLL0751-BS2
Preparation:	EPA 1613	Sequence Name:	LCS
Initial/Final:	10 g / 20 uL		

COMPOUND	SPIKE ADDED (ng/kg wet)	LCS CONCENTRATION (ng/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
2,3,7,8-TCDF	20.0	17.5		87.5	75 - 158
2,3,7,8-TCDD	20.0	17.6		88.0	67 - 158
1,2,3,7,8-PeCDF	100	86.3		86.3	80 - 134
2,3,4,7,8-PeCDF	100	96.8		96.8	68 - 160
1,2,3,7,8-PeCDD	100	92.8		92.8	70 - 142
1,2,3,4,7,8-HxCDF	100	92.0		92.0	72 - 134
1,2,3,6,7,8-HxCDF	100	98.8		98.8	84 - 130
2,3,4,6,7,8-HxCDF	100	97.5		97.5	70 - 156
1,2,3,7,8,9-HxCDF	100	93.8		93.8	78 - 130
1,2,3,4,7,8-HxCDD	100	78.9		78.9	70 - 164
1,2,3,6,7,8-HxCDD	100	85.3		85.3	76 - 134
1,2,3,7,8,9-HxCDD	100	88.7		88.7	64 - 162
1,2,3,4,6,7,8-HpCDF	100	90.5	B	90.5	82 - 122
1,2,3,4,7,8,9-HpCDF	100	93.4		93.4	78 - 138
1,2,3,4,6,7,8-HpCDD	100	80.2	B	80.2	70 - 140
OCDF	200	175	B	87.3	63 - 170
OCDD	200	177	B	88.7	78 - 144

* Indicates values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:45:27 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240116.mdb 16 Jan 2024 11:29:56
Calibration: T:\Autospec\Curves\230811IClH.cdb 12 Aug 2023 09:45:18

ID: BLL0751-BS1, Name: 24011805, Date: 18-Jan-2024, Time: 12:55:08, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.040	1.001	2.422e4	3.158e4	0.903	0.767	0.770	763	1337	3.45e5	4.58e5	451.8	342.5	NO	bb	bb	8.746
12378-PeCDF	29.183	1.000	1.305e5	7.960e4	0.923	1.640	1.550	1981	1722	1.80e6	1.15e6	907.4	668.9	NO	bd	bb	43.150
23478-PeCDF	30.531	1.001	1.337e5	9.008e4	0.991	1.484	1.550	1981	1722	1.91e6	1.20e6	963.6	694.7	NO	bb	bd	48.387
123478-HxCDF	34.185	1.000	1.018e5	8.044e4	1.128	1.266	1.240	1492	2272	1.48e6	1.18e6	993.7	517.9	NO	bd	bd	46.008
234678-HxCDF	35.221	1.001	1.027e5	9.118e4	1.081	1.126	1.240	1492	2272	1.50e6	1.25e6	1007.8	552.3	NO	bb	bd	48.765
123678-HxCDF	34.330	1.000	1.290e5	9.062e4	1.032	1.423	1.240	1492	2272	1.62e6	1.24e6	1083.6	547.7	NO	dd	db	49.398
123789-HxCDF	36.269	1.001	7.489e4	6.717e4	0.988	1.115	1.240	1492	2272	1.08e6	8.51e5	721.4	374.7	NO	bb	bd	46.883
1234678-HpCDF	38.140	1.000	8.158e4	7.552e4	1.164	1.080	1.050	2142	1291	1.18e6	1.13e6	551.8	874.1	NO	bd	bb	45.266
1234789-HpCDF	40.302	1.000	5.794e4	5.309e4	1.104	1.091	1.050	2142	1291	7.40e5	7.06e5	345.4	546.8	NO	bd	bd	46.677
OCDF	44.356	1.005	8.433e4	9.369e4	1.130	0.900	0.890	1454	1755	9.15e5	9.62e5	629.4	548.1	NO	bd	bd	87.257
2378-TCDD	25.676	1.001	2.347e4	3.113e4	1.243	0.754	0.770	945	594	3.32e5	4.30e5	351.5	725.3	NO	bd	bd	8.801
12378-PeCDD	30.787	1.000	1.024e5	6.623e4	1.150	1.546	1.550	1232	998	1.35e6	8.86e5	1093.7	887.6	NO	bd	bd	46.379
123478-HxCDD	35.344	1.000	7.643e4	6.198e4	0.960	1.233	1.240	1009	952	1.17e6	9.64e5	1162.6	1012.7	NO	bd	bd	39.471
123678-HxCDD	35.455	1.000	9.099e4	7.405e4	0.883	1.229	1.240	1009	952	1.21e6	1.00e6	1196.5	1050.5	NO	db	db	42.664
123789-HxCDD	35.856	1.012	8.151e4	6.172e4	0.804	1.321	1.240	1009	952	1.09e6	8.89e5	1081.6	934.1	NO	bd	bb	44.360
1234678-HpCDD	39.600	1.001	5.901e4	5.393e4	1.200	1.094	1.050	832	1191	7.78e5	7.24e5	934.0	607.5	NO	bd	bd	40.121
OCDD	44.137	1.000	7.768e4	9.177e4	1.059	0.846	0.890	1312	1661	8.60e5	9.94e5	655.6	598.6	NO	bd	bd	88.669
13C-2378-TCDF	25.026	1.007	3.086e5	3.978e5	1.835	0.776	0.770	1359	1986	4.53e6	5.80e6	3335.7	2921.8	NO	bb	bb	64.064
13C-12378-PeCDF	29.172	1.174	3.183e5	2.092e5	1.377	1.522	1.550	1814	2574	4.16e6	2.74e6	2293.6	1064.3	NO	bd	bd	63.784
13C-23478-PeCDF	30.509	1.227	2.813e5	1.856e5	1.301	1.516	1.550	1814	2574	3.89e6	2.60e6	2144.1	1009.6	NO	bb	bb	59.716
13C-123478-HxCDF	34.174	0.954	1.195e5	2.316e5	1.091	0.516	0.510	1428	2275	1.76e6	3.42e6	1234.0	1503.8	NO	bd	bd	71.410
13C-123678-HxCDF	34.319	0.958	1.415e5	2.891e5	1.340	0.490	0.510	1428	2275	1.90e6	3.68e6	1329.6	1615.5	NO	db	db	71.275
13C-234678-HxCDF	35.199	0.982	1.272e5	2.404e5	1.093	0.529	0.510	1428	2275	1.76e6	3.38e6	1233.4	1484.0	NO	bb	bb	74.569
13C-123789-HxCDF	36.246	1.012	1.031e5	2.037e5	0.952	0.506	0.510	1428	2275	1.35e6	2.63e6	948.5	1157.3	NO	bb	bd	71.519
13C-1234678-HpCDF	38.129	1.064	9.028e4	2.080e5	0.985	0.434	0.440	1976	2400	1.26e6	2.89e6	636.5	1203.3	NO	bd	bb	67.166
13C-1234789-HpCDF	40.291	1.124	6.562e4	1.499e5	0.756	0.438	0.440	1976	2400	8.34e5	1.87e6	421.9	779.0	NO	bd	bd	63.261
13C-1234-TCDD	24.856	0.000	2.641e5	3.367e5	1.000	0.785	0.770	1585	997	3.86e6	5.00e6	2433.5	5011.7	NO	bb	bb	100.000
13C-2378-TCDD	25.661	1.032	2.169e5	2.822e5	1.110	0.769	0.770	1585	997	3.26e6	4.20e6	2056.6	4211.2	NO	bb	bb	74.872
13C-12378-PeCDD	30.776	1.238	1.957e5	1.203e5	0.754	1.626	1.550	1071	1152	2.78e6	1.74e6	2594.7	1510.7	NO	bb	bb	69.801
13C-123478-HxCDD	35.333	0.986	2.028e5	1.624e5	0.960	1.249	1.240	1702	2763	3.06e6	2.42e6	1798.9	875.5	NO	bd	bd	84.400
13C-123678-HxCDD	35.444	0.989	2.403e5	1.980e5	1.159	1.214	1.240	1702	2763	3.19e6	2.64e6	1875.2	954.4	NO	db	db	83.853
13C-1234678-HpCDD	39.577	1.105	1.157e5	1.190e5	0.629	0.973	1.050	1433	1103	1.59e6	1.51e6	1110.4	1367.2	NO	bb	bd	82.719
13C-OCDD	44.118	1.231	1.696e5	1.914e5	0.635	0.886	0.890	1870	1896	1.99e6	2.19e6	1066.5	1156.3	NO	bb	bb	126.085
13C-123789-HxCDD	35.834	0.000	2.474e5	2.034e5	1.000	1.216	1.240	1702	2763	3.57e6	2.93e6	2099.1	1059.7	NO	bb	bb	100.000
37CL-2378-TCDD	25.676	1.033	2.449e5		1.157			1253		3.58e6		2858.5			bb		35.223

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:45:27 Pacific Standard Time

ID: BLL0751-BS1, Name: 24011805, Date: 18-Jan-2024, Time: 12:55:08, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.170		0.770	763	1337								
1289-TCDF					0.847		0.770	763	1337								
13468-PECDF					1.241		1.550	552	662								
12389-PECDF	31.567	1.082	7.649e2	4.657e2	0.880	1.643	1.550	1981	1722	1.25e4	7.11e3	6.3	4.1	NO	bb	bd	0.265
123468-HXCDF					1.206		1.240	1492	2272								
1368-TCDD					1.181		0.770	945	594								
1289-TCDD					0.963		0.770	945	594								
12479-PECDD					2.166		1.550	1232	998								
12389-PECDD	31.132	1.012	3.150e2	1.180e2	1.326	2.669	1.550	1232	998	6.21e3	2.92e3	5.0	2.9	YES	db	db	0.103
124679-HXCDD					1.127		1.240	1009	952								
1234679-HPCDD	38.586	0.975	6.831e2	7.064e2	1.303	0.967	1.050	832	1191	1.12e4	1.09e4	13.4	9.2	NO	bb	bb	0.455
Total-tetrafurans			2.441e4		0.973			763		3.48e5							8.813
Total-penta1			0.000e0					552		0.00e0							
Total-pentafurans			2.650e5		0.931			1981		3.72e6							91.802
Total-hexafurans			4.084e5		1.087			1492		5.68e6							191.054
Total-heptafurans			1.395e5		1.134			2142		1.92e6							91.943
Total-Furans			9.216e5		1.053			763		1.26e7							470.869
Total-tetradioxins			2.347e4		1.129			945		3.32e5							8.801
Total-pentadioxins			1.024e5		1.548			1232		1.35e6							46.379
Total-hexadioxins			2.489e5		0.943			1009		3.47e6							126.494
Total-heptadioxins			5.970e4		1.251			832		7.89e5							40.575
Total-Dioxins			5.121e5		1.182			945		6.80e6							310.918
Total-TEQ			1.434e6					945		1.94e7							781.787
FUNCTION1 PFK			6.676e5					576722		1.49e7							
FUNCTION2 PFK			3.853e5					286566		1.01e7							0.000
FUNCTION3 PFK			0.000e0					414251		0.00e0							
FUNCTION4 PFK			1.844e5					402185		4.97e6							
FUNCTION5 PFK			7.400e4					185543		3.46e6							
FUNCTION1 HXCD...			1.642e3					614		1.67e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			1.135e2					712		2.77e3							0.000
FUNCTION3 OCDPE			4.717e2					427		5.28e3							0.000
FUNCTION4 NCDPE			1.618e2					537		1.84e3							0.000
FUNCTION5 DCDPE			2.873e2					619		5.15e3							0.000

Method: T:\Autospec\Methods\Dioxin240116.mdb 16 Jan 2024 11:29:56
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: BLL0751-BS1, Name: 24011805, Date: 18-Jan-2024, Time: 12:55:08, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.04	2.422e4	3.158e4	0.903	0.77	0.77	451.8	YES	NO	bb	bb	8.746
2	Total-tetrafurans	23.80	1.895e2	2.700e2	0.973	0.70	0.77	4.4	YES	NO	bb	bb	0.067

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.18	1.305e5	7.960e4	0.923	1.64	1.55	907.4	YES	NO	bd	bb	43.150
2	12389-PECDF	31.57	7.649e2	4.657e2	0.880	1.64	1.55	6.3	YES	NO	bb	bd	0.265
3	23478-PeCDF	30.53	1.337e5	9.008e4	0.991	1.48	1.55	963.6	YES	NO	bb	bd	48.387

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.27	7.489e4	6.717e4	0.988	1.11	1.24	721.4	YES	NO	bb	bd	46.883
2	234678-HxCDF	35.22	1.027e5	9.118e4	1.081	1.13	1.24	1007.8	YES	NO	bb	bd	48.765
3	123678-HxCDF	34.33	1.290e5	9.062e4	1.032	1.42	1.24	1083.6	YES	NO	dd	db	49.398
4	123478-HxCDF	34.19	1.018e5	8.044e4	1.128	1.27	1.24	993.7	YES	NO	bd	bd	46.008

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.14	8.158e4	7.552e4	1.164	1.08	1.05	551.8	YES	NO	bd	bb	45.266
2	1234789-HpCDF	40.30	5.794e4	5.309e4	1.104	1.09	1.05	345.4	YES	NO	bd	bd	46.677

ID: BLL0751-BS1, Name: 24011805, Date: 18-Jan-2024, Time: 12:55:08, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.18	1.305e5	7.960e4	0.923	1.64	1.55	907.4	YES	NO	bd	bb	43.150
2	2378-TCDF	25.04	2.422e4	3.158e4	0.903	0.77	0.77	451.8	YES	NO	bb	bb	8.746
3	Total-tetrafurans	23.80	1.895e2	2.700e2	0.973	0.70	0.77	4.4	YES	NO	bb	bb	0.067
4	12389-PECDF	31.57	7.649e2	4.657e2	0.880	1.64	1.55	6.3	YES	NO	bb	bd	0.265
5	23478-PeCDF	30.53	1.337e5	9.008e4	0.991	1.48	1.55	963.6	YES	NO	bb	bd	48.387
6	123789-HxCDF	36.27	7.489e4	6.717e4	0.988	1.11	1.24	721.4	YES	NO	bb	bd	46.883
7	234678-HxCDF	35.22	1.027e5	9.118e4	1.081	1.13	1.24	1007.8	YES	NO	bb	bd	48.765
8	123678-HxCDF	34.33	1.290e5	9.062e4	1.032	1.42	1.24	1083.6	YES	NO	dd	db	49.398
9	123478-HxCDF	34.19	1.018e5	8.044e4	1.128	1.27	1.24	993.7	YES	NO	bd	bd	46.008
10	1234678-HpCDF	38.14	8.158e4	7.552e4	1.164	1.08	1.05	551.8	YES	NO	bd	bb	45.266
11	1234789-HpCDF	40.30	5.794e4	5.309e4	1.104	1.09	1.05	345.4	YES	NO	bd	bd	46.677
12	OCDF	44.36	8.433e4	9.369e4	1.130	0.90	0.89	629.4	YES	NO	bd	bd	87.257

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.68	2.347e4	3.113e4	1.243	0.75	0.77	351.5	YES	NO	bd	bd	8.801

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.79	1.024e5	6.623e4	1.150	1.55	1.55	1093.7	YES	NO	bd	bd	46.379

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.86	8.151e4	6.172e4	0.804	1.32	1.24	1081.6	YES	NO	bd	bb	44.360
2	123678-HxCDD	35.46	9.099e4	7.405e4	0.883	1.23	1.24	1196.5	YES	NO	db	db	42.664
3	123478-HxCDD	35.34	7.643e4	6.198e4	0.960	1.23	1.24	1162.6	YES	NO	bd	bd	39.471

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.60	5.901e4	5.393e4	1.200	1.09	1.05	934.0	YES	NO	bd	bd	40.121
2	1234679-HPCDD	38.59	6.831e2	7.064e2	1.303	0.97	1.05	13.4	YES	NO	bb	bb	0.455

ID: BLL0751-BS1, Name: 24011805, Date: 18-Jan-2024, Time: 12:55:08, Conditions: AUTOSPEC01, User: pk

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.68	2.347e4	3.113e4	1.243	0.75	0.77	351.5	YES	NO	bd	bd	8.801
2	12378-PeCDD	30.79	1.024e5	6.623e4	1.150	1.55	1.55	1093.7	YES	NO	bd	bd	46.379
3	123789-HxCDD	35.86	8.151e4	6.172e4	0.804	1.32	1.24	1081.6	YES	NO	bd	bb	44.360
4	123678-HxCDD	35.46	9.099e4	7.405e4	0.883	1.23	1.24	1196.5	YES	NO	db	db	42.664
5	123478-HxCDD	35.34	7.643e4	6.198e4	0.960	1.23	1.24	1162.6	YES	NO	bd	bd	39.471
6	1234678-HpCDD	39.60	5.901e4	5.393e4	1.200	1.09	1.05	934.0	YES	NO	bd	bd	40.121
7	1234679-HPCDD	38.59	6.831e2	7.064e2	1.303	0.97	1.05	13.4	YES	NO	bb	bb	0.455
8	OCDD	44.14	7.768e4	9.177e4	1.059	0.85	0.89	655.6	YES	NO	bd	bd	88.669

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.18	1.305e5	7.960e4	0.923	1.64	1.55	907.4	YES	NO	bd	bb	43.150
2	2378-TCDF	25.04	2.422e4	3.158e4	0.903	0.77	0.77	451.8	YES	NO	bb	bb	8.746
3	Total-tetrafurans	23.80	1.895e2	2.700e2	0.973	0.70	0.77	4.4	YES	NO	bb	bb	0.067
4	12389-PECDF	31.57	7.649e2	4.657e2	0.880	1.64	1.55	6.3	YES	NO	bb	bd	0.265
5	23478-PeCDF	30.53	1.337e5	9.008e4	0.991	1.48	1.55	963.6	YES	NO	bb	bd	48.387
6	123789-HxCDF	36.27	7.489e4	6.717e4	0.988	1.11	1.24	721.4	YES	NO	bb	bd	46.883
7	234678-HxCDF	35.22	1.027e5	9.118e4	1.081	1.13	1.24	1007.8	YES	NO	bb	bd	48.765
8	123678-HxCDF	34.33	1.290e5	9.062e4	1.032	1.42	1.24	1083.6	YES	NO	dd	db	49.398
9	123478-HxCDF	34.19	1.018e5	8.044e4	1.128	1.27	1.24	993.7	YES	NO	bd	bd	46.008
10	1234678-HpCDF	38.14	8.158e4	7.552e4	1.164	1.08	1.05	551.8	YES	NO	bd	bb	45.266
11	1234789-HpCDF	40.30	5.794e4	5.309e4	1.104	1.09	1.05	345.4	YES	NO	bd	bd	46.677
12	OCDF	44.36	8.433e4	9.369e4	1.130	0.90	0.89	629.4	YES	NO	bd	bd	87.257
13	2378-TCDD	25.68	2.347e4	3.113e4	1.243	0.75	0.77	351.5	YES	NO	bd	bd	8.801
14	12378-PeCDD	30.79	1.024e5	6.623e4	1.150	1.55	1.55	1093.7	YES	NO	bd	bd	46.379
15	123789-HxCDD	35.86	8.151e4	6.172e4	0.804	1.32	1.24	1081.6	YES	NO	bd	bb	44.360
16	123678-HxCDD	35.46	9.099e4	7.405e4	0.883	1.23	1.24	1196.5	YES	NO	db	db	42.664
17	123478-HxCDD	35.34	7.643e4	6.198e4	0.960	1.23	1.24	1162.6	YES	NO	bd	bd	39.471
18	1234678-HpCDD	39.60	5.901e4	5.393e4	1.200	1.09	1.05	934.0	YES	NO	bd	bd	40.121
19	1234679-HPCDD	38.59	6.831e2	7.064e2	1.303	0.97	1.05	13.4	YES	NO	bb	bb	0.455
20	OCDD	44.14	7.768e4	9.177e4	1.059	0.85	0.89	655.6	YES	NO	bd	bd	88.669

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
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ID: BLL0751-BS1, Name: 24011805, Date: 18-Jan-2024, Time: 12:55:08, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	23.43	5.239e3					0.6	NO		bb		
2	FUNCTION1 PFK	23.19	4.350e3					0.5	NO		bb		
3	FUNCTION1 PFK	23.13	1.405e4					1.1	NO		bb		
4	FUNCTION1 PFK	23.06	3.727e4					1.6	NO		bb		
5	FUNCTION1 PFK	22.99	7.174e4					2.7	NO		db		
6	FUNCTION1 PFK	22.91	3.065e4					1.5	NO		bd		
7	FUNCTION1 PFK	22.58	5.050e3					0.6	NO		bb		
8	FUNCTION1 PFK	21.78	4.706e4					2.2	NO		bb		
9	FUNCTION1 PFK	21.47	5.209e3					0.6	NO		bb		
10	FUNCTION1 PFK	21.41	1.509e4					1.4	NO		db		
11	FUNCTION1 PFK	21.37	5.207e4					1.9	NO		bd		
12	FUNCTION1 PFK	21.20	8.690e4					2.1	NO		bb		
13	FUNCTION1 PFK	27.05	4.035e3					0.5	NO		bb		
14	FUNCTION1 PFK	26.75	4.005e4					1.1	NO		bb		
15	FUNCTION1 PFK	26.65	3.913e4					0.9	NO		bb		
16	FUNCTION1 PFK	25.93	1.235e5					2.2	NO		bb		
17	FUNCTION1 PFK	25.14	1.265e4					0.8	NO		bb		
18	FUNCTION1 PFK	24.57	1.875e4					1.1	NO		bb		
19	FUNCTION1 PFK	23.71	4.720e4					1.5	NO		bb		
20	FUNCTION1 PFK	23.66	7.625e3					0.9	NO		bb		

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
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ID: BLL0751-BS1, Name: 24011805, Date: 18-Jan-2024, Time: 12:55:08, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.02	1.219e4					1.1	NO		bb		0.000
2	FUNCTION2 PFK	27.73	3.059e3					0.6	NO		db		0.000
3	FUNCTION2 PFK	27.68	1.588e4					1.7	NO		bd		0.000
4	FUNCTION2 PFK	27.62	7.662e3					0.9	NO		bb		0.000
5	FUNCTION2 PFK	27.48	4.020e3					1.1	NO		db		0.000
6	FUNCTION2 PFK	27.43	2.672e4					2.7	NO		bd		0.000
7	FUNCTION2 PFK	27.37	6.395e3					1.2	NO		bb		0.000
8	FUNCTION2 PFK	31.23	4.666e3					0.7	NO		bb		0.000
9	FUNCTION2 PFK	30.90	2.186e3					0.7	NO		bb		0.000
10	FUNCTION2 PFK	30.53	2.658e4					1.9	NO		bb		0.000
11	FUNCTION2 PFK	30.24	5.985e4					2.3	NO		bb		0.000
12	FUNCTION2 PFK	30.09	2.418e4					2.0	NO		bb		0.000
13	FUNCTION2 PFK	29.57	1.063e4					1.5	NO		db		0.000
14	FUNCTION2 PFK	29.52	1.418e4					1.5	NO		bd		0.000
15	FUNCTION2 PFK	29.22	1.976e4					1.5	NO		bb		0.000
16	FUNCTION2 PFK	28.99	1.200e3					0.4	NO		bb		0.000
17	FUNCTION2 PFK	28.93	1.076e4					1.0	NO		db		0.000
18	FUNCTION2 PFK	28.89	7.888e3					1.2	NO		bd		0.000
19	FUNCTION2 PFK	28.80	9.127e3					0.8	NO		bb		0.000
20	FUNCTION2 PFK	28.68	1.984e4					1.8	NO		bb		0.000
21	FUNCTION2 PFK	28.53	1.396e4					1.2	NO		db		0.000
22	FUNCTION2 PFK	28.47	8.996e3					1.0	NO		bd		0.000
23	FUNCTION2 PFK	28.40	7.864e3					1.1	NO		bb		0.000
24	FUNCTION2 PFK	32.00	4.035e4					1.9	NO		bb		0.000
25	FUNCTION2 PFK	31.81	1.265e4					1.3	NO		bb		0.000
26	FUNCTION2 PFK	31.70	4.891e3					0.9	NO		bb		0.000
27	FUNCTION2 PFK	31.60	5.061e3					0.9	NO		bb		0.000
28	FUNCTION2 PFK	31.42	4.744e3					0.7	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	40.78	2.121e3					0.5	NO		bb		
2	FUNCTION4 PFK	40.72	1.532e4					1.1	NO		bb		
3	FUNCTION4 PFK	39.97	8.666e3					0.9	NO		bb		
4	FUNCTION4 PFK	39.54	1.293e4					1.2	NO		bb		
5	FUNCTION4 PFK	38.49	3.812e4					1.7	NO		bb		
6	FUNCTION4 PFK	38.24	2.387e3					0.5	NO		bb		
7	FUNCTION4 PFK	37.95	8.183e3					0.9	NO		bb		
8	FUNCTION4 PFK	37.72	6.715e3					0.8	NO		bb		
9	FUNCTION4 PFK	37.35	4.627e4					2.1	NO		bb		
10	FUNCTION4 PFK	42.31	5.003e3					0.6	NO		bb		
11	FUNCTION4 PFK	41.42	1.838e3					0.4	NO		bb		
12	FUNCTION4 PFK	41.28	3.684e4					1.6	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.29	1.045e4					1.5	NO		bb		
2	FUNCTION5 PFK	45.14	1.255e4					1.9	NO		bb		
3	FUNCTION5 PFK	44.46	7.615e3					1.4	NO		bb		
4	FUNCTION5 PFK	44.41	5.416e3					1.4	NO		bb		
5	FUNCTION5 PFK	43.86	3.885e3					1.2	NO		bb		
6	FUNCTION5 PFK	43.83	2.399e3					0.9	NO		bb		
7	FUNCTION5 PFK	43.40	5.276e3					1.6	NO		db		
8	FUNCTION5 PFK	43.38	5.614e3					1.3	NO		bd		
9	FUNCTION5 PFK	42.93	5.295e3					1.4	NO		bb		
10	FUNCTION5 PFK	42.75	9.910e2					0.6	NO		bb		
11	FUNCTION5 PFK	42.64	1.494e3					0.9	NO		bb		
12	FUNCTION5 PFK	42.61	3.935e3					1.3	NO		bb		
13	FUNCTION5 PFK	45.98	4.603e3					1.3	NO		bb		
14	FUNCTION5 PFK	45.67	9.229e2					0.5	NO		bb		
15	FUNCTION5 PFK	45.45	3.555e3					1.2	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	24.66	1.229e2					1.8	NO		db		0.000
2	FUNCTION1 HXCD...	24.52	9.161e1					1.9	NO		bd		0.000
3	FUNCTION1 HXCD...	24.19	7.109e1					3.6	YES		db		0.000
4	FUNCTION1 HXCD...	24.01	1.252e2					1.8	NO		bd		0.000
5	FUNCTION1 HXCD...	23.56	2.656e2					3.1	YES		bb		0.000
6	FUNCTION1 HXCD...	23.03	1.039e2					2.3	NO		db		0.000
7	FUNCTION1 HXCD...	22.96	9.290e1					2.4	NO		dd		0.000
8	FUNCTION1 HXCD...	22.86	1.173e2					2.6	NO		bd		0.000
9	FUNCTION1 HXCD...	21.25	5.620e2					4.9	YES		db		0.000
10	FUNCTION1 HXCD...	21.13	8.918e1					2.8	NO		bd		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.97	1.135e2					3.9	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.99	8.973e1					2.8	NO		db		0.000
2	FUNCTION3 OCDPE	35.86	2.990e2					5.9	YES		bd		0.000
3	FUNCTION3 OCDPE	33.85	8.299e1					3.6	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	42.03	8.234e1					2.0	NO		bb		0.000
2	FUNCTION4 NCDPE	38.56	7.943e1					1.5	NO		bb		0.000

ID: BLL0751-BS1, Name: 24011805, Date: 18-Jan-2024, Time: 12:55:08, Conditions: AUTOSPEC01, User: pk

ETHERS6

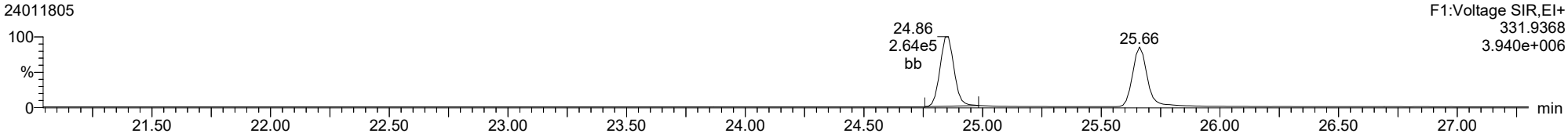
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1	FUNCTION5 DCDPE	43.41	7.316e1					1.1	NO		bb		0.000
2	FUNCTION5 DCDPE	43.29	1.223e2					4.2	YES		db		0.000
3	FUNCTION5 DCDPE	43.23	9.186e1					3.1	YES		bd		0.000

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
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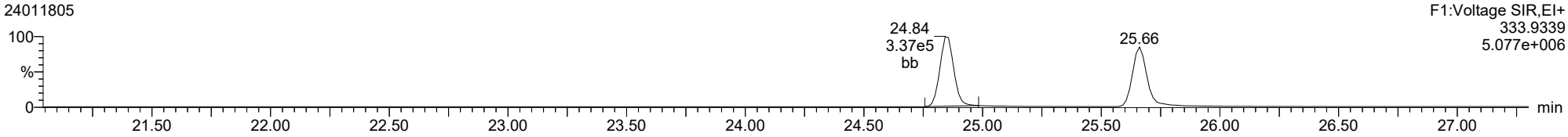
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ID: BLL0751-BS1, Name: 24011805, Date: 18-Jan-2024, Time: 12:55:08, Conditions: AUTOSPEC01, User: pk

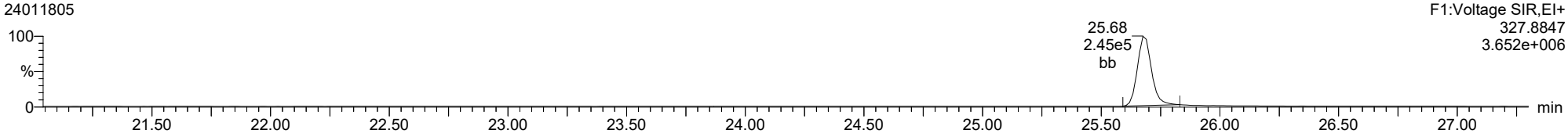
13C-1234-TCDD



13C-1234-TCDD

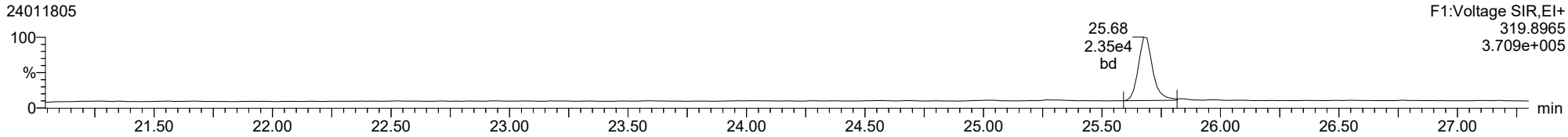


37CL-2378-TCDD

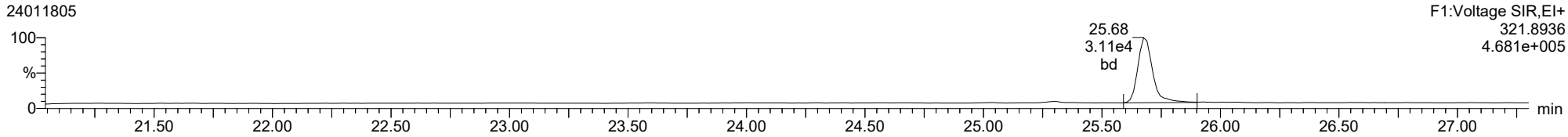


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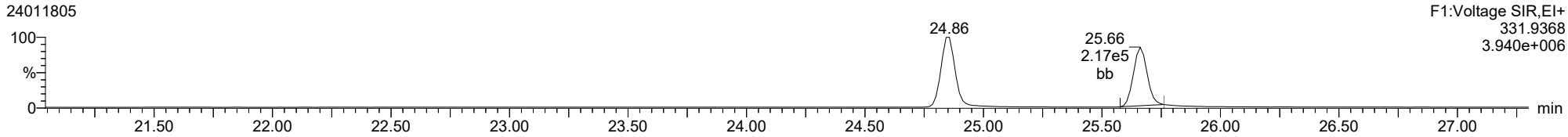
2378-TCDD



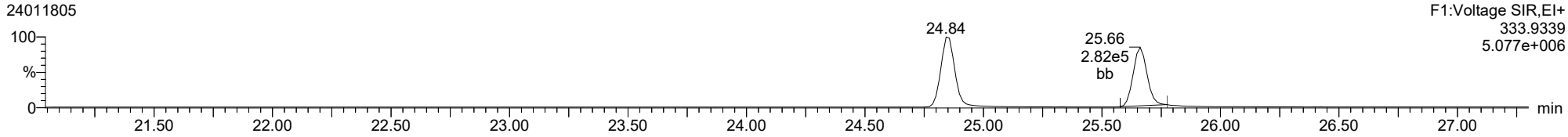
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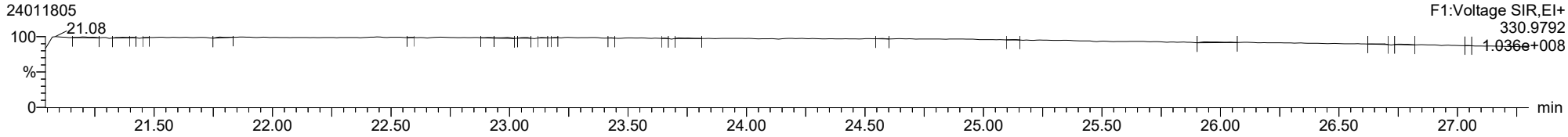
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13C-2378-TCDD

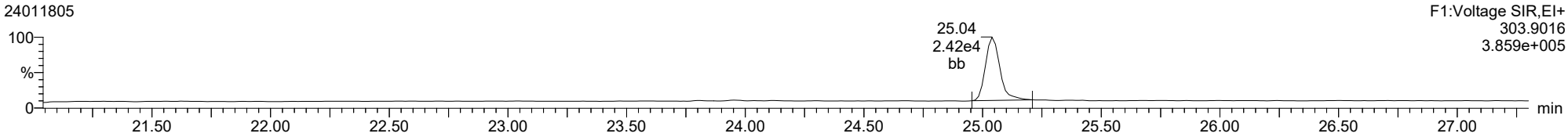


FUNCTION1 PFK

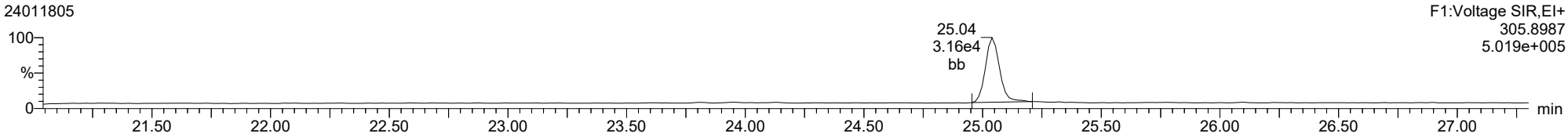


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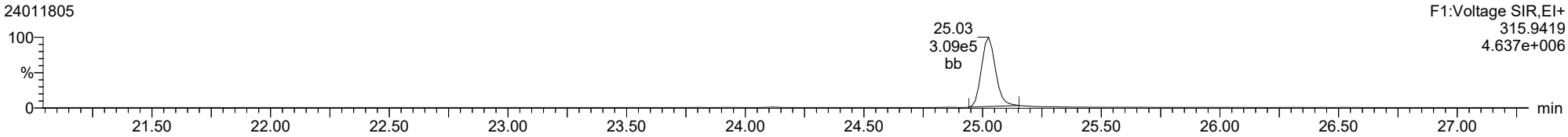
2378-TCDF



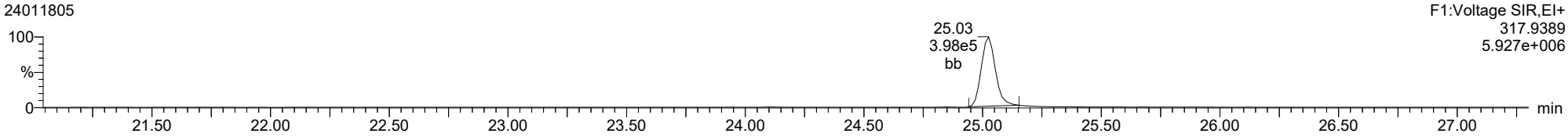
2378-TCDF



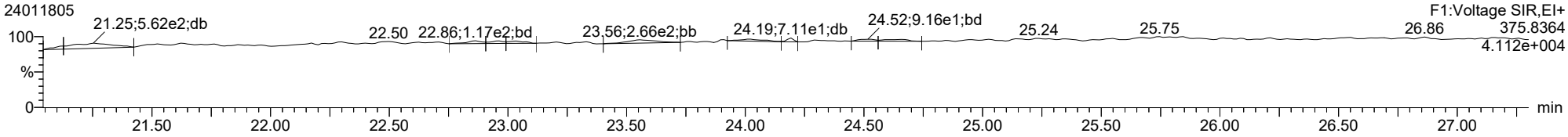
13C-2378-TCDF



13C-2378-TCDF

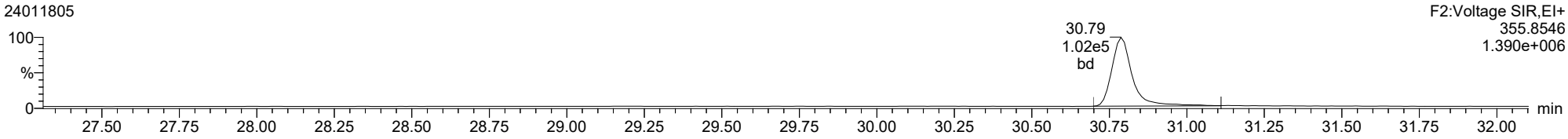


FUNCTION1 HXCDPE

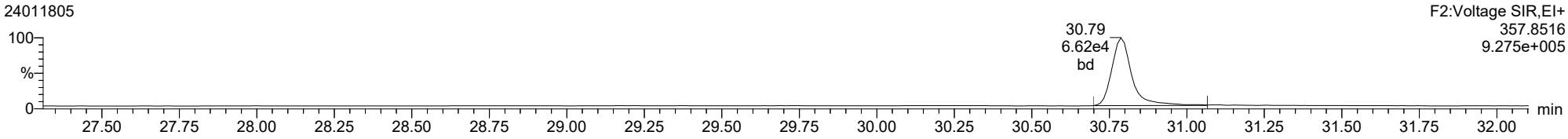


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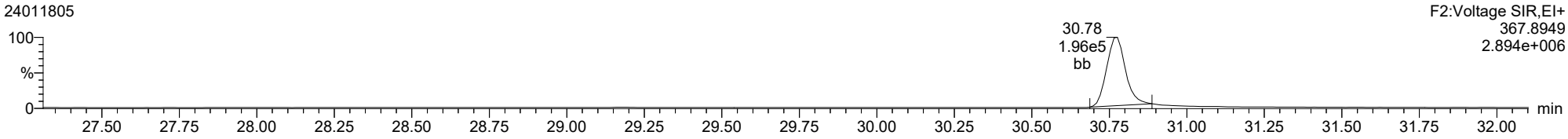
12378-PeCDD



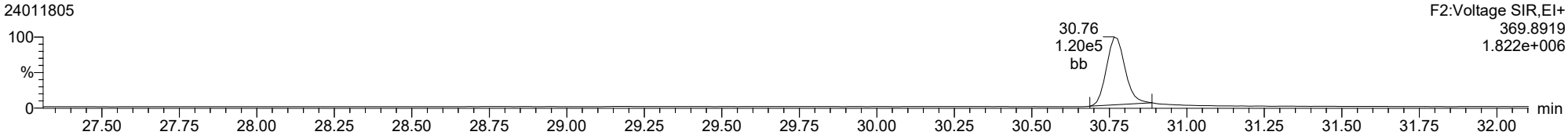
12378-PeCDD



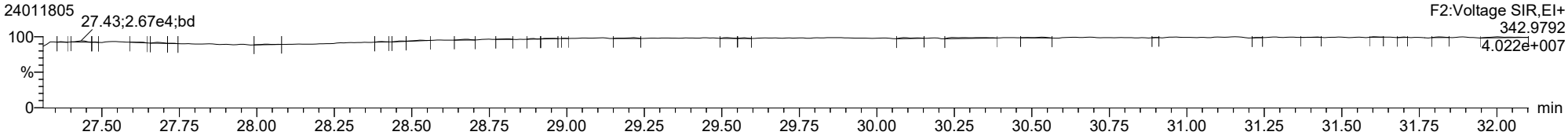
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13C-12378-PeCDD

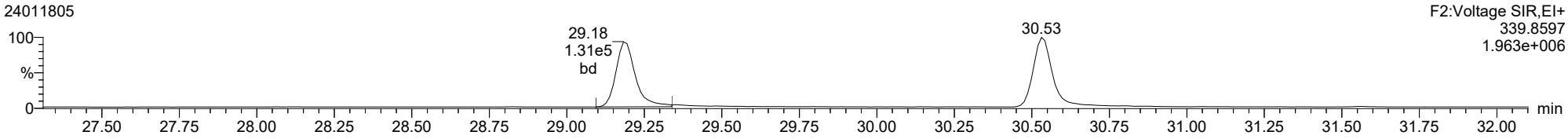


FUNCTION2 PFK

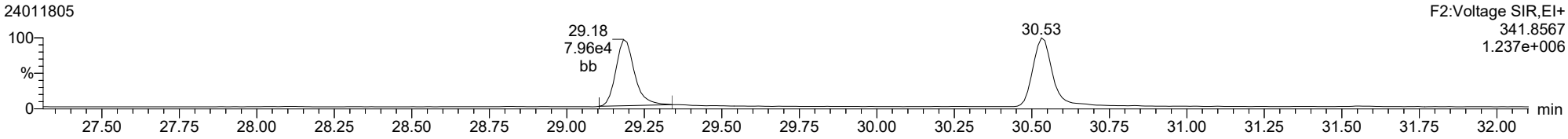


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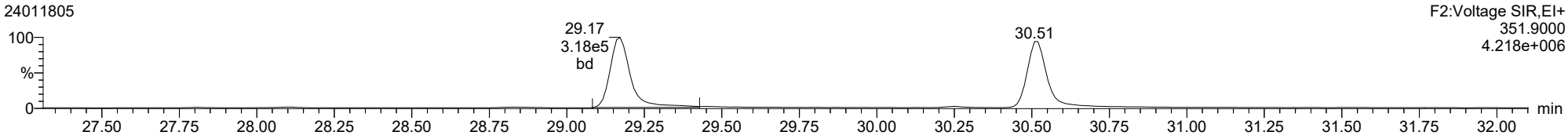
12378-PeCDF



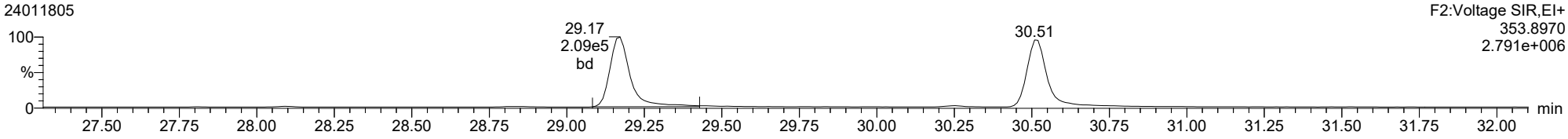
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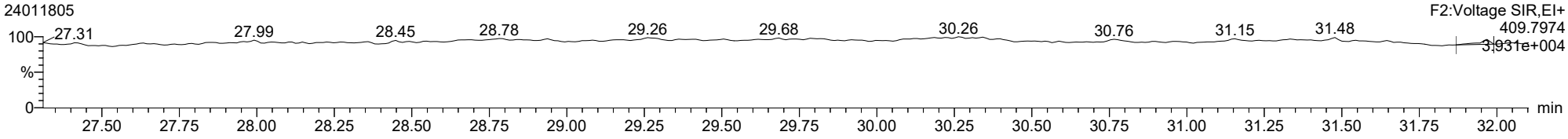
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13C-12378-PeCDF

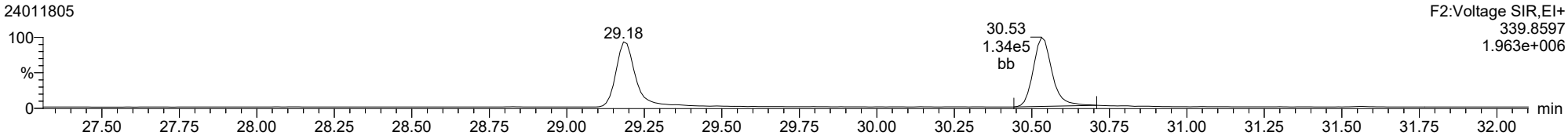


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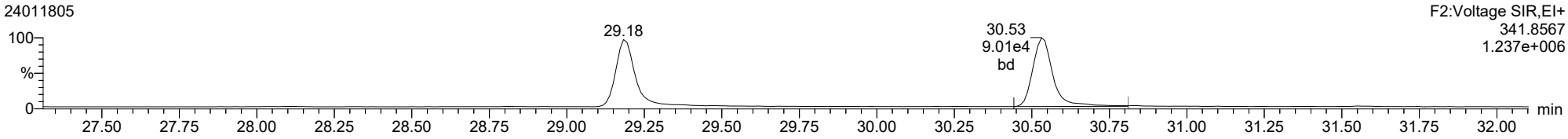


ID: BLL0751-BS1, Name: 24011805, Date: 18-Jan-2024, Time: 12:55:08, Conditions: AUTOSPEC01, User: pk

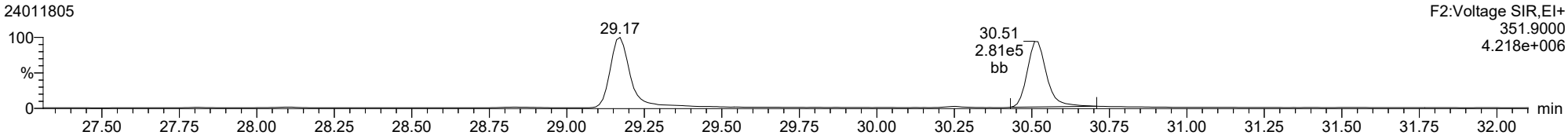
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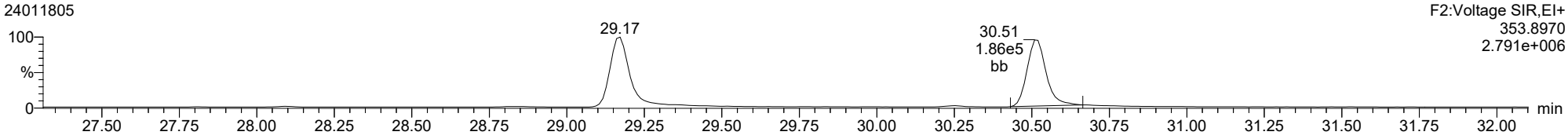
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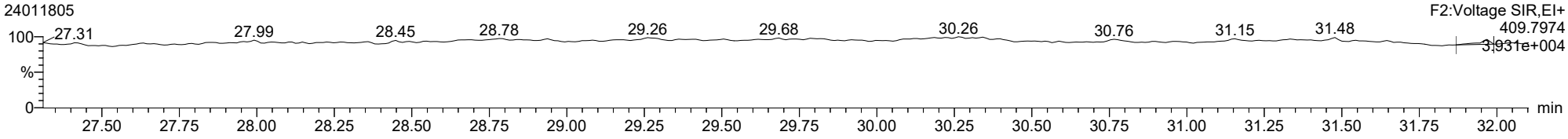
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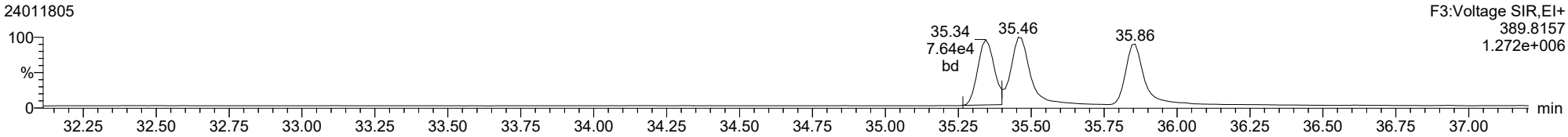


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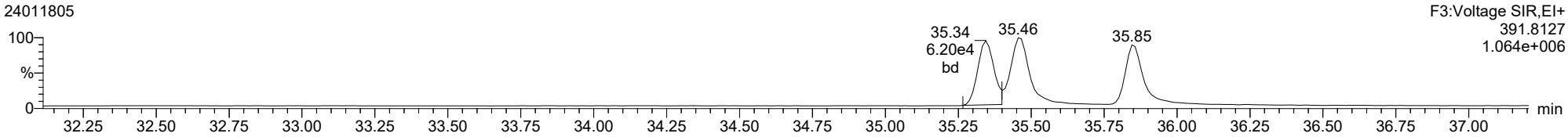


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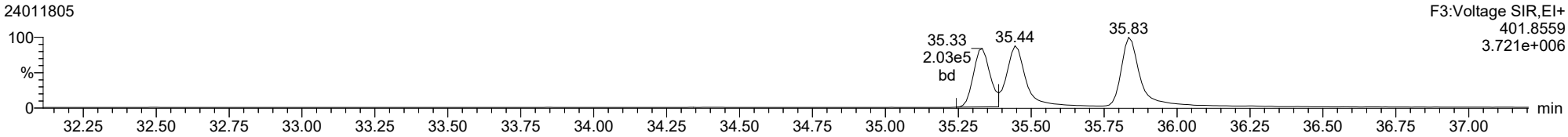
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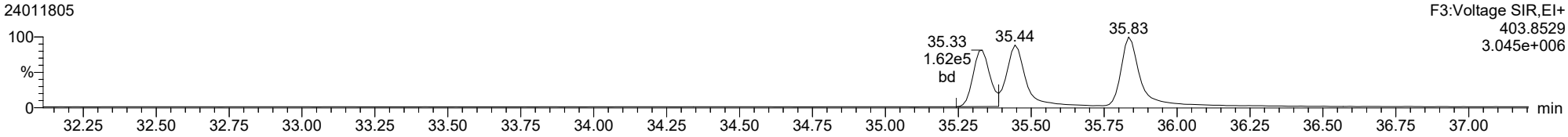
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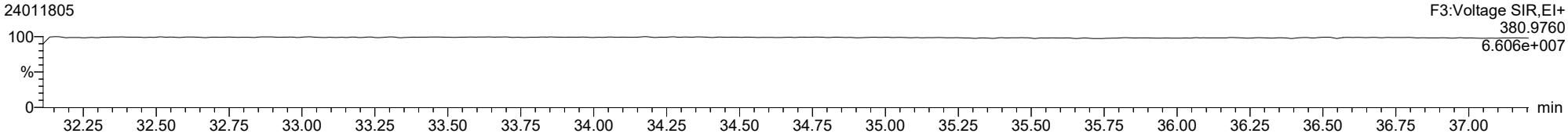
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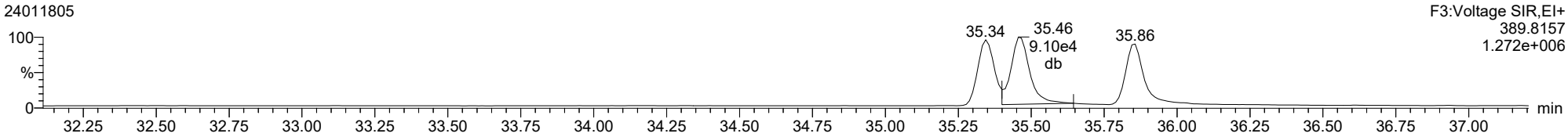
FUNCTION3 PFK



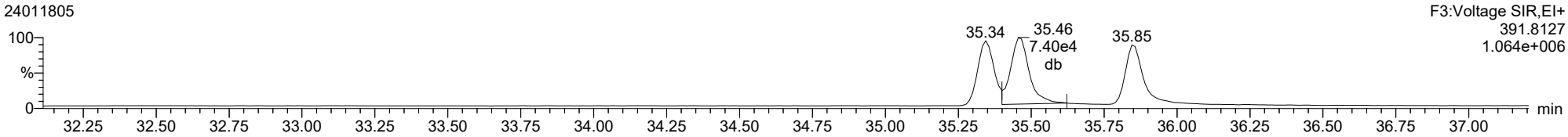
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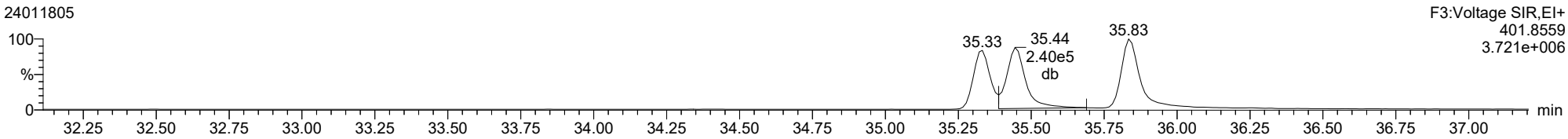
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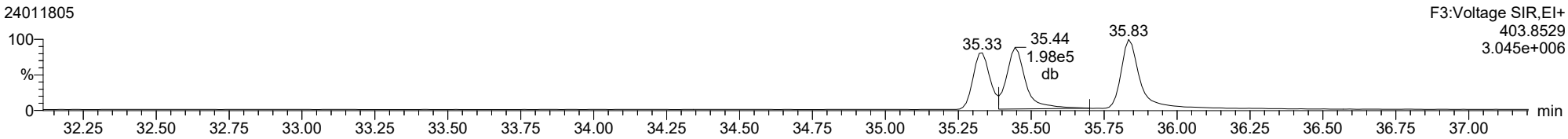
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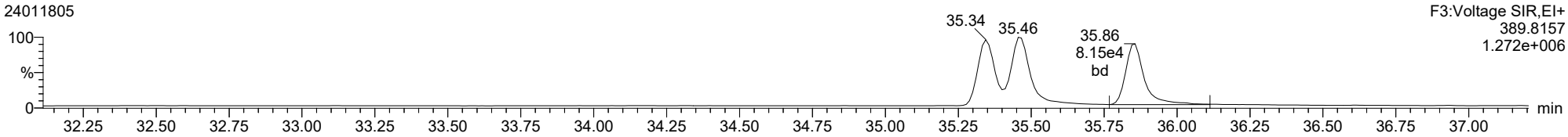
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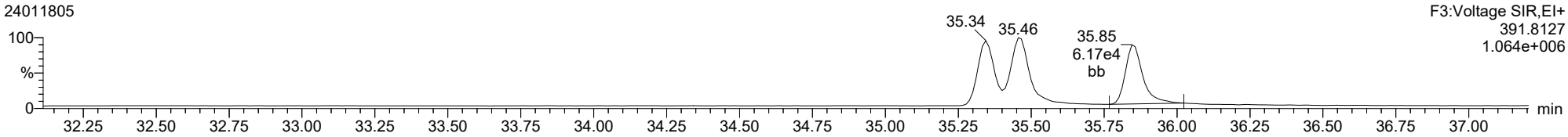
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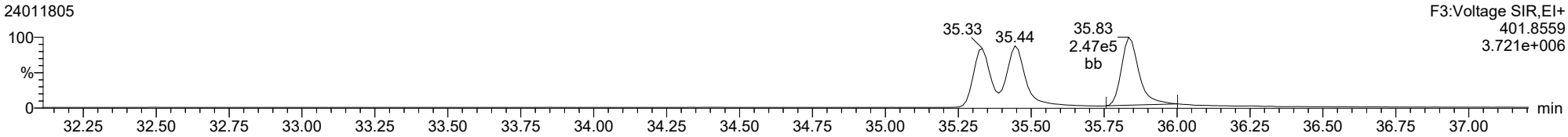
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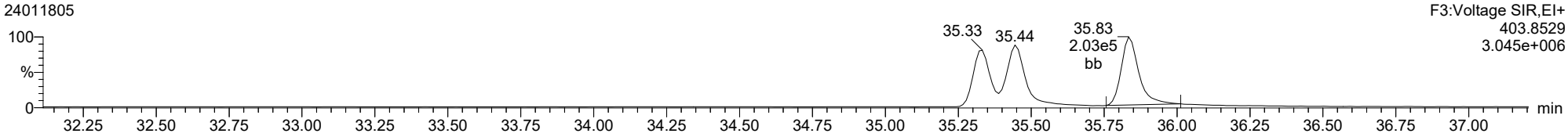
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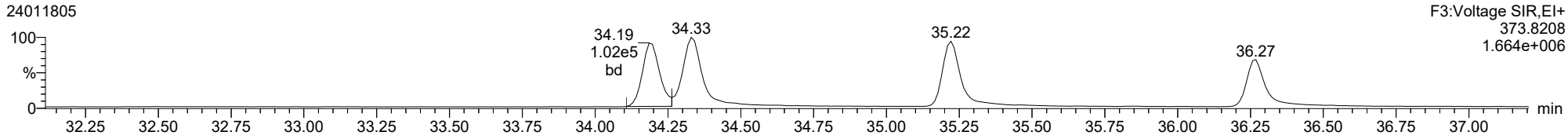


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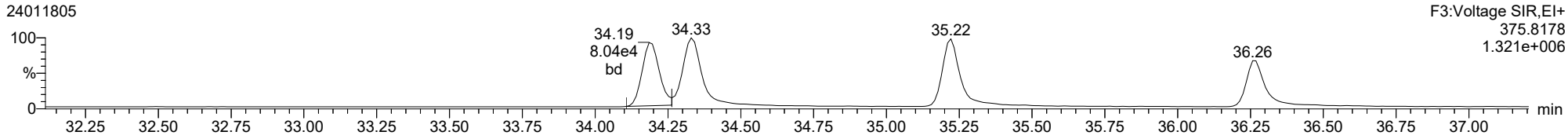


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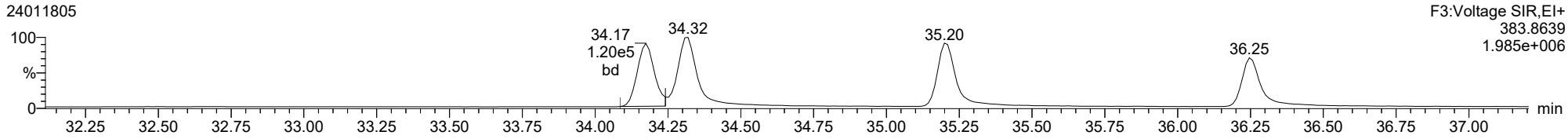
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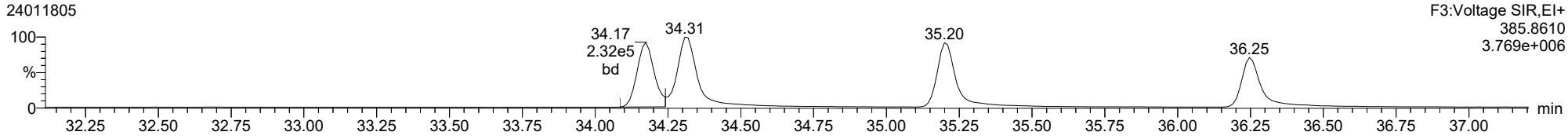
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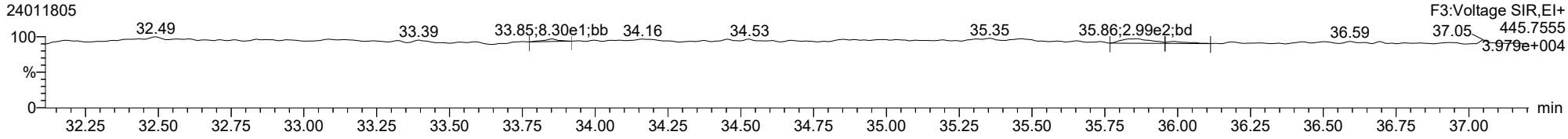
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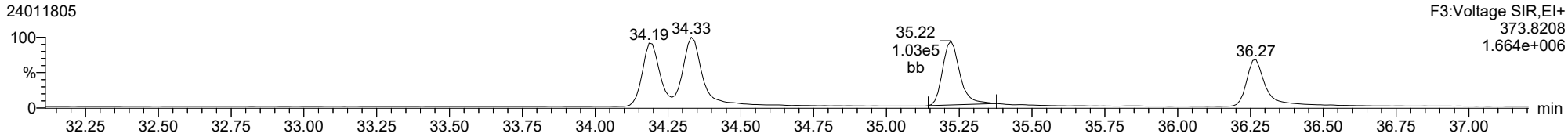


FUNCTION3 OCDPE

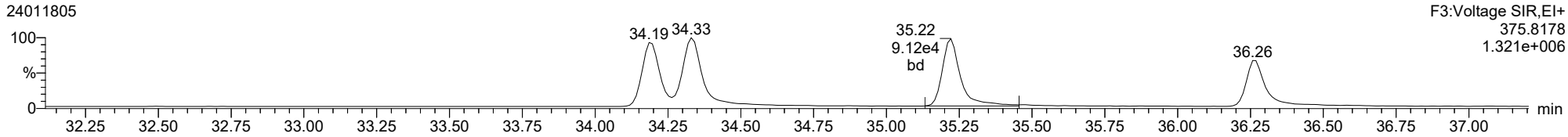


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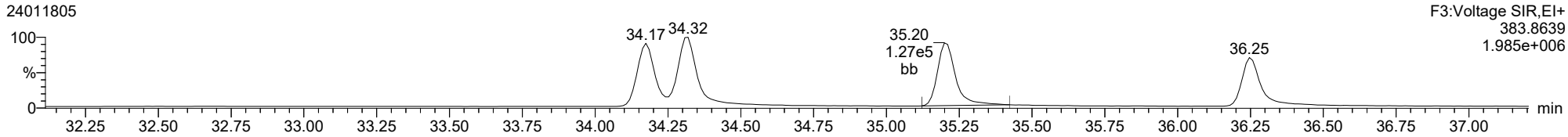
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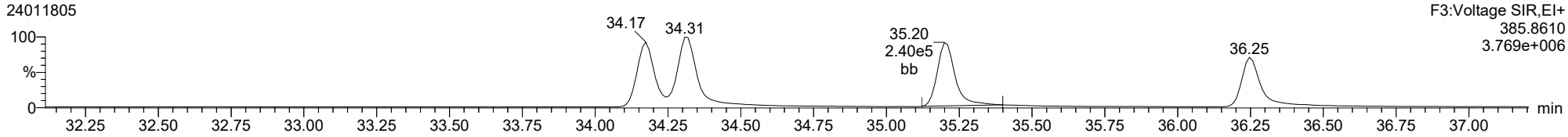
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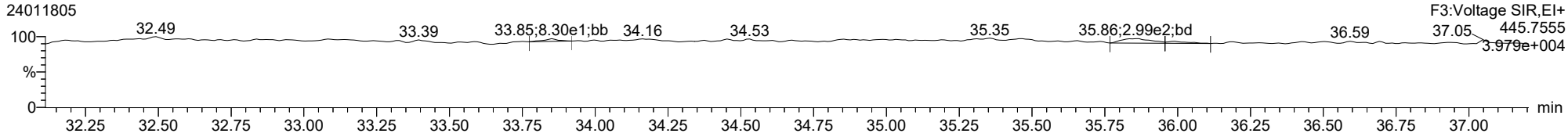
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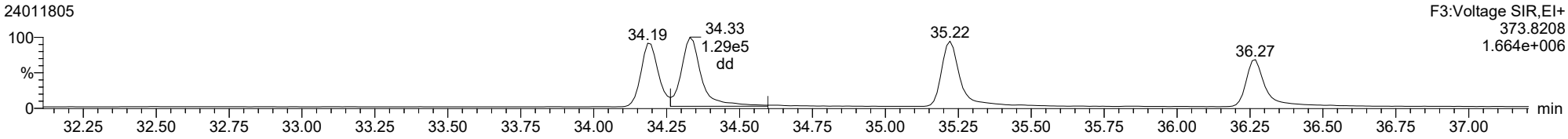


FUNCTION3 OCDPE

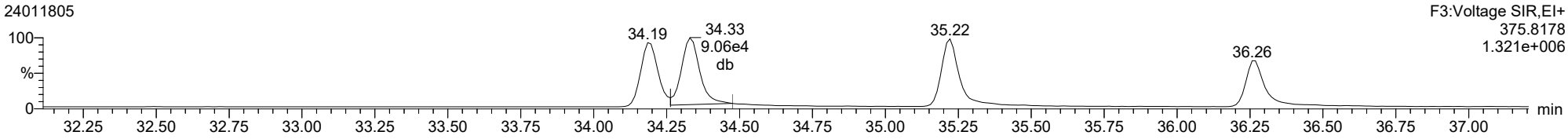


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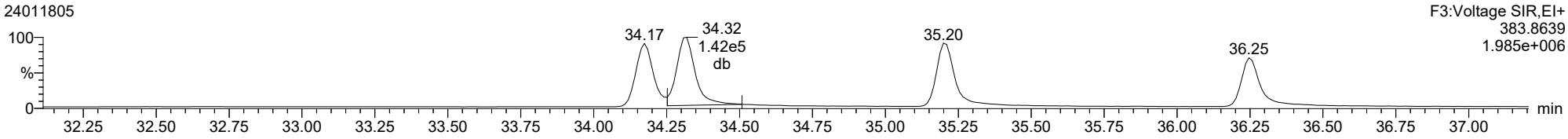
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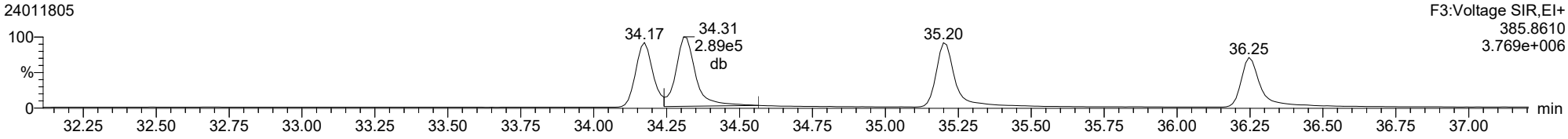
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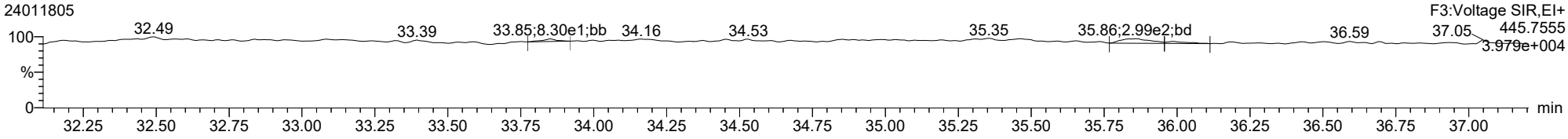
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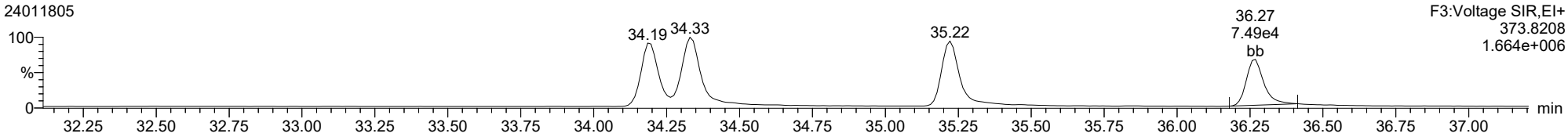


FUNCTION3 OCDPE

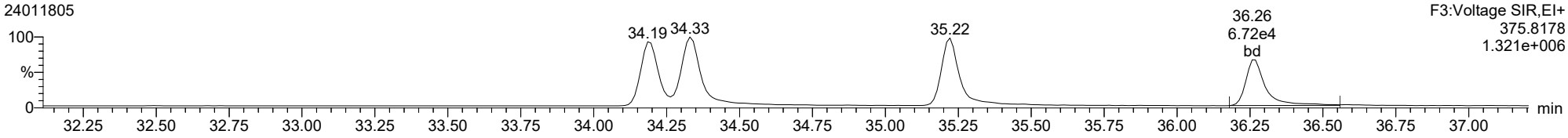


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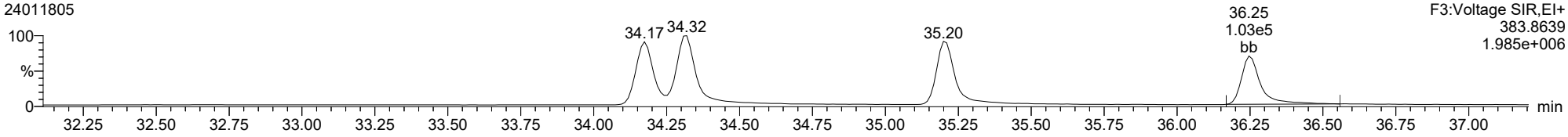
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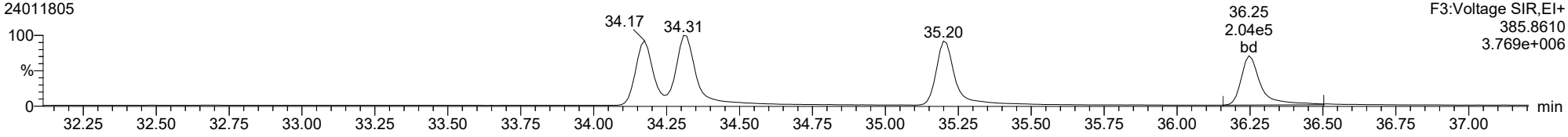
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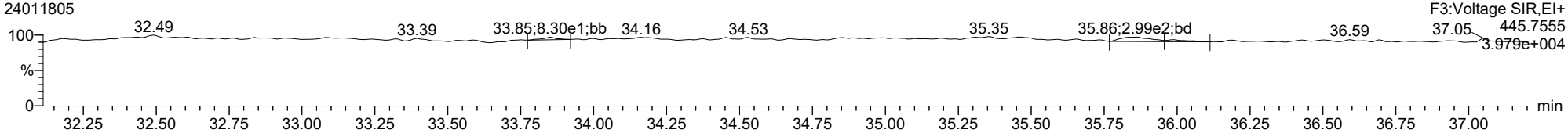
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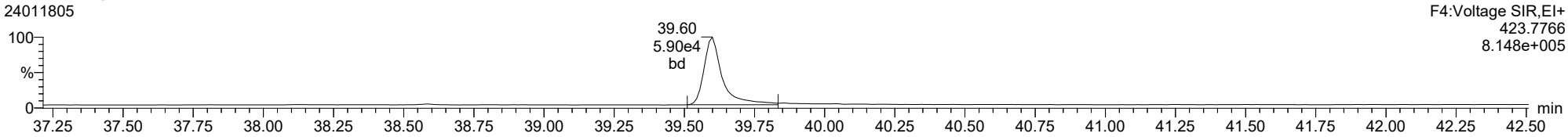


FUNCTION3 OCDPE

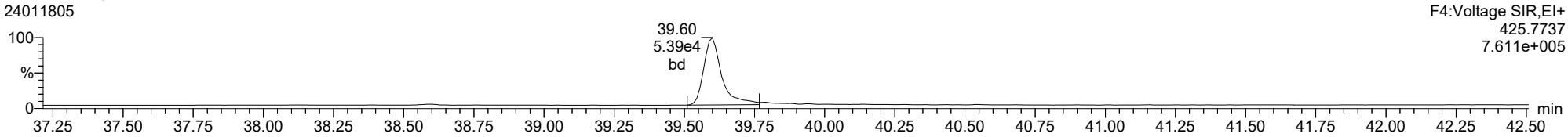


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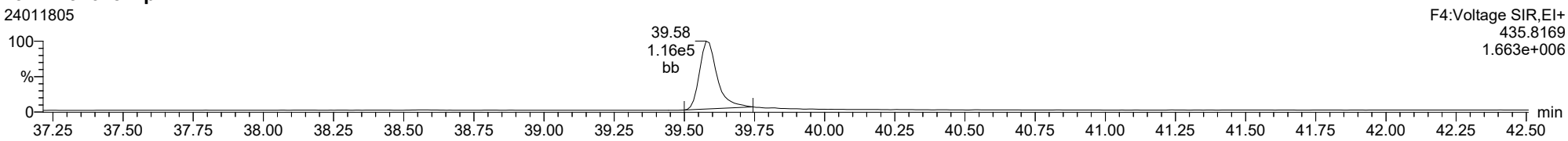
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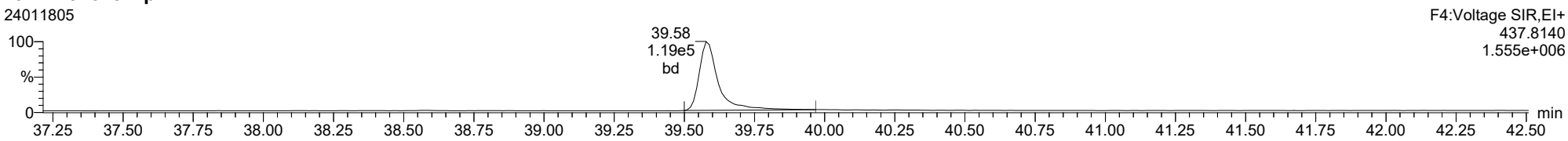
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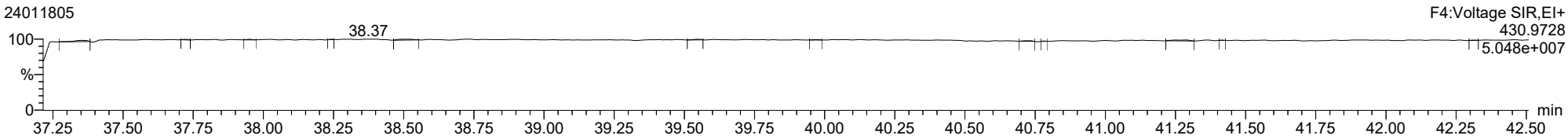
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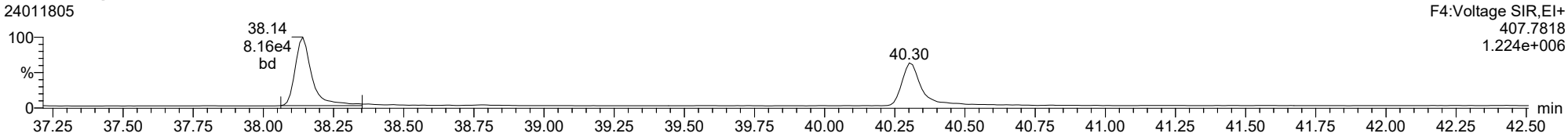


FUNCTION4 PFK

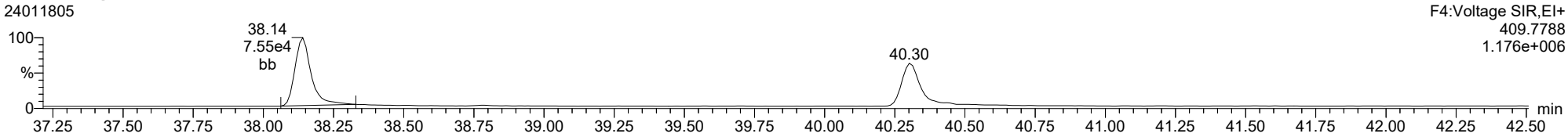


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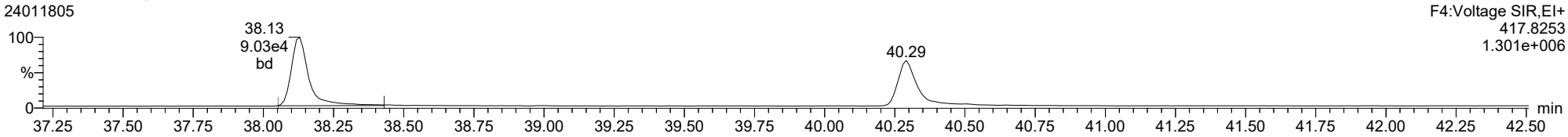
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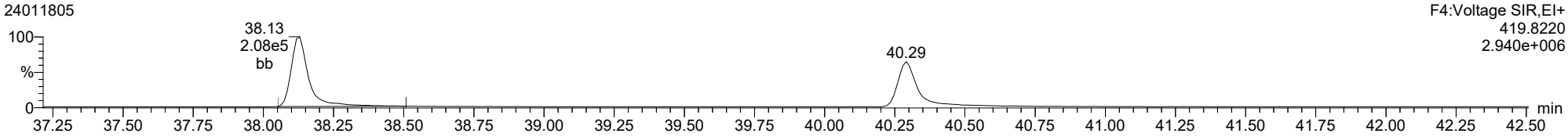
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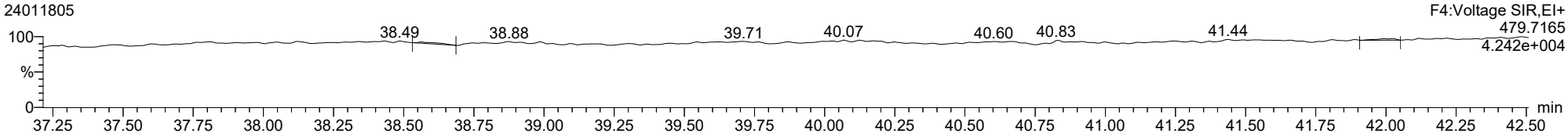
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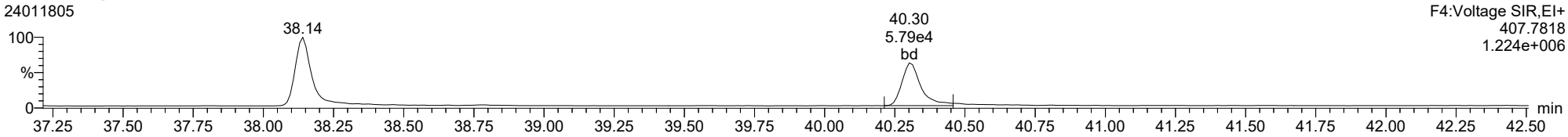


FUNCTION4 NCDPE

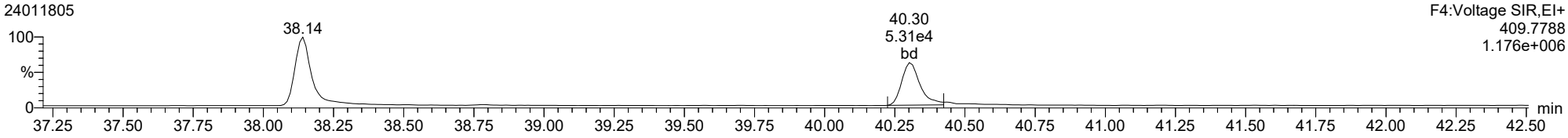


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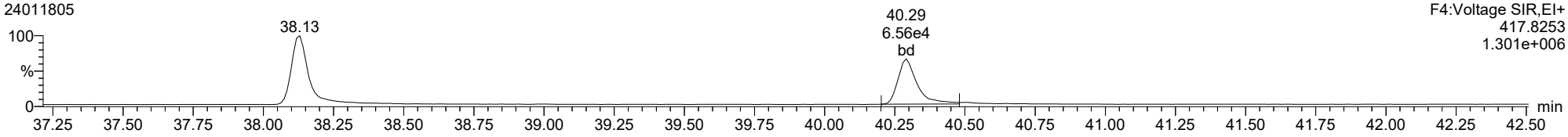
1234789-HpCDF



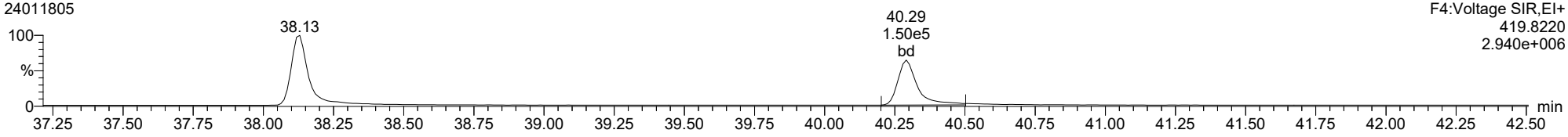
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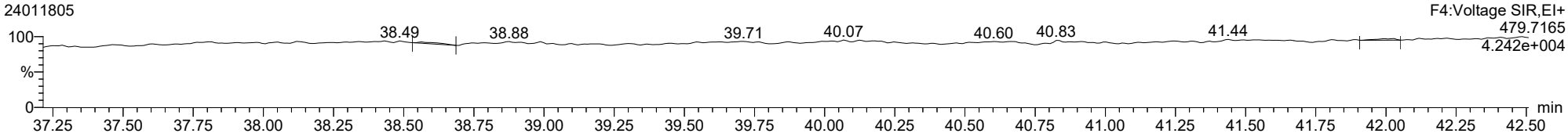
13C-1234789-HpCDF



13C-1234789-HpCDF

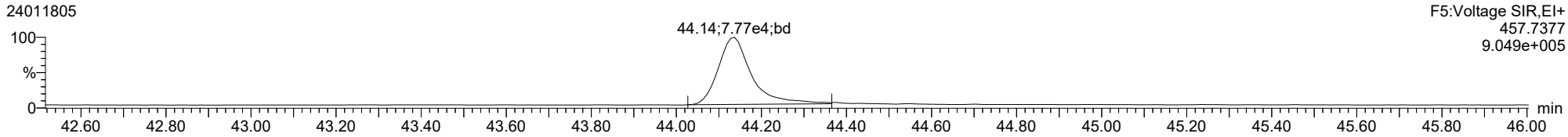


FUNCTION4 NCDPE

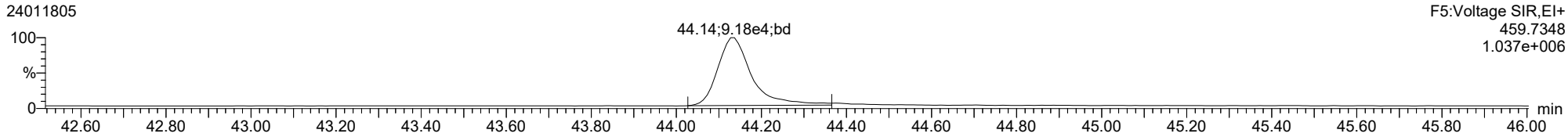


ID: BLL0751-BS1, Name: 24011805, Date: 18-Jan-2024, Time: 12:55:08, Conditions: AUTOSPEC01, User: pk

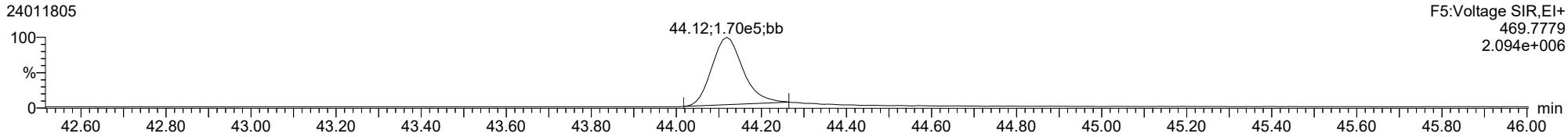
OCDD



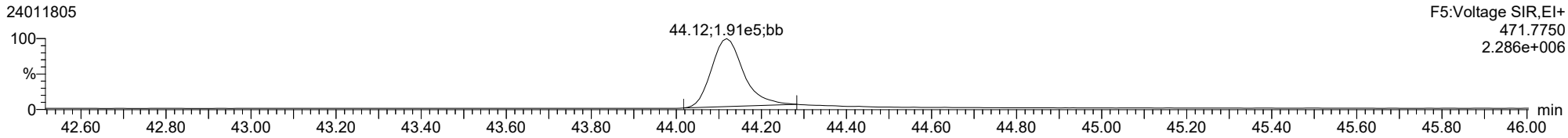
OCDD



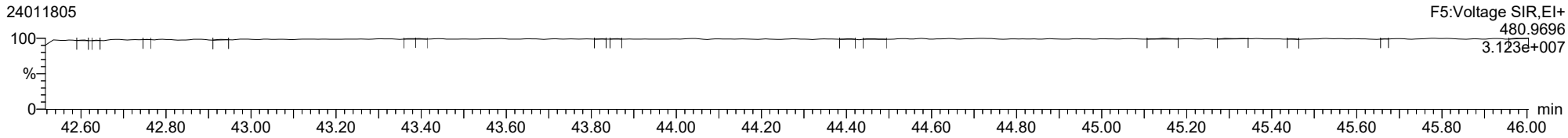
13C-OCDD



13C-OCDD



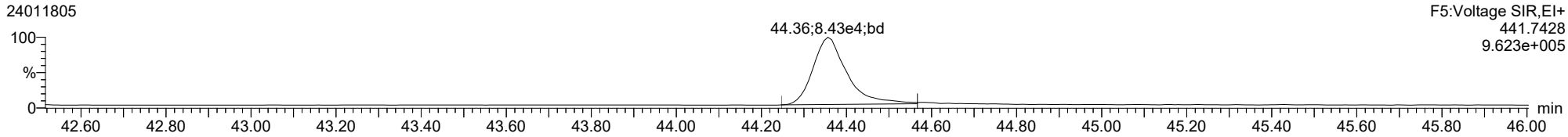
FUNCTION5 PFK



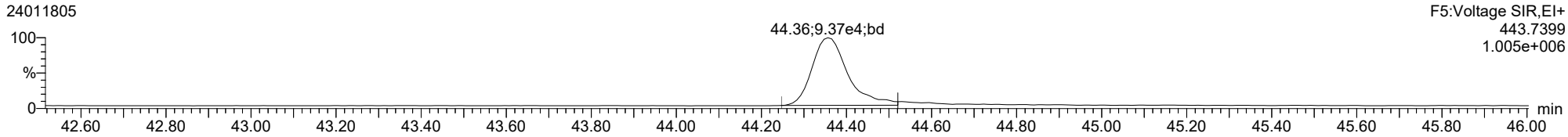
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Printed: Friday, January 19, 2024 09:45:27 Pacific Standard Time

ID: BLL0751-BS1, Name: 24011805, Date: 18-Jan-2024, Time: 12:55:08, Conditions: AUTOSPEC01, User: pk

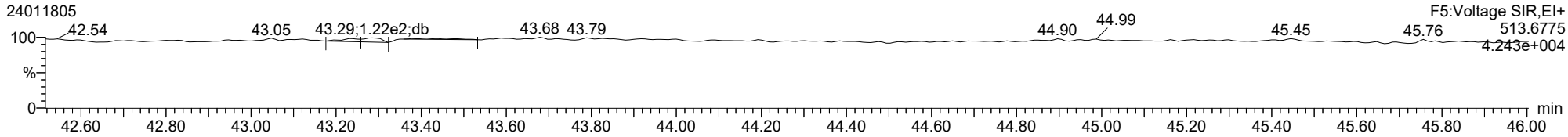
OCDF



OCDF



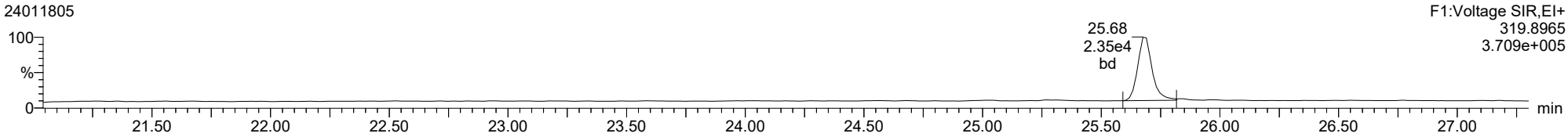
FUNCTION5 DCDPE



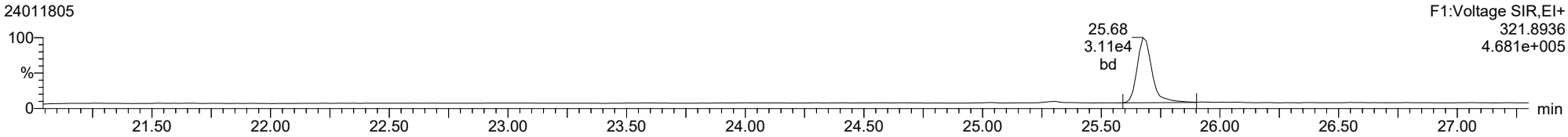
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Printed: Friday, January 19, 2024 09:45:27 Pacific Standard Time

ID: BLL0751-BS1, Name: 24011805, Date: 18-Jan-2024, Time: 12:55:08, Conditions: AUTOSPEC01, User: pk

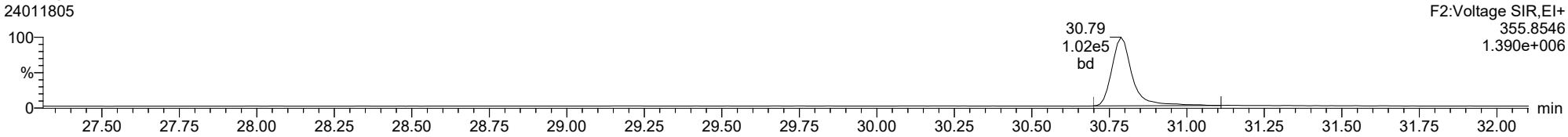
Total-tetradioxins



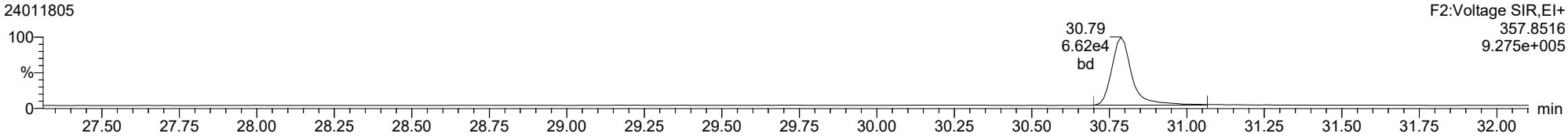
Total-tetradioxins



Total-pentadioxins

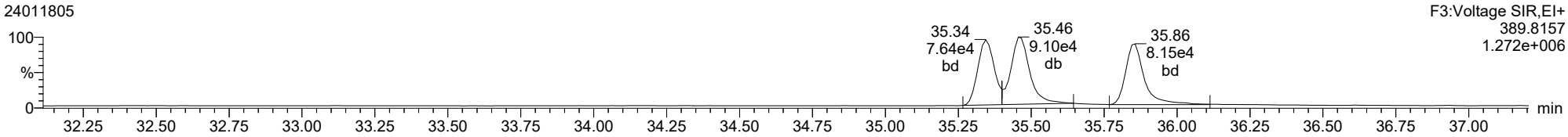


Total-pentadioxins

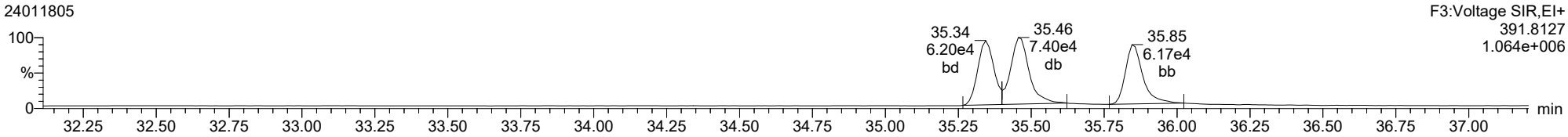


ID: BLL0751-BS1, Name: 24011805, Date: 18-Jan-2024, Time: 12:55:08, Conditions: AUTOSPEC01, User: pk

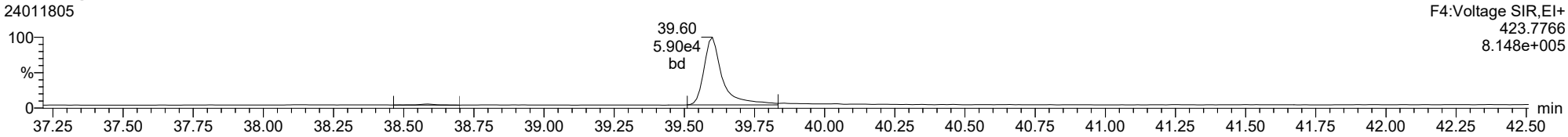
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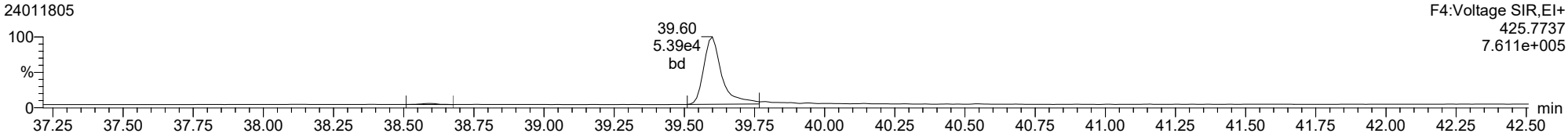
Total-hexadioxins



Total-heptadioxins



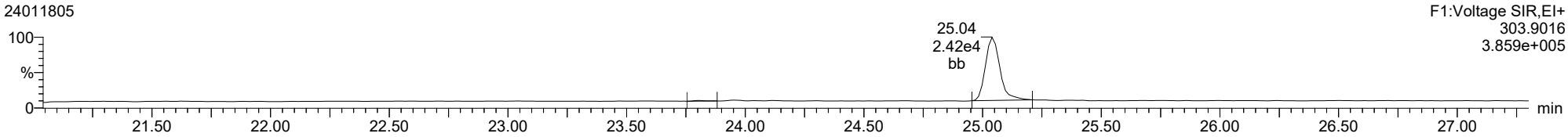
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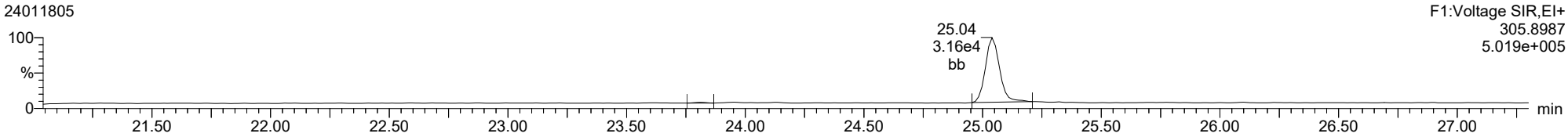
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Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
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ID: BLL0751-BS1, Name: 24011805, Date: 18-Jan-2024, Time: 12:55:08, Conditions: AUTOSPEC01, User: pk

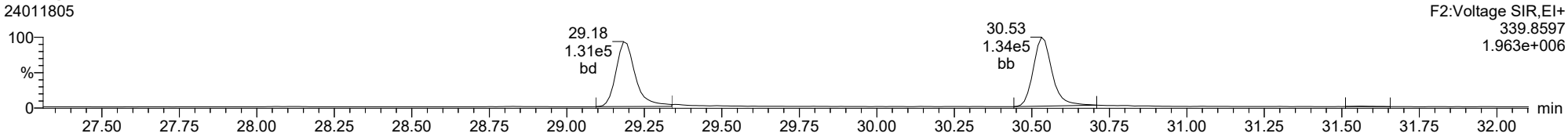
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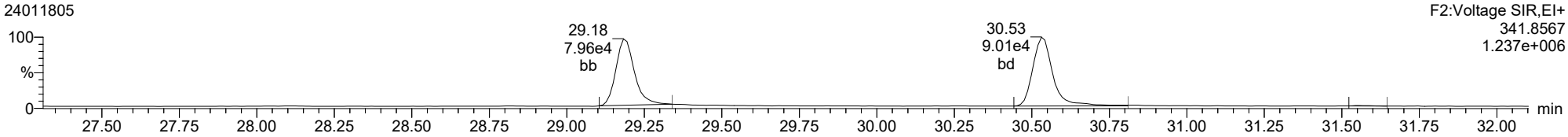
Total-tetrafurans



Total-pentafurans



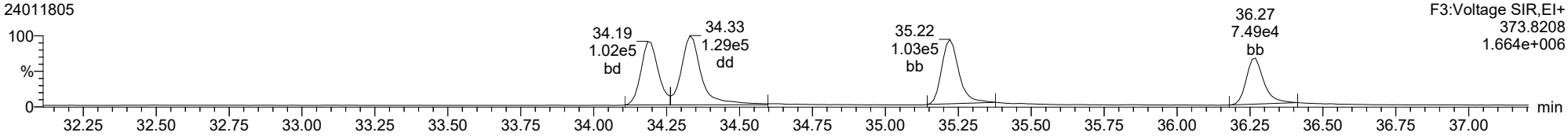
Total-pentafurans



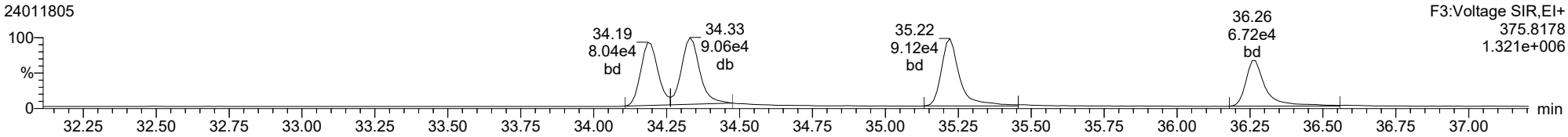
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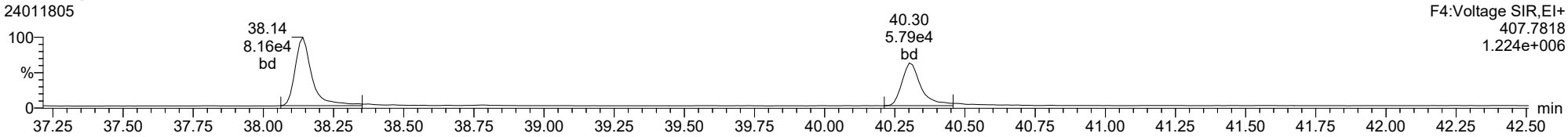
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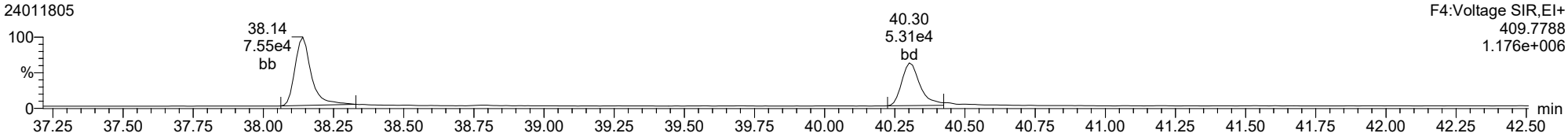
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

H4H-01-0.5-1.0

DUPLICATES
EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23L0564
Client: Floyd - Snider
Project: Smith-Kem
Matrix: Solid
Laboratory ID: BLL0751-DUP2
Batch: BLL0751
Lab Source ID: 23L0564-01
Preparation: EPA 1613
Initial/Final: 11 g / 20 uL
Source Sample Name: H4H-01-0.5-1.0
% Solids: 91.01

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION (ng/kg dry)	C	DUPLICATE CONCENTRATION (ng/kg dry)	C	RPD %	Q
2,3,7,8-TCDF	25	10.4	X	9.39	X	10.2	
2,3,7,8-TCDD	25	28.2		44.0	*	43.7	*
1,2,3,7,8-PeCDF	25	1.50	EMP	ND	U		
2,3,4,7,8-PeCDF	25	6.15		10.1	*	48.3	*
1,2,3,7,8-PeCDD	25	2.53		3.27	*	25.5	*
1,2,3,4,7,8-HxCDF	25	3.72		4.30		14.4	
1,2,3,6,7,8-HxCDF	25	6.59		9.02	*	31.1	*
2,3,4,6,7,8-HxCDF	25	18.5		24.7	*	28.7	*
1,2,3,7,8,9-HxCDF	25	3.05		4.34	*	34.9	*
1,2,3,4,7,8-HxCDD	25	0.826	J	1.18	*	35.2	*
1,2,3,6,7,8-HxCDD	25	3.35		3.86		14.0	
1,2,3,7,8,9-HxCDD	25	1.98		2.58	*, EMPC	26.1	*
1,2,3,4,6,7,8-HpCDF	25	16.2	B	20.4	B	23.5	
1,2,3,4,7,8,9-HpCDF	25	2.00		1.95		2.20	
1,2,3,4,6,7,8-HpCDD	25	26.3	B	34.1	*, B	25.8	*
OCDF	25	33.0	B	34.3	EMPC, B	3.87	
OCDD	25	227	B	309	*, B	30.4	*
Total TCDF	200	217		322		38.9	
Total TCDD	200	28.5		52.2		58.9	
Total PeCDF	200	488		831		52.0	
Total PeCDD	200	16.0		25.6		46.3	
Total HxCDF	200	237		346		37.3	
Total HxCDD	200	37.3		56.3		40.7	
Total HpCDF	200	50.2		58.2		14.8	
Total HpCDD	200	49.9		67.1		29.4	
13C12-2,3,7,8-TCDF		95.6		124			
13C12-2,3,7,8-TCDD		130		154			
13C12-1,2,3,7,8-PeCDF		118		121			
13C12-2,3,4,7,8-PeCDF		118		115			

* Values outside of QC limits
L Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to +/- RL instead of 20% RPD

Analytical Resources, LLC
Analytical Chemists and Consultants

H4H-01-0.5-1.0

DUPLICATES

EPA 1613B

Laboratory: Analytical Resources, LLC
Client: Floyd - Snider
Matrix: Solid
Batch: BLL0751
Preparation: EPA 1613
Source Sample Name: H4H-01-0.5-1.0

SDG: 23L0564
Project: Smith-Kem
Laboratory ID: BLL0751-DUP2
Lab Source ID: 23L0564-01
Initial/Final: 11 g / 20 uL
% Solids: 91.01

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION (ng/kg dry)	C	DUPLICATE CONCENTRATION (ng/kg dry)	C	RPD %	Q
13C12-1,2,3,7,8-PeCDD		146		135			
13C12-1,2,3,4,7,8-HxCDF		127		127			
13C12-1,2,3,6,7,8-HxCDF		108		108			
13C12-2,3,4,6,7,8-HxCDF		119		108			
13C12-1,2,3,7,8,9-HxCDF		123		113			
13C12-1,2,3,4,7,8-HxCDD		149		134			
13C12-1,2,3,6,7,8-HxCDD		129		115			
13C12-1,2,3,4,6,7,8-HpCDF		98.3		84.9			
13C12-1,2,3,4,7,8,9-HpCDF		91.1		76.6			
13C12-1,2,3,4,6,7,8-HpCDD		128		108			
13C12-OCDD		170		118			
37Cl4-2,3,7,8-TCDD		65.9		84.5			

*: Values outside of QC limits
L: Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to Dup = +/- RL instead of 20% RPD

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
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Printed: Friday, January 19, 2024 09:45:59 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240116.mdb 16 Jan 2024 11:29:56
Calibration: T:\Autospec\Curves\230811IClH.cdb 12 Aug 2023 09:45:18

ID: BLL0751-DUP2, Name: 24011807, Date: 18-Jan-2024, Time: 14:44:31, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.111	1.001	1.132e4	1.326e4	0.903	0.854	0.770	13230	21964	2.14e5	2.23e5	16.2	10.1	NO	dd	dd	4.698
12378-PeCDF					0.923		1.550	5530	6644								
23478-PeCDF	30.609	1.000	1.129e4	7.667e3	0.991	1.473	1.550	5530	6644	1.62e5	1.14e5	29.4	17.2	NO	db	dd	5.040
123478-HxCDF	34.275	1.001	3.178e3	2.732e3	1.128	1.163	1.240	1742	1471	5.11e4	3.95e4	29.4	26.9	NO	bd	bd	2.151
234678-HxCDF	35.266	0.999	1.496e4	1.293e4	1.081	1.156	1.240	1742	1471	1.59e5	1.30e5	91.2	88.5	NO	bb	bd	12.371
123678-HxCDF	34.419	1.001	6.366e3	5.483e3	1.032	1.161	1.240	1742	1471	9.70e4	8.10e4	55.7	55.1	NO	db	db	4.513
123789-HxCDF	36.313	1.000	2.148e3	1.895e3	0.988	1.134	1.240	1742	1471	3.19e4	2.62e4	18.3	17.8	NO	bb	bb	2.172
1234678-HpCDF	38.230	1.001	8.857e3	8.672e3	1.164	1.021	1.050	880	923	1.49e5	1.42e5	169.4	154.3	NO	bb	bb	10.235
1234789-HpCDF	40.403	1.001	6.005e2	4.984e2	1.104	1.205	1.050	880	923	7.09e3	8.21e3	8.1	8.9	NO	MM	MM	0.977
OCDF	44.449	1.005	6.486e3	6.308e3	1.130	1.028	0.890	767	829	8.29e4	8.72e4	108.2	105.1	YES	bb	bb	17.159
2378-TCDD	25.732	1.001	5.254e4	6.662e4	1.243	0.789	0.770	1411	1015	7.49e5	9.50e5	530.6	935.9	NO	bb	bd	22.032
12378-PeCDD	30.865	1.001	2.949e3	1.920e3	1.150	1.536	1.550	1353	769	4.11e4	2.69e4	30.4	35.0	NO	bb	bb	1.636
123478-HxCDD	35.422	1.000	7.402e2	5.409e2	0.960	1.368	1.240	682	1224	1.10e4	8.38e3	16.2	6.8	NO	bd	bd	0.590
123678-HxCDD	35.545	1.000	2.228e3	1.768e3	0.883	1.260	1.240	682	1224	3.66e4	2.65e4	53.7	21.6	NO	db	db	1.931
123789-HxCDD	35.924	1.011	1.437e3	9.538e2	0.804	1.506	1.240	682	1224	2.29e4	1.38e4	33.6	11.3	YES	bb	bb	1.291
1234678-HpCDD	39.678	1.000	1.222e4	1.221e4	1.200	1.001	1.050	921	709	1.84e5	1.80e5	200.1	254.1	NO	bb	bd	17.071
OCDD	44.229	1.000	5.023e4	5.770e4	1.059	0.871	0.890	789	817	6.34e5	7.02e5	804.5	859.0	NO	bd	bd	154.540
13C-2378-TCDF	25.082	1.007	2.528e5	3.265e5	1.835	0.774	0.770	2165	2556	3.83e6	4.98e6	1769.6	1948.1	NO	bb	bb	62.020
13C-12378-PeCDF	29.250	1.174	2.558e5	1.701e5	1.377	1.504	1.550	1243	1327	3.64e6	2.39e6	2925.5	1804.0	NO	bb	bb	60.795
13C-23478-PeCDF	30.598	1.228	2.290e5	1.508e5	1.301	1.519	1.550	1243	1327	3.25e6	2.20e6	2613.4	1657.4	NO	bb	bb	57.347
13C-123478-HxCDF	34.252	0.954	8.343e4	1.601e5	1.091	0.521	0.510	1216	1013	1.25e6	2.42e6	1027.7	2384.6	NO	bd	bd	63.501
13C-123678-HxCDF	34.397	0.958	8.592e4	1.684e5	1.340	0.510	0.510	1216	1013	1.29e6	2.51e6	1058.3	2477.4	NO	db	db	53.976
13C-234678-HxCDF	35.288	0.983	7.121e4	1.372e5	1.093	0.519	0.510	1216	1013	1.14e6	2.25e6	940.8	2220.6	NO	bb	bb	54.220
13C-123789-HxCDF	36.325	1.012	6.453e4	1.239e5	0.952	0.521	0.510	1216	1013	9.44e5	1.83e6	776.0	1803.3	NO	bb	bb	56.322
13C-1234678-HpCDF	38.208	1.064	4.426e4	1.029e5	0.985	0.430	0.440	900	1069	7.43e5	1.70e6	825.7	1593.5	NO	bb	bb	42.499
13C-1234789-HpCDF	40.380	1.124	3.112e4	7.080e4	0.756	0.440	0.440	900	1069	4.47e5	1.00e6	496.9	938.2	NO	bb	bb	38.353
13C-1234-TCDD	24.913	0.000	2.234e5	2.855e5	1.000	0.783	0.770	1765	1276	3.55e6	4.57e6	2011.5	3584.7	NO	bb	bb	100.000
13C-2378-TCDD	25.718	1.032	1.895e5	2.456e5	1.110	0.771	0.770	1765	1276	2.86e6	3.70e6	1621.4	2899.1	NO	bb	bb	77.060
13C-12378-PeCDD	30.843	1.238	1.621e5	9.674e4	0.754	1.676	1.550	1052	875	2.54e6	1.51e6	2412.2	1723.5	NO	bb	bb	67.477
13C-123478-HxCDD	35.411	0.986	1.259e5	1.004e5	0.960	1.253	1.240	906	1177	1.97e6	1.59e6	2178.7	1351.5	NO	bd	bd	67.052
13C-123678-HxCDD	35.534	0.989	1.292e5	1.053e5	1.159	1.227	1.240	906	1177	1.95e6	1.58e6	2151.4	1339.5	NO	db	db	57.512
13C-1234678-HpCDD	39.667	1.105	6.142e4	5.785e4	0.629	1.062	1.050	944	784	9.96e5	9.15e5	1055.4	1168.0	NO	bb	bb	53.908
13C-OCDD	44.210	1.231	6.289e4	6.904e4	0.635	0.911	0.890	1098	779	8.20e5	9.09e5	747.0	1166.9	NO	bb	bb	59.078
13C-123789-HxCDD	35.912	0.000	1.944e5	1.572e5	1.000	1.236	1.240	906	1177	3.06e6	2.42e6	3375.6	2057.2	NO	bb	bb	100.000
37CL-2378-TCDD	25.732	1.033	2.491e5		1.157			7252		3.52e6		484.8			bb		42.294

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
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ID: BLL0751-DUP2, Name: 24011807, Date: 18-Jan-2024, Time: 14:44:31, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.537	0.859	1.204e4	7.250e3	1.170	1.661	0.770	13230	21964	1.69e5	1.16e5	12.8	5.3	YES	bd	bd	2.846
1289-TCDF	26.650	1.063	2.705e4	1.741e4	0.847	1.554	0.770	13230	21964	4.30e5	2.80e5	32.5	12.8	YES	dd	db	9.065
13468-PECDF	26.537	0.907	5.470e5	3.583e5	1.241	1.527	1.550	6617	3948	7.79e6	5.11e6	1177.5	1293.3	NO	bb	bb	171.287
12389-PECDF	31.578	1.080	2.823e4	1.983e4	0.880	1.424	1.550	5530	6644	2.73e5	1.93e5	49.4	29.0	NO	db	bb	12.828
123468-HXCDF	32.592	0.951	2.020e4	1.591e4	1.206	1.269	1.240	1742	1471	3.12e5	2.48e5	179.0	168.3	NO	bb	db	12.301
1368-TCDD	22.879	0.890	2.649e3	3.137e3	1.181	0.844	0.770	1411	1015	3.68e4	5.28e4	26.1	52.0	NO	db	bd	1.126
1289-TCDD					0.963		0.770	1411	1015								
12479-PECDD	28.180	0.914	1.066e4	7.051e3	2.166	1.513	1.550	1353	769	1.29e5	8.53e4	95.2	110.9	NO	bb	bb	3.159
12389-PECDD	31.255	1.013	4.771e2	3.006e2	1.326	1.587	1.550	1353	769	6.47e3	4.72e3	4.8	6.1	NO	bb	bb	0.227
124679-HXCDD	33.372	0.942	2.066e4	1.655e4	1.127	1.248	1.240	682	1224	3.25e5	2.66e5	477.3	217.4	NO	bb	bb	14.591
1234679-HPCDD	38.675	0.975	1.308e4	1.258e4	1.303	1.040	1.050	921	709	2.10e5	1.93e5	227.6	271.9	NO	bb	bb	16.515
Total-tetrafurans			4.008e5		0.973			13230		5.25e6							161.093
Total-penta1			5.470e5					6617		7.79e6							171.287
Total-pentafurans			5.551e5		0.931			5530		7.33e6							244.780
Total-hexafurans			2.363e5		1.087			1742		3.57e6							173.357
Total-heptafurans			2.237e4		1.134			880		3.56e5							29.142
Total-Furans			1.794e6		1.053			13230		2.47e7							791.948
Total-tetradioxins			6.161e4		1.129			1411		8.86e5							26.136
Total-pentadioxins			3.281e4		1.548			1353		4.64e5							12.792
Total-hexadioxins			3.671e4		0.943			682		5.36e5							28.195
Total-heptadioxins			2.530e4		1.251			921		3.94e5							33.587
Total-Dioxins			2.067e5		1.182			1411		2.91e6							255.249
Total-TEQ			2.001e6					1411		2.76e7							1047.197
FUNCTION1 PFK			3.568e7					700395		2.42e8							
FUNCTION2 PFK			1.372e7					289570		7.89e7							0.000
FUNCTION3 PFK			1.000e5					342102		1.97e6							0.000
FUNCTION4 PFK			3.128e7					386321		9.49e7							
FUNCTION5 PFK			9.183e5					212824		1.79e7							
FUNCTION1 HXCD...			7.477e5					5799		1.05e7							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			6.811e4					1753		1.02e6							0.000
FUNCTION3 OCDPE			1.293e3					738		2.36e4							0.000
FUNCTION4 NCDPE			3.612e2					594		6.88e3							0.000
FUNCTION5 DCDPE			8.740e1					472		2.82e3							0.000

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Method: T:\Autospec\Methods\Dioxin240116.mdb 16 Jan 2024 11:29:56
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: BLL0751-DUP2, Name: 24011807, Date: 18-Jan-2024, Time: 14:44:31, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	24.01	5.493e4	6.935e4	0.973	0.79	0.77	64.7	YES	NO	bb	bb	22.039
2	Total-tetrafurans	22.85	2.416e4	3.232e4	0.973	0.75	0.77	24.7	YES	NO	db	db	10.014
3	Total-tetrafurans	22.61	1.237e4	1.611e4	0.973	0.77	0.77	10.6	YES	NO	dd	dd	5.052
4	Total-tetrafurans	22.45	9.423e4	1.218e5	0.973	0.77	0.77	108.3	YES	NO	bd	bd	38.307
5	Total-tetrafurans	22.21	9.832e3	1.217e4	0.973	0.81	0.77	10.2	YES	NO	bb	bb	3.902
6	Total-tetrafurans	21.86	1.586e4	1.930e4	0.973	0.82	0.77	14.9	YES	NO	db	db	6.234
7	Total-tetrafurans	21.61	8.291e3	9.734e3	0.973	0.85	0.77	9.6	YES	NO	dd	dd	3.197
8	Total-tetrafurans	26.98	9.667e4	1.208e5	0.973	0.80	0.77	71.4	YES	NO	dd	dd	38.558
9	Total-tetrafurans	26.00	7.122e3	1.055e4	0.973	0.67	0.77	7.4	YES	NO	bd	dd	3.135
10	Total-tetrafurans	25.48	4.873e4	5.954e4	0.973	0.82	0.77	38.8	YES	NO	db	db	19.201
11	2378-TCDF	25.11	1.132e4	1.326e4	0.903	0.85	0.77	16.2	YES	NO	dd	dd	4.698
12	Total-tetrafurans	24.36	1.726e4	2.084e4	0.973	0.83	0.77	20.3	YES	NO	bd	bd	6.756

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.54	5.470e5	3.583e5	1.241	1.53	1.55	1177.5	YES	NO	bb	bb	171.287

ID: BLL0751-DUP2, Name: 24011807, Date: 18-Jan-2024, Time: 14:44:31, Conditions: AUTOSPEC01, User: pk

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.30	2.690e4	1.665e4	0.931	1.62	1.55	77.8	YES	NO	dd	db	11.610
2	Total-pentafurans	28.19	1.970e5	1.261e5	0.931	1.56	1.55	399.4	YES	NO	dd	dd	86.157
3	Total-pentafurans	28.01	1.488e4	8.880e3	0.931	1.68	1.55	35.9	YES	NO	dd	dd	6.335
4	Total-pentafurans	27.93	3.616e3	2.551e3	0.931	1.42	1.55	12.9	YES	NO	dd	dd	1.644
5	Total-pentafurans	27.80	1.708e4	1.130e4	0.931	1.51	1.55	41.0	YES	NO	dd	bd	7.566
6	Total-pentafurans	27.49	2.934e3	1.722e3	0.931	1.70	1.55	7.6	YES	NO	bd	bd	1.241
7	12389-PECDF	31.58	2.823e4	1.983e4	0.880	1.42	1.55	49.4	YES	NO	db	bb	12.828
8	Total-pentafurans	31.00	2.252e4	1.624e4	0.931	1.39	1.55	54.4	YES	NO	bb	bb	10.334
9	23478-PeCDF	30.61	1.129e4	7.667e3	0.991	1.47	1.55	29.4	YES	NO	db	dd	5.040
10	Total-pentafurans	30.45	5.771e4	3.755e4	0.931	1.54	1.55	153.7	YES	NO	dd	dd	25.394
11	Total-pentafurans	30.35	1.709e3	1.278e3	0.931	1.34	1.55	5.8	YES	NO	bd	bd	0.796
12	Total-pentafurans	30.20	2.466e4	1.479e4	0.931	1.67	1.55	67.3	YES	NO	db	bb	10.517
13	Total-pentafurans	29.97	5.880e4	4.084e4	0.931	1.44	1.55	142.2	YES	NO	bd	bb	26.565
14	Total-pentafurans	29.68	1.041e4	6.891e3	0.931	1.51	1.55	29.2	YES	NO	bb	db	4.613
15	Total-pentafurans	29.47	2.107e4	1.335e4	0.931	1.58	1.55	67.7	YES	NO	bb	bd	9.176
16	Total-pentafurans	29.06	6.760e3	5.110e3	0.931	1.32	1.55	14.5	YES	NO	db	db	3.164
17	Total-pentafurans	28.90	4.943e4	3.233e4	0.931	1.53	1.55	137.9	YES	NO	dd	dd	21.798

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123468-HXCDF	32.59	2.020e4	1.591e4	1.206	1.27	1.24	179.0	YES	NO	bb	db	12.301
2	123789-HxCDF	36.31	2.148e3	1.895e3	0.988	1.13	1.24	18.3	YES	NO	bb	bb	2.172
3	234678-HxCDF	35.27	1.496e4	1.293e4	1.081	1.16	1.24	91.2	YES	NO	bb	bd	12.371
4	123678-HxCDF	34.42	6.366e3	5.483e3	1.032	1.16	1.24	55.7	YES	NO	db	db	4.513
5	123478-HxCDF	34.27	3.178e3	2.732e3	1.128	1.16	1.24	29.4	YES	NO	bd	bd	2.151
6	Total-hexafurans	34.12	6.173e2	4.660e2	1.087	1.32	1.24	6.3	YES	NO	bb	bb	0.446
7	Total-hexafurans	33.65	8.708e4	7.001e4	1.087	1.24	1.24	785.6	YES	NO	bb	bb	64.604
8	Total-hexafurans	33.35	1.443e3	1.146e3	1.087	1.26	1.24	11.3	YES	NO	bb	bb	1.065
9	Total-hexafurans	33.06	4.784e2	4.274e2	1.087	1.12	1.24	3.9	YES	NO	bb	bb	0.373
10	Total-hexafurans	32.80	9.987e4	7.852e4	1.087	1.27	1.24	870.6	YES	NO	bb	bb	73.363

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HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.23	8.857e3	8.672e3	1.164	1.02	1.05	169.4	YES	NO	bb	bb	10.235
2	1234789-HpCDF	40.40	6.005e2	4.984e2	1.104	1.21	1.05	8.1	YES	NO	MM	MM	0.977
3	Total-heptafurans	38.86	1.291e4	1.241e4	1.134	1.04	1.05	227.7	YES	NO	bd	bb	17.931

ID: BLL0751-DUP2, Name: 24011807, Date: 18-Jan-2024, Time: 14:44:31, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	24.01	5.493e4	6.935e4	0.973	0.79	0.77	64.7	YES	NO	bb	bb	22.039
2	Total-tetrafurans	22.85	2.416e4	3.232e4	0.973	0.75	0.77	24.7	YES	NO	db	db	10.014
3	Total-tetrafurans	22.61	1.237e4	1.611e4	0.973	0.77	0.77	10.6	YES	NO	dd	dd	5.052
4	Total-tetrafurans	22.45	9.423e4	1.218e5	0.973	0.77	0.77	108.3	YES	NO	bd	bd	38.307
5	Total-tetrafurans	22.21	9.832e3	1.217e4	0.973	0.81	0.77	10.2	YES	NO	bb	bb	3.902
6	Total-tetrafurans	21.86	1.586e4	1.930e4	0.973	0.82	0.77	14.9	YES	NO	db	db	6.234
7	Total-tetrafurans	21.61	8.291e3	9.734e3	0.973	0.85	0.77	9.6	YES	NO	dd	dd	3.197
8	Total-Furans	21.35	1.524e4	1.833e4	1.053	0.83	0.77	15.7	YES	NO	bb	bb	5.506
9	Total-tetrafurans	26.98	9.667e4	1.208e5	0.973	0.80	0.77	71.4	YES	NO	dd	dd	38.558
10	Total-tetrafurans	26.00	7.122e3	1.055e4	0.973	0.67	0.77	7.4	YES	NO	bd	dd	3.135
11	Total-tetrafurans	25.48	4.873e4	5.954e4	0.973	0.82	0.77	38.8	YES	NO	db	db	19.201
12	2378-TCDF	25.11	1.132e4	1.326e4	0.903	0.85	0.77	16.2	YES	NO	dd	dd	4.698
13	Total-tetrafurans	24.36	1.726e4	2.084e4	0.973	0.83	0.77	20.3	YES	NO	bd	bd	6.756
14	Total-Furans	27.24	1.718e4	2.418e4	1.053	0.71	0.77	15.2	YES	NO	db	db	6.784
15	Total-pentafurans	28.30	2.690e4	1.665e4	0.931	1.62	1.55	77.8	YES	NO	dd	db	11.610
16	Total-pentafurans	28.19	1.970e5	1.261e5	0.931	1.56	1.55	399.4	YES	NO	dd	dd	86.157
17	Total-pentafurans	28.01	1.488e4	8.880e3	0.931	1.68	1.55	35.9	YES	NO	dd	dd	6.335
18	Total-pentafurans	27.93	3.616e3	2.551e3	0.931	1.42	1.55	12.9	YES	NO	dd	dd	1.644
19	Total-pentafurans	27.80	1.708e4	1.130e4	0.931	1.51	1.55	41.0	YES	NO	dd	bd	7.566
20	Total-pentafurans	27.49	2.934e3	1.722e3	0.931	1.70	1.55	7.6	YES	NO	bd	bd	1.241
21	12389-PECDF	31.58	2.823e4	1.983e4	0.880	1.42	1.55	49.4	YES	NO	db	bb	12.828
22	Total-pentafurans	31.00	2.252e4	1.624e4	0.931	1.39	1.55	54.4	YES	NO	bb	bb	10.334
23	23478-PeCDF	30.61	1.129e4	7.667e3	0.991	1.47	1.55	29.4	YES	NO	db	dd	5.040
24	Total-pentafurans	30.45	5.771e4	3.755e4	0.931	1.54	1.55	153.7	YES	NO	dd	dd	25.394
25	Total-pentafurans	30.35	1.709e3	1.278e3	0.931	1.34	1.55	5.8	YES	NO	bd	bd	0.796
26	Total-pentafurans	30.20	2.466e4	1.479e4	0.931	1.67	1.55	67.3	YES	NO	db	bb	10.517
27	Total-pentafurans	29.97	5.880e4	4.084e4	0.931	1.44	1.55	142.2	YES	NO	bd	bb	26.565
28	Total-pentafurans	29.68	1.041e4	6.891e3	0.931	1.51	1.55	29.2	YES	NO	bb	db	4.613
29	Total-pentafurans	29.47	2.107e4	1.335e4	0.931	1.58	1.55	67.7	YES	NO	bb	bd	9.176
30	Total-pentafurans	29.06	6.760e3	5.110e3	0.931	1.32	1.55	14.5	YES	NO	db	db	3.164
31	Total-pentafurans	28.90	4.943e4	3.233e4	0.931	1.53	1.55	137.9	YES	NO	dd	dd	21.798
32	123468-HXCDF	32.59	2.020e4	1.591e4	1.206	1.27	1.24	179.0	YES	NO	bb	db	12.301
33	123789-HxCDF	36.31	2.148e3	1.895e3	0.988	1.13	1.24	18.3	YES	NO	bb	bb	2.172
34	234678-HxCDF	35.27	1.496e4	1.293e4	1.081	1.16	1.24	91.2	YES	NO	bb	bd	12.371
35	123678-HxCDF	34.42	6.366e3	5.483e3	1.032	1.16	1.24	55.7	YES	NO	db	db	4.513
36	123478-HxCDF	34.27	3.178e3	2.732e3	1.128	1.16	1.24	29.4	YES	NO	bd	bd	2.151
37	Total-hexafurans	34.12	6.173e2	4.660e2	1.087	1.32	1.24	6.3	YES	NO	bb	bb	0.446

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-hexafurans	33.65	8.708e4	7.001e4	1.087	1.24	1.24	785.6	YES	NO	bb	bb	64.604
39	Total-hexafurans	33.35	1.443e3	1.146e3	1.087	1.26	1.24	11.3	YES	NO	bb	bb	1.065
40	Total-hexafurans	33.06	4.784e2	4.274e2	1.087	1.12	1.24	3.9	YES	NO	bb	bb	0.373
41	Total-hexafurans	32.80	9.987e4	7.852e4	1.087	1.27	1.24	870.6	YES	NO	bb	bb	73.363
42	1234678-HpCDF	38.23	8.857e3	8.672e3	1.164	1.02	1.05	169.4	YES	NO	bb	bb	10.235
43	1234789-HpCDF	40.40	6.005e2	4.984e2	1.104	1.21	1.05	8.1	YES	NO	MM	MM	0.977
44	Total-heptafurans	38.86	1.291e4	1.241e4	1.134	1.04	1.05	227.7	YES	NO	bd	bb	17.931
45	13468-PECDF	26.54	5.470e5	3.583e5	1.241	1.53	1.55	1177.5	YES	NO	bb	bb	171.287

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.73	5.254e4	6.662e4	1.243	0.79	0.77	530.6	YES	NO	bb	bd	22.032
2	Total-tetradioxins	24.36	2.610e3	3.192e3	1.129	0.82	0.77	27.2	YES	NO	bb	bb	1.181
3	Total-tetradioxins	24.18	2.034e3	2.697e3	1.129	0.75	0.77	23.2	YES	NO	db	db	0.963
4	Total-tetradioxins	24.08	1.774e3	2.320e3	1.129	0.76	0.77	20.8	YES	NO	bd	dd	0.833
5	1368-TCDD	22.88	2.649e3	3.137e3	1.181	0.84	0.77	26.1	YES	NO	db	bd	1.126

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	28.65	7.497e2	5.118e2	1.548	1.46	1.55	9.2	YES	NO	bb	bb	0.315
2	12479-PECDD	28.18	1.066e4	7.051e3	2.166	1.51	1.55	95.2	YES	NO	bb	bb	3.159
3	12389-PECDD	31.26	4.771e2	3.006e2	1.326	1.59	1.55	4.8	YES	NO	bb	bb	0.227
4	12378-PeCDD	30.87	2.949e3	1.920e3	1.150	1.54	1.55	30.4	YES	NO	bb	bb	1.636
5	Total-pentadioxins	29.48	1.439e4	9.418e3	1.548	1.53	1.55	160.2	YES	NO	dd	bd	5.944
6	Total-pentadioxins	29.27	3.584e3	2.470e3	1.548	1.45	1.55	43.4	YES	NO	bd	bb	1.511

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDD	35.54	2.228e3	1.768e3	0.883	1.26	1.24	53.7	YES	NO	db	db	1.931
2	123478-HxCDD	35.42	7.402e2	5.409e2	0.960	1.37	1.24	16.2	YES	NO	bd	bd	0.590
3	Total-hexadioxins	34.53	1.094e4	9.251e3	0.943	1.18	1.24	190.6	YES	NO	bd	bb	9.290
4	Total-hexadioxins	34.16	2.155e3	1.741e3	0.943	1.24	1.24	48.8	YES	NO	bb	bb	1.793
5	124679-HXCDD	33.37	2.066e4	1.655e4	1.127	1.25	1.24	477.3	YES	NO	bb	bb	14.591

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HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.68	1.222e4	1.221e4	1.200	1.00	1.05	200.1	YES	NO	bb	bd	17.071
2	1234679-HPCDD	38.68	1.308e4	1.258e4	1.303	1.04	1.05	227.6	YES	NO	bb	bb	16.515

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.73	5.254e4	6.662e4	1.243	0.79	0.77	530.6	YES	NO	bb	bd	22.032
2	Total-tetradioxins	24.36	2.610e3	3.192e3	1.129	0.82	0.77	27.2	YES	NO	bb	bb	1.181
3	Total-tetradioxins	24.18	2.034e3	2.697e3	1.129	0.75	0.77	23.2	YES	NO	db	db	0.963
4	Total-tetradioxins	24.08	1.774e3	2.320e3	1.129	0.76	0.77	20.8	YES	NO	bd	dd	0.833
5	1368-TCDD	22.88	2.649e3	3.137e3	1.181	0.84	0.77	26.1	YES	NO	db	bd	1.126
6	Total-pentadioxins	28.65	7.497e2	5.118e2	1.548	1.46	1.55	9.2	YES	NO	bb	bb	0.315
7	12479-PECDD	28.18	1.066e4	7.051e3	2.166	1.51	1.55	95.2	YES	NO	bb	bb	3.159
8	12389-PECDD	31.26	4.771e2	3.006e2	1.326	1.59	1.55	4.8	YES	NO	bb	bb	0.227
9	12378-PeCDD	30.87	2.949e3	1.920e3	1.150	1.54	1.55	30.4	YES	NO	bb	bb	1.636
10	Total-pentadioxins	29.48	1.439e4	9.418e3	1.548	1.53	1.55	160.2	YES	NO	dd	bd	5.944
11	Total-pentadioxins	29.27	3.584e3	2.470e3	1.548	1.45	1.55	43.4	YES	NO	bd	bb	1.511
12	123678-HxCDD	35.54	2.228e3	1.768e3	0.883	1.26	1.24	53.7	YES	NO	db	db	1.931
13	123478-HxCDD	35.42	7.402e2	5.409e2	0.960	1.37	1.24	16.2	YES	NO	bd	bd	0.590
14	Total-hexadioxins	34.53	1.094e4	9.251e3	0.943	1.18	1.24	190.6	YES	NO	bd	bb	9.290
15	Total-hexadioxins	34.16	2.155e3	1.741e3	0.943	1.24	1.24	48.8	YES	NO	bb	bb	1.793
16	124679-HXCDD	33.37	2.066e4	1.655e4	1.127	1.25	1.24	477.3	YES	NO	bb	bb	14.591
17	OCDD	44.23	5.023e4	5.770e4	1.059	0.87	0.89	804.5	YES	NO	bd	bd	154.540
18	1234678-HpCDD	39.68	1.222e4	1.221e4	1.200	1.00	1.05	200.1	YES	NO	bb	bd	17.071
19	1234679-HPCDD	38.68	1.308e4	1.258e4	1.303	1.04	1.05	227.6	YES	NO	bb	bb	16.515

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	24.01	5.493e4	6.935e4	0.973	0.79	0.77	64.7	YES	NO	bb	bb	22.039
2	Total-tetrafurans	22.85	2.416e4	3.232e4	0.973	0.75	0.77	24.7	YES	NO	db	db	10.014
3	Total-tetrafurans	22.61	1.237e4	1.611e4	0.973	0.77	0.77	10.6	YES	NO	dd	dd	5.052
4	Total-tetrafurans	22.45	9.423e4	1.218e5	0.973	0.77	0.77	108.3	YES	NO	bd	bd	38.307
5	Total-tetrafurans	22.21	9.832e3	1.217e4	0.973	0.81	0.77	10.2	YES	NO	bb	bb	3.902
6	Total-tetrafurans	21.86	1.586e4	1.930e4	0.973	0.82	0.77	14.9	YES	NO	db	db	6.234
7	Total-tetrafurans	21.61	8.291e3	9.734e3	0.973	0.85	0.77	9.6	YES	NO	dd	dd	3.197
8	Total-Furans	21.35	1.524e4	1.833e4	1.053	0.83	0.77	15.7	YES	NO	bb	bb	5.506
9	Total-tetrafurans	26.98	9.667e4	1.208e5	0.973	0.80	0.77	71.4	YES	NO	dd	dd	38.558
10	Total-tetrafurans	26.00	7.122e3	1.055e4	0.973	0.67	0.77	7.4	YES	NO	bd	dd	3.135
11	Total-tetrafurans	25.48	4.873e4	5.954e4	0.973	0.82	0.77	38.8	YES	NO	db	db	19.201
12	2378-TCDF	25.11	1.132e4	1.326e4	0.903	0.85	0.77	16.2	YES	NO	dd	dd	4.698
13	Total-tetrafurans	24.36	1.726e4	2.084e4	0.973	0.83	0.77	20.3	YES	NO	bd	bd	6.756
14	Total-Furans	27.24	1.718e4	2.418e4	1.053	0.71	0.77	15.2	YES	NO	db	db	6.784
15	Total-pentafurans	28.30	2.690e4	1.665e4	0.931	1.62	1.55	77.8	YES	NO	dd	db	11.610
16	Total-pentafurans	28.19	1.970e5	1.261e5	0.931	1.56	1.55	399.4	YES	NO	dd	dd	86.157
17	Total-pentafurans	28.01	1.488e4	8.880e3	0.931	1.68	1.55	35.9	YES	NO	dd	dd	6.335
18	Total-pentafurans	27.93	3.616e3	2.551e3	0.931	1.42	1.55	12.9	YES	NO	dd	dd	1.644
19	Total-pentafurans	27.80	1.708e4	1.130e4	0.931	1.51	1.55	41.0	YES	NO	dd	bd	7.566
20	Total-pentafurans	27.49	2.934e3	1.722e3	0.931	1.70	1.55	7.6	YES	NO	bd	bd	1.241
21	12389-PECDF	31.58	2.823e4	1.983e4	0.880	1.42	1.55	49.4	YES	NO	db	bb	12.828
22	Total-pentafurans	31.00	2.252e4	1.624e4	0.931	1.39	1.55	54.4	YES	NO	bb	bb	10.334
23	23478-PeCDF	30.61	1.129e4	7.667e3	0.991	1.47	1.55	29.4	YES	NO	db	dd	5.040
24	Total-pentafurans	30.45	5.771e4	3.755e4	0.931	1.54	1.55	153.7	YES	NO	dd	dd	25.394
25	Total-pentafurans	30.35	1.709e3	1.278e3	0.931	1.34	1.55	5.8	YES	NO	bd	bd	0.796
26	Total-pentafurans	30.20	2.466e4	1.479e4	0.931	1.67	1.55	67.3	YES	NO	db	bb	10.517
27	Total-pentafurans	29.97	5.880e4	4.084e4	0.931	1.44	1.55	142.2	YES	NO	bd	bb	26.565
28	Total-pentafurans	29.68	1.041e4	6.891e3	0.931	1.51	1.55	29.2	YES	NO	bb	db	4.613
29	Total-pentafurans	29.47	2.107e4	1.335e4	0.931	1.58	1.55	67.7	YES	NO	bb	bd	9.176
30	Total-pentafurans	29.06	6.760e3	5.110e3	0.931	1.32	1.55	14.5	YES	NO	db	db	3.164
31	Total-pentafurans	28.90	4.943e4	3.233e4	0.931	1.53	1.55	137.9	YES	NO	dd	dd	21.798
32	123468-HXCDF	32.59	2.020e4	1.591e4	1.206	1.27	1.24	179.0	YES	NO	bb	db	12.301
33	123789-HxCDF	36.31	2.148e3	1.895e3	0.988	1.13	1.24	18.3	YES	NO	bb	bb	2.172
34	234678-HxCDF	35.27	1.496e4	1.293e4	1.081	1.16	1.24	91.2	YES	NO	bb	bd	12.371
35	123678-HxCDF	34.42	6.366e3	5.483e3	1.032	1.16	1.24	55.7	YES	NO	db	db	4.513
36	123478-HxCDF	34.27	3.178e3	2.732e3	1.128	1.16	1.24	29.4	YES	NO	bd	bd	2.151
37	Total-hexafurans	34.12	6.173e2	4.660e2	1.087	1.32	1.24	6.3	YES	NO	bb	bb	0.446

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-hexafurans	33.65	8.708e4	7.001e4	1.087	1.24	1.24	785.6	YES	NO	bb	bb	64.604
39	Total-hexafurans	33.35	1.443e3	1.146e3	1.087	1.26	1.24	11.3	YES	NO	bb	bb	1.065
40	Total-hexafurans	33.06	4.784e2	4.274e2	1.087	1.12	1.24	3.9	YES	NO	bb	bb	0.373
41	Total-hexafurans	32.80	9.987e4	7.852e4	1.087	1.27	1.24	870.6	YES	NO	bb	bb	73.363
42	1234678-HpCDF	38.23	8.857e3	8.672e3	1.164	1.02	1.05	169.4	YES	NO	bb	bb	10.235
43	1234789-HpCDF	40.40	6.005e2	4.984e2	1.104	1.21	1.05	8.1	YES	NO	MM	MM	0.977
44	Total-heptafurans	38.86	1.291e4	1.241e4	1.134	1.04	1.05	227.7	YES	NO	bd	bb	17.931
45	13468-PECDF	26.54	5.470e5	3.583e5	1.241	1.53	1.55	1177.5	YES	NO	bb	bb	171.287
46	2378-TCDD	25.73	5.254e4	6.662e4	1.243	0.79	0.77	530.6	YES	NO	bb	bd	22.032
47	Total-tetradioxins	24.36	2.610e3	3.192e3	1.129	0.82	0.77	27.2	YES	NO	bb	bb	1.181
48	Total-tetradioxins	24.18	2.034e3	2.697e3	1.129	0.75	0.77	23.2	YES	NO	db	db	0.963
49	Total-tetradioxins	24.08	1.774e3	2.320e3	1.129	0.76	0.77	20.8	YES	NO	bd	dd	0.833
50	1368-TCDD	22.88	2.649e3	3.137e3	1.181	0.84	0.77	26.1	YES	NO	db	bd	1.126
51	Total-pentadioxins	28.65	7.497e2	5.118e2	1.548	1.46	1.55	9.2	YES	NO	bb	bb	0.315
52	12479-PECDD	28.18	1.066e4	7.051e3	2.166	1.51	1.55	95.2	YES	NO	bb	bb	3.159
53	12389-PECDD	31.26	4.771e2	3.006e2	1.326	1.59	1.55	4.8	YES	NO	bb	bb	0.227
54	12378-PeCDD	30.87	2.949e3	1.920e3	1.150	1.54	1.55	30.4	YES	NO	bb	bb	1.636
55	Total-pentadioxins	29.48	1.439e4	9.418e3	1.548	1.53	1.55	160.2	YES	NO	dd	bd	5.944
56	Total-pentadioxins	29.27	3.584e3	2.470e3	1.548	1.45	1.55	43.4	YES	NO	bd	bb	1.511
57	123678-HxCDD	35.54	2.228e3	1.768e3	0.883	1.26	1.24	53.7	YES	NO	db	db	1.931
58	123478-HxCDD	35.42	7.402e2	5.409e2	0.960	1.37	1.24	16.2	YES	NO	bd	bd	0.590
59	Total-hexadioxins	34.53	1.094e4	9.251e3	0.943	1.18	1.24	190.6	YES	NO	bd	bb	9.290
60	Total-hexadioxins	34.16	2.155e3	1.741e3	0.943	1.24	1.24	48.8	YES	NO	bb	bb	1.793
61	124679-HXCDD	33.37	2.066e4	1.655e4	1.127	1.25	1.24	477.3	YES	NO	bb	bb	14.591
62	OCDD	44.23	5.023e4	5.770e4	1.059	0.87	0.89	804.5	YES	NO	bd	bd	154.540
63	1234678-HpCDD	39.68	1.222e4	1.221e4	1.200	1.00	1.05	200.1	YES	NO	bb	bd	17.071
64	1234679-HPCDD	38.68	1.308e4	1.258e4	1.303	1.04	1.05	227.6	YES	NO	bb	bb	16.515

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	22.74	9.455e5					17.7	YES		dd		
2	FUNCTION1 PFK	22.64	1.186e6					19.3	YES		dd		
3	FUNCTION1 PFK	22.34	4.940e6					23.7	YES		dd		
4	FUNCTION1 PFK	21.97	5.411e6					23.7	YES		dd		
5	FUNCTION1 PFK	21.79	2.496e6					21.7	YES		dd		
6	FUNCTION1 PFK	21.59	2.537e6					23.6	YES		dd		
7	FUNCTION1 PFK	21.47	8.971e5					20.0	YES		bd		
8	FUNCTION1 PFK	21.28	2.582e6					20.5	YES		db		
9	FUNCTION1 PFK	21.11	8.079e5					15.5	YES		bd		
10	FUNCTION1 PFK	27.12	9.148e5					13.4	YES		bb		
11	FUNCTION1 PFK	26.89	7.618e5					9.6	YES		bb		
12	FUNCTION1 PFK	26.42	2.180e5					5.0	YES		bb		
13	FUNCTION1 PFK	25.49	3.451e5					5.0	YES		bb		
14	FUNCTION1 PFK	25.00	2.594e6					14.5	YES		bb		
15	FUNCTION1 PFK	24.86	1.497e5					5.2	YES		db		
16	FUNCTION1 PFK	24.79	6.386e4					2.4	NO		dd		
17	FUNCTION1 PFK	24.69	3.354e5					6.9	YES		bd		
18	FUNCTION1 PFK	23.66	4.049e5					9.5	YES		bb		
19	FUNCTION1 PFK	23.53	6.590e5					15.0	YES		db		
20	FUNCTION1 PFK	23.40	1.703e6					20.4	YES		dd		
21	FUNCTION1 PFK	23.26	4.124e6					20.1	YES		dd		
22	FUNCTION1 PFK	22.91	9.557e5					17.7	YES		dd		
23	FUNCTION1 PFK	22.84	6.455e5					14.7	YES		dd		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	27.51	4.979e5					14.2	YES		bd		0.000
2	FUNCTION2 PFK	31.49	4.347e5					10.7	YES		bb		0.000
3	FUNCTION2 PFK	31.26	3.699e5					6.3	YES		bb		0.000
4	FUNCTION2 PFK	30.90	1.672e5					6.8	YES		bb		0.000
5	FUNCTION2 PFK	30.63	5.808e5					9.6	YES		db		0.000
6	FUNCTION2 PFK	30.41	2.199e5					6.5	YES		bd		0.000
7	FUNCTION2 PFK	30.06	4.931e4					3.6	YES		bb		0.000
8	FUNCTION2 PFK	29.66	4.370e5					3.2	YES		bb		0.000
9	FUNCTION2 PFK	29.25	9.458e5					19.3	YES		db		0.000
10	FUNCTION2 PFK	28.79	2.949e6					22.9	YES		dd		0.000
11	FUNCTION2 PFK	28.67	3.005e5					17.4	YES		dd		0.000
12	FUNCTION2 PFK	28.54	1.397e6					23.8	YES		dd		0.000
13	FUNCTION2 PFK	28.26	2.023e6					25.5	YES		dd		0.000
14	FUNCTION2 PFK	28.06	6.751e5					20.8	YES		dd		0.000
15	FUNCTION2 PFK	27.88	1.021e6					24.4	YES		bd		0.000
16	FUNCTION2 PFK	27.69	4.901e5					20.4	YES		db		0.000
17	FUNCTION2 PFK	27.62	6.220e5					19.0	YES		dd		0.000
18	FUNCTION2 PFK	32.01	7.277e4					3.7	YES		db		0.000
19	FUNCTION2 PFK	31.91	7.007e4					4.2	YES		bd		0.000
20	FUNCTION2 PFK	31.73	3.948e5					9.9	YES		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	35.46	1.000e5					5.7	YES		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	41.42	1.311e5					5.6	YES		bb		
2	FUNCTION4 PFK	41.15	1.916e6					19.4	YES		db		
3	FUNCTION4 PFK	40.88	1.889e6					24.5	YES		bd		
4	FUNCTION4 PFK	40.51	3.237e6					31.2	YES		db		
5	FUNCTION4 PFK	40.34	3.712e6					32.2	YES		dd		
6	FUNCTION4 PFK	39.88	2.968e6					34.6	YES		dd		
7	FUNCTION4 PFK	39.69	1.062e7					39.2	YES		bd		
8	FUNCTION4 PFK	38.72	4.250e6					22.4	YES		bb		
9	FUNCTION4 PFK	37.98	5.830e5					4.8	YES		bb		
10	FUNCTION4 PFK	37.61	4.686e5					7.7	YES		bb		
11	FUNCTION4 PFK	42.15	5.644e5					13.3	YES		db		
12	FUNCTION4 PFK	41.96	9.391e5					10.8	YES		bd		

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Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:45:59 Pacific Standard Time

ID: BLL0751-DUP2, Name: 24011807, Date: 18-Jan-2024, Time: 14:44:31, Conditions: AUTOSPEC01, User: pk

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.61	1.302e4					1.3	NO		bb		
2	FUNCTION5 PFK	43.53	8.834e2					0.5	NO		bb		
3	FUNCTION5 PFK	43.47	4.885e3					1.2	NO		db		
4	FUNCTION5 PFK	43.44	7.876e3					1.5	NO		bd		
5	FUNCTION5 PFK	43.40	1.577e3					0.3	NO		bb		
6	FUNCTION5 PFK	43.26	9.897e3					1.2	NO		bb		
7	FUNCTION5 PFK	43.19	5.514e3					1.1	NO		bb		
8	FUNCTION5 PFK	42.85	9.652e4					7.5	YES		db		
9	FUNCTION5 PFK	42.79	8.677e4					7.8	YES		dd		
10	FUNCTION5 PFK	42.76	5.846e4					8.0	YES		dd		
11	FUNCTION5 PFK	42.69	9.717e4					7.8	YES		dd		
12	FUNCTION5 PFK	42.65	1.060e5					6.6	YES		dd		
13	FUNCTION5 PFK	42.55	7.369e4					6.8	YES		bd		
14	FUNCTION5 PFK	45.23	3.542e3					0.7	NO		bb		
15	FUNCTION5 PFK	45.11	2.540e3					0.6	NO		bb		
16	FUNCTION5 PFK	45.03	9.444e3					1.3	NO		bb		
17	FUNCTION5 PFK	44.92	1.774e3					0.4	NO		bb		
18	FUNCTION5 PFK	44.81	6.626e3					1.2	NO		db		
19	FUNCTION5 PFK	44.78	4.093e3					1.1	NO		bd		
20	FUNCTION5 PFK	44.71	1.223e4					1.9	NO		db		
21	FUNCTION5 PFK	44.68	3.430e4					2.0	NO		dd		
22	FUNCTION5 PFK	44.53	4.961e4					2.9	NO		dd		
23	FUNCTION5 PFK	44.49	2.377e4					3.1	YES		bd		
24	FUNCTION5 PFK	44.39	6.080e4					3.1	YES		db		
25	FUNCTION5 PFK	44.28	3.226e4					2.8	NO		dd		
26	FUNCTION5 PFK	44.23	4.779e4					3.0	YES		dd		
27	FUNCTION5 PFK	44.16	1.506e4					2.1	NO		bd		
28	FUNCTION5 PFK	44.07	5.151e3					0.9	NO		bb		
29	FUNCTION5 PFK	43.83	4.552e3					1.0	NO		bb		
30	FUNCTION5 PFK	45.95	3.122e4					2.5	NO		bb		
31	FUNCTION5 PFK	45.55	3.793e3					0.8	NO		bb		
32	FUNCTION5 PFK	45.39	7.536e3					1.1	NO		bb		

ID: BLL0751-DUP2, Name: 24011807, Date: 18-Jan-2024, Time: 14:44:31, Conditions: AUTOSPEC01, User: pk

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	23.37	1.204e4					27.5	YES		dd		0.000
2	FUNCTION1 HXCD...	23.30	7.674e3					19.3	YES		dd		0.000
3	FUNCTION1 HXCD...	23.12	4.435e4					85.1	YES		bd		0.000
4	FUNCTION1 HXCD...	22.61	4.400e4					83.5	YES		db		0.000
5	FUNCTION1 HXCD...	22.38	6.687e3					12.0	YES		dd		0.000
6	FUNCTION1 HXCD...	22.21	1.321e4					28.1	YES		dd		0.000
7	FUNCTION1 HXCD...	22.10	1.439e4					38.7	YES		bd		0.000
8	FUNCTION1 HXCD...	21.92	4.340e3					10.7	YES		db		0.000
9	FUNCTION1 HXCD...	21.73	7.919e3					19.1	YES		dd		0.000
10	FUNCTION1 HXCD...	21.64	1.289e5					344.3	YES		bd		0.000
11	FUNCTION1 HXCD...	21.34	2.894e4					61.9	YES		db		0.000
12	FUNCTION1 HXCD...	21.17	1.803e4					38.1	YES		bd		0.000
13	FUNCTION1 HXCD...	26.34	5.643e3					13.1	YES		bb		0.000
14	FUNCTION1 HXCD...	26.11	2.368e4					47.1	YES		db		0.000
15	FUNCTION1 HXCD...	26.00	2.049e4					46.8	YES		bd		0.000
16	FUNCTION1 HXCD...	25.46	3.974e4					110.7	YES		bb		0.000
17	FUNCTION1 HXCD...	25.32	3.325e2					2.1	NO		bb		0.000
18	FUNCTION1 HXCD...	25.11	8.783e3					26.8	YES		db		0.000
19	FUNCTION1 HXCD...	24.88	3.074e4					72.0	YES		bd		0.000
20	FUNCTION1 HXCD...	24.71	8.732e3					18.9	YES		db		0.000
21	FUNCTION1 HXCD...	24.55	1.105e4					21.6	YES		dd		0.000
22	FUNCTION1 HXCD...	24.45	1.667e4					39.7	YES		dd		0.000
23	FUNCTION1 HXCD...	24.33	1.175e5					304.4	YES		dd		0.000
24	FUNCTION1 HXCD...	24.14	3.825e4					101.8	YES		dd		0.000
25	FUNCTION1 HXCD...	24.02	3.910e4					101.5	YES		bd		0.000
26	FUNCTION1 HXCD...	23.83	1.077e4					27.3	YES		db		0.000
27	FUNCTION1 HXCD...	23.67	7.990e3					17.9	YES		dd		0.000
28	FUNCTION1 HXCD...	23.53	6.154e3					11.3	YES		dd		0.000
29	FUNCTION1 HXCD...	27.23	8.146e3					25.2	YES		bb		0.000
30	FUNCTION1 HXCD...	26.98	2.038e4					39.9	YES		bb		0.000
31	FUNCTION1 HXCD...	26.65	3.049e3					8.0	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ID: BLL0751-DUP2, Name: 24011807, Date: 18-Jan-2024, Time: 14:44:31, Conditions: AUTOSPEC01, User: pk

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	29.07	3.367e3					30.0	YES		db		0.000
2	FUNCTION2 HPCD...	29.00	2.349e3					20.6	YES		bd		0.000
3	FUNCTION2 HPCD...	28.83	3.473e3					21.5	YES		db		0.000
4	FUNCTION2 HPCD...	28.67	1.033e3					9.2	YES		bd		0.000
5	FUNCTION2 HPCD...	28.54	8.765e2					8.3	YES		db		0.000
6	FUNCTION2 HPCD...	28.43	7.167e2					7.2	YES		dd		0.000
7	FUNCTION2 HPCD...	28.29	1.699e4					158.7	YES		dd		0.000
8	FUNCTION2 HPCD...	28.15	2.324e3					15.4	YES		dd		0.000
9	FUNCTION2 HPCD...	27.93	4.262e3					27.7	YES		bd		0.000
10	FUNCTION2 HPCD...	27.75	3.903e3					30.5	YES		bb		0.000
11	FUNCTION2 HPCD...	27.48	1.384e3					13.1	YES		bb		0.000
12	FUNCTION2 HPCD...	27.34	5.026e2					5.6	YES		bb		0.000
13	FUNCTION2 HPCD...	31.78	9.587e2					8.3	YES		bb		0.000
14	FUNCTION2 HPCD...	31.54	1.060e4					88.5	YES		bb		0.000
15	FUNCTION2 HPCD...	31.30	1.130e3					10.5	YES		bb		0.000
16	FUNCTION2 HPCD...	30.98	7.897e2					7.9	YES		bb		0.000
17	FUNCTION2 HPCD...	30.81	1.686e3					15.8	YES		bb		0.000
18	FUNCTION2 HPCD...	30.61	1.316e3					11.2	YES		db		0.000
19	FUNCTION2 HPCD...	30.48	2.510e3					20.6	YES		bd		0.000
20	FUNCTION2 HPCD...	30.19	1.036e3					9.3	YES		bb		0.000
21	FUNCTION2 HPCD...	29.97	1.804e3					16.0	YES		bb		0.000
22	FUNCTION2 HPCD...	29.67	2.774e3					21.5	YES		db		0.000
23	FUNCTION2 HPCD...	29.54	3.291e2					4.2	YES		bd		0.000
24	FUNCTION2 HPCD...	29.45	8.077e2					7.9	YES		db		0.000
25	FUNCTION2 HPCD...	29.32	1.184e3					12.2	YES		bd		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	33.05	2.043e2					4.8	YES		bb		0.000
2	FUNCTION3 OCDPE	32.44	7.955e2					19.4	YES		bb		0.000
3	FUNCTION3 OCDPE	35.15	1.144e2					3.4	YES		bb		0.000
4	FUNCTION3 OCDPE	33.57	1.791e2					4.5	YES		bb		0.000

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ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	37.84	3.612e2					11.6	YES		bb		0.000

ETHERS6

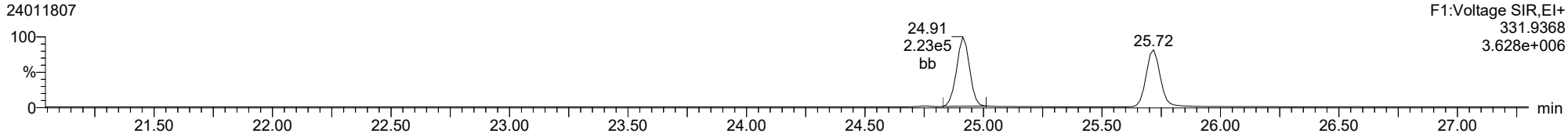
	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	45.71	8.740e1					6.0	YES		bb		0.000

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Printed: Friday, January 19, 2024 09:45:59 Pacific Standard Time

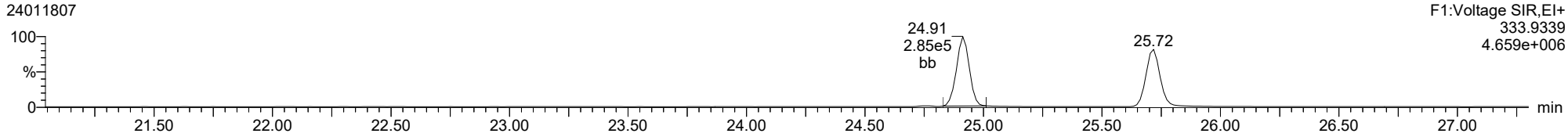
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ID: BLL0751-DUP2, Name: 24011807, Date: 18-Jan-2024, Time: 14:44:31, Conditions: AUTOSPEC01, User: pk

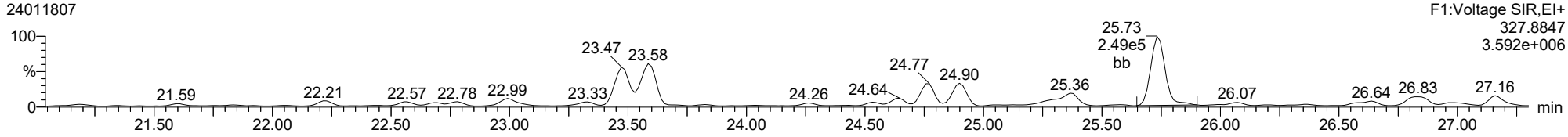
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13C-1234-TCDD

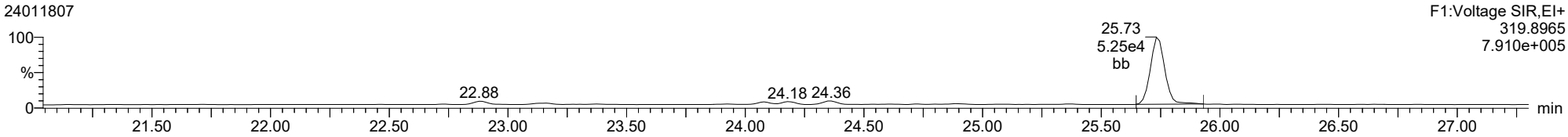


37CL-2378-TCDD

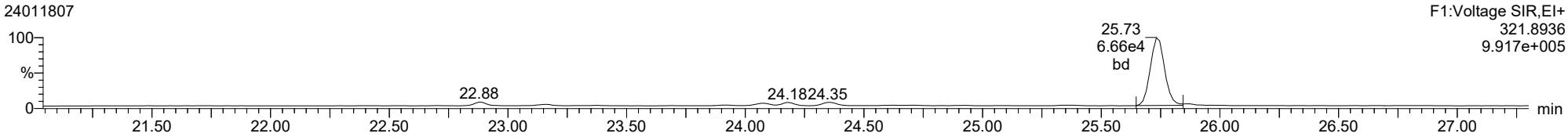


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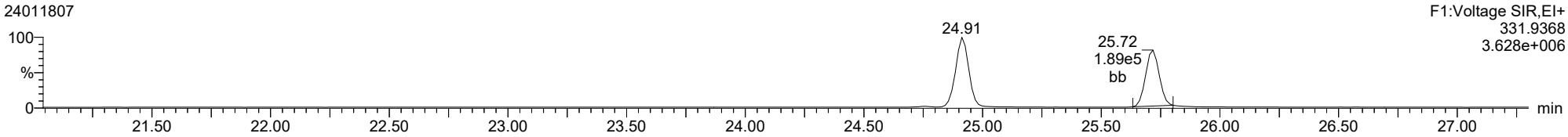
2378-TCDD



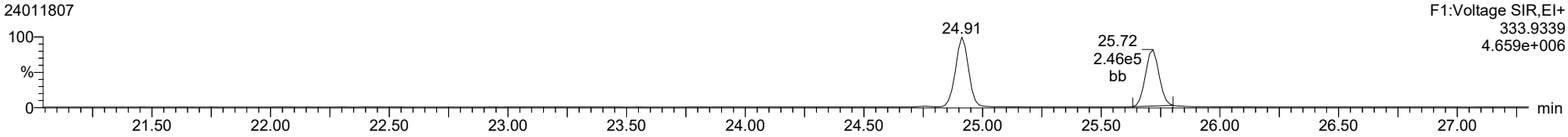
2378-TCDD



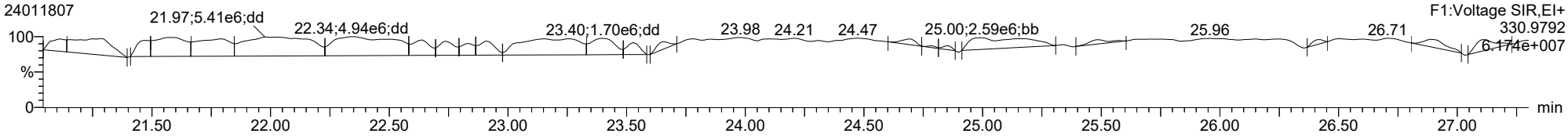
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13C-2378-TCDD

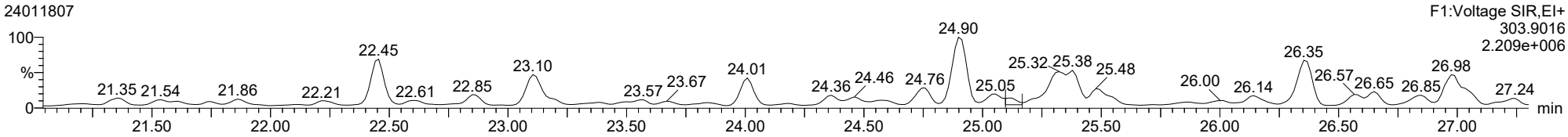


FUNCTION1 PFK

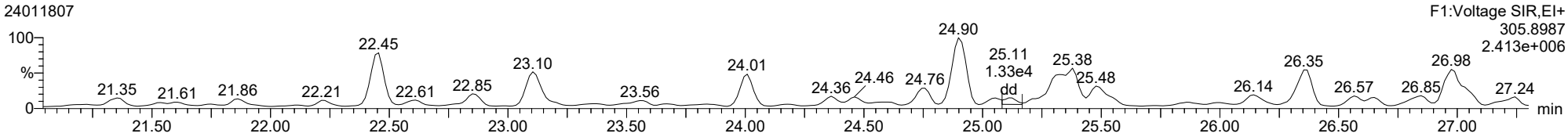


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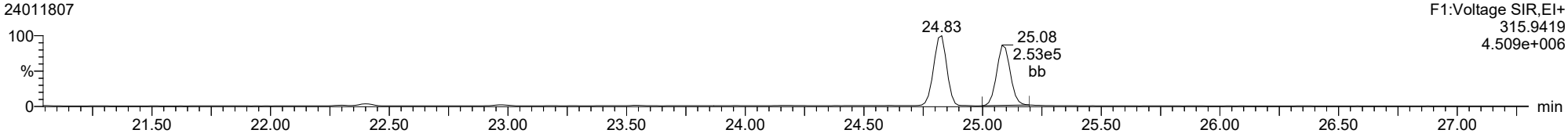
2378-TCDF



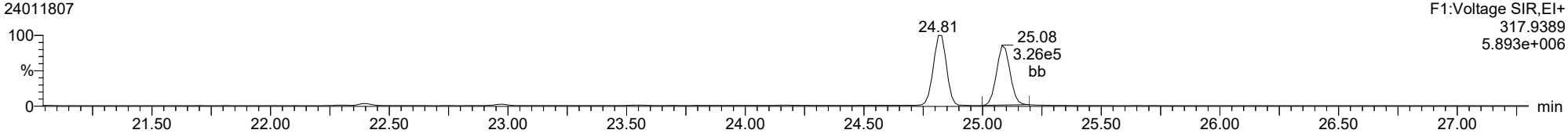
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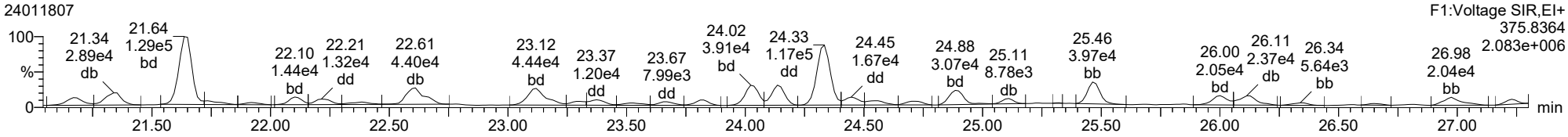
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13C-2378-TCDF

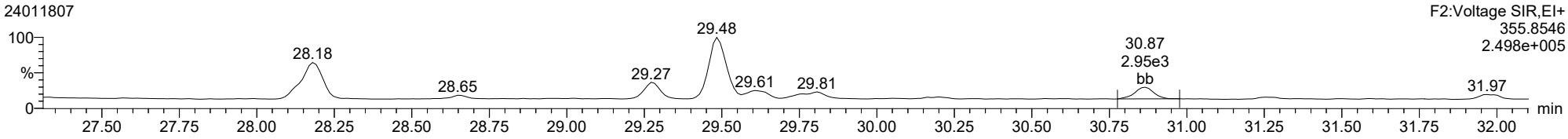


FUNCTION1 HXCDPE

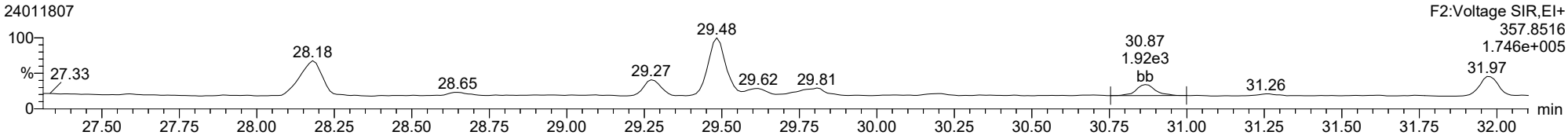


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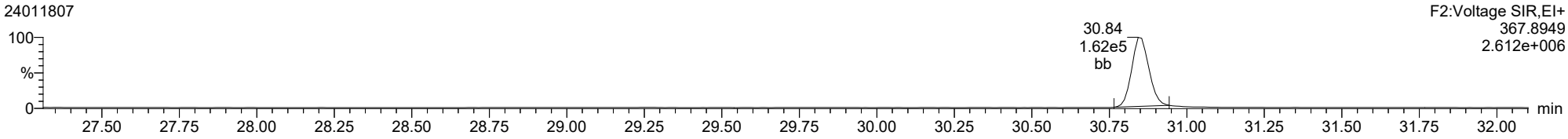
12378-PeCDD



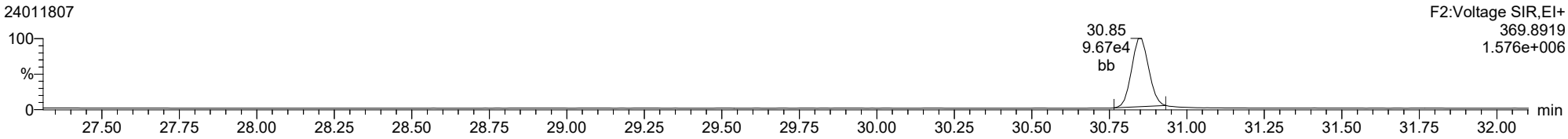
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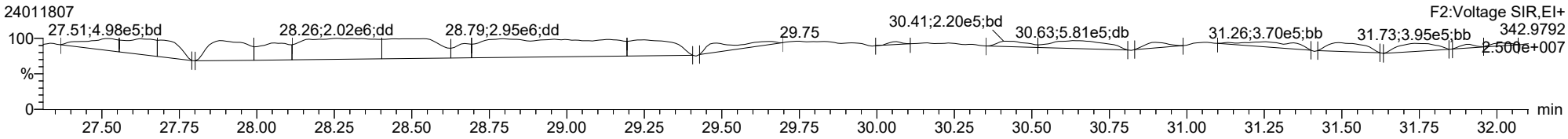
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13C-12378-PeCDD

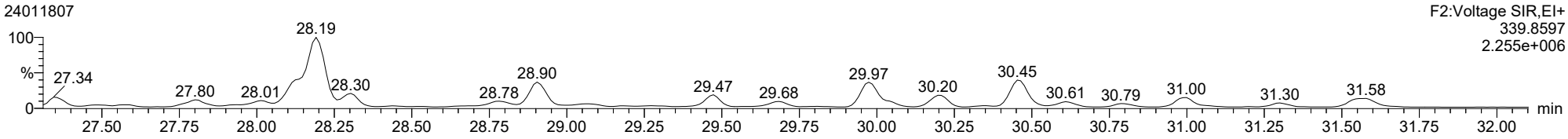


FUNCTION2 PFK

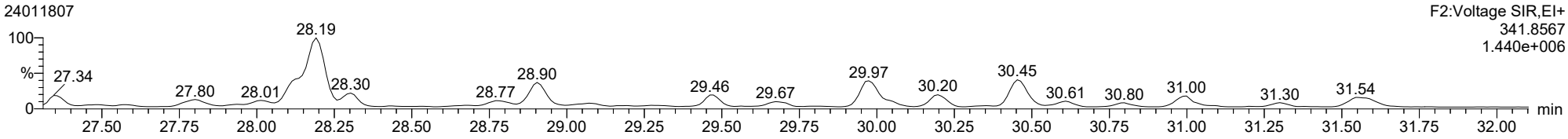


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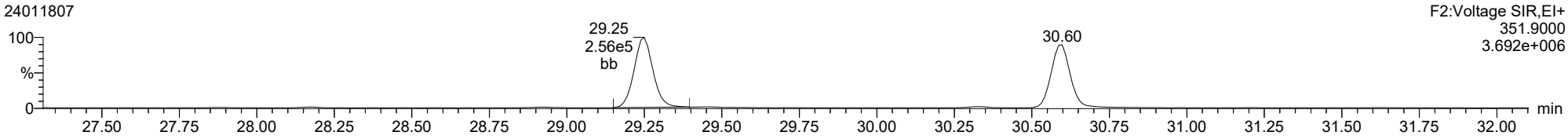
12378-PeCDF



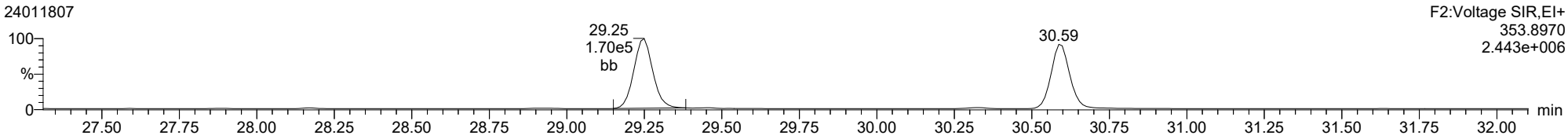
12378-PeCDF



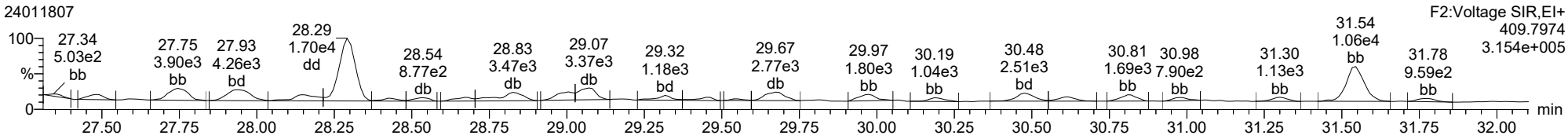
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13C-12378-PeCDF

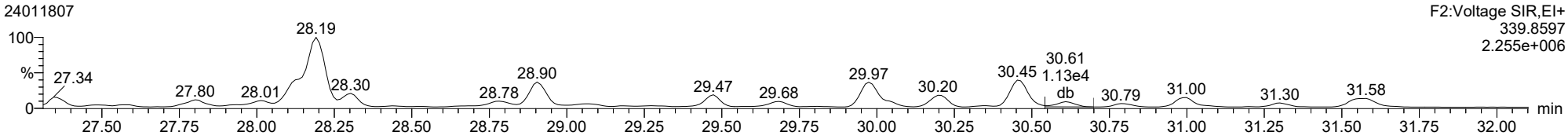


FUNCTION2 HPCDPE

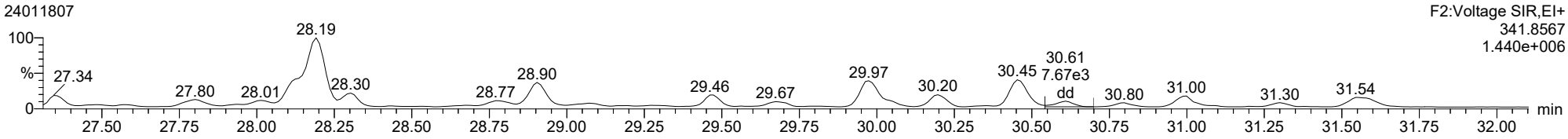


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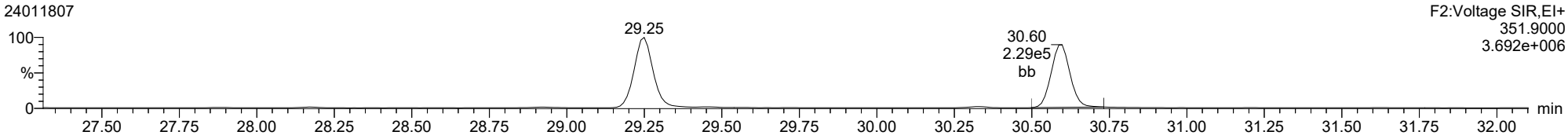
23478-PeCDF



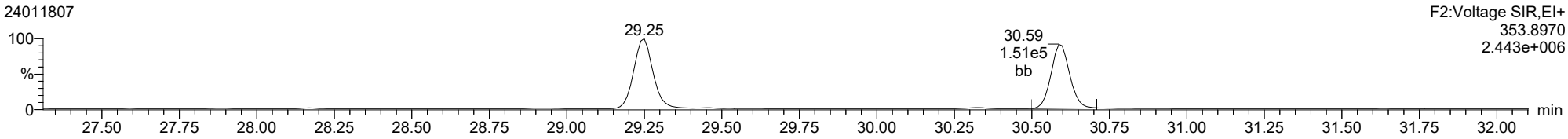
23478-PeCDF



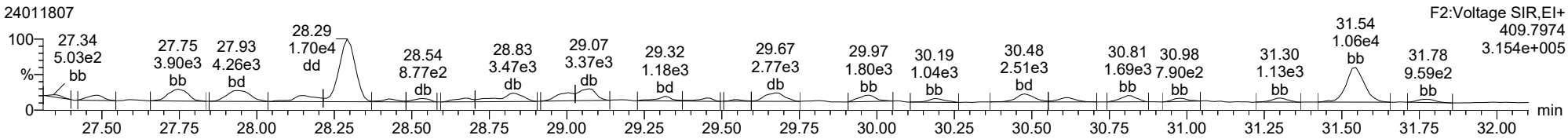
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13C-23478-PeCDF

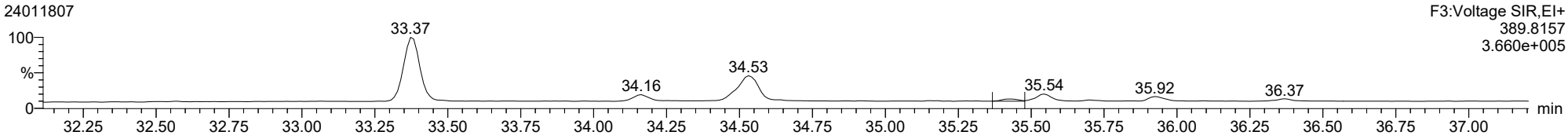


FUNCTION2 HPCDPE

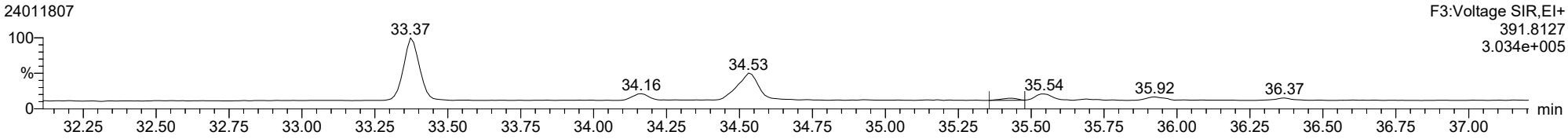


ID: BLL0751-DUP2, Name: 24011807, Date: 18-Jan-2024, Time: 14:44:31, Conditions: AUTOSPEC01, User: pk

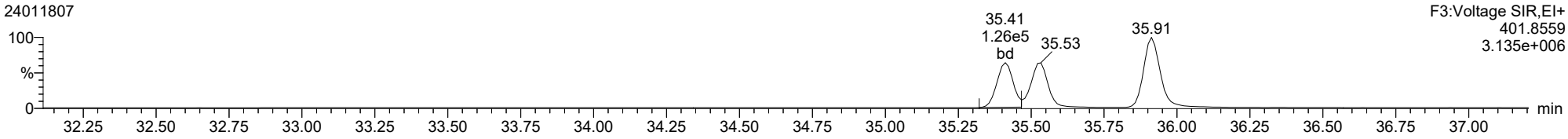
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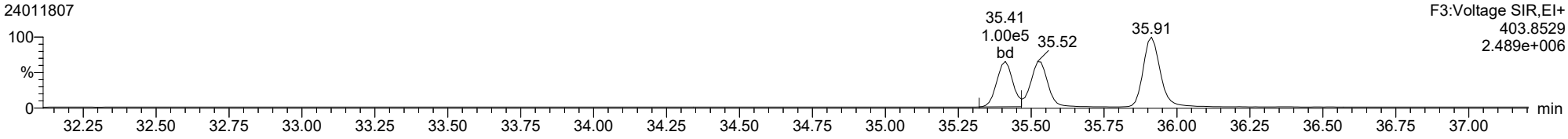
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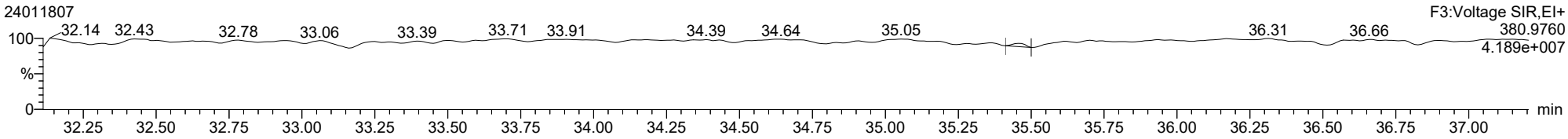
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13C-123478-HxCDD

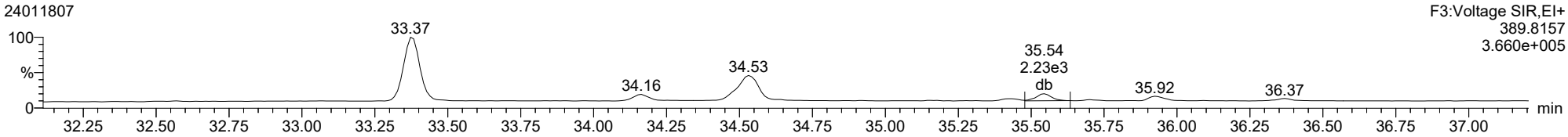


FUNCTION3 PFK

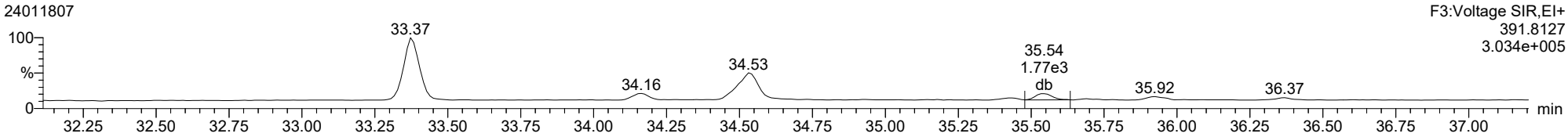


ID: BLL0751-DUP2, Name: 24011807, Date: 18-Jan-2024, Time: 14:44:31, Conditions: AUTOSPEC01, User: pk

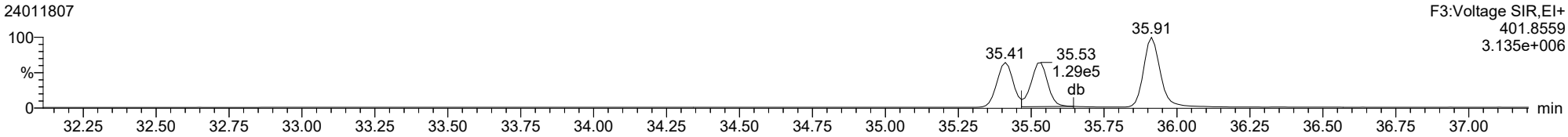
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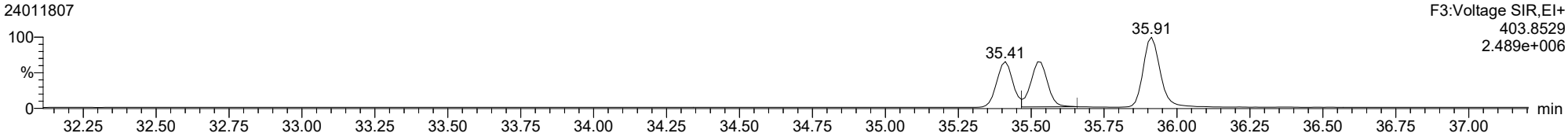
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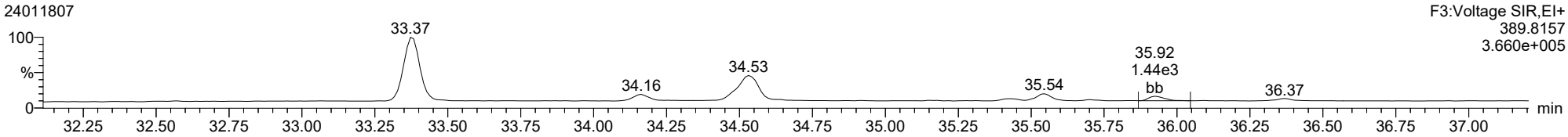


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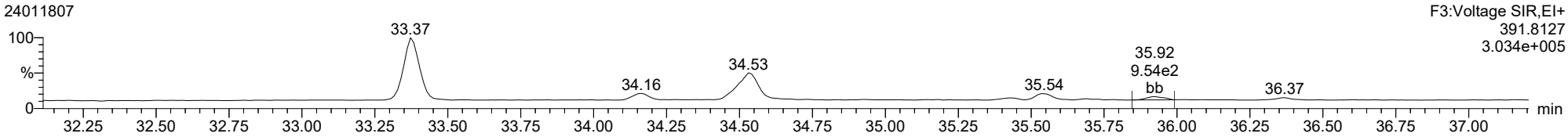


ID: BLL0751-DUP2, Name: 24011807, Date: 18-Jan-2024, Time: 14:44:31, Conditions: AUTOSPEC01, User: pk

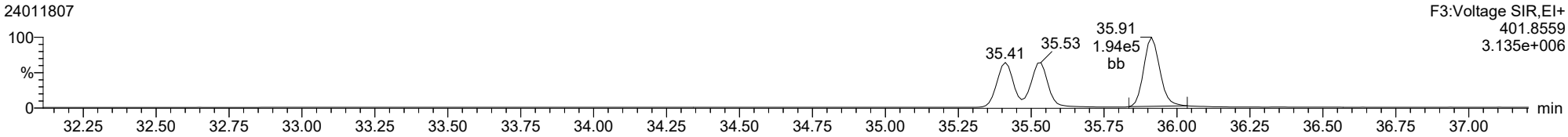
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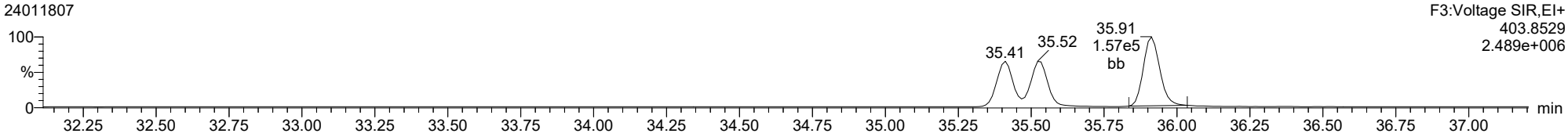
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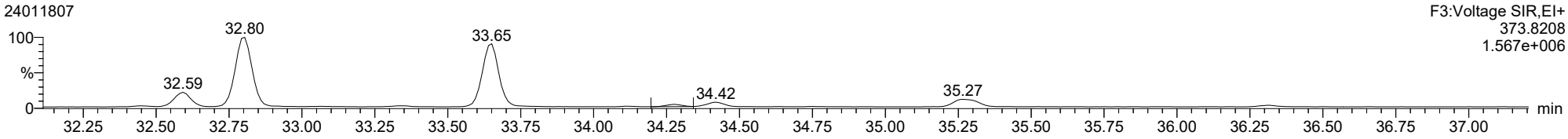


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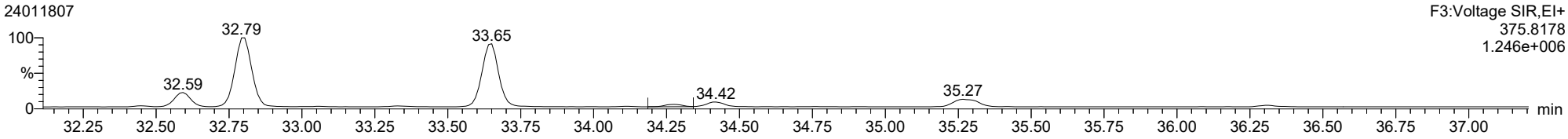


ID: BLL0751-DUP2, Name: 24011807, Date: 18-Jan-2024, Time: 14:44:31, Conditions: AUTOSPEC01, User: pk

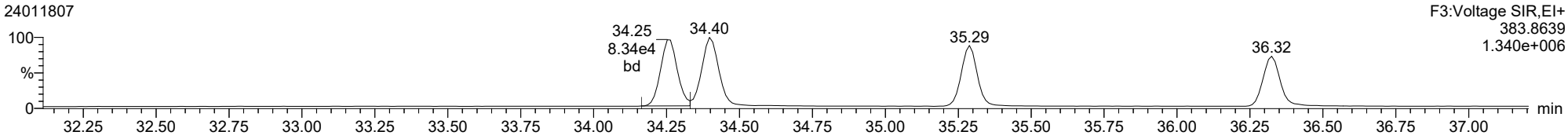
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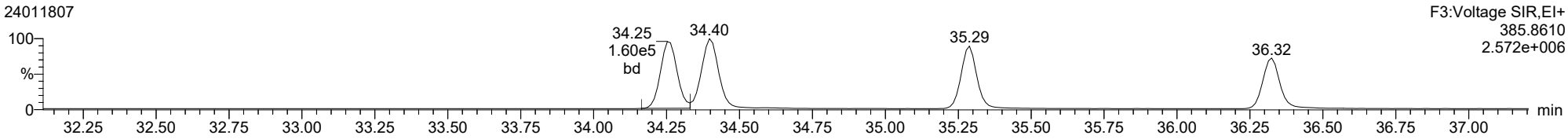
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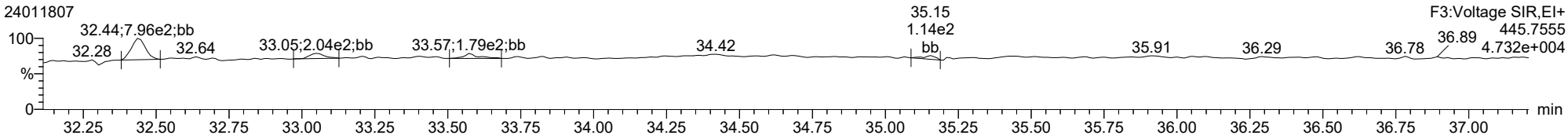
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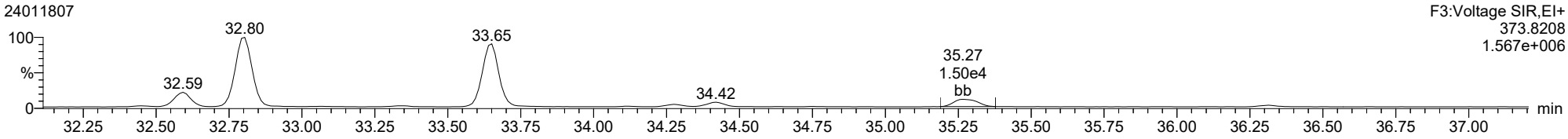


FUNCTION3 OCDPE

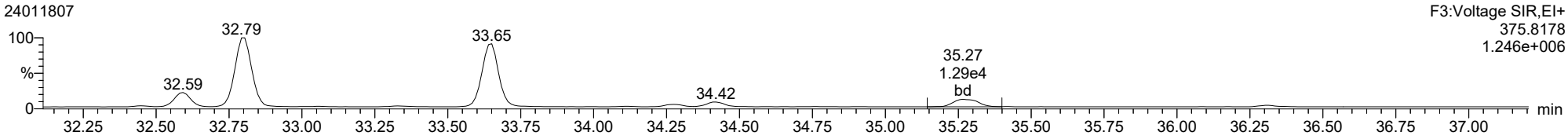


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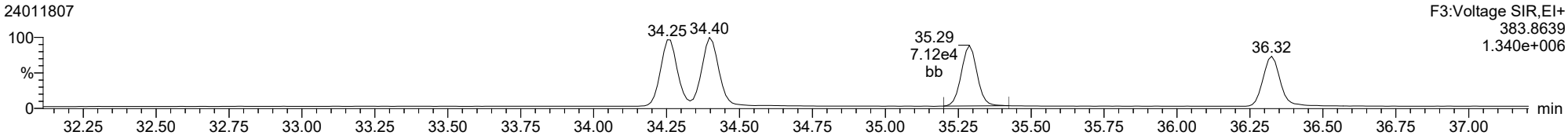
234678-HxCDF



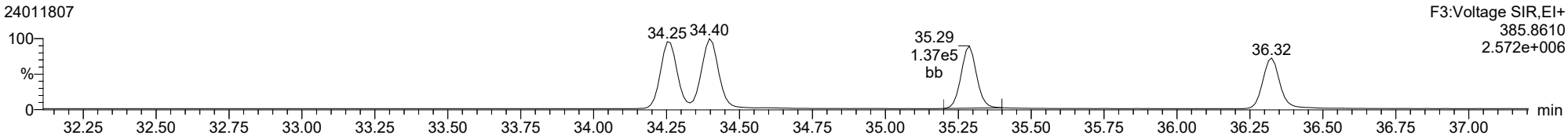
234678-HxCDF



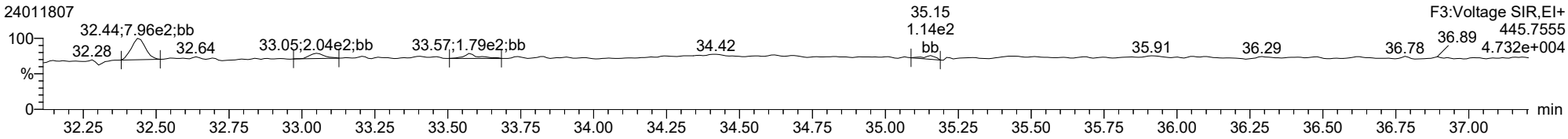
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13C-234678-HxCDF

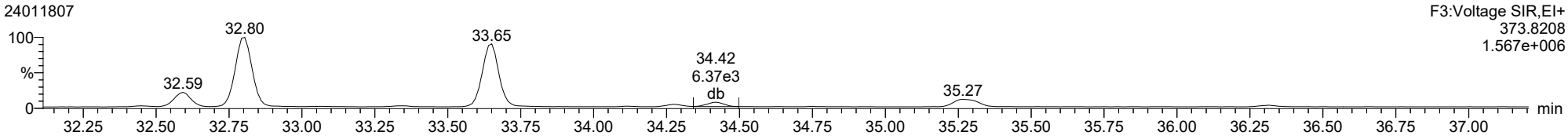


FUNCTION3 OCDPE

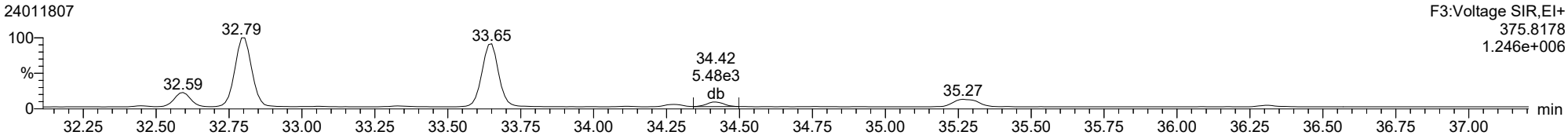


ID: BLL0751-DUP2, Name: 24011807, Date: 18-Jan-2024, Time: 14:44:31, Conditions: AUTOSPEC01, User: pk

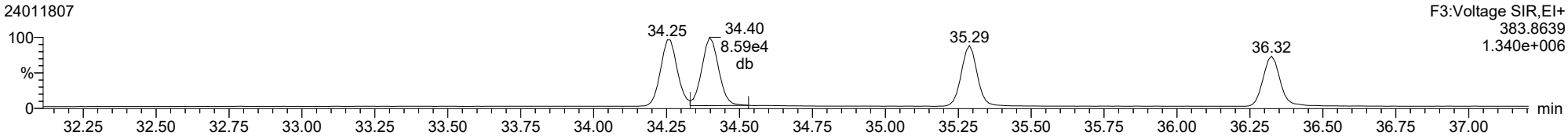
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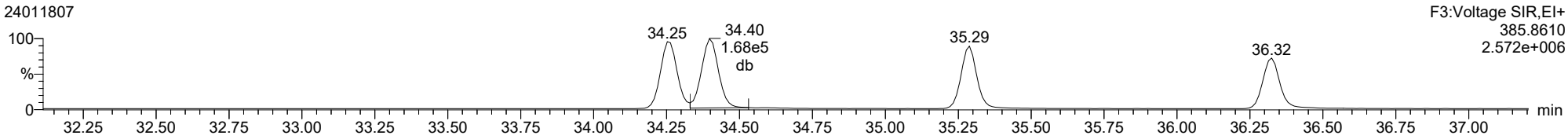
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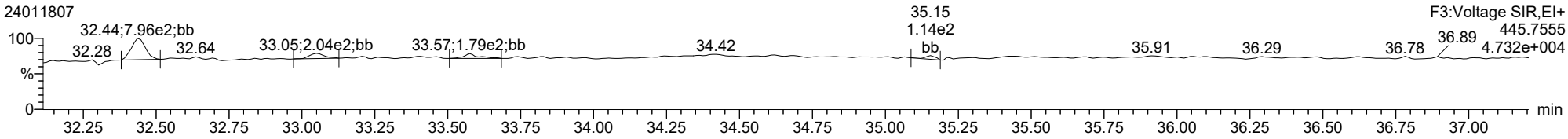
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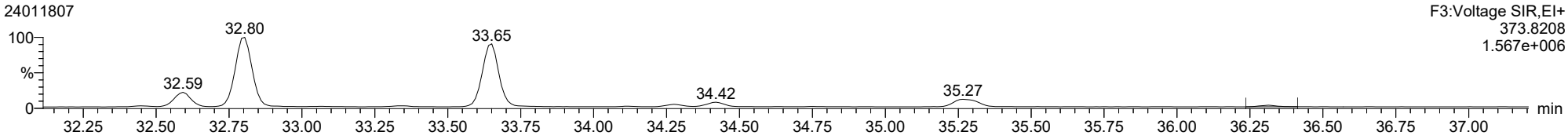


FUNCTION3 OCDPE

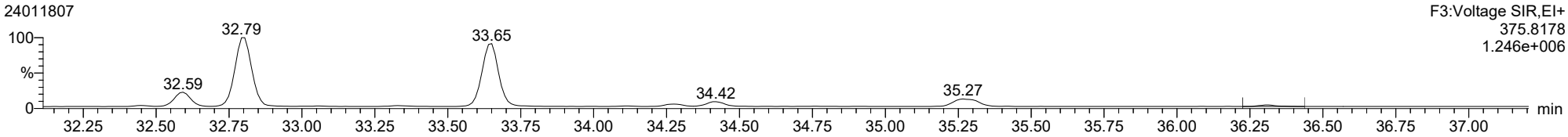


ID: BLL0751-DUP2, Name: 24011807, Date: 18-Jan-2024, Time: 14:44:31, Conditions: AUTOSPEC01, User: pk

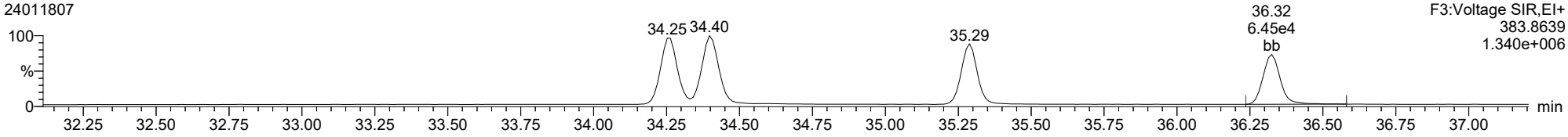
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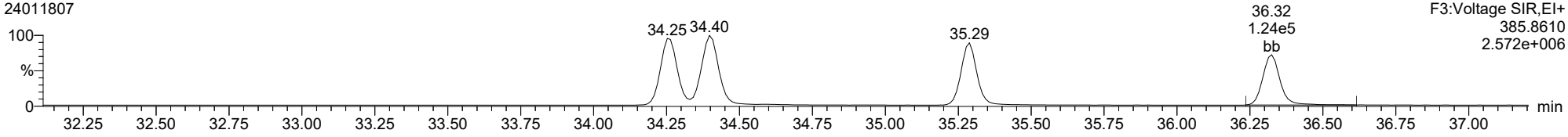
123789-HxCDF



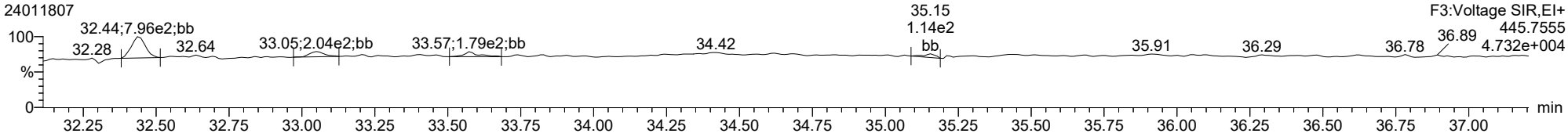
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13C-123789-HxCDF

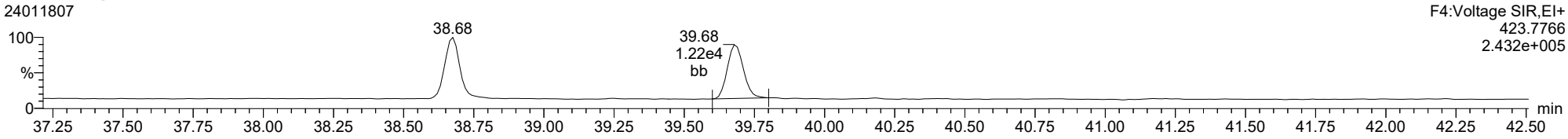


FUNCTION3 OCDPE

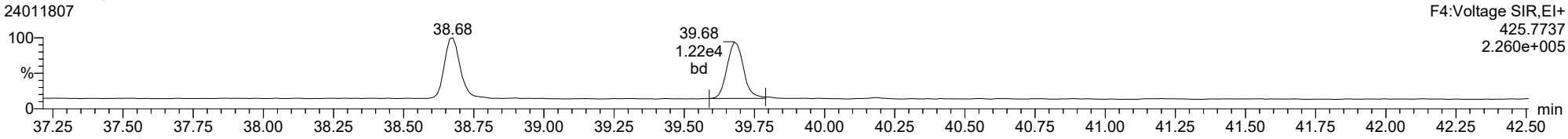


ID: BLL0751-DUP2, Name: 24011807, Date: 18-Jan-2024, Time: 14:44:31, Conditions: AUTOSPEC01, User: pk

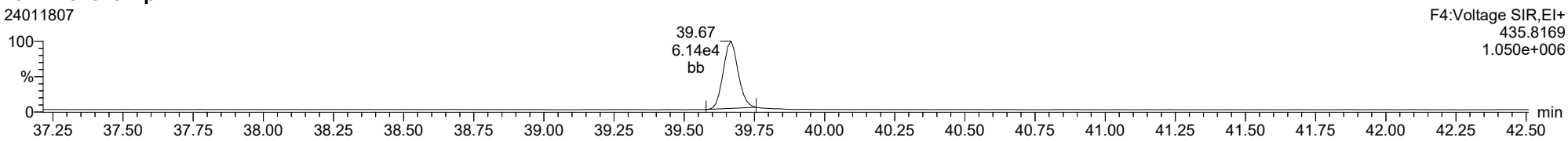
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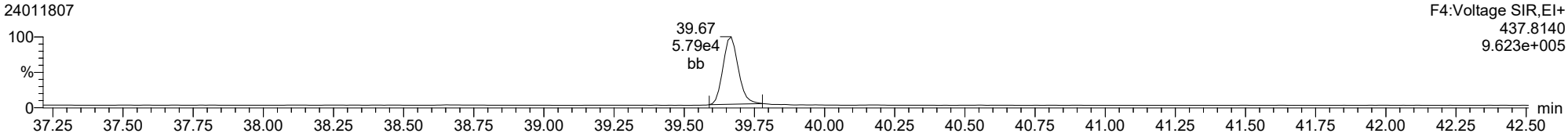
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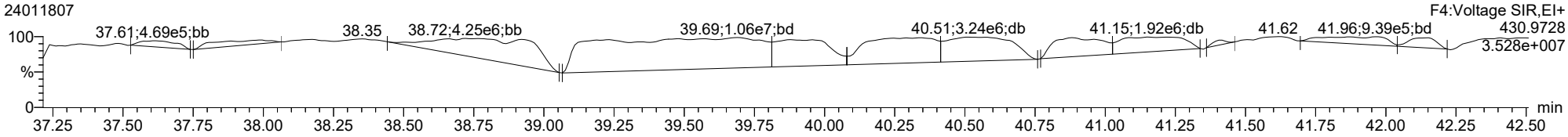
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13C-1234678-HpCDD

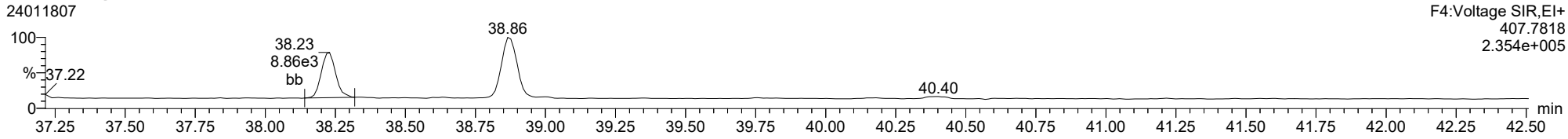


FUNCTION4 PFK

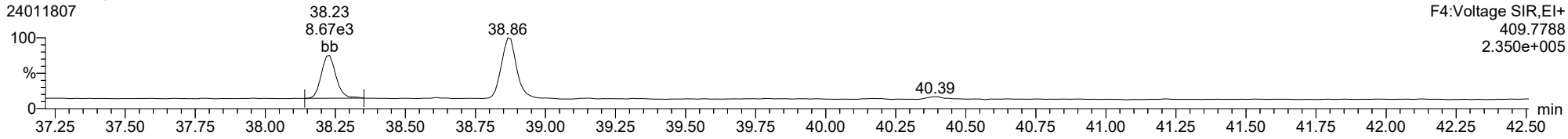


ID: BLL0751-DUP2, Name: 24011807, Date: 18-Jan-2024, Time: 14:44:31, Conditions: AUTOSPEC01, User: pk

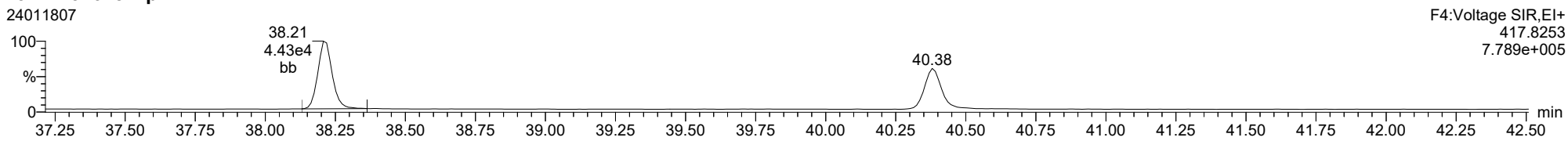
1234678-HpCDF



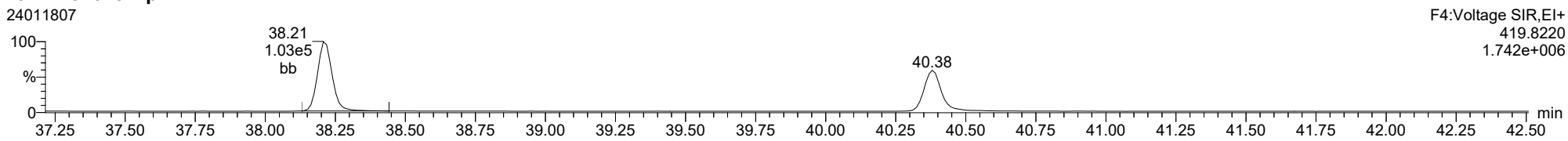
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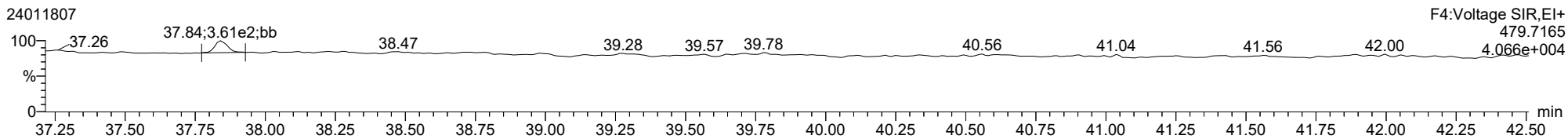
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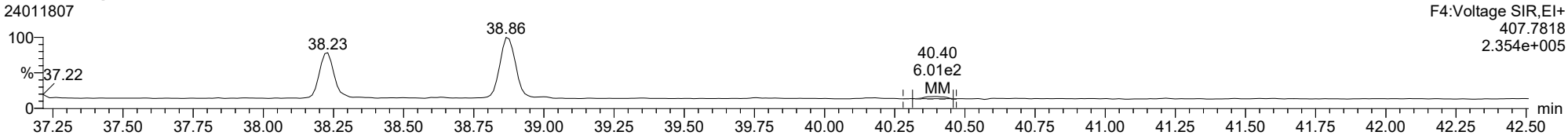


FUNCTION4 NCDPE

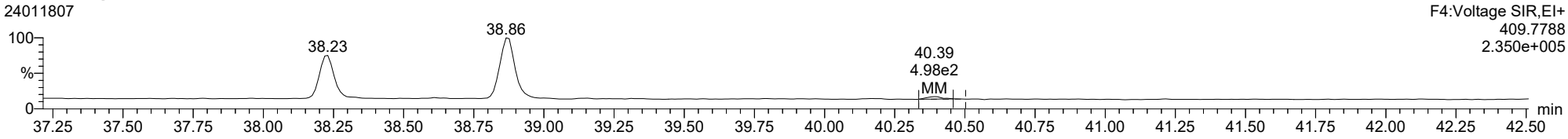


ID: BLL0751-DUP2, Name: 24011807, Date: 18-Jan-2024, Time: 14:44:31, Conditions: AUTOSPEC01, User: pk

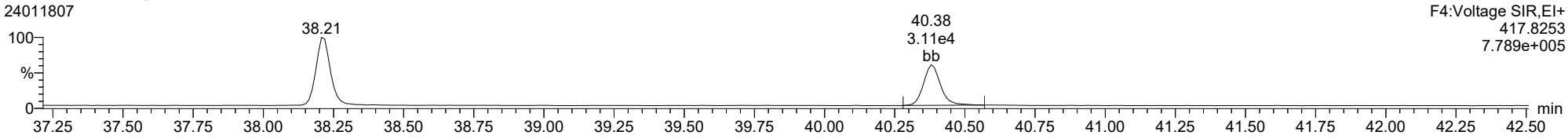
1234789-HpCDF



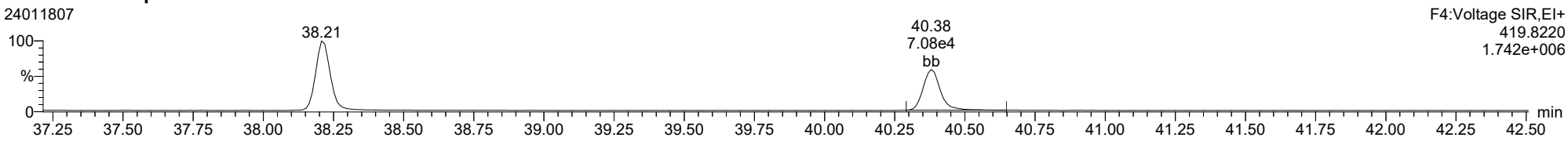
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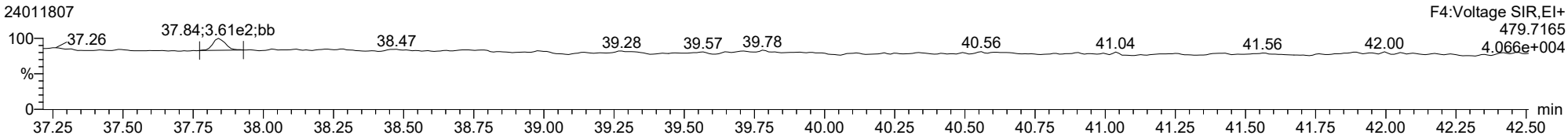
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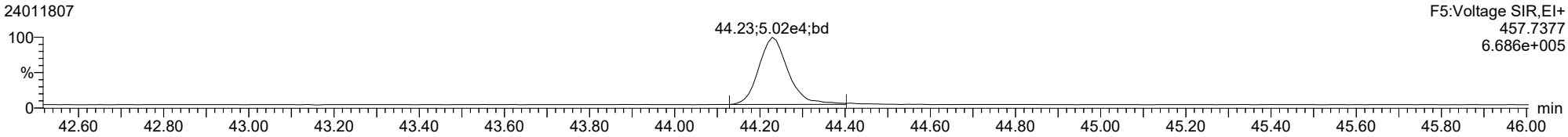


FUNCTION4 NCDPE

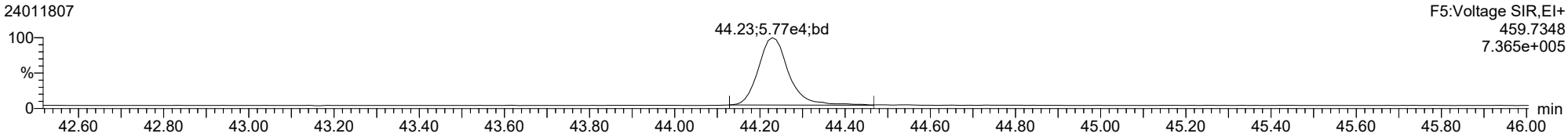


ID: BLL0751-DUP2, Name: 24011807, Date: 18-Jan-2024, Time: 14:44:31, Conditions: AUTOSPEC01, User: pk

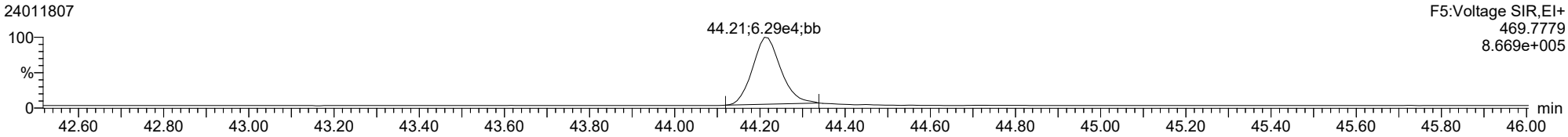
OCDD



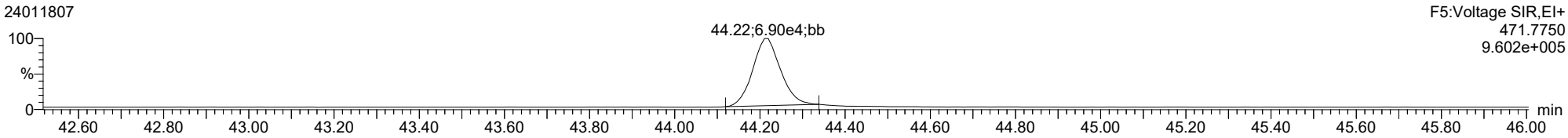
OCDD



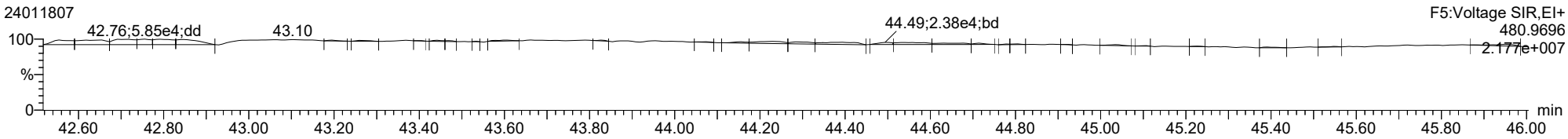
13C-OCDD



13C-OCDD

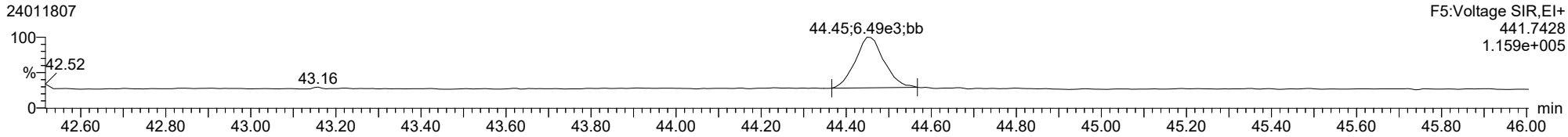


FUNCTION5 PFK

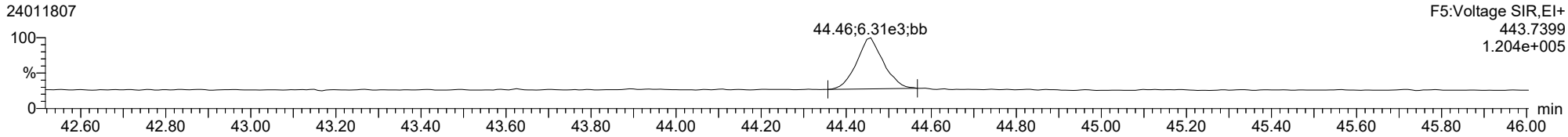


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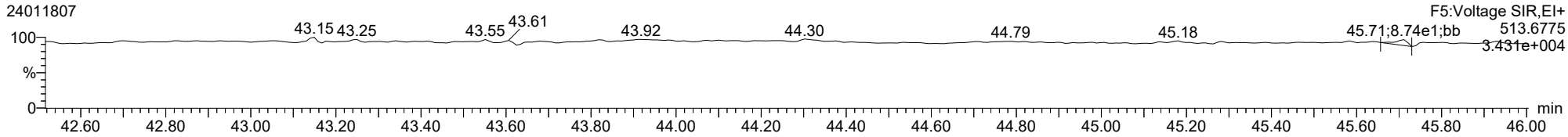
OCDF



OCDF

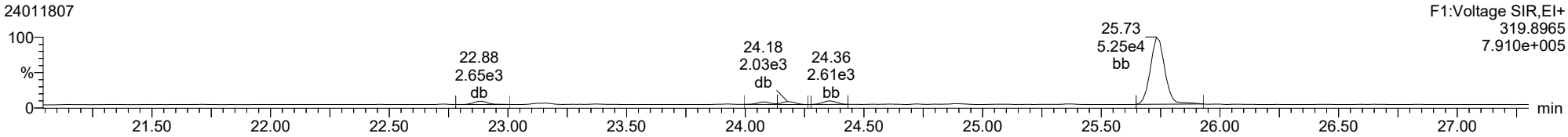


FUNCTION5 DCDPE

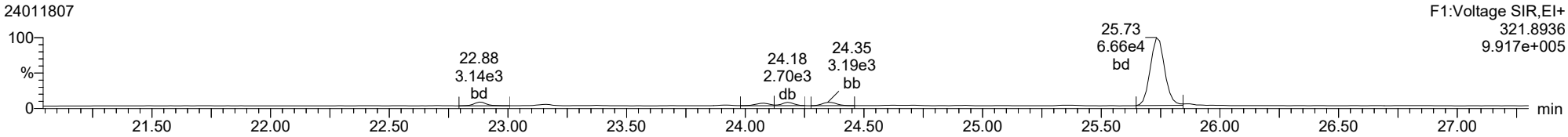


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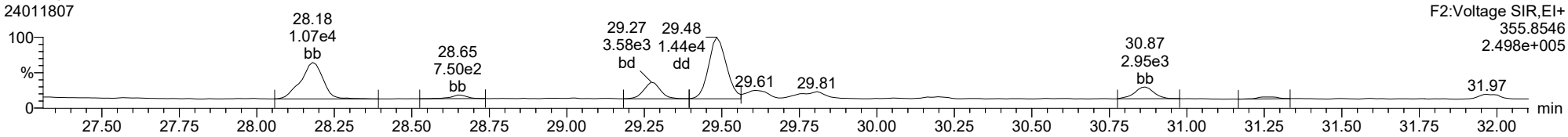
Total-tetradioxins



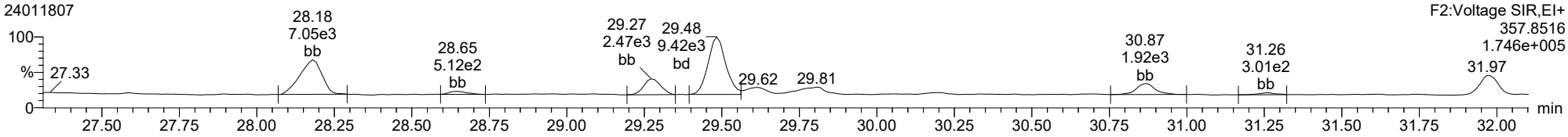
Total-tetradioxins



Total-pentadioxins

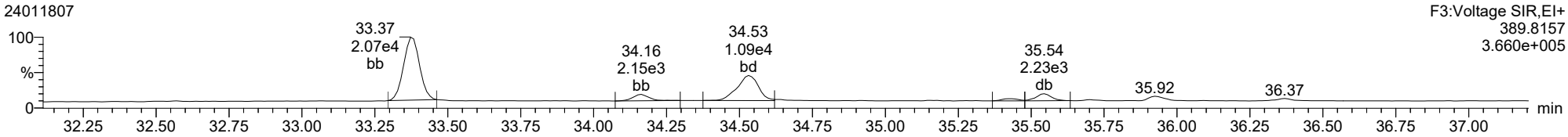


Total-pentadioxins

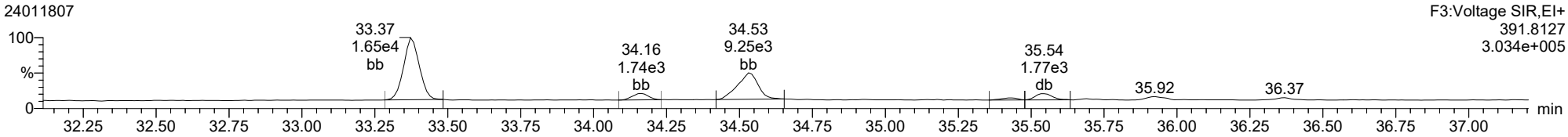


ID: BLL0751-DUP2, Name: 24011807, Date: 18-Jan-2024, Time: 14:44:31, Conditions: AUTOSPEC01, User: pk

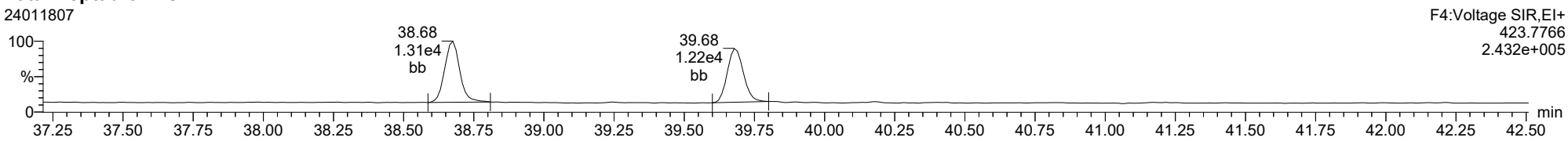
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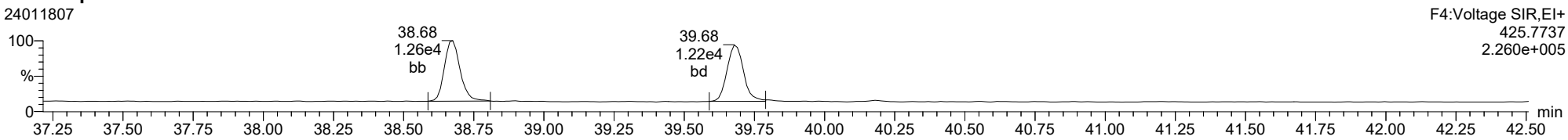
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Total-heptadioxins



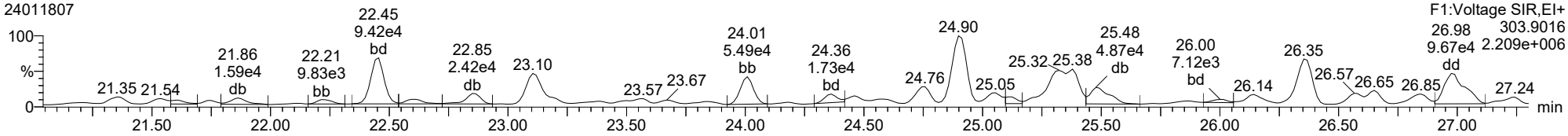
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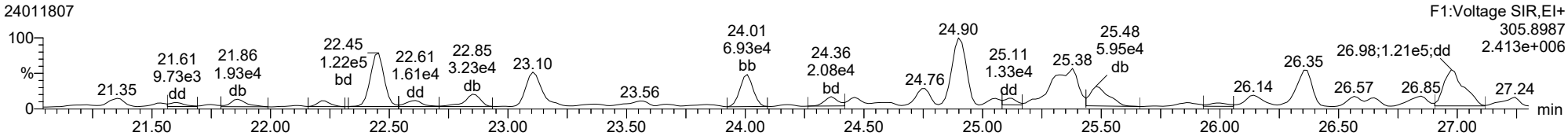
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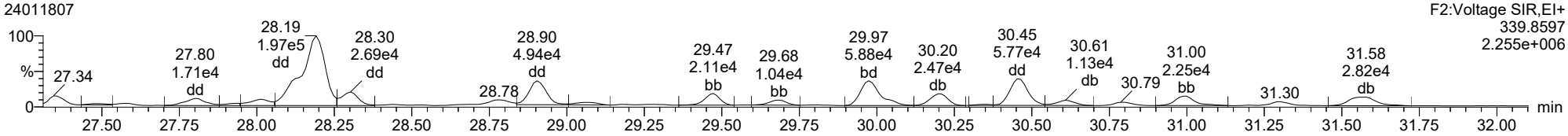
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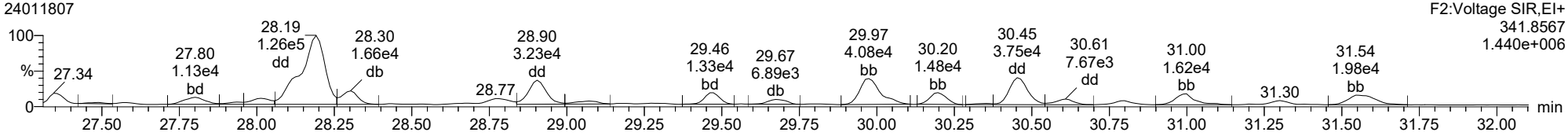
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Total-pentafurans

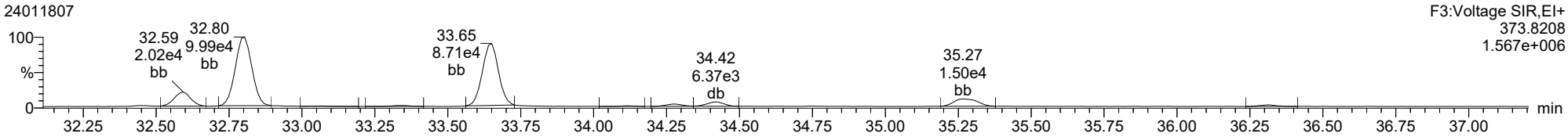


Total-pentafurans

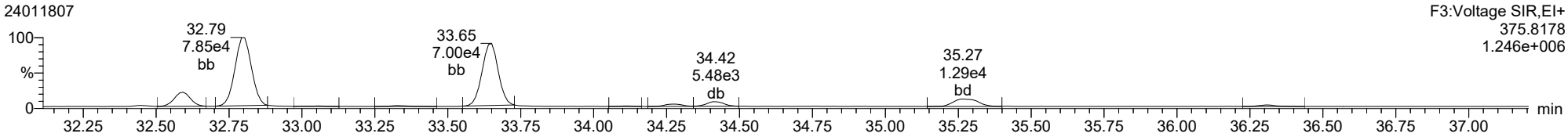


ID: BLL0751-DUP2, Name: 24011807, Date: 18-Jan-2024, Time: 14:44:31, Conditions: AUTOSPEC01, User: pk

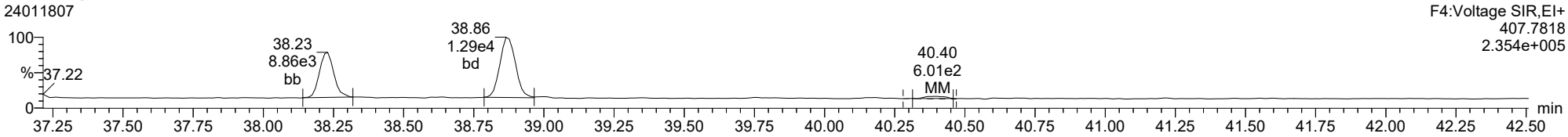
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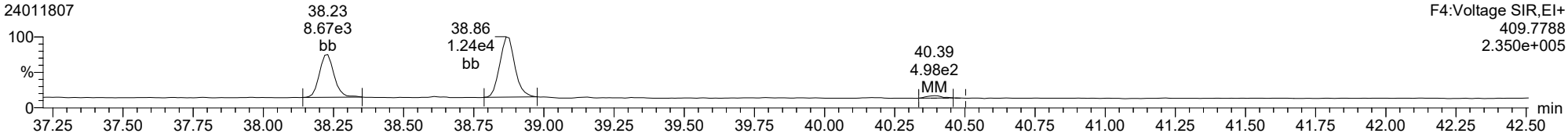
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23L0564
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GH00041	Instrument:	AUTOSPEC01
Calibration Date:	08/11/2023	Column (1):	RTX-Dioxin2

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
2,3,7,8-TCDF			0.5	0.9170169	2	0.8896049	10	0.8956648	40	0.9072161	200	0.9062335
2,3,7,8-TCDD			0.5	1.291459	2	1.233047	10	1.171298	40	1.242227	200	1.27688
1,2,3,7,8-PeCDF	0.5	0.9050012	2.5	0.8965486	10	0.9540675	50	0.9277948	200	0.9293139	1000	0.9266945
2,3,4,7,8-PeCDF	0.5	0.9085743	2.5	1.051184	10	0.9802419	50	0.9945154	200	0.9985836	1000	1.010871
1,2,3,7,8-PeCDD	0.5	1.13089	2.5	1.142394	10	1.12465	50	1.173623	200	1.163067	1000	1.165895
1,2,3,4,7,8-HxCDF	0.5	1.171522	2.5	1.146258	10	1.102409	50	1.083471	200	1.1275	1000	1.137861
1,2,3,6,7,8-HxCDF	0.5	1.002442	2.5	1.01135	10	1.068924	50	1.022077	200	1.03404	1000	1.055313
2,3,4,6,7,8-HxCDF	0.5	1.047067	2.5	1.079021	10	1.105346	50	1.050327	200	1.086324	1000	1.120738
1,2,3,7,8,9-HxCDF	0.5	0.9624625	2.5	0.9081871	10	0.9833481	50	0.9872332	200	1.040889	1000	1.043569
1,2,3,4,7,8-HxCDD	0.5	1.146907	2.5	0.8861021	10	0.9660919	50	0.8986722	200	0.9337293	1000	0.9290194
1,2,3,6,7,8-HxCDD	0.5	0.8554847	2.5	0.8247378	10	0.8750677	50	0.9220737	200	0.8930401	1000	0.9257571
1,2,3,7,8,9-HxCDD	0.5	0.7019908	2.5	0.7130637	10	0.8584371	50	0.8446464	200	0.829624	1000	0.8746994
1,2,3,4,6,7,8-HpCDF	0.5	1.223099	2.5	1.104545	10	1.167736	50	1.124315	200	1.161503	1000	1.201057
1,2,3,4,7,8,9-HpCDF	0.5	0.93457	2.5	1.013728	10	1.111552	50	1.146994	200	1.261925	1000	1.153009
1,2,3,4,6,7,8-HpCDD	0.5	1.487743	2.5	1.080656	10	1.131152	50	1.184304	200	1.134631	1000	1.179134
OCDF	1	0.9623343	5	0.9592974	20	1.274279	100	1.104526	400	1.250961	2000	1.229832
OCDD	1	1.11973	5	0.9863372	20	1.039534	100	0.989959	400	1.135737	2000	1.080698
13C12-2,3,7,8-TCDF	100	1.827549	100	1.875447	100	1.843357	100	1.772636	100	1.770442	100	1.922881
13C12-2,3,7,8-TCDD	100	1.088774	100	1.14768	100	1.064817	100	1.160829	100	0.9954637	100	1.199712
13C12-1,2,3,7,8-PeCDF	100	1.417003	100	1.445072	100	1.312187	100	1.305943	100	1.210215	100	1.568867
13C12-2,3,4,7,8-PeCDF	100	1.306495	100	1.301506	100	1.260886	100	1.252619	100	1.167718	100	1.518179
13C12-1,2,3,7,8-PeCDD	100	0.7639065	100	0.7852329	100	0.685109	100	0.7320055	100	0.6328894	100	0.9229378
13C12-1,2,3,4,7,8-HxCDF	100	1.017315	100	1.068631	100	1.169113	100	1.126009	100	1.156912	100	1.005921
13C12-1,2,3,6,7,8-HxCDF	100	1.231598	100	1.390159	100	1.481835	100	1.379081	100	1.388592	100	1.170109
13C12-2,3,4,6,7,8-HxCDF	100	1.027322	100	1.107706	100	1.15593	100	1.115236	100	1.117234	100	1.037253
13C12-1,2,3,7,8,9-HxCDF	100	0.8795225	100	0.9166548	100	1.027554	100	0.9757214	100	0.9944612	100	0.9157163
13C12-1,2,3,4,7,8-HxCDD	100	0.9104907	100	0.9956927	100	0.9346567	100	0.972884	100	0.9645194	100	0.981134
13C12-1,2,3,6,7,8-HxCDD	100	1.183922	100	1.232021	100	1.115505	100	1.222273	100	1.126356	100	1.075454

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23L0564
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GH00041	Instrument:	AUTOSPEC01
Calibration Date:	08/11/2023	Column (1):	RTX-Dioxin2

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RRF	Conc	**RRF**	Conc	RRF	Conc	RRF	Conc	**RRF**	Conc	**RRF**
13C12-1,2,3,4,6,7,8-HpCDF	100	0.9279461	100	1.003576	100	1.022714	100	1.032271	100	0.9834014	100	0.939784
13C12-1,2,3,4,7,8,9-HpCDF	100	0.7242028	100	0.7724378	100	0.7645327	100	0.7376695	100	0.747954	100	0.7880098
13C12-1,2,3,4,6,7,8-HpCDD	100	0.6408675	100	0.6675492	100	0.5609532	100	0.6552775	100	0.61085	100	0.6402193
13C12-OCDD	200	0.6642378	200	0.7010461	200	0.5069038	200	0.6533745	200	0.5799566	200	0.7053341
37Cl4-2,3,7,8-TCDD	0.1	1.195029	0.5	1.123797	2	1.12089	10	1.150483	40	1.052937	200	1.300967
13C12-1,2,3,4-TCDD	100	1	100	1	100	1	100	1	100	1	100	1
13C12-1,2,3,7,8,9-HxCDD	100	1	100	1	100	1	100	1	100	1	100	1

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23L0564
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GH00041	Instrument:	AUTOSPEC01
Calibration Date:	08/11/2023	Column (1):	RTX-Dioxin2

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
2,3,7,8-TCDF	0.9031472	1.2			RSD ()	
2,3,7,8-TCDD	1.242982	3.8			RSD ()	
1,2,3,7,8-PeCDF	0.9232368	2.2			RSD ()	
2,3,4,7,8-PeCDF	0.9906617	4.7			RSD ()	
1,2,3,7,8-PeCDD	1.150086	1.8			RSD ()	
1,2,3,4,7,8-HxCDF	1.12817	2.8			RSD ()	
1,2,3,6,7,8-HxCDF	1.032358	2.5			RSD ()	
2,3,4,6,7,8-HxCDF	1.08147	2.7			RSD ()	
1,2,3,7,8,9-HxCDF	0.9876148	5.1			RSD ()	
1,2,3,4,7,8-HxCDD	0.960087	10.0			RSD ()	
1,2,3,6,7,8-HxCDD	0.8826935	4.4			RSD ()	
1,2,3,7,8,9-HxCDD	0.8037436	9.5			RSD ()	
1,2,3,4,6,7,8-HpCDF	1.163709	3.8			RSD ()	
1,2,3,4,7,8,9-HpCDF	1.10363	10.4			RSD ()	
1,2,3,4,6,7,8-HpCDD	1.199603	12.2			RSD ()	
OCDF	1.130205	12.7			RSD ()	
OCDD	1.058666	6.0			RSD ()	
13C12-2,3,7,8-TCDF	1.835385	3.2			RSD ()	
13C12-2,3,7,8-TCDD	1.109546	6.7			RSD ()	
13C12-1,2,3,7,8-PeCDF	1.376548	9.2			RSD ()	
13C12-2,3,4,7,8-PeCDF	1.301234	9.0			RSD ()	
13C12-1,2,3,7,8-PeCDD	0.7536802	13.2			RSD ()	
13C12-1,2,3,4,7,8-HxCDF	1.09065	6.5			RSD ()	
13C12-1,2,3,6,7,8-HxCDF	1.340229	8.6			RSD ()	
13C12-2,3,4,6,7,8-HxCDF	1.093447	4.6			RSD ()	
13C12-1,2,3,7,8,9-HxCDF	0.951605	5.9			RSD ()	
13C12-1,2,3,4,7,8-HxCDD	0.9598962	3.3			RSD ()	
13C12-1,2,3,6,7,8-HxCDD	1.159255	5.4			RSD ()	
13C12-1,2,3,4,6,7,8-HpCDF	0.9849488	4.4			RSD ()	
13C12-1,2,3,4,7,8,9-HpCDF	0.7558011	3.1			RSD ()	
13C12-1,2,3,4,6,7,8-HpCDD	0.6292861	6.1			RSD ()	

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23L0564
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GH00041	Instrument:	AUTOSPEC01
Calibration Date:	08/11/2023	Column (1):	RTX-Dioxin2

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
13C12-OCDD	0.6351422	12.2			RSD ()	
37Cl4-2,3,7,8-TCDD	1.157351	7.3			RSD ()	
13C12-1,2,3,4-TCDD	1	0.0			RSD ()	
13C12-1,2,3,7,8,9-HxCDD	1	0.0			RSD ()	

Analytical Resources, LLC
Analytical Chemists and Consultants

Printed: 8/15/2023 1:59:43PM

ANALYSIS SEQUENCE

SLH0135

Instrument: AUTOSPEC01 HRGCMS Column ID: L2314
Calibration ID: GH00041 Tune File: JUL0323_1
EM Voltage: 350 Resolution check times : 10:27, 18:59

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
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SLH0135-RES1	ISCF1	QC		2	L002084	G007694	08/11/2023 11:19	23081103	PK	
SLH0135-CAL1	CSLCF	QC		3	I005460		08/11/2023 12:07	23081104	PK	
SLH0135-CAL2	CS1CF	QC		4	I005456		08/11/2023 13:01	23081105	PK	
SLH0135-CAL3	CS2CF	QC		5	I005457		08/11/2023 13:56	23081106	PK	
SLH0135-CAL4	CS3CF	QC		6	K009821		08/11/2023 14:52	23081107	PK	
SLH0135-CAL5	CS4CF	QC		7	I005458		08/11/2023 15:40	23081108	PK	
SLH0135-CAL6	CS5CF	QC		8	I005459		08/11/2023 16:29	23081109	PK	
SLH0135-SCV1	ICVCF	QC		9	H008219		08/11/2023 17:18	23081110	PK	
SLH0135-CCV1	CS3F2	QC		10	K009821	G007694	08/11/2023 18:06	23081111	PK	
SLH0135-RES2	ISCF2	QC		11	L002084	G007694	08/11/2023 18:59	23081112	PK	

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Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:23:00 Pacific Daylight Time 8/15/23 PK

Event	Details	Sample ID
Process Quantify		
Process Integrate		
Process Extract		
Process Calibrate		
Pre modification peak	Sample:23081104, Compound:HF, RT:34.421	1
Pre modification peak	Sample:23081104, Compound:PD, RT:30.878	1
Pre modification peak	Sample:23081104, Compound:HD, RT:35.412	1
Pre modification peak	Sample:23081104, Compound:HPD, RT:39.657	1
Pre modification peak	Sample:23081104, Compound:OD, RT:44.238	1
Pre modification peak	Sample:23081104, Compound:PF, RT:30.622	1
Pre modification peak	Sample:23081104, Compound:HF, RT:35.312	1
Pre modification peak	Sample:23081104, Compound:HF, RT:36.326	1
Pre modification peak	Sample:23081107, Compound:HPD, RT:38.666	4
Peak modified	Sample:23081104, Compound:HF, RT:34.421	1
Peak modified	Sample:23081104, Compound:PD, RT:30.878	1
Peak modified	Sample:23081104, Compound:HD, RT:35.412	1
Peak modified	Sample:23081104, Compound:HD, RT:35.412	1
Peak modified	Sample:23081104, Compound:HD, RT:35.412	1
Peak modified	Sample:23081104, Compound:HD, RT:35.412	1
Peak modified	Sample:23081104, Compound:HPD, RT:39.657	1
Peak modified	Sample:23081104, Compound:HPD, RT:39.657	1
Peak modified	Sample:23081104, Compound:OD, RT:44.238	1
Peak modified	Sample:23081104, Compound:PF, RT:30.622	1
Peak modified	Sample:23081104, Compound:HF, RT:35.312	1
Peak modified	Sample:23081104, Compound:HF, RT:36.326	1
Peak modified	Sample:23081107, Compound:HPD, RT:38.666	4
Peak deleted	Sample:23081104, Compound:TF, RT:25.167	1
Peak deleted	Sample:23081104, Compound:TD, RT:25.774	1
Peak deleted	Sample:23081109, Compound:TF, RT:26.594	6
Peak deleted	Sample:23081108, Compound:PF, RT:31.646	5
Peak deleted	Sample:23081109, Compound:PF, RT:31.658	6
Peak deleted	Sample:23081109, Compound:HF, RT:32.582	6
Peak deleted	Sample:23081109, Compound:TD, RT:26.368	6
Peak deleted	Sample:23081108, Compound:PD, RT:31.234	5
Peak deleted	Sample:23081108, Compound:HPD, RT:38.665	5
Peak deleted	Sample:23081109, Compound:HPD, RT:38.654	6
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\230811ICIH.qld'	
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\230811ICIH.qld'	
Dataset Created		
Calibration Saved	Saved to 'T:\Autospec\Curves\230811ICIH.cdb'	

Dataset: T:\Autospec\Processed Data Batch\230811ICVIH.qld
Last Altered: Tuesday, August 15, 2023 12:21:02 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:22:06 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 12 Aug 2023 10:54:09
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.153	1.001	3.267e4	4.418e4	0.903	0.739	0.770	1410	1260	4.83e5	6.44e5	342.9	510.8	NO	bb	bb	10.031
12378-PeCDF	29.307	1.001	1.871e5	1.156e5	0.923	1.618	1.550	1821	2061	2.72e6	1.69e6	1495.1	820.5	NO	bb	bb	48.648
23478-PeCDF	30.644	1.001	1.913e5	1.241e5	0.991	1.541	1.550	1821	2061	2.79e6	1.79e6	1530.5	870.8	NO	bb	bb	49.008
123478-HxCDF	34.287	1.000	1.489e5	1.185e5	1.128	1.257	1.240	2017	1502	2.25e6	1.80e6	1117.2	1197.9	NO	bd	bd	48.528
234678-HxCDF	35.312	1.000	1.362e5	1.137e5	1.081	1.198	1.240	2017	1502	2.11e6	1.73e6	1048.4	1153.8	NO	bb	bb	50.502
123678-HxCDF	34.432	1.001	1.589e5	1.237e5	1.032	1.285	1.240	2017	1502	2.28e6	1.79e6	1128.5	1194.7	NO	db	db	50.011
123789-HxCDF	36.360	1.001	1.143e5	9.000e4	0.988	1.270	1.240	2017	1502	1.64e6	1.31e6	815.1	875.3	NO	bb	bb	52.425
1234678-HpCDF	38.231	1.000	1.206e5	1.238e5	1.164	0.975	1.050	1813	1581	1.96e6	1.86e6	1080.8	1179.7	NO	bb	bd	48.385
1234789-HpCDF	40.393	1.000	9.889e4	9.879e4	1.104	1.001	1.050	1813	1581	1.34e6	1.31e6	741.6	828.6	NO	bb	bd	50.882
OCDF	44.467	1.005	1.502e5	1.593e5	1.130	0.943	0.890	2635	2358	1.65e6	1.82e6	627.8	770.8	NO	bd	bb	91.314
2378-TCDD	25.803	1.001	2.952e4	3.590e4	1.243	0.822	0.770	909	976	4.44e5	5.33e5	488.6	546.5	NO	bb	bb	9.127
12378-PeCDD	30.889	1.000	1.367e5	8.588e4	1.150	1.592	1.550	1821	1131	2.04e6	1.27e6	1120.9	1118.1	NO	bb	bb	51.387
123478-HxCDD	35.435	1.001	1.108e5	8.990e4	0.960	1.233	1.240	1642	1463	1.69e6	1.40e6	1029.2	955.0	NO	bd	bd	47.909
123678-HxCDD	35.546	1.000	1.224e5	1.046e5	0.883	1.170	1.240	1642	1463	1.84e6	1.52e6	1119.7	1039.8	NO	db	dd	52.387
123789-HxCDD	35.936	1.011	1.128e5	9.363e4	0.804	1.205	1.240	1642	1463	1.66e6	1.38e6	1013.3	945.6	NO	bb	bb	55.394
1234678-HpCDD	39.680	1.000	9.018e4	7.760e4	1.200	1.162	1.050	1298	1454	1.26e6	1.16e6	968.3	797.3	NO	bd	bb	46.513
OCDD	44.247	1.000	1.584e5	1.773e5	1.059	0.893	0.890	2820	2004	1.74e6	1.94e6	616.2	969.1	NO	bd	bd	105.741
13C-2378-TCDF	25.139	1.007	3.752e5	4.731e5	1.835	0.793	0.770	1743	1019	5.50e6	6.96e6	3156.8	6833.5	NO	bb	bb	93.584
13C-12378-PeCDF	29.285	1.173	4.095e5	2.644e5	1.377	1.549	1.550	2319	2122	6.02e6	3.91e6	2596.1	1840.7	NO	bb	bb	99.132
13C-23478-PeCDF	30.622	1.226	3.942e5	2.553e5	1.301	1.544	1.550	2319	2122	5.70e6	3.76e6	2456.8	1772.1	NO	bb	bb	101.066
13C-123478-HxCDF	34.276	0.954	1.654e5	3.231e5	1.091	0.512	0.510	1344	2378	2.47e6	4.81e6	1838.1	2021.3	NO	bd	bd	100.193
13C-123678-HxCDF	34.410	0.958	1.939e5	3.534e5	1.340	0.549	0.510	1344	2378	2.59e6	5.02e6	1926.2	2110.2	NO	dd	db	91.372
13C-234678-HxCDF	35.301	0.983	1.551e5	3.025e5	1.093	0.513	0.510	1344	2378	2.26e6	4.41e6	1679.6	1852.4	NO	bb	bb	93.633
13C-123789-HxCDF	36.337	1.011	1.338e5	2.608e5	0.952	0.513	0.510	1344	2378	1.91e6	3.82e6	1420.2	1605.6	NO	bb	bb	92.769
13C-1234678-HpCDF	38.220	1.064	1.397e5	2.943e5	0.985	0.475	0.440	1575	2088	2.04e6	4.54e6	1292.2	2173.4	NO	bd	bb	98.578
13C-1234789-HpCDF	40.382	1.124	1.068e5	2.453e5	0.756	0.435	0.440	1575	2088	1.42e6	3.11e6	899.8	1489.6	NO	bd	bb	104.203
13C-1234-TCDD	24.969	0.000	2.166e5	2.773e5	1.000	0.781	0.770	1831	1204	3.27e6	4.17e6	1785.4	3464.8	NO	bb	bb	100.000
13C-2378-TCDD	25.774	1.032	2.575e5	3.192e5	1.110	0.807	0.770	1831	1204	3.85e6	4.88e6	2104.1	4053.6	NO	bb	bb	105.229
13C-12378-PeCDD	30.878	1.237	2.354e5	1.412e5	0.754	1.667	1.550	948	840	3.39e6	2.08e6	3572.5	2479.5	NO	bb	bb	101.171
13C-123478-HxCDD	35.412	0.986	2.434e5	1.930e5	0.960	1.261	1.240	1622	1115	3.72e6	2.95e6	2295.3	2649.4	NO	bd	bd	101.721
13C-123678-HxCDD	35.535	0.989	2.685e5	2.223e5	1.159	1.208	1.240	1622	1115	3.87e6	3.15e6	2386.3	2828.6	NO	db	db	94.721
13C-1234678-HpCDD	39.668	1.104	1.607e5	1.400e5	0.629	1.148	1.050	1237	1522	2.19e6	2.03e6	1766.5	1330.4	NO	bd	bb	106.902
13C-OCDD	44.229	1.231	2.897e5	3.101e5	0.635	0.934	0.890	1717	2028	3.19e6	3.43e6	1855.4	1692.1	NO	bd	bd	211.248
13C-123789-HxCDD	35.925	0.000	2.477e5	1.993e5	1.000	1.243	1.240	1622	1115	3.79e6	2.98e6	2336.3	2673.0	NO	bb	bb	100.000
37CL-2378-TCDD	25.788	1.033	5.819e4		1.157			1031		8.39e5		814.2			bb		10.181

Dataset: T:\Autospec\Processed Data Batch\230811ICVIH.qld
Last Altered: Tuesday, August 15, 2023 12:21:02 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:22:06 Pacific Daylight Time

ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.678	0.862	4.357e4	5.802e4	1.170	0.751	0.770	1410	1260	6.55e5	8.89e5	464.6	705.7	NO	bb	bb	10.233
1289-TCDF	26.636	1.060	3.249e4	4.226e4	0.847	0.769	0.770	1410	1260	4.59e5	5.91e5	325.7	469.0	NO	db	db	10.408
13468-PECDF	26.509	0.905	2.435e5	1.584e5	1.241	1.538	1.550	709	694	3.73e6	2.42e6	5263.9	3490.4	NO	bb	bb	48.052
12389-PECDF	31.669	1.081	1.948e5	1.176e5	0.880	1.656	1.550	1821	2061	2.59e6	1.63e6	1421.1	790.4	NO	bd	bb	52.702
123468-HXCDF	32.594	0.951	1.572e5	1.265e5	1.206	1.243	1.240	2017	1502	2.34e6	1.90e6	1162.2	1262.2	NO	bb	bb	48.177
1368-TCDD	22.935	0.890	2.959e4	3.663e4	1.181	0.808	0.770	909	976	4.61e5	5.72e5	507.2	585.7	NO	bb	bb	9.725
1289-TCDD	26.396	1.024	2.667e4	3.303e4	0.963	0.807	0.770	909	976	3.82e5	4.40e5	420.6	451.1	NO	bb	bd	10.754
12479-PECDD	28.170	0.912	2.449e5	1.524e5	2.166	1.607	1.550	1821	1131	2.32e6	1.47e6	1275.6	1295.2	NO	bb	bb	48.697
12389-PECDD	31.290	1.013	1.599e5	1.040e5	1.326	1.538	1.550	1821	1131	2.26e6	1.42e6	1241.0	1256.0	NO	bb	bd	52.847
124679-HXCDD	33.385	0.943	1.262e5	1.040e5	1.127	1.213	1.240	1642	1463	1.83e6	1.51e6	1114.4	1030.9	NO	bb	bb	46.808
1234679-HPCDD	38.666	0.975	1.017e5	9.556e4	1.303	1.064	1.050	1298	1454	1.56e6	1.48e6	1205.3	1021.4	NO	bb	bb	50.367
Total-tetrafurans			1.090e5		0.973			1410		1.60e6							30.751
Total-penta1			2.435e5					709		3.73e6							48.052
Total-pentafurans			6.055e5		0.931			1821		8.58e6							158.813
Total-hexafurans			7.156e5		1.087			2017		1.06e7							249.643
Total-heptafurans			2.195e5		1.134			1813		3.30e6							99.267
Total-Furans			2.043e6		1.053			1410		2.95e7							677.840
Total-tetradioxins			1.446e5		1.129			909		1.97e6							49.641
Total-pentadioxins			5.415e5		1.548			1821		6.62e6							152.931
Total-hexadioxins			4.722e5		0.943			1642		7.02e6							202.499
Total-heptadioxins			1.919e5		1.251			1298		2.82e6							96.880
Total-Dioxins			1.509e6		1.182			909		2.02e7							607.691
Total-TEQ			3.552e6					909		4.97e7							1285.531
FUNCTION1 PFK			7.924e5					446175		1.36e7							
FUNCTION2 PFK			5.581e5					351760		1.44e7							0.000
FUNCTION3 PFK			1.585e5					424568		5.08e6							0.000
FUNCTION4 PFK			0.000e0					308815		0.00e0							
FUNCTION5 PFK			5.965e4					171904		2.21e6							
FUNCTION1 HXCD...			1.292e3					668		1.76e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			3.182e2					688		6.67e3							0.000
FUNCTION3 OCDPE			6.041e2					430		9.00e3							0.000
FUNCTION4 NCDPE			3.725e2					636		5.58e3							0.000
FUNCTION5 DCDPE			0.000e0					371		0.00e0							

Method: T:\Autospec\Methods\Dioxin230810.mdb 12 Aug 2023 10:54:09
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	3.249e4	4.226e4	0.847	0.77	0.77	325.7	YES	NO	db	db	10.408
2	2378-TCDF	25.15	3.267e4	4.418e4	0.903	0.74	0.77	342.9	YES	NO	bb	bb	10.031
3	Total-tetrafurans	24.26	2.922e2	3.648e2	0.973	0.80	0.77	4.1	YES	NO	bb	bb	0.080
4	1368-TCDF	21.68	4.357e4	5.802e4	1.170	0.75	0.77	464.6	YES	NO	bb	bb	10.233

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.51	2.435e5	1.584e5	1.241	1.54	1.55	5263.9	YES	NO	bb	bb	48.052

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.64	1.913e5	1.241e5	0.991	1.54	1.55	1530.5	YES	NO	bb	bb	49.008
2	12378-PeCDF	29.31	1.871e5	1.156e5	0.923	1.62	1.55	1495.1	YES	NO	bb	bb	48.648
3	Total-pentafurans	28.16	3.242e4	1.967e4	0.931	1.65	1.55	264.3	YES	NO	bb	bb	8.454
4	12389-PECDF	31.67	1.948e5	1.176e5	0.880	1.66	1.55	1421.1	YES	NO	bd	bb	52.702

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.36	1.143e5	9.000e4	0.988	1.27	1.24	815.1	YES	NO	bb	bb	52.425
2	234678-HxCDF	35.31	1.362e5	1.137e5	1.081	1.20	1.24	1048.4	YES	NO	bb	bb	50.502
3	123678-HxCDF	34.43	1.589e5	1.237e5	1.032	1.28	1.24	1128.5	YES	NO	db	db	50.011
4	123478-HxCDF	34.29	1.489e5	1.185e5	1.128	1.26	1.24	1117.2	YES	NO	bd	bd	48.528
5	123468-HXCDF	32.59	1.572e5	1.265e5	1.206	1.24	1.24	1162.2	YES	NO	bb	bb	48.177

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.39	9.889e4	9.879e4	1.104	1.00	1.05	741.6	YES	NO	bb	bd	50.882
2	1234678-HpCDF	38.23	1.206e5	1.238e5	1.164	0.97	1.05	1080.8	YES	NO	bb	bd	48.385

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	3.249e4	4.226e4	0.847	0.77	0.77	325.7	YES	NO	db	db	10.408
2	2378-TCDF	25.15	3.267e4	4.418e4	0.903	0.74	0.77	342.9	YES	NO	bb	bb	10.031
3	Total-tetrafurans	24.26	2.922e2	3.648e2	0.973	0.80	0.77	4.1	YES	NO	bb	bb	0.080
4	1368-TCDF	21.68	4.357e4	5.802e4	1.170	0.75	0.77	464.6	YES	NO	bb	bb	10.233
5	23478-PeCDF	30.64	1.913e5	1.241e5	0.991	1.54	1.55	1530.5	YES	NO	bb	bb	49.008
6	12378-PeCDF	29.31	1.871e5	1.156e5	0.923	1.62	1.55	1495.1	YES	NO	bb	bb	48.648
7	Total-pentafurans	28.16	3.242e4	1.967e4	0.931	1.65	1.55	264.3	YES	NO	bb	bb	8.454
8	12389-PECDF	31.67	1.948e5	1.176e5	0.880	1.66	1.55	1421.1	YES	NO	bd	bb	52.702
9	123789-HxCDF	36.36	1.143e5	9.000e4	0.988	1.27	1.24	815.1	YES	NO	bb	bb	52.425
10	234678-HxCDF	35.31	1.362e5	1.137e5	1.081	1.20	1.24	1048.4	YES	NO	bb	bb	50.502
11	123678-HxCDF	34.43	1.589e5	1.237e5	1.032	1.28	1.24	1128.5	YES	NO	db	db	50.011
12	123478-HxCDF	34.29	1.489e5	1.185e5	1.128	1.26	1.24	1117.2	YES	NO	bd	bd	48.528
13	123468-HXCDF	32.59	1.572e5	1.265e5	1.206	1.24	1.24	1162.2	YES	NO	bb	bb	48.177
14	1234789-HpCDF	40.39	9.889e4	9.879e4	1.104	1.00	1.05	741.6	YES	NO	bb	bd	50.882
15	1234678-HpCDF	38.23	1.206e5	1.238e5	1.164	0.97	1.05	1080.8	YES	NO	bb	bd	48.385
16	OCDF	44.47	1.502e5	1.593e5	1.130	0.94	0.89	627.8	YES	NO	bd	bb	91.314
17	13468-PECDF	26.51	2.435e5	1.584e5	1.241	1.54	1.55	5263.9	YES	NO	bb	bb	48.052

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.40	2.667e4	3.303e4	0.963	0.81	0.77	420.6	YES	NO	bb	bd	10.754
2	2378-TCDD	25.80	2.952e4	3.590e4	1.243	0.82	0.77	488.6	YES	NO	bb	bb	9.127
3	Total-tetradioxins	25.46	4.462e4	5.454e4	1.129	0.82	0.77	507.1	YES	NO	bd	bb	15.232
4	Total-tetradioxins	24.98	1.421e4	1.705e4	1.129	0.83	0.77	248.5	YES	NO	bd	bb	4.803
5	1368-TCDD	22.94	2.959e4	3.663e4	1.181	0.81	0.77	507.2	YES	NO	bb	bb	9.725

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.29	1.599e5	1.040e5	1.326	1.54	1.55	1241.0	YES	NO	bb	bd	52.847
2	12378-PeCDD	30.89	1.367e5	8.588e4	1.150	1.59	1.55	1120.9	YES	NO	bb	bb	51.387
3	12479-PECDD	28.17	2.449e5	1.524e5	2.166	1.61	1.55	1275.6	YES	NO	bb	bb	48.697

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDD	35.43	1.108e5	8.990e4	0.960	1.23	1.24	1029.2	YES	NO	bd	bd	47.909
2	124679-HXCDD	33.38	1.262e5	1.040e5	1.127	1.21	1.24	1114.4	YES	NO	bb	bb	46.808
3	123789-HxCDD	35.94	1.128e5	9.363e4	0.804	1.20	1.24	1013.3	YES	NO	bb	bb	55.394
4	123678-HxCDD	35.55	1.224e5	1.046e5	0.883	1.17	1.24	1119.7	YES	NO	db	dd	52.387

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.68	9.018e4	7.760e4	1.200	1.16	1.05	968.3	YES	NO	bd	bb	46.513
2	1234679-HPCDD	38.67	1.017e5	9.556e4	1.303	1.06	1.05	1205.3	YES	NO	bb	bb	50.367

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.40	2.667e4	3.303e4	0.963	0.81	0.77	420.6	YES	NO	bb	bd	10.754
2	2378-TCDD	25.80	2.952e4	3.590e4	1.243	0.82	0.77	488.6	YES	NO	bb	bb	9.127
3	Total-tetradioxins	25.46	4.462e4	5.454e4	1.129	0.82	0.77	507.1	YES	NO	bd	bb	15.232
4	Total-tetradioxins	24.98	1.421e4	1.705e4	1.129	0.83	0.77	248.5	YES	NO	bd	bb	4.803
5	1368-TCDD	22.94	2.959e4	3.663e4	1.181	0.81	0.77	507.2	YES	NO	bb	bb	9.725
6	12389-PECDD	31.29	1.599e5	1.040e5	1.326	1.54	1.55	1241.0	YES	NO	bb	bd	52.847
7	12378-PeCDD	30.89	1.367e5	8.588e4	1.150	1.59	1.55	1120.9	YES	NO	bb	bb	51.387
8	12479-PECDD	28.17	2.449e5	1.524e5	2.166	1.61	1.55	1275.6	YES	NO	bb	bb	48.697
9	123478-HxCDD	35.43	1.108e5	8.990e4	0.960	1.23	1.24	1029.2	YES	NO	bd	bd	47.909
10	124679-HXCDD	33.38	1.262e5	1.040e5	1.127	1.21	1.24	1114.4	YES	NO	bb	bb	46.808
11	123789-HxCDD	35.94	1.128e5	9.363e4	0.804	1.20	1.24	1013.3	YES	NO	bb	bb	55.394
12	123678-HxCDD	35.55	1.224e5	1.046e5	0.883	1.17	1.24	1119.7	YES	NO	db	dd	52.387
13	1234678-HpCDD	39.68	9.018e4	7.760e4	1.200	1.16	1.05	968.3	YES	NO	bd	bb	46.513
14	1234679-HPCDD	38.67	1.017e5	9.556e4	1.303	1.06	1.05	1205.3	YES	NO	bb	bb	50.367
15	OCDD	44.25	1.584e5	1.773e5	1.059	0.89	0.89	616.2	YES	NO	bd	bd	105.741

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	3.249e4	4.226e4	0.847	0.77	0.77	325.7	YES	NO	db	db	10.408
2	2378-TCDF	25.15	3.267e4	4.418e4	0.903	0.74	0.77	342.9	YES	NO	bb	bb	10.031
3	Total-tetrafurans	24.26	2.922e2	3.648e2	0.973	0.80	0.77	4.1	YES	NO	bb	bb	0.080
4	1368-TCDF	21.68	4.357e4	5.802e4	1.170	0.75	0.77	464.6	YES	NO	bb	bb	10.233
5	23478-PeCDF	30.64	1.913e5	1.241e5	0.991	1.54	1.55	1530.5	YES	NO	bb	bb	49.008
6	12378-PeCDF	29.31	1.871e5	1.156e5	0.923	1.62	1.55	1495.1	YES	NO	bb	bb	48.648
7	Total-pentafurans	28.16	3.242e4	1.967e4	0.931	1.65	1.55	264.3	YES	NO	bb	bb	8.454
8	12389-PECDF	31.67	1.948e5	1.176e5	0.880	1.66	1.55	1421.1	YES	NO	bd	bb	52.702
9	123789-HxCDF	36.36	1.143e5	9.000e4	0.988	1.27	1.24	815.1	YES	NO	bb	bb	52.425
10	234678-HxCDF	35.31	1.362e5	1.137e5	1.081	1.20	1.24	1048.4	YES	NO	bb	bb	50.502
11	123678-HxCDF	34.43	1.589e5	1.237e5	1.032	1.28	1.24	1128.5	YES	NO	db	db	50.011
12	123478-HxCDF	34.29	1.489e5	1.185e5	1.128	1.26	1.24	1117.2	YES	NO	bd	bd	48.528
13	123468-HXCDF	32.59	1.572e5	1.265e5	1.206	1.24	1.24	1162.2	YES	NO	bb	bb	48.177
14	1234789-HpCDF	40.39	9.889e4	9.879e4	1.104	1.00	1.05	741.6	YES	NO	bb	bd	50.882
15	1234678-HpCDF	38.23	1.206e5	1.238e5	1.164	0.97	1.05	1080.8	YES	NO	bb	bd	48.385
16	OCDF	44.47	1.502e5	1.593e5	1.130	0.94	0.89	627.8	YES	NO	bd	bb	91.314
17	13468-PECDF	26.51	2.435e5	1.584e5	1.241	1.54	1.55	5263.9	YES	NO	bb	bb	48.052
18	1289-TCDD	26.40	2.667e4	3.303e4	0.963	0.81	0.77	420.6	YES	NO	bb	bd	10.754
19	2378-TCDD	25.80	2.952e4	3.590e4	1.243	0.82	0.77	488.6	YES	NO	bb	bb	9.127
20	Total-tetradioxins	25.46	4.462e4	5.454e4	1.129	0.82	0.77	507.1	YES	NO	bd	bb	15.232
21	Total-tetradioxins	24.98	1.421e4	1.705e4	1.129	0.83	0.77	248.5	YES	NO	bd	bb	4.803
22	1368-TCDD	22.94	2.959e4	3.663e4	1.181	0.81	0.77	507.2	YES	NO	bb	bb	9.725
23	12389-PECDD	31.29	1.599e5	1.040e5	1.326	1.54	1.55	1241.0	YES	NO	bb	bd	52.847
24	12378-PeCDD	30.89	1.367e5	8.588e4	1.150	1.59	1.55	1120.9	YES	NO	bb	bb	51.387
25	12479-PECDD	28.17	2.449e5	1.524e5	2.166	1.61	1.55	1275.6	YES	NO	bb	bb	48.697
26	123478-HxCDD	35.43	1.108e5	8.990e4	0.960	1.23	1.24	1029.2	YES	NO	bd	bd	47.909
27	124679-HXCDD	33.38	1.262e5	1.040e5	1.127	1.21	1.24	1114.4	YES	NO	bb	bb	46.808
28	123789-HxCDD	35.94	1.128e5	9.363e4	0.804	1.20	1.24	1013.3	YES	NO	bb	bb	55.394
29	123678-HxCDD	35.55	1.224e5	1.046e5	0.883	1.17	1.24	1119.7	YES	NO	db	dd	52.387
30	1234678-HpCDD	39.68	9.018e4	7.760e4	1.200	1.16	1.05	968.3	YES	NO	bd	bb	46.513
31	1234679-HPCDD	38.67	1.017e5	9.556e4	1.303	1.06	1.05	1205.3	YES	NO	bb	bb	50.367
32	OCDD	44.25	1.584e5	1.773e5	1.059	0.89	0.89	616.2	YES	NO	bd	bd	105.741

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	26.10	3.058e4					0.7	NO		bb		
2	FUNCTION1 PFK	25.83	2.167e4					1.5	NO		bb		
3	FUNCTION1 PFK	25.75	1.003e4					1.0	NO		bb		
4	FUNCTION1 PFK	25.68	2.815e4					1.7	NO		bb		
5	FUNCTION1 PFK	25.20	4.577e4					1.7	NO		bb		
6	FUNCTION1 PFK	25.10	1.950e4					1.5	NO		bb		
7	FUNCTION1 PFK	24.98	1.460e4					1.0	NO		bb		
8	FUNCTION1 PFK	24.25	2.099e4					1.6	NO		bb		
9	FUNCTION1 PFK	22.89	4.902e4					1.9	NO		bb		
10	FUNCTION1 PFK	22.67	2.144e4					1.5	NO		db		
11	FUNCTION1 PFK	22.61	1.329e4					1.0	NO		bd		
12	FUNCTION1 PFK	22.53	9.681e3					1.0	NO		bb		
13	FUNCTION1 PFK	22.00	3.405e4					2.0	NO		bb		
14	FUNCTION1 PFK	21.38	2.152e5					5.1	YES		bb		
15	FUNCTION1 PFK	21.13	2.235e4					1.5	NO		bb		
16	FUNCTION1 PFK	26.38	2.126e5					4.1	YES		bb		
17	FUNCTION1 PFK	26.27	2.350e4					1.6	NO		bb		

Dataset: T:\Autospec\Processed Data Batch\230811ICVIH.qld
Last Altered: Tuesday, August 15, 2023 12:21:02 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:22:06 Pacific Daylight Time

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.26	1.698e4					1.3	NO		bd		0.000
2	FUNCTION2 PFK	29.22	9.896e3					0.8	NO		db		0.000
3	FUNCTION2 PFK	29.13	1.828e4					1.7	NO		bd		0.000
4	FUNCTION2 PFK	28.98	6.411e3					0.9	NO		db		0.000
5	FUNCTION2 PFK	28.91	3.286e4					2.2	NO		bd		0.000
6	FUNCTION2 PFK	28.76	8.921e3					1.0	NO		bb		0.000
7	FUNCTION2 PFK	28.35	2.476e3					0.6	NO		bb		0.000
8	FUNCTION2 PFK	28.30	1.117e4					1.4	NO		bb		0.000
9	FUNCTION2 PFK	28.26	1.521e3					0.4	NO		bb		0.000
10	FUNCTION2 PFK	28.20	2.571e4					1.7	NO		bb		0.000
11	FUNCTION2 PFK	27.96	1.137e4					1.0	NO		bb		0.000
12	FUNCTION2 PFK	27.76	1.343e4					1.0	NO		bb		0.000
13	FUNCTION2 PFK	27.50	5.807e3					0.8	NO		bb		0.000
14	FUNCTION2 PFK	31.48	1.330e4					1.4	NO		db		0.000
15	FUNCTION2 PFK	31.45	2.866e4					1.6	NO		dd		0.000
16	FUNCTION2 PFK	31.35	6.909e3					0.8	NO		dd		0.000
17	FUNCTION2 PFK	31.29	1.971e4					1.8	NO		bd		0.000
18	FUNCTION2 PFK	30.92	2.157e4					1.4	NO		bb		0.000
19	FUNCTION2 PFK	30.73	1.688e3					0.4	NO		bb		0.000
20	FUNCTION2 PFK	30.50	1.583e4					1.4	NO		bb		0.000
21	FUNCTION2 PFK	30.43	7.919e3					0.8	NO		bb		0.000
22	FUNCTION2 PFK	30.20	1.363e4					1.2	NO		bb		0.000
23	FUNCTION2 PFK	30.01	3.933e4					2.2	NO		db		0.000
24	FUNCTION2 PFK	29.85	1.133e5					4.0	YES		bd		0.000
25	FUNCTION2 PFK	29.76	1.253e4					1.2	NO		db		0.000
26	FUNCTION2 PFK	29.66	4.510e4					1.8	NO		bd		0.000
27	FUNCTION2 PFK	29.55	1.168e4					1.2	NO		bb		0.000
28	FUNCTION2 PFK	29.42	1.201e4					1.4	NO		bb		0.000
29	FUNCTION2 PFK	29.32	7.622e3					1.1	NO		db		0.000
30	FUNCTION2 PFK	31.96	1.865e3					0.5	NO		bb		0.000
31	FUNCTION2 PFK	31.91	6.856e3					1.0	NO		bb		0.000
32	FUNCTION2 PFK	31.80	1.369e4					1.0	NO		bb		0.000

Dataset: T:\Autospec\Processed Data Batch\230811ICVIH.qld
Last Altered: Tuesday, August 15, 2023 12:21:02 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:22:06 Pacific Daylight Time

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	35.95	2.169e4					1.7	NO		bb		0.000
2	FUNCTION3 PFK	35.70	2.880e4					2.0	NO		bb		0.000
3	FUNCTION3 PFK	34.21	2.768e3					0.6	NO		bb		0.000
4	FUNCTION3 PFK	33.50	2.810e4					2.1	NO		db		0.000
5	FUNCTION3 PFK	33.46	3.177e4					2.4	NO		bd		0.000
6	FUNCTION3 PFK	33.07	1.826e4					1.5	NO		bb		0.000
7	FUNCTION3 PFK	32.40	2.714e4					1.7	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.38	4.668e3					1.2	NO		bd		
2	FUNCTION5 PFK	44.06	1.022e4					2.0	NO		bb		
3	FUNCTION5 PFK	43.01	7.561e3					2.2	NO		bb		
4	FUNCTION5 PFK	45.92	5.621e3					1.7	NO		bb		
5	FUNCTION5 PFK	45.85	3.368e3					1.3	NO		bb		
6	FUNCTION5 PFK	44.70	2.424e3					0.9	NO		db		
7	FUNCTION5 PFK	44.66	2.009e4					2.1	NO		bd		
8	FUNCTION5 PFK	44.42	5.700e3					1.5	NO		db		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.31	9.776e1					2.1	NO		db		0.000
2	FUNCTION1 HXCD...	26.17	1.145e2					2.2	NO		dd		0.000
3	FUNCTION1 HXCD...	26.10	1.085e2					2.3	NO		bd		0.000
4	FUNCTION1 HXCD...	25.79	1.710e2					2.7	NO		db		0.000
5	FUNCTION1 HXCD...	25.66	8.247e1					2.4	NO		dd		0.000
6	FUNCTION1 HXCD...	25.56	9.000e1					1.7	NO		bd		0.000
7	FUNCTION1 HXCD...	24.96	1.201e2					2.8	NO		bb		0.000
8	FUNCTION1 HXCD...	23.43	1.148e2					2.1	NO		bb		0.000
9	FUNCTION1 HXCD...	22.43	7.998e1					1.3	NO		bb		0.000
10	FUNCTION1 HXCD...	21.38	1.181e2					2.0	NO		bb		0.000
11	FUNCTION1 HXCD...	27.05	1.032e2					1.9	NO		bb		0.000
12	FUNCTION1 HXCD...	26.66	9.117e1					2.9	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.90	7.786e1					1.4	NO		bb		0.000
2	FUNCTION2 HPCD...	30.49	2.403e2					8.3	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.91	9.546e1					2.9	NO		bb		0.000
2	FUNCTION3 OCDPE	35.53	1.655e2					5.4	YES		db		0.000
3	FUNCTION3 OCDPE	35.42	1.776e2					8.6	YES		dd		0.000
4	FUNCTION3 OCDPE	35.30	1.655e2					4.0	YES		bd		0.000

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ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	41.97	8.451e1					2.2	NO		bb		0.000
2	FUNCTION4 NCDPE	40.79	7.795e1					2.1	NO		bb		0.000
3	FUNCTION4 NCDPE	38.00	8.803e1					1.5	NO		bb		0.000
4	FUNCTION4 NCDPE	37.36	1.220e2					2.9	NO		bb		0.000

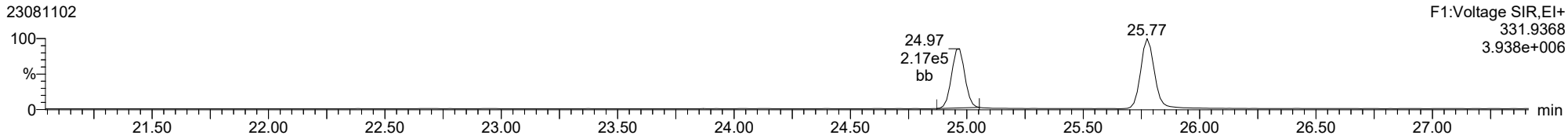
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

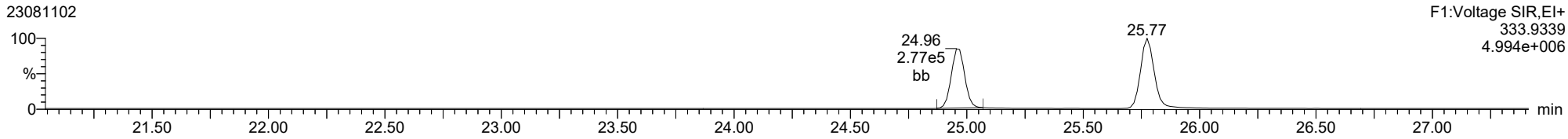
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ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

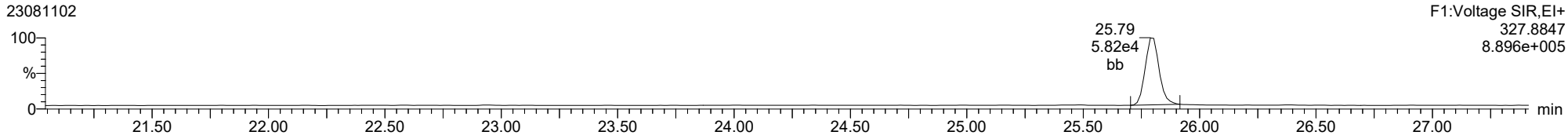
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13C-1234-TCDD

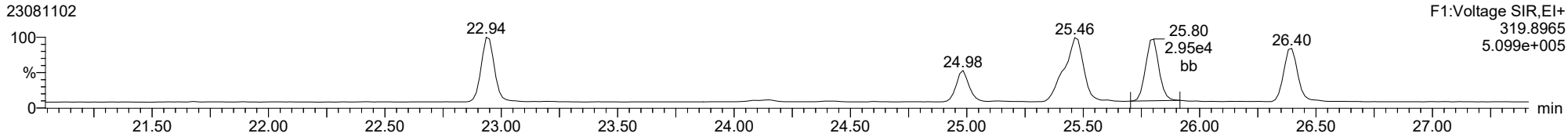


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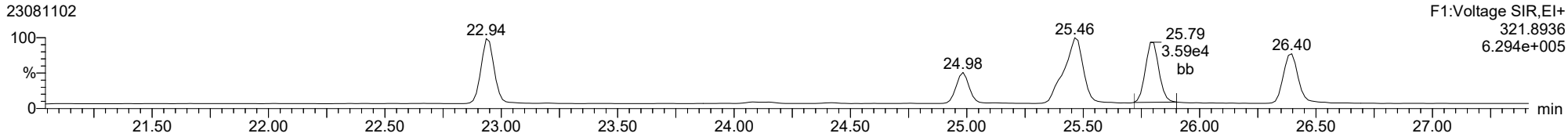


ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

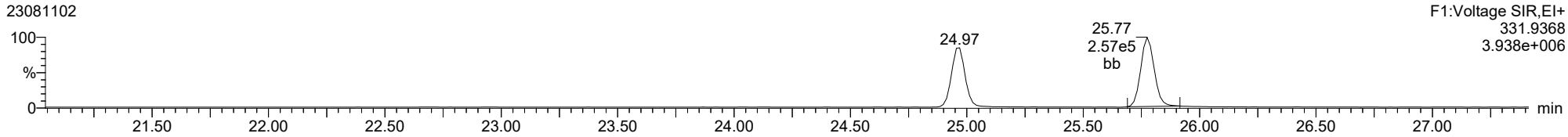
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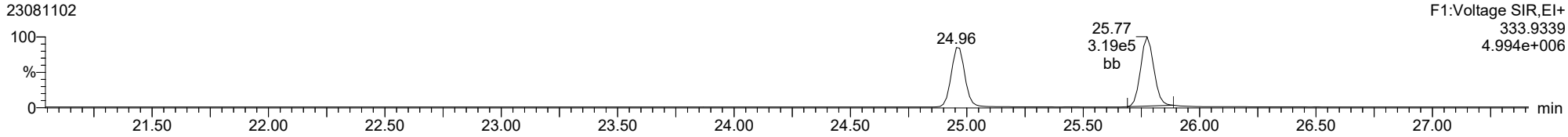
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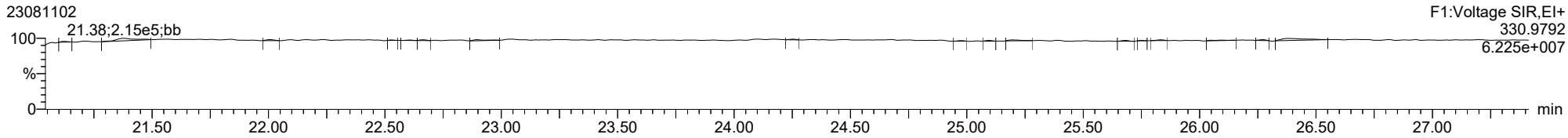
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13C-2378-TCDD

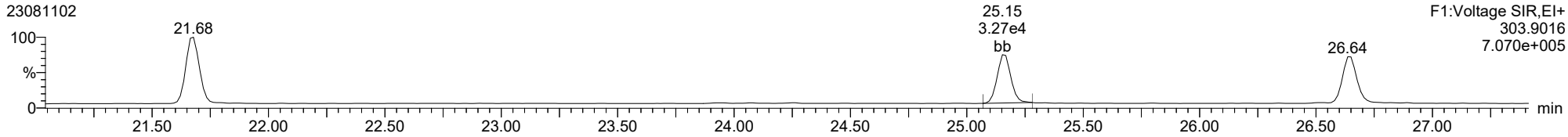


FUNCTION1 PFK

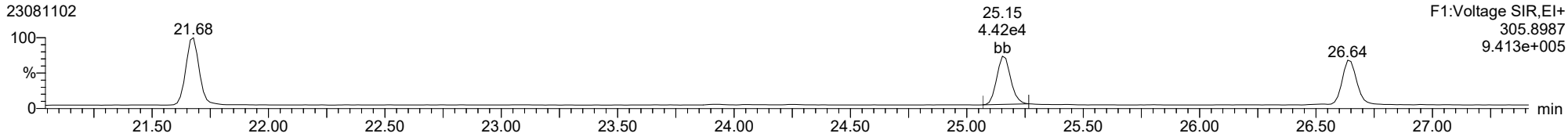


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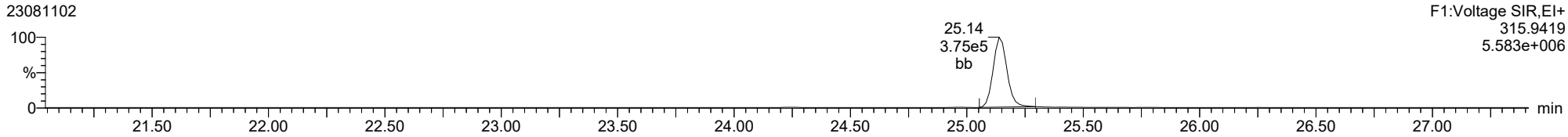
2378-TCDF



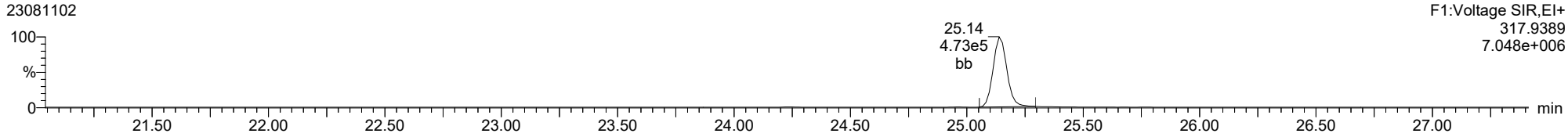
2378-TCDF



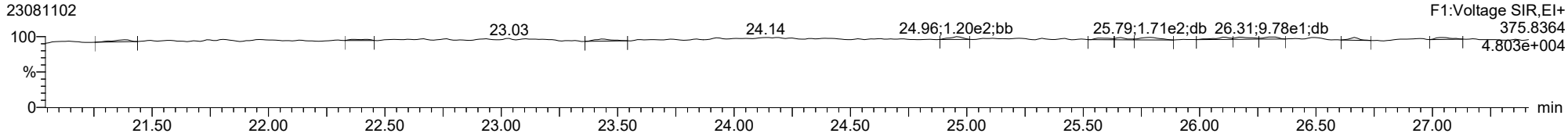
13C-2378-TCDF



13C-2378-TCDF

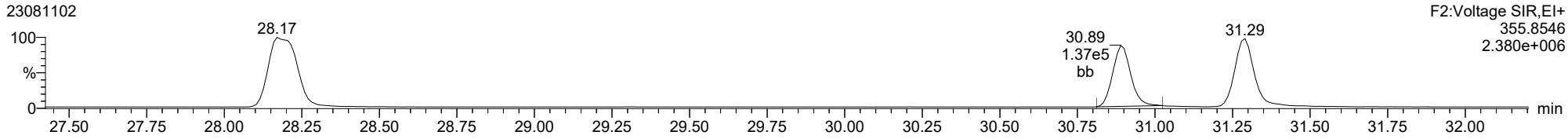


FUNCTION1 HXCDPE

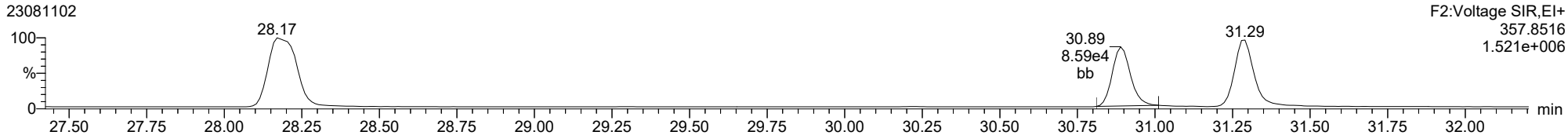


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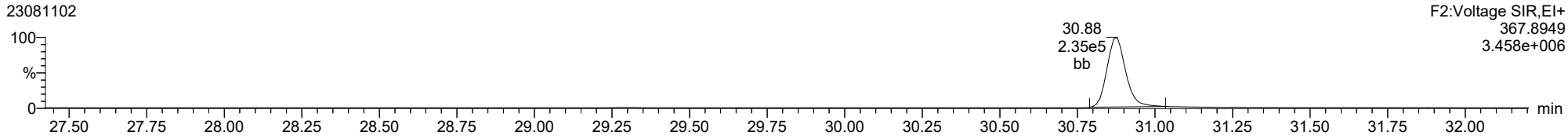
12378-PeCDD



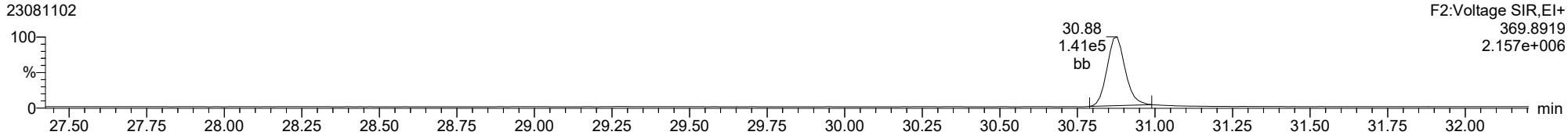
12378-PeCDD



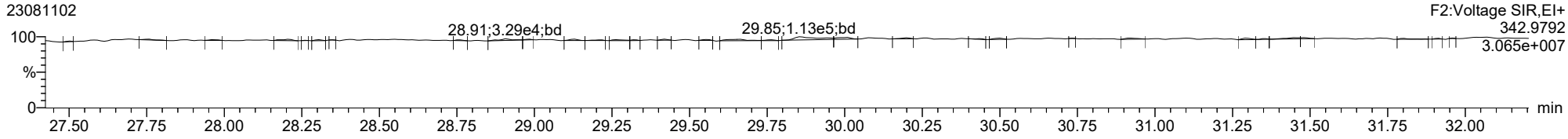
13C-12378-PeCDD



13C-12378-PeCDD

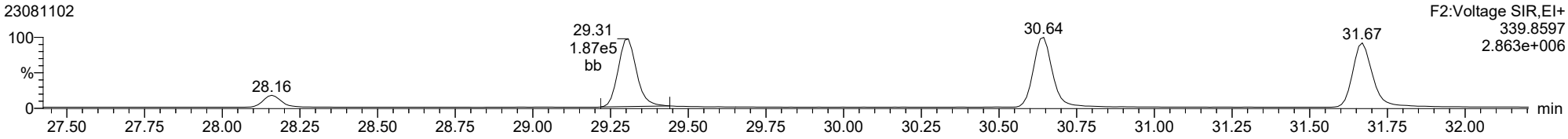


FUNCTION2 PFK

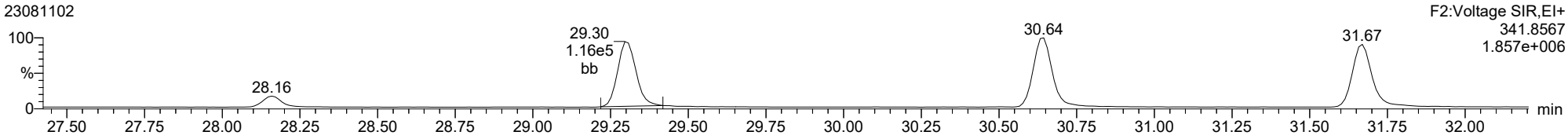


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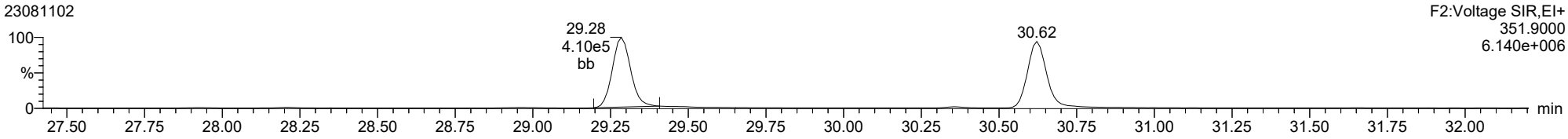
12378-PeCDF



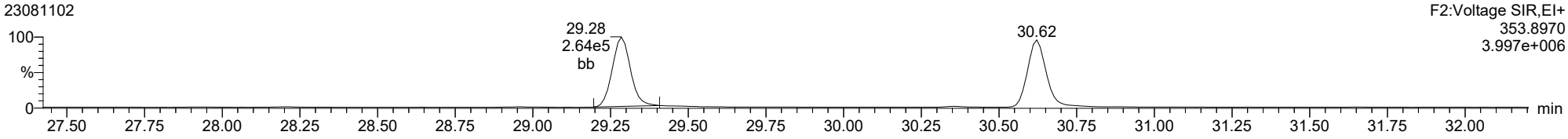
12378-PeCDF



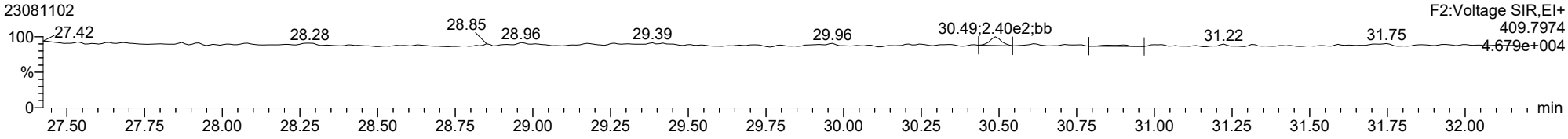
13C-12378-PeCDF



13C-12378-PeCDF

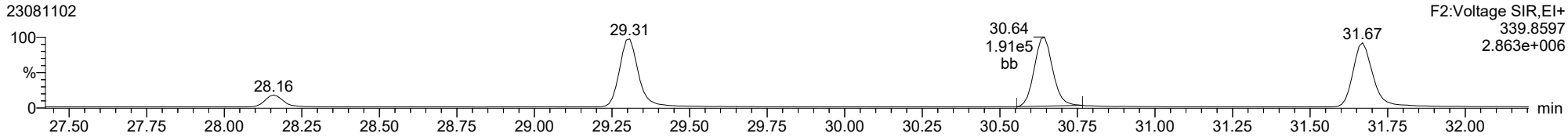


FUNCTION2 HPCDPE

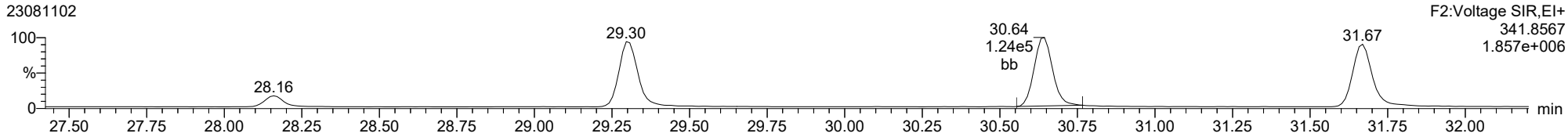


ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

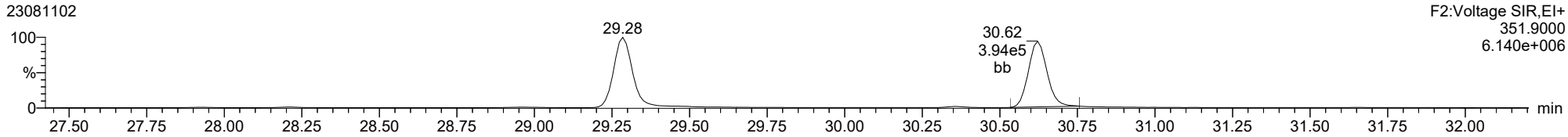
23478-PeCDF



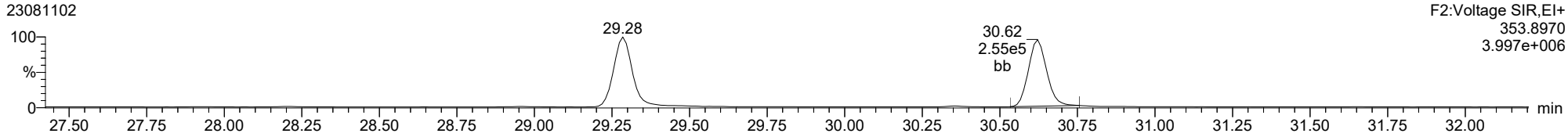
23478-PeCDF



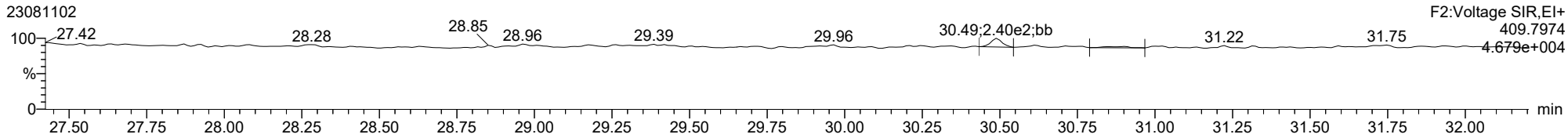
13C-23478-PeCDF



13C-23478-PeCDF

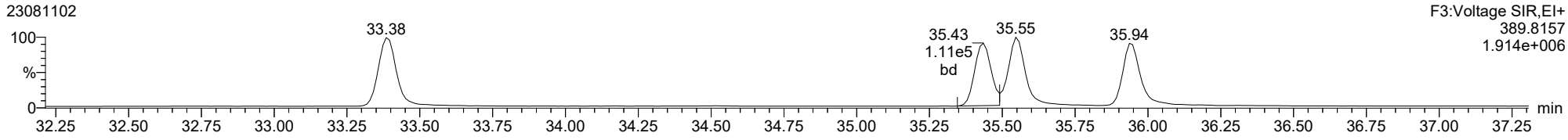


FUNCTION2 HPCDPE

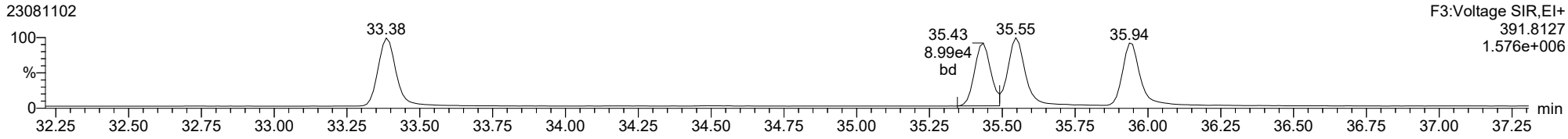


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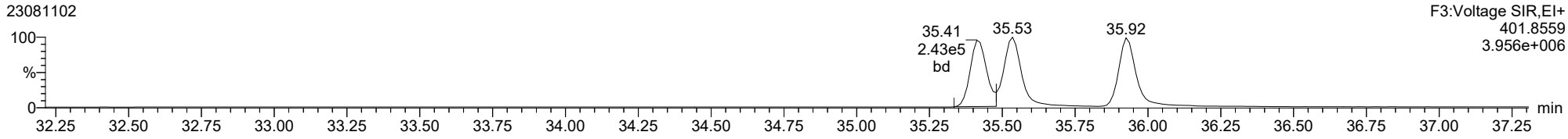
123478-HxCDD



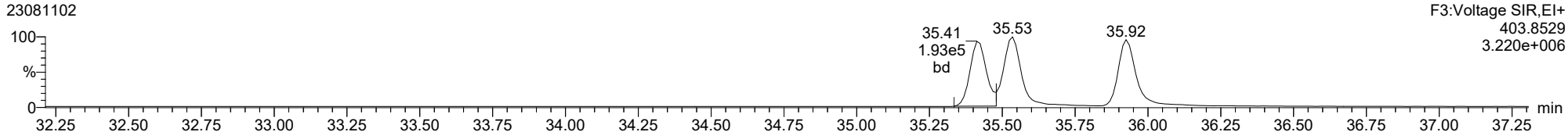
123478-HxCDD



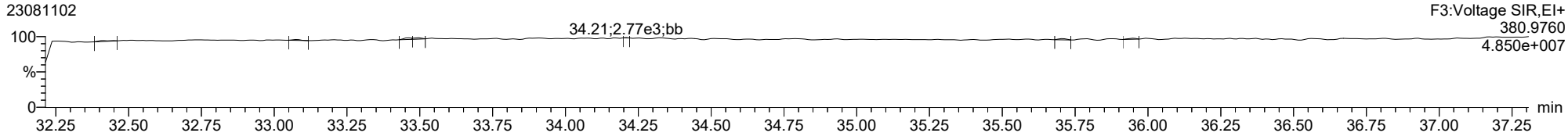
13C-123478-HxCDD



13C-123478-HxCDD

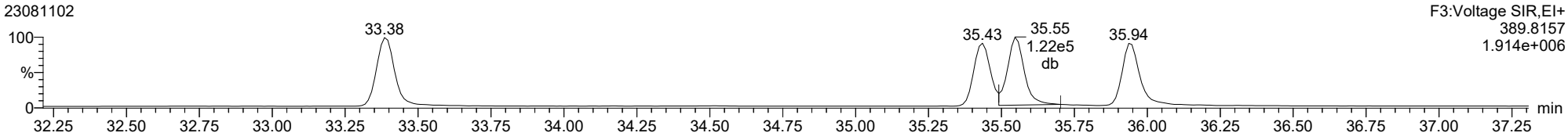


FUNCTION3 PFK

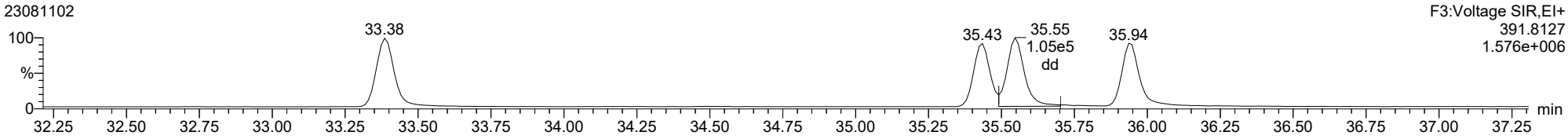


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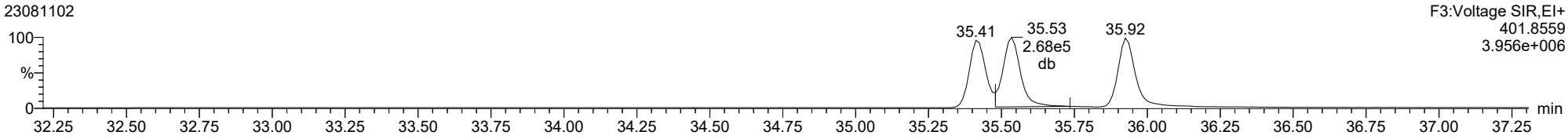
123678-HxCDD



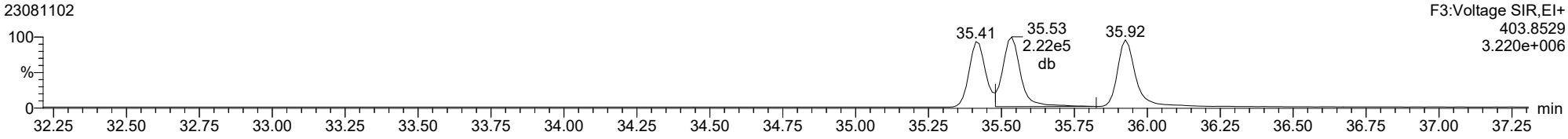
123678-HxCDD



13C-123678-HxCDD

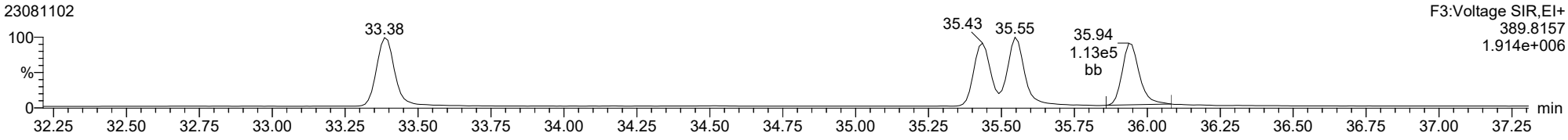


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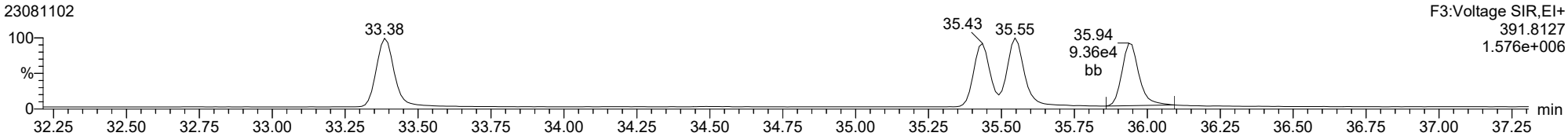


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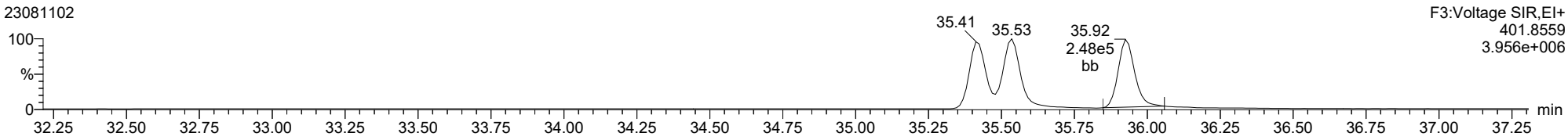
123789-HxCDD



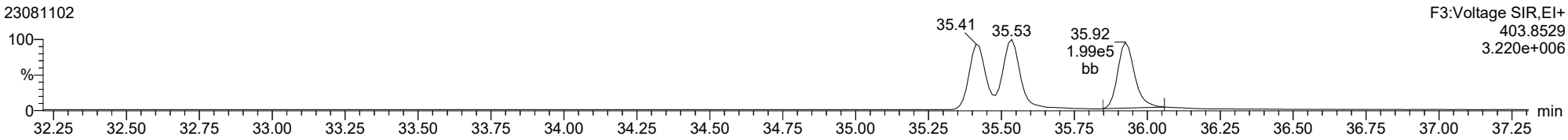
123789-HxCDD



13C-123789-HxCDD

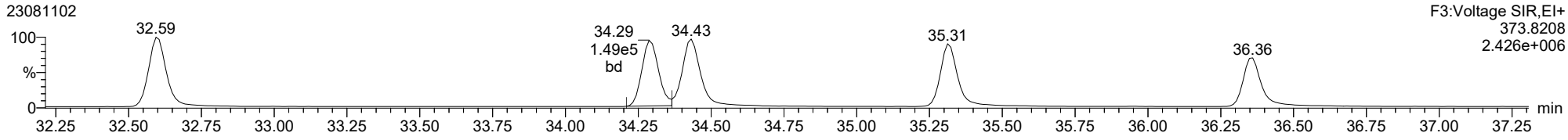


13C-123789-HxCDD

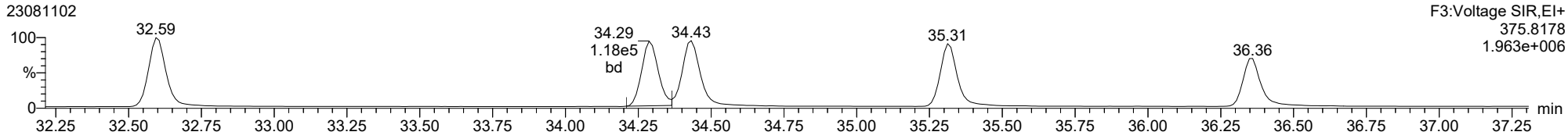


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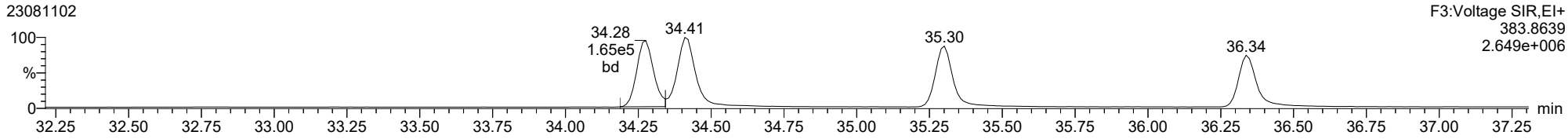
123478-HxCDF



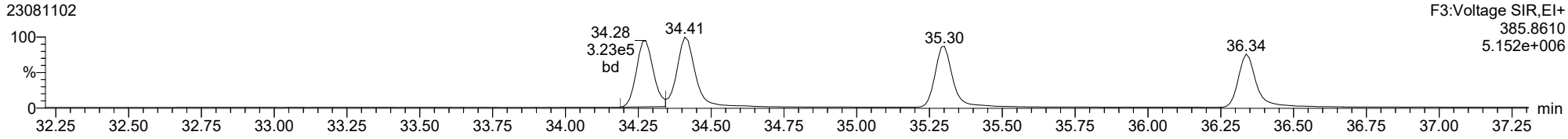
123478-HxCDF



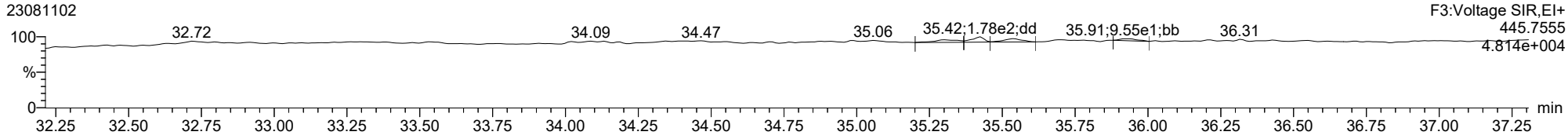
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13C-123478-HxCDF

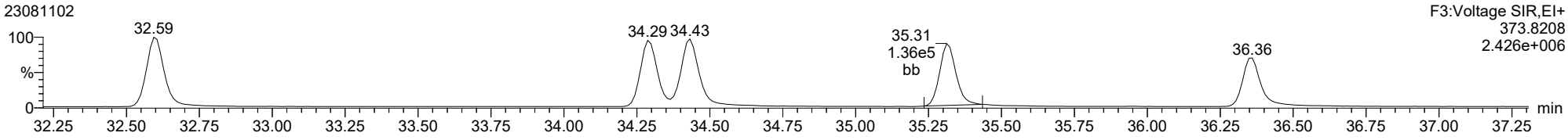


FUNCTION3 OCDPE

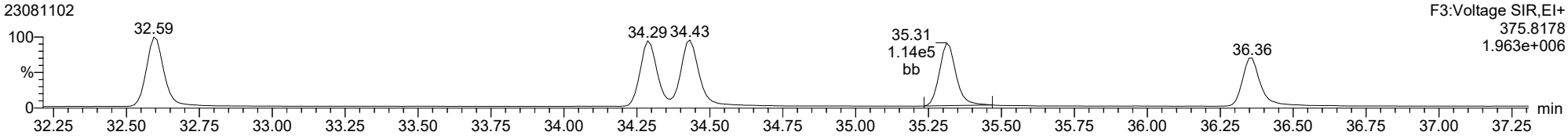


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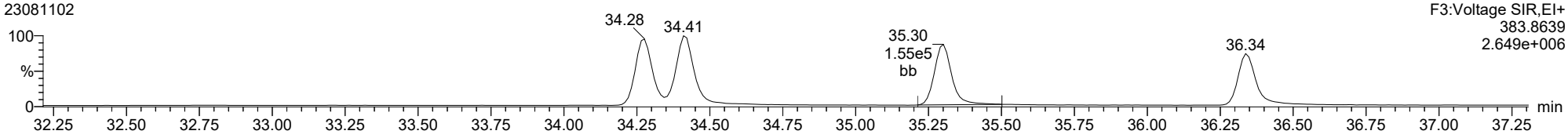
234678-HxCDF



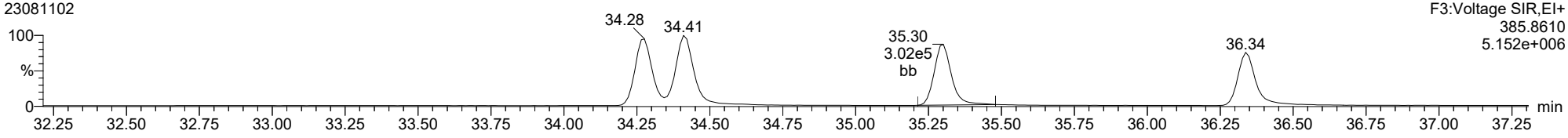
234678-HxCDF



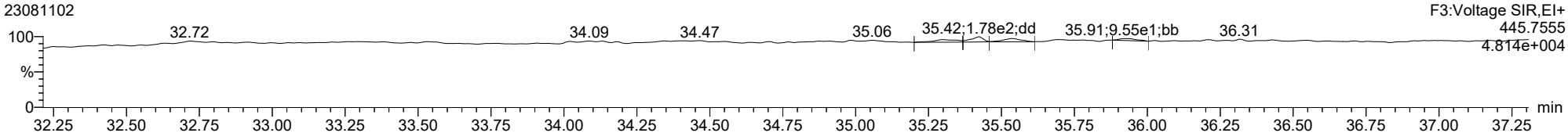
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13C-234678-HxCDF

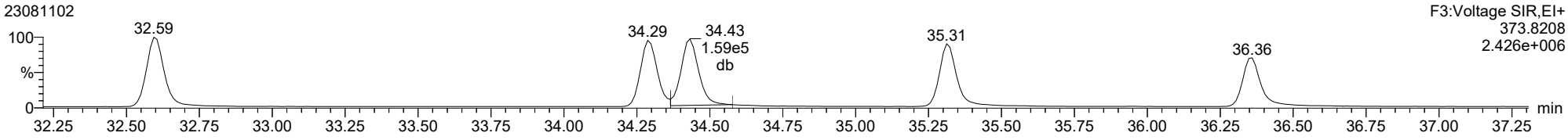


FUNCTION3 OCDPE

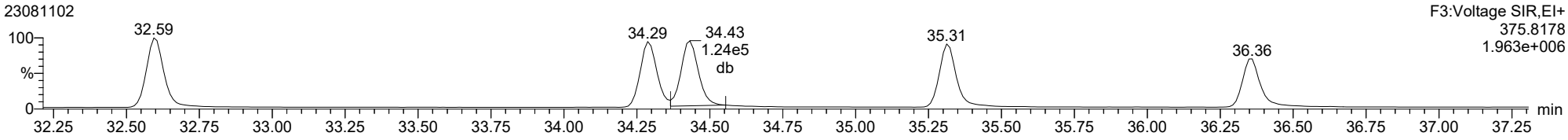


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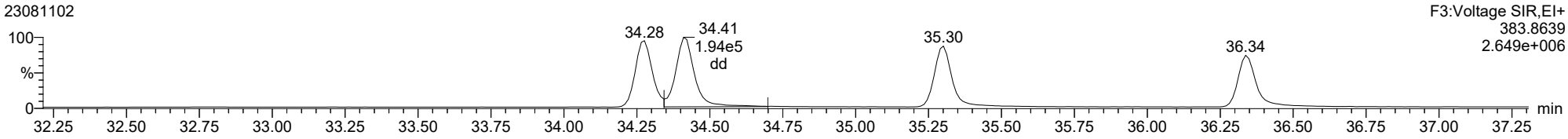
123678-HxCDF



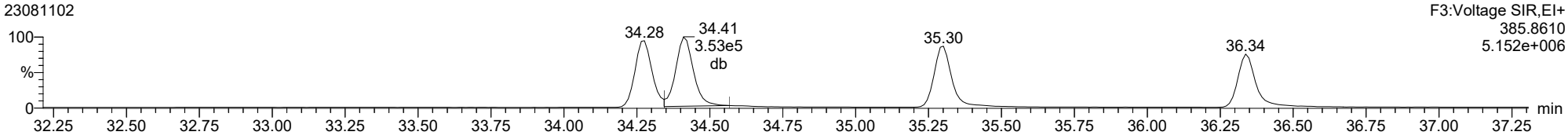
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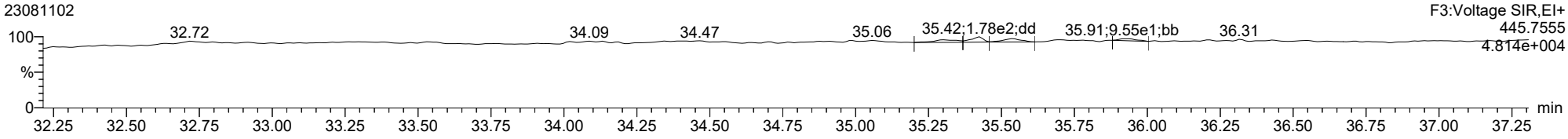
13C-123678-HxCDF



13C-123678-HxCDF

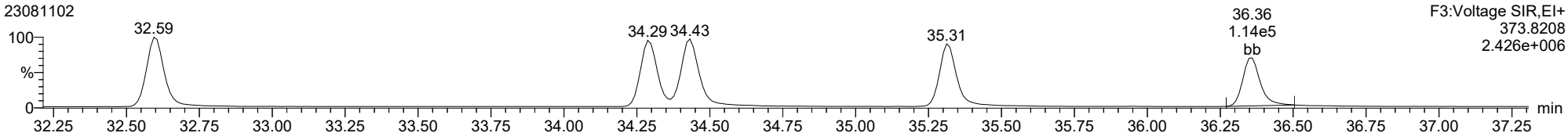


FUNCTION3 OCDPE

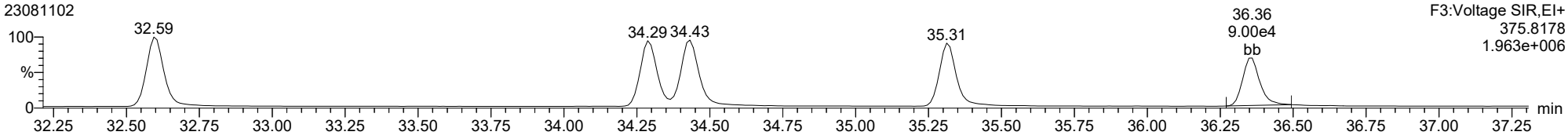


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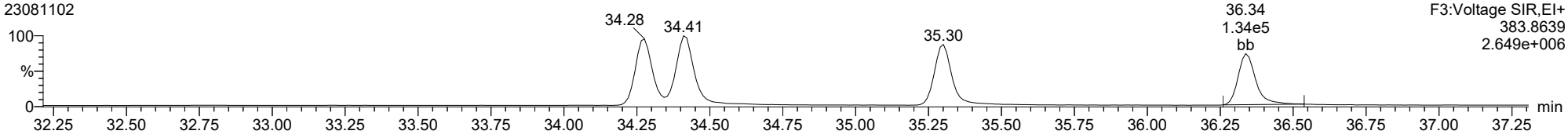
123789-HxCDF



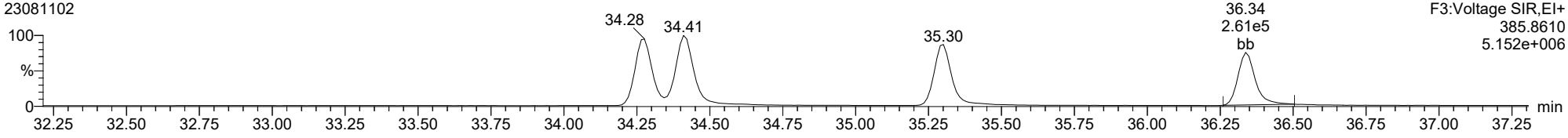
123789-HxCDF



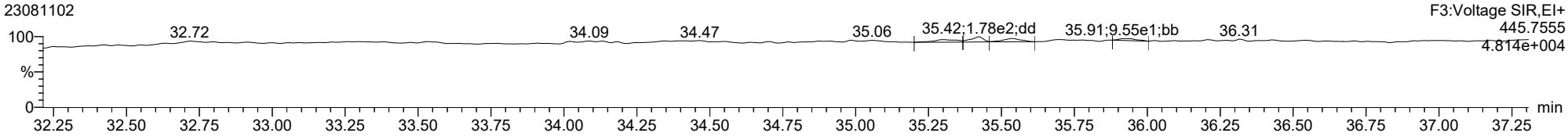
13C-123789-HxCDF



13C-123789-HxCDF

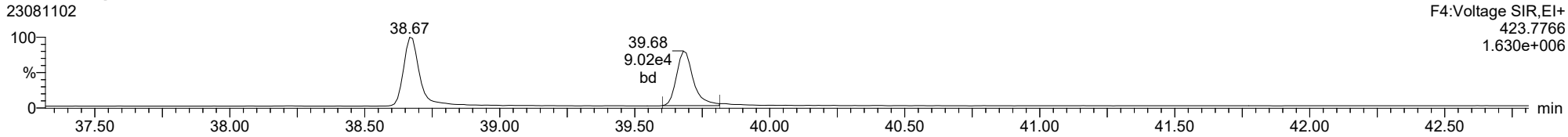


FUNCTION3 OCDPE

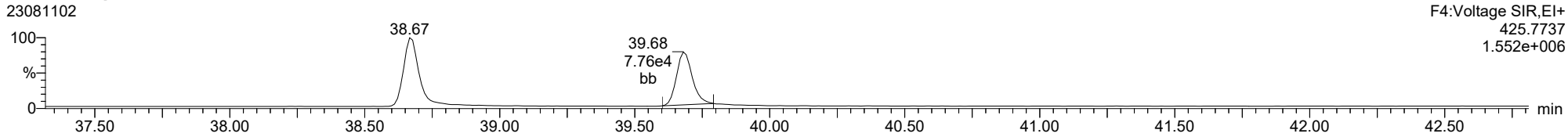


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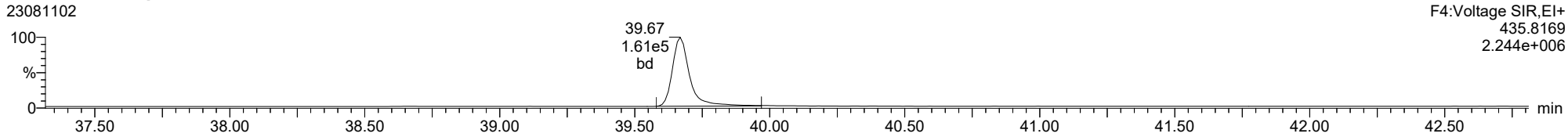
1234678-HpCDD



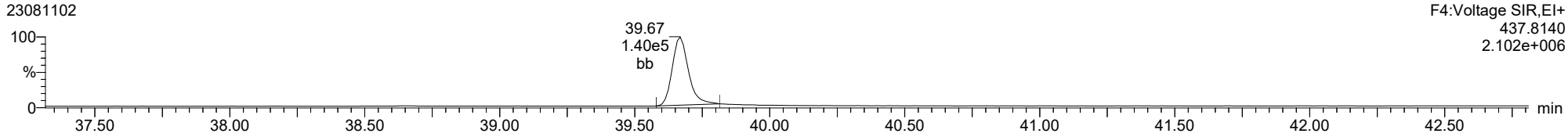
1234678-HpCDD



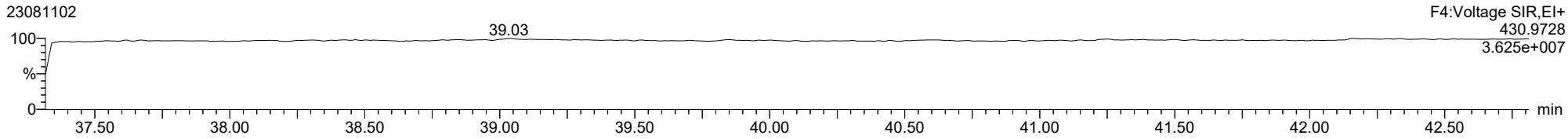
13C-1234678-HpCDD



13C-1234678-HpCDD

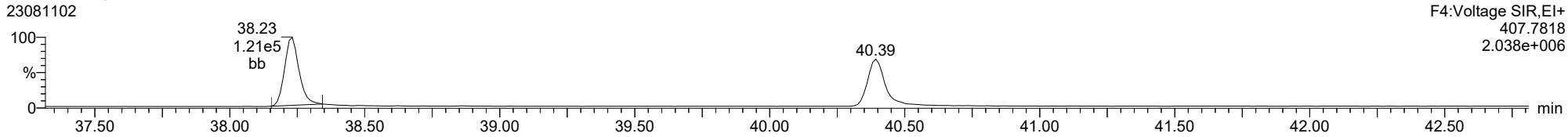


FUNCTION4 PFK

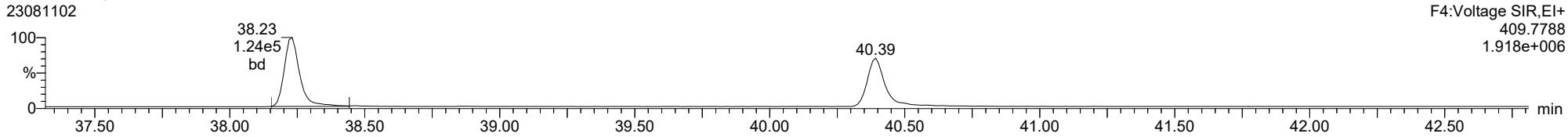


ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

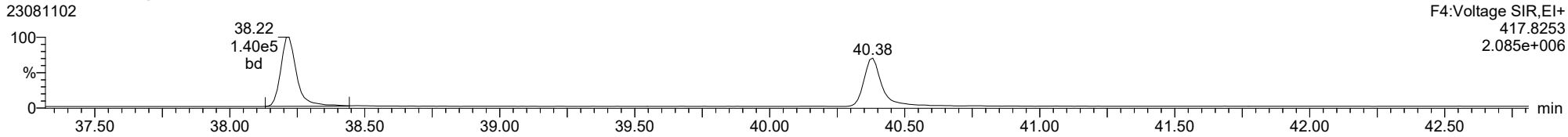
1234678-HpCDF



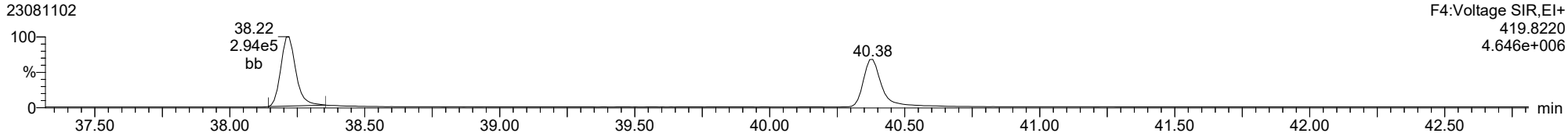
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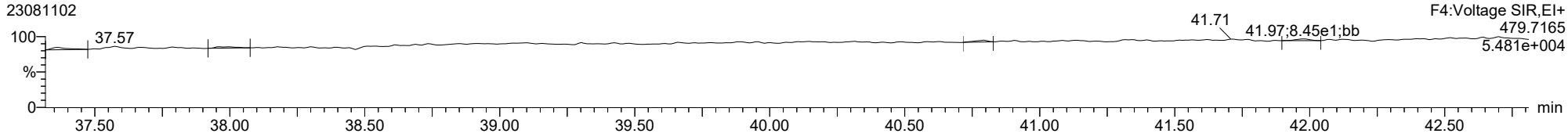
13C-1234678-HpCDF



13C-1234678-HpCDF

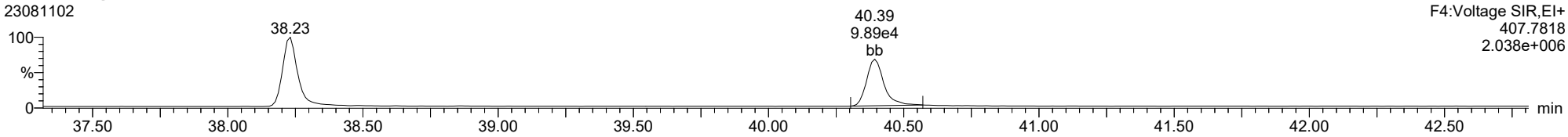


FUNCTION4 NCDPE

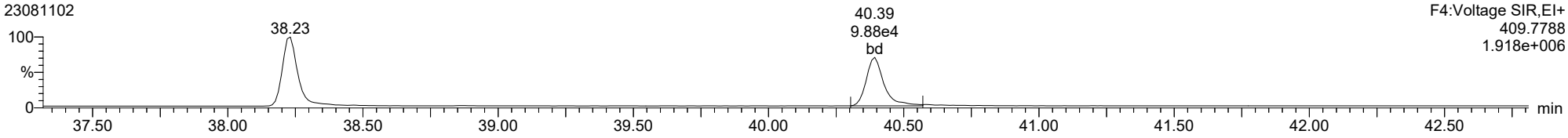


ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

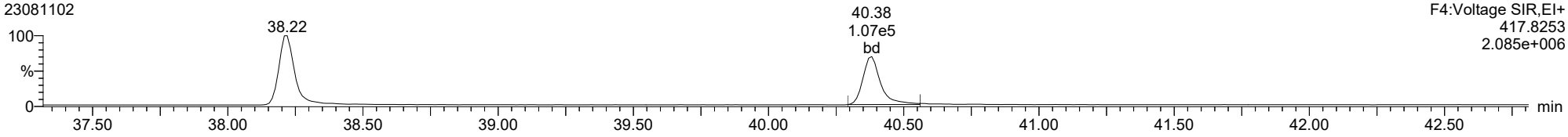
1234789-HpCDF



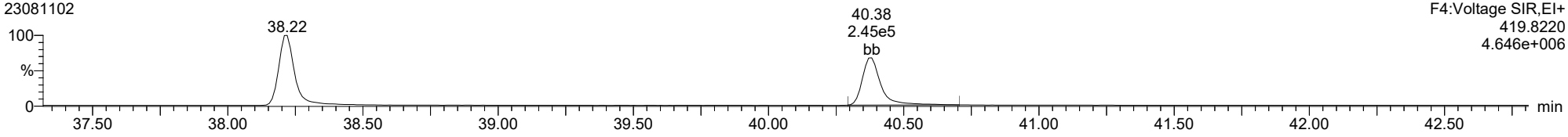
1234789-HpCDF



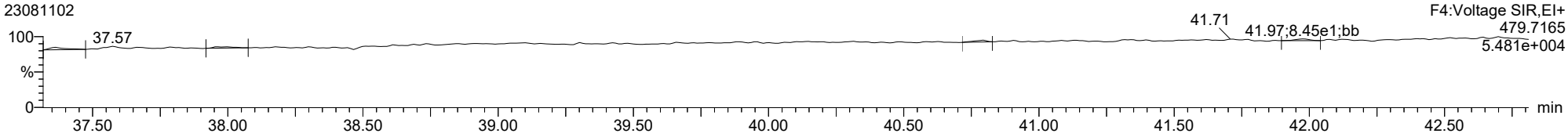
13C-1234789-HpCDF



13C-1234789-HpCDF

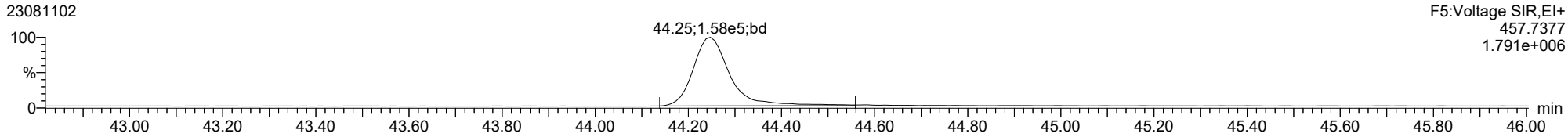


FUNCTION4 NCDPE

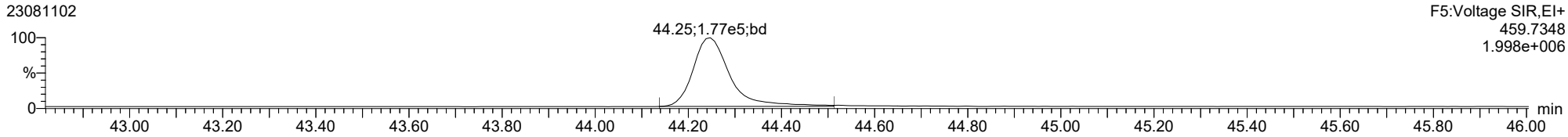


ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

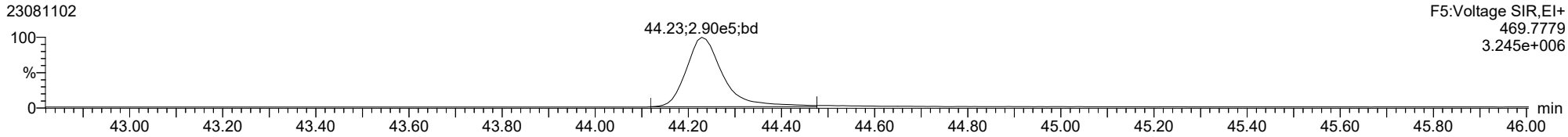
OCDD



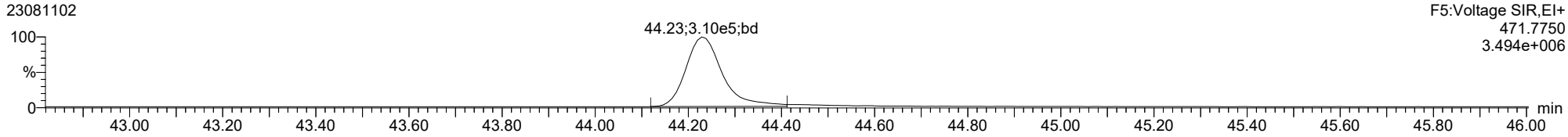
OCDD



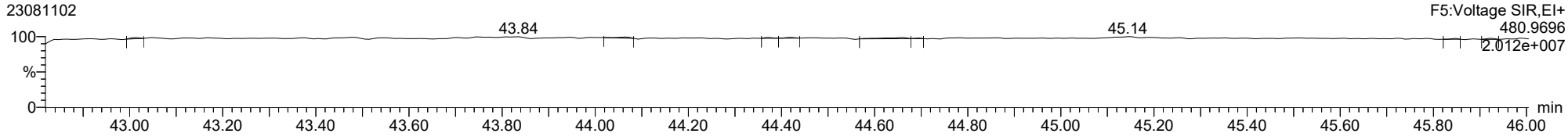
13C-OCDD



13C-OCDD

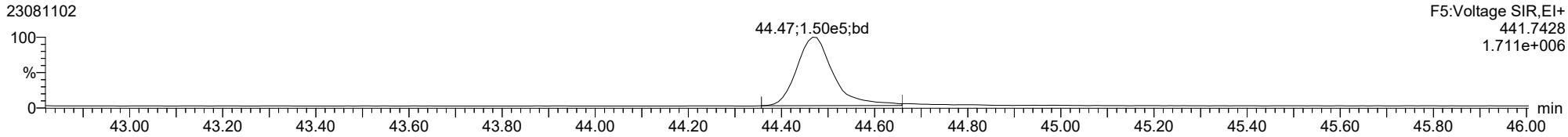


FUNCTION5 PFK

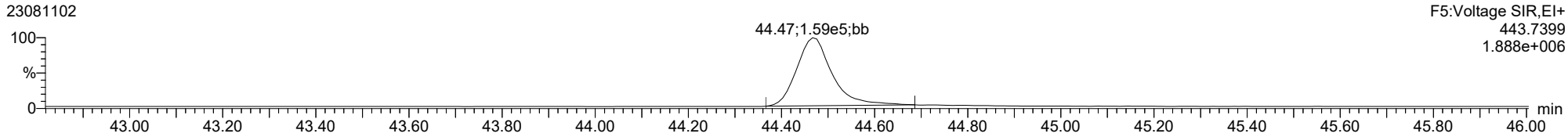


ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

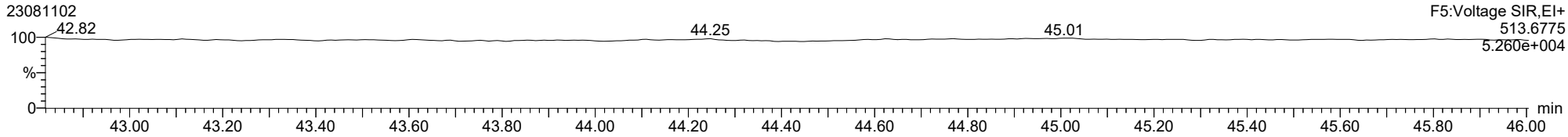
OCDF



OCDF

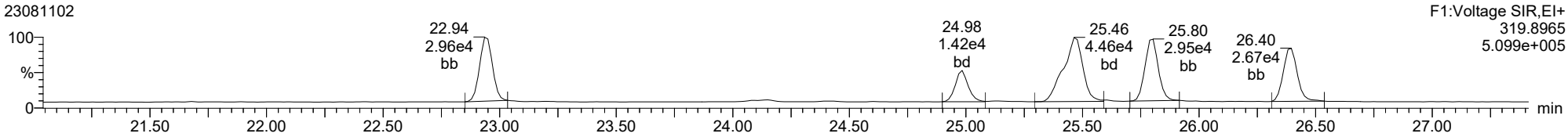


FUNCTION5 DCDPE

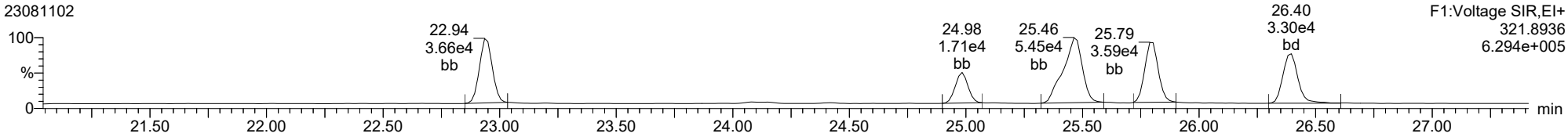


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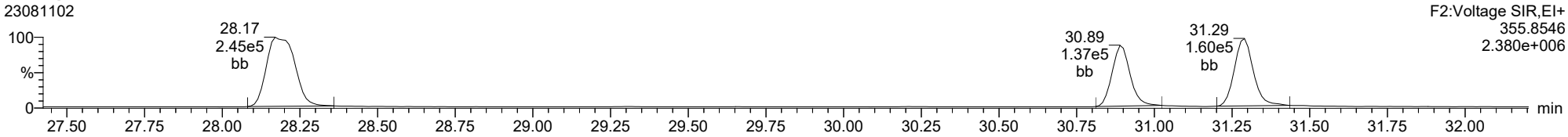
Total-tetradioxins



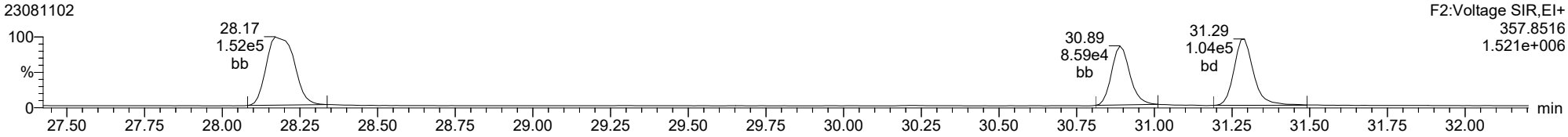
Total-tetradioxins



Total-pentadioxins

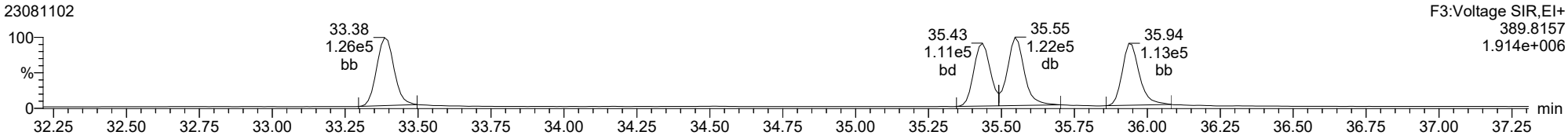


Total-pentadioxins

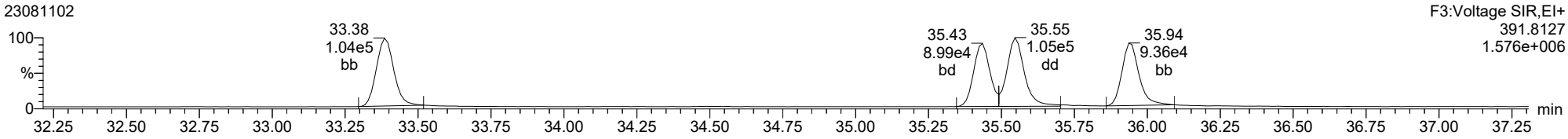


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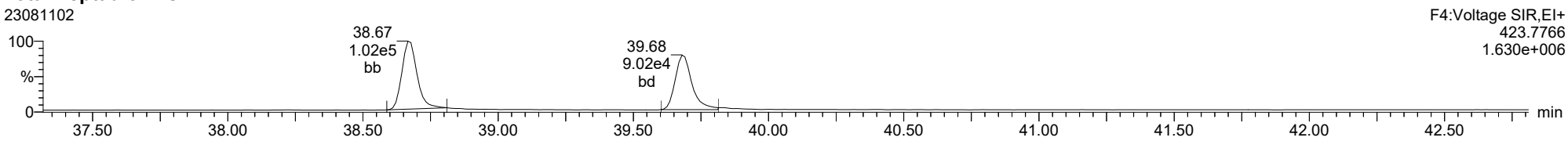
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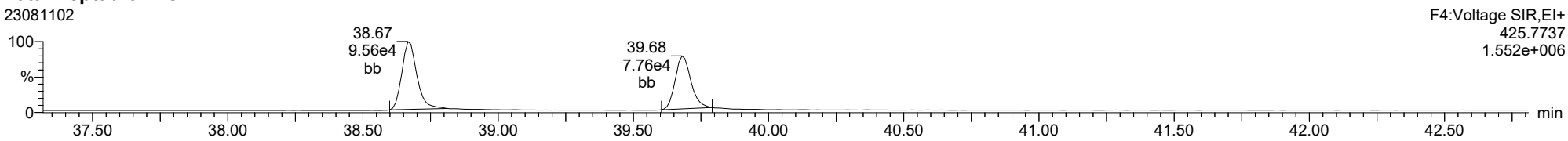
Total-hexadioxins



Total-heptadioxins



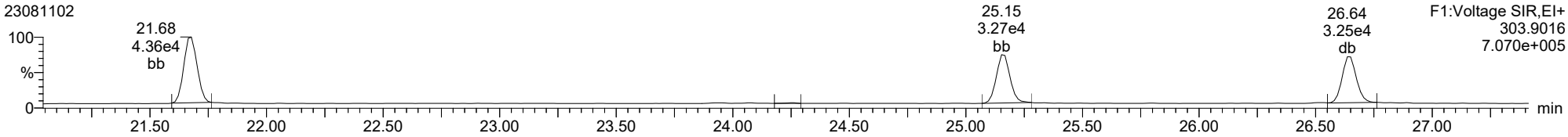
Total-heptadioxins



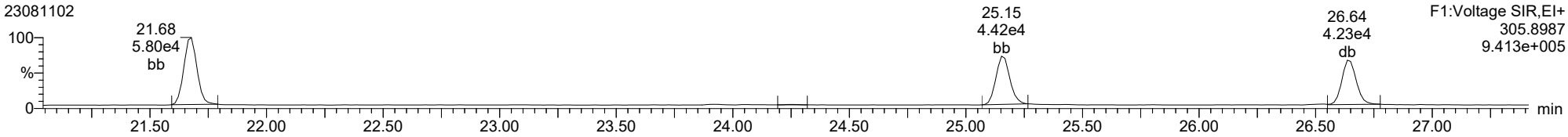
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Last Altered: Tuesday, August 15, 2023 12:21:02 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:22:06 Pacific Daylight Time

ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

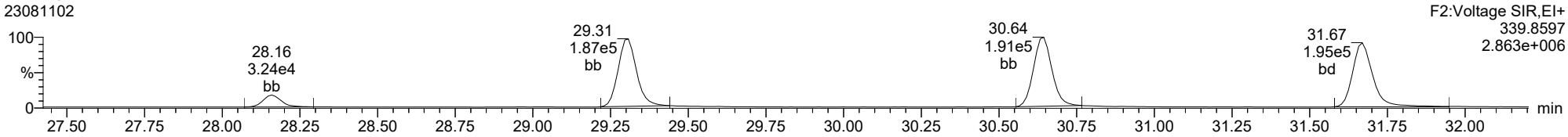
Total-tetrafurans



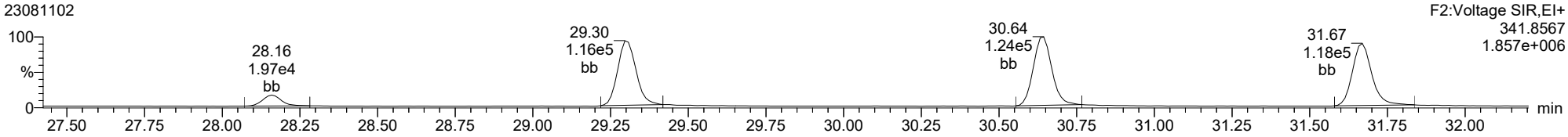
Total-tetrafurans



Total-pentafurans

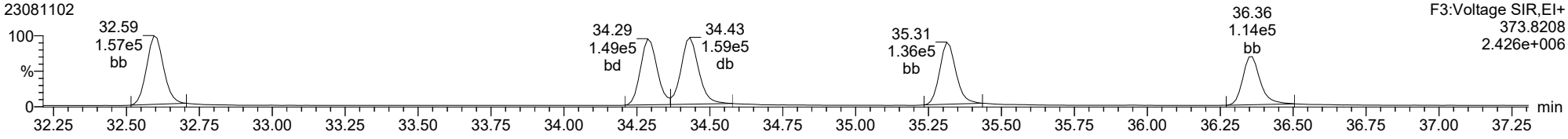


Total-pentafurans

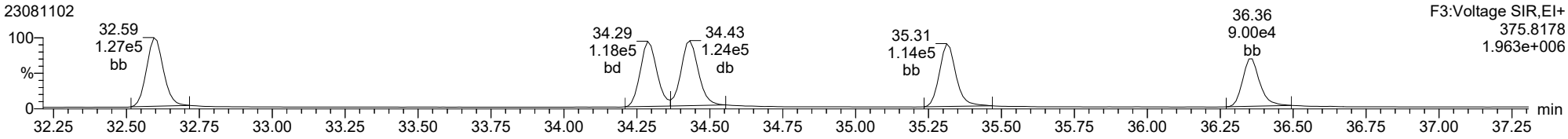


ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

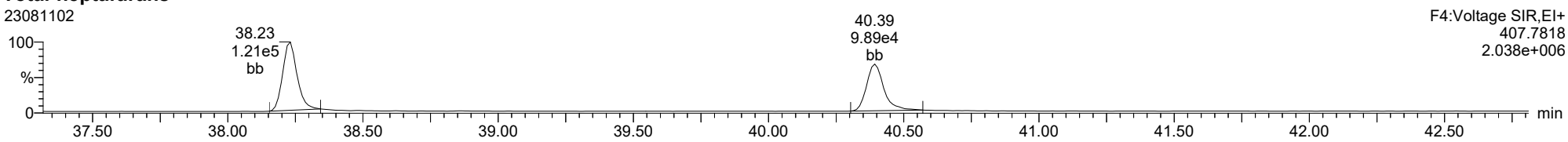
Total-hexafurans



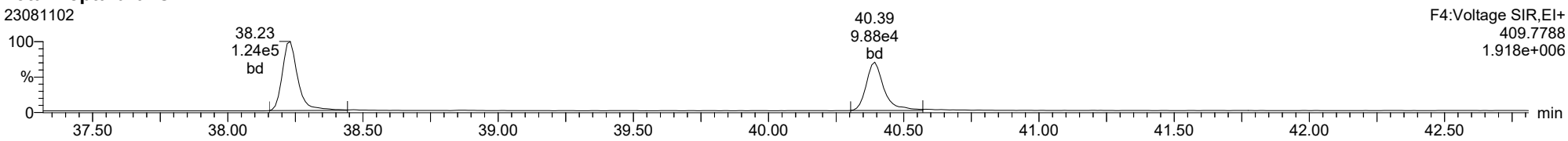
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:23:54 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF					0.903		0.770	620	1084								
12378-PeCDF	29.285	1.000	1.884e3	1.134e3	0.923	1.661	1.550	694	714	2.90e4	1.67e4	41.8	23.4	NO	bb	bb	0.490
23478-PeCDF	30.622	1.000	1.678e3	1.115e3	0.991	1.504	1.550	694	714	2.63e4	1.74e4	37.8	24.3	NO	bb	MM	0.459
123478-HxCDF	34.276	1.000	1.424e3	1.052e3	1.128	1.355	1.240	557	621	1.90e4	1.52e4	34.0	24.4	NO	bd	bd	0.519
234678-HxCDF	35.301	1.000	1.282e3	9.529e2	1.081	1.345	1.240	557	621	1.62e4	1.44e4	29.0	23.3	NO	bd	MM	0.484
123678-HxCDF	34.421	1.001	1.456e3	1.109e3	1.032	1.313	1.240	557	621	2.26e4	1.47e4	40.6	23.7	NO	MM	db	0.486
123789-HxCDF	36.337	1.000	9.213e2	8.373e2	0.988	1.100	1.240	557	621	1.31e4	1.08e4	23.4	17.4	NO	bd	MM	0.487
1234678-HpCDF	38.220	1.000	1.279e3	1.078e3	1.164	1.186	1.050	652	594	1.98e4	1.55e4	30.3	26.1	NO	bb	bb	0.526
1234789-HpCDF	40.382	1.000	7.409e2	6.652e2	1.104	1.114	1.050	652	594	1.15e4	1.20e4	17.6	20.2	NO	bb	bb	0.423
OCDF	44.458	1.005	1.244e3	1.412e3	1.130	0.881	0.890	747	1121	1.70e4	1.59e4	22.7	14.1	NO	bd	bb	0.851
2378-TCDD					1.243		0.770	1009	502								
12378-PeCDD	30.878	1.001	1.244e3	7.881e2	1.150	1.579	1.550	698	698	1.80e4	1.04e4	25.7	14.9	NO	MM	bb	0.492
123478-HxCDD	35.424	1.001	1.264e3	9.051e2	0.960	1.397	1.240	537	779	2.06e4	1.40e4	38.4	18.0	NO	dd	MM	0.597
123678-HxCDD	35.546	1.001	1.088e3	1.016e3	0.883	1.071	1.240	537	779	1.58e4	1.42e4	29.3	18.2	NO	db	db	0.485
123789-HxCDD	35.936	1.012	8.774e2	6.498e2	0.804	1.350	1.240	537	779	1.17e4	1.12e4	21.8	14.4	NO	bb	bb	0.437
1234678-HpCDD	39.657	1.000	1.060e3	9.203e2	1.200	1.152	1.050	800	828	1.59e4	1.09e4	19.9	13.1	NO	MM	bb	0.620
OCDD	44.238	1.000	1.480e3	1.611e3	1.059	0.919	0.890	745	807	1.88e4	1.99e4	25.2	24.6	NO	bb	MM	1.058
13C-2378-TCDF	25.125	1.007	3.809e5	4.791e5	1.835	0.795	0.770	1678	1670	5.47e6	6.97e6	3260.3	4171.6	NO	bb	bb	99.573
13C-12378-PeCDF	29.274	1.174	3.978e5	2.690e5	1.377	1.479	1.550	2452	1825	5.52e6	3.61e6	2253.4	1977.4	NO	bb	bd	102.939
13C-23478-PeCDF	30.611	1.227	3.737e5	2.411e5	1.301	1.550	1.550	2452	1825	5.25e6	3.34e6	2140.6	1832.6	NO	bb	bb	100.404
13C-123478-HxCDF	34.265	0.954	1.433e5	2.793e5	1.091	0.513	0.510	1837	2437	2.05e6	4.04e6	1114.0	1659.7	NO	bd	bd	93.276
13C-123678-HxCDF	34.398	0.958	1.744e5	3.373e5	1.340	0.517	0.510	1837	2437	2.22e6	4.36e6	1206.1	1788.4	NO	db	db	91.895
13C-234678-HxCDF	35.290	0.983	1.411e5	2.858e5	1.093	0.494	0.510	1837	2437	1.89e6	3.72e6	1026.7	1525.6	NO	bb	bb	93.953
13C-123789-HxCDF	36.326	1.012	1.194e5	2.460e5	0.952	0.486	0.510	1837	2437	1.61e6	3.15e6	878.8	1293.2	NO	bb	bd	92.425
13C-1234678-HpCDF	38.209	1.064	1.196e5	2.660e5	0.985	0.450	0.440	1900	2426	1.78e6	3.88e6	937.8	1599.4	NO	bb	bb	94.213
13C-1234789-HpCDF	40.370	1.124	9.081e4	2.101e5	0.756	0.432	0.440	1900	2426	1.18e6	2.64e6	620.8	1088.8	NO	bb	bb	95.819
13C-1234-TCDD	24.941	0.000	2.078e5	2.628e5	1.000	0.791	0.770	1573	1080	3.13e6	3.99e6	1989.5	3694.9	NO	bb	bb	100.000
13C-2378-TCDD	25.760	1.033	2.247e5	2.876e5	1.110	0.781	0.770	1573	1080	3.38e6	4.29e6	2151.4	3969.2	NO	bb	bb	98.128
13C-12378-PeCDD	30.855	1.237	2.225e5	1.369e5	0.754	1.625	1.550	1069	1005	3.13e6	1.95e6	2925.3	1945.2	NO	bb	bb	101.357
13C-123478-HxCDD	35.401	0.986	2.102e5	1.681e5	0.960	1.250	1.240	2398	2304	3.26e6	2.62e6	1360.6	1138.7	NO	bd	bd	94.853
13C-123678-HxCDD	35.524	0.989	2.731e5	2.188e5	1.159	1.248	1.240	2398	2304	3.39e6	2.76e6	1413.4	1196.6	NO	db	dd	102.128
13C-1234678-HpCDD	39.657	1.104	1.414e5	1.248e5	0.629	1.133	1.050	1206	1681	1.79e6	1.67e6	1480.9	994.5	NO	bd	bb	101.840
13C-OCDD	44.220	1.231	2.620e5	2.900e5	0.635	0.904	0.890	2308	3179	2.71e6	2.93e6	1172.9	920.5	NO	bd	bd	209.162
13C-123789-HxCDD	35.914	0.000	2.382e5	1.773e5	1.000	1.343	1.240	2398	2304	3.12e6	2.48e6	1302.6	1074.2	NO	bd	bb	100.000
37CL-2378-TCDD	25.774	1.033	5.623e2		1.157			715		6.32e3		8.8			bb		0.103

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:23:54 Pacific Daylight Time

ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.170		0.770	620	1084								
1289-TCDF					0.847		0.770	620	1084								
13468-PECDF					1.241		1.550	569	726								
12389-PECDF					0.880		1.550	694	714								
123468-HXCDF					1.206		1.240	557	621								
1368-TCDD					1.181		0.770	1009	502								
1289-TCDD					0.963		0.770	1009	502								
12479-PECDD					2.166		1.550	698	698								
12389-PECDD					1.326		1.550	698	698								
124679-HXCDD					1.127		1.240	537	779								
1234679-HPCDD					1.303		1.050	800	828								
Total-tetrafurans			0.000e0		0.973			620		0.00e0							
Total-penta1			0.000e0					569		0.00e0							
Total-pentafurans			3.561e3		0.931			694		5.53e4							0.949
Total-hexafurans			5.083e3		1.087			557		7.08e4							1.976
Total-heptafurans			2.020e3		1.134			652		3.12e4							0.949
Total-Furans			1.191e4		1.053			620		1.74e5							4.725
Total-tetradioxins			0.000e0		1.129			1009		0.00e0							
Total-pentadioxins			1.244e3		1.548			698		1.80e4							0.492
Total-hexadioxins			3.230e3		0.943			537		4.81e4							1.519
Total-heptadioxins			1.060e3		1.251			800		1.59e4							0.620
Total-Dioxins			7.014e3		1.182			1009		1.01e5							3.688
Total-TEQ			1.892e4					1009		2.75e5							8.413
FUNCTION1 PFK			6.705e5					413218		1.14e7							
FUNCTION2 PFK			7.487e5					282117		1.93e7							0.000
FUNCTION3 PFK			0.000e0					352784		0.00e0							
FUNCTION4 PFK			2.154e4					324184		7.26e5							
FUNCTION5 PFK			1.598e5					219229		6.10e6							
FUNCTION1 HXCD...			0.000e0					576		0.00e0							
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			2.109e2					630		4.06e3							0.000
FUNCTION3 OCDPE			2.113e2					513		2.77e3							0.000
FUNCTION4 NCDPE			0.000e0					613		0.00e0							
FUNCTION5 DCDPE			1.021e2					592		2.13e3							0.000

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.62	1.678e3	1.115e3	0.991	1.50	1.55	37.8	YES	NO	bb	MM	0.459
2	12378-PeCDF	29.28	1.884e3	1.134e3	0.923	1.66	1.55	41.8	YES	NO	bb	bb	0.490

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	234678-HxCDF	35.30	1.282e3	9.529e2	1.081	1.35	1.24	29.0	YES	NO	bd	MM	0.484
2	123678-HxCDF	34.42	1.456e3	1.109e3	1.032	1.31	1.24	40.6	YES	NO	MM	db	0.486
3	123478-HxCDF	34.28	1.424e3	1.052e3	1.128	1.35	1.24	34.0	YES	NO	bd	bd	0.519
4	123789-HxCDF	36.34	9.213e2	8.373e2	0.988	1.10	1.24	23.4	YES	NO	bd	MM	0.487

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.22	1.279e3	1.078e3	1.164	1.19	1.05	30.3	YES	NO	bb	bb	0.526
2	1234789-HpCDF	40.38	7.409e2	6.652e2	1.104	1.11	1.05	17.6	YES	NO	bb	bb	0.423

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	234678-HxCDF	35.30	1.282e3	9.529e2	1.081	1.35	1.24	29.0	YES	NO	bd	MM	0.484
2	123678-HxCDF	34.42	1.456e3	1.109e3	1.032	1.31	1.24	40.6	YES	NO	MM	db	0.486
3	123478-HxCDF	34.28	1.424e3	1.052e3	1.128	1.35	1.24	34.0	YES	NO	bd	bd	0.519
4	23478-PeCDF	30.62	1.678e3	1.115e3	0.991	1.50	1.55	37.8	YES	NO	bb	MM	0.459
5	12378-PeCDF	29.28	1.884e3	1.134e3	0.923	1.66	1.55	41.8	YES	NO	bb	bb	0.490
6	1234678-HpCDF	38.22	1.279e3	1.078e3	1.164	1.19	1.05	30.3	YES	NO	bb	bb	0.526
7	123789-HxCDF	36.34	9.213e2	8.373e2	0.988	1.10	1.24	23.4	YES	NO	bd	MM	0.487
8	OCDF	44.46	1.244e3	1.412e3	1.130	0.88	0.89	22.7	YES	NO	bd	bb	0.851
9	1234789-HpCDF	40.38	7.409e2	6.652e2	1.104	1.11	1.05	17.6	YES	NO	bb	bb	0.423

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.88	1.244e3	7.881e2	1.150	1.58	1.55	25.7	YES	NO	MM	bb	0.492

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.94	8.774e2	6.498e2	0.804	1.35	1.24	21.8	YES	NO	bb	bb	0.437
2	123678-HxCDD	35.55	1.088e3	1.016e3	0.883	1.07	1.24	29.3	YES	NO	db	db	0.485
3	123478-HxCDD	35.42	1.264e3	9.051e2	0.960	1.40	1.24	38.4	YES	NO	dd	MM	0.597

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.66	1.060e3	9.203e2	1.200	1.15	1.05	19.9	YES	NO	MM	bb	0.620

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.94	8.774e2	6.498e2	0.804	1.35	1.24	21.8	YES	NO	bb	bb	0.437
2	123678-HxCDD	35.55	1.088e3	1.016e3	0.883	1.07	1.24	29.3	YES	NO	db	db	0.485
3	123478-HxCDD	35.42	1.264e3	9.051e2	0.960	1.40	1.24	38.4	YES	NO	dd	MM	0.597
4	12378-PeCDD	30.88	1.244e3	7.881e2	1.150	1.58	1.55	25.7	YES	NO	MM	bb	0.492
5	OCDD	44.24	1.480e3	1.611e3	1.059	0.92	0.89	25.2	YES	NO	bb	MM	1.058
6	1234678-HpCDD	39.66	1.060e3	9.203e2	1.200	1.15	1.05	19.9	YES	NO	MM	bb	0.620

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	234678-HxCDF	35.30	1.282e3	9.529e2	1.081	1.35	1.24	29.0	YES	NO	bd	MM	0.484
2	123678-HxCDF	34.42	1.456e3	1.109e3	1.032	1.31	1.24	40.6	YES	NO	MM	db	0.486
3	123478-HxCDF	34.28	1.424e3	1.052e3	1.128	1.35	1.24	34.0	YES	NO	bd	bd	0.519
4	23478-PeCDF	30.62	1.678e3	1.115e3	0.991	1.50	1.55	37.8	YES	NO	bb	MM	0.459
5	12378-PeCDF	29.28	1.884e3	1.134e3	0.923	1.66	1.55	41.8	YES	NO	bb	bb	0.490
6	1234678-HpCDF	38.22	1.279e3	1.078e3	1.164	1.19	1.05	30.3	YES	NO	bb	bb	0.526
7	123789-HxCDF	36.34	9.213e2	8.373e2	0.988	1.10	1.24	23.4	YES	NO	bd	MM	0.487
8	OCDF	44.46	1.244e3	1.412e3	1.130	0.88	0.89	22.7	YES	NO	bd	bb	0.851
9	1234789-HpCDF	40.38	7.409e2	6.652e2	1.104	1.11	1.05	17.6	YES	NO	bb	bb	0.423
10	123789-HxCDD	35.94	8.774e2	6.498e2	0.804	1.35	1.24	21.8	YES	NO	bb	bb	0.437
11	123678-HxCDD	35.55	1.088e3	1.016e3	0.883	1.07	1.24	29.3	YES	NO	db	db	0.485
12	123478-HxCDD	35.42	1.264e3	9.051e2	0.960	1.40	1.24	38.4	YES	NO	dd	MM	0.597
13	12378-PeCDD	30.88	1.244e3	7.881e2	1.150	1.58	1.55	25.7	YES	NO	MM	bb	0.492
14	OCDD	44.24	1.480e3	1.611e3	1.059	0.92	0.89	25.2	YES	NO	bb	MM	1.058
15	1234678-HpCDD	39.66	1.060e3	9.203e2	1.200	1.15	1.05	19.9	YES	NO	MM	bb	0.620

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	27.33	7.051e4					2.0	NO		bb		
2	FUNCTION1 PFK	26.51	8.607e4					2.9	NO		bb		
3	FUNCTION1 PFK	25.58	7.848e4					2.2	NO		bb		
4	FUNCTION1 PFK	24.45	7.780e4					3.9	YES		bb		
5	FUNCTION1 PFK	23.99	3.124e4					1.6	NO		bb		
6	FUNCTION1 PFK	23.18	5.543e4					2.6	NO		bb		
7	FUNCTION1 PFK	23.02	5.454e4					2.2	NO		bb		
8	FUNCTION1 PFK	22.86	2.387e4					1.6	NO		bb		
9	FUNCTION1 PFK	21.38	1.061e5					2.6	NO		db		
10	FUNCTION1 PFK	21.32	3.918e4					2.4	NO		bd		
11	FUNCTION1 PFK	21.16	2.365e4					2.1	NO		db		
12	FUNCTION1 PFK	21.13	2.362e4					1.6	NO		bd		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.45	1.899e4					1.2	NO		bb		0.000
2	FUNCTION2 PFK	29.21	6.358e4					1.7	NO		bb		0.000
3	FUNCTION2 PFK	29.04	1.204e4					1.0	NO		bb		0.000
4	FUNCTION2 PFK	28.79	1.769e4					1.9	NO		db		0.000
5	FUNCTION2 PFK	28.72	2.654e4					2.1	NO		bd		0.000
6	FUNCTION2 PFK	28.65	8.539e3					1.2	NO		db		0.000
7	FUNCTION2 PFK	28.60	8.457e3					1.1	NO		bd		0.000
8	FUNCTION2 PFK	28.44	1.958e3					0.4	NO		bb		0.000
9	FUNCTION2 PFK	28.39	3.544e3					0.8	NO		bb		0.000
10	FUNCTION2 PFK	27.98	4.790e3					0.8	NO		db		0.000
11	FUNCTION2 PFK	27.94	1.066e4					1.6	NO		dd		0.000
12	FUNCTION2 PFK	27.90	2.600e4					2.5	NO		bd		0.000
13	FUNCTION2 PFK	27.84	1.458e3					0.5	NO		bb		0.000
14	FUNCTION2 PFK	27.62	4.636e4					2.4	NO		bb		0.000
15	FUNCTION2 PFK	27.51	1.812e4					2.0	NO		db		0.000
16	FUNCTION2 PFK	27.47	2.559e4					2.6	NO		bd		0.000
17	FUNCTION2 PFK	30.73	5.726e4					2.3	NO		bb		0.000
18	FUNCTION2 PFK	30.57	3.668e3					0.8	NO		db		0.000
19	FUNCTION2 PFK	30.52	3.079e4					2.3	NO		bd		0.000
20	FUNCTION2 PFK	30.41	1.410e4					1.2	NO		bb		0.000
21	FUNCTION2 PFK	30.29	7.170e3					1.1	NO		bb		0.000
22	FUNCTION2 PFK	30.21	1.308e4					1.4	NO		bb		0.000
23	FUNCTION2 PFK	30.10	4.503e3					0.6	NO		db		0.000
24	FUNCTION2 PFK	30.05	1.008e4					1.5	NO		dd		0.000
25	FUNCTION2 PFK	30.02	1.789e4					1.8	NO		dd		0.000
26	FUNCTION2 PFK	29.98	1.502e4					1.7	NO		bd		0.000
27	FUNCTION2 PFK	29.89	2.330e4					2.5	NO		db		0.000
28	FUNCTION2 PFK	29.83	1.834e4					2.0	NO		dd		0.000
29	FUNCTION2 PFK	29.75	3.782e4					2.3	NO		dd		0.000
30	FUNCTION2 PFK	29.70	1.853e4					1.6	NO		bd		0.000
31	FUNCTION2 PFK	29.62	4.685e3					0.8	NO		bb		0.000
32	FUNCTION2 PFK	29.56	2.778e3					0.5	NO		bb		0.000
33	FUNCTION2 PFK	32.08	5.572e3					0.7	NO		bb		0.000
34	FUNCTION2 PFK	31.91	3.439e4					2.3	NO		bb		0.000
35	FUNCTION2 PFK	31.82	8.072e3					1.1	NO		db		0.000
36	FUNCTION2 PFK	31.78	9.469e3					1.1	NO		bd		0.000
37	FUNCTION2 PFK	31.58	4.107e3					0.8	NO		bb		0.000

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION2 PFK	31.54	1.047e4					1.2	NO		bb		0.000
39	FUNCTION2 PFK	31.46	7.901e3					1.1	NO		bb		0.000
40	FUNCTION2 PFK	31.40	1.825e3					0.6	NO		bb		0.000
41	FUNCTION2 PFK	31.29	1.391e4					1.5	NO		bb		0.000
42	FUNCTION2 PFK	31.22	4.769e3					0.6	NO		bb		0.000
43	FUNCTION2 PFK	31.18	3.877e3					0.8	NO		bb		0.000
44	FUNCTION2 PFK	31.11	1.368e4					1.6	NO		db		0.000
45	FUNCTION2 PFK	31.07	1.582e4					1.6	NO		dd		0.000
46	FUNCTION2 PFK	30.99	1.154e4					1.3	NO		bd		0.000
47	FUNCTION2 PFK	30.87	8.968e3					1.4	NO		db		0.000
48	FUNCTION2 PFK	30.86	9.432e3					1.2	NO		bd		0.000
49	FUNCTION2 PFK	32.15	1.152e4					1.3	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	41.41	2.154e4					2.2	NO		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.54	6.590e3					1.3	NO		bd		
2	FUNCTION5 PFK	44.35	1.591e4					2.0	NO		bb		
3	FUNCTION5 PFK	44.29	1.893e3					0.6	NO		bb		
4	FUNCTION5 PFK	43.92	8.732e3					1.8	NO		bb		
5	FUNCTION5 PFK	43.77	3.693e3					0.9	NO		bb		
6	FUNCTION5 PFK	43.49	1.170e4					1.9	NO		db		
7	FUNCTION5 PFK	43.44	3.839e3					1.0	NO		bd		
8	FUNCTION5 PFK	43.17	6.024e3					1.4	NO		bb		
9	FUNCTION5 PFK	43.00	4.281e3					0.8	NO		bb		
10	FUNCTION5 PFK	42.96	1.229e4					1.3	NO		db		
11	FUNCTION5 PFK	42.89	8.136e3					1.2	NO		bd		
12	FUNCTION5 PFK	45.63	1.111e4					1.4	NO		db		
13	FUNCTION5 PFK	45.57	1.193e4					1.9	NO		bd		
14	FUNCTION5 PFK	45.35	8.690e2					0.4	NO		bb		
15	FUNCTION5 PFK	45.30	8.430e3					1.4	NO		bb		
16	FUNCTION5 PFK	45.25	2.811e3					0.8	NO		bb		
17	FUNCTION5 PFK	45.18	3.339e3					1.0	NO		bb		
18	FUNCTION5 PFK	45.07	9.295e3					1.2	NO		bb		
19	FUNCTION5 PFK	45.01	7.058e3					1.3	NO		bb		
20	FUNCTION5 PFK	44.84	4.703e3					1.2	NO		bb		
21	FUNCTION5 PFK	44.78	1.010e4					1.3	NO		bb		
22	FUNCTION5 PFK	44.72	8.244e2					0.4	NO		bb		
23	FUNCTION5 PFK	44.59	6.289e3					1.4	NO		db		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.90	1.280e2					1.8	NO		bb		0.000
2	FUNCTION2 HPCD...	29.04	8.294e1					4.7	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	33.99	1.362e2					3.8	YES		bb		0.000
2	FUNCTION3 OCDPE	33.64	7.511e1					1.6	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

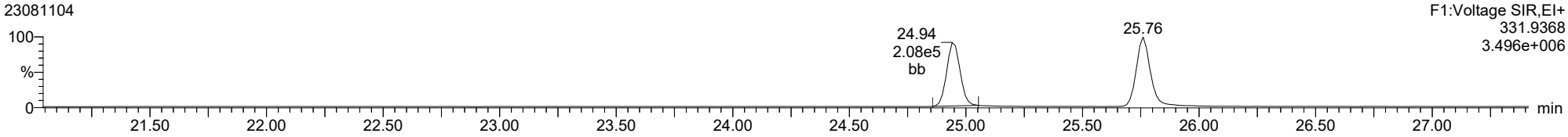
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.60	1.021e2					3.6	YES		bb		0.000

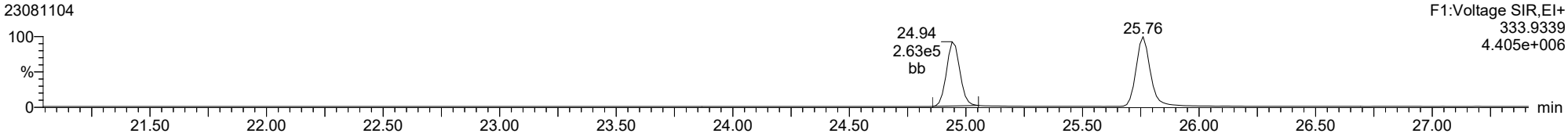
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Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

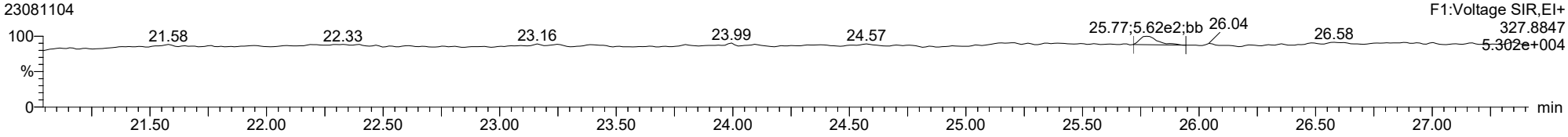
13C-1234-TCDD



13C-1234-TCDD

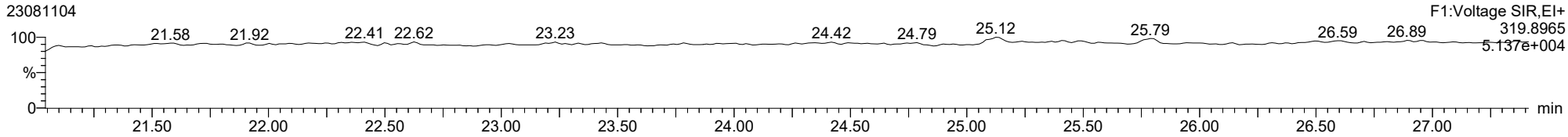


37CL-2378-TCDD

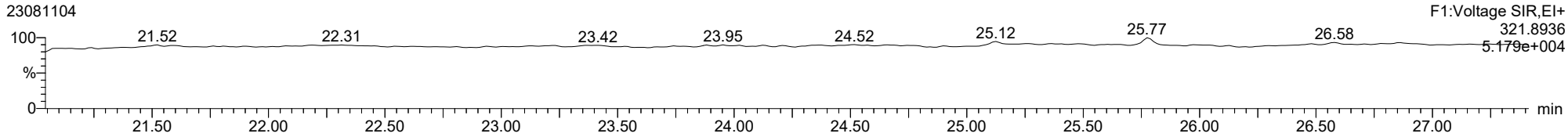


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

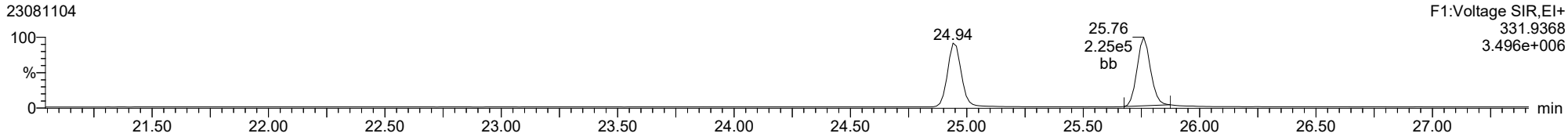
2378-TCDD



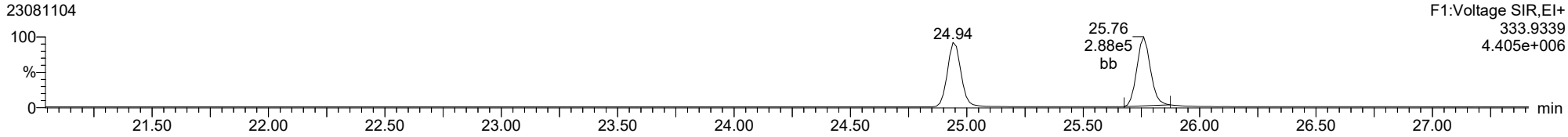
2378-TCDD



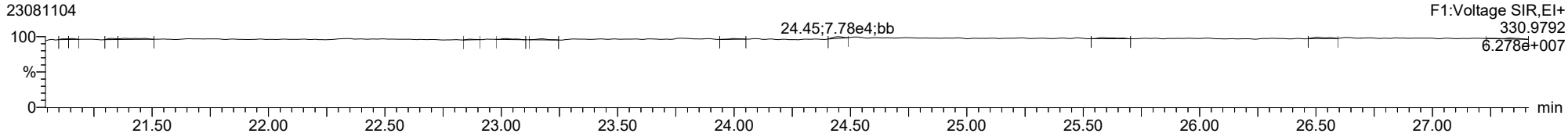
13C-2378-TCDD



13C-2378-TCDD

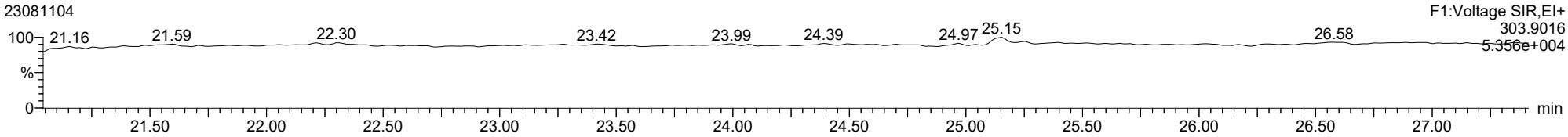


FUNCTION1 PFK

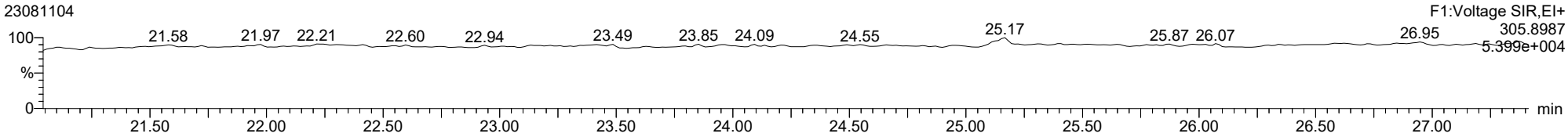


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

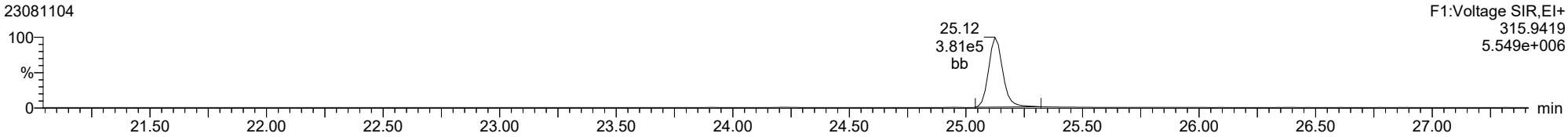
2378-TCDF



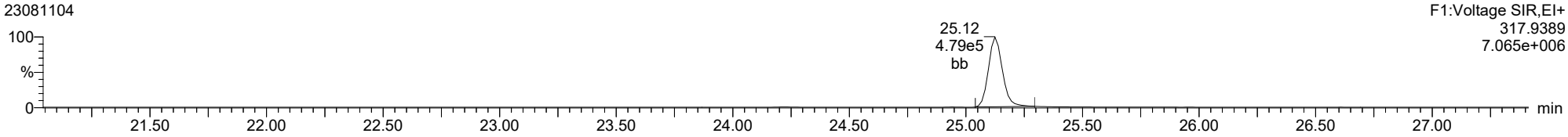
2378-TCDF



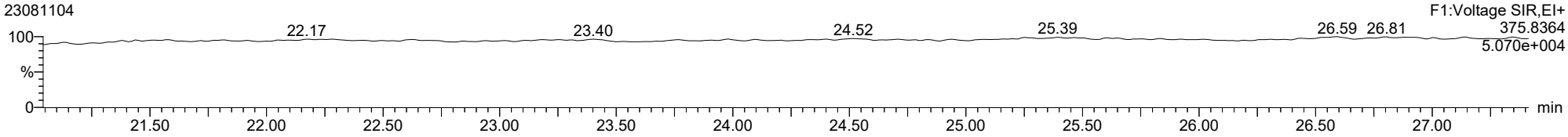
13C-2378-TCDF



13C-2378-TCDF

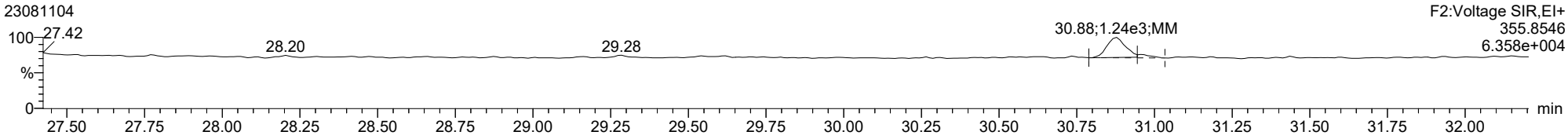


FUNCTION1 HXCDPE

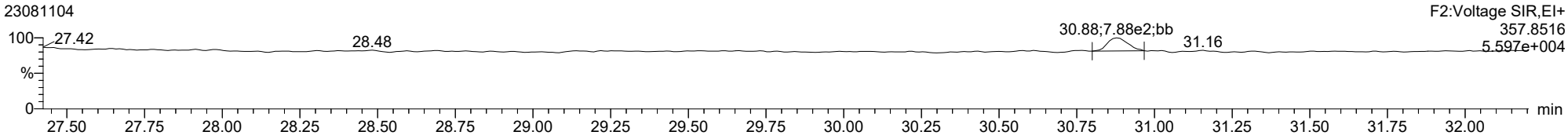


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

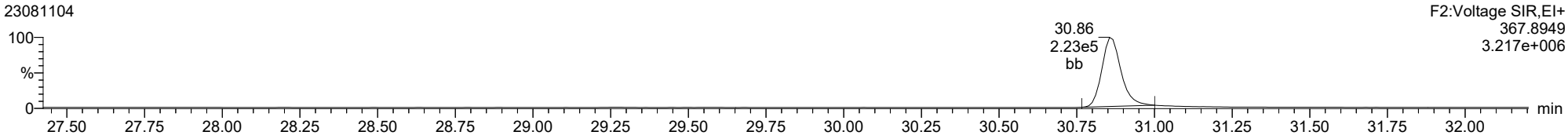
12378-PeCDD



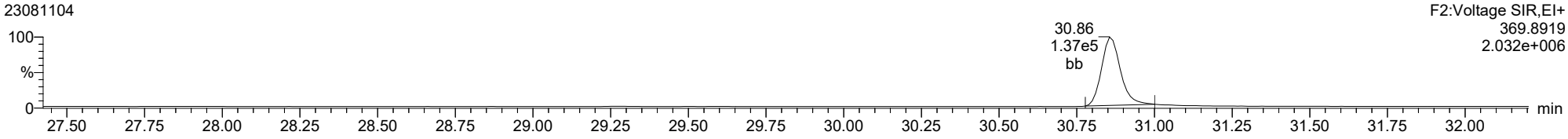
12378-PeCDD



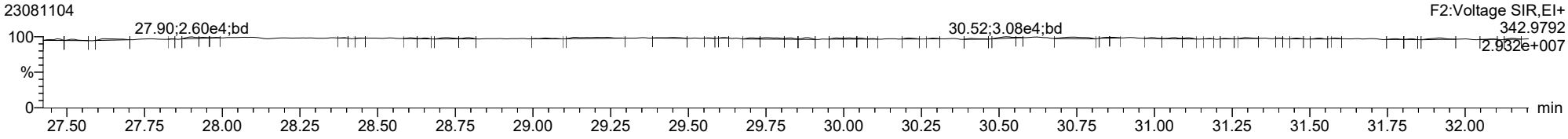
13C-12378-PeCDD



13C-12378-PeCDD

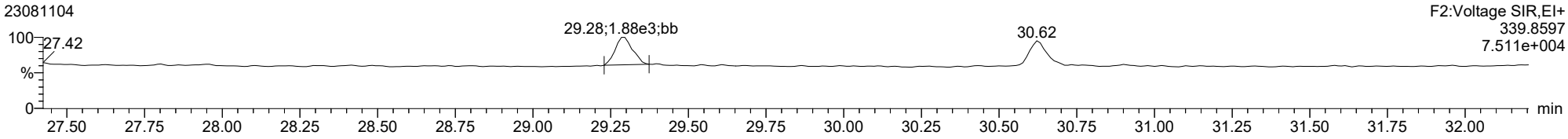


FUNCTION2 PFK

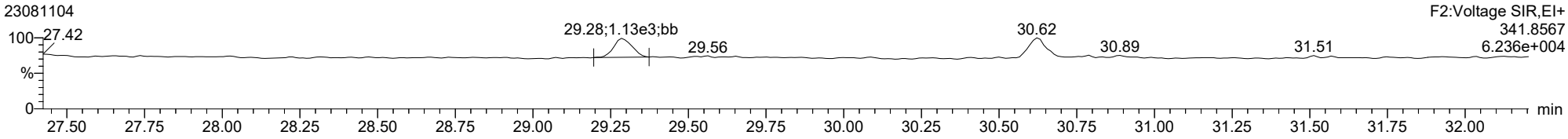


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

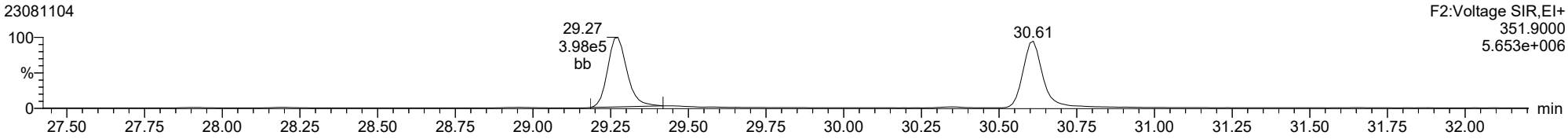
12378-PeCDF



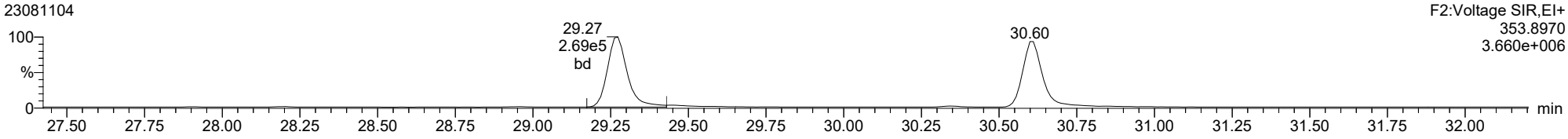
12378-PeCDF



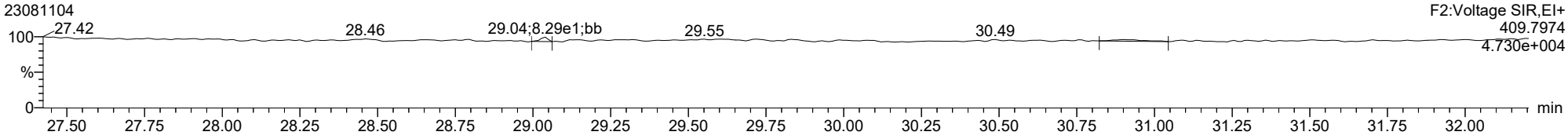
13C-12378-PeCDF



13C-12378-PeCDF

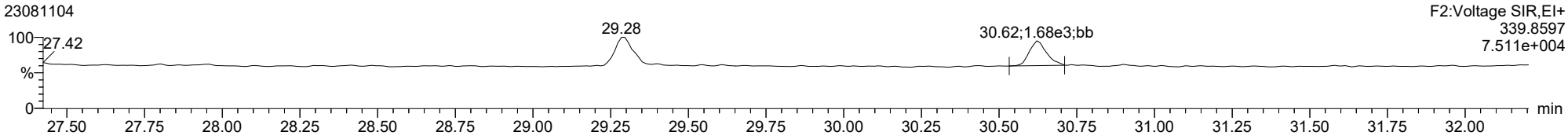


FUNCTION2 HPCDPE

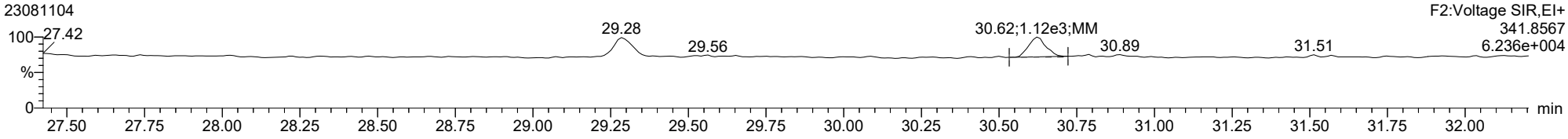


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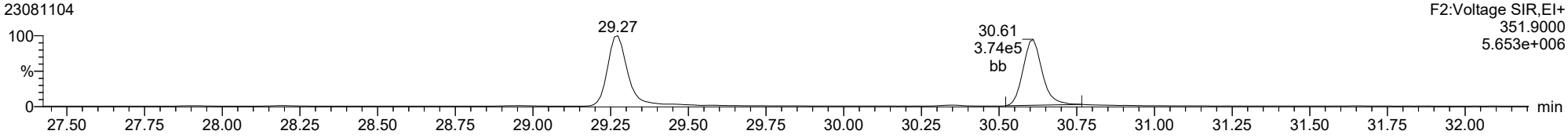
23478-PeCDF



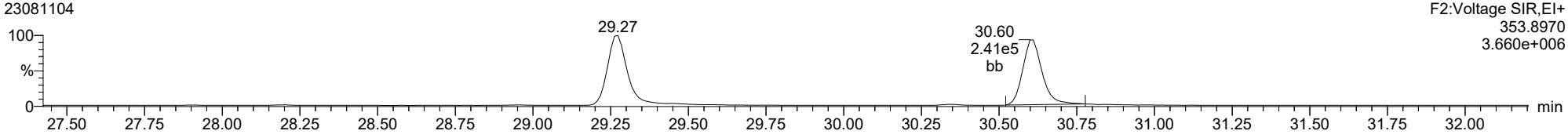
23478-PeCDF



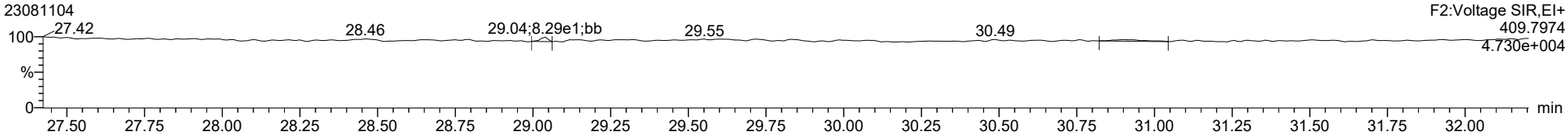
13C-23478-PeCDF



13C-23478-PeCDF



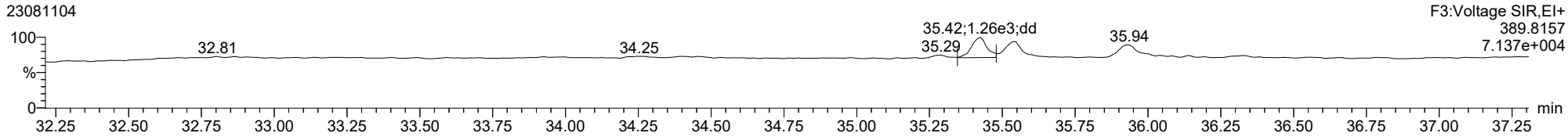
FUNCTION2 HPCDPE



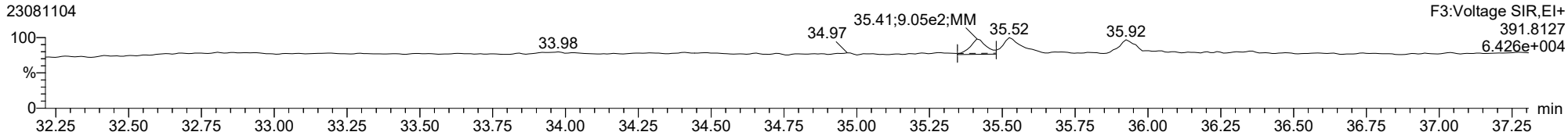
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Printed: Tuesday, August 15, 2023 12:23:54 Pacific Daylight Time

ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

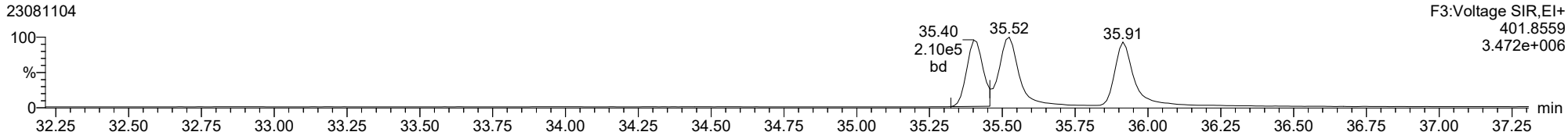
123478-HxCDD



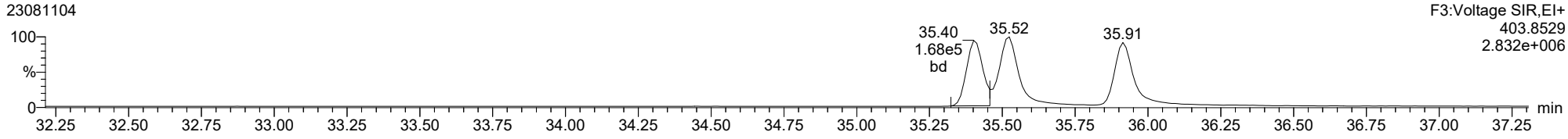
123478-HxCDD



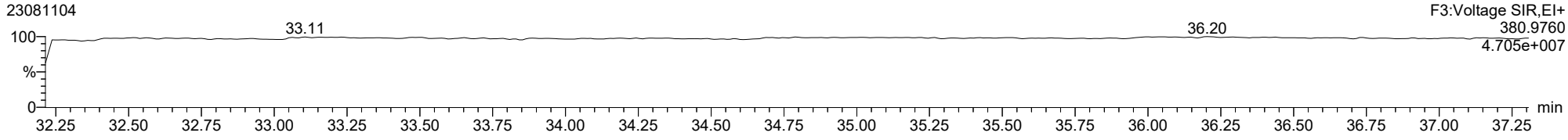
13C-123478-HxCDD



13C-123478-HxCDD



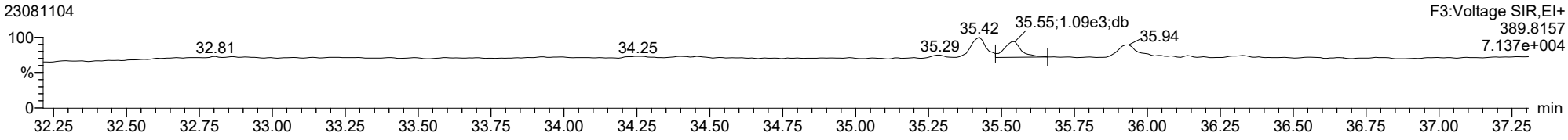
FUNCTION3 PFK



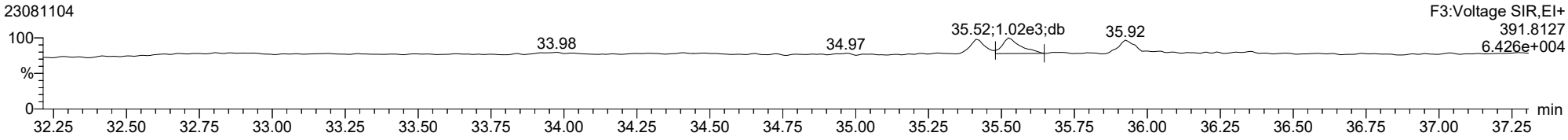
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ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

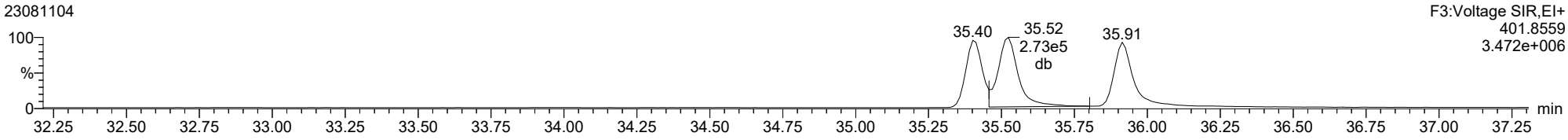
123678-HxCDD



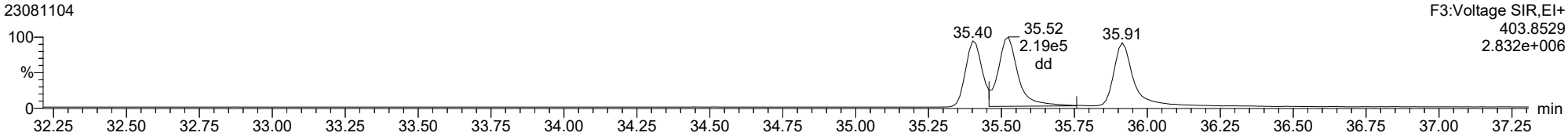
123678-HxCDD



13C-123678-HxCDD



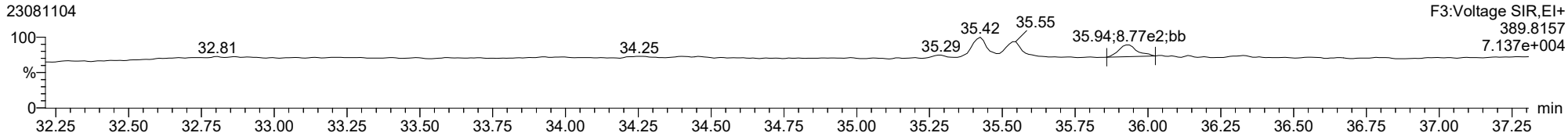
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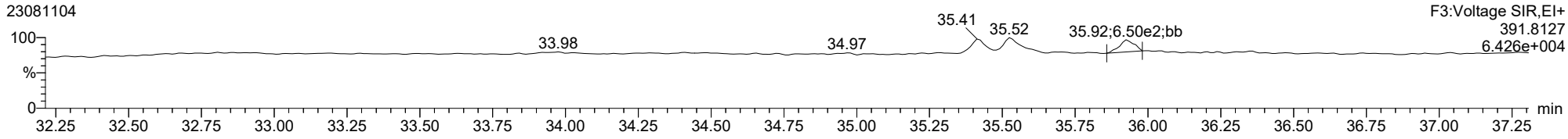
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Printed: Tuesday, August 15, 2023 12:23:54 Pacific Daylight Time

ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

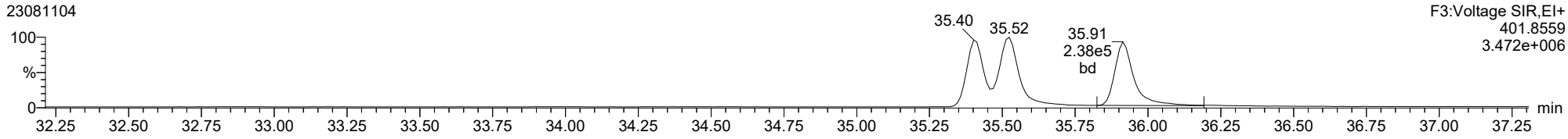
123789-HxCDD



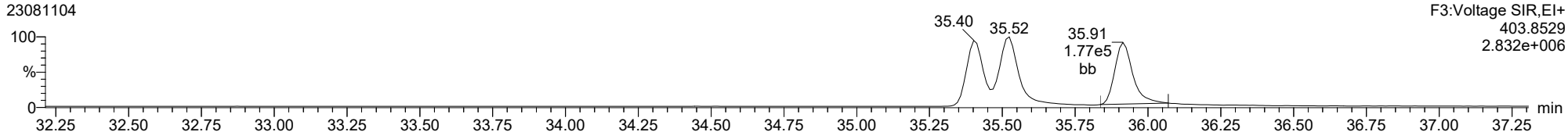
123789-HxCDD



13C-123789-HxCDD

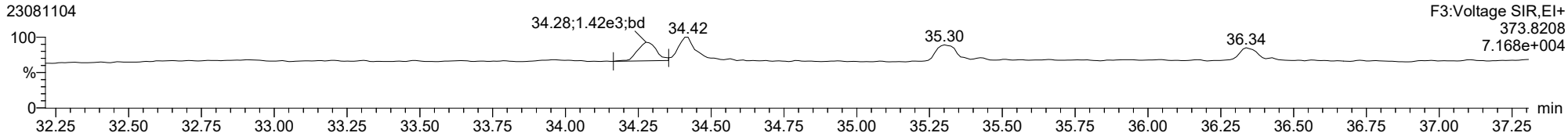


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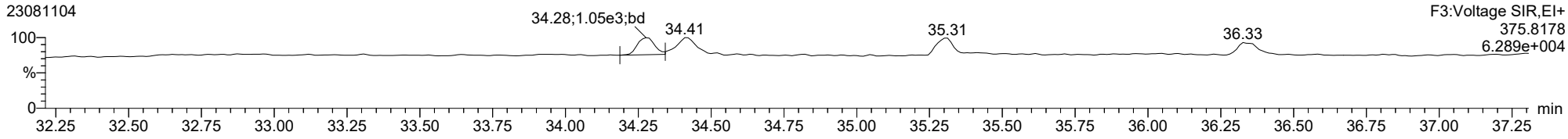


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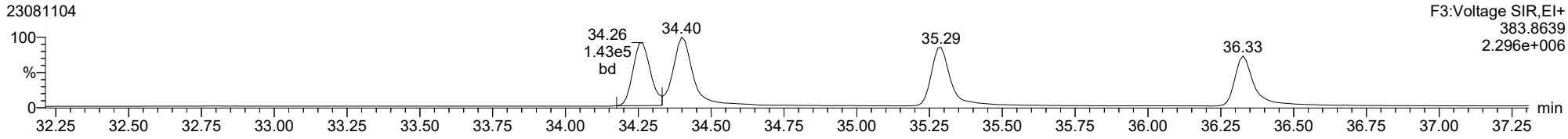
123478-HxCDF



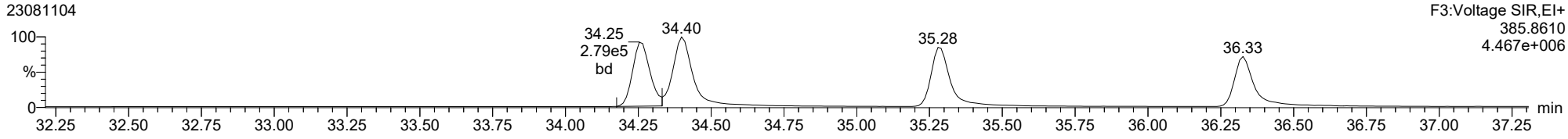
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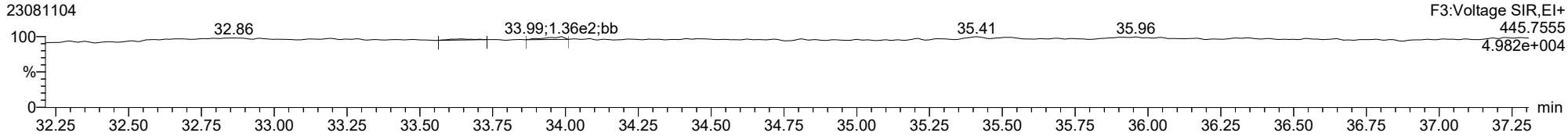
13C-123478-HxCDF



13C-123478-HxCDF

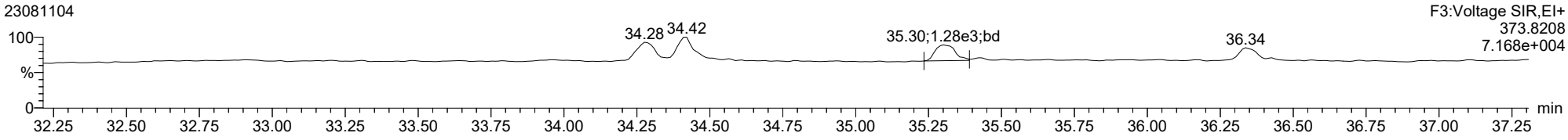


FUNCTION3 OCDPE

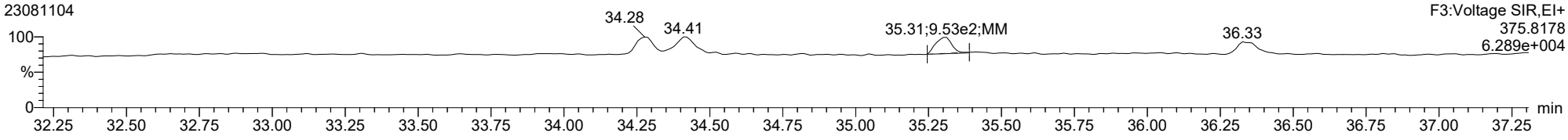


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

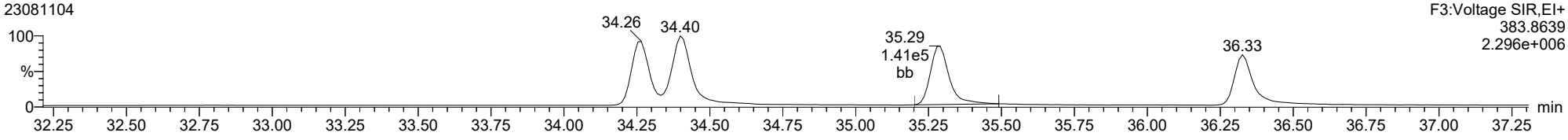
234678-HxCDF



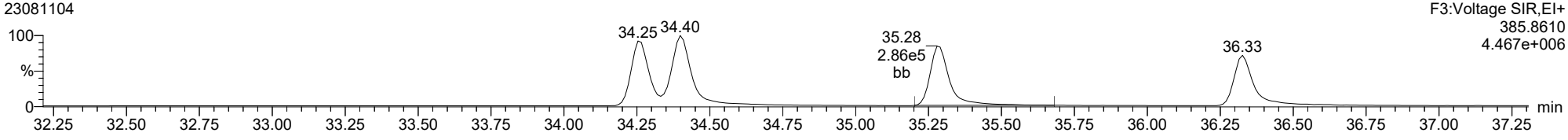
234678-HxCDF



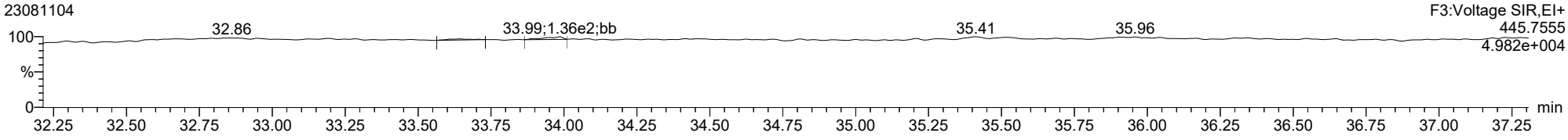
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13C-234678-HxCDF

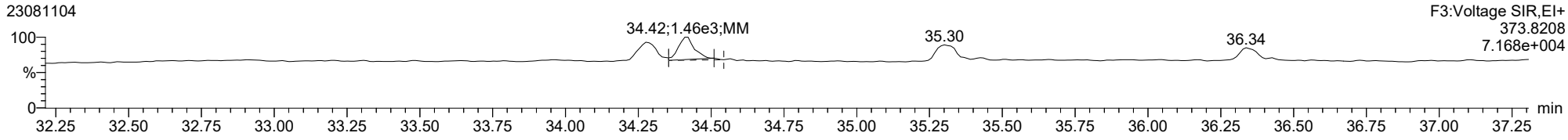


FUNCTION3 OCDPE

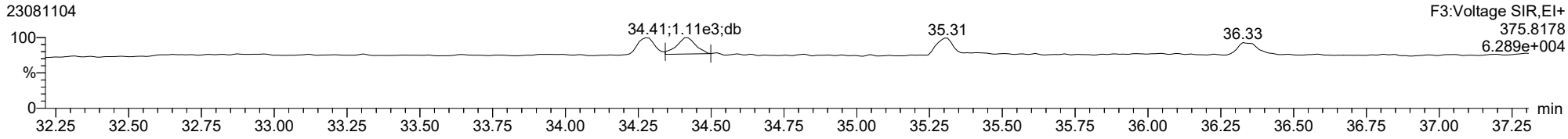


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

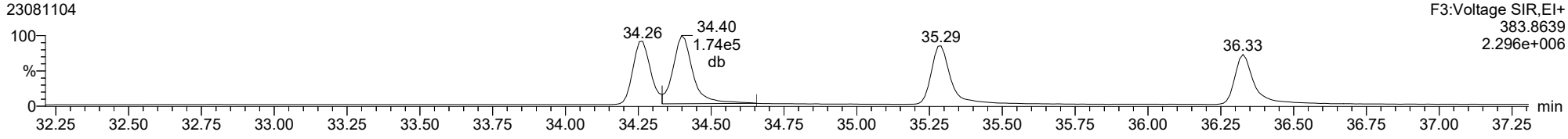
123678-HxCDF



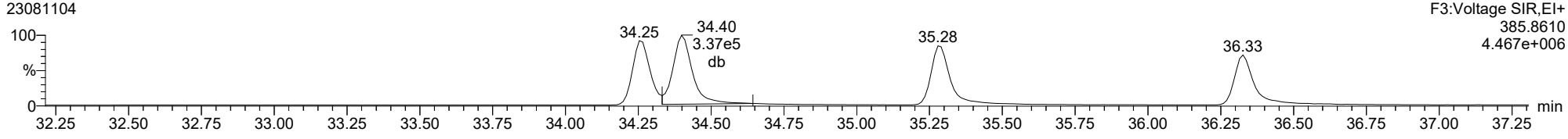
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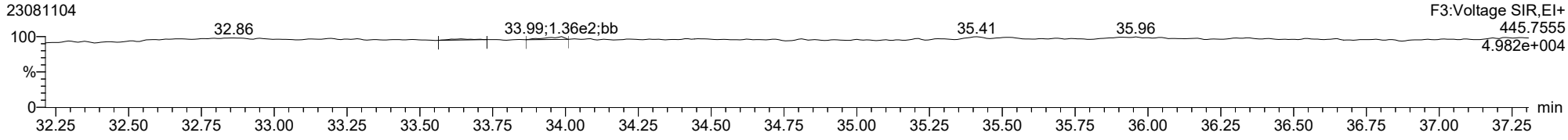
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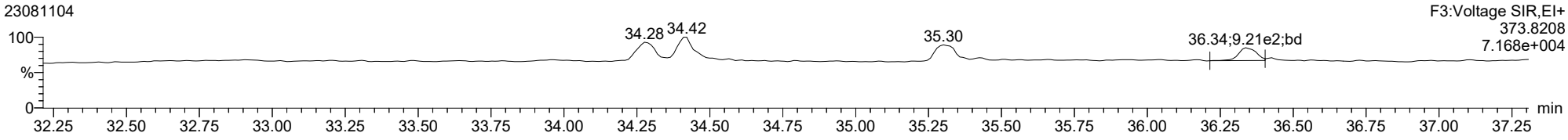


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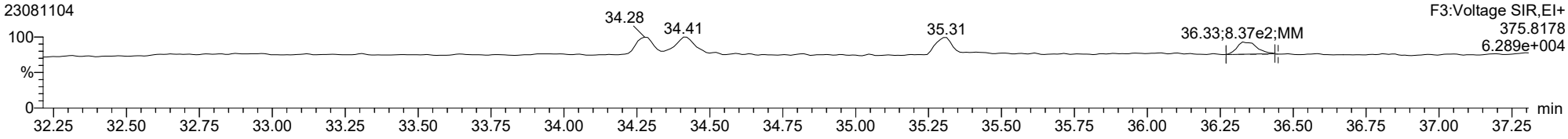


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

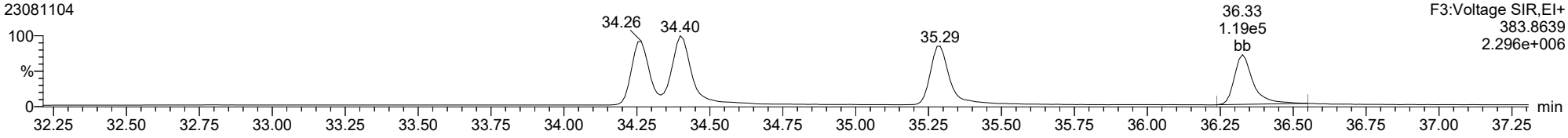
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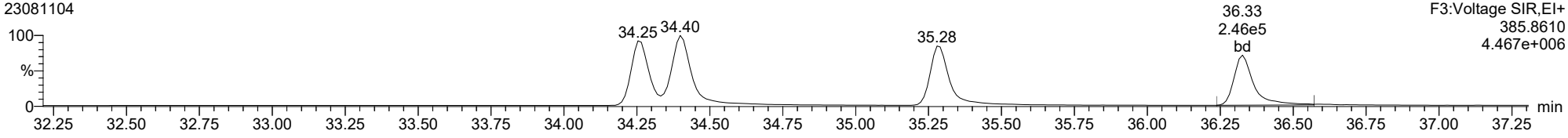
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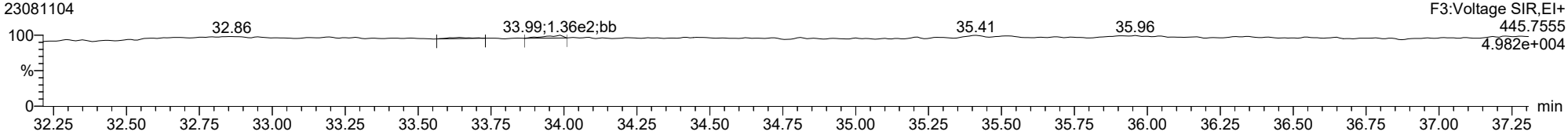
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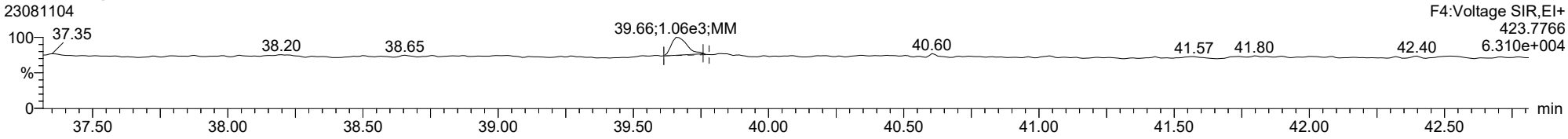


FUNCTION3 OCDPE

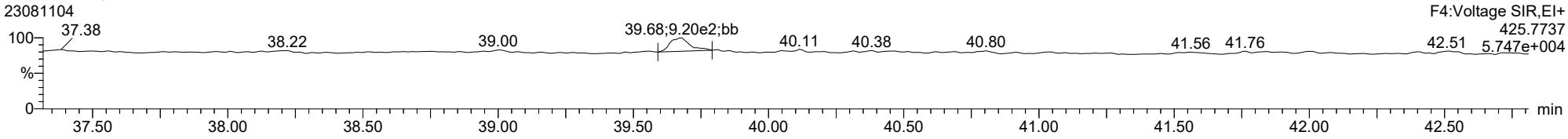


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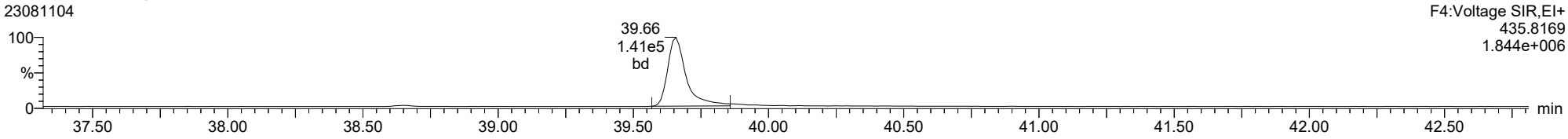
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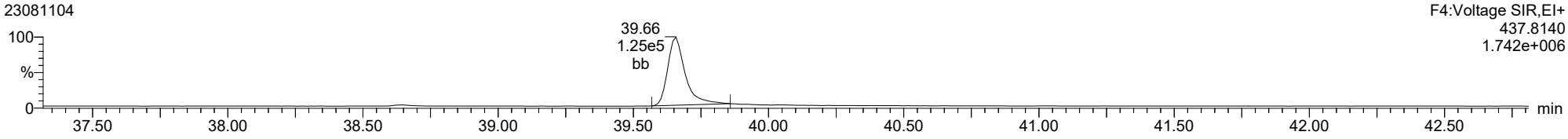
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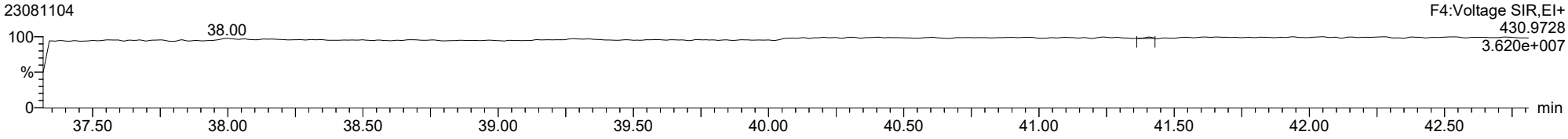
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13C-1234678-HpCDD

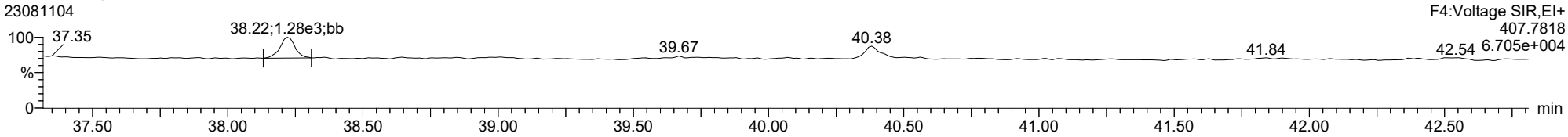


FUNCTION4 PFK

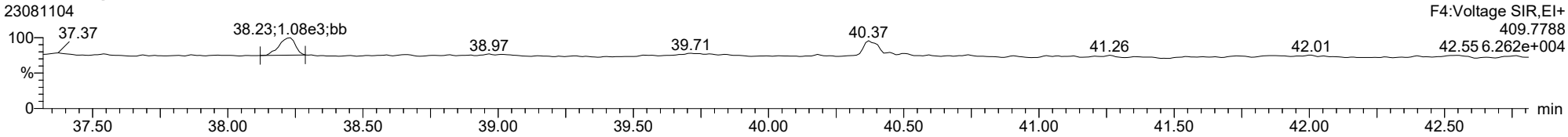


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

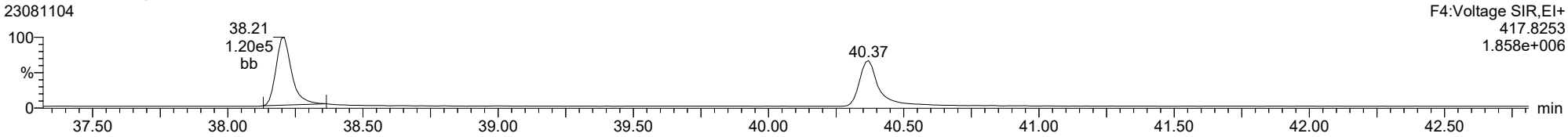
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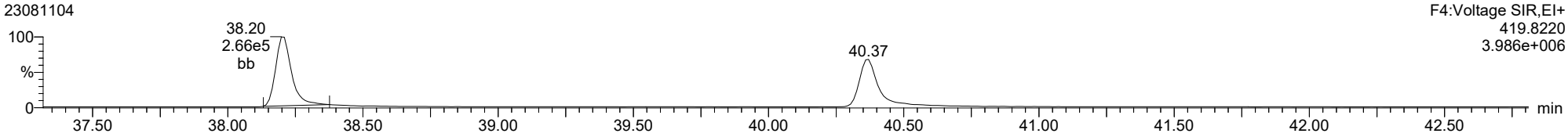
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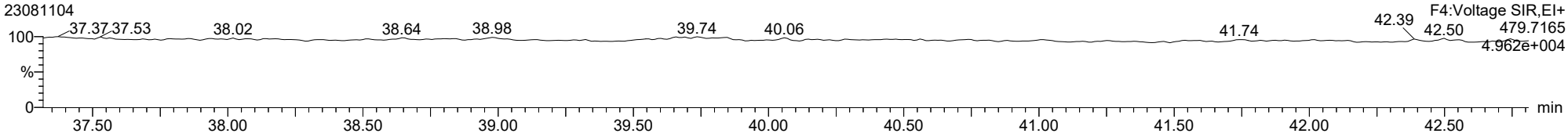
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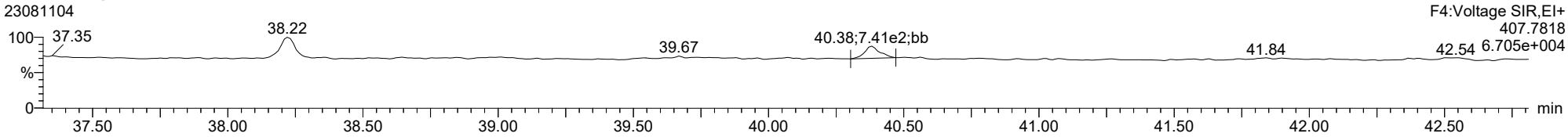


FUNCTION4 NCDPE

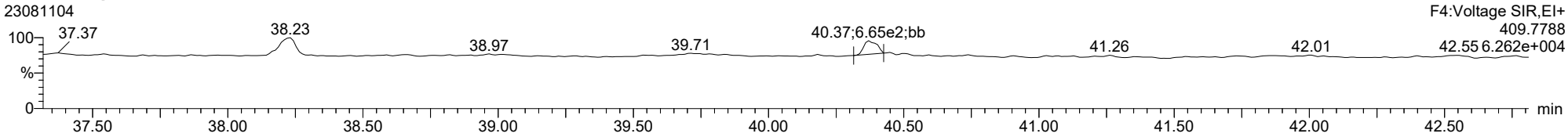


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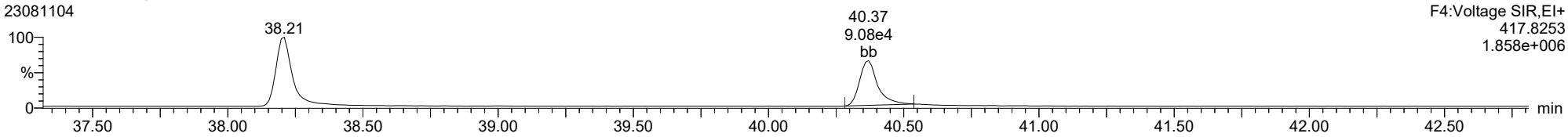
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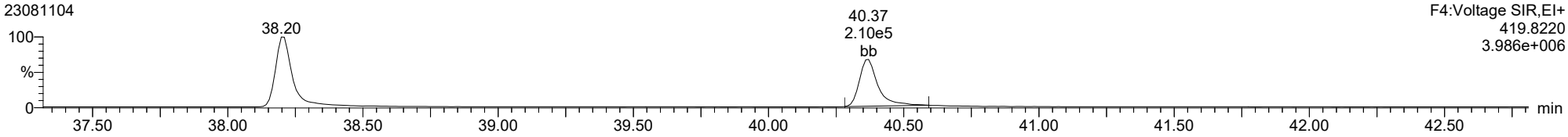
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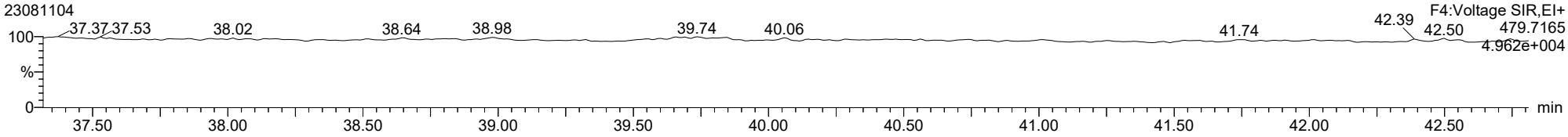
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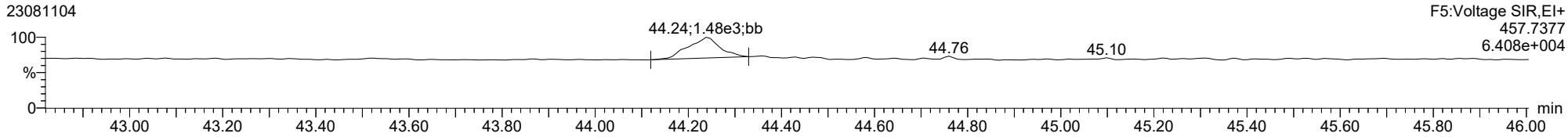


FUNCTION4 NCDPE

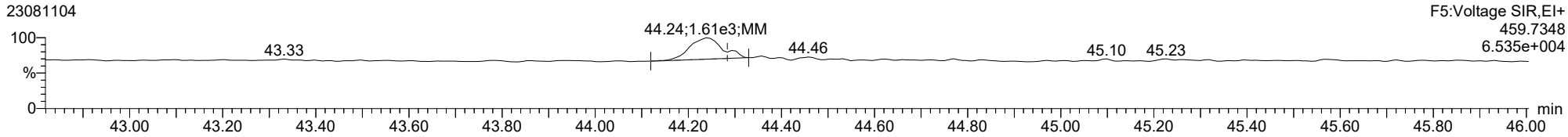


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

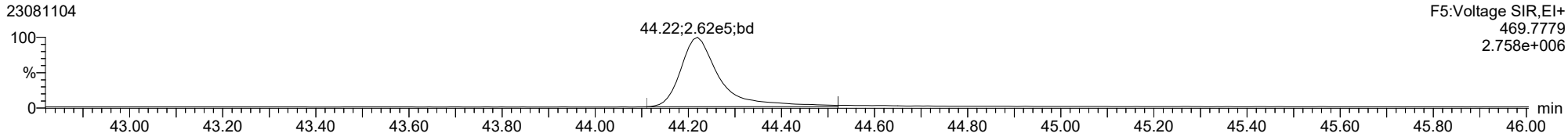
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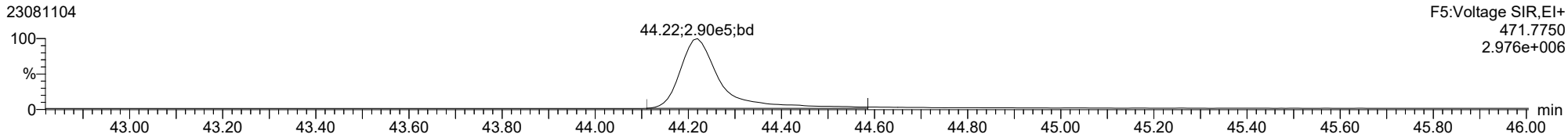
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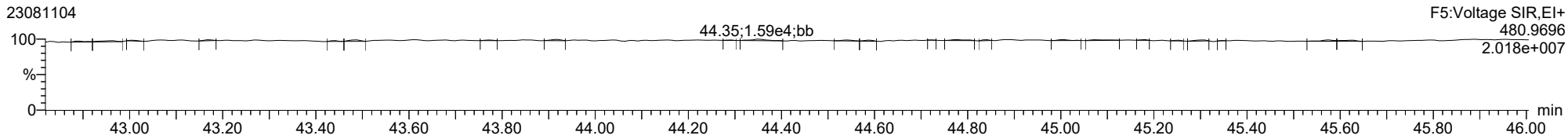
13C-OCDD



13C-OCDD

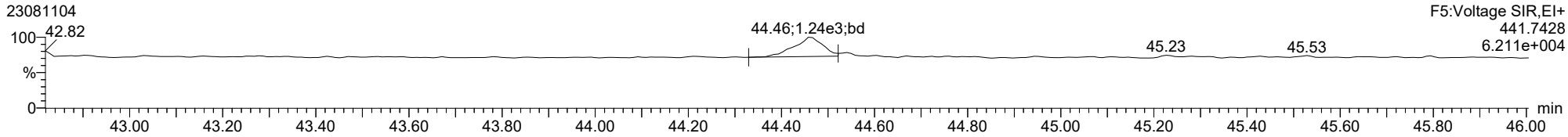


FUNCTION5 PFK

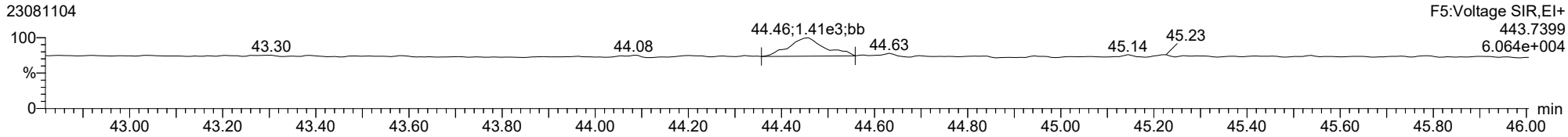


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

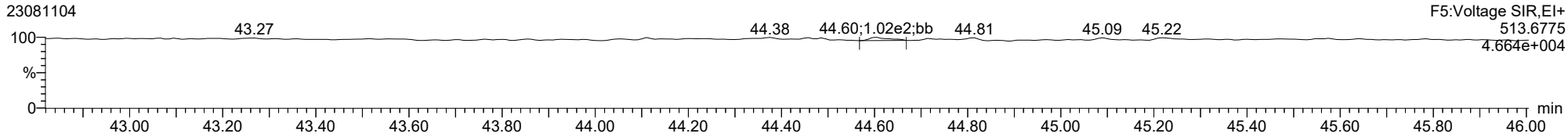
OCDF



OCDF

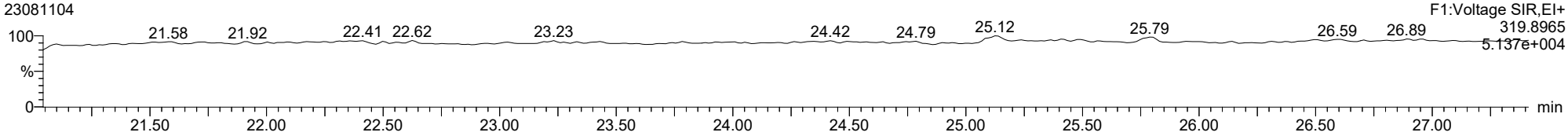


FUNCTION5 DCDPE

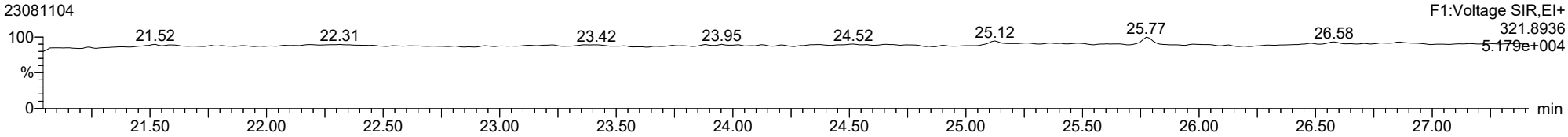


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

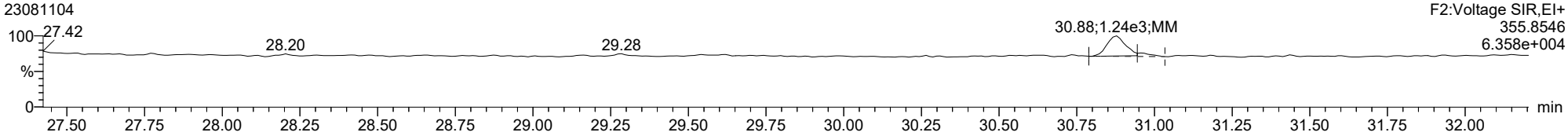
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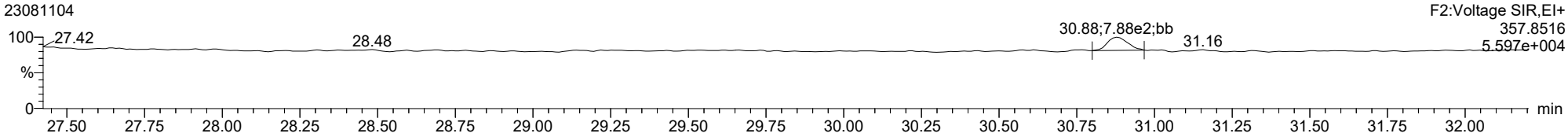
Total-tetradioxins



Total-pentadioxins

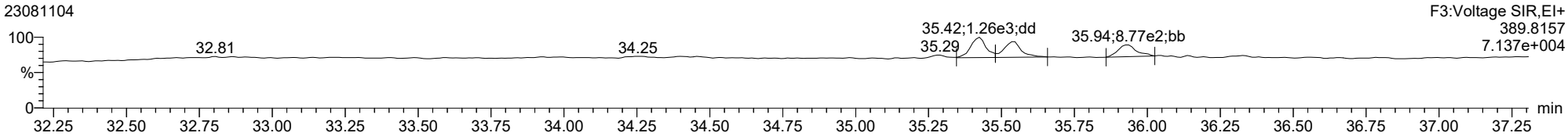


Total-pentadioxins

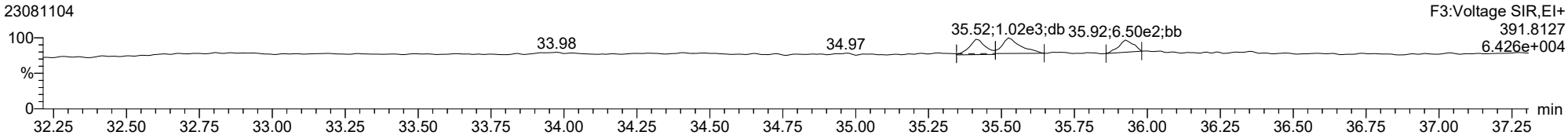


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

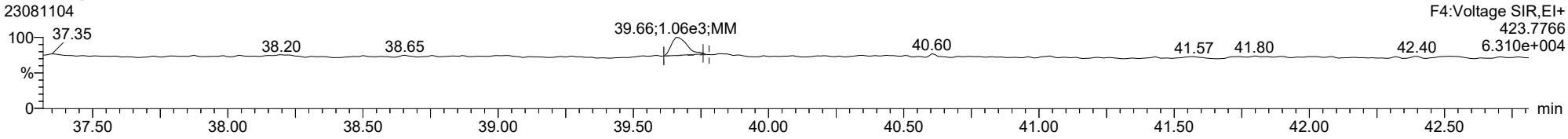
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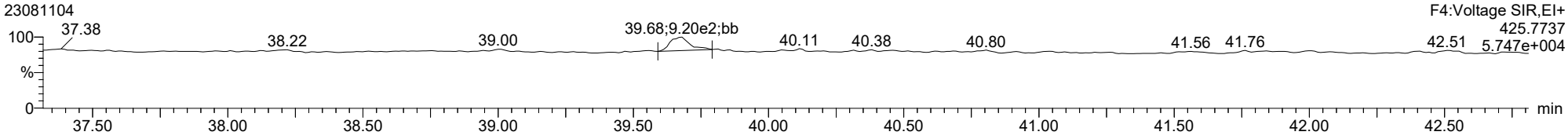
Total-hexadioxins



Total-heptadioxins



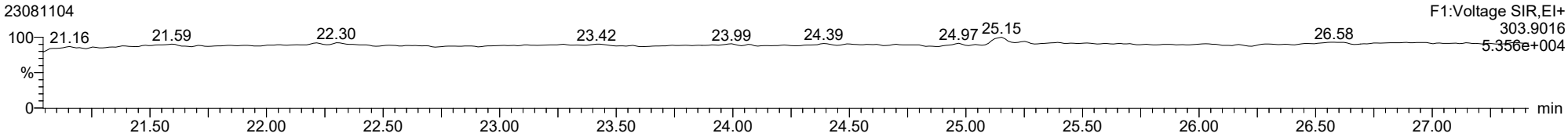
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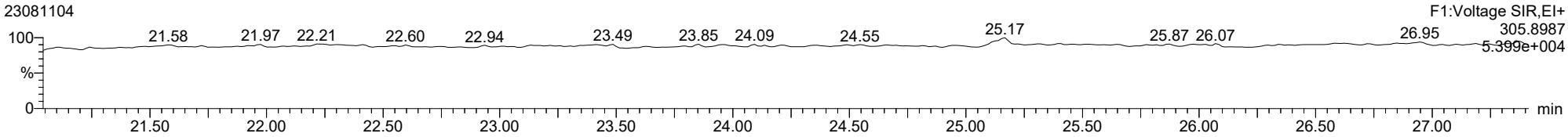
Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:23:54 Pacific Daylight Time

ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

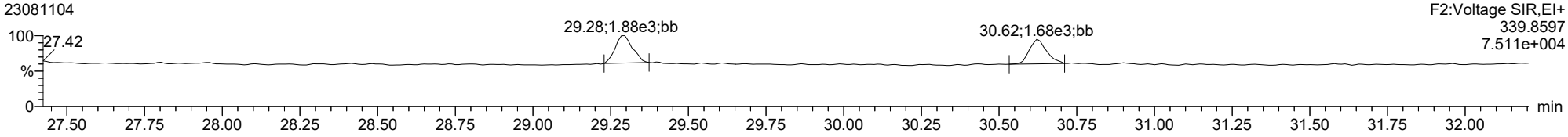
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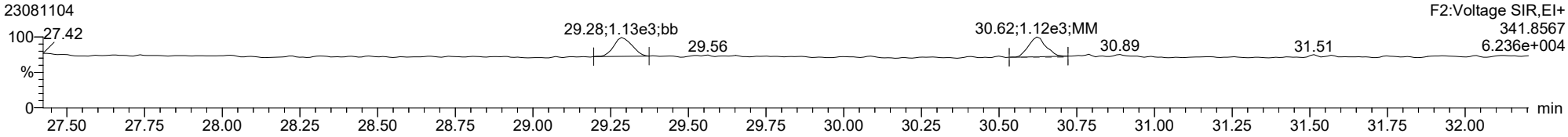
Total-tetrafurans



Total-pentafurans



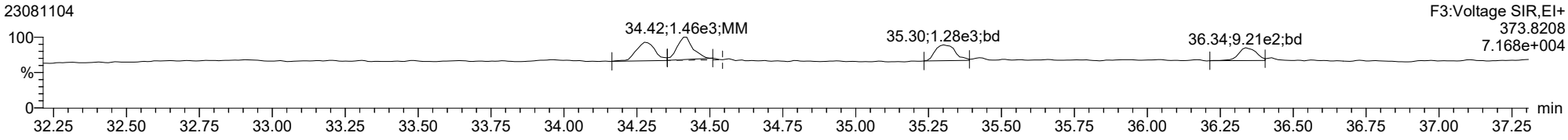
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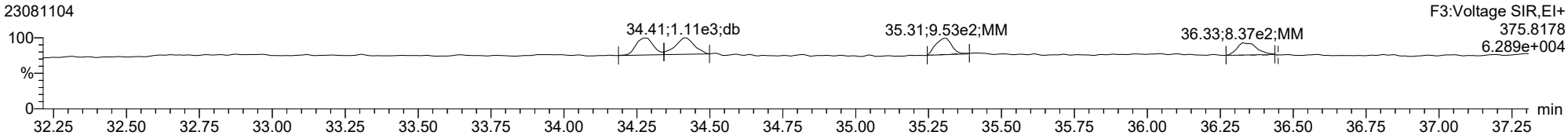
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ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

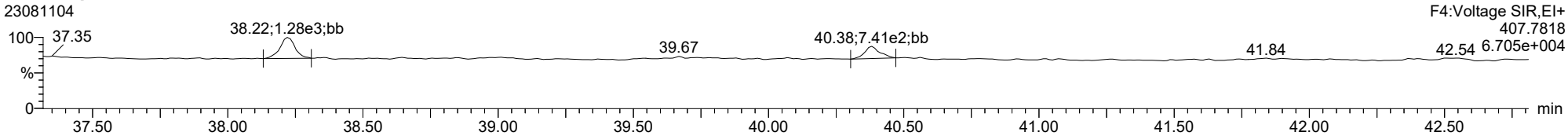
Total-hexafurans



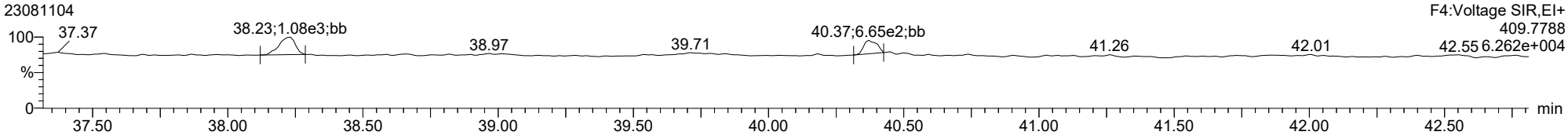
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
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Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.153	1.001	1.869e3	2.531e3	0.903	0.738	0.770	607	948	2.63e4	3.50e4	43.4	37.0	NO	bb	bb	0.508
12378-PeCDF	29.296	1.000	9.818e3	6.752e3	0.923	1.454	1.550	897	870	1.32e5	1.05e5	147.3	121.1	NO	bb	bb	2.428
23478-PeCDF	30.644	1.001	1.114e4	6.361e3	0.991	1.751	1.550	897	870	1.63e5	9.08e4	181.2	104.4	NO	bd	bb	2.653
123478-HxCDF	34.287	1.000	7.325e3	5.847e3	1.128	1.253	1.240	965	778	1.03e5	8.56e4	106.5	110.0	NO	bd	bd	2.540
234678-HxCDF	35.312	1.000	6.992e3	5.860e3	1.081	1.193	1.240	965	778	9.58e4	7.93e4	99.2	101.9	NO	bd	bb	2.494
123678-HxCDF	34.432	1.001	8.290e3	6.828e3	1.032	1.214	1.240	965	778	1.12e5	9.41e4	116.4	121.0	NO	db	dd	2.449
123789-HxCDF	36.348	1.000	4.809e3	4.143e3	0.988	1.161	1.240	965	778	7.16e4	5.08e4	74.2	65.3	NO	bb	bb	2.299
1234678-HpCDF	38.231	1.000	6.302e3	5.617e3	1.164	1.122	1.050	701	740	8.16e4	8.79e4	116.5	118.7	NO	bb	bd	2.373
1234789-HpCDF	40.393	1.000	4.119e3	4.301e3	1.104	0.958	1.050	701	740	5.52e4	5.68e4	78.8	76.7	NO	bb	bd	2.296
OCDF	44.467	1.005	7.021e3	7.442e3	1.130	0.943	0.890	689	1027	7.58e4	8.91e4	110.0	86.8	NO	bd	bd	4.244
2378-TCDD	25.803	1.001	1.741e3	2.051e3	1.243	0.849	0.770	749	648	2.33e4	3.20e4	31.1	49.3	NO	bb	bd	0.520
12378-PeCDD	30.889	1.000	7.141e3	4.332e3	1.150	1.648	1.550	748	524	1.09e5	6.14e4	146.1	117.2	NO	bd	bb	2.483
123478-HxCDD	35.435	1.001	5.228e3	4.259e3	0.960	1.227	1.240	969	784	7.96e4	6.49e4	82.2	82.8	NO	bd	bd	2.307
123678-HxCDD	35.546	1.000	6.122e3	4.803e3	0.883	1.275	1.240	969	784	8.53e4	6.59e4	88.0	84.0	NO	dd	db	2.336
123789-HxCDD	35.936	1.011	4.721e3	3.820e3	0.804	1.236	1.240	969	784	7.02e4	5.55e4	72.5	70.7	NO	bd	bb	2.218
1234678-HpCDD	39.680	1.000	4.195e3	3.562e3	1.200	1.178	1.050	930	787	6.18e4	5.19e4	66.4	65.9	NO	bb	bb	2.252
OCDD	44.238	1.000	7.186e3	7.684e3	1.059	0.935	0.890	1114	762	8.26e4	9.31e4	74.1	122.3	NO	bb	bd	4.658
13C-2378-TCDF	25.139	1.007	4.246e5	5.349e5	1.835	0.794	0.770	1462	1519	5.96e6	7.55e6	4077.1	4968.7	NO	bb	bb	102.183
13C-12378-PeCDF	29.285	1.173	4.516e5	2.877e5	1.377	1.570	1.550	3504	2886	6.51e6	4.14e6	1859.1	1432.9	NO	bb	bb	104.978
13C-23478-PeCDF	30.622	1.226	4.060e5	2.598e5	1.301	1.563	1.550	3504	2886	5.72e6	3.71e6	1632.3	1285.9	NO	bb	bb	100.021
13C-123478-HxCDF	34.276	0.954	1.550e5	3.046e5	1.091	0.509	0.510	1767	3144	2.20e6	4.37e6	1244.4	1391.1	NO	bd	bd	97.981
13C-123678-HxCDF	34.410	0.958	1.978e5	4.002e5	1.340	0.494	0.510	1767	3144	2.44e6	4.84e6	1379.8	1538.2	NO	db	db	103.726
13C-234678-HxCDF	35.301	0.983	1.551e5	3.213e5	1.093	0.483	0.510	1767	3144	2.13e6	4.17e6	1206.1	1327.8	NO	bb	bb	101.304
13C-123789-HxCDF	36.337	1.012	1.331e5	2.611e5	0.952	0.510	0.510	1767	3144	1.70e6	3.36e6	962.9	1069.8	NO	bb	bb	96.327
13C-1234678-HpCDF	38.220	1.064	1.295e5	3.022e5	0.985	0.428	0.440	2154	2867	1.90e6	4.11e6	882.3	1433.9	NO	bb	bd	101.891
13C-1234789-HpCDF	40.382	1.124	1.038e5	2.284e5	0.756	0.455	0.440	2154	2867	1.27e6	2.80e6	589.1	976.5	NO	bd	bb	102.201
13C-1234-TCDD	24.969	0.000	2.249e5	2.867e5	1.000	0.785	0.770	1471	1413	3.31e6	4.16e6	2247.7	2946.6	NO	bb	bb	100.000
13C-2378-TCDD	25.774	1.032	2.598e5	3.274e5	1.110	0.794	0.770	1471	1413	3.75e6	4.74e6	2547.1	3354.2	NO	bb	bb	103.437
13C-12378-PeCDD	30.878	1.237	2.472e5	1.545e5	0.754	1.600	1.550	1248	1186	3.35e6	2.06e6	2685.7	1740.2	NO	bb	bb	104.186
13C-123478-HxCDD	35.412	0.986	2.370e5	1.912e5	0.960	1.239	1.240	1678	2744	3.48e6	2.81e6	2071.0	1025.4	NO	bd	bd	103.729
13C-123678-HxCDD	35.535	0.989	2.914e5	2.386e5	1.159	1.221	1.240	1678	2744	3.80e6	3.07e6	2262.4	1117.2	NO	db	db	106.277
13C-1234678-HpCDD	39.668	1.104	1.492e5	1.379e5	0.629	1.082	1.050	2077	1506	1.99e6	1.88e6	959.9	1249.3	NO	bb	bb	106.080
13C-OCDD	44.229	1.231	2.878e5	3.153e5	0.635	0.913	0.890	1771	2421	2.88e6	3.12e6	1628.5	1289.7	NO	bd	bb	220.753
13C-123789-HxCDD	35.925	0.000	2.385e5	1.916e5	1.000	1.245	1.240	1678	2744	3.26e6	2.67e6	1945.5	973.8	NO	bb	bb	100.000
37CL-2378-TCDD	25.803	1.033	2.875e3		1.157			862		4.26e4		49.4			bb		0.486

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:07 Pacific Daylight Time

ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.170		0.770	607	948								
1289-TCDF					0.847		0.770	607	948								
13468-PECDF					1.241		1.550	544	667								
12389-PECDF					0.880		1.550	897	870								
123468-HXCDF					1.206		1.240	965	778								
1368-TCDD					1.181		0.770	749	648								
1289-TCDD					0.963		0.770	749	648								
12479-PECDD					2.166		1.550	748	524								
12389-PECDD					1.326		1.550	748	524								
124679-HXCDD					1.127		1.240	969	784								
1234679-HPCDD					1.303		1.050	930	787								
Total-tetrafurans			1.869e3		0.973			607		2.63e4							0.508
Total-penta1			0.000e0					544		0.00e0							
Total-pentafurans			2.095e4		0.931			897		2.95e5							5.080
Total-hexafurans			2.742e4		1.087			965		3.83e5							9.782
Total-heptafurans			1.042e4		1.134			701		1.37e5							4.669
Total-Furans			6.768e4		1.053			607		9.16e5							24.284
Total-tetradioxins			1.741e3		1.129			749		2.33e4							0.520
Total-pentadioxins			7.141e3		1.548			748		1.09e5							2.483
Total-hexadioxins			1.607e4		0.943			969		2.35e5							6.861
Total-heptadioxins			4.195e3		1.251			930		6.18e4							2.252
Total-Dioxins			3.633e4		1.182			749		5.12e5							16.774
Total-TEQ			1.040e5					749		1.43e6							41.058
FUNCTION1 PFK			1.685e5					481618		3.23e6							
FUNCTION2 PFK			3.490e5					353619		9.72e6							0.000
FUNCTION3 PFK			3.025e5					411684		5.51e6							0.000
FUNCTION4 PFK			5.244e4					281669		8.98e5							
FUNCTION5 PFK			5.040e4					232970		2.05e6							
FUNCTION1 HXCD...			1.506e2					618		4.08e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			1.806e2					647		3.08e3							0.000
FUNCTION3 OCDPE			0.000e0					540		0.00e0							
FUNCTION4 NCDPE			3.562e2					656		5.44e3							0.000
FUNCTION5 DCDPE			7.446e1					445		7.45e2							0.000

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:07 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.15	1.869e3	2.531e3	0.903	0.74	0.77	43.4	YES	NO	bb	bb	0.508

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.64	1.114e4	6.361e3	0.991	1.75	1.55	181.2	YES	NO	bd	bb	2.653
2	12378-PeCDF	29.30	9.818e3	6.752e3	0.923	1.45	1.55	147.3	YES	NO	bb	bb	2.428

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.35	4.809e3	4.143e3	0.988	1.16	1.24	74.2	YES	NO	bb	bb	2.299
2	234678-HxCDF	35.31	6.992e3	5.860e3	1.081	1.19	1.24	99.2	YES	NO	bd	bb	2.494
3	123678-HxCDF	34.43	8.290e3	6.828e3	1.032	1.21	1.24	116.4	YES	NO	db	dd	2.449
4	123478-HxCDF	34.29	7.325e3	5.847e3	1.128	1.25	1.24	106.5	YES	NO	bd	bd	2.540

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.39	4.119e3	4.301e3	1.104	0.96	1.05	78.8	YES	NO	bb	bd	2.296
2	1234678-HpCDF	38.23	6.302e3	5.617e3	1.164	1.12	1.05	116.5	YES	NO	bb	bd	2.373

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.64	1.114e4	6.361e3	0.991	1.75	1.55	181.2	YES	NO	bd	bb	2.653
2	12378-PeCDF	29.30	9.818e3	6.752e3	0.923	1.45	1.55	147.3	YES	NO	bb	bb	2.428
3	2378-TCDF	25.15	1.869e3	2.531e3	0.903	0.74	0.77	43.4	YES	NO	bb	bb	0.508
4	123789-HxCDF	36.35	4.809e3	4.143e3	0.988	1.16	1.24	74.2	YES	NO	bb	bb	2.299
5	234678-HxCDF	35.31	6.992e3	5.860e3	1.081	1.19	1.24	99.2	YES	NO	bd	bb	2.494
6	123678-HxCDF	34.43	8.290e3	6.828e3	1.032	1.21	1.24	116.4	YES	NO	db	dd	2.449
7	123478-HxCDF	34.29	7.325e3	5.847e3	1.128	1.25	1.24	106.5	YES	NO	bd	bd	2.540
8	1234789-HpCDF	40.39	4.119e3	4.301e3	1.104	0.96	1.05	78.8	YES	NO	bb	bd	2.296
9	1234678-HpCDF	38.23	6.302e3	5.617e3	1.164	1.12	1.05	116.5	YES	NO	bb	bd	2.373
10	OCDF	44.47	7.021e3	7.442e3	1.130	0.94	0.89	110.0	YES	NO	bd	bd	4.244

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.80	1.741e3	2.051e3	1.243	0.85	0.77	31.1	YES	NO	bb	bd	0.520

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.89	7.141e3	4.332e3	1.150	1.65	1.55	146.1	YES	NO	bd	bb	2.483

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.94	4.721e3	3.820e3	0.804	1.24	1.24	72.5	YES	NO	bd	bb	2.218
2	123678-HxCDD	35.55	6.122e3	4.803e3	0.883	1.27	1.24	88.0	YES	NO	dd	db	2.336
3	123478-HxCDD	35.43	5.228e3	4.259e3	0.960	1.23	1.24	82.2	YES	NO	bd	bd	2.307

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.68	4.195e3	3.562e3	1.200	1.18	1.05	66.4	YES	NO	bb	bb	2.252

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.80	1.741e3	2.051e3	1.243	0.85	0.77	31.1	YES	NO	bb	bd	0.520
2	123789-HxCDD	35.94	4.721e3	3.820e3	0.804	1.24	1.24	72.5	YES	NO	bd	bb	2.218
3	123678-HxCDD	35.55	6.122e3	4.803e3	0.883	1.27	1.24	88.0	YES	NO	dd	db	2.336
4	123478-HxCDD	35.43	5.228e3	4.259e3	0.960	1.23	1.24	82.2	YES	NO	bd	bd	2.307
5	12378-PeCDD	30.89	7.141e3	4.332e3	1.150	1.65	1.55	146.1	YES	NO	bd	bb	2.483
6	OCDD	44.24	7.186e3	7.684e3	1.059	0.94	0.89	74.1	YES	NO	bb	bd	4.658
7	1234678-HpCDD	39.68	4.195e3	3.562e3	1.200	1.18	1.05	66.4	YES	NO	bb	bb	2.252

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.64	1.114e4	6.361e3	0.991	1.75	1.55	181.2	YES	NO	bd	bb	2.653
2	12378-PeCDF	29.30	9.818e3	6.752e3	0.923	1.45	1.55	147.3	YES	NO	bb	bb	2.428
3	2378-TCDF	25.15	1.869e3	2.531e3	0.903	0.74	0.77	43.4	YES	NO	bb	bb	0.508
4	123789-HxCDF	36.35	4.809e3	4.143e3	0.988	1.16	1.24	74.2	YES	NO	bb	bb	2.299
5	234678-HxCDF	35.31	6.992e3	5.860e3	1.081	1.19	1.24	99.2	YES	NO	bd	bb	2.494
6	123678-HxCDF	34.43	8.290e3	6.828e3	1.032	1.21	1.24	116.4	YES	NO	db	dd	2.449
7	123478-HxCDF	34.29	7.325e3	5.847e3	1.128	1.25	1.24	106.5	YES	NO	bd	bd	2.540
8	1234789-HpCDF	40.39	4.119e3	4.301e3	1.104	0.96	1.05	78.8	YES	NO	bb	bd	2.296
9	1234678-HpCDF	38.23	6.302e3	5.617e3	1.164	1.12	1.05	116.5	YES	NO	bb	bd	2.373
10	OCDF	44.47	7.021e3	7.442e3	1.130	0.94	0.89	110.0	YES	NO	bd	bd	4.244
11	2378-TCDD	25.80	1.741e3	2.051e3	1.243	0.85	0.77	31.1	YES	NO	bb	bd	0.520
12	123789-HxCDD	35.94	4.721e3	3.820e3	0.804	1.24	1.24	72.5	YES	NO	bd	bb	2.218
13	123678-HxCDD	35.55	6.122e3	4.803e3	0.883	1.27	1.24	88.0	YES	NO	dd	db	2.336
14	123478-HxCDD	35.43	5.228e3	4.259e3	0.960	1.23	1.24	82.2	YES	NO	bd	bd	2.307
15	12378-PeCDD	30.89	7.141e3	4.332e3	1.150	1.65	1.55	146.1	YES	NO	bd	bb	2.483
16	OCDD	44.24	7.186e3	7.684e3	1.059	0.94	0.89	74.1	YES	NO	bb	bd	4.658
17	1234678-HpCDD	39.68	4.195e3	3.562e3	1.200	1.18	1.05	66.4	YES	NO	bb	bb	2.252

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	24.46	9.288e4					3.6	YES		bb		
2	FUNCTION1 PFK	21.17	7.566e4					3.1	YES		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	27.78	1.684e4					1.7	NO		bd		0.000
2	FUNCTION2 PFK	27.66	6.206e3					0.7	NO		bb		0.000
3	FUNCTION2 PFK	27.52	1.777e4					1.7	NO		bb		0.000
4	FUNCTION2 PFK	31.50	2.220e3					0.5	NO		bb		0.000
5	FUNCTION2 PFK	31.35	1.532e4					1.0	NO		bb		0.000
6	FUNCTION2 PFK	31.29	3.058e4					1.7	NO		db		0.000
7	FUNCTION2 PFK	31.22	1.055e4					1.3	NO		bd		0.000
8	FUNCTION2 PFK	31.17	7.982e3					0.9	NO		bb		0.000
9	FUNCTION2 PFK	31.02	2.210e4					1.6	NO		bb		0.000
10	FUNCTION2 PFK	30.78	6.727e3					0.8	NO		bb		0.000
11	FUNCTION2 PFK	30.63	3.779e4					3.0	NO		db		0.000
12	FUNCTION2 PFK	30.59	2.979e4					2.9	NO		bd		0.000
13	FUNCTION2 PFK	30.50	2.622e4					1.4	NO		bb		0.000
14	FUNCTION2 PFK	29.88	6.065e3					0.9	NO		bb		0.000
15	FUNCTION2 PFK	29.69	3.832e4					1.9	NO		bb		0.000
16	FUNCTION2 PFK	29.44	9.175e3					1.0	NO		bb		0.000
17	FUNCTION2 PFK	28.98	7.307e3					0.6	NO		bb		0.000
18	FUNCTION2 PFK	28.18	2.082e4					1.2	NO		bb		0.000
19	FUNCTION2 PFK	27.81	1.127e4					1.5	NO		db		0.000
20	FUNCTION2 PFK	31.76	2.592e4					1.1	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	34.32	2.413e4					2.4	NO		bb		0.000
2	FUNCTION3 PFK	33.62	1.658e5					3.9	YES		bb		0.000
3	FUNCTION3 PFK	33.41	7.609e4					3.5	YES		bb		0.000
4	FUNCTION3 PFK	33.34	1.911e4					1.8	NO		bb		0.000
5	FUNCTION3 PFK	32.35	1.740e4					1.9	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	39.52	5.244e4					3.2	YES		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.67	1.198e4					1.6	NO		bb		
2	FUNCTION5 PFK	43.51	4.599e3					1.1	NO		bb		
3	FUNCTION5 PFK	43.42	3.079e3					0.8	NO		bb		
4	FUNCTION5 PFK	43.39	3.025e3					0.7	NO		bb		
5	FUNCTION5 PFK	43.31	1.081e3					0.5	NO		bb		
6	FUNCTION5 PFK	42.96	1.023e3					0.5	NO		bb		
7	FUNCTION5 PFK	45.28	9.172e2					0.4	NO		bb		
8	FUNCTION5 PFK	44.70	2.577e3					0.7	NO		bb		
9	FUNCTION5 PFK	43.99	3.331e3					0.7	NO		bb		
10	FUNCTION5 PFK	43.80	1.879e4					1.8	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	22.34	7.892e1					3.3	YES		bb		0.000
2	FUNCTION1 HXCD...	22.16	7.163e1					3.3	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.00	8.618e1					2.2	NO		bb		0.000
2	FUNCTION2 HPCD...	28.87	9.443e1					2.6	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.28	8.452e1					2.0	NO		bb		0.000
2	FUNCTION4 NCDPE	38.59	1.002e2					2.2	NO		db		0.000
3	FUNCTION4 NCDPE	38.48	8.467e1					2.4	NO		bd		0.000
4	FUNCTION4 NCDPE	37.87	8.682e1					1.7	NO		bb		0.000

ETHERS6

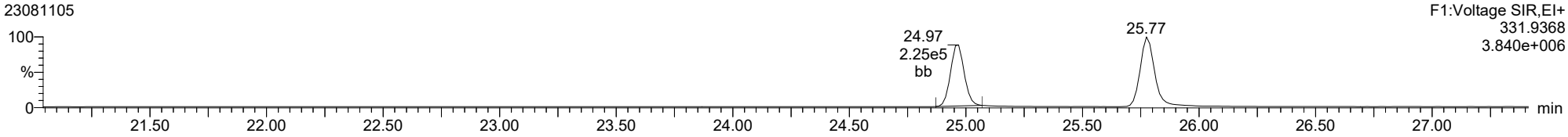
	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	43.03	7.446e1					1.7	NO		bb		0.000

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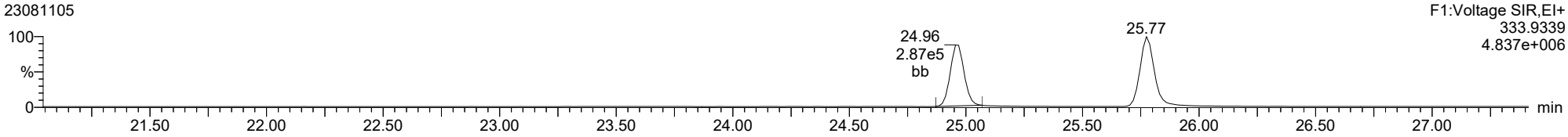
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ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

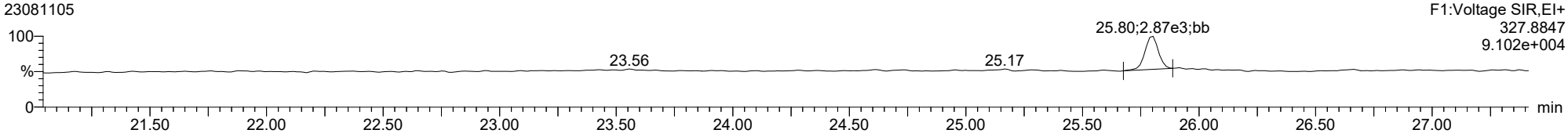
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13C-1234-TCDD

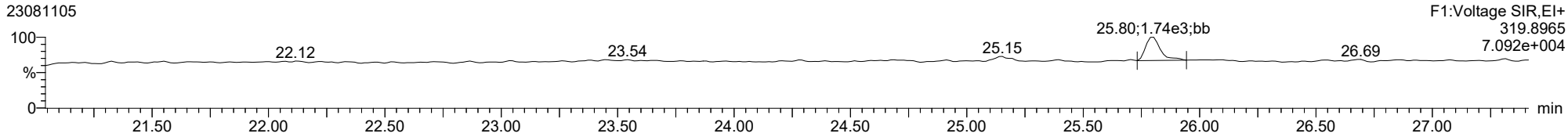


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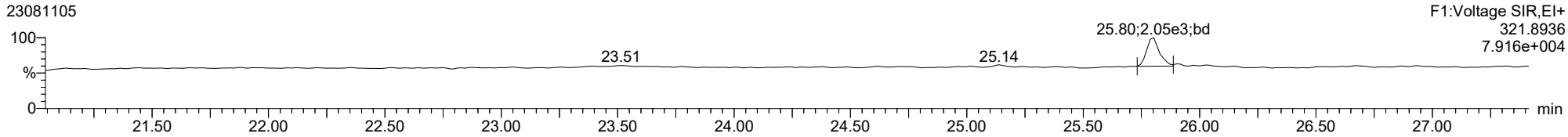


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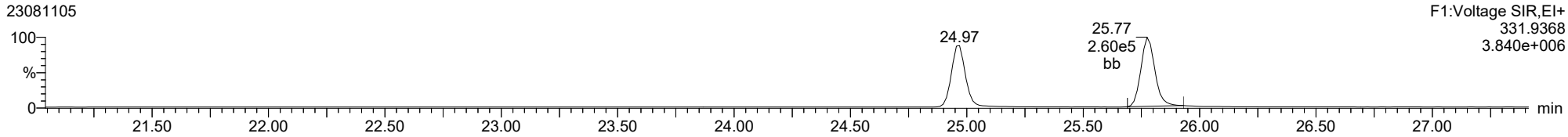
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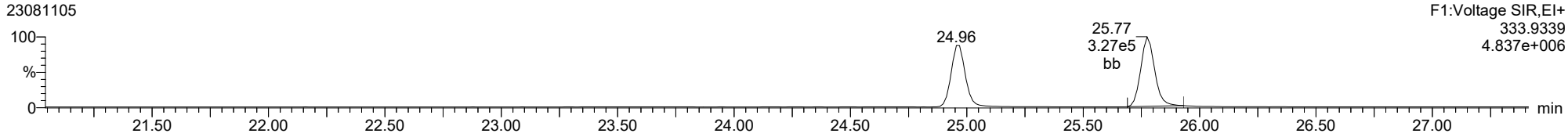
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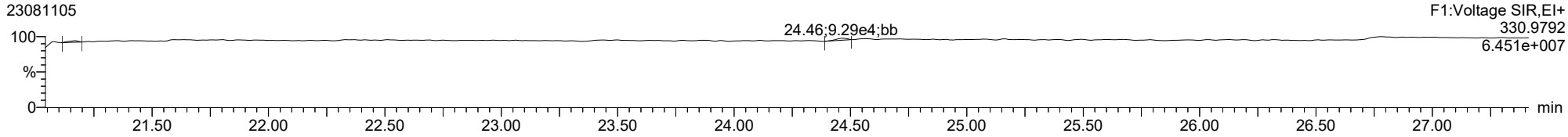
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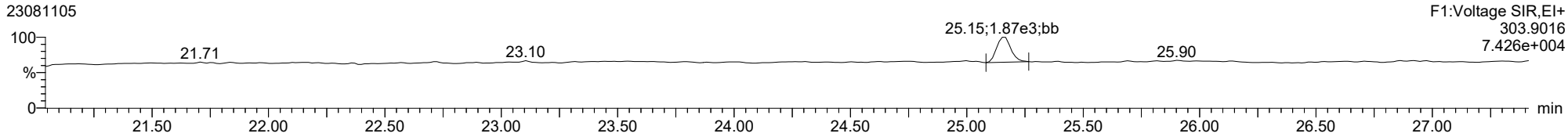


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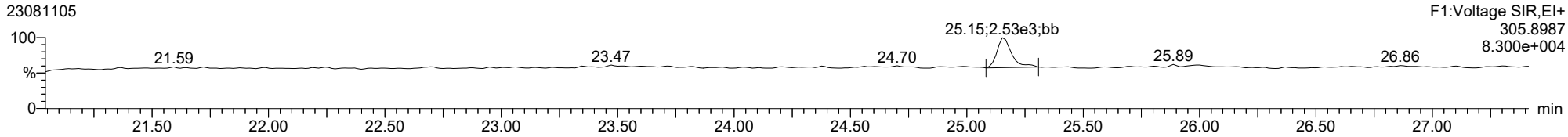


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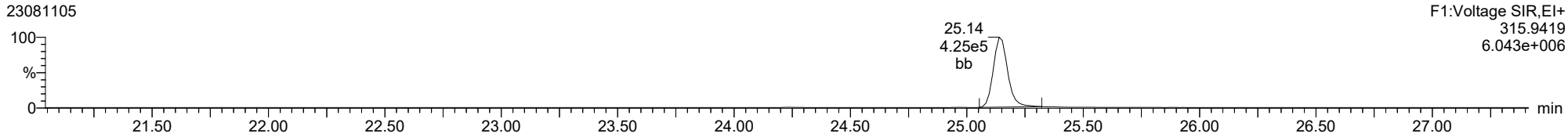
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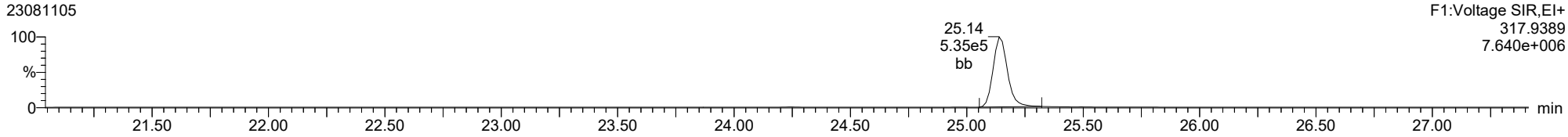
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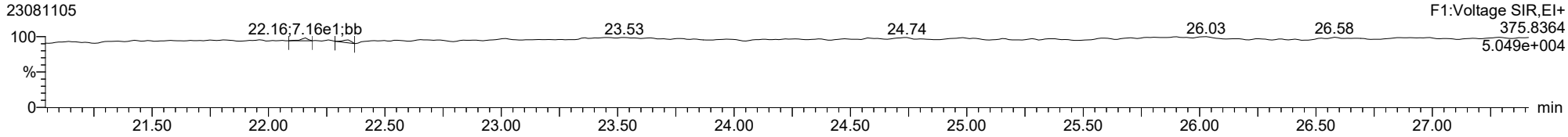
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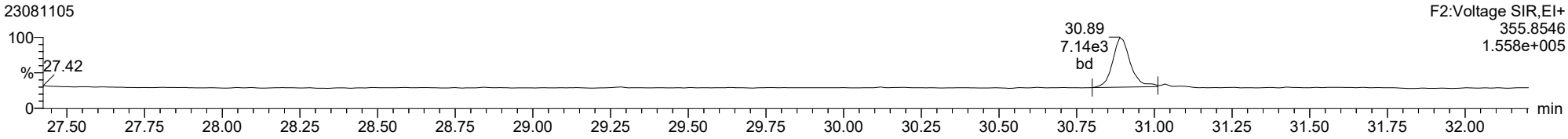


FUNCTION1 HXCDPE

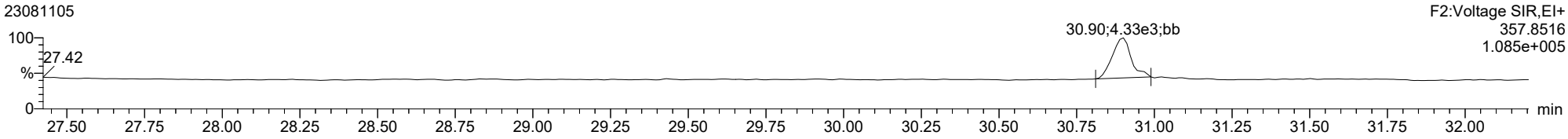


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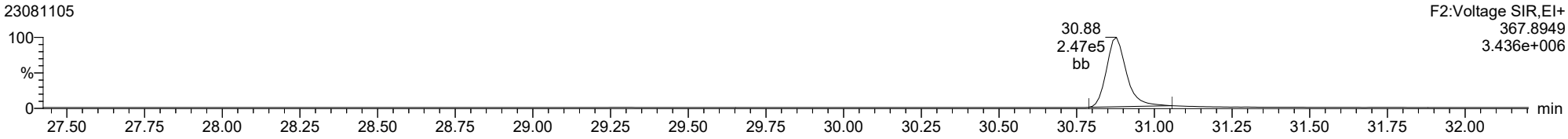
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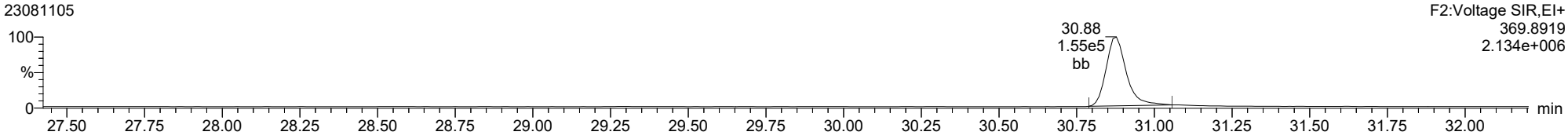
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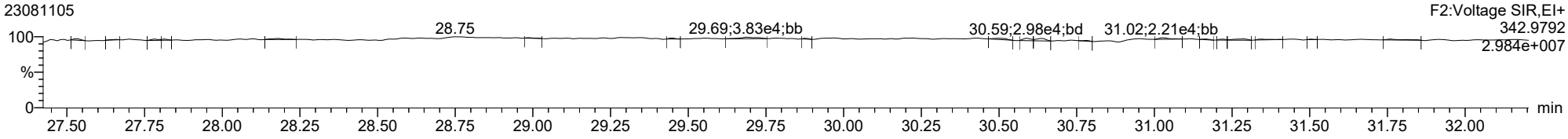
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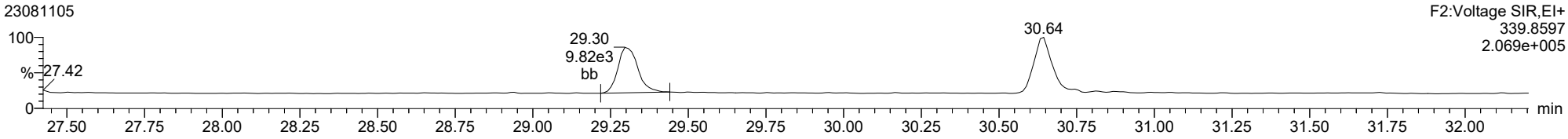


FUNCTION2 PFK

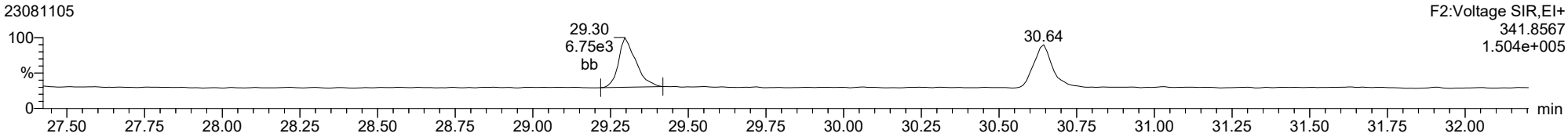


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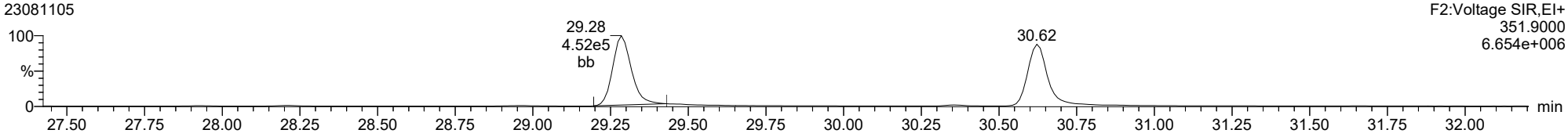
12378-PeCDF



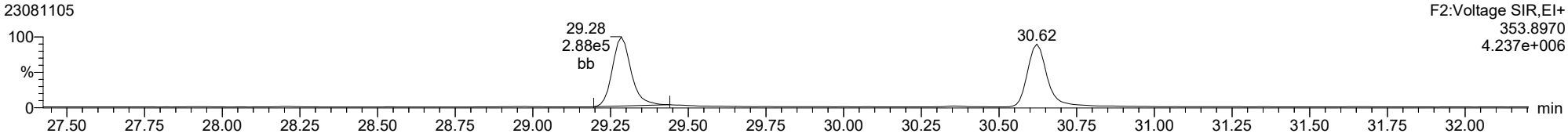
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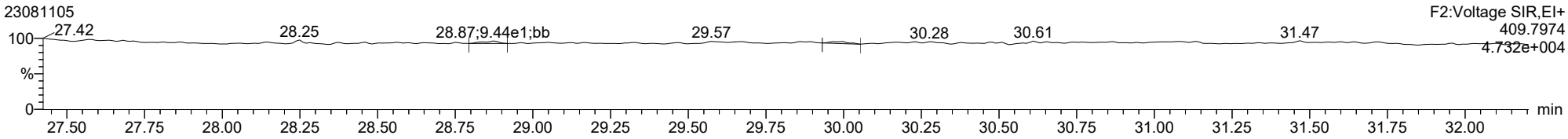
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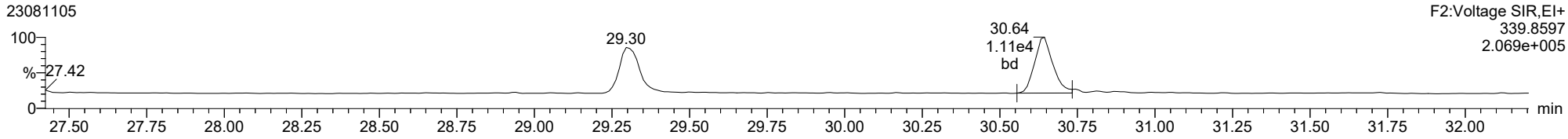


FUNCTION2 HPCDPE

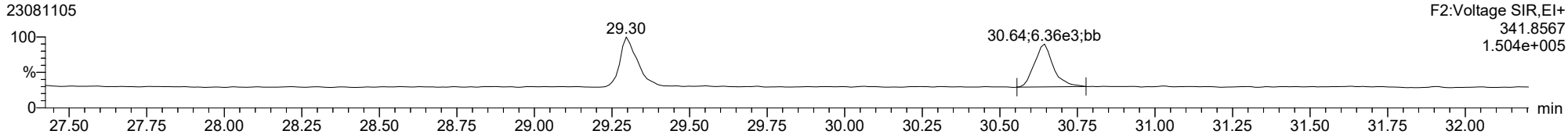


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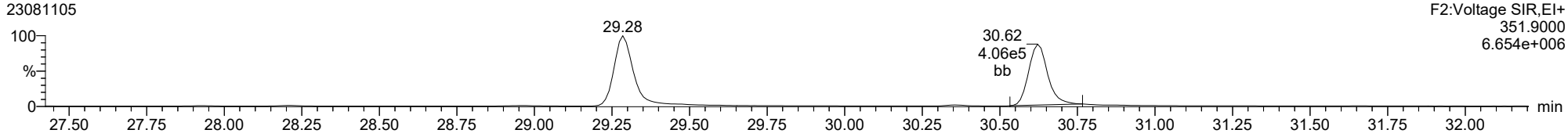
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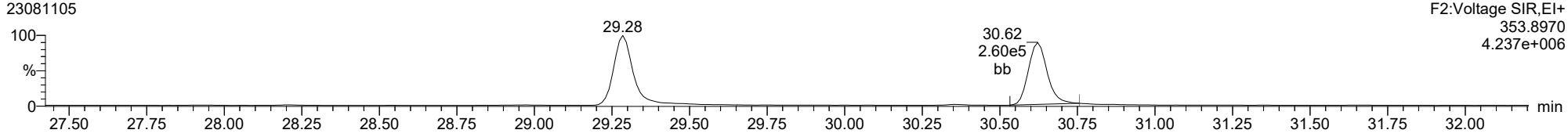
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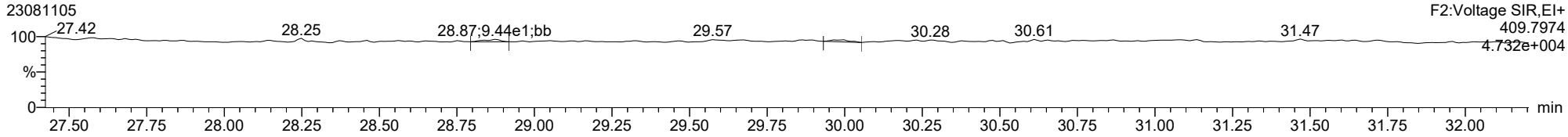
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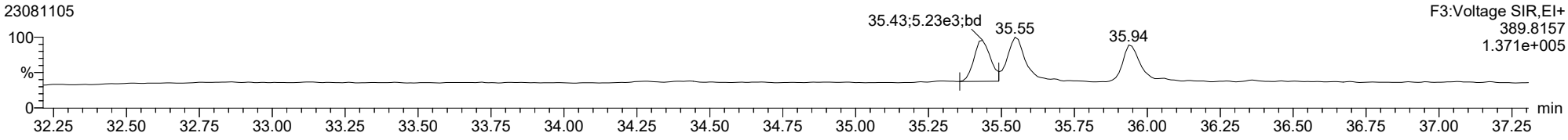


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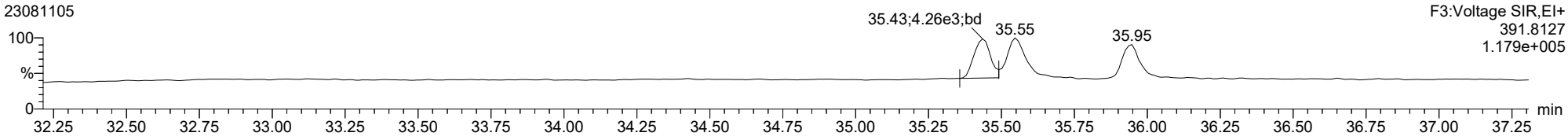


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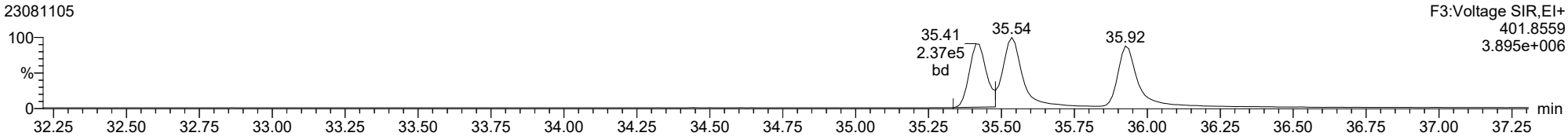
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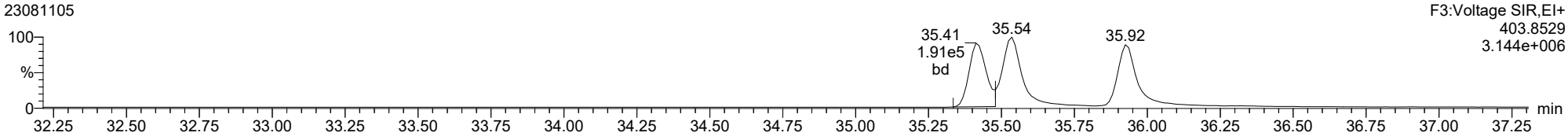
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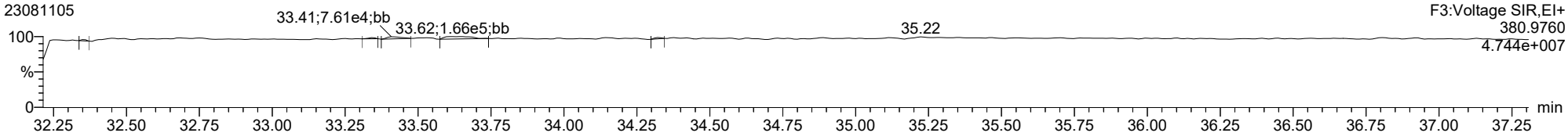
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13C-123478-HxCDD



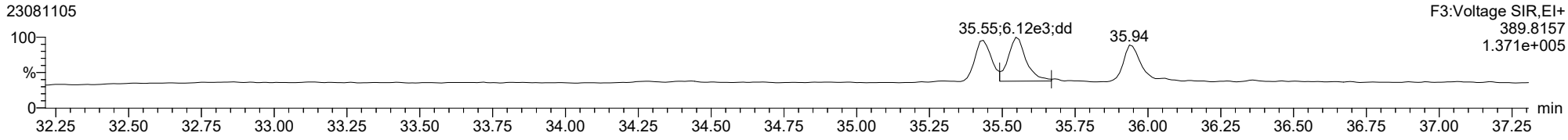
FUNCTION3 PFK



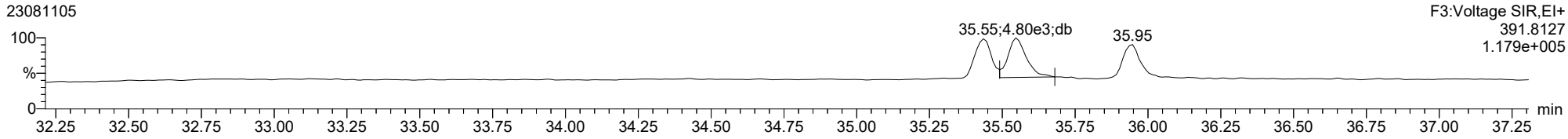
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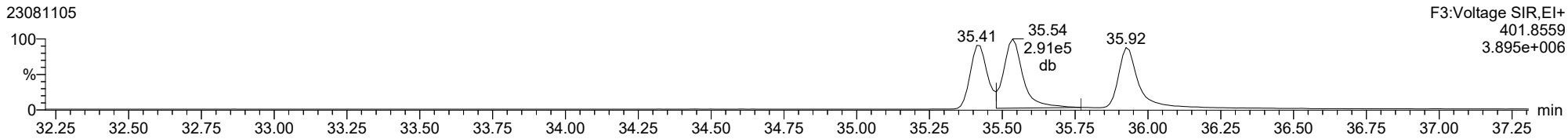
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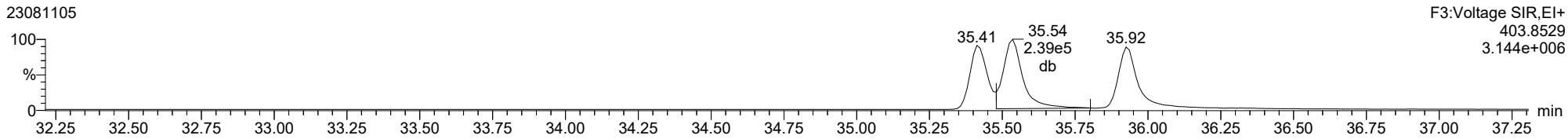
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13C-123678-HxCDD



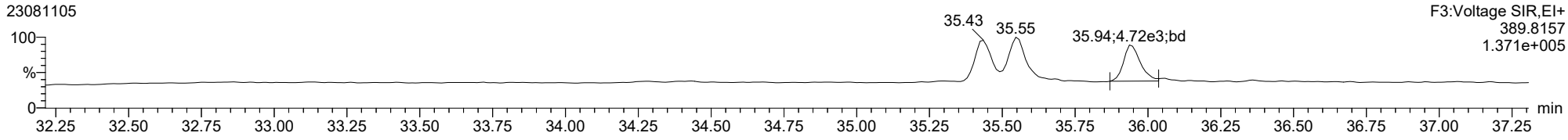
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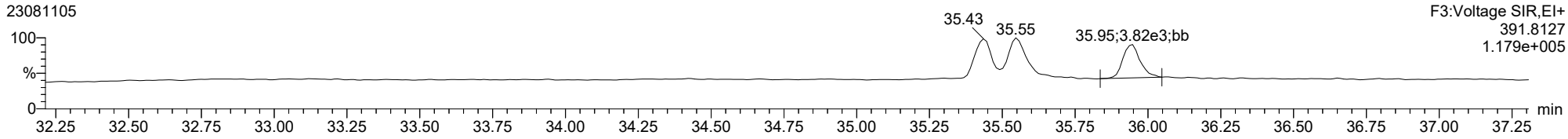
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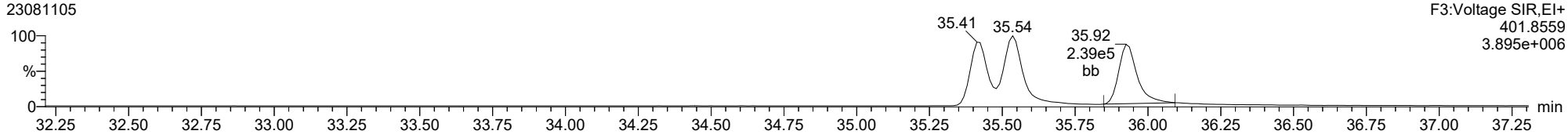
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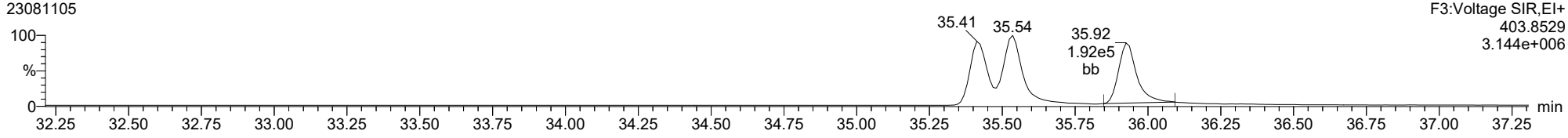
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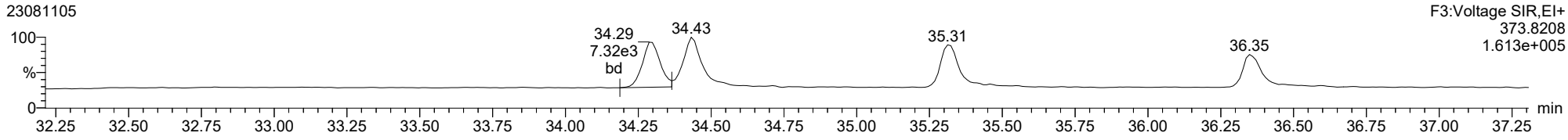


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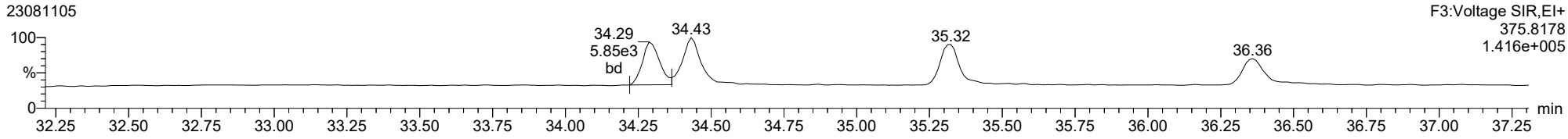


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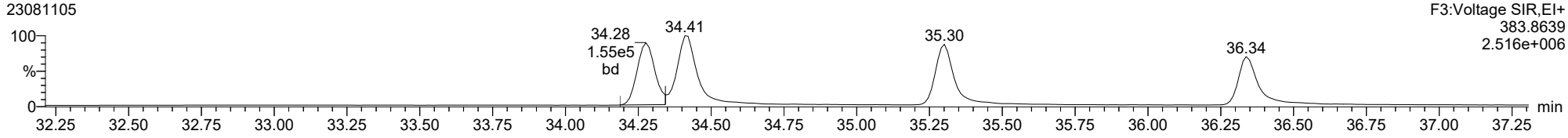
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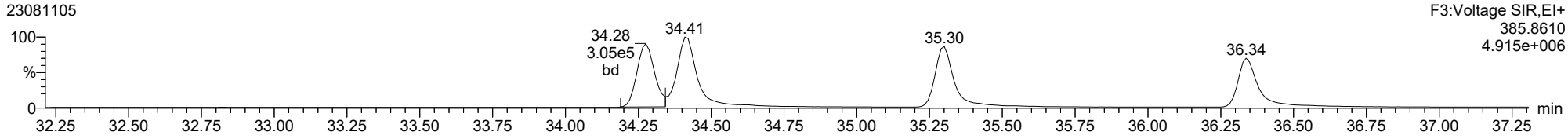
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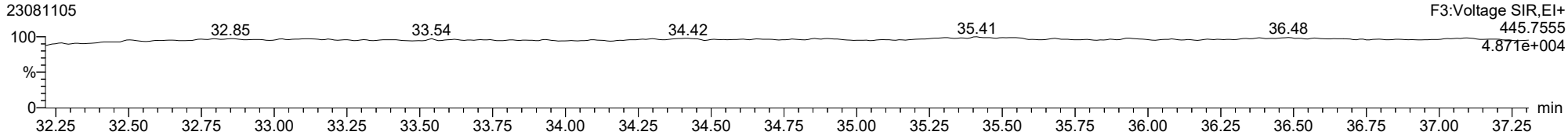
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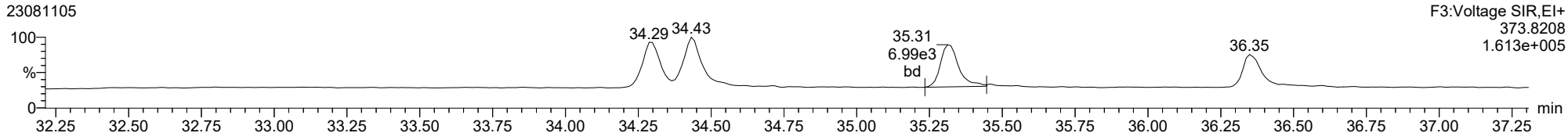


FUNCTION3 OCDPE

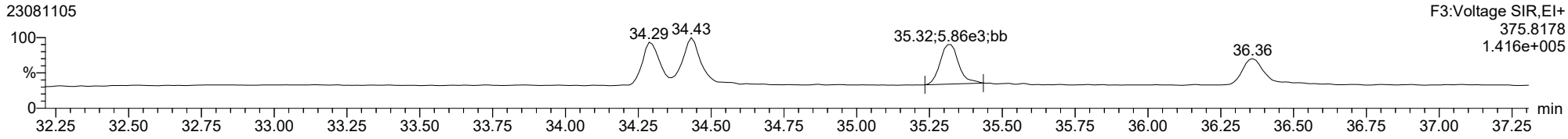


ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

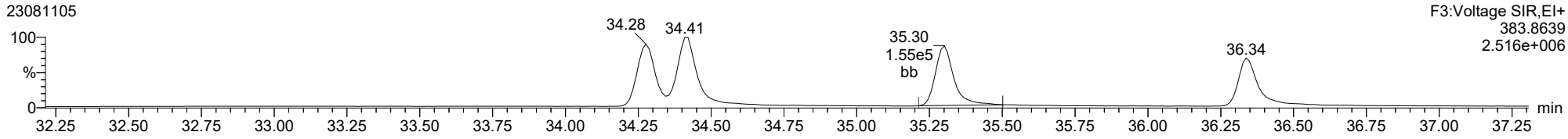
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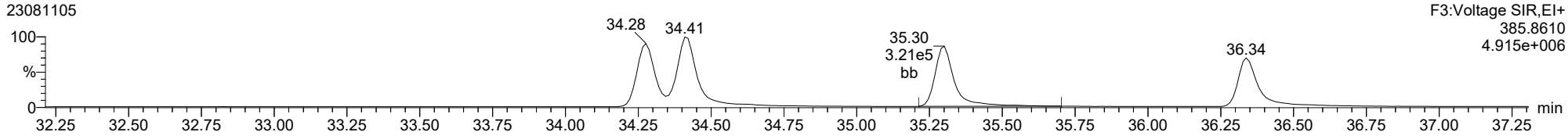
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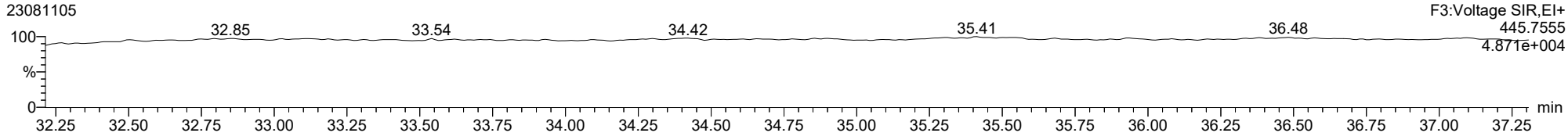
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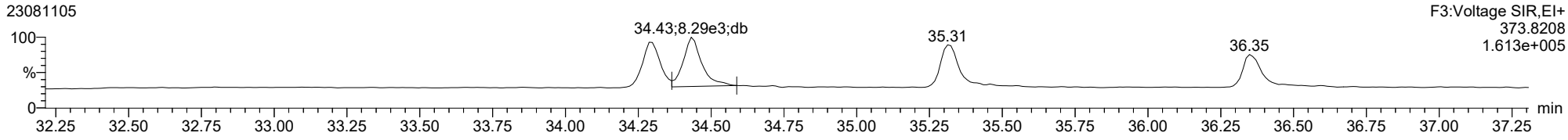


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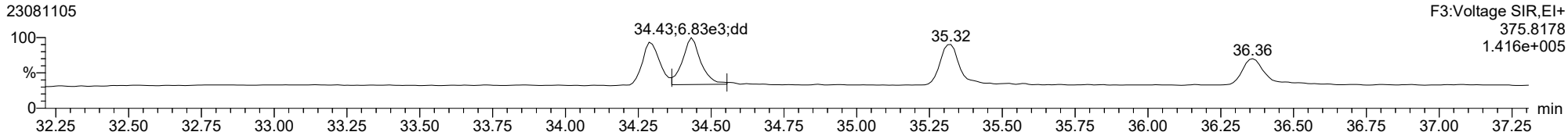


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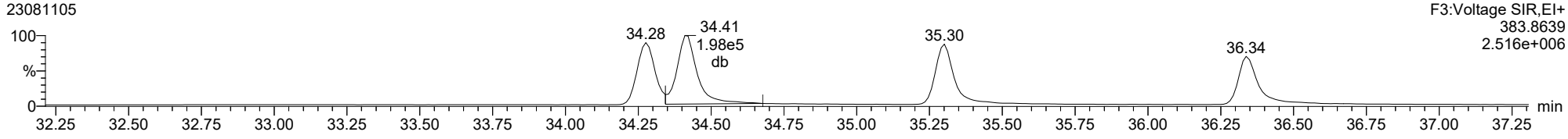
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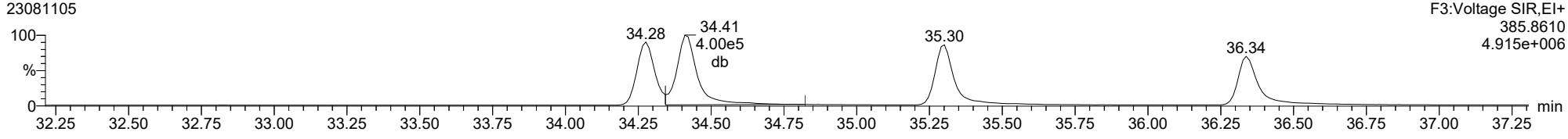
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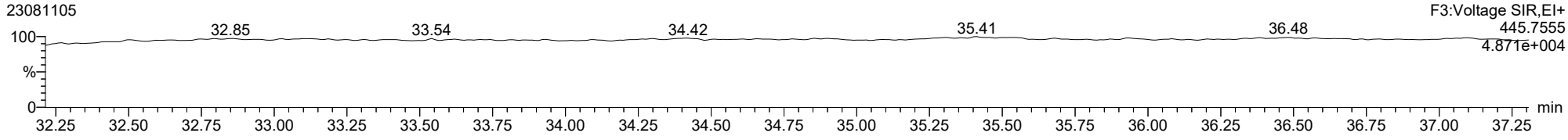
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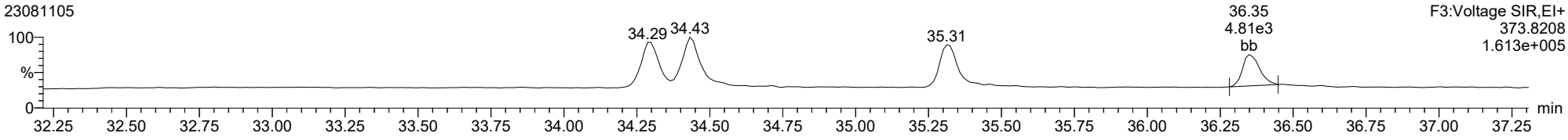


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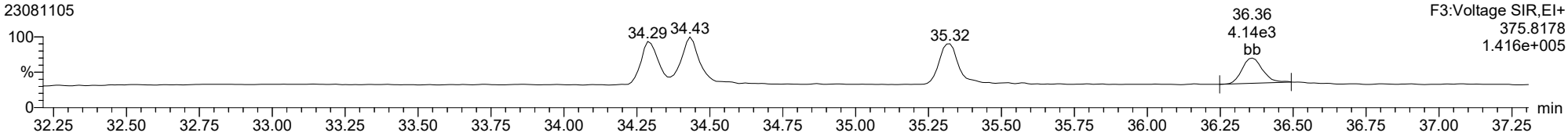


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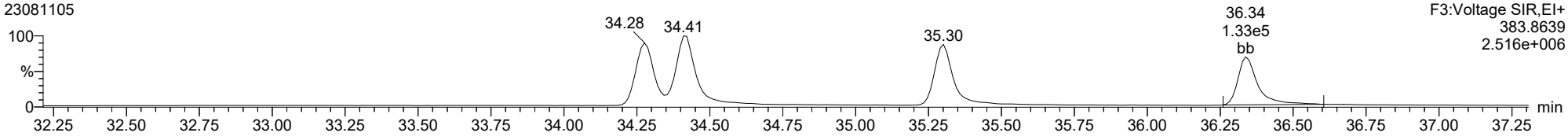
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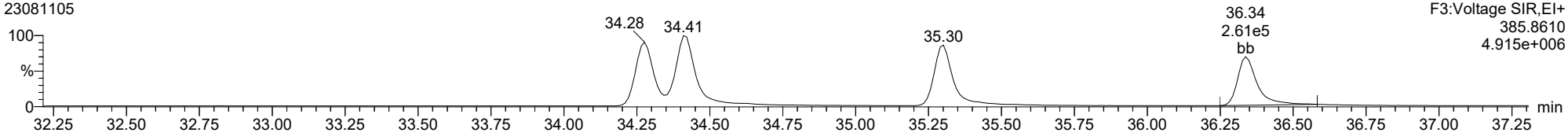
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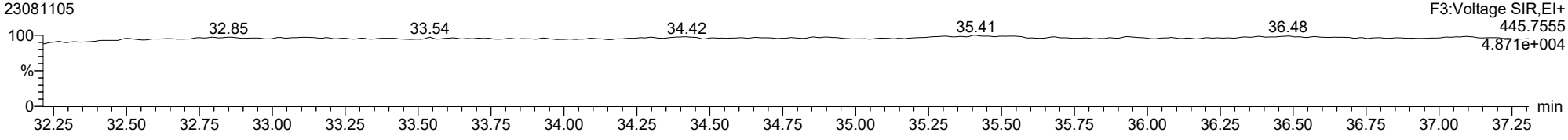
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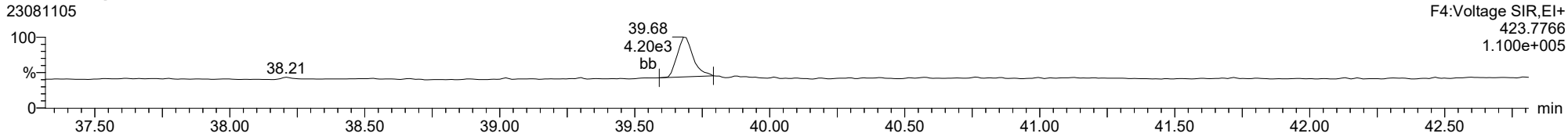


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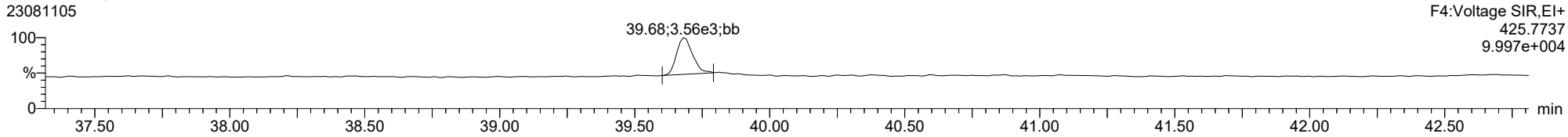


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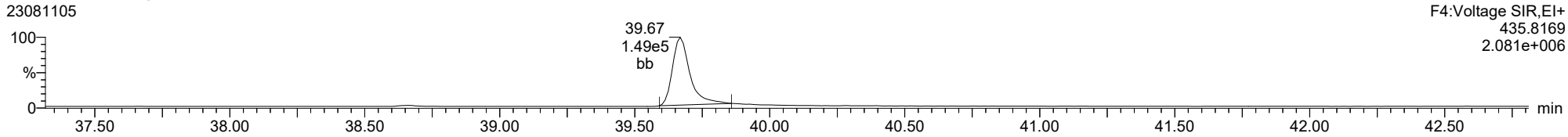
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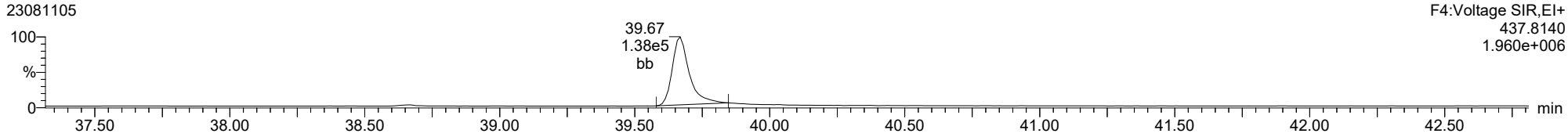
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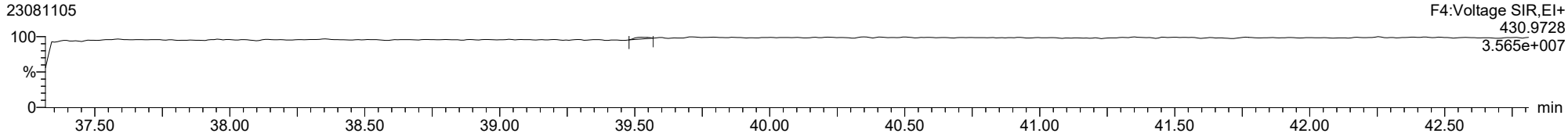
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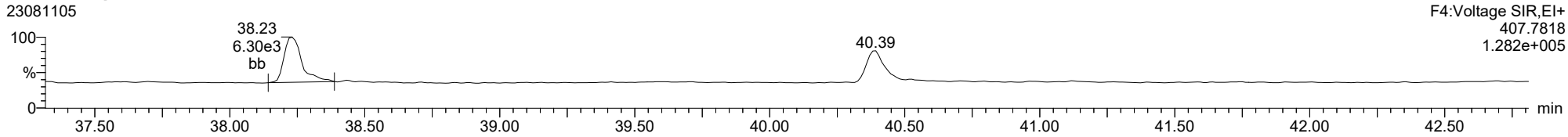


FUNCTION4 PFK

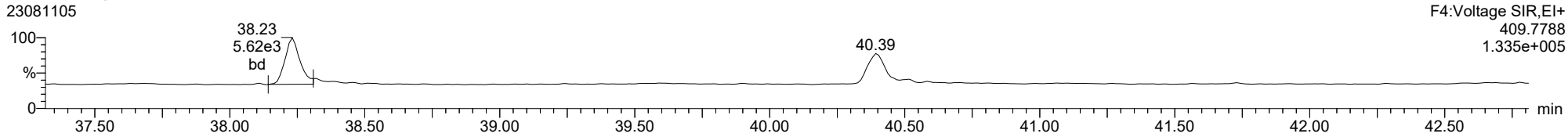


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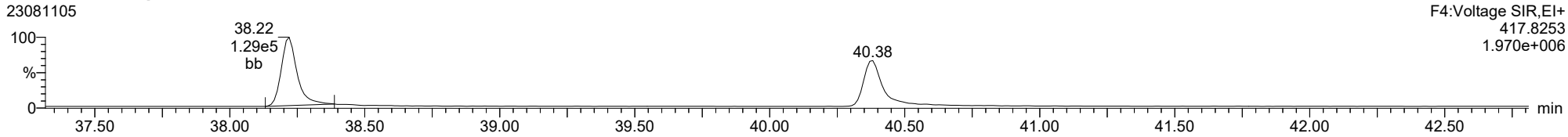
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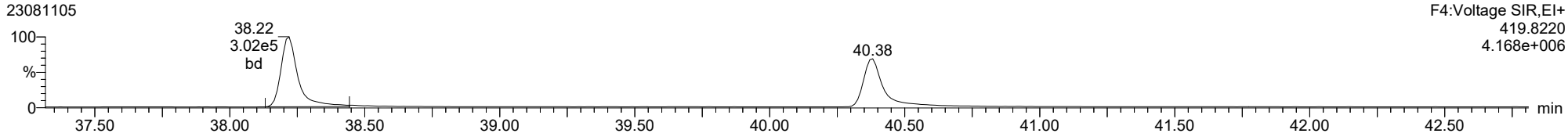
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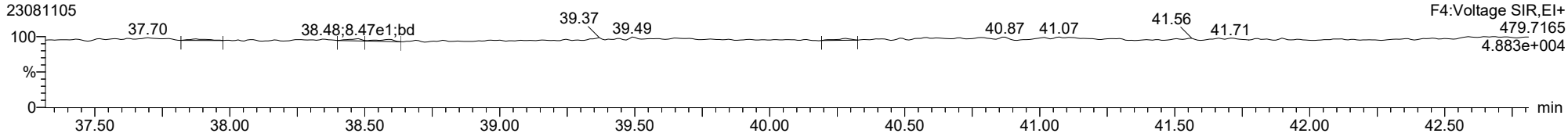
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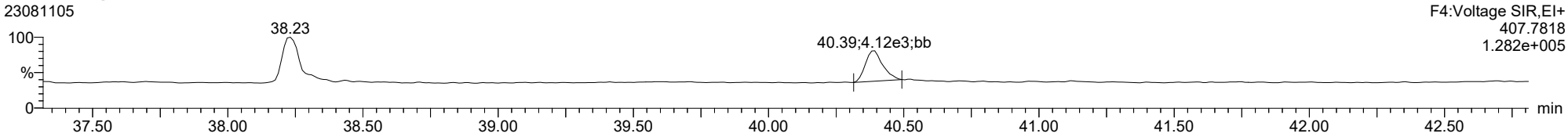


FUNCTION4 NCDPE

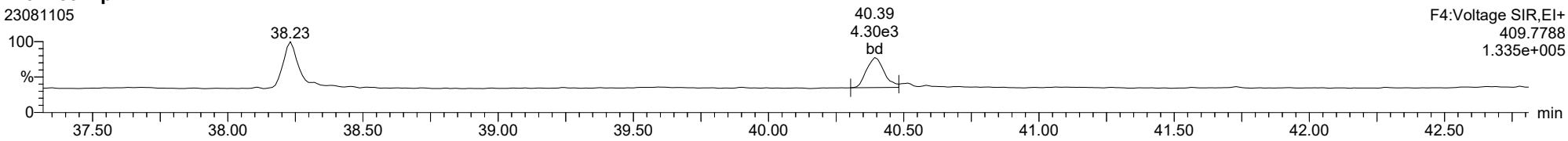


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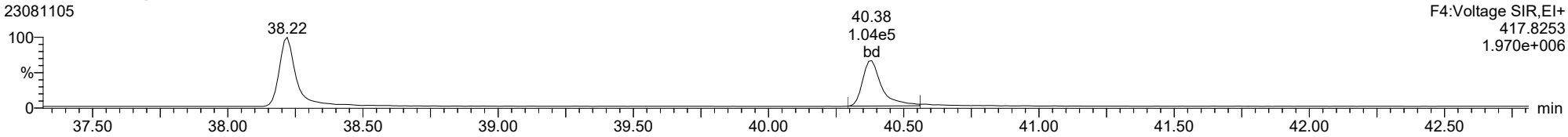
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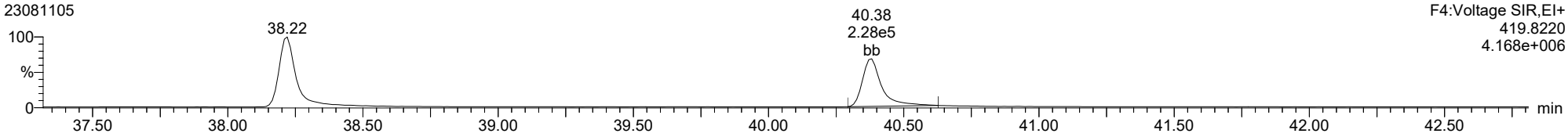
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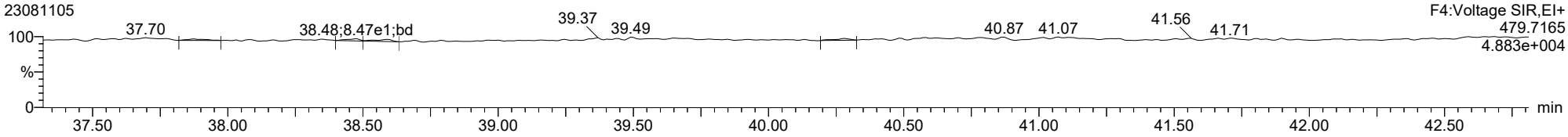
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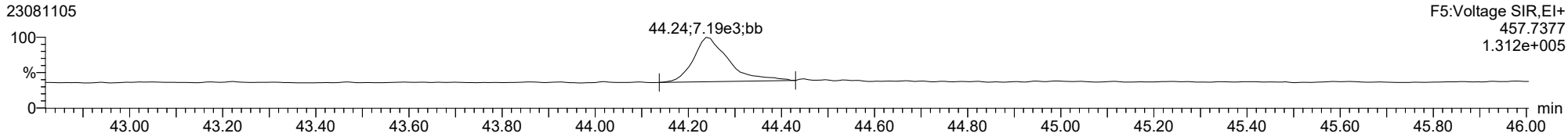


FUNCTION4 NCDPE

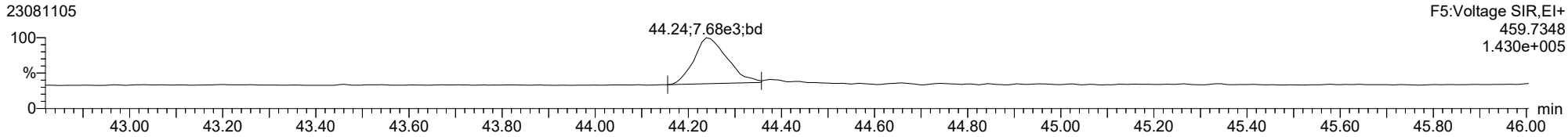


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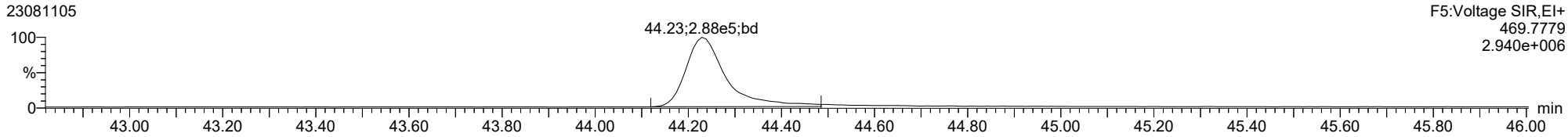
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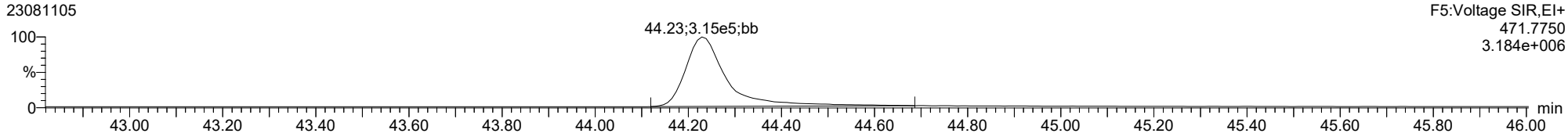
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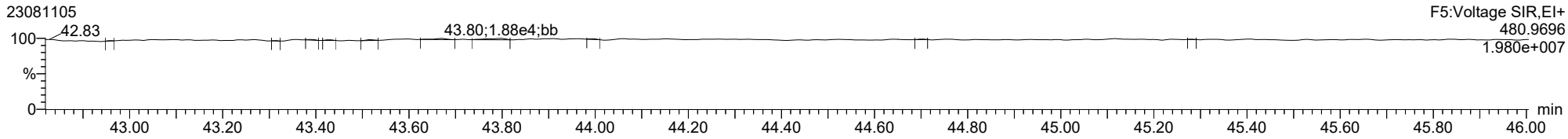
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13C-OCDD

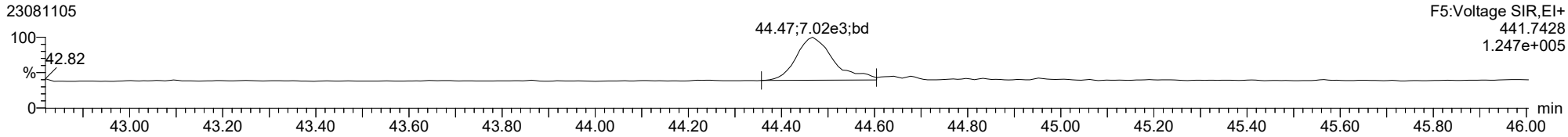


FUNCTION5 PFK

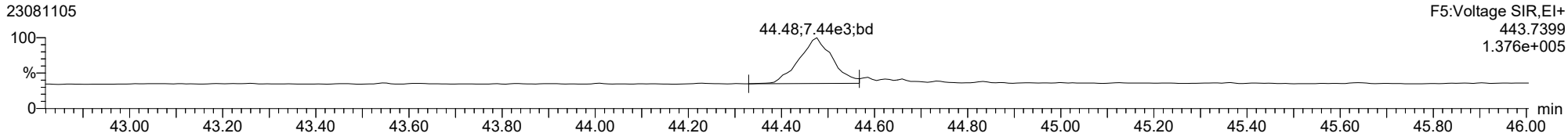


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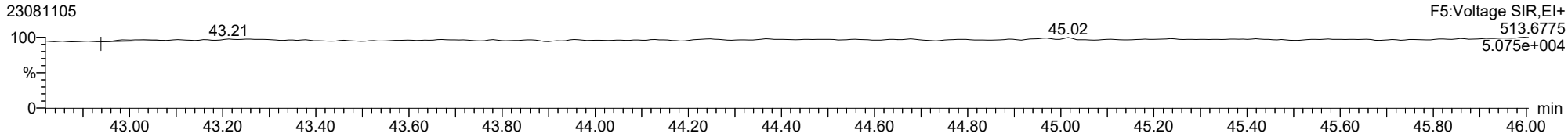
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OCDF

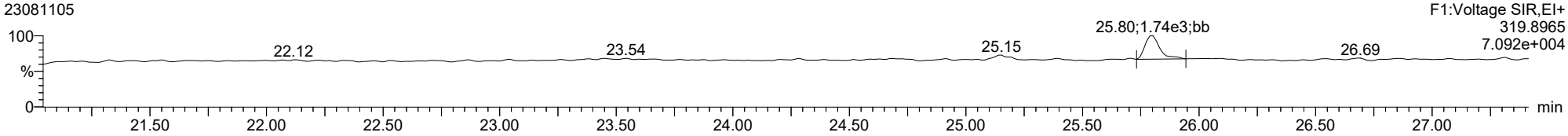


FUNCTION5 DCDPE

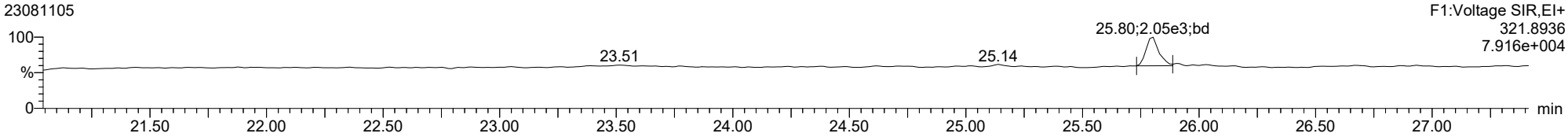


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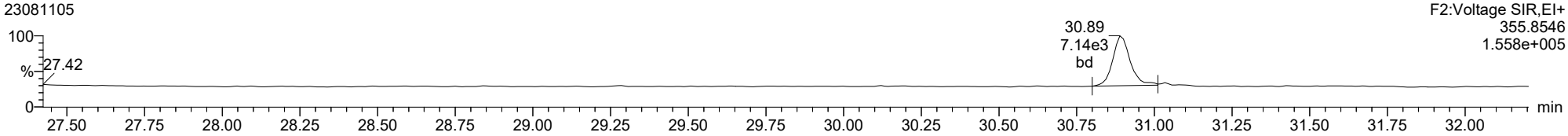
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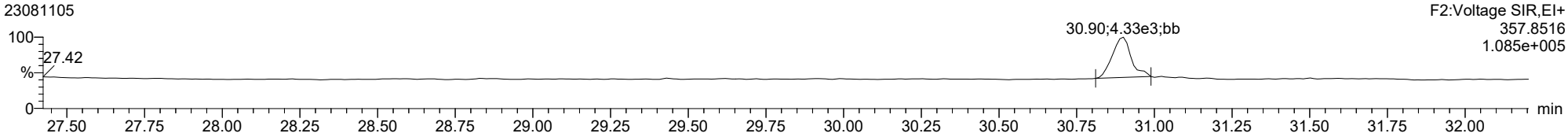
Total-tetradioxins



Total-pentadioxins

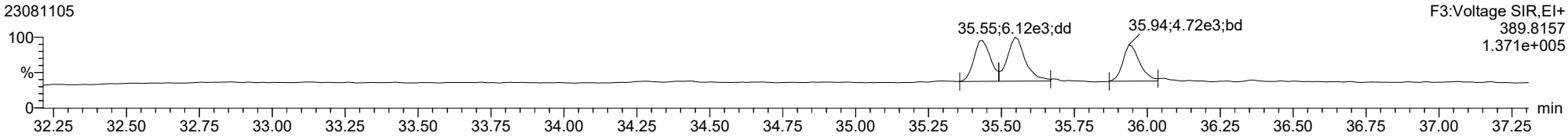


Total-pentadioxins

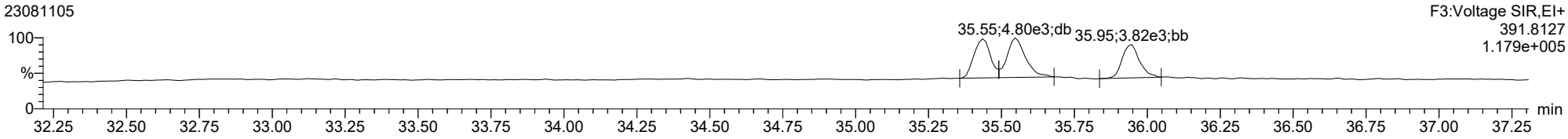


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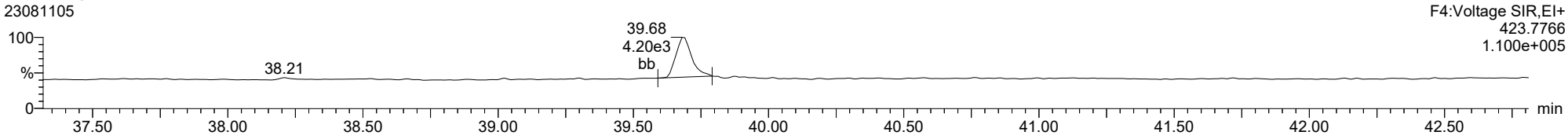
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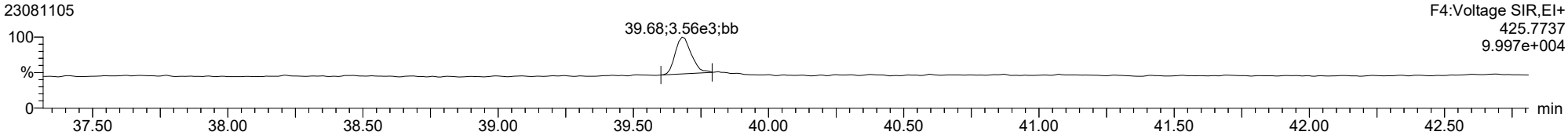
Total-hexadioxins



Total-heptadioxins

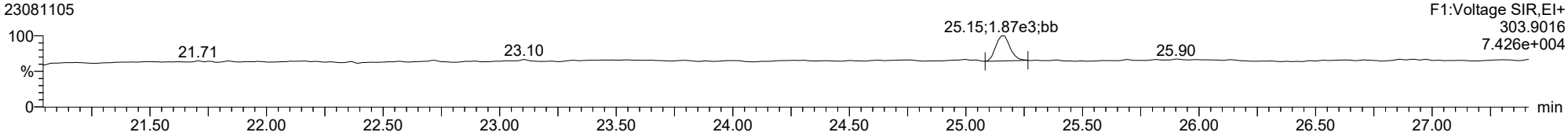


Total-heptadioxins

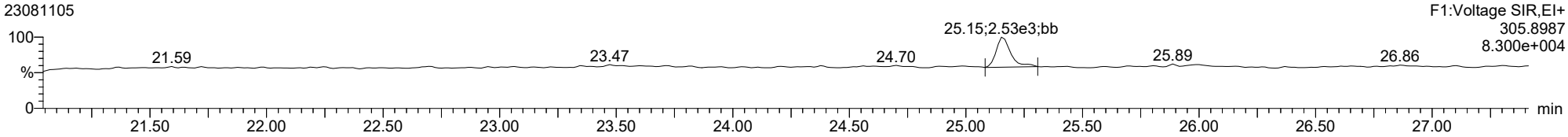


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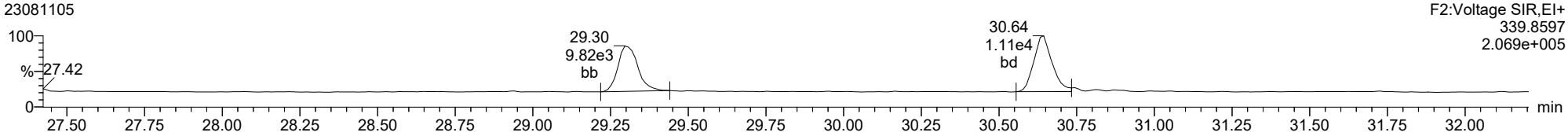
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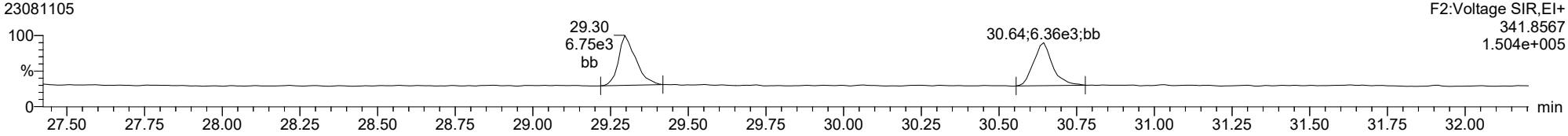
Total-tetrafurans



Total-pentafurans



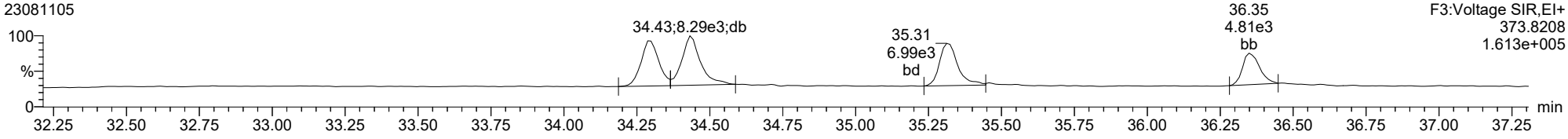
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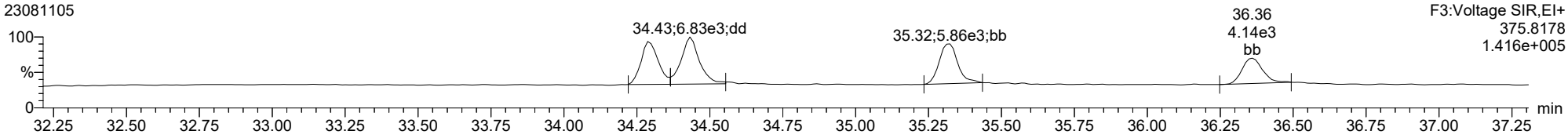
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Printed: Tuesday, August 15, 2023 12:24:07 Pacific Daylight Time

ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

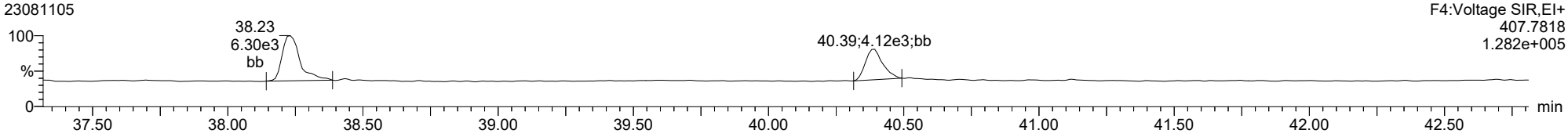
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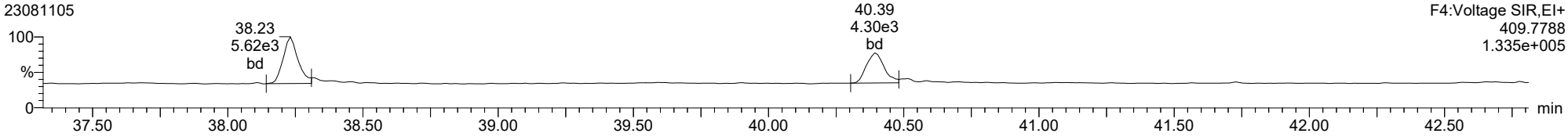
Total-hexafurans



Total-heptafurans



Total-heptafurans



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ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.167	1.001	6.639e3	8.975e3	0.903	0.740	0.770	538	993	9.21e4	1.31e5	171.1	132.1	NO	bb	bb	1.970
12378-PeCDF	29.307	1.001	3.740e4	2.220e4	0.923	1.684	1.550	1167	1190	4.81e5	3.04e5	411.7	255.4	NO	bb	bd	10.334
23478-PeCDF	30.644	1.001	3.540e4	2.344e4	0.991	1.510	1.550	1167	1190	4.95e5	3.17e5	424.4	266.2	NO	bb	bd	9.895
123478-HxCDF	34.298	1.001	2.384e4	1.903e4	1.128	1.253	1.240	1466	1136	3.44e5	2.76e5	234.6	242.7	NO	bd	bd	9.772
234678-HxCDF	35.323	1.001	2.434e4	1.816e4	1.081	1.340	1.240	1466	1136	3.13e5	2.58e5	213.5	227.4	NO	bd	bb	10.221
123678-HxCDF	34.432	1.000	2.948e4	2.321e4	1.032	1.270	1.240	1466	1136	3.59e5	2.86e5	244.6	251.7	NO	dd	dd	10.354
123789-HxCDF	36.359	1.000	1.833e4	1.528e4	0.988	1.200	1.240	1466	1136	2.44e5	1.98e5	166.3	174.1	NO	bb	bd	9.957
1234678-HpCDF	38.231	1.000	2.069e4	1.904e4	1.164	1.087	1.050	1165	914	2.82e5	2.63e5	242.1	287.7	NO	bd	bd	10.035
1234789-HpCDF	40.403	1.000	1.452e4	1.375e4	1.104	1.056	1.050	1165	914	1.89e5	1.80e5	161.9	196.4	NO	bd	bd	10.072
OCDF	44.475	1.005	2.020e4	2.277e4	1.130	0.887	0.890	1047	1105	2.11e5	2.19e5	201.8	198.1	NO	bd	bd	22.550
2378-TCDD	25.803	1.001	5.548e3	6.953e3	1.243	0.798	0.770	803	625	7.86e4	9.57e4	97.9	153.2	NO	bd	bd	1.984
12378-PeCDD	30.900	1.001	2.229e4	1.439e4	1.150	1.549	1.550	754	561	3.06e5	2.04e5	405.8	364.2	NO	bb	bd	9.779
123478-HxCDD	35.435	1.000	1.653e4	1.351e4	0.960	1.224	1.240	811	937	2.39e5	1.94e5	295.1	207.1	NO	bd	bd	10.063
123678-HxCDD	35.557	1.001	1.716e4	1.531e4	0.883	1.121	1.240	811	937	2.38e5	1.95e5	293.1	207.7	NO	dd	dd	9.914
123789-HxCDD	35.947	1.012	1.586e4	1.341e4	0.804	1.183	1.240	811	937	2.09e5	1.88e5	257.8	200.7	NO	bd	bd	10.680
1234678-HpCDD	39.690	1.001	1.073e4	1.037e4	1.200	1.035	1.050	1103	680	1.37e5	1.38e5	123.9	203.2	NO	bd	bd	9.429
OCDD	44.247	1.000	1.670e4	1.836e4	1.059	0.910	0.890	879	1587	1.83e5	2.04e5	207.8	128.8	NO	bd	bb	19.639
13C-2378-TCDF	25.153	1.007	3.886e5	4.890e5	1.835	0.795	0.770	1364	1344	5.37e6	6.83e6	3939.0	5083.6	NO	bb	bb	100.434
13C-12378-PeCDF	29.285	1.173	3.779e5	2.468e5	1.377	1.531	1.550	3286	2729	5.12e6	3.35e6	1559.6	1229.0	NO	bb	bb	95.324
13C-23478-PeCDF	30.622	1.226	3.655e5	2.348e5	1.301	1.557	1.550	3286	2729	4.81e6	3.14e6	1465.3	1148.8	NO	bb	bb	96.899
13C-123478-HxCDF	34.276	0.954	1.314e5	2.576e5	1.091	0.510	0.510	1750	2697	1.85e6	3.61e6	1057.7	1339.3	NO	bd	bd	107.194
13C-123678-HxCDF	34.421	0.958	1.547e5	3.382e5	1.340	0.457	0.510	1750	2697	2.05e6	4.08e6	1171.2	1512.3	NO	db	db	110.566
13C-234678-HxCDF	35.301	0.982	1.364e5	2.481e5	1.093	0.550	0.510	1750	2697	1.72e6	3.32e6	983.2	1231.8	NO	bb	bb	105.714
13C-123789-HxCDF	36.348	1.012	1.112e5	2.306e5	0.952	0.482	0.510	1750	2697	1.36e6	2.75e6	779.0	1019.4	NO	bb	bb	107.981
13C-1234678-HpCDF	38.220	1.064	9.913e4	2.411e5	0.985	0.411	0.440	1895	2595	1.40e6	3.17e6	737.2	1220.7	NO	bb	bb	103.834
13C-1234789-HpCDF	40.381	1.124	7.550e4	1.788e5	0.756	0.422	0.440	1895	2595	9.30e5	2.09e6	490.9	805.4	NO	bb	bd	101.155
13C-1234-TCDD	24.969	0.000	2.112e5	2.649e5	1.000	0.797	0.770	1680	1124	3.19e6	4.00e6	1899.2	3554.0	NO	bb	bb	100.000
13C-2378-TCDD	25.788	1.033	2.248e5	2.821e5	1.110	0.797	0.770	1680	1124	3.12e6	3.97e6	1858.7	3527.9	NO	bb	bb	95.969
13C-12378-PeCDD	30.878	1.237	2.020e5	1.242e5	0.754	1.627	1.550	1223	944	2.75e6	1.67e6	2245.0	1771.6	NO	bb	bb	90.902
13C-123478-HxCDD	35.423	0.986	1.742e5	1.367e5	0.960	1.275	1.240	1410	1296	2.60e6	2.05e6	1845.4	1580.5	NO	bd	bd	97.371
13C-123678-HxCDD	35.535	0.989	2.078e5	1.633e5	1.159	1.273	1.240	1410	1296	2.57e6	2.02e6	1824.4	1557.0	NO	db	db	96.226
13C-1234678-HpCDD	39.668	1.104	9.858e4	8.803e4	0.629	1.120	1.050	1254	2104	1.25e6	1.14e6	994.6	540.8	NO	bd	bd	89.141
13C-OCDD	44.238	1.231	1.612e5	1.761e5	0.635	0.915	0.890	2400	1954	1.62e6	1.78e6	676.5	910.4	NO	bd	bd	159.619
13C-123789-HxCDD	35.936	0.000	1.861e5	1.465e5	1.000	1.270	1.240	1410	1296	2.41e6	1.88e6	1710.5	1449.2	NO	bb	bb	100.000
37CL-2378-TCDD	25.803	1.033	1.067e4		1.157			862		1.46e5		169.4			bb		1.937

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:22 Pacific Daylight Time

ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.170		0.770	538	993								
1289-TCDF					0.847		0.770	538	993								
13468-PECDF					1.241		1.550	576	687								
12389-PECDF					0.880		1.550	1167	1190								
123468-HXCDF					1.206		1.240	1466	1136								
1368-TCDD					1.181		0.770	803	625								
1289-TCDD					0.963		0.770	803	625								
12479-PECDD					2.166		1.550	754	561								
12389-PECDD					1.326		1.550	754	561								
124679-HXCDD					1.127		1.240	811	937								
1234679-HPCDD					1.303		1.050	1103	680								
Total-tetrafurans			6.639e3		0.973			538		9.21e4							1.970
Total-penta1			0.000e0					576		0.00e0							
Total-pentafurans			7.280e4		0.931			1167		9.76e5							20.229
Total-hexafurans			9.600e4		1.087			1466		1.26e6							40.303
Total-heptafurans			3.521e4		1.134			1165		4.71e5							20.106
Total-Furans			2.308e5		1.053			538		3.01e6							105.158
Total-tetradioxins			5.548e3		1.129			803		7.86e4							1.984
Total-pentadioxins			2.229e4		1.548			754		3.06e5							9.779
Total-hexadioxins			4.955e4		0.943			811		6.86e5							30.657
Total-heptadioxins			1.073e4		1.251			1103		1.37e5							9.429
Total-Dioxins			1.048e5		1.182			803		1.39e6							71.487
Total-TEQ			3.357e5					803		4.40e6							176.646
FUNCTION1 PFK			6.101e5					529815		9.62e6							
FUNCTION2 PFK			3.300e5					262661		9.68e6							0.000
FUNCTION3 PFK			3.679e4					410224		9.46e5							0.000
FUNCTION4 PFK			9.280e4					245564		2.16e6							
FUNCTION5 PFK			2.234e4					217516		1.10e6							
FUNCTION1 HXCD...			1.047e3					646		1.33e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			1.453e2					593		3.14e3							0.000
FUNCTION3 OCDPE			0.000e0					501		0.00e0							
FUNCTION4 NCDPE			0.000e0					705		0.00e0							
FUNCTION5 DCDPE			0.000e0					568		0.00e0							

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.17	6.639e3	8.975e3	0.903	0.74	0.77	171.1	YES	NO	bb	bb	1.970

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.64	3.540e4	2.344e4	0.991	1.51	1.55	424.4	YES	NO	bb	bd	9.895
2	12378-PeCDF	29.31	3.740e4	2.220e4	0.923	1.68	1.55	411.7	YES	NO	bb	bd	10.334

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.36	1.833e4	1.528e4	0.988	1.20	1.24	166.3	YES	NO	bb	bd	9.957
2	234678-HxCDF	35.32	2.434e4	1.816e4	1.081	1.34	1.24	213.5	YES	NO	bd	bb	10.221
3	123678-HxCDF	34.43	2.948e4	2.321e4	1.032	1.27	1.24	244.6	YES	NO	dd	dd	10.354
4	123478-HxCDF	34.30	2.384e4	1.903e4	1.128	1.25	1.24	234.6	YES	NO	bd	bd	9.772

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.40	1.452e4	1.375e4	1.104	1.06	1.05	161.9	YES	NO	bd	bd	10.072
2	1234678-HpCDF	38.23	2.069e4	1.904e4	1.164	1.09	1.05	242.1	YES	NO	bd	bd	10.035

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.64	3.540e4	2.344e4	0.991	1.51	1.55	424.4	YES	NO	bb	bd	9.895
2	12378-PeCDF	29.31	3.740e4	2.220e4	0.923	1.68	1.55	411.7	YES	NO	bb	bd	10.334
3	2378-TCDF	25.17	6.639e3	8.975e3	0.903	0.74	0.77	171.1	YES	NO	bb	bb	1.970
4	123789-HxCDF	36.36	1.833e4	1.528e4	0.988	1.20	1.24	166.3	YES	NO	bb	bd	9.957
5	234678-HxCDF	35.32	2.434e4	1.816e4	1.081	1.34	1.24	213.5	YES	NO	bd	bb	10.221
6	123678-HxCDF	34.43	2.948e4	2.321e4	1.032	1.27	1.24	244.6	YES	NO	dd	dd	10.354
7	123478-HxCDF	34.30	2.384e4	1.903e4	1.128	1.25	1.24	234.6	YES	NO	bd	bd	9.772
8	1234789-HpCDF	40.40	1.452e4	1.375e4	1.104	1.06	1.05	161.9	YES	NO	bd	bd	10.072
9	1234678-HpCDF	38.23	2.069e4	1.904e4	1.164	1.09	1.05	242.1	YES	NO	bd	bd	10.035
10	OCDF	44.48	2.020e4	2.277e4	1.130	0.89	0.89	201.8	YES	NO	bd	bd	22.550

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.80	5.548e3	6.953e3	1.243	0.80	0.77	97.9	YES	NO	bd	bd	1.984

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.90	2.229e4	1.439e4	1.150	1.55	1.55	405.8	YES	NO	bb	bd	9.779

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.95	1.586e4	1.341e4	0.804	1.18	1.24	257.8	YES	NO	bd	bd	10.680
2	123678-HxCDD	35.56	1.716e4	1.531e4	0.883	1.12	1.24	293.1	YES	NO	dd	dd	9.914
3	123478-HxCDD	35.43	1.653e4	1.351e4	0.960	1.22	1.24	295.1	YES	NO	bd	bd	10.063

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.69	1.073e4	1.037e4	1.200	1.03	1.05	123.9	YES	NO	bd	bd	9.429

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.80	5.548e3	6.953e3	1.243	0.80	0.77	97.9	YES	NO	bd	bd	1.984
2	123789-HxCDD	35.95	1.586e4	1.341e4	0.804	1.18	1.24	257.8	YES	NO	bd	bd	10.680
3	123678-HxCDD	35.56	1.716e4	1.531e4	0.883	1.12	1.24	293.1	YES	NO	dd	dd	9.914
4	123478-HxCDD	35.43	1.653e4	1.351e4	0.960	1.22	1.24	295.1	YES	NO	bd	bd	10.063
5	12378-PeCDD	30.90	2.229e4	1.439e4	1.150	1.55	1.55	405.8	YES	NO	bb	bd	9.779
6	OCDD	44.25	1.670e4	1.836e4	1.059	0.91	0.89	207.8	YES	NO	bd	bb	19.639
7	1234678-HpCDD	39.69	1.073e4	1.037e4	1.200	1.03	1.05	123.9	YES	NO	bd	bd	9.429

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.64	3.540e4	2.344e4	0.991	1.51	1.55	424.4	YES	NO	bb	bd	9.895
2	12378-PeCDF	29.31	3.740e4	2.220e4	0.923	1.68	1.55	411.7	YES	NO	bb	bd	10.334
3	2378-TCDF	25.17	6.639e3	8.975e3	0.903	0.74	0.77	171.1	YES	NO	bb	bb	1.970
4	123789-HxCDF	36.36	1.833e4	1.528e4	0.988	1.20	1.24	166.3	YES	NO	bb	bd	9.957
5	234678-HxCDF	35.32	2.434e4	1.816e4	1.081	1.34	1.24	213.5	YES	NO	bd	bb	10.221
6	123678-HxCDF	34.43	2.948e4	2.321e4	1.032	1.27	1.24	244.6	YES	NO	dd	dd	10.354
7	123478-HxCDF	34.30	2.384e4	1.903e4	1.128	1.25	1.24	234.6	YES	NO	bd	bd	9.772
8	1234789-HpCDF	40.40	1.452e4	1.375e4	1.104	1.06	1.05	161.9	YES	NO	bd	bd	10.072
9	1234678-HpCDF	38.23	2.069e4	1.904e4	1.164	1.09	1.05	242.1	YES	NO	bd	bd	10.035
10	OCDF	44.48	2.020e4	2.277e4	1.130	0.89	0.89	201.8	YES	NO	bd	bd	22.550
11	2378-TCDD	25.80	5.548e3	6.953e3	1.243	0.80	0.77	97.9	YES	NO	bd	bd	1.984
12	123789-HxCDD	35.95	1.586e4	1.341e4	0.804	1.18	1.24	257.8	YES	NO	bd	bd	10.680
13	123678-HxCDD	35.56	1.716e4	1.531e4	0.883	1.12	1.24	293.1	YES	NO	dd	dd	9.914
14	123478-HxCDD	35.43	1.653e4	1.351e4	0.960	1.22	1.24	295.1	YES	NO	bd	bd	10.063
15	12378-PeCDD	30.90	2.229e4	1.439e4	1.150	1.55	1.55	405.8	YES	NO	bb	bd	9.779
16	OCDD	44.25	1.670e4	1.836e4	1.059	0.91	0.89	207.8	YES	NO	bd	bb	19.639
17	1234678-HpCDD	39.69	1.073e4	1.037e4	1.200	1.03	1.05	123.9	YES	NO	bd	bd	9.429

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	27.13	4.567e4					1.8	NO		bb		
2	FUNCTION1 PFK	26.93	1.033e5					1.9	NO		bb		
3	FUNCTION1 PFK	25.83	1.767e4					0.9	NO		db		
4	FUNCTION1 PFK	25.76	2.157e4					1.2	NO		bd		
5	FUNCTION1 PFK	25.36	1.644e4					1.0	NO		bb		
6	FUNCTION1 PFK	24.72	9.596e3					0.9	NO		bb		
7	FUNCTION1 PFK	23.80	8.729e4					1.7	NO		bb		
8	FUNCTION1 PFK	23.68	1.279e4					0.8	NO		bb		
9	FUNCTION1 PFK	22.95	2.100e4					1.1	NO		bb		
10	FUNCTION1 PFK	22.55	1.612e5					2.6	NO		bb		
11	FUNCTION1 PFK	21.37	6.636e4					1.6	NO		bb		
12	FUNCTION1 PFK	21.24	1.932e4					1.3	NO		bb		
13	FUNCTION1 PFK	27.37	2.793e4					1.4	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.56	1.108e3					0.4	NO		bb		0.000
2	FUNCTION2 PFK	29.42	1.592e4					1.3	NO		bb		0.000
3	FUNCTION2 PFK	29.14	8.800e3					0.6	NO		bb		0.000
4	FUNCTION2 PFK	29.04	1.126e3					0.4	NO		bb		0.000
5	FUNCTION2 PFK	28.89	1.092e3					0.4	NO		bb		0.000
6	FUNCTION2 PFK	28.67	2.760e3					0.6	NO		bb		0.000
7	FUNCTION2 PFK	28.54	4.266e4					2.3	NO		db		0.000
8	FUNCTION2 PFK	28.50	7.502e3					1.4	NO		bd		0.000
9	FUNCTION2 PFK	28.44	4.754e3					0.8	NO		bb		0.000
10	FUNCTION2 PFK	28.24	1.817e3					0.6	NO		bb		0.000
11	FUNCTION2 PFK	27.91	2.129e4					1.8	NO		bb		0.000
12	FUNCTION2 PFK	27.70	1.104e4					1.3	NO		bb		0.000
13	FUNCTION2 PFK	27.56	1.554e4					2.6	NO		bb		0.000
14	FUNCTION2 PFK	27.48	7.233e3					1.3	NO		bb		0.000
15	FUNCTION2 PFK	31.65	2.742e3					0.7	NO		db		0.000
16	FUNCTION2 PFK	31.61	7.483e3					1.0	NO		dd		0.000
17	FUNCTION2 PFK	31.57	8.598e3					1.1	NO		bd		0.000
18	FUNCTION2 PFK	31.48	5.872e3					0.9	NO		bb		0.000
19	FUNCTION2 PFK	31.17	2.153e4					1.7	NO		bb		0.000
20	FUNCTION2 PFK	31.02	6.265e3					1.0	NO		bb		0.000
21	FUNCTION2 PFK	30.97	5.713e3					1.0	NO		db		0.000
22	FUNCTION2 PFK	30.93	5.520e3					1.0	NO		bd		0.000
23	FUNCTION2 PFK	30.78	1.253e4					1.2	NO		db		0.000
24	FUNCTION2 PFK	30.72	1.563e4					2.1	NO		dd		0.000
25	FUNCTION2 PFK	30.69	5.597e4					3.6	YES		bd		0.000
26	FUNCTION2 PFK	30.50	7.111e3					1.1	NO		bb		0.000
27	FUNCTION2 PFK	30.34	3.928e3					0.6	NO		bb		0.000
28	FUNCTION2 PFK	30.29	1.253e4					1.3	NO		db		0.000
29	FUNCTION2 PFK	30.22	9.994e3					1.2	NO		bd		0.000
30	FUNCTION2 PFK	30.08	3.205e3					0.7	NO		bb		0.000
31	FUNCTION2 PFK	31.76	2.713e3					0.6	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	36.80	3.679e4					2.3	NO		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	41.57	1.891e4					2.5	NO		bb		
2	FUNCTION4 PFK	40.08	2.932e4					2.7	NO		bb		
3	FUNCTION4 PFK	37.54	4.458e4					3.6	YES		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.33	1.090e3					0.5	NO		bb		
2	FUNCTION5 PFK	44.09	8.882e3					1.5	NO		bb		
3	FUNCTION5 PFK	43.42	9.419e3					1.5	NO		bb		
4	FUNCTION5 PFK	43.07	1.093e3					0.5	NO		bb		
5	FUNCTION5 PFK	43.00	1.858e3					0.9	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	21.45	1.010e2					1.8	NO		db		0.000
2	FUNCTION1 HXCD...	21.33	1.737e2					2.5	NO		bd		0.000
3	FUNCTION1 HXCD...	26.28	1.182e2					1.7	NO		db		0.000
4	FUNCTION1 HXCD...	26.16	8.898e1					2.4	NO		dd		0.000
5	FUNCTION1 HXCD...	26.10	1.100e2					2.3	NO		bd		0.000
6	FUNCTION1 HXCD...	25.92	8.664e1					2.0	NO		db		0.000
7	FUNCTION1 HXCD...	25.80	8.460e1					1.7	NO		bd		0.000
8	FUNCTION1 HXCD...	23.51	1.186e2					2.4	NO		db		0.000
9	FUNCTION1 HXCD...	23.39	8.900e1					2.1	NO		bd		0.000
10	FUNCTION1 HXCD...	22.67	7.641e1					1.6	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	28.44	7.425e1					2.3	NO		bb		0.000
2	FUNCTION2 HPCD...	27.79	7.103e1					3.0	NO		bb		0.000

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ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

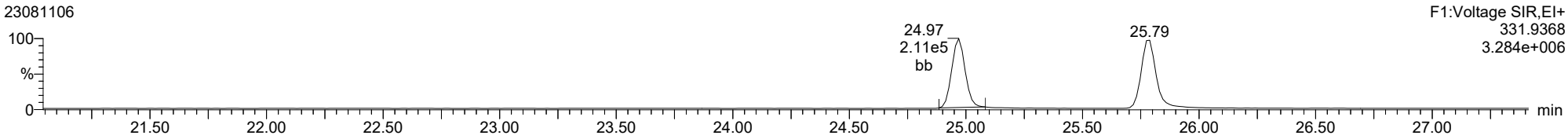
ETHERS6

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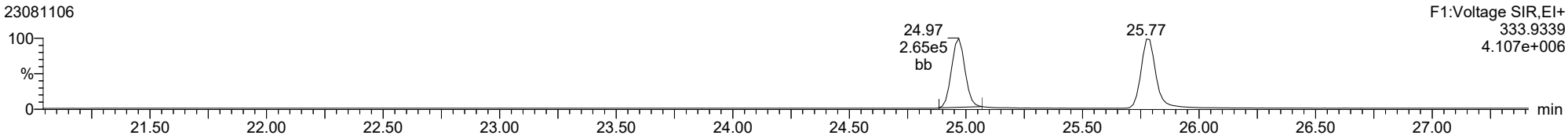
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ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

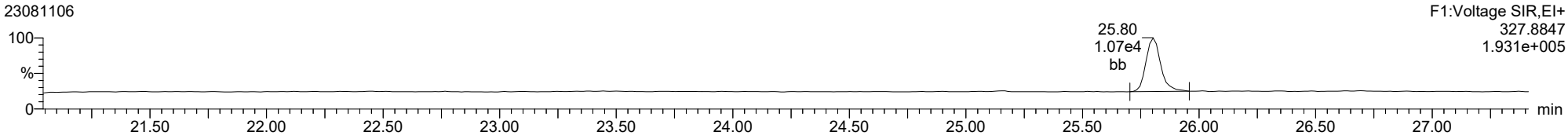
13C-1234-TCDD



13C-1234-TCDD

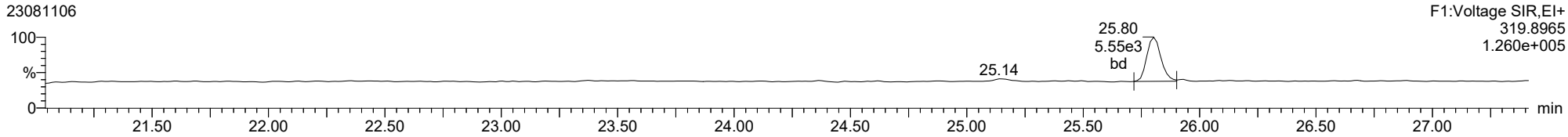


37CL-2378-TCDD

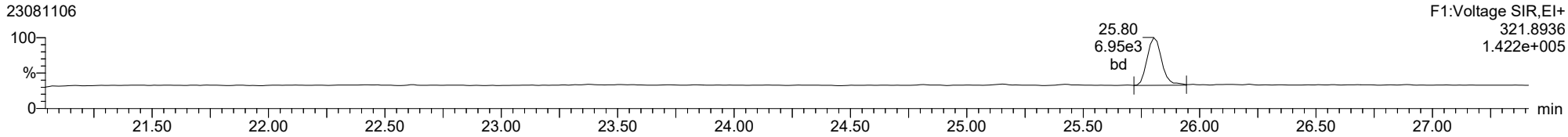


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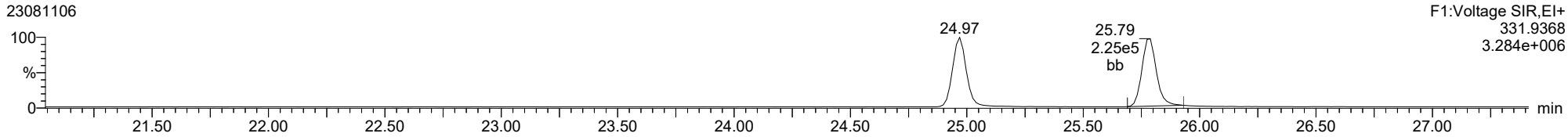
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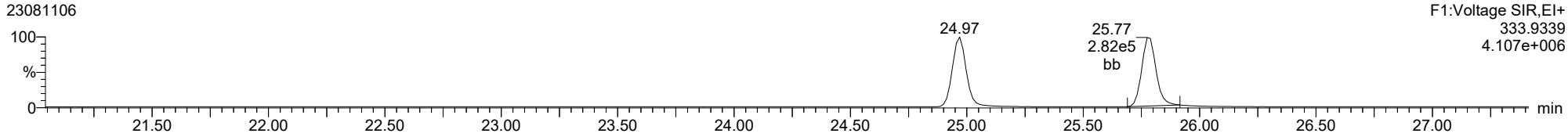
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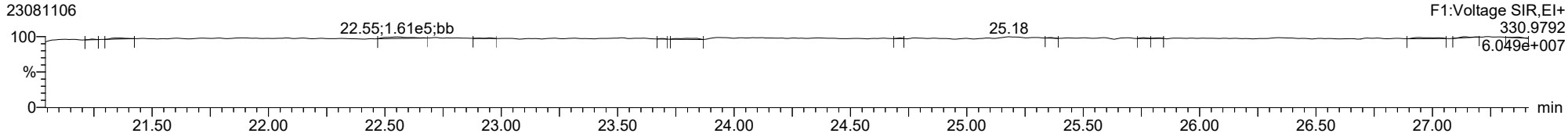
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13C-2378-TCDD

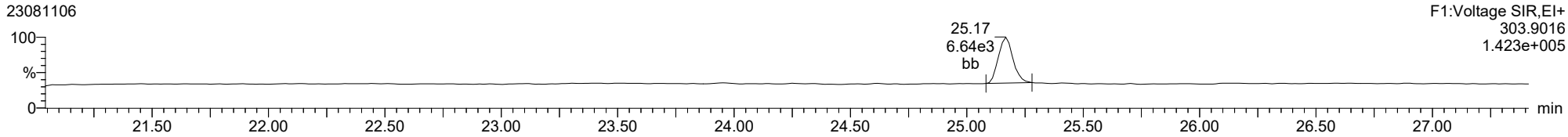


FUNCTION1 PFK

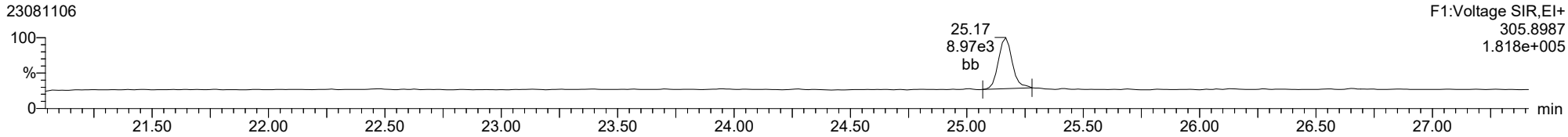


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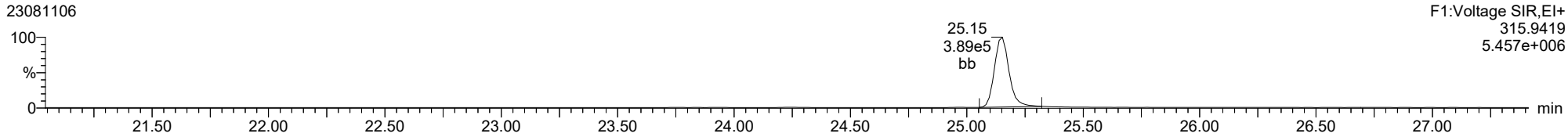
2378-TCDF



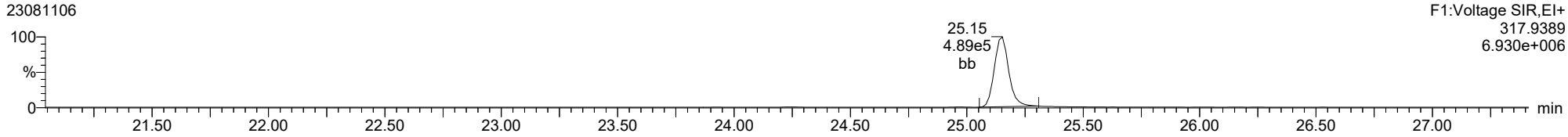
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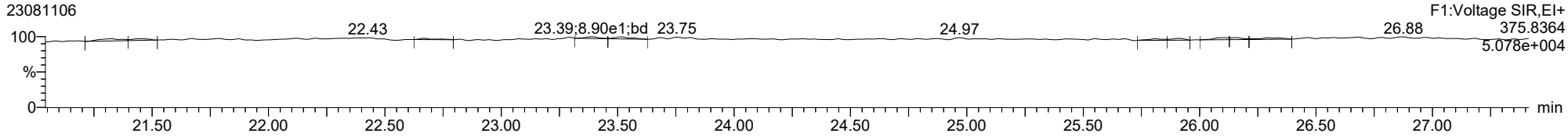
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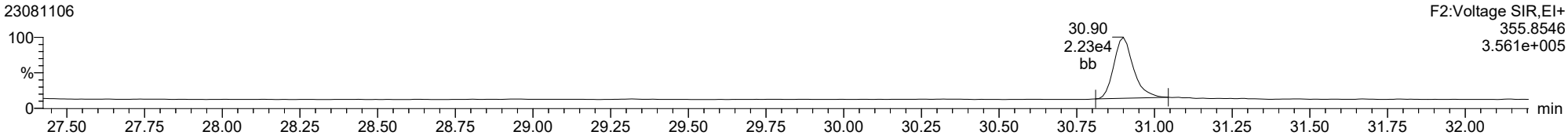


FUNCTION1 HXCDPE

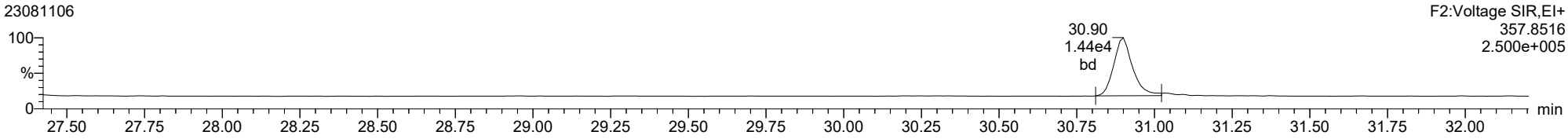


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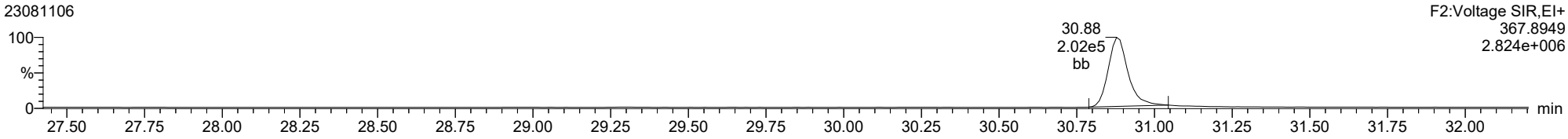
12378-PeCDD



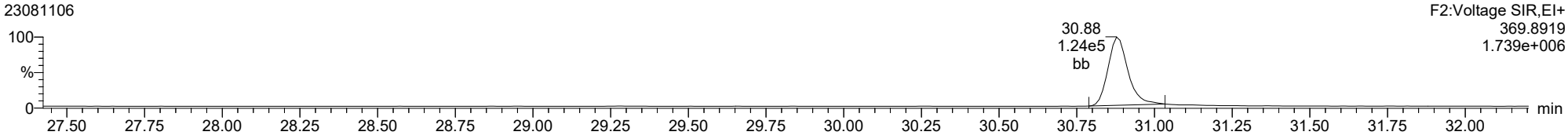
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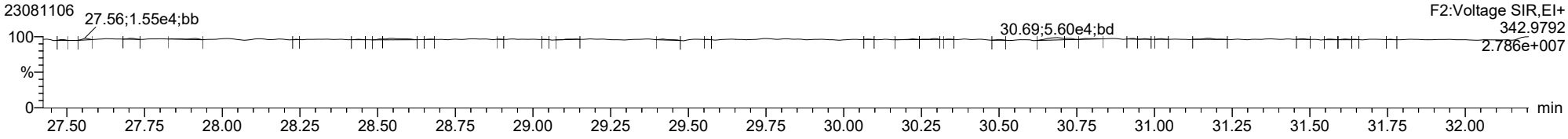
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13C-12378-PeCDD

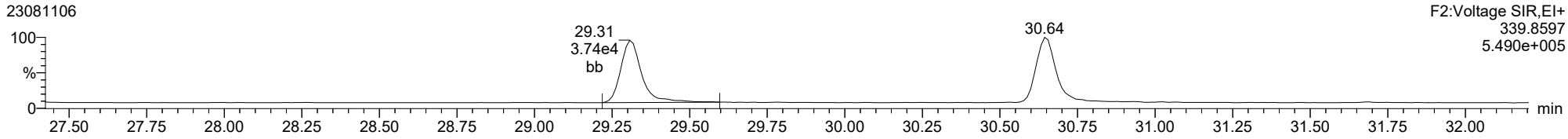


FUNCTION2 PFK

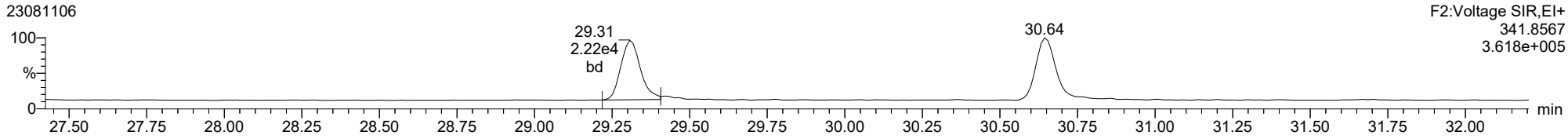


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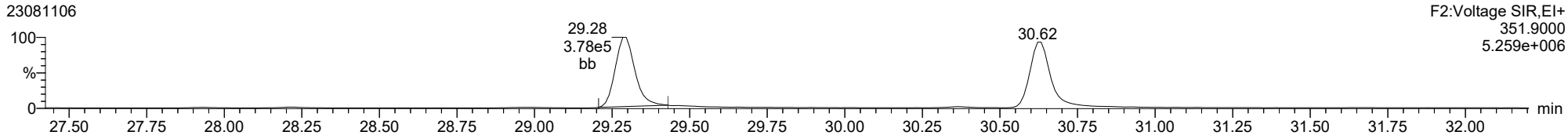
12378-PeCDF



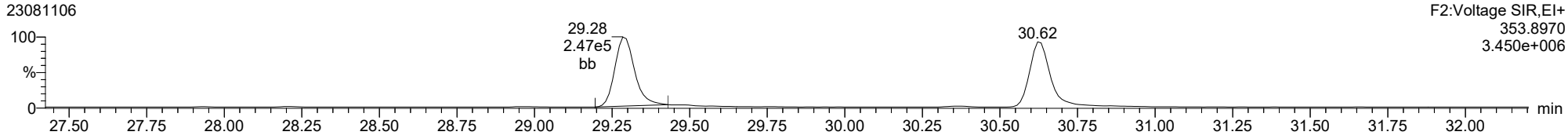
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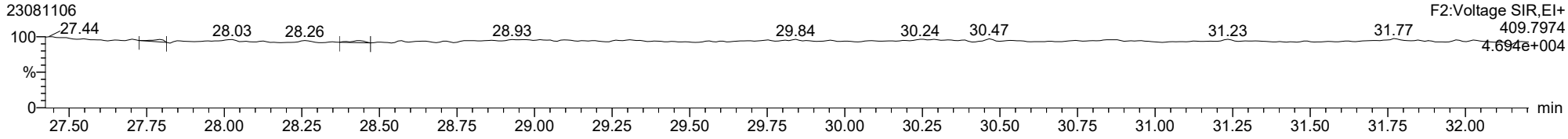
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13C-12378-PeCDF



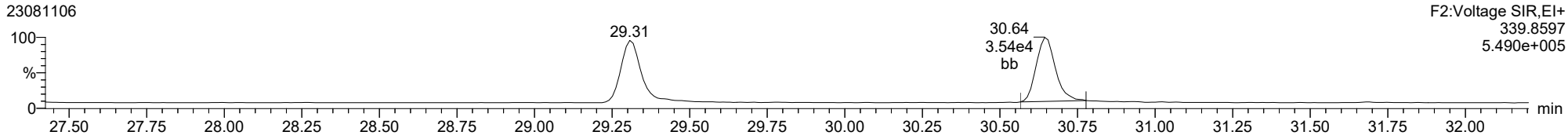
FUNCTION2 HPCDPE



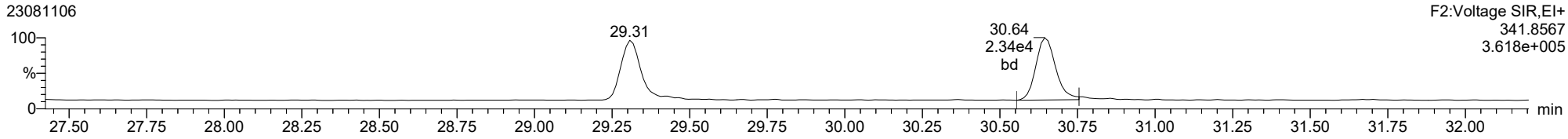
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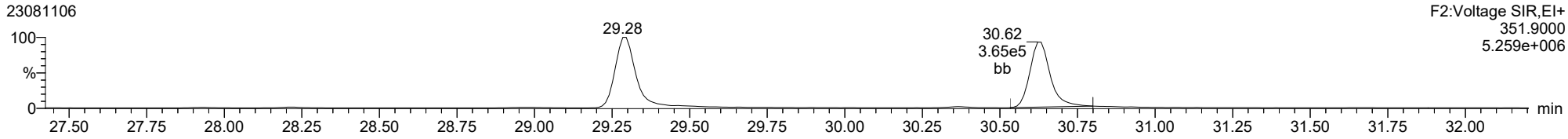
23478-PeCDF



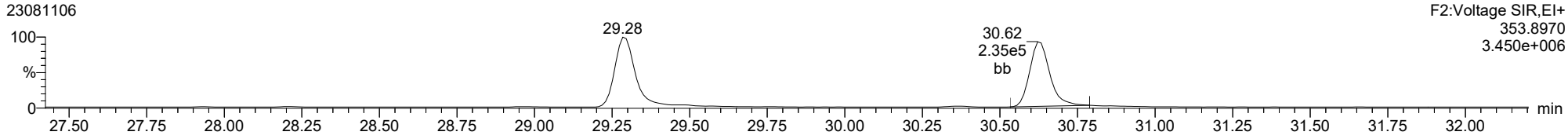
23478-PeCDF



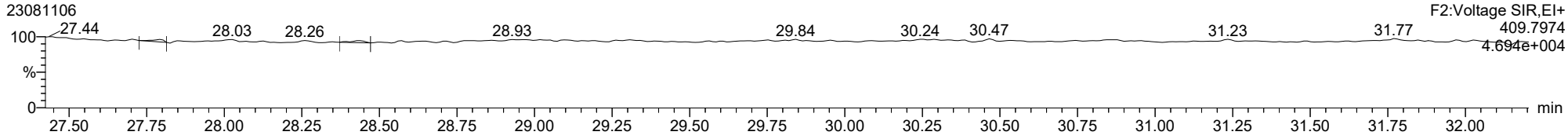
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13C-23478-PeCDF

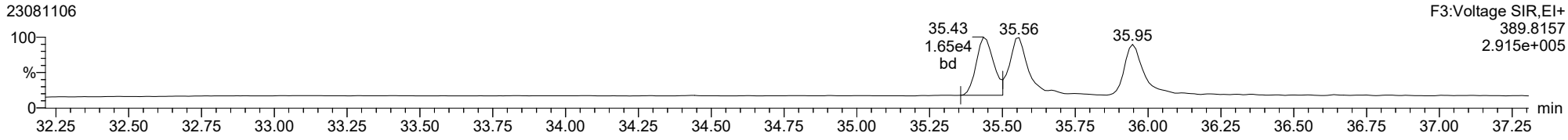


FUNCTION2 HPCDPE

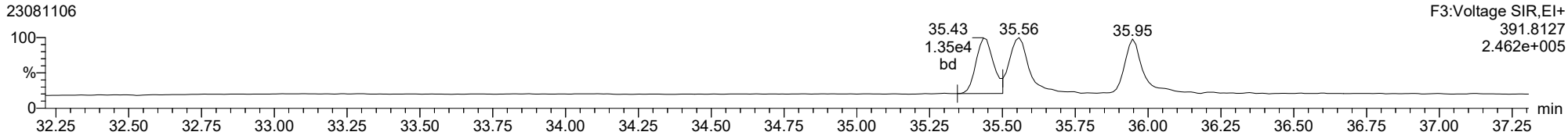


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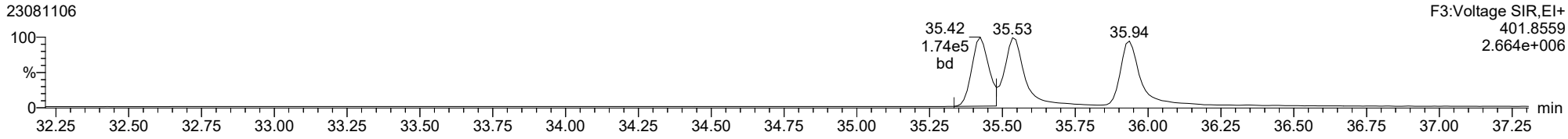
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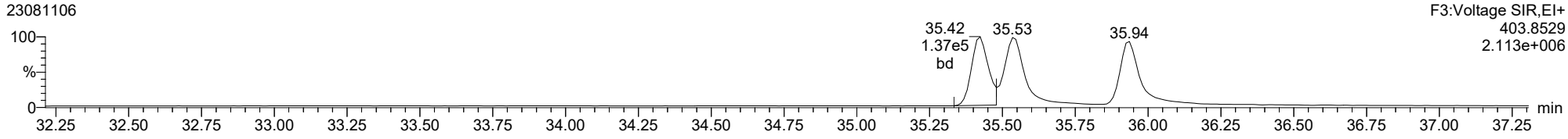
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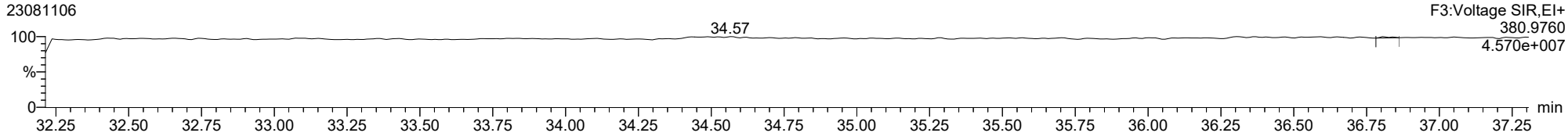
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13C-123478-HxCDD



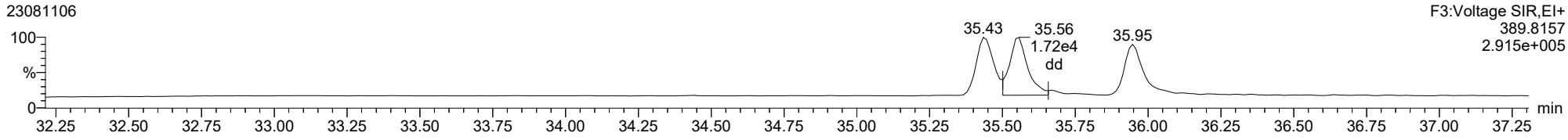
FUNCTION3 PFK



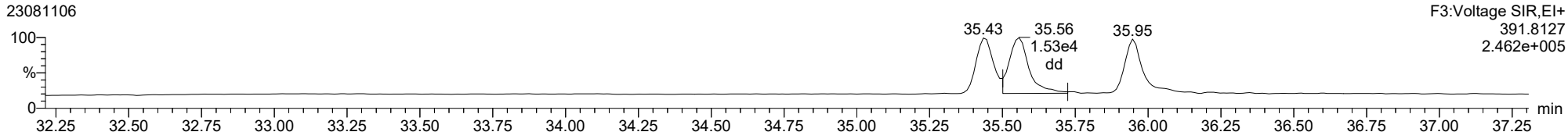
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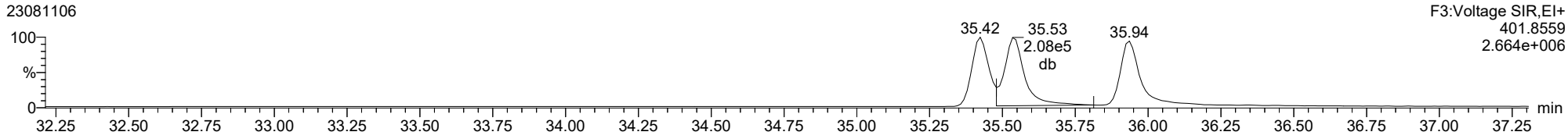
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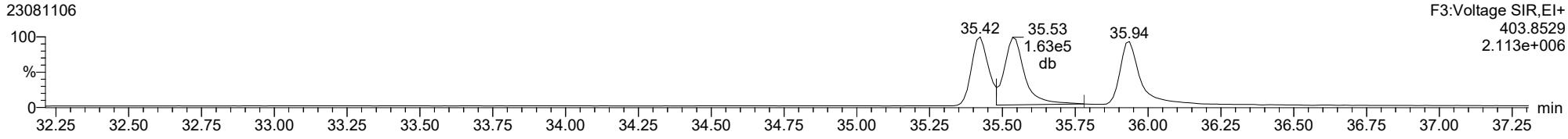
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13C-123678-HxCDD

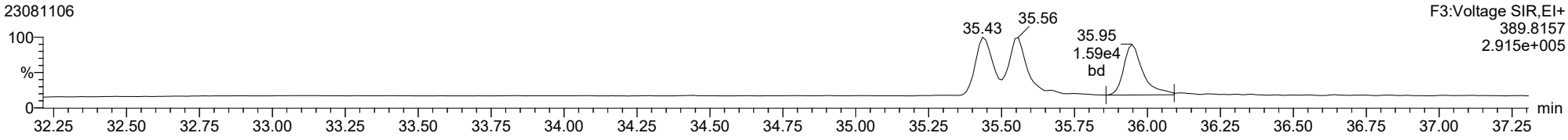


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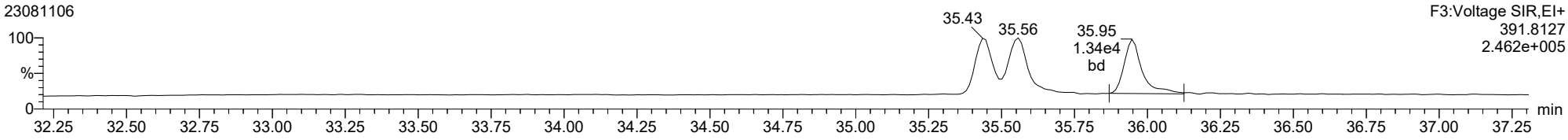


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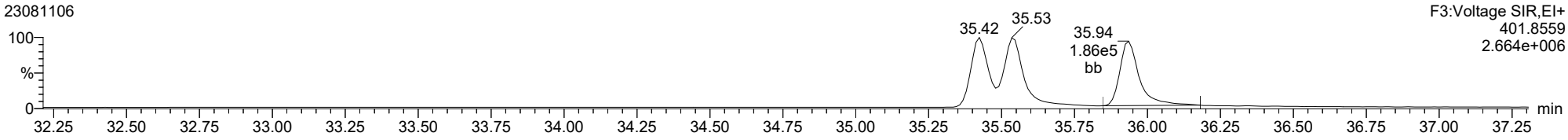
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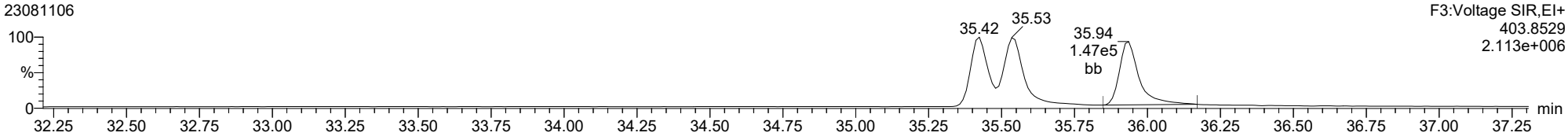
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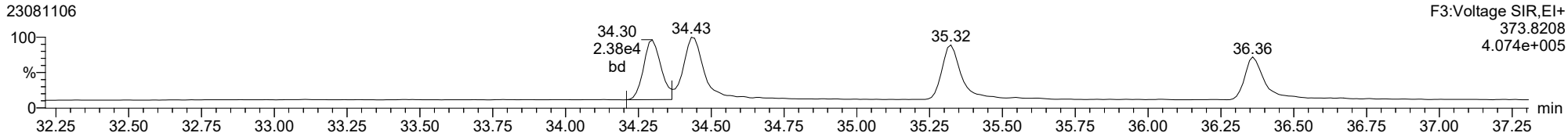


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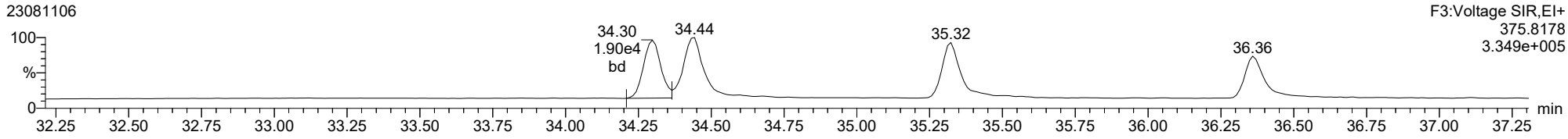


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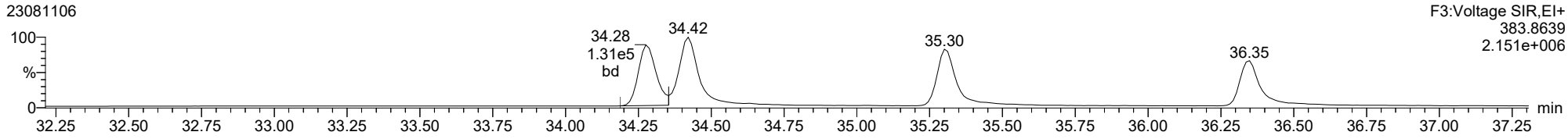
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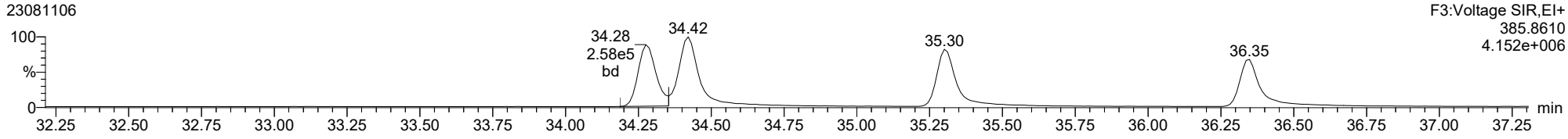
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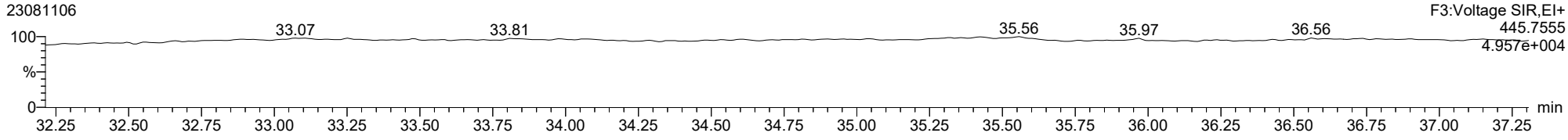
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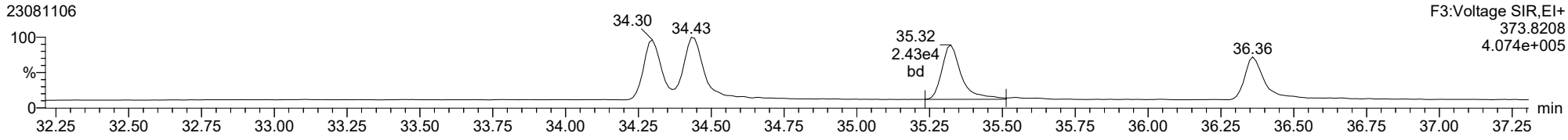


FUNCTION3 OCDPE

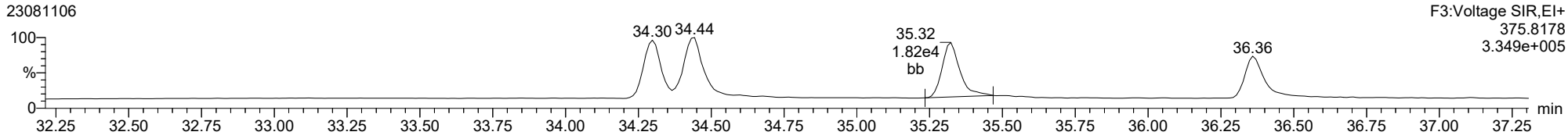


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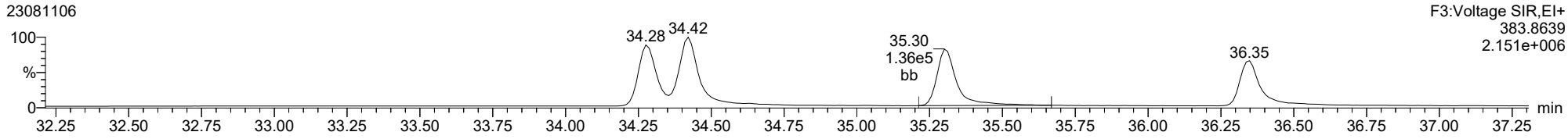
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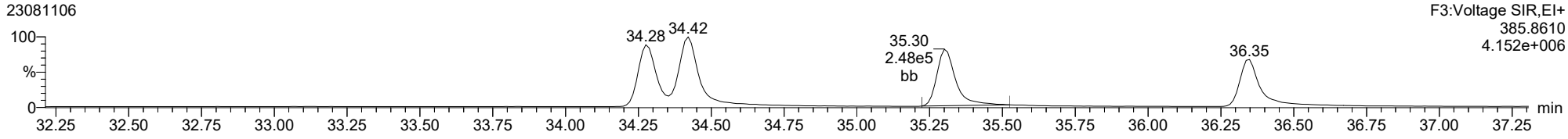
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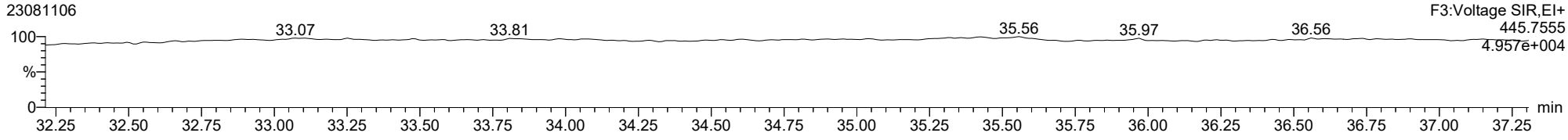
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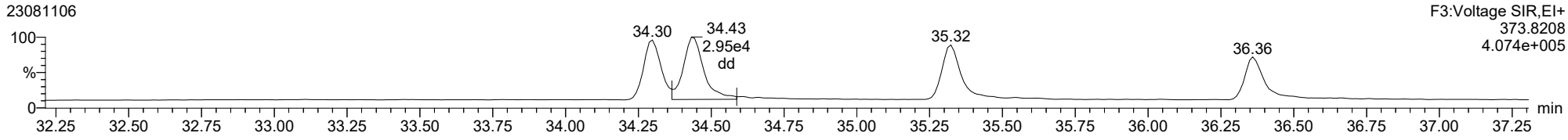
FUNCTION3 OCDPE



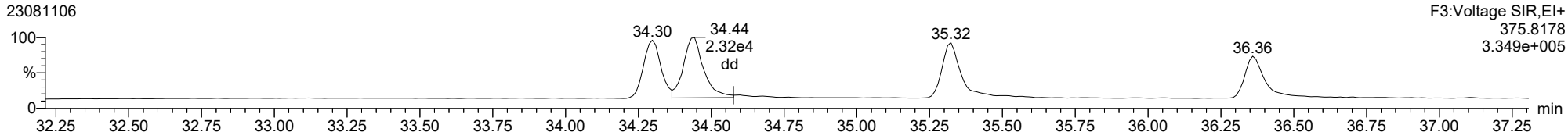
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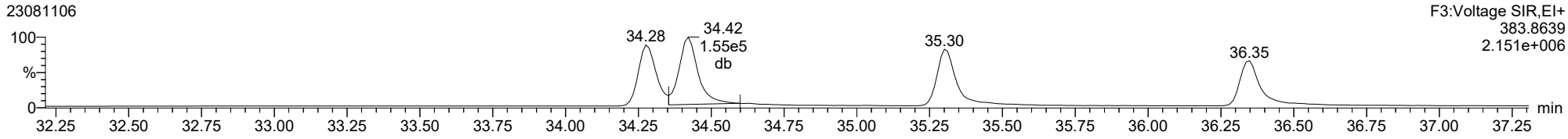
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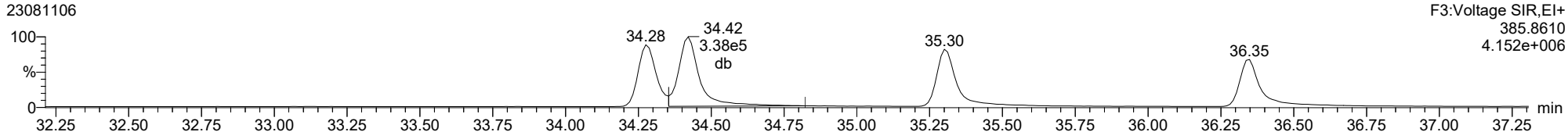
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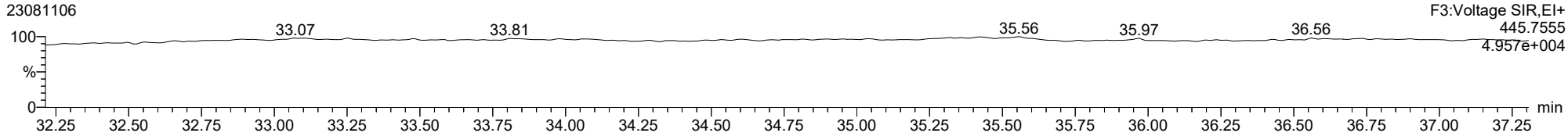
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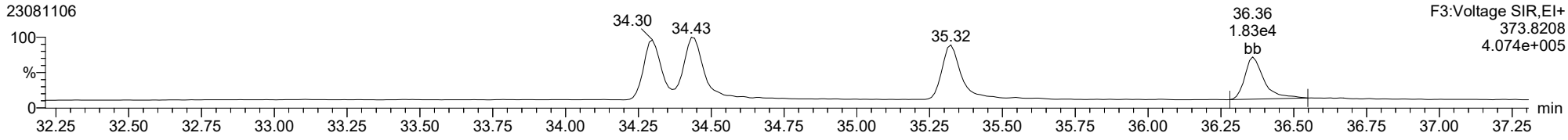


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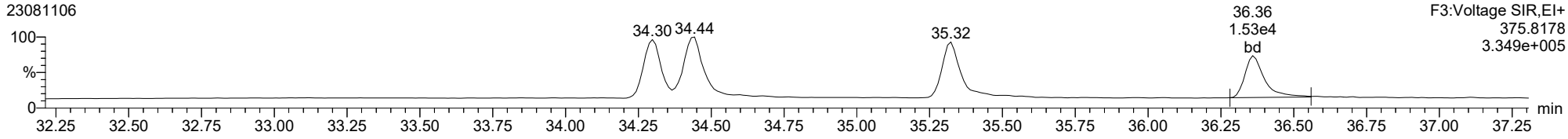


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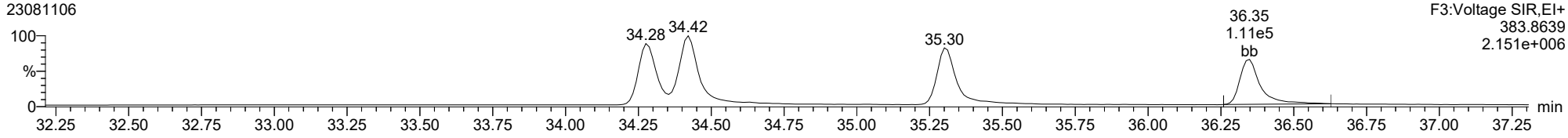
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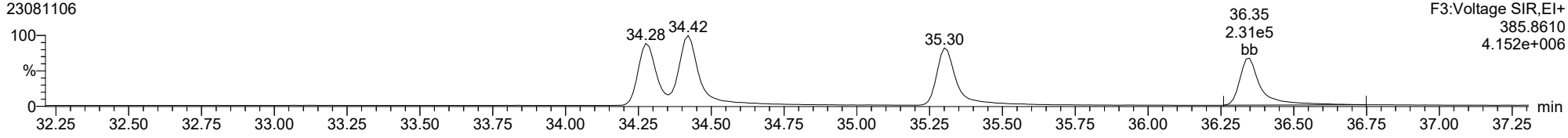
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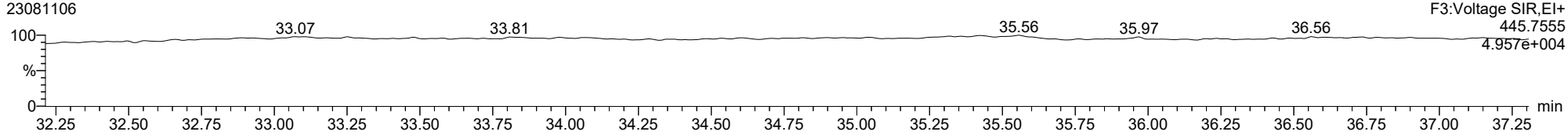
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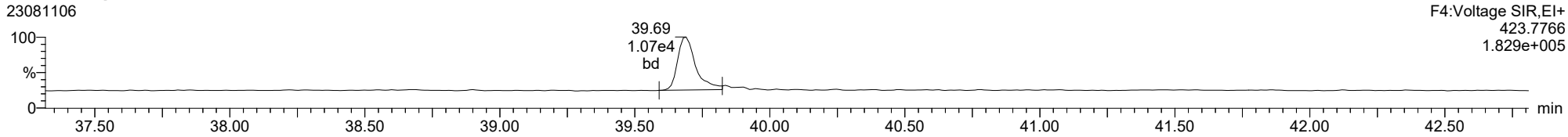


FUNCTION3 OCDPE

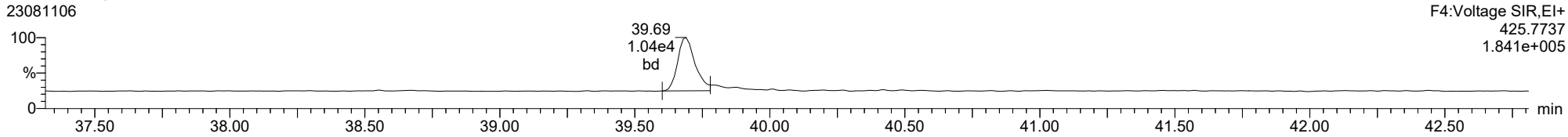


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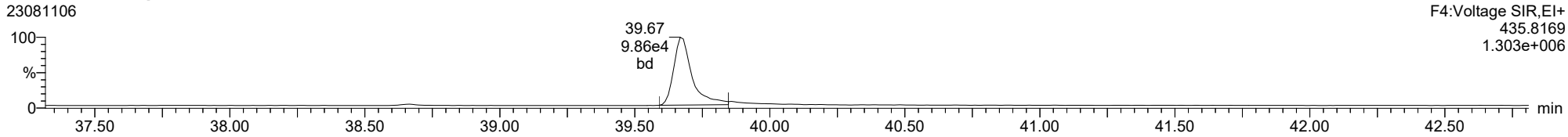
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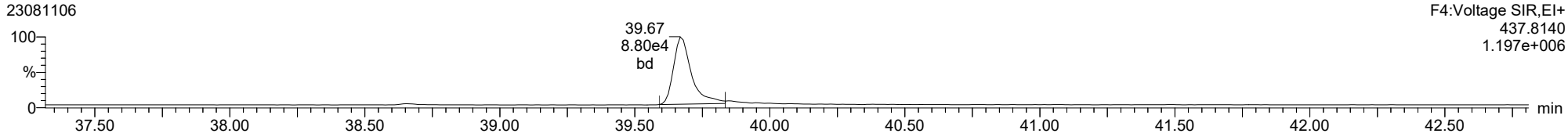
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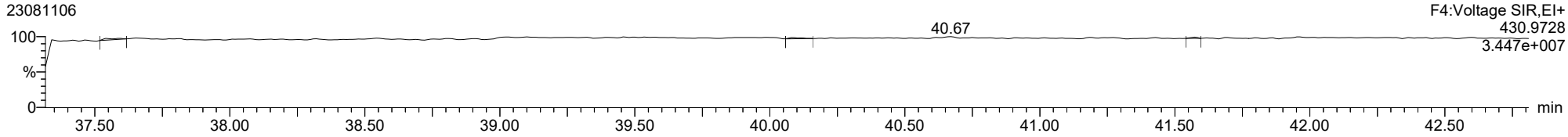
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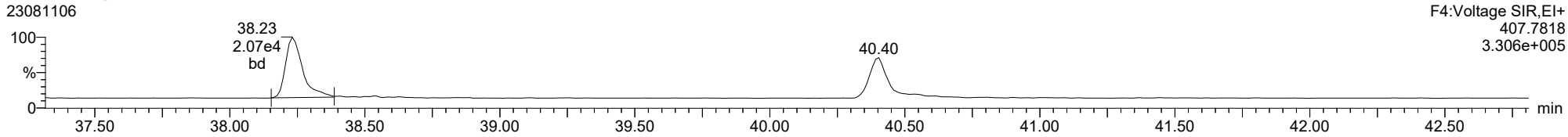


FUNCTION4 PFK

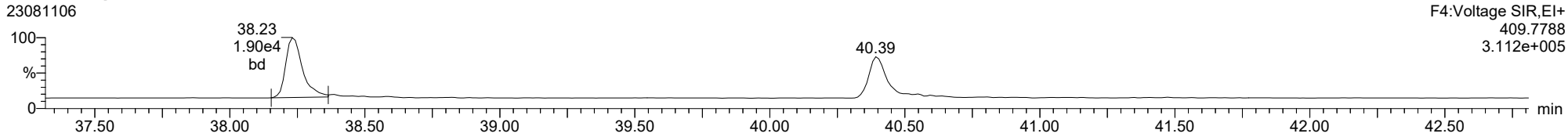


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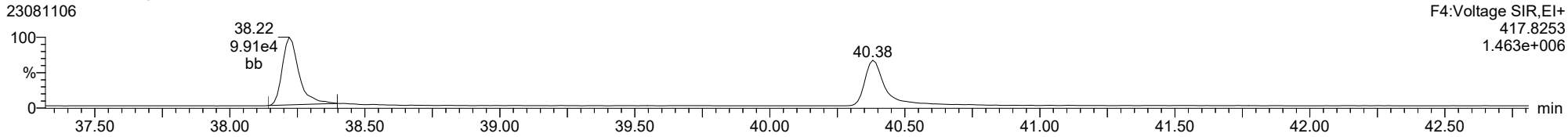
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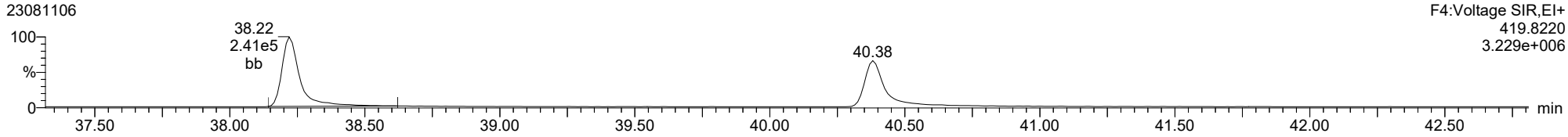
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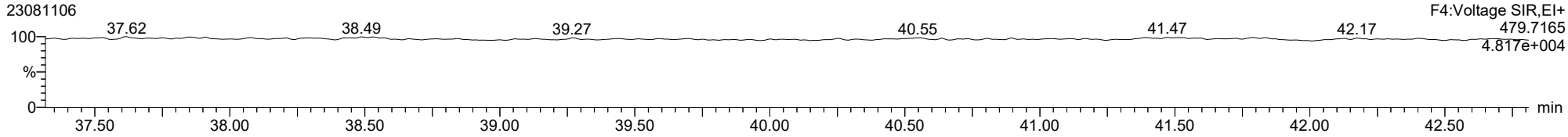
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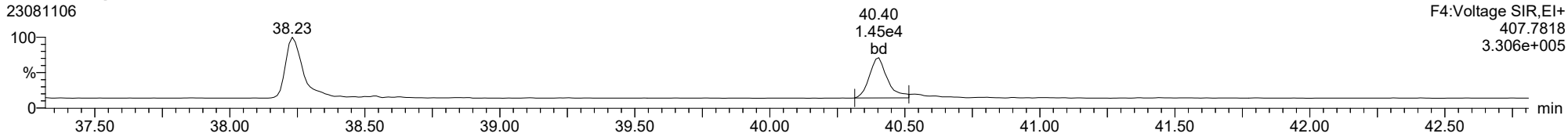


FUNCTION4 NCDPE

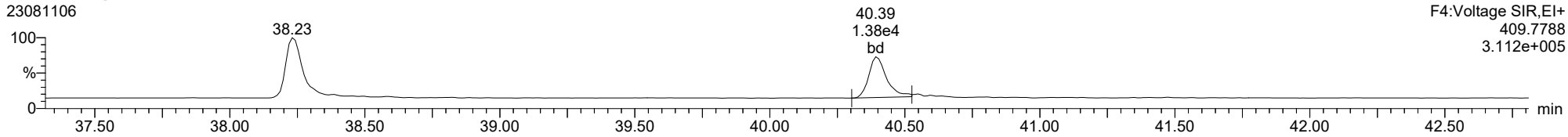


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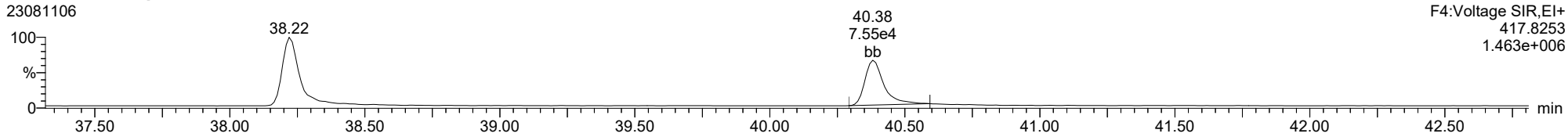
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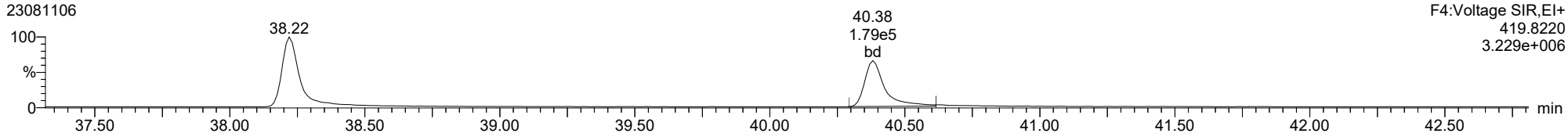
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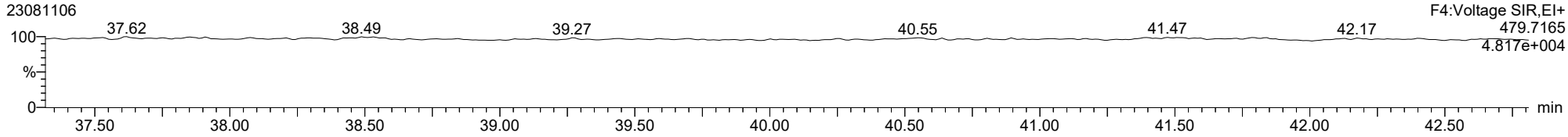
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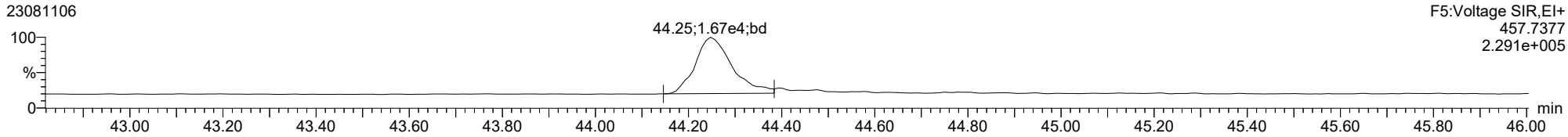


FUNCTION4 NCDPE

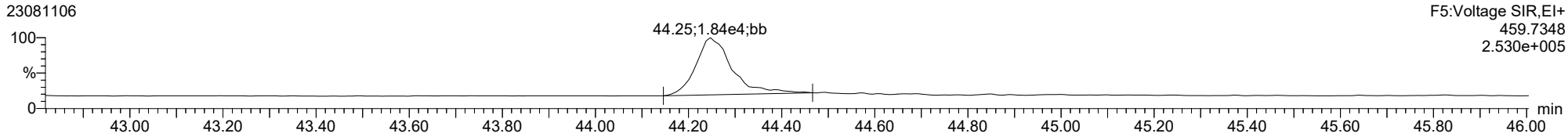


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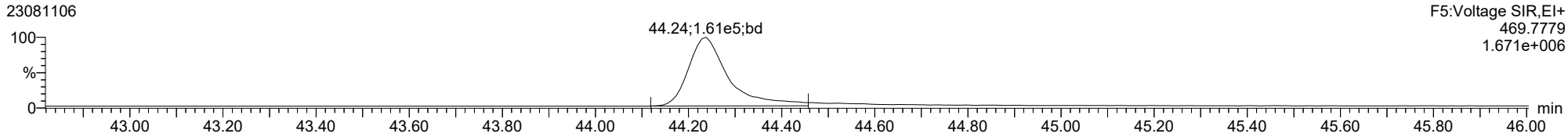
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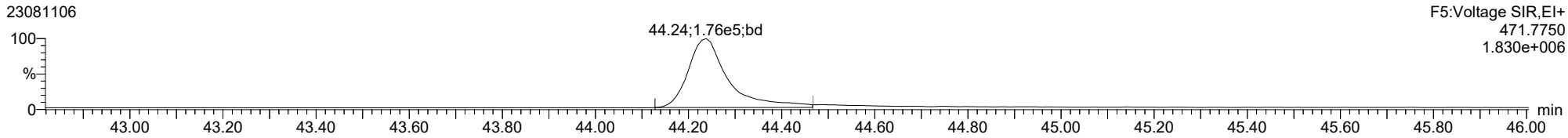
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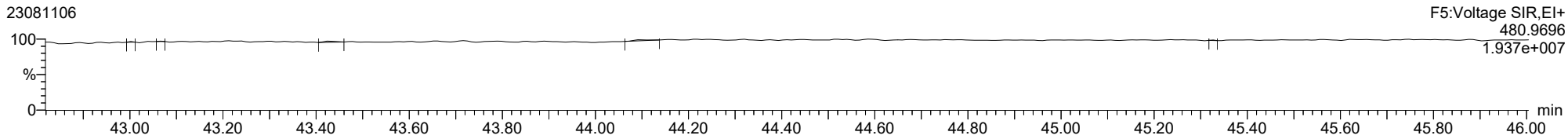
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13C-OCDD

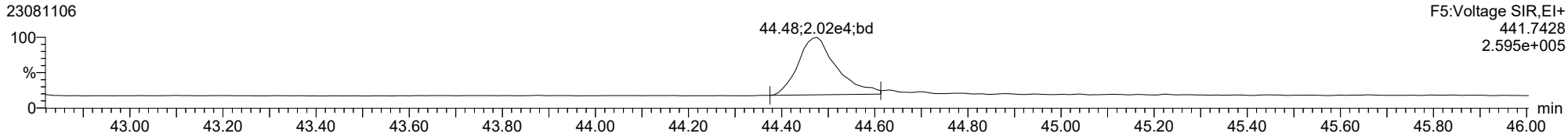


FUNCTION5 PFK

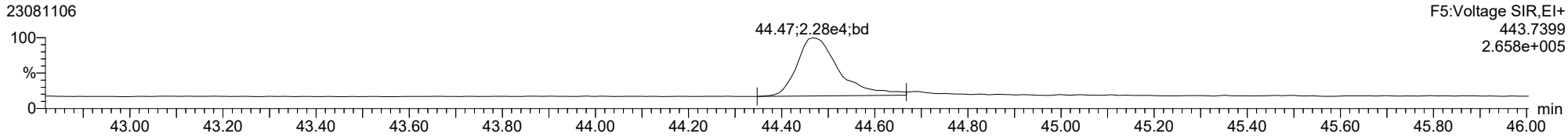


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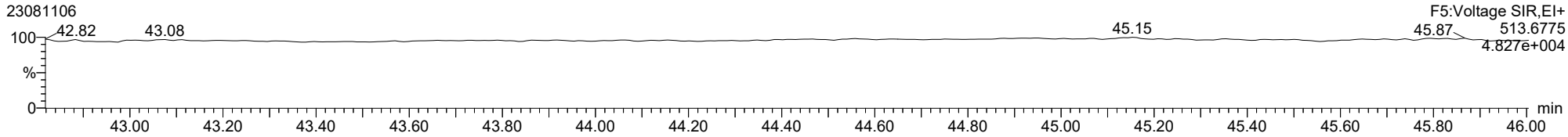
OCDF



OCDF

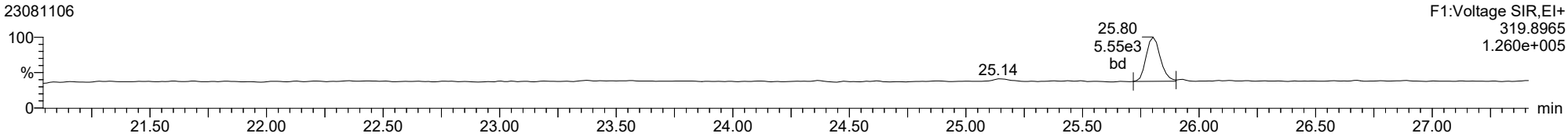


FUNCTION5 DCDPE

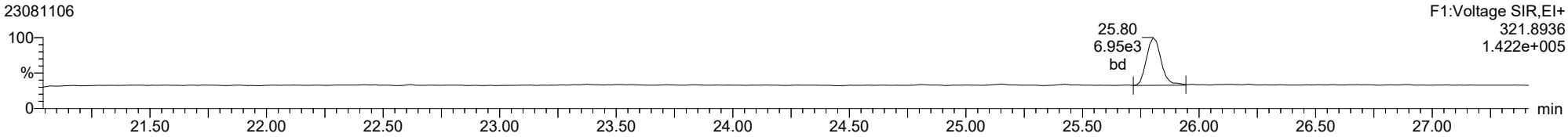


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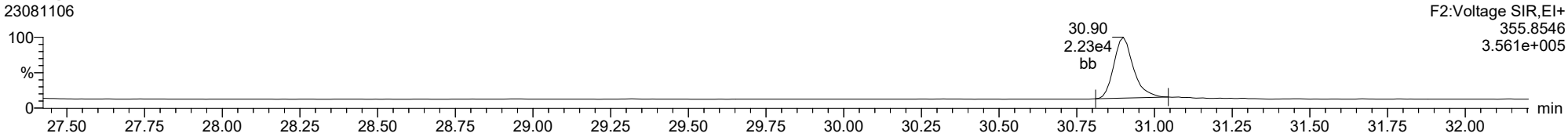
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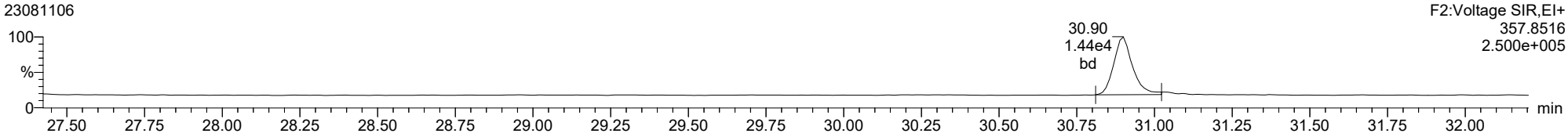
Total-tetradioxins



Total-pentadioxins

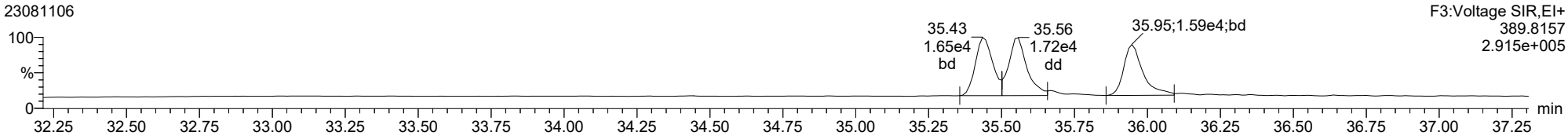


Total-pentadioxins

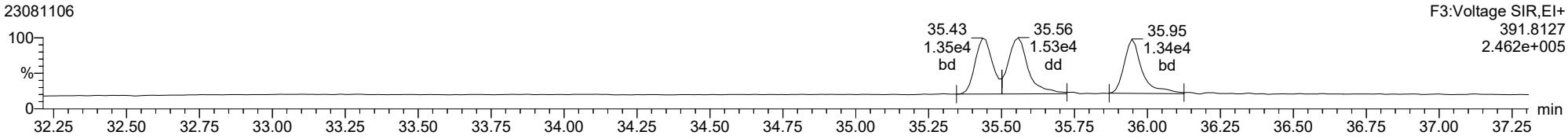


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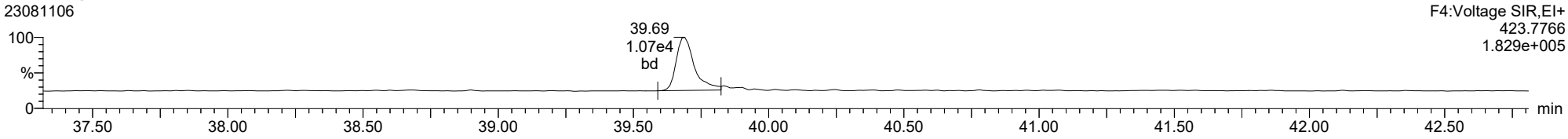
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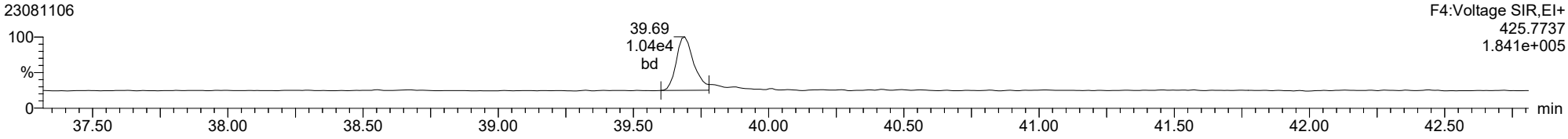
Total-hexadioxins



Total-heptadioxins



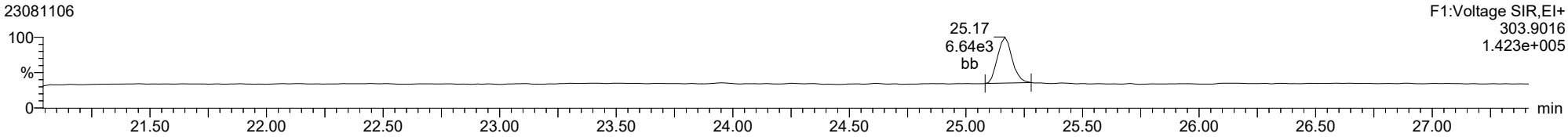
Total-heptadioxins



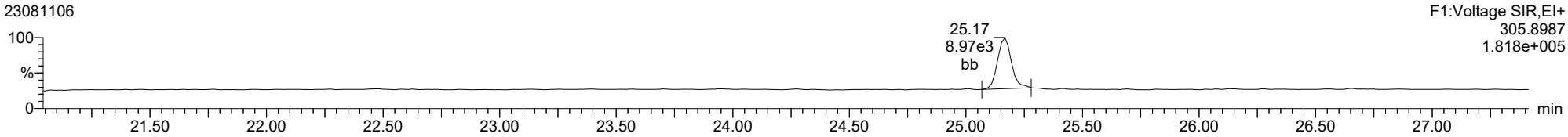
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Printed: Tuesday, August 15, 2023 12:24:22 Pacific Daylight Time

ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

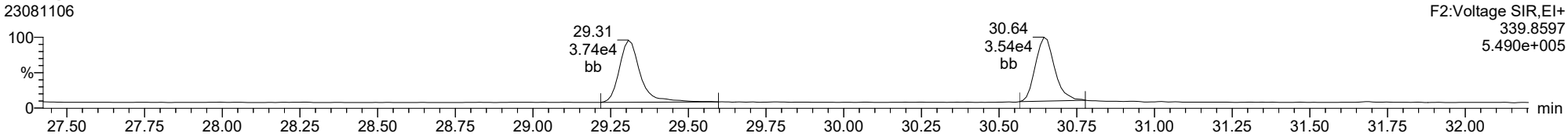
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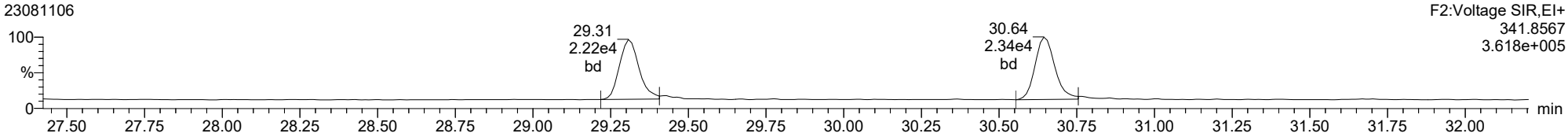
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Total-pentafurans



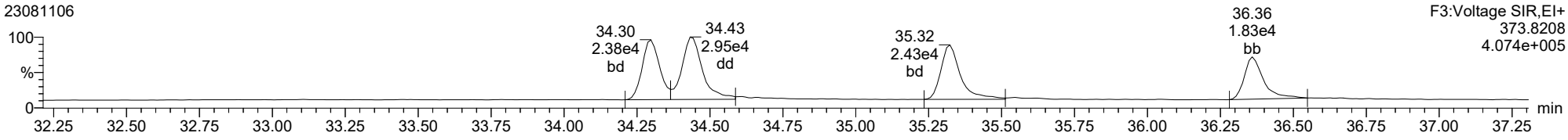
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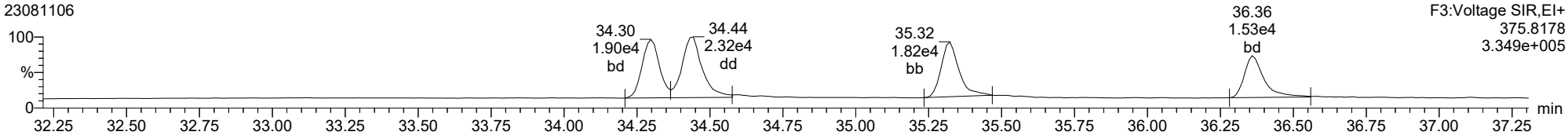
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ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

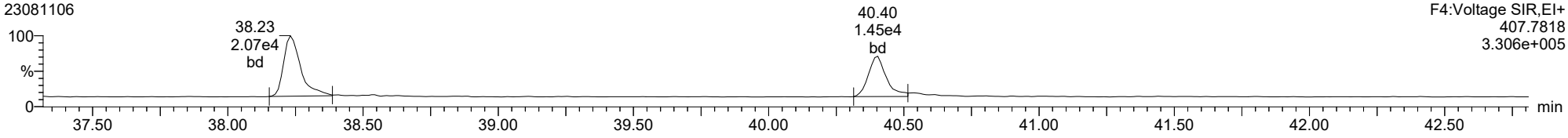
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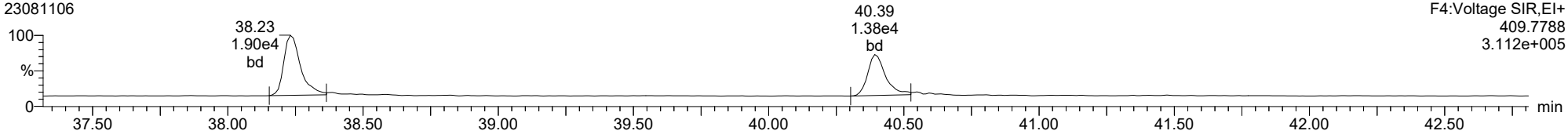
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
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Printed: Tuesday, August 15, 2023 12:24:35 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.153	1.001	3.950e4	4.814e4	0.903	0.820	0.770	873	1493	5.76e5	7.02e5	660.2	470.0	NO	bb	bb	9.917
12378-PeCDF	29.296	1.001	2.038e5	1.306e5	0.923	1.560	1.550	2701	2600	2.84e6	1.82e6	1052.5	698.6	NO	bb	bb	50.247
23478-PeCDF	30.633	1.001	2.084e5	1.355e5	0.991	1.538	1.550	2701	2600	2.94e6	1.88e6	1090.3	724.9	NO	bb	bb	50.195
123478-HxCDF	34.287	1.001	1.471e5	1.155e5	1.128	1.273	1.240	2156	1968	2.16e6	1.67e6	999.7	847.7	NO	bd	bd	48.019
234678-HxCDF	35.312	1.001	1.397e5	1.124e5	1.081	1.242	1.240	2156	1968	1.96e6	1.53e6	909.5	778.6	NO	bb	bb	48.560
123678-HxCDF	34.421	1.000	1.708e5	1.326e5	1.032	1.288	1.240	2156	1968	2.22e6	1.77e6	1031.8	901.1	NO	db	db	49.502
123789-HxCDF	36.348	1.000	1.152e5	9.214e4	0.988	1.250	1.240	2156	1968	1.55e6	1.22e6	720.9	619.7	NO	bb	bb	49.981
1234678-HpCDF	38.220	1.000	1.266e5	1.232e5	1.164	1.028	1.050	2236	2527	1.73e6	1.70e6	772.6	672.1	NO	bd	bd	48.307
1234789-HpCDF	40.381	1.000	9.773e4	8.439e4	1.104	1.158	1.050	2236	2527	1.18e6	1.09e6	527.4	431.6	NO	bd	bb	51.965
OCDF	44.457	1.005	1.439e5	1.668e5	1.130	0.863	0.890	3053	2200	1.51e6	1.65e6	496.2	748.3	NO	bd	bd	97.728
2378-TCDD	25.788	1.001	3.416e4	4.089e4	1.243	0.835	0.770	867	861	4.83e5	5.94e5	557.1	689.8	NO	db	bb	9.423
12378-PeCDD	30.878	1.000	1.444e5	9.272e4	1.150	1.557	1.550	1474	1776	2.00e6	1.26e6	1355.0	710.8	NO	bb	bb	51.023
123478-HxCDD	35.424	1.000	1.045e5	8.370e4	0.960	1.248	1.240	2064	1909	1.64e6	1.31e6	794.5	688.4	NO	bd	bd	46.802
123678-HxCDD	35.535	1.000	1.368e5	1.058e5	0.883	1.293	1.240	2064	1909	1.73e6	1.40e6	836.6	732.4	NO	db	db	52.231
123789-HxCDD	35.936	1.012	1.075e5	9.200e4	0.804	1.169	1.240	2064	1909	1.46e6	1.18e6	706.7	615.7	NO	bb	bd	52.545
1234678-HpCDD	39.668	1.000	8.606e4	8.097e4	1.200	1.063	1.050	1598	1550	1.09e6	1.03e6	679.9	666.2	NO	bd	bd	49.362
OCDD	44.238	1.000	1.310e5	1.474e5	1.059	0.889	0.890	2537	2205	1.35e6	1.50e6	533.8	680.4	NO	bd	bd	93.510
13C-2378-TCDF	25.139	1.007	4.359e5	5.426e5	1.835	0.803	0.770	1414	1242	6.17e6	7.67e6	4364.7	6173.2	NO	bb	bb	96.581
13C-12378-PeCDF	29.274	1.173	4.378e5	2.830e5	1.377	1.547	1.550	3103	2166	6.17e6	3.98e6	1989.0	1837.3	NO	bb	bb	94.871
13C-23478-PeCDF	30.610	1.227	4.199e5	2.715e5	1.301	1.547	1.550	3103	2166	5.81e6	3.79e6	1871.2	1752.0	NO	bb	bb	96.264
13C-123478-HxCDF	34.265	0.954	1.623e5	3.225e5	1.091	0.503	0.510	1940	1819	2.28e6	4.56e6	1177.0	2508.0	NO	bd	bd	103.242
13C-123678-HxCDF	34.410	0.958	1.881e5	4.055e5	1.340	0.464	0.510	1940	1819	2.45e6	4.92e6	1263.9	2702.9	NO	db	dd	102.899
13C-234678-HxCDF	35.290	0.983	1.605e5	3.196e5	1.093	0.502	0.510	1940	1819	2.11e6	4.12e6	1086.3	2264.8	NO	bd	bb	101.993
13C-123789-HxCDF	36.337	1.012	1.422e5	2.778e5	0.952	0.512	0.510	1940	1819	1.72e6	3.42e6	888.9	1878.1	NO	bd	bb	102.534
13C-1234678-HpCDF	38.209	1.064	1.341e5	3.102e5	0.985	0.432	0.440	2232	3004	1.84e6	4.12e6	826.4	1371.4	NO	bd	bd	104.805
13C-1234789-HpCDF	40.370	1.124	1.014e5	2.161e5	0.756	0.469	0.440	2232	3004	1.20e6	2.70e6	536.5	900.2	NO	bd	bb	97.601
13C-1234-TCDD	24.955	0.000	2.441e5	3.079e5	1.000	0.793	0.770	1284	927	3.72e6	4.66e6	2895.0	5027.7	NO	bb	bb	100.000
13C-2378-TCDD	25.774	1.033	2.818e5	3.589e5	1.110	0.785	0.770	1284	927	3.93e6	5.00e6	3063.6	5390.0	NO	bb	bb	104.622
13C-12378-PeCDD	30.867	1.237	2.486e5	1.554e5	0.754	1.600	1.550	1606	1291	3.49e6	2.16e6	2172.2	1676.1	NO	bb	bb	97.124
13C-123478-HxCDD	35.412	0.986	2.333e5	1.855e5	0.960	1.258	1.240	2335	1654	3.56e6	2.79e6	1524.6	1684.4	NO	bd	bd	101.353
13C-123678-HxCDD	35.524	0.989	2.914e5	2.348e5	1.159	1.241	1.240	2335	1654	3.67e6	3.00e6	1571.1	1811.5	NO	db	db	105.436
13C-1234678-HpCDD	39.657	1.104	1.504e5	1.316e5	0.629	1.143	1.050	1322	1098	1.89e6	1.73e6	1430.1	1574.5	NO	bd	bb	104.130
13C-OCDD	44.219	1.231	2.700e5	2.925e5	0.635	0.923	0.890	2095	2668	2.66e6	2.85e6	1270.5	1068.4	NO	bd	bd	205.741
13C-123789-HxCDD	35.914	0.000	2.377e5	1.927e5	1.000	1.234	1.240	2335	1654	3.19e6	2.58e6	1365.8	1558.0	NO	bb	bb	100.000
37CL-2378-TCDD	25.788	1.033	6.351e4		1.157			931		9.35e5		1004.8			bb		9.941

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
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Printed: Tuesday, August 15, 2023 12:24:35 Pacific Daylight Time

ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.664	0.862	4.983e4	6.469e4	1.170	0.770	0.770	873	1493	7.90e5	1.00e6	904.1	670.7	NO	bb	bb	10.000
1289-TCDF	26.636	1.060	3.514e4	4.772e4	0.847	0.736	0.770	873	1493	4.94e5	6.43e5	565.8	430.8	NO	db	db	10.000
13468-PECDF	26.495	0.905	2.671e5	1.802e5	1.241	1.482	1.550	728	832	3.87e6	2.64e6	5321.4	3168.6	NO	bb	bb	50.000
12389-PECDF	31.658	1.081	1.897e5	1.273e5	0.880	1.490	1.550	2701	2600	2.48e6	1.60e6	916.9	617.2	NO	bb	bb	50.000
123468-HXCDF	32.593	0.951	1.625e5	1.297e5	1.206	1.252	1.240	2156	1968	2.24e6	1.79e6	1039.7	910.7	NO	bb	bb	50.000
1368-TCDD	22.935	0.890	3.442e4	4.124e4	1.181	0.835	0.770	867	861	5.40e5	6.51e5	623.2	756.9	NO	bb	bb	10.000
1289-TCDD	26.382	1.024	2.831e4	3.339e4	0.963	0.848	0.770	867	861	3.83e5	4.79e5	442.0	556.7	NO	bb	bb	10.000
12479-PECDD	28.182	0.913	2.672e5	1.705e5	2.166	1.567	1.550	1474	1776	2.50e6	1.55e6	1692.5	875.4	NO	bb	bb	50.000
12389-PECDD	31.279	1.013	1.628e5	1.051e5	1.326	1.549	1.550	1474	1776	2.18e6	1.42e6	1481.5	799.1	NO	bb	bb	50.000
124679-HXCDD	33.385	0.943	1.240e5	1.119e5	1.127	1.108	1.240	2064	1909	1.71e6	1.40e6	829.1	734.3	NO	bb	bd	50.000
1234679-HPCDD	38.666	0.975	8.959e4	9.414e4	1.303	0.952	1.050	1598	1550	1.33e6	1.31e6	833.2	845.1	NO	bb	MM	50.000
Total-tetrafurans			1.249e5		0.973			873		1.87e6							30.041
Total-penta1			2.671e5					728		3.87e6							50.000
Total-pentafurans			6.376e5		0.931			2701		8.77e6							159.187
Total-hexafurans			7.351e5		1.087			2156		1.01e7							246.062
Total-heptafurans			2.244e5		1.134			2236		2.91e6							100.272
Total-Furans			2.133e6		1.053			873		2.91e7							683.290
Total-tetradioxins			1.636e5		1.129			867		2.16e6							49.715
Total-pentadioxins			5.744e5		1.548			1474		6.68e6							151.023
Total-hexadioxins			4.728e5		0.943			2064		6.54e6							201.577
Total-heptadioxins			1.756e5		1.251			1598		2.42e6							99.362
Total-Dioxins			1.517e6		1.182			867		1.91e7							595.187
Total-TEQ			3.650e6					867		4.82e7							1278.478
FUNCTION1 PFK			1.576e6					595063		2.59e7							
FUNCTION2 PFK			1.622e5					281424		5.13e6							0.000
FUNCTION3 PFK			6.816e4					308943		1.50e6							0.000
FUNCTION4 PFK			1.483e6					342383		2.05e7							
FUNCTION5 PFK			2.231e5					155278		7.98e6							
FUNCTION1 HXCD...			9.737e2					478		1.12e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			5.383e2					679		9.82e3							0.000
FUNCTION3 OCDPE			8.571e2					439		1.41e4							0.000
FUNCTION4 NCDPE			3.213e2					631		3.18e3							0.000
FUNCTION5 DCDPE			1.396e2					581		1.95e3							0.000

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Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	27.02	9.270e1	1.173e2	0.973	0.79	0.77	2.6	NO	NO	bb	bb	0.022
2	Total-tetrafurans	26.83	7.458e1	1.106e2	0.973	0.67	0.77	2.7	NO	NO	bb	bb	0.019
3	1289-TCDF	26.64	3.514e4	4.772e4	0.847	0.74	0.77	565.8	YES	NO	db	db	10.000
4	Total-tetrafurans	26.54	3.122e2	4.768e2	0.973	0.65	0.77	4.2	YES	NO	bd	bd	0.083
5	2378-TCDF	25.15	3.950e4	4.814e4	0.903	0.82	0.77	660.2	YES	NO	bb	bb	9.917
6	1368-TCDF	21.66	4.983e4	6.469e4	1.170	0.77	0.77	904.1	YES	NO	bb	bb	10.000

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.49	2.671e5	1.802e5	1.241	1.48	1.55	5321.4	YES	NO	bb	bb	50.000

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.30	2.038e5	1.306e5	0.923	1.56	1.55	1052.5	YES	NO	bb	bb	50.247
2	Total-pentafurans	28.15	3.570e4	2.180e4	0.931	1.64	1.55	186.8	YES	NO	bb	bb	8.746
3	12389-PECDF	31.66	1.897e5	1.273e5	0.880	1.49	1.55	916.9	YES	NO	bb	bb	50.000
4	23478-PeCDF	30.63	2.084e5	1.355e5	0.991	1.54	1.55	1090.3	YES	NO	bb	bb	50.195

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123468-HXCDF	32.59	1.625e5	1.297e5	1.206	1.25	1.24	1039.7	YES	NO	bb	bb	50.000
2	123789-HxCDF	36.35	1.152e5	9.214e4	0.988	1.25	1.24	720.9	YES	NO	bb	bb	49.981
3	234678-HxCDF	35.31	1.397e5	1.124e5	1.081	1.24	1.24	909.5	YES	NO	bb	bb	48.560
4	123678-HxCDF	34.42	1.708e5	1.326e5	1.032	1.29	1.24	1031.8	YES	NO	db	db	49.502
5	123478-HxCDF	34.29	1.471e5	1.155e5	1.128	1.27	1.24	999.7	YES	NO	bd	bd	48.019

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.38	9.773e4	8.439e4	1.104	1.16	1.05	527.4	YES	NO	bd	bb	51.965
2	1234678-HpCDF	38.22	1.266e5	1.232e5	1.164	1.03	1.05	772.6	YES	NO	bd	bd	48.307

ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	27.02	9.270e1	1.173e2	0.973	0.79	0.77	2.6	NO	NO	bb	bb	0.022
2	Total-tetrafurans	26.83	7.458e1	1.106e2	0.973	0.67	0.77	2.7	NO	NO	bb	bb	0.019
3	1289-TCDF	26.64	3.514e4	4.772e4	0.847	0.74	0.77	565.8	YES	NO	db	db	10.000
4	Total-tetrafurans	26.54	3.122e2	4.768e2	0.973	0.65	0.77	4.2	YES	NO	bd	bd	0.083
5	2378-TCDF	25.15	3.950e4	4.814e4	0.903	0.82	0.77	660.2	YES	NO	bb	bb	9.917
6	1368-TCDF	21.66	4.983e4	6.469e4	1.170	0.77	0.77	904.1	YES	NO	bb	bb	10.000
7	12378-PeCDF	29.30	2.038e5	1.306e5	0.923	1.56	1.55	1052.5	YES	NO	bb	bb	50.247
8	Total-pentafurans	28.15	3.570e4	2.180e4	0.931	1.64	1.55	186.8	YES	NO	bb	bb	8.746
9	123468-HXCDF	32.59	1.625e5	1.297e5	1.206	1.25	1.24	1039.7	YES	NO	bb	bb	50.000
10	12389-PECDF	31.66	1.897e5	1.273e5	0.880	1.49	1.55	916.9	YES	NO	bb	bb	50.000
11	23478-PeCDF	30.63	2.084e5	1.355e5	0.991	1.54	1.55	1090.3	YES	NO	bb	bb	50.195
12	123789-HxCDF	36.35	1.152e5	9.214e4	0.988	1.25	1.24	720.9	YES	NO	bb	bb	49.981
13	234678-HxCDF	35.31	1.397e5	1.124e5	1.081	1.24	1.24	909.5	YES	NO	bb	bb	48.560
14	123678-HxCDF	34.42	1.708e5	1.326e5	1.032	1.29	1.24	1031.8	YES	NO	db	db	49.502
15	123478-HxCDF	34.29	1.471e5	1.155e5	1.128	1.27	1.24	999.7	YES	NO	bd	bd	48.019
16	1234789-HpCDF	40.38	9.773e4	8.439e4	1.104	1.16	1.05	527.4	YES	NO	bd	bb	51.965
17	1234678-HpCDF	38.22	1.266e5	1.232e5	1.164	1.03	1.05	772.6	YES	NO	bd	bd	48.307
18	OCDF	44.46	1.439e5	1.668e5	1.130	0.86	0.89	496.2	YES	NO	bd	bd	97.728
19	13468-PECDF	26.49	2.671e5	1.802e5	1.241	1.48	1.55	5321.4	YES	NO	bb	bb	50.000

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	22.94	3.442e4	4.124e4	1.181	0.83	0.77	623.2	YES	NO	bb	bb	10.000
2	1289-TCDD	26.38	2.831e4	3.339e4	0.963	0.85	0.77	442.0	YES	NO	bb	bb	10.000
3	2378-TCDD	25.79	3.416e4	4.089e4	1.243	0.84	0.77	557.1	YES	NO	db	bb	9.423
4	Total-tetradioxins	25.46	5.003e4	6.062e4	1.129	0.83	0.77	586.5	YES	NO	bd	bb	15.297
5	Total-tetradioxins	24.97	1.665e4	1.948e4	1.129	0.85	0.77	278.4	YES	NO	bd	bb	4.994

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.28	1.628e5	1.051e5	1.326	1.55	1.55	1481.5	YES	NO	bb	bb	50.000
2	12378-PeCDD	30.88	1.444e5	9.272e4	1.150	1.56	1.55	1355.0	YES	NO	bb	bb	51.023
3	12479-PECDD	28.18	2.672e5	1.705e5	2.166	1.57	1.55	1692.5	YES	NO	bb	bb	50.000

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.94	1.075e5	9.200e4	0.804	1.17	1.24	706.7	YES	NO	bb	bd	52.545
2	123678-HxCDD	35.53	1.368e5	1.058e5	0.883	1.29	1.24	836.6	YES	NO	db	db	52.231
3	123478-HxCDD	35.42	1.045e5	8.370e4	0.960	1.25	1.24	794.5	YES	NO	bd	bd	46.802
4	124679-HXCDD	33.38	1.240e5	1.119e5	1.127	1.11	1.24	829.1	YES	NO	bb	bd	50.000

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234679-HPCDD	38.67	8.959e4	9.414e4	1.303	0.95	1.05	833.2	YES	NO	bb	MM	50.000
2	1234678-HpCDD	39.67	8.606e4	8.097e4	1.200	1.06	1.05	679.9	YES	NO	bd	bd	49.362

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	22.94	3.442e4	4.124e4	1.181	0.83	0.77	623.2	YES	NO	bb	bb	10.000
2	1289-TCDD	26.38	2.831e4	3.339e4	0.963	0.85	0.77	442.0	YES	NO	bb	bb	10.000
3	2378-TCDD	25.79	3.416e4	4.089e4	1.243	0.84	0.77	557.1	YES	NO	db	bb	9.423
4	Total-tetradioxins	25.46	5.003e4	6.062e4	1.129	0.83	0.77	586.5	YES	NO	bd	bb	15.297
5	Total-tetradioxins	24.97	1.665e4	1.948e4	1.129	0.85	0.77	278.4	YES	NO	bd	bb	4.994
6	12389-PECDD	31.28	1.628e5	1.051e5	1.326	1.55	1.55	1481.5	YES	NO	bb	bb	50.000
7	12378-PeCDD	30.88	1.444e5	9.272e4	1.150	1.56	1.55	1355.0	YES	NO	bb	bb	51.023
8	12479-PECDD	28.18	2.672e5	1.705e5	2.166	1.57	1.55	1692.5	YES	NO	bb	bb	50.000
9	123789-HxCDD	35.94	1.075e5	9.200e4	0.804	1.17	1.24	706.7	YES	NO	bb	bd	52.545
10	123678-HxCDD	35.53	1.368e5	1.058e5	0.883	1.29	1.24	836.6	YES	NO	db	db	52.231
11	123478-HxCDD	35.42	1.045e5	8.370e4	0.960	1.25	1.24	794.5	YES	NO	bd	bd	46.802
12	124679-HXCDD	33.38	1.240e5	1.119e5	1.127	1.11	1.24	829.1	YES	NO	bb	bd	50.000
13	1234679-HPCDD	38.67	8.959e4	9.414e4	1.303	0.95	1.05	833.2	YES	NO	bb	MM	50.000
14	1234678-HpCDD	39.67	8.606e4	8.097e4	1.200	1.06	1.05	679.9	YES	NO	bd	bd	49.362
15	OCDD	44.24	1.310e5	1.474e5	1.059	0.89	0.89	533.8	YES	NO	bd	bd	93.510

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	27.02	9.270e1	1.173e2	0.973	0.79	0.77	2.6	NO	NO	bb	bb	0.022
2	Total-tetrafurans	26.83	7.458e1	1.106e2	0.973	0.67	0.77	2.7	NO	NO	bb	bb	0.019
3	1289-TCDF	26.64	3.514e4	4.772e4	0.847	0.74	0.77	565.8	YES	NO	db	db	10.000
4	Total-tetrafurans	26.54	3.122e2	4.768e2	0.973	0.65	0.77	4.2	YES	NO	bd	bd	0.083
5	2378-TCDF	25.15	3.950e4	4.814e4	0.903	0.82	0.77	660.2	YES	NO	bb	bb	9.917
6	1368-TCDF	21.66	4.983e4	6.469e4	1.170	0.77	0.77	904.1	YES	NO	bb	bb	10.000
7	12378-PeCDF	29.30	2.038e5	1.306e5	0.923	1.56	1.55	1052.5	YES	NO	bb	bb	50.247
8	Total-pentafurans	28.15	3.570e4	2.180e4	0.931	1.64	1.55	186.8	YES	NO	bb	bb	8.746
9	123468-HXCDF	32.59	1.625e5	1.297e5	1.206	1.25	1.24	1039.7	YES	NO	bb	bb	50.000
10	12389-PECDF	31.66	1.897e5	1.273e5	0.880	1.49	1.55	916.9	YES	NO	bb	bb	50.000
11	23478-PeCDF	30.63	2.084e5	1.355e5	0.991	1.54	1.55	1090.3	YES	NO	bb	bb	50.195
12	123789-HxCDF	36.35	1.152e5	9.214e4	0.988	1.25	1.24	720.9	YES	NO	bb	bb	49.981
13	234678-HxCDF	35.31	1.397e5	1.124e5	1.081	1.24	1.24	909.5	YES	NO	bb	bb	48.560
14	123678-HxCDF	34.42	1.708e5	1.326e5	1.032	1.29	1.24	1031.8	YES	NO	db	db	49.502
15	123478-HxCDF	34.29	1.471e5	1.155e5	1.128	1.27	1.24	999.7	YES	NO	bd	bd	48.019
16	1234789-HpCDF	40.38	9.773e4	8.439e4	1.104	1.16	1.05	527.4	YES	NO	bd	bb	51.965
17	1234678-HpCDF	38.22	1.266e5	1.232e5	1.164	1.03	1.05	772.6	YES	NO	bd	bd	48.307
18	OCDF	44.46	1.439e5	1.668e5	1.130	0.86	0.89	496.2	YES	NO	bd	bd	97.728
19	13468-PECDF	26.49	2.671e5	1.802e5	1.241	1.48	1.55	5321.4	YES	NO	bb	bb	50.000
20	1368-TCDD	22.94	3.442e4	4.124e4	1.181	0.83	0.77	623.2	YES	NO	bb	bb	10.000
21	1289-TCDD	26.38	2.831e4	3.339e4	0.963	0.85	0.77	442.0	YES	NO	bb	bb	10.000
22	2378-TCDD	25.79	3.416e4	4.089e4	1.243	0.84	0.77	557.1	YES	NO	db	bb	9.423
23	Total-tetradioxins	25.46	5.003e4	6.062e4	1.129	0.83	0.77	586.5	YES	NO	bd	bb	15.297
24	Total-tetradioxins	24.97	1.665e4	1.948e4	1.129	0.85	0.77	278.4	YES	NO	bd	bb	4.994
25	12389-PECDD	31.28	1.628e5	1.051e5	1.326	1.55	1.55	1481.5	YES	NO	bb	bb	50.000
26	12378-PeCDD	30.88	1.444e5	9.272e4	1.150	1.56	1.55	1355.0	YES	NO	bb	bb	51.023
27	12479-PECDD	28.18	2.672e5	1.705e5	2.166	1.57	1.55	1692.5	YES	NO	bb	bb	50.000
28	123789-HxCDD	35.94	1.075e5	9.200e4	0.804	1.17	1.24	706.7	YES	NO	bb	bd	52.545
29	123678-HxCDD	35.53	1.368e5	1.058e5	0.883	1.29	1.24	836.6	YES	NO	db	db	52.231
30	123478-HxCDD	35.42	1.045e5	8.370e4	0.960	1.25	1.24	794.5	YES	NO	bd	bd	46.802
31	124679-HXCDD	33.38	1.240e5	1.119e5	1.127	1.11	1.24	829.1	YES	NO	bb	bd	50.000
32	1234679-HPCDD	38.67	8.959e4	9.414e4	1.303	0.95	1.05	833.2	YES	NO	bb	MM	50.000
33	1234678-HpCDD	39.67	8.606e4	8.097e4	1.200	1.06	1.05	679.9	YES	NO	bd	bd	49.362
34	OCDD	44.24	1.310e5	1.474e5	1.059	0.89	0.89	533.8	YES	NO	bd	bd	93.510

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.88	2.287e4					1.1	NO		bb		
2	FUNCTION1 PFK	21.21	1.199e5					3.0	YES		db		
3	FUNCTION1 PFK	21.11	2.695e5					5.2	YES		bd		
4	FUNCTION1 PFK	24.73	3.950e4					1.7	NO		bb		
5	FUNCTION1 PFK	24.47	6.758e4					1.8	NO		bb		
6	FUNCTION1 PFK	24.01	3.389e4					1.4	NO		db		
7	FUNCTION1 PFK	23.95	6.931e4					2.0	NO		dd		
8	FUNCTION1 PFK	23.88	1.455e4					0.7	NO		bd		
9	FUNCTION1 PFK	23.68	2.296e4					1.0	NO		bb		
10	FUNCTION1 PFK	23.49	7.036e3					0.5	NO		bb		
11	FUNCTION1 PFK	23.43	2.558e4					1.1	NO		bb		
12	FUNCTION1 PFK	23.32	2.769e4					1.1	NO		bb		
13	FUNCTION1 PFK	23.08	4.539e4					1.3	NO		bb		
14	FUNCTION1 PFK	22.99	3.202e4					1.0	NO		bb		
15	FUNCTION1 PFK	22.84	2.617e4					0.9	NO		bb		
16	FUNCTION1 PFK	22.67	3.895e3					0.5	NO		bb		
17	FUNCTION1 PFK	22.53	5.474e4					1.0	NO		bb		
18	FUNCTION1 PFK	22.16	1.513e5					2.3	NO		bb		
19	FUNCTION1 PFK	21.95	2.770e4					1.0	NO		bb		
20	FUNCTION1 PFK	27.07	9.015e3					0.4	NO		bb		
21	FUNCTION1 PFK	26.93	4.581e4					1.0	NO		db		
22	FUNCTION1 PFK	26.85	1.433e4					0.8	NO		dd		
23	FUNCTION1 PFK	26.78	1.200e5					2.0	NO		bd		
24	FUNCTION1 PFK	26.28	1.708e4					0.9	NO		bb		
25	FUNCTION1 PFK	26.17	1.425e4					0.8	NO		bb		
26	FUNCTION1 PFK	25.97	8.325e4					1.9	NO		db		
27	FUNCTION1 PFK	25.89	5.720e4					1.6	NO		dd		
28	FUNCTION1 PFK	25.80	3.276e4					1.4	NO		dd		
29	FUNCTION1 PFK	25.76	1.712e4					1.1	NO		bd		
30	FUNCTION1 PFK	25.58	2.001e4					1.1	NO		bb		
31	FUNCTION1 PFK	25.00	8.396e4					1.9	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.20	6.101e3					0.9	NO		bb		0.000
2	FUNCTION2 PFK	27.72	7.538e3					1.2	NO		bb		0.000
3	FUNCTION2 PFK	27.56	7.896e3					1.5	NO		bb		0.000
4	FUNCTION2 PFK	31.61	1.118e4					1.8	NO		bb		0.000
5	FUNCTION2 PFK	31.49	2.001e3					0.6	NO		bb		0.000
6	FUNCTION2 PFK	31.33	4.573e3					0.8	NO		bb		0.000
7	FUNCTION2 PFK	30.61	3.430e3					0.7	NO		bb		0.000
8	FUNCTION2 PFK	30.38	1.955e4					1.9	NO		db		0.000
9	FUNCTION2 PFK	30.32	2.856e4					2.4	NO		dd		0.000
10	FUNCTION2 PFK	30.25	4.260e4					2.7	NO		bd		0.000
11	FUNCTION2 PFK	30.02	6.437e3					1.2	NO		bb		0.000
12	FUNCTION2 PFK	29.72	8.785e3					1.2	NO		bb		0.000
13	FUNCTION2 PFK	29.64	1.359e4					1.3	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	34.03	6.816e4					4.9	YES		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.55	4.035e5					9.6	YES		dd		
2	FUNCTION4 PFK	37.43	4.089e5					13.1	YES		dd		
3	FUNCTION4 PFK	37.37	3.953e5					15.9	YES		bd		
4	FUNCTION4 PFK	41.72	1.671e4					1.8	NO		bb		
5	FUNCTION4 PFK	41.06	1.961e3					0.5	NO		bb		
6	FUNCTION4 PFK	40.73	2.014e4					1.4	NO		db		
7	FUNCTION4 PFK	40.63	3.971e4					1.5	NO		bd		
8	FUNCTION4 PFK	40.28	1.671e4					1.7	NO		db		
9	FUNCTION4 PFK	40.24	7.359e3					0.8	NO		bd		
10	FUNCTION4 PFK	40.11	1.431e4					0.8	NO		bb		
11	FUNCTION4 PFK	39.76	1.218e4					1.3	NO		db		
12	FUNCTION4 PFK	39.71	1.469e4					1.6	NO		bd		
13	FUNCTION4 PFK	39.47	2.072e3					0.5	NO		bb		
14	FUNCTION4 PFK	39.26	3.995e3					0.7	NO		bb		
15	FUNCTION4 PFK	38.96	1.705e4					1.3	NO		bb		
16	FUNCTION4 PFK	38.87	1.236e4					1.6	NO		bb		
17	FUNCTION4 PFK	38.20	7.116e3					1.0	NO		bb		
18	FUNCTION4 PFK	38.14	9.317e3					1.1	NO		bb		
19	FUNCTION4 PFK	37.73	8.009e4					3.6	YES		db		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.08	6.313e3					2.2	NO		dd		
2	FUNCTION5 PFK	44.05	1.663e4					2.5	NO		dd		
3	FUNCTION5 PFK	43.97	7.549e3					1.6	NO		dd		
4	FUNCTION5 PFK	43.91	1.172e4					1.7	NO		bd		
5	FUNCTION5 PFK	43.73	5.981e3					1.8	NO		db		
6	FUNCTION5 PFK	43.68	8.401e3					1.9	NO		bd		
7	FUNCTION5 PFK	43.60	6.754e3					1.2	NO		db		
8	FUNCTION5 PFK	43.57	5.515e3					1.5	NO		dd		
9	FUNCTION5 PFK	43.53	3.330e3					1.0	NO		bd		
10	FUNCTION5 PFK	43.39	8.995e3					1.6	NO		db		
11	FUNCTION5 PFK	43.31	1.183e4					2.8	NO		bd		
12	FUNCTION5 PFK	43.26	7.475e3					1.3	NO		bb		
13	FUNCTION5 PFK	43.01	6.561e3					1.5	NO		bb		
14	FUNCTION5 PFK	42.95	1.254e4					3.2	YES		bb		
15	FUNCTION5 PFK	42.88	1.024e4					2.9	NO		bb		
16	FUNCTION5 PFK	45.78	4.070e3					1.1	NO		bb		
17	FUNCTION5 PFK	45.48	1.651e4					1.8	NO		bb		
18	FUNCTION5 PFK	45.43	2.652e3					1.0	NO		bb		
19	FUNCTION5 PFK	45.35	1.162e4					2.3	NO		db		
20	FUNCTION5 PFK	45.27	1.211e3					0.5	NO		bd		
21	FUNCTION5 PFK	45.02	1.216e3					0.5	NO		bb		
22	FUNCTION5 PFK	44.98	5.040e3					1.1	NO		db		
23	FUNCTION5 PFK	44.92	3.169e3					1.2	NO		bd		
24	FUNCTION5 PFK	44.74	8.901e3					1.7	NO		bb		
25	FUNCTION5 PFK	44.64	2.230e3					0.8	NO		bb		
26	FUNCTION5 PFK	44.39	4.221e3					1.4	NO		bb		
27	FUNCTION5 PFK	44.35	6.245e3					2.1	NO		db		
28	FUNCTION5 PFK	44.31	1.675e3					0.8	NO		bd		
29	FUNCTION5 PFK	44.27	3.130e3					1.3	NO		bb		
30	FUNCTION5 PFK	44.17	6.199e3					1.1	NO		db		
31	FUNCTION5 PFK	44.12	7.116e3					1.8	NO		dd		
32	FUNCTION5 PFK	45.96	6.001e3					1.3	NO		bb		
33	FUNCTION5 PFK	45.89	2.093e3					0.9	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.30	7.466e1					1.0	NO		bb		0.000
2	FUNCTION1 HXCD...	26.07	1.160e2					3.2	YES		db		0.000
3	FUNCTION1 HXCD...	26.03	8.861e1					3.1	YES		dd		0.000
4	FUNCTION1 HXCD...	25.93	1.189e2					2.9	NO		bd		0.000
5	FUNCTION1 HXCD...	25.77	1.258e2					2.8	NO		bb		0.000
6	FUNCTION1 HXCD...	25.10	1.754e2					3.6	YES		bb		0.000
7	FUNCTION1 HXCD...	24.57	7.378e1					2.0	NO		bb		0.000
8	FUNCTION1 HXCD...	23.85	1.002e2					2.1	NO		bb		0.000
9	FUNCTION1 HXCD...	21.59	1.003e2					2.5	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.18	7.496e1					2.3	NO		db		0.000
2	FUNCTION2 HPCD...	30.08	1.084e2					1.9	NO		bd		0.000
3	FUNCTION2 HPCD...	29.33	7.147e1					2.3	NO		bb		0.000
4	FUNCTION2 HPCD...	31.57	8.584e1					1.8	NO		bb		0.000
5	FUNCTION2 HPCD...	30.48	1.977e2					6.2	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.04	1.580e2					4.1	YES		db		0.000
2	FUNCTION3 OCDPE	35.91	2.583e2					6.6	YES		bd		0.000
3	FUNCTION3 OCDPE	35.41	1.273e2					4.3	YES		bb		0.000
4	FUNCTION3 OCDPE	35.18	1.247e2					3.1	YES		bb		0.000
5	FUNCTION3 OCDPE	34.94	1.056e2					10.5	YES		bb		0.000
6	FUNCTION3 OCDPE	34.43	8.328e1					3.7	YES		bb		0.000

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ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	39.67	2.033e2					2.8	NO		bb		0.000
2	FUNCTION4 NCDPE	38.63	1.180e2					2.2	NO		bb		0.000

ETHERS6

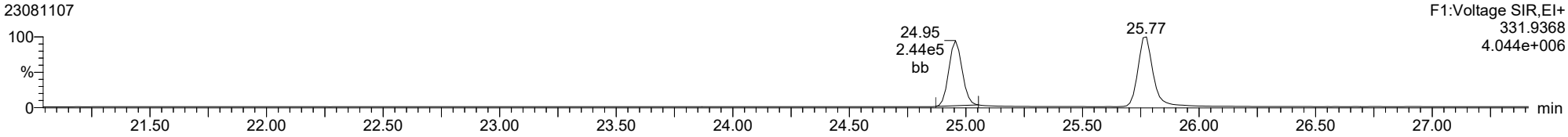
	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	43.93	1.396e2					3.3	YES		bb		0.000

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:35 Pacific Daylight Time

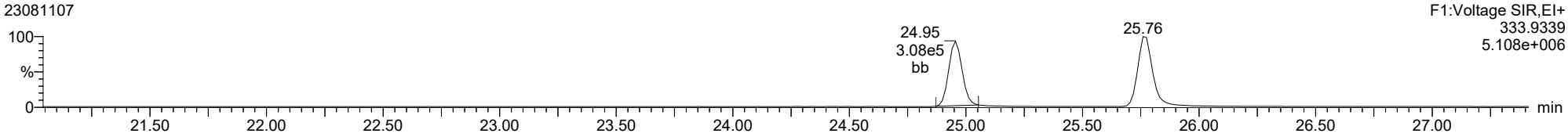
Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

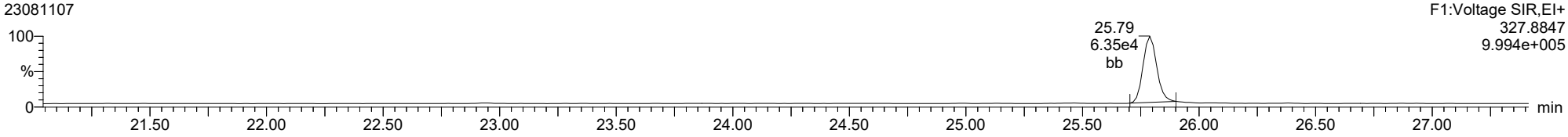
13C-1234-TCDD



13C-1234-TCDD

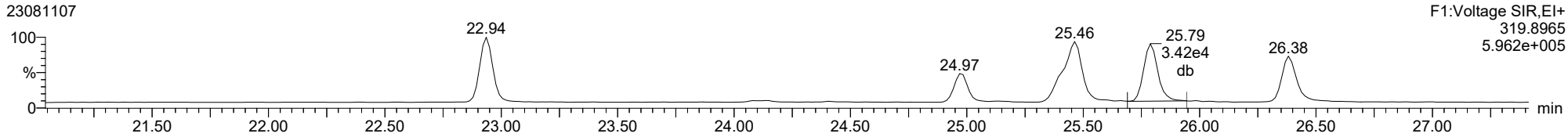


37CL-2378-TCDD

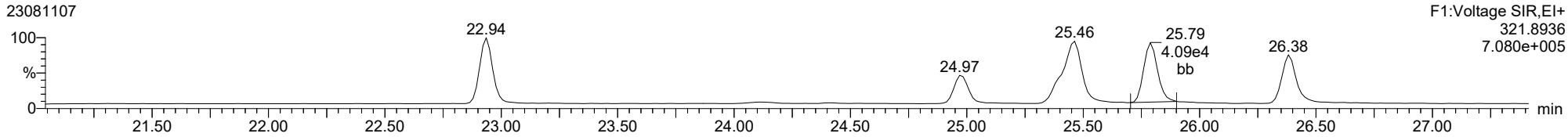


ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

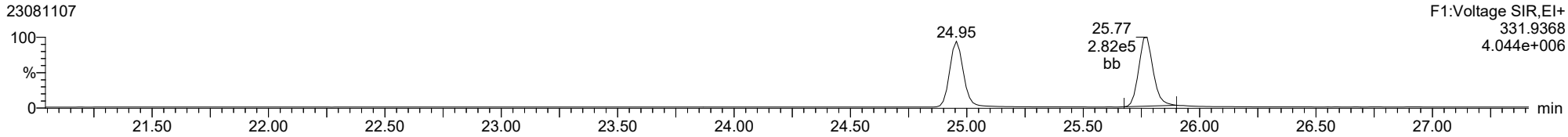
2378-TCDD



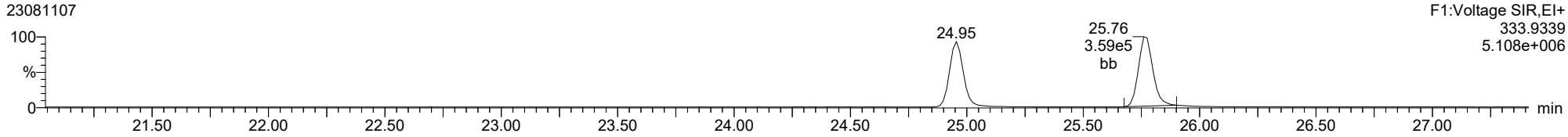
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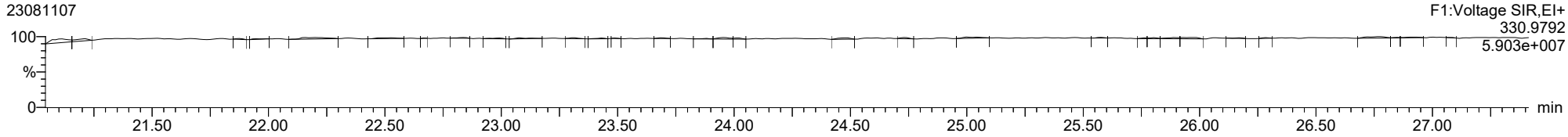
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13C-2378-TCDD

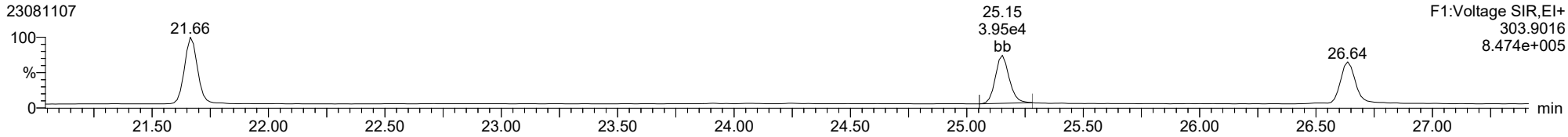


FUNCTION1 PFK

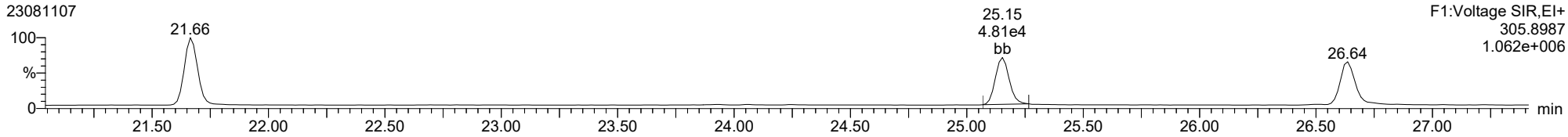


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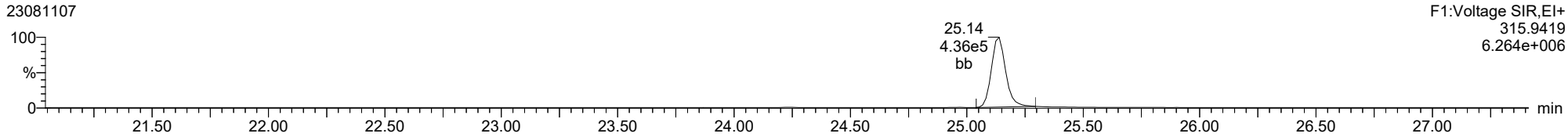
2378-TCDF



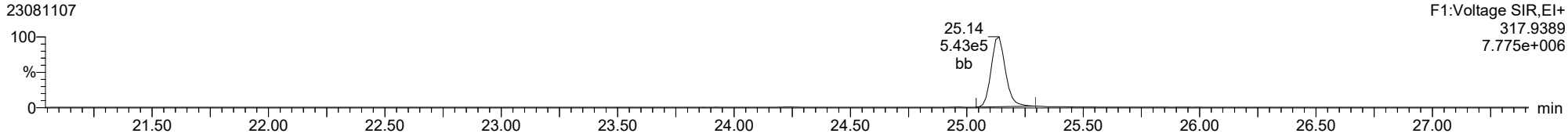
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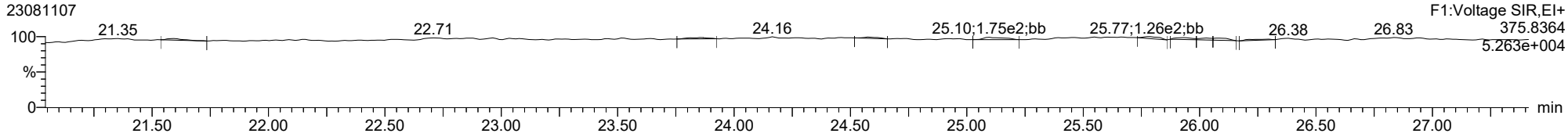
13C-2378-TCDF



13C-2378-TCDF

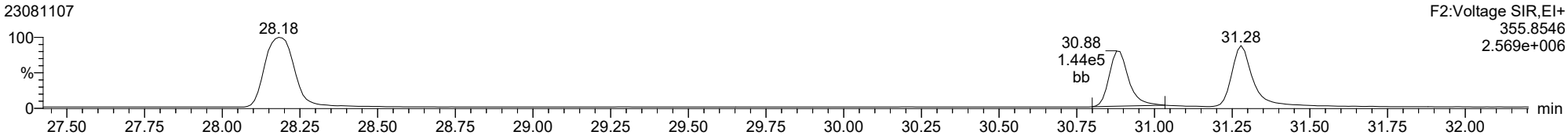


FUNCTION1 HXCDPE

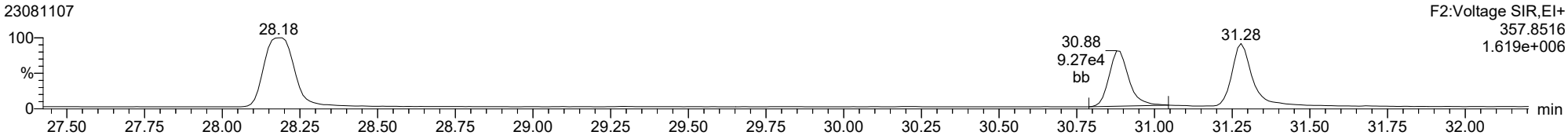


ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

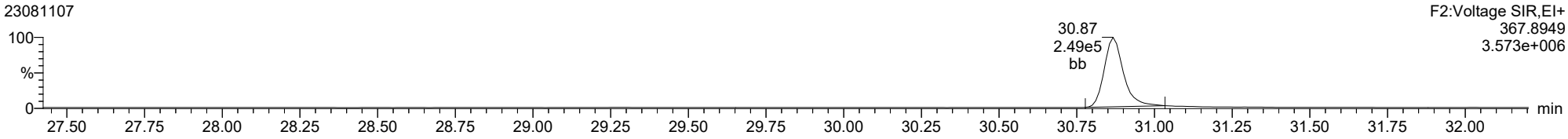
12378-PeCDD



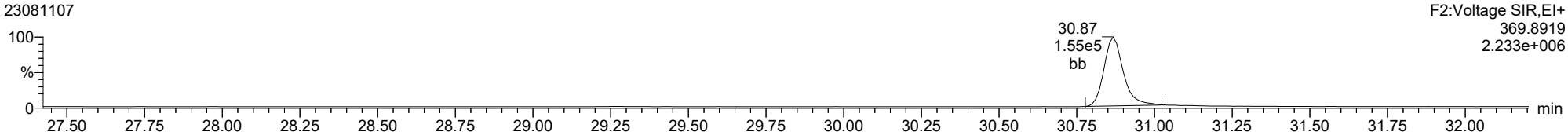
12378-PeCDD



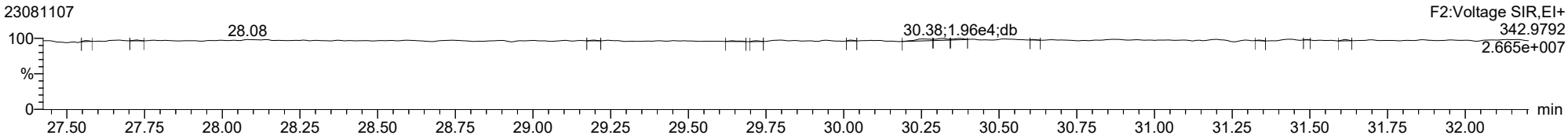
13C-12378-PeCDD



13C-12378-PeCDD

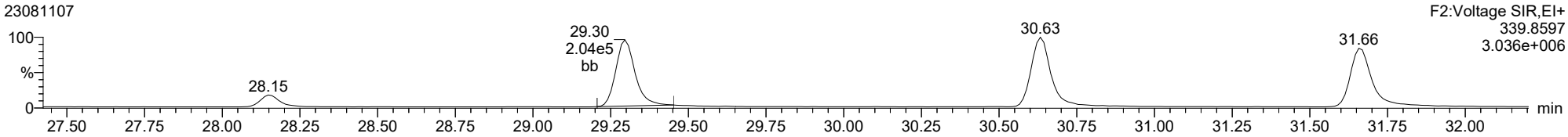


FUNCTION2 PFK

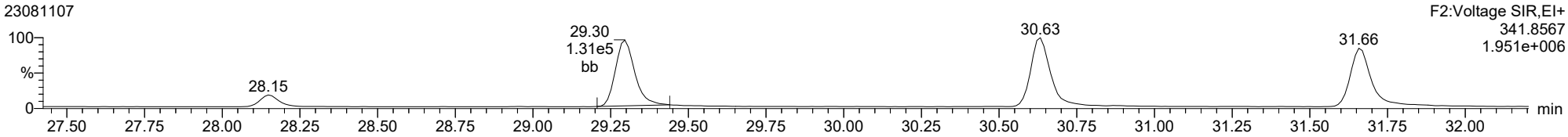


ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

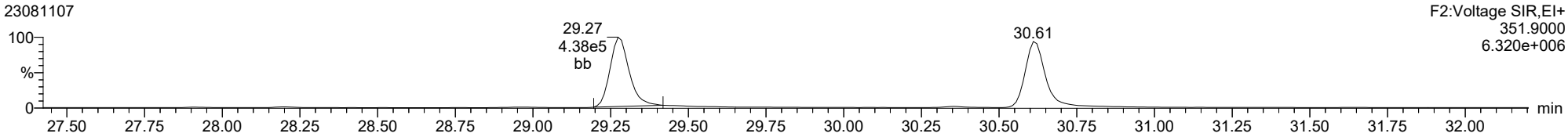
12378-PeCDF



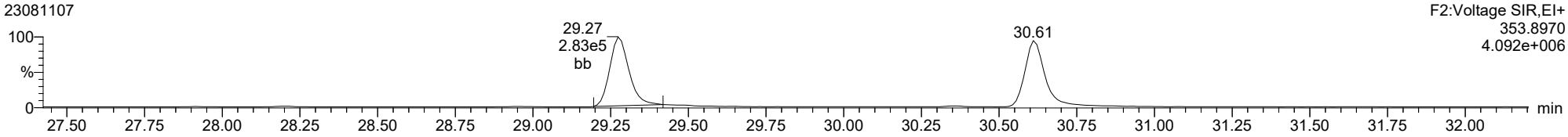
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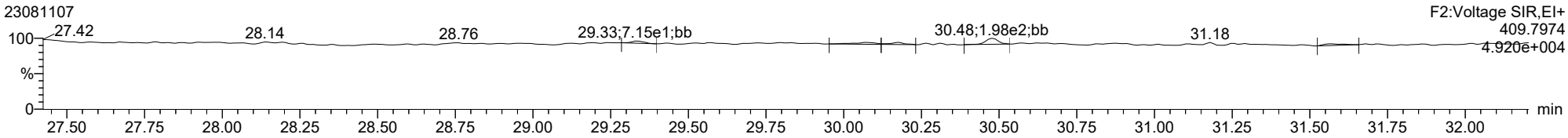
13C-12378-PeCDF



13C-12378-PeCDF

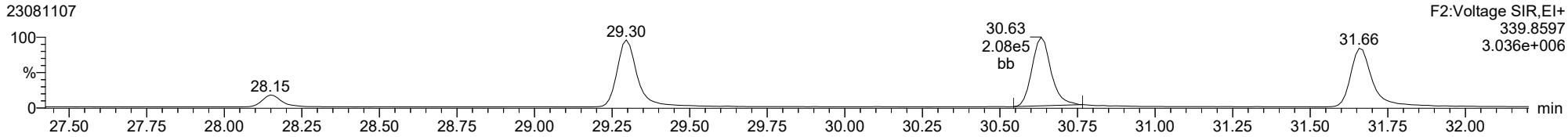


FUNCTION2 HPCDPE

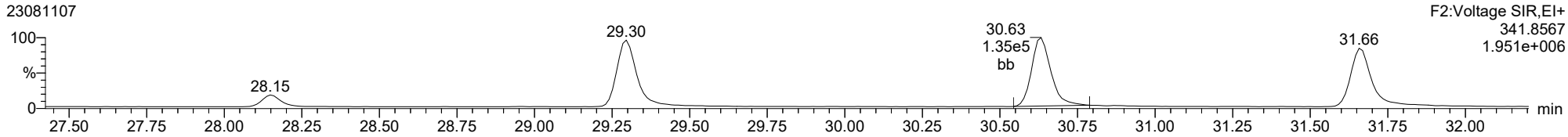


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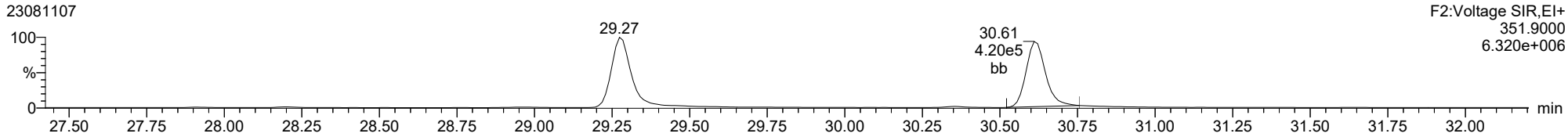
23478-PeCDF



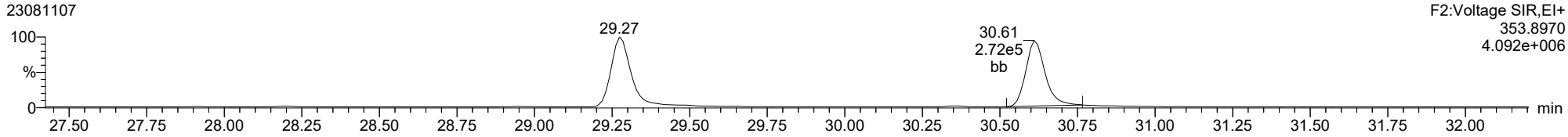
23478-PeCDF



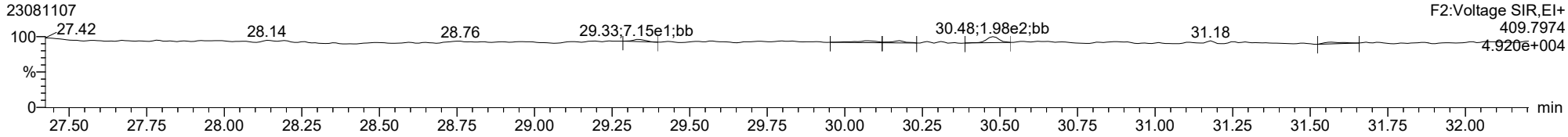
13C-23478-PeCDF



13C-23478-PeCDF

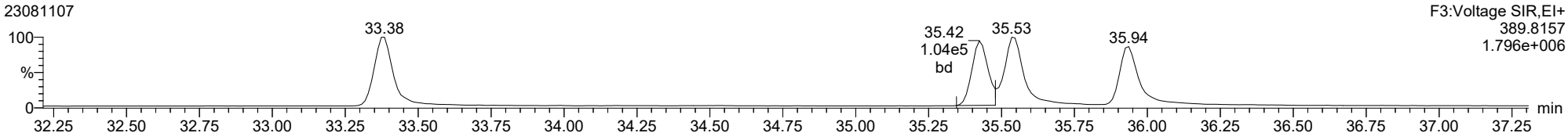


FUNCTION2 HPCDPE

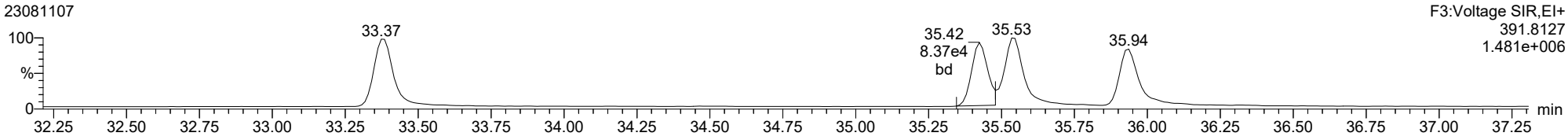


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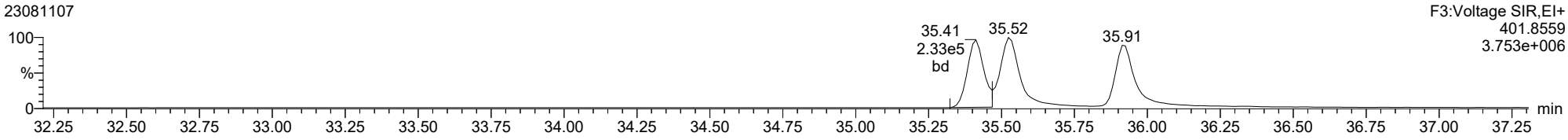
123478-HxCDD



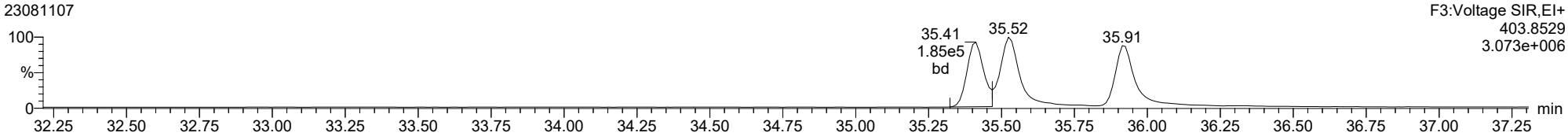
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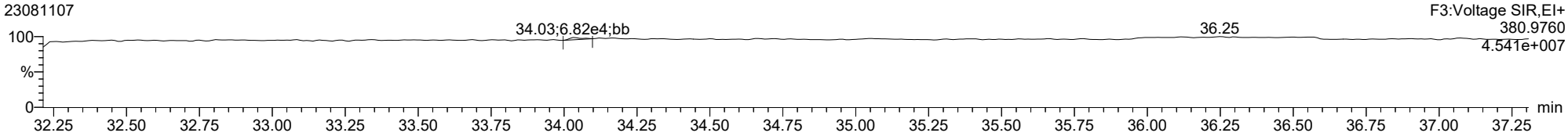
13C-123478-HxCDD



13C-123478-HxCDD

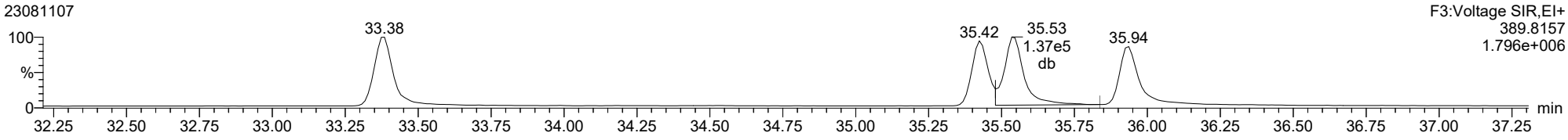


FUNCTION3 PFK

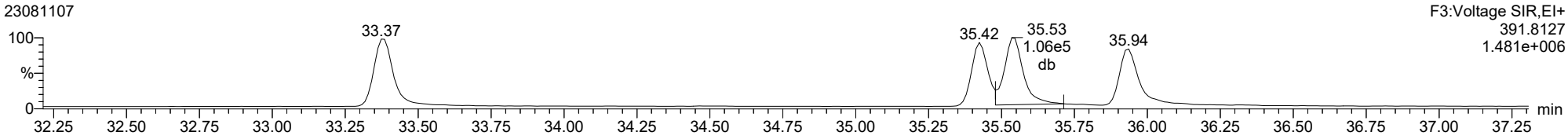


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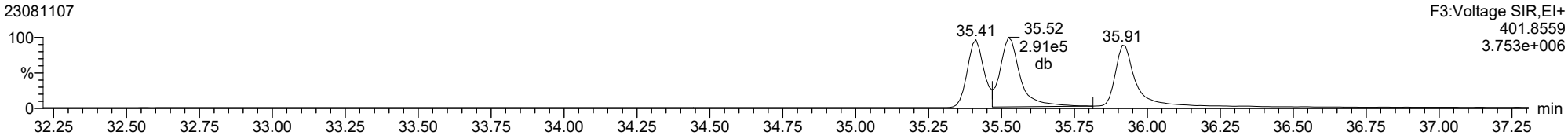
123678-HxCDD



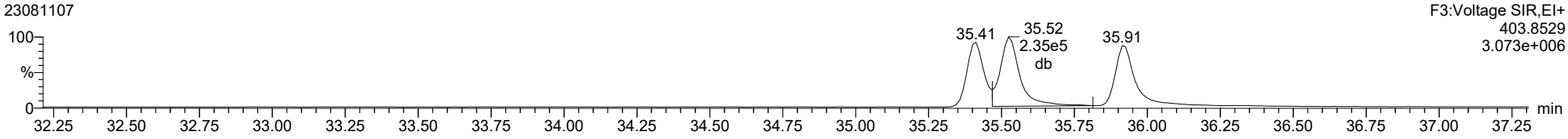
123678-HxCDD



13C-123678-HxCDD

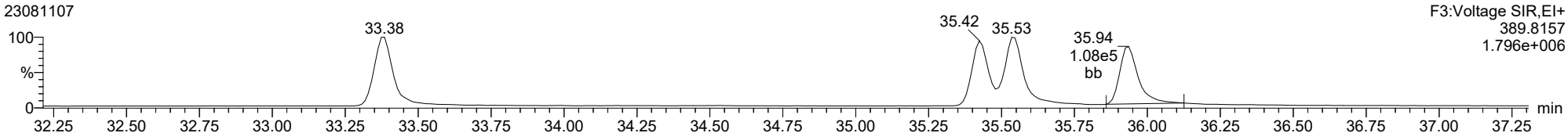


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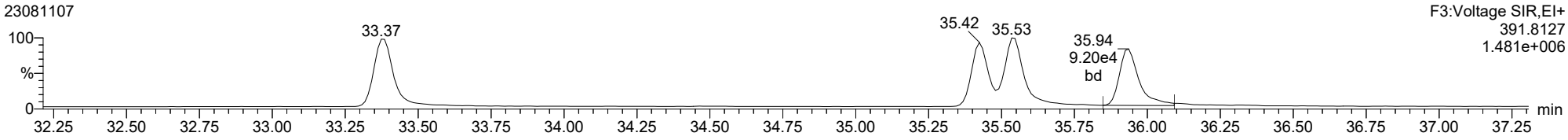


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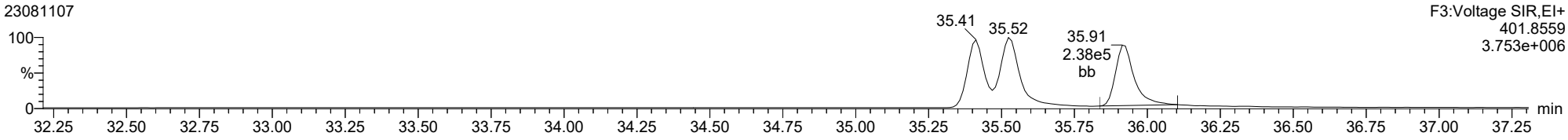
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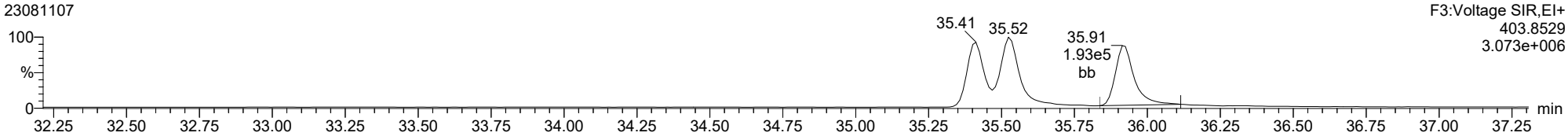
123789-HxCDD



13C-123789-HxCDD

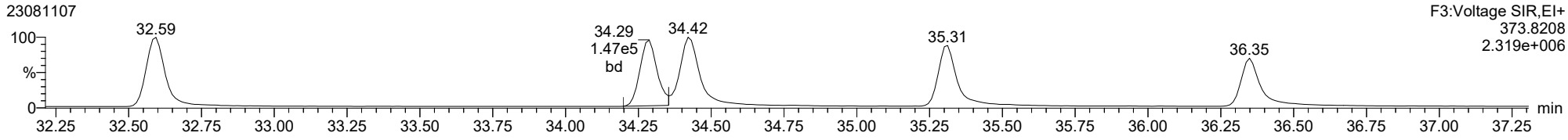


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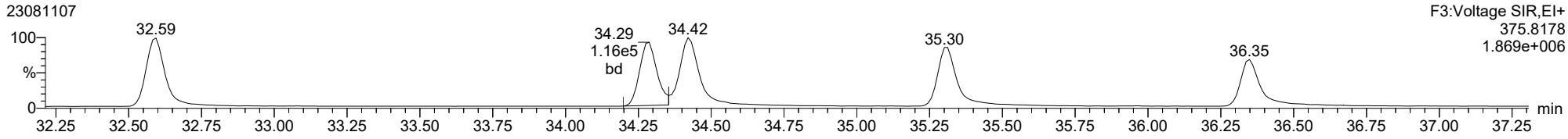


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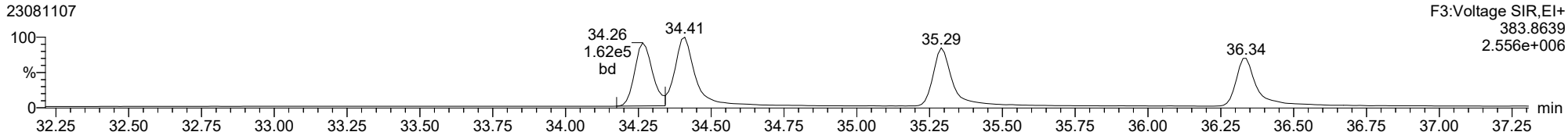
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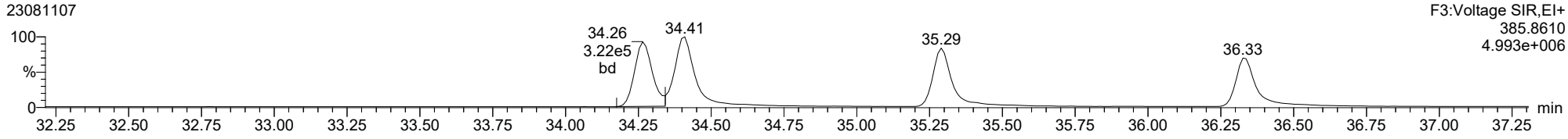
123478-HxCDF



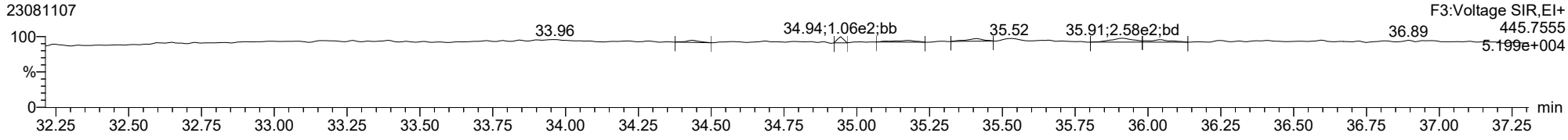
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13C-123478-HxCDF

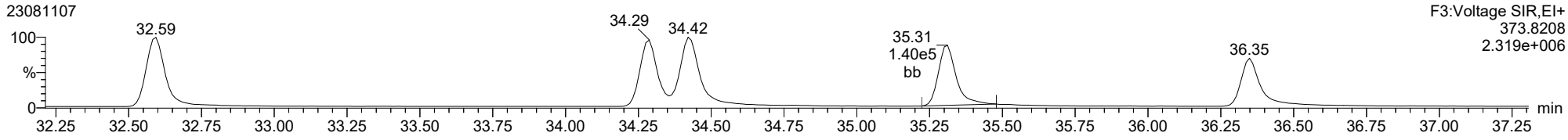


FUNCTION3 OCDPE

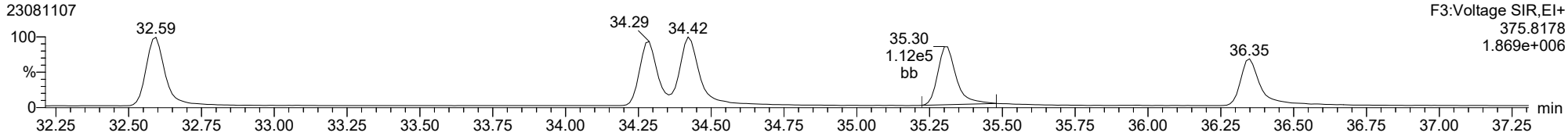


ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

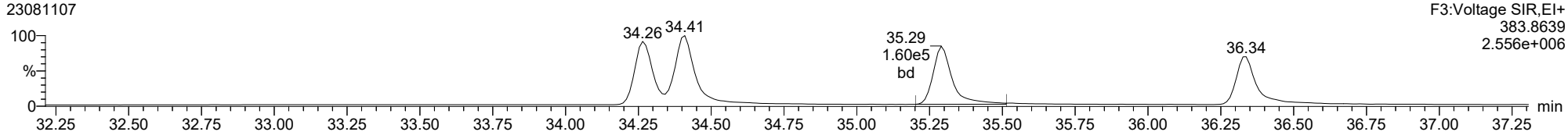
234678-HxCDF



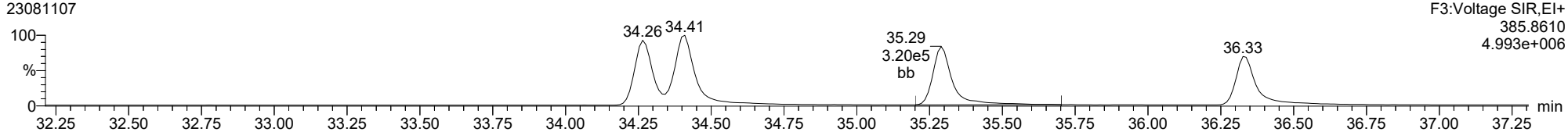
234678-HxCDF



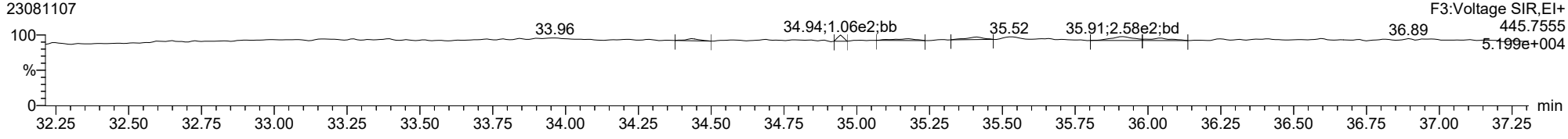
13C-234678-HxCDF



13C-234678-HxCDF

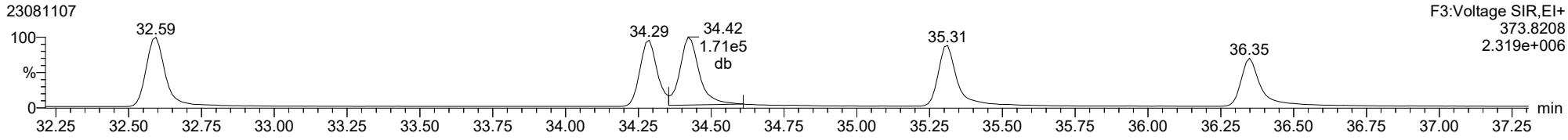


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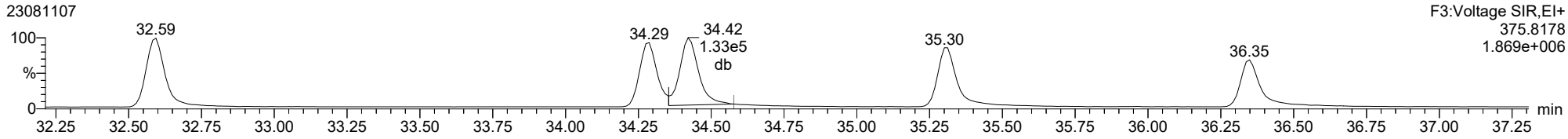


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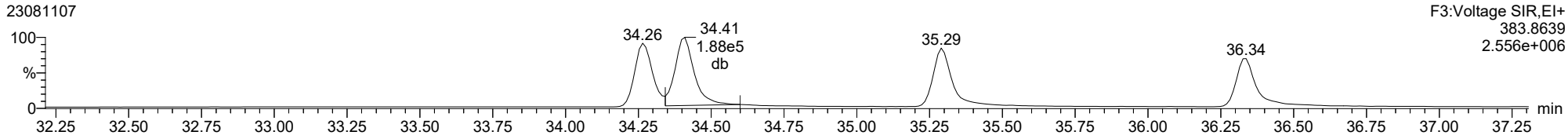
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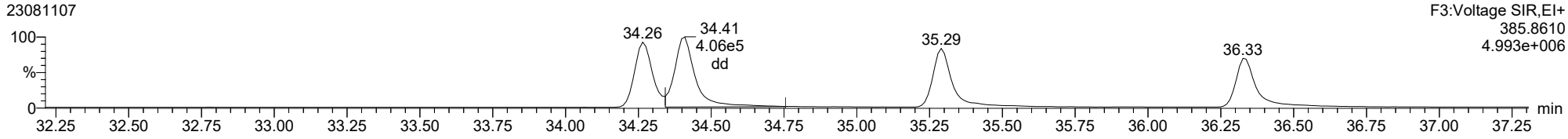
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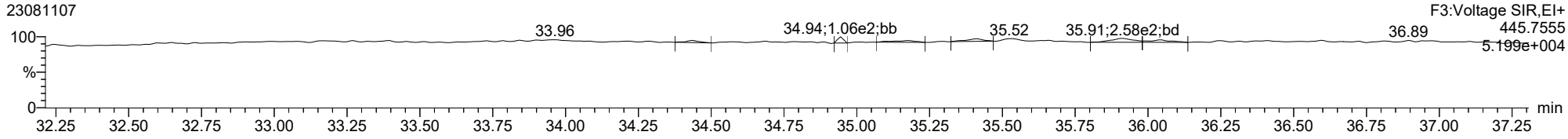
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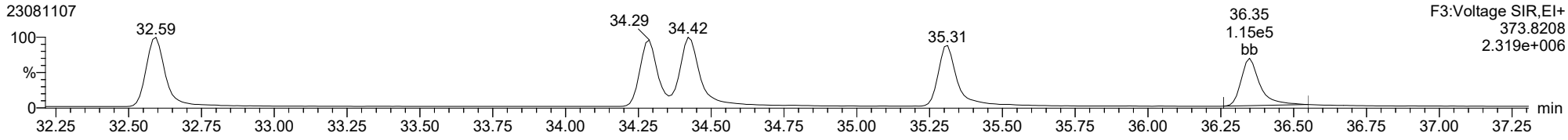


FUNCTION3 OCDPE

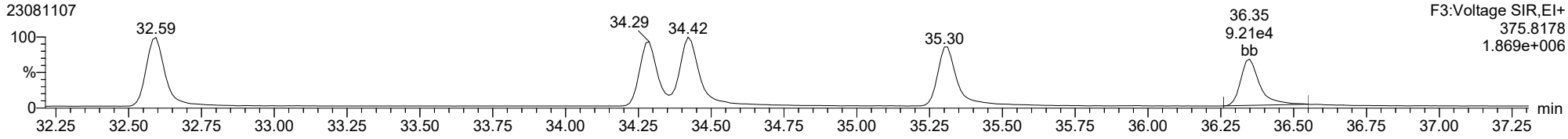


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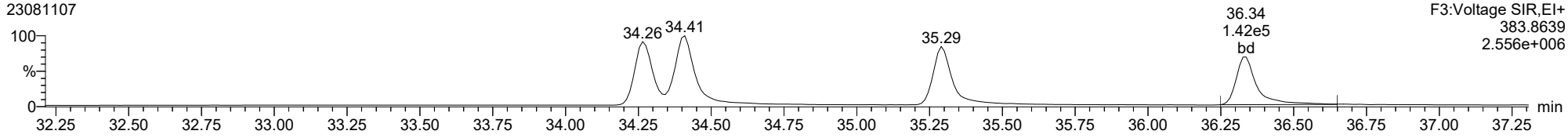
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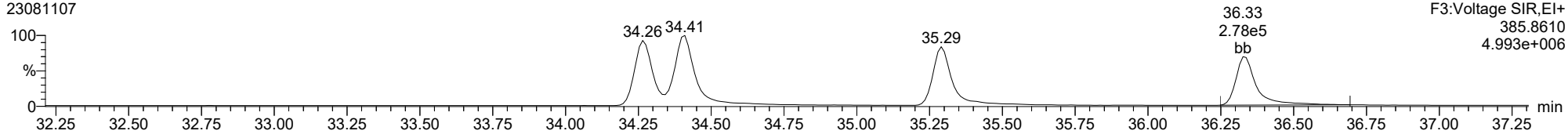
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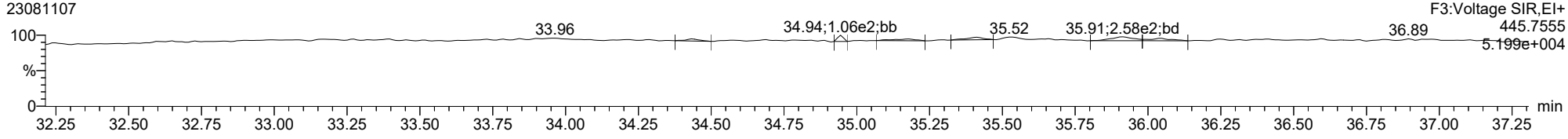
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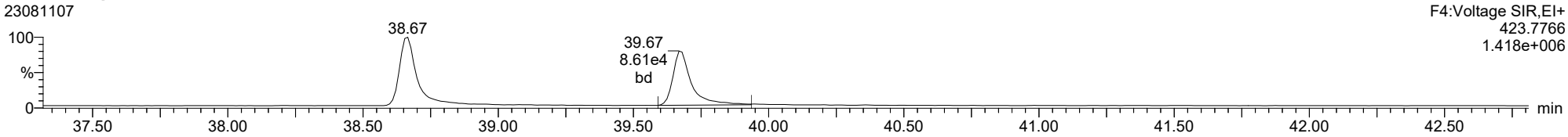


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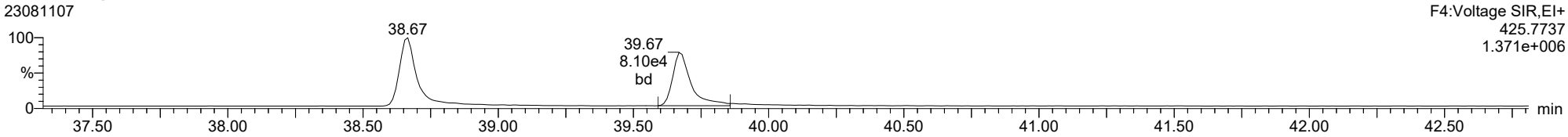


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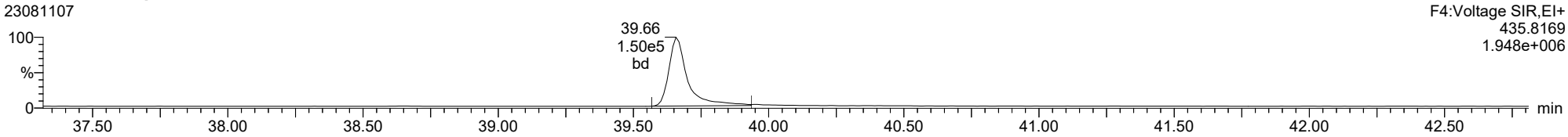
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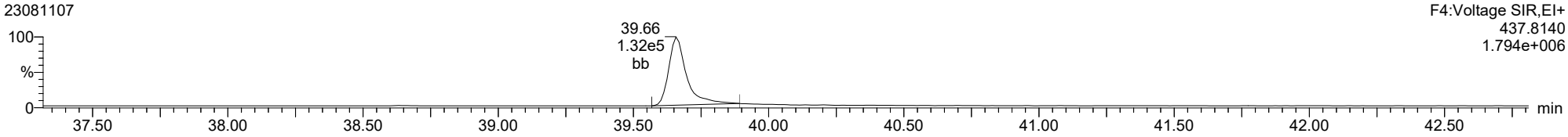
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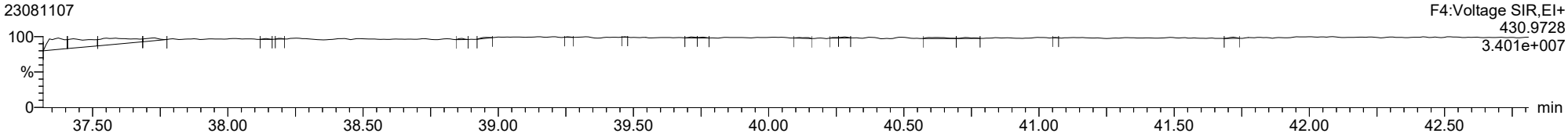
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13C-1234678-HpCDD

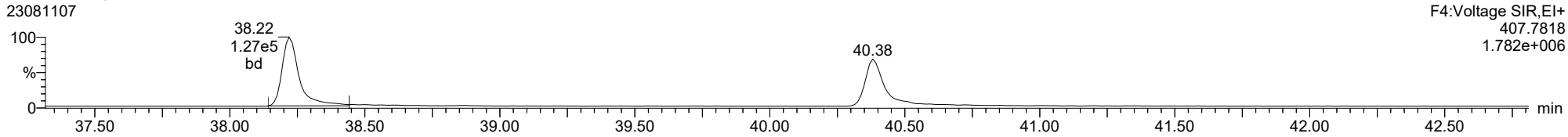


FUNCTION4 PFK

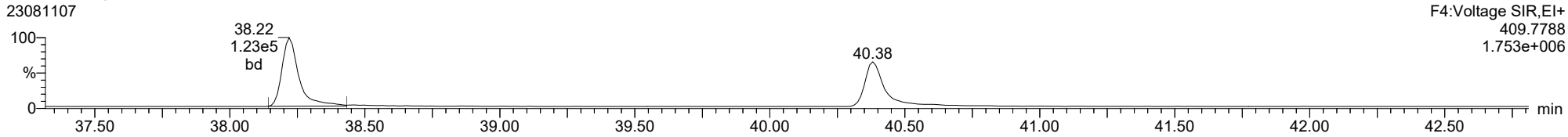


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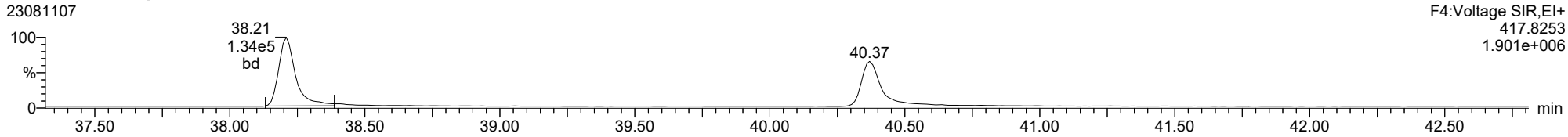
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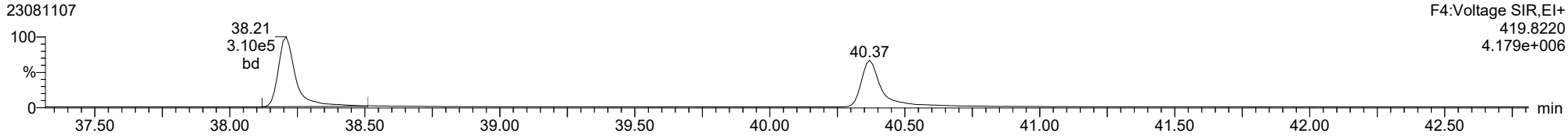
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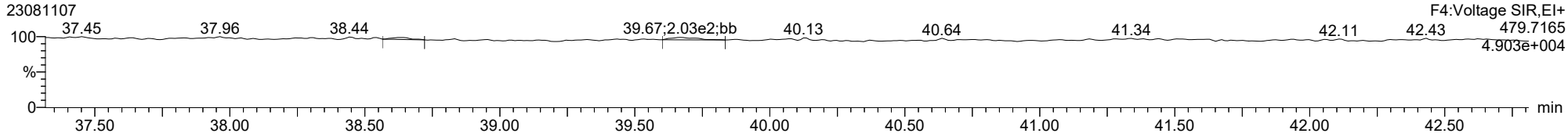
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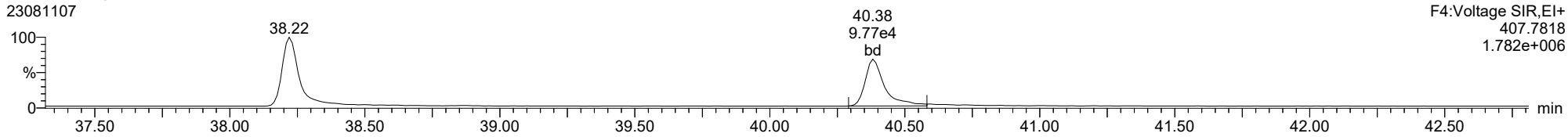


FUNCTION4 NCDPE

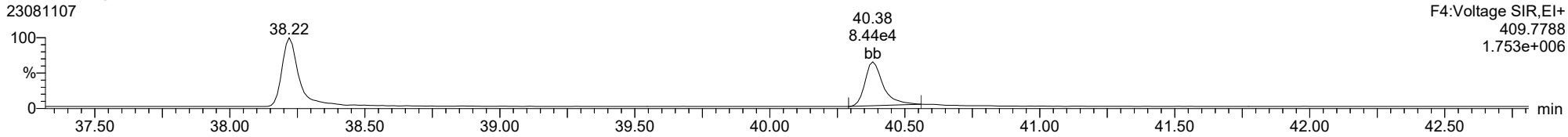


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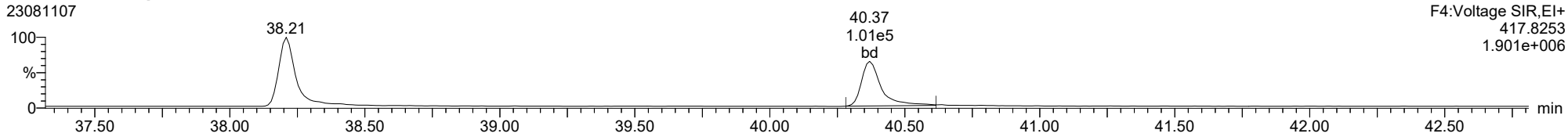
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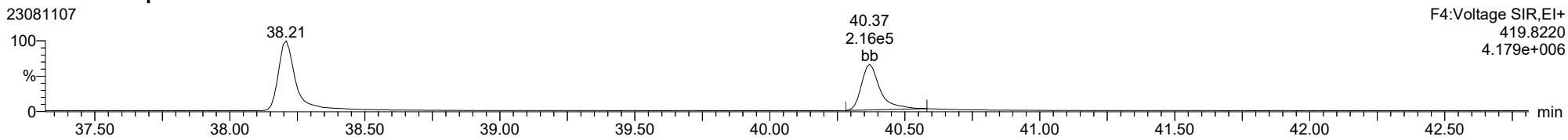
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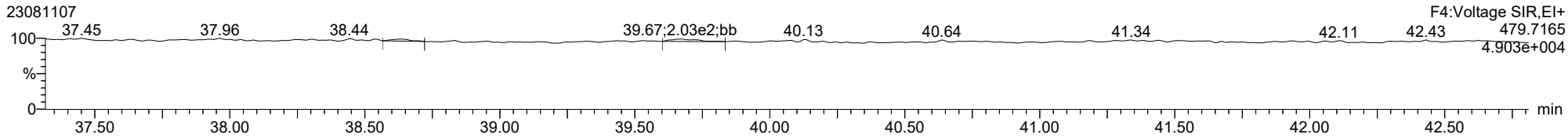
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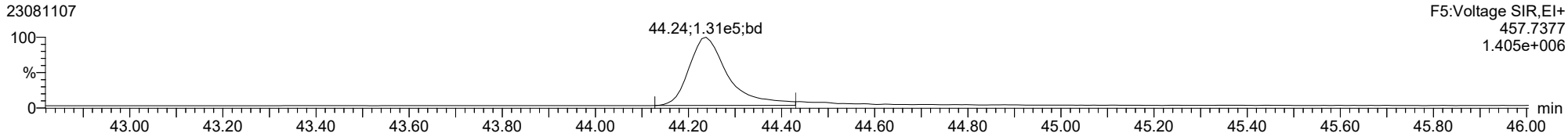


FUNCTION4 NCDPE

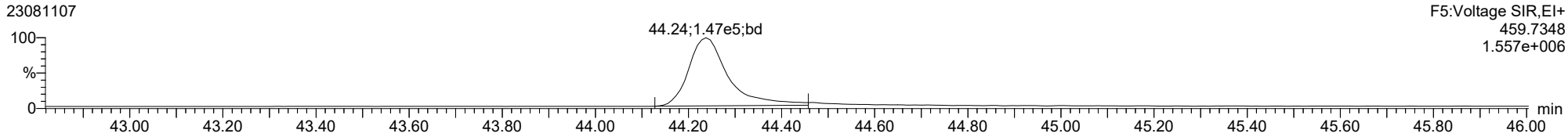


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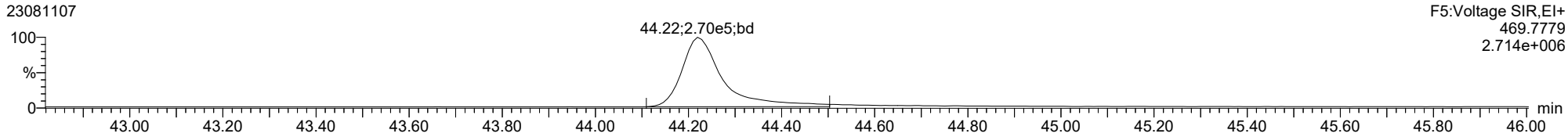
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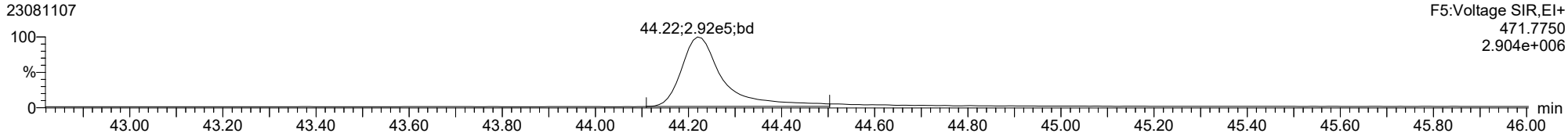
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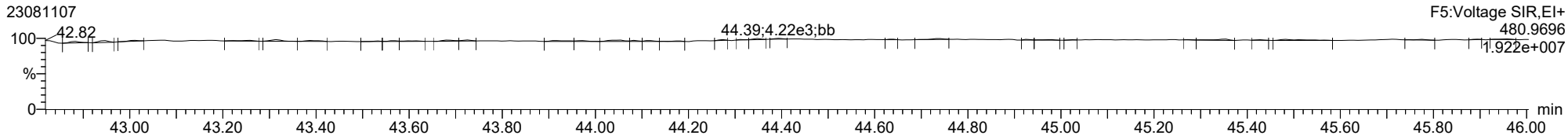
13C-OCDD



13C-OCDD

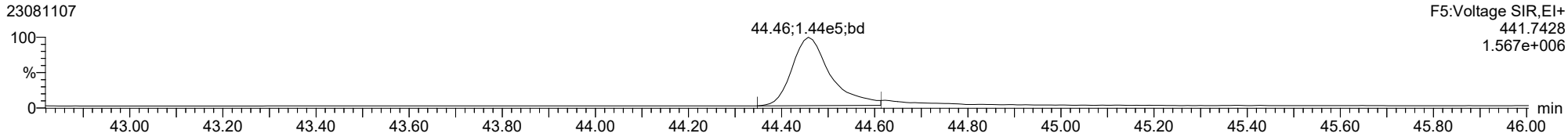


FUNCTION5 PFK

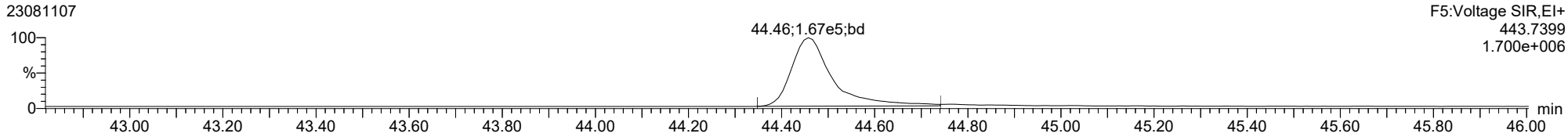


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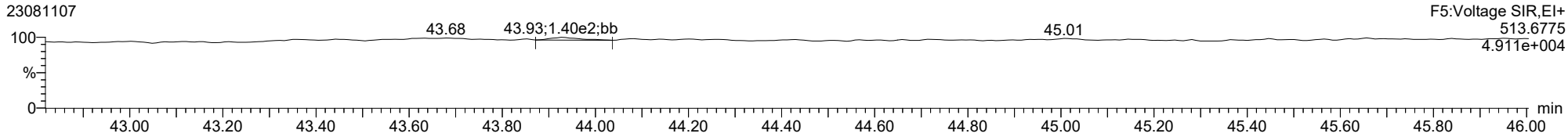
OCDF



OCDF

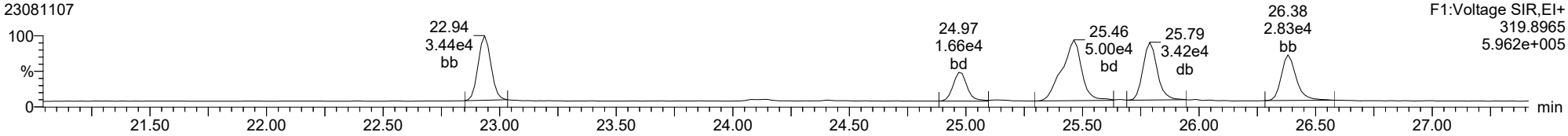


FUNCTION5 DCDPE

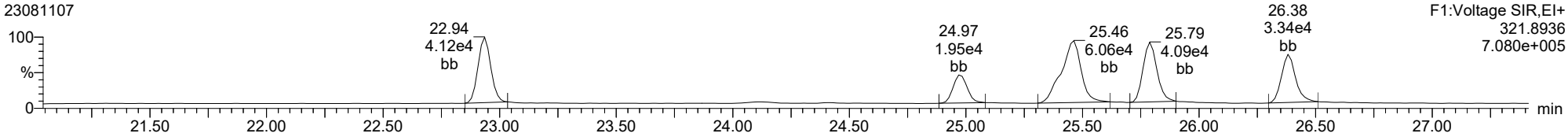


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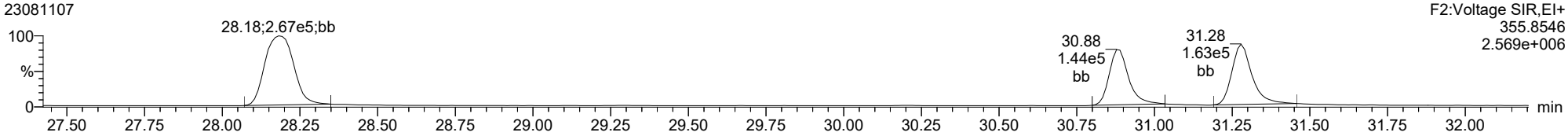
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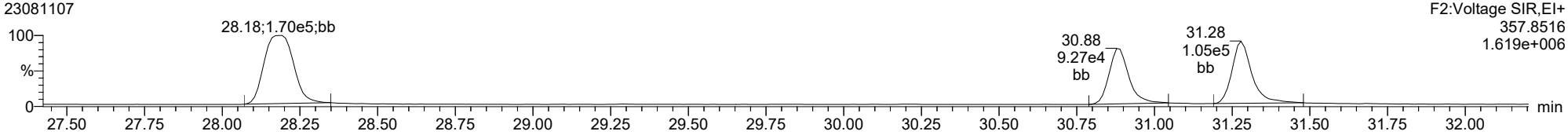
Total-tetradioxins



Total-pentadioxins

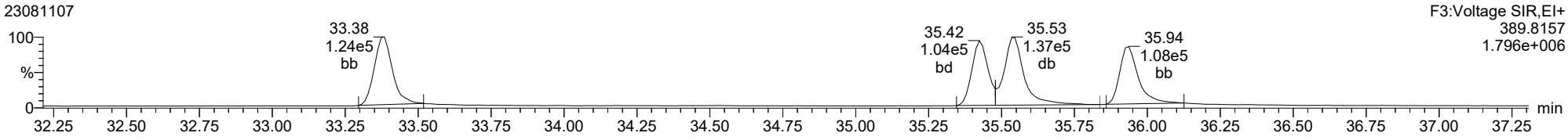


Total-pentadioxins

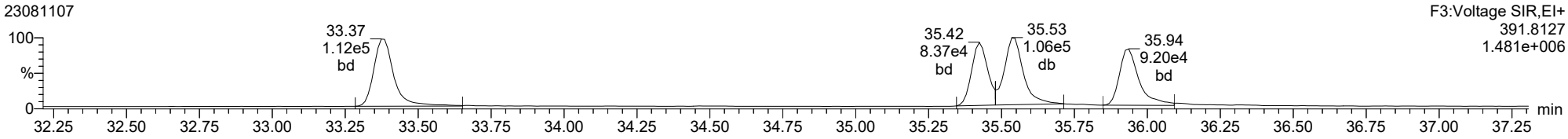


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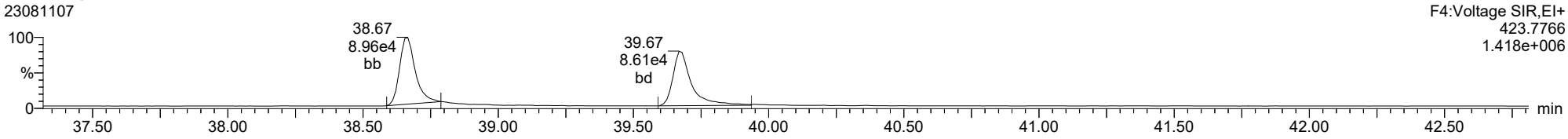
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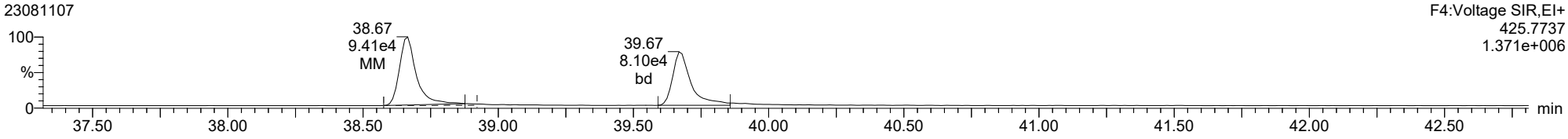
Total-hexadioxins



Total-heptadioxins

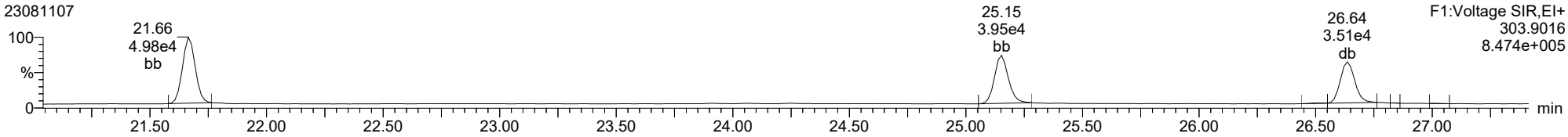


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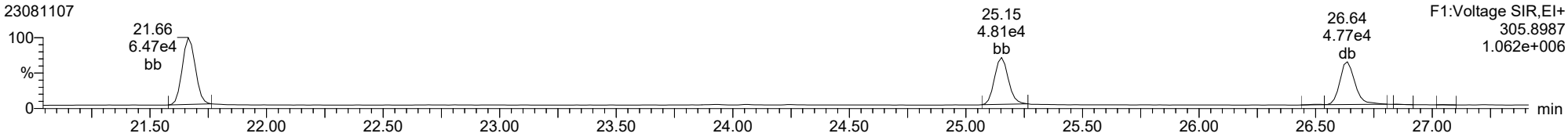


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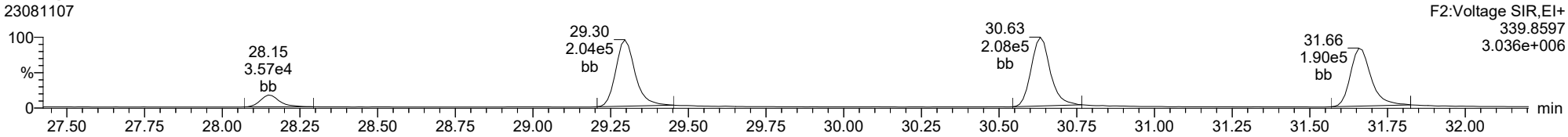
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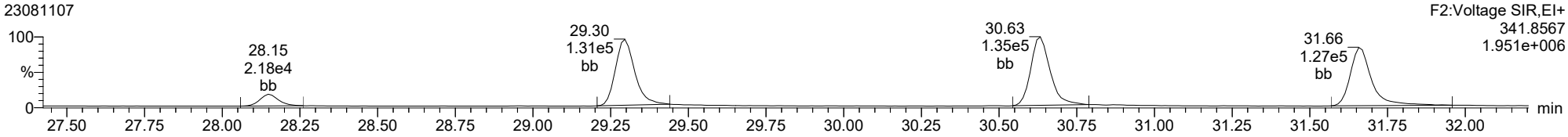
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Total-pentafurans

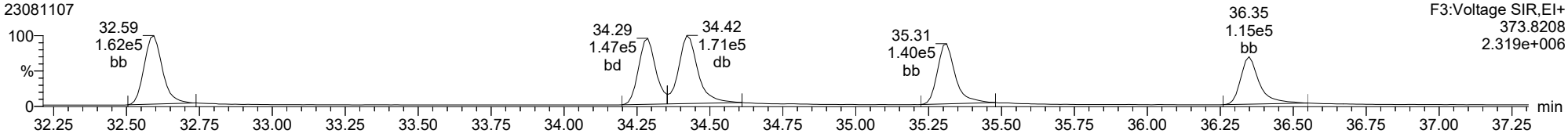


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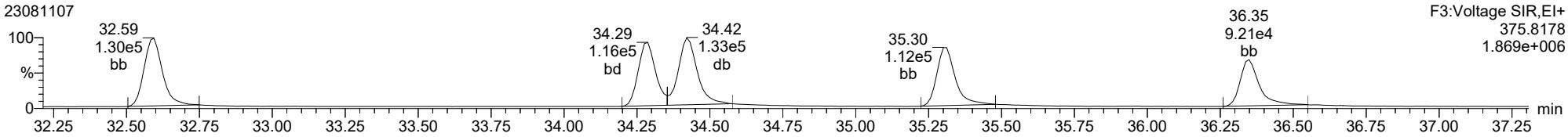


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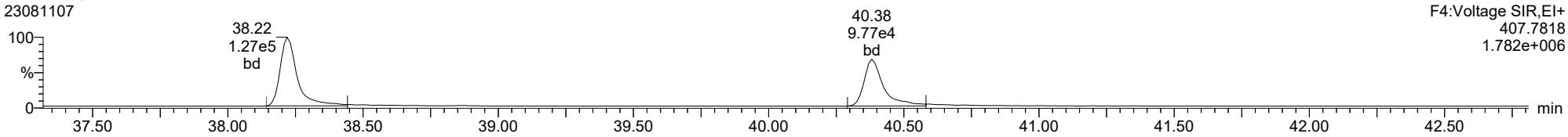
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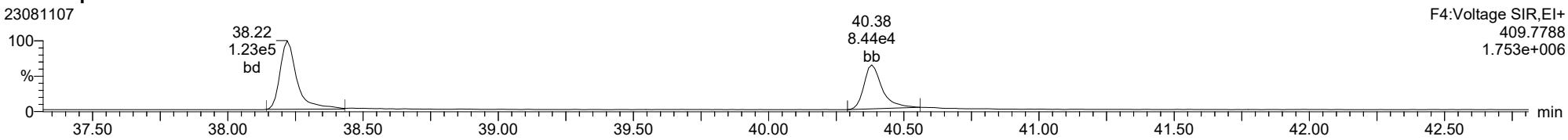
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:49 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
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ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.139	1.001	2.069e5	2.669e5	0.903	0.775	0.770	910	1408	2.99e6	3.87e6	3292.7	2749.1	NO	bb	bb	40.180
12378-PeCDF	29.285	1.001	1.012e6	6.469e5	0.923	1.564	1.550	3352	3597	1.46e7	9.36e6	4348.1	2602.0	NO	bb	bb	201.316
23478-PeCDF	30.622	1.000	1.053e6	6.665e5	0.991	1.580	1.550	3352	3597	1.49e7	9.38e6	4430.7	2608.4	NO	bb	bb	201.599
123478-HxCDF	34.276	1.000	7.120e5	5.688e5	1.128	1.252	1.240	2738	1665	1.05e7	8.28e6	3820.4	4974.4	NO	bd	bd	199.881
234678-HxCDF	35.301	1.000	6.633e5	5.283e5	1.081	1.255	1.240	2738	1665	9.44e6	7.56e6	3445.5	4543.2	NO	bb	bb	200.898
123678-HxCDF	34.421	1.001	7.823e5	6.275e5	1.032	1.247	1.240	2738	1665	1.03e7	8.32e6	3779.2	4995.7	NO	db	db	200.326
123789-HxCDF	36.337	1.000	5.937e5	4.227e5	0.988	1.404	1.240	2738	1665	7.36e6	5.84e6	2686.0	3510.6	NO	bd	bb	210.789
1234678-HpCDF	38.220	1.001	5.646e5	5.569e5	1.164	1.014	1.050	3806	3830	8.41e6	8.15e6	2209.9	2127.1	NO	bb	bb	199.621
1234789-HpCDF	40.381	1.001	4.624e5	4.643e5	1.104	0.996	1.050	3806	3830	5.85e6	5.57e6	1537.3	1455.3	NO	bb	bd	228.686
OCDF	44.457	1.005	6.808e5	7.439e5	1.130	0.915	0.890	3171	3847	7.41e6	7.99e6	2338.5	2077.7	NO	bb	bb	442.738
2378-TCDD	25.774	1.001	1.635e5	2.012e5	1.243	0.813	0.770	819	809	2.31e6	2.92e6	2817.9	3604.6	NO	bb	bb	39.976
12378-PeCDD	30.878	1.001	6.628e5	4.228e5	1.150	1.568	1.550	1616	1186	9.41e6	5.90e6	5824.4	4972.0	NO	bb	bb	202.257
123478-HxCDD	35.423	1.001	4.819e5	4.023e5	0.960	1.198	1.240	1711	1300	7.12e6	5.95e6	4159.0	4578.3	NO	bd	bd	194.509
123678-HxCDD	35.535	1.000	5.301e5	4.575e5	0.883	1.159	1.240	1711	1300	7.35e6	5.95e6	4295.5	4579.4	NO	db	db	202.344
123789-HxCDD	35.925	1.011	4.672e5	3.844e5	0.804	1.215	1.240	1711	1300	6.62e6	5.45e6	3870.9	4194.9	NO	bb	bb	206.440
1234678-HpCDD	39.668	1.000	3.489e5	3.316e5	1.200	1.052	1.050	3116	2211	5.04e6	4.70e6	1615.6	2124.9	NO	bb	bb	189.168
OCDD	44.229	1.000	6.082e5	6.853e5	1.059	0.888	0.890	1979	2870	6.17e6	6.99e6	3119.0	2435.1	NO	bd	bd	429.120
13C-2378-TCDF	25.125	1.007	5.832e5	7.224e5	1.835	0.807	0.770	2017	1746	8.33e6	1.05e7	4130.6	5989.0	NO	bb	bb	96.462
13C-12378-PeCDF	29.262	1.173	5.419e5	3.506e5	1.377	1.546	1.550	3777	2446	7.61e6	5.02e6	2013.6	2052.1	NO	bb	bb	87.917
13C-23478-PeCDF	30.610	1.227	5.239e5	3.372e5	1.301	1.554	1.550	3777	2446	7.19e6	4.70e6	1903.1	1920.3	NO	bb	bb	89.739
13C-123478-HxCDF	34.265	0.954	1.917e5	3.763e5	1.091	0.510	0.510	2847	1804	2.78e6	5.41e6	977.0	3000.2	NO	bd	bd	106.075
13C-123678-HxCDF	34.398	0.958	2.197e5	4.620e5	1.340	0.475	0.510	2847	1804	2.97e6	5.79e6	1044.1	3210.7	NO	db	dd	103.609
13C-234678-HxCDF	35.290	0.983	1.810e5	3.675e5	1.093	0.492	0.510	2847	1804	2.45e6	4.85e6	861.0	2686.1	NO	bb	bd	102.175
13C-123789-HxCDF	36.326	1.012	1.604e5	3.278e5	0.952	0.489	0.510	2847	1804	2.09e6	4.12e6	733.8	2283.2	NO	bb	bd	104.504
13C-1234678-HpCDF	38.197	1.064	1.579e5	3.249e5	0.985	0.486	0.440	2570	2841	2.12e6	4.70e6	824.9	1653.5	NO	bd	bb	99.843
13C-1234789-HpCDF	40.359	1.124	1.178e5	2.494e5	0.756	0.472	0.440	2570	2841	1.48e6	3.21e6	576.0	1129.9	NO	bd	bb	98.962
13C-1234-TCDD	24.941	0.000	3.250e5	4.124e5	1.000	0.788	0.770	1552	1233	4.97e6	6.31e6	3202.9	5112.0	NO	bb	bb	100.000
13C-2378-TCDD	25.760	1.033	3.273e5	4.068e5	1.110	0.804	0.770	1552	1233	4.73e6	5.93e6	3049.2	4804.6	NO	bb	bb	89.718
13C-12378-PeCDD	30.855	1.237	2.877e5	1.791e5	0.754	1.607	1.550	770	1010	4.08e6	2.49e6	5300.6	2467.8	NO	bb	bb	83.973
13C-123478-HxCDD	35.401	0.986	2.677e5	2.058e5	0.960	1.301	1.240	1608	1432	3.86e6	3.11e6	2400.4	2172.8	NO	bd	bd	100.482
13C-123678-HxCDD	35.523	0.989	3.023e5	2.506e5	1.159	1.206	1.240	1608	1432	3.93e6	3.13e6	2445.3	2184.5	NO	db	db	97.162
13C-1234678-HpCDD	39.657	1.104	1.557e5	1.442e5	0.629	1.080	1.050	2177	1424	2.06e6	1.90e6	946.2	1335.4	NO	bb	bb	97.070
13C-OCDD	44.219	1.231	2.717e5	2.978e5	0.635	0.912	0.890	2982	2292	2.88e6	3.17e6	966.9	1381.3	NO	bd	bd	182.623
13C-123789-HxCDD	35.914	0.000	2.757e5	2.153e5	1.000	1.281	1.240	1608	1432	3.82e6	3.03e6	2373.7	2113.6	NO	bb	bb	100.000
37CL-2378-TCDD	25.774	1.033	3.106e5		1.157			1063		4.48e6		4212.1			bb		36.391

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:49 Pacific Daylight Time

ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.170		0.770	910	1408								
1289-TCDF					0.847		0.770	910	1408								
13468-PECDF					1.241		1.550	619	771								
12389-PECDF					0.880		1.550	3352	3597								
123468-HXCDF					1.206		1.240	2738	1665								
1368-TCDD					1.181		0.770	819	809								
1289-TCDD					0.963		0.770	819	809								
12479-PECDD					2.166		1.550	1616	1186								
12389-PECDD					1.326		1.550	1616	1186								
124679-HXCDD					1.127		1.240	1711	1300								
1234679-HPCDD					1.303		1.050	3116	2211								
Total-tetrafurans			2.089e5		0.973			910		3.02e6							40.558
Total-penta1			0.000e0					619		0.00e0							
Total-pentafurans			2.066e6		0.931			3352		2.95e7							403.174
Total-hexafurans			2.752e6		1.087			2738		3.76e7							811.982
Total-heptafurans			1.027e6		1.134			3806		1.43e7							428.307
Total-Furans			6.735e6		1.053			910		9.18e7							2126.759
Total-tetradioxins			1.677e5		1.129			819		2.35e6							41.113
Total-pentadioxins			6.628e5		1.548			1616		9.41e6							202.257
Total-hexadioxins			1.479e6		0.943			1711		2.11e7							603.293
Total-heptadioxins			3.489e5		1.251			3116		5.04e6							189.168
Total-Dioxins			3.267e6		1.182			819		4.41e7							1464.951
Total-TEQ			1.000e7					819		1.36e8							3591.710
FUNCTION1 PFK			1.203e6					375179		2.06e7							
FUNCTION2 PFK			7.156e5					281683		1.61e7							0.000
FUNCTION3 PFK			1.654e5					367932		5.05e6							0.000
FUNCTION4 PFK			0.000e0					301298		0.00e0							
FUNCTION5 PFK			9.039e4					207920		4.37e6							
FUNCTION1 HXCD...			2.747e2					499		5.63e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			8.897e2					444		1.57e4							0.000
FUNCTION3 OCDPE			0.000e0					373		0.00e0							
FUNCTION4 NCDPE			3.465e2					497		5.37e3							0.000
FUNCTION5 DCDPE			8.374e1					445		7.84e2							0.000

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.14	2.069e5	2.669e5	0.903	0.78	0.77	3292.7	YES	NO	bb	bb	40.180
2	Total-tetrafurans	23.91	2.011e3	2.792e3	0.973	0.72	0.77	32.7	YES	NO	bb	bb	0.378

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.28	1.012e6	6.469e5	0.923	1.56	1.55	4348.1	YES	NO	bb	bb	201.316
2	23478-PeCDF	30.62	1.053e6	6.665e5	0.991	1.58	1.55	4430.7	YES	NO	bb	bb	201.599
3	Total-pentafurans	30.49	1.202e3	9.050e2	0.931	1.33	1.55	8.8	YES	NO	bb	bb	0.258

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDF	34.42	7.823e5	6.275e5	1.032	1.25	1.24	3779.2	YES	NO	db	db	200.326
2	123478-HxCDF	34.28	7.120e5	5.688e5	1.128	1.25	1.24	3820.4	YES	NO	bd	bd	199.881
3	123789-HxCDF	36.34	5.937e5	4.227e5	0.988	1.40	1.24	2686.0	YES	NO	bd	bb	210.789
4	234678-HxCDF	35.30	6.633e5	5.283e5	1.081	1.26	1.24	3445.5	YES	NO	bb	bb	200.898
5	Total-hexafurans	34.77	2.884e2	2.632e2	1.087	1.10	1.24	0.0	NO	NO	bb	bb	0.089

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.22	5.646e5	5.569e5	1.164	1.01	1.05	2209.9	YES	NO	bb	bb	199.621
2	1234789-HpCDF	40.38	4.624e5	4.643e5	1.104	1.00	1.05	1537.3	YES	NO	bb	bd	228.686

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.14	2.069e5	2.669e5	0.903	0.78	0.77	3292.7	YES	NO	bb	bb	40.180
2	Total-tetrafurans	23.91	2.011e3	2.792e3	0.973	0.72	0.77	32.7	YES	NO	bb	bb	0.378
3	12378-PeCDF	29.28	1.012e6	6.469e5	0.923	1.56	1.55	4348.1	YES	NO	bb	bb	201.316
4	23478-PeCDF	30.62	1.053e6	6.665e5	0.991	1.58	1.55	4430.7	YES	NO	bb	bb	201.599
5	Total-pentafurans	30.49	1.202e3	9.050e2	0.931	1.33	1.55	8.8	YES	NO	bb	bb	0.258
6	123678-HxCDF	34.42	7.823e5	6.275e5	1.032	1.25	1.24	3779.2	YES	NO	db	db	200.326
7	123478-HxCDF	34.28	7.120e5	5.688e5	1.128	1.25	1.24	3820.4	YES	NO	bd	bd	199.881
8	123789-HxCDF	36.34	5.937e5	4.227e5	0.988	1.40	1.24	2686.0	YES	NO	bd	bb	210.789
9	234678-HxCDF	35.30	6.633e5	5.283e5	1.081	1.26	1.24	3445.5	YES	NO	bb	bb	200.898
10	Total-hexafurans	34.77	2.884e2	2.632e2	1.087	1.10	1.24	0.0	NO	NO	bb	bb	0.089
11	1234678-HpCDF	38.22	5.646e5	5.569e5	1.164	1.01	1.05	2209.9	YES	NO	bb	bb	199.621
12	1234789-HpCDF	40.38	4.624e5	4.643e5	1.104	1.00	1.05	1537.3	YES	NO	bb	bd	228.686
13	OCDF	44.46	6.808e5	7.439e5	1.130	0.92	0.89	2338.5	YES	NO	bb	bb	442.738

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.77	1.635e5	2.012e5	1.243	0.81	0.77	2817.9	YES	NO	bb	bb	39.976
2	Total-tetradioxins	25.39	4.211e3	5.212e3	1.129	0.81	0.77	54.6	YES	NO	bb	bd	1.137

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.88	6.628e5	4.228e5	1.150	1.57	1.55	5824.4	YES	NO	bb	bb	202.257

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.92	4.672e5	3.844e5	0.804	1.22	1.24	3870.9	YES	NO	bb	bb	206.440
2	123678-HxCDD	35.53	5.301e5	4.575e5	0.883	1.16	1.24	4295.5	YES	NO	db	db	202.344
3	123478-HxCDD	35.42	4.819e5	4.023e5	0.960	1.20	1.24	4159.0	YES	NO	bd	bd	194.509

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.67	3.489e5	3.316e5	1.200	1.05	1.05	1615.6	YES	NO	bb	bb	189.168

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.77	1.635e5	2.012e5	1.243	0.81	0.77	2817.9	YES	NO	bb	bb	39.976
2	Total-tetradioxins	25.39	4.211e3	5.212e3	1.129	0.81	0.77	54.6	YES	NO	bb	bd	1.137
3	12378-PeCDD	30.88	6.628e5	4.228e5	1.150	1.57	1.55	5824.4	YES	NO	bb	bb	202.257
4	123789-HxCDD	35.92	4.672e5	3.844e5	0.804	1.22	1.24	3870.9	YES	NO	bb	bb	206.440
5	123678-HxCDD	35.53	5.301e5	4.575e5	0.883	1.16	1.24	4295.5	YES	NO	db	db	202.344
6	123478-HxCDD	35.42	4.819e5	4.023e5	0.960	1.20	1.24	4159.0	YES	NO	bd	bd	194.509
7	1234678-HpCDD	39.67	3.489e5	3.316e5	1.200	1.05	1.05	1615.6	YES	NO	bb	bb	189.168
8	OCDD	44.23	6.082e5	6.853e5	1.059	0.89	0.89	3119.0	YES	NO	bd	bd	429.120

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.14	2.069e5	2.669e5	0.903	0.78	0.77	3292.7	YES	NO	bb	bb	40.180
2	Total-tetrafurans	23.91	2.011e3	2.792e3	0.973	0.72	0.77	32.7	YES	NO	bb	bb	0.378
3	12378-PeCDF	29.28	1.012e6	6.469e5	0.923	1.56	1.55	4348.1	YES	NO	bb	bb	201.316
4	23478-PeCDF	30.62	1.053e6	6.665e5	0.991	1.58	1.55	4430.7	YES	NO	bb	bb	201.599
5	Total-pentafurans	30.49	1.202e3	9.050e2	0.931	1.33	1.55	8.8	YES	NO	bb	bb	0.258
6	123678-HxCDF	34.42	7.823e5	6.275e5	1.032	1.25	1.24	3779.2	YES	NO	db	db	200.326
7	123478-HxCDF	34.28	7.120e5	5.688e5	1.128	1.25	1.24	3820.4	YES	NO	bd	bd	199.881
8	123789-HxCDF	36.34	5.937e5	4.227e5	0.988	1.40	1.24	2686.0	YES	NO	bd	bb	210.789
9	234678-HxCDF	35.30	6.633e5	5.283e5	1.081	1.26	1.24	3445.5	YES	NO	bb	bb	200.898
10	Total-hexafurans	34.77	2.884e2	2.632e2	1.087	1.10	1.24	0.0	NO	NO	bb	bb	0.089
11	1234678-HpCDF	38.22	5.646e5	5.569e5	1.164	1.01	1.05	2209.9	YES	NO	bb	bb	199.621
12	1234789-HpCDF	40.38	4.624e5	4.643e5	1.104	1.00	1.05	1537.3	YES	NO	bb	bd	228.686
13	OCDF	44.46	6.808e5	7.439e5	1.130	0.92	0.89	2338.5	YES	NO	bb	bb	442.738
14	2378-TCDD	25.77	1.635e5	2.012e5	1.243	0.81	0.77	2817.9	YES	NO	bb	bb	39.976
15	Total-tetradioxins	25.39	4.211e3	5.212e3	1.129	0.81	0.77	54.6	YES	NO	bb	bd	1.137
16	12378-PeCDD	30.88	6.628e5	4.228e5	1.150	1.57	1.55	5824.4	YES	NO	bb	bb	202.257
17	123789-HxCDD	35.92	4.672e5	3.844e5	0.804	1.22	1.24	3870.9	YES	NO	bb	bb	206.440
18	123678-HxCDD	35.53	5.301e5	4.575e5	0.883	1.16	1.24	4295.5	YES	NO	db	db	202.344
19	123478-HxCDD	35.42	4.819e5	4.023e5	0.960	1.20	1.24	4159.0	YES	NO	bd	bd	194.509
20	1234678-HpCDD	39.67	3.489e5	3.316e5	1.200	1.05	1.05	1615.6	YES	NO	bb	bb	189.168
21	OCDD	44.23	6.082e5	6.853e5	1.059	0.89	0.89	3119.0	YES	NO	bd	bd	429.120

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	23.51	1.636e5					3.1	YES		db		
2	FUNCTION1 PFK	23.40	8.885e4					3.5	YES		bd		
3	FUNCTION1 PFK	23.33	1.891e4					1.1	NO		bb		
4	FUNCTION1 PFK	23.19	1.938e4					1.6	NO		bb		
5	FUNCTION1 PFK	22.98	1.917e4					1.4	NO		bb		
6	FUNCTION1 PFK	22.00	9.703e3					1.0	NO		bb		
7	FUNCTION1 PFK	21.31	8.846e4					2.9	NO		db		
8	FUNCTION1 PFK	21.23	3.851e4					2.3	NO		bd		
9	FUNCTION1 PFK	21.16	6.724e3					0.8	NO		db		
10	FUNCTION1 PFK	21.11	3.691e3					0.6	NO		bd		
11	FUNCTION1 PFK	26.66	4.734e4					2.0	NO		db		
12	FUNCTION1 PFK	26.55	4.965e4					1.9	NO		bd		
13	FUNCTION1 PFK	26.24	1.589e4					1.3	NO		bb		
14	FUNCTION1 PFK	26.17	3.041e3					0.6	NO		bb		
15	FUNCTION1 PFK	26.11	9.923e3					1.2	NO		bb		
16	FUNCTION1 PFK	25.93	5.875e4					2.4	NO		bb		
17	FUNCTION1 PFK	25.79	1.786e4					1.6	NO		db		
18	FUNCTION1 PFK	25.65	8.200e4					2.7	NO		bd		
19	FUNCTION1 PFK	25.51	2.446e4					1.6	NO		db		
20	FUNCTION1 PFK	25.46	1.440e4					1.5	NO		bd		
21	FUNCTION1 PFK	25.07	2.849e4					1.4	NO		bb		
22	FUNCTION1 PFK	24.98	2.022e4					1.6	NO		db		
23	FUNCTION1 PFK	24.93	2.482e4					1.8	NO		bd		
24	FUNCTION1 PFK	24.74	1.501e4					1.3	NO		bb		
25	FUNCTION1 PFK	24.01	1.207e5					2.8	NO		db		
26	FUNCTION1 PFK	23.91	5.369e4					2.7	NO		bd		
27	FUNCTION1 PFK	27.36	1.150e4					1.0	NO		bb		
28	FUNCTION1 PFK	27.26	7.166e4					2.0	NO		db		
29	FUNCTION1 PFK	27.17	1.653e4					1.5	NO		bd		
30	FUNCTION1 PFK	26.93	3.058e4					2.2	NO		bb		
31	FUNCTION1 PFK	26.81	2.970e4					1.8	NO		bb		

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Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:49 Pacific Daylight Time

ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.42	2.186e4					1.5	NO		bb		0.000
2	FUNCTION2 PFK	28.26	1.100e4					1.1	NO		bb		0.000
3	FUNCTION2 PFK	28.16	1.275e4					1.4	NO		db		0.000
4	FUNCTION2 PFK	28.07	2.498e4					2.4	NO		dd		0.000
5	FUNCTION2 PFK	28.03	1.292e4					1.7	NO		dd		0.000
6	FUNCTION2 PFK	27.99	3.293e3					0.8	NO		bd		0.000
7	FUNCTION2 PFK	27.91	2.012e4					1.4	NO		bb		0.000
8	FUNCTION2 PFK	27.77	1.349e5					4.5	YES		db		0.000
9	FUNCTION2 PFK	27.66	5.363e4					3.5	YES		bd		0.000
10	FUNCTION2 PFK	27.55	5.898e3					0.9	NO		bb		0.000
11	FUNCTION2 PFK	30.48	6.417e3					0.8	NO		bb		0.000
12	FUNCTION2 PFK	30.15	1.146e3					0.4	NO		bb		0.000
13	FUNCTION2 PFK	29.76	4.847e3					0.6	NO		bb		0.000
14	FUNCTION2 PFK	29.69	6.176e3					0.9	NO		db		0.000
15	FUNCTION2 PFK	29.64	7.786e3					1.1	NO		bd		0.000
16	FUNCTION2 PFK	29.49	2.327e3					0.5	NO		bb		0.000
17	FUNCTION2 PFK	29.41	2.450e3					0.5	NO		bb		0.000
18	FUNCTION2 PFK	29.31	8.292e3					0.7	NO		db		0.000
19	FUNCTION2 PFK	29.24	1.380e4					1.4	NO		dd		0.000
20	FUNCTION2 PFK	29.18	7.722e3					0.9	NO		bd		0.000
21	FUNCTION2 PFK	29.07	4.359e3					0.7	NO		bb		0.000
22	FUNCTION2 PFK	28.81	3.084e4					1.8	NO		db		0.000
23	FUNCTION2 PFK	28.77	3.219e4					2.1	NO		dd		0.000
24	FUNCTION2 PFK	28.71	2.791e4					2.6	NO		dd		0.000
25	FUNCTION2 PFK	28.66	3.309e4					3.2	YES		bd		0.000
26	FUNCTION2 PFK	28.52	1.009e4					1.1	NO		bb		0.000
27	FUNCTION2 PFK	32.06	2.803e4					1.6	NO		bb		0.000
28	FUNCTION2 PFK	31.91	4.698e3					0.8	NO		bb		0.000
29	FUNCTION2 PFK	31.74	2.099e4					2.1	NO		bb		0.000
30	FUNCTION2 PFK	31.67	1.618e4					1.5	NO		db		0.000
31	FUNCTION2 PFK	31.60	1.530e4					1.3	NO		bd		0.000
32	FUNCTION2 PFK	31.35	1.245e4					1.5	NO		bb		0.000
33	FUNCTION2 PFK	31.21	3.091e3					0.5	NO		bb		0.000
34	FUNCTION2 PFK	31.03	8.164e3					0.7	NO		db		0.000
35	FUNCTION2 PFK	31.00	6.957e3					1.1	NO		dd		0.000
36	FUNCTION2 PFK	30.97	3.081e4					1.4	NO		dd		0.000
37	FUNCTION2 PFK	30.80	3.887e4					2.2	NO		bd		0.000

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION2 PFK	30.74	9.249e3					1.3	NO		db		0.000
39	FUNCTION2 PFK	30.70	3.630e3					0.7	NO		bd		0.000
40	FUNCTION2 PFK	30.65	1.637e4					1.8	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	32.71	4.437e4					2.7	NO		bb		0.000
2	FUNCTION3 PFK	36.41	1.073e4					1.5	NO		bb		0.000
3	FUNCTION3 PFK	34.51	3.351e4					2.4	NO		bb		0.000
4	FUNCTION3 PFK	34.21	2.868e4					2.6	NO		db		0.000
5	FUNCTION3 PFK	34.16	3.198e4					2.9	NO		bd		0.000
6	FUNCTION3 PFK	34.00	1.616e4					1.7	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.61	3.745e3					1.1	NO		bb		
2	FUNCTION5 PFK	44.19	2.102e3					0.7	NO		bb		
3	FUNCTION5 PFK	44.14	3.396e3					1.0	NO		bb		
4	FUNCTION5 PFK	44.07	7.141e3					1.3	NO		bb		
5	FUNCTION5 PFK	43.48	1.067e3					0.6	NO		bb		
6	FUNCTION5 PFK	43.23	7.864e3					1.0	NO		bb		
7	FUNCTION5 PFK	43.17	8.845e3					1.9	NO		bb		
8	FUNCTION5 PFK	43.11	7.866e3					1.8	NO		bb		
9	FUNCTION5 PFK	42.93	5.675e3					1.4	NO		bb		
10	FUNCTION5 PFK	45.81	4.972e3					1.2	NO		bb		
11	FUNCTION5 PFK	45.70	3.072e3					0.9	NO		bb		
12	FUNCTION5 PFK	45.65	5.917e3					1.4	NO		bb		
13	FUNCTION5 PFK	45.47	1.270e3					0.7	NO		bb		
14	FUNCTION5 PFK	45.44	1.475e3					0.7	NO		db		
15	FUNCTION5 PFK	45.41	1.740e3					0.6	NO		bd		
16	FUNCTION5 PFK	45.35	8.796e3					1.3	NO		db		
17	FUNCTION5 PFK	45.32	1.011e4					1.8	NO		bd		
18	FUNCTION5 PFK	45.26	2.404e3					0.8	NO		bb		
19	FUNCTION5 PFK	44.77	2.934e3					0.9	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.47	1.117e2					4.4	YES		bb		0.000
2	FUNCTION1 HXCD...	25.94	8.128e1					3.8	YES		bb		0.000
3	FUNCTION1 HXCD...	24.96	8.177e1					3.1	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.48	8.897e2					35.4	YES		bb		0.000

ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.83	8.627e1					2.7	NO		bb		0.000
2	FUNCTION4 NCDPE	38.90	7.457e1					2.1	NO		db		0.000
3	FUNCTION4 NCDPE	38.72	1.037e2					2.9	NO		dd		0.000
4	FUNCTION4 NCDPE	38.65	8.197e1					3.1	YES		bd		0.000

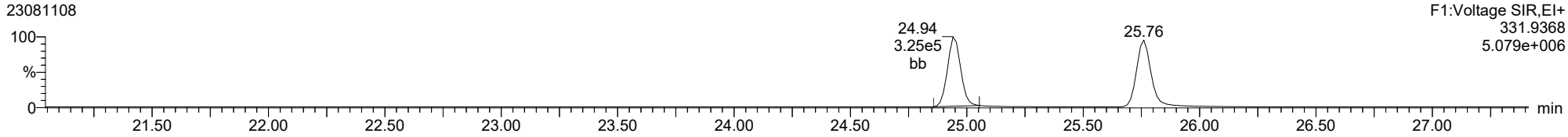
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	45.64	8.374e1					1.8	NO		bb		0.000

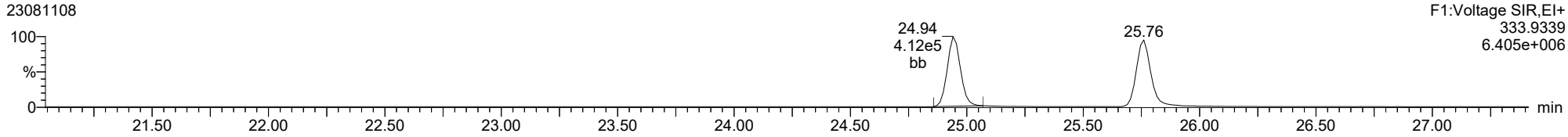
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ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

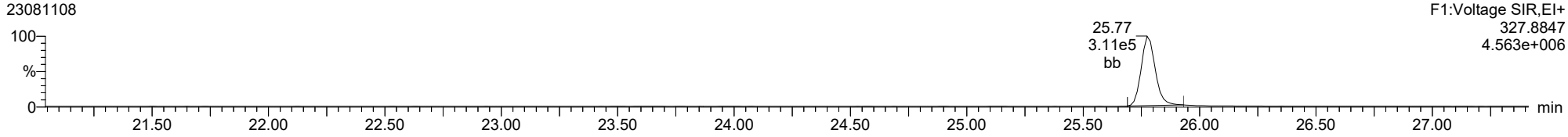
13C-1234-TCDD



13C-1234-TCDD

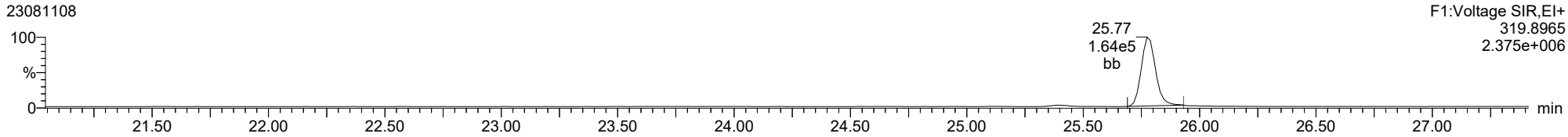


37CL-2378-TCDD

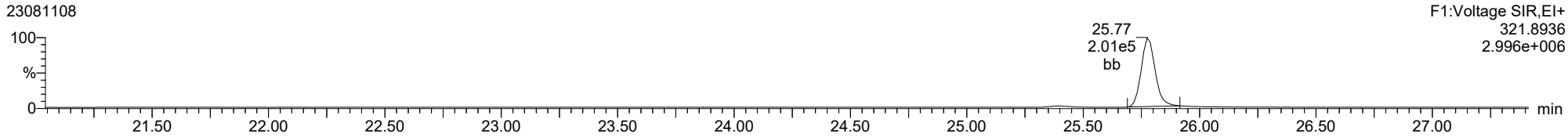


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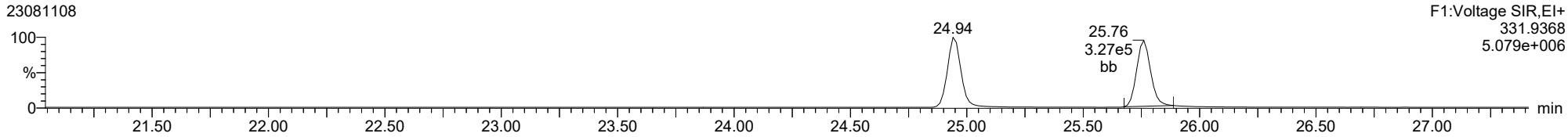
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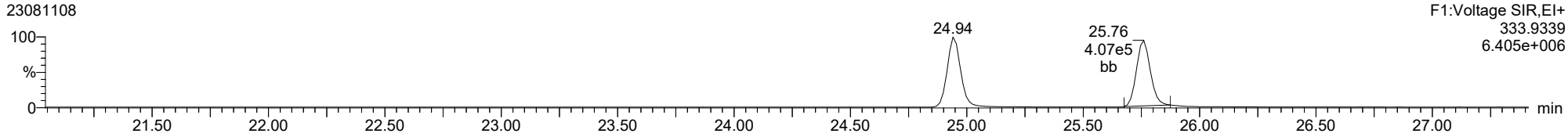
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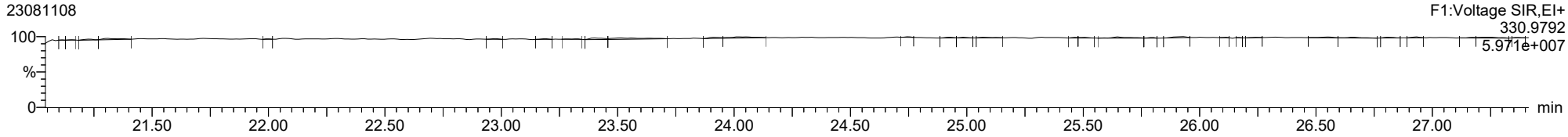
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13C-2378-TCDD

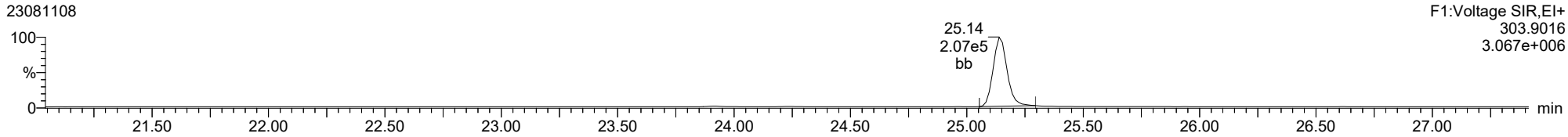


FUNCTION1 PFK

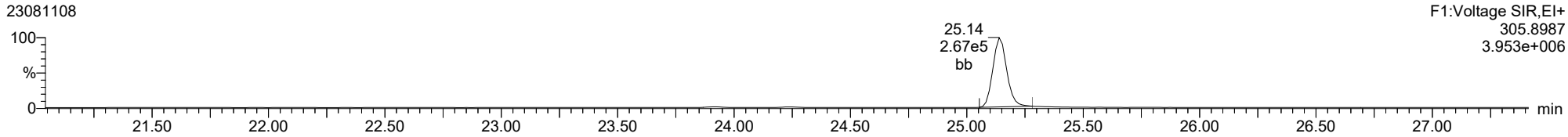


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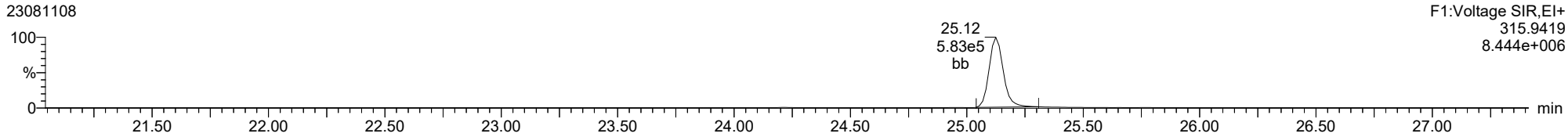
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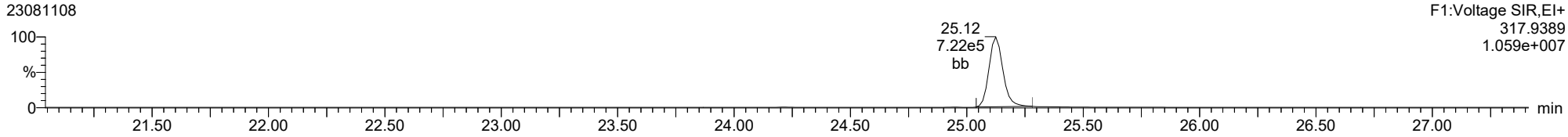
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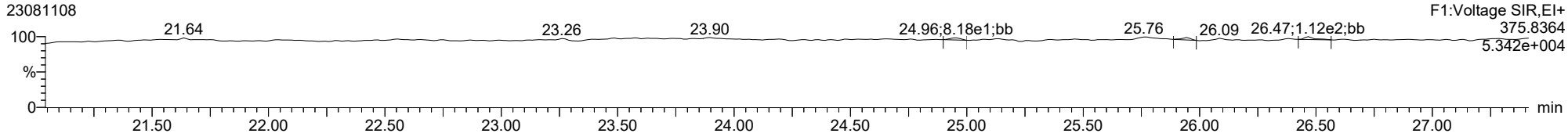
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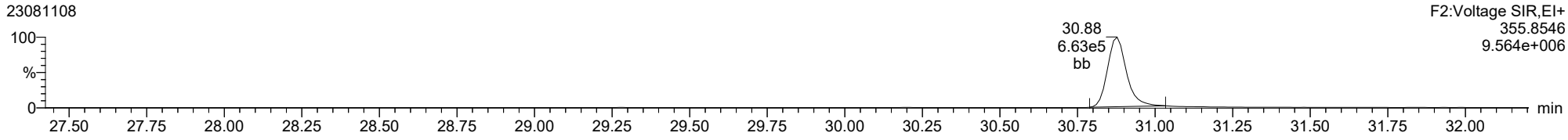


FUNCTION1 HXCDPE

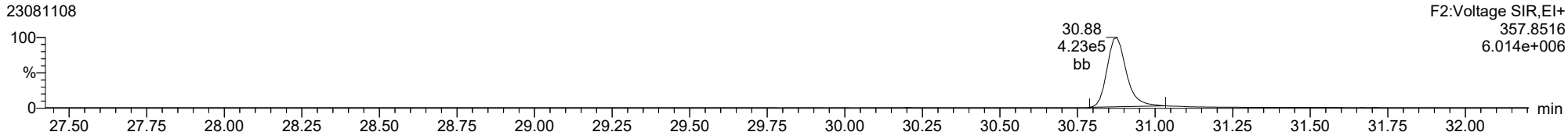


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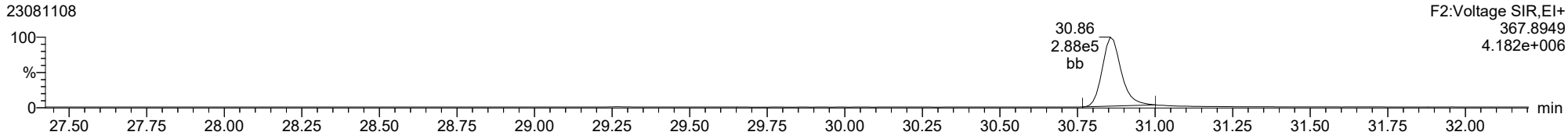
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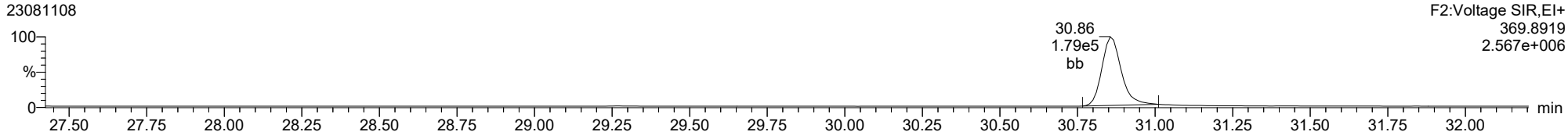
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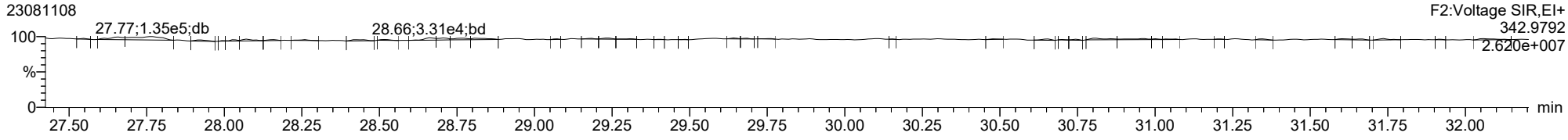
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13C-12378-PeCDD

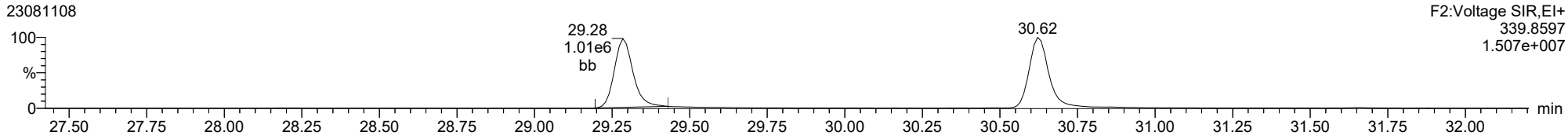


FUNCTION2 PFK

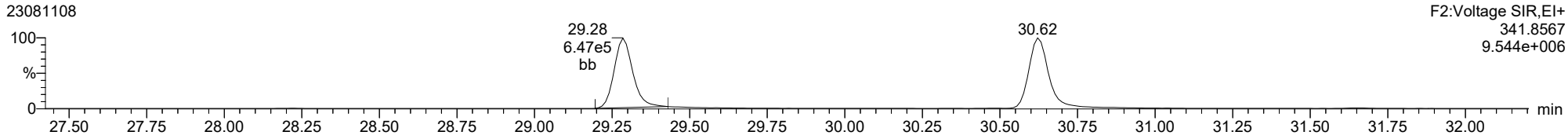


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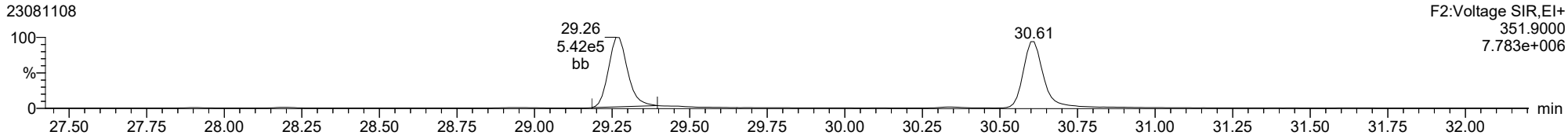
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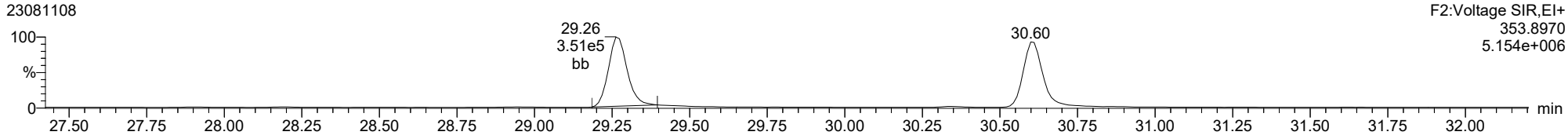
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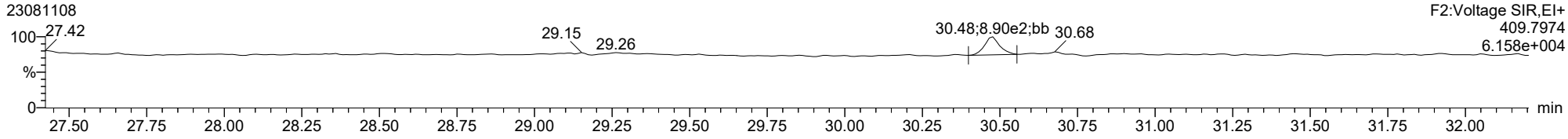
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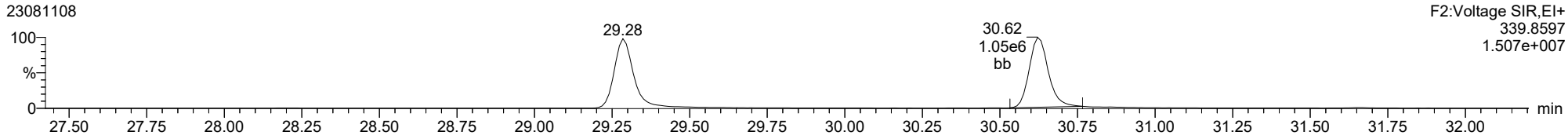


FUNCTION2 HPCDPE

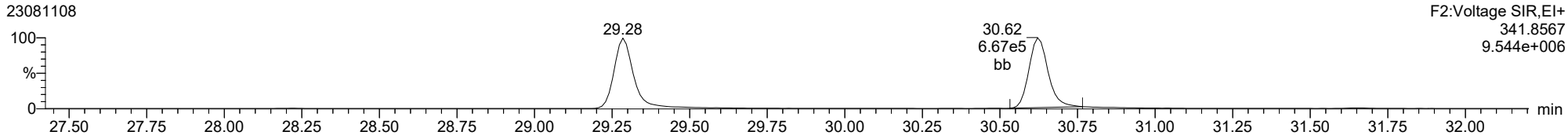


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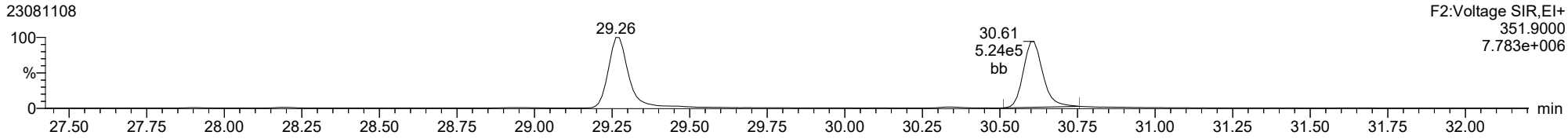
23478-PeCDF



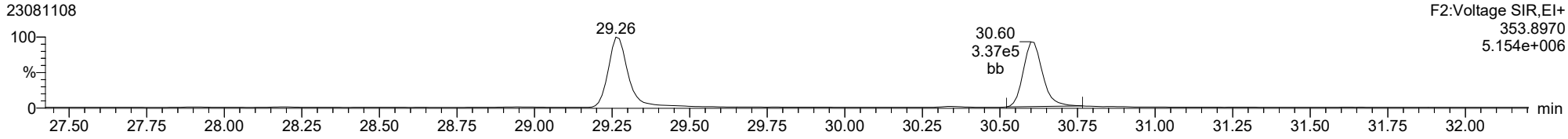
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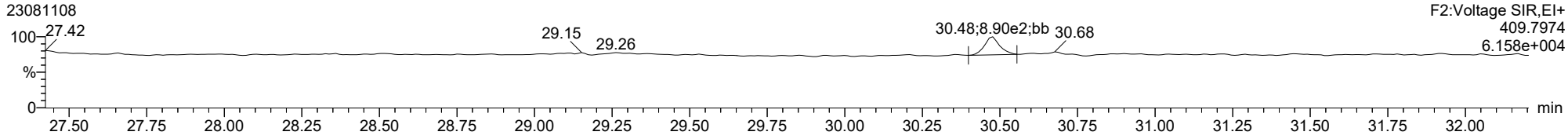
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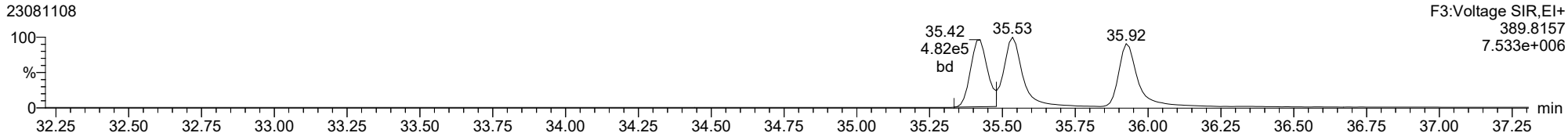
FUNCTION2 HPCDPE



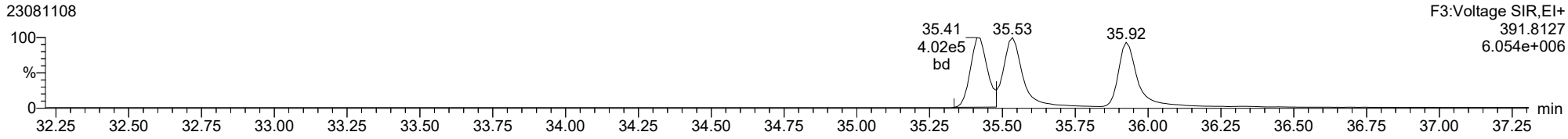
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ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

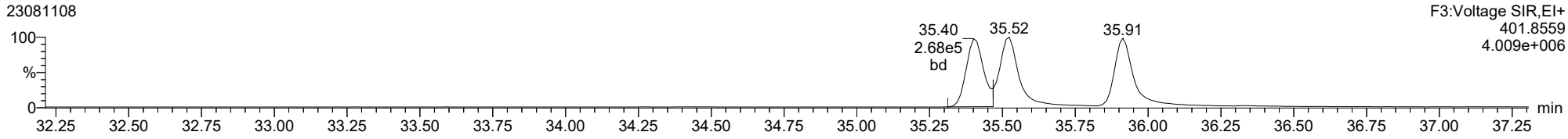
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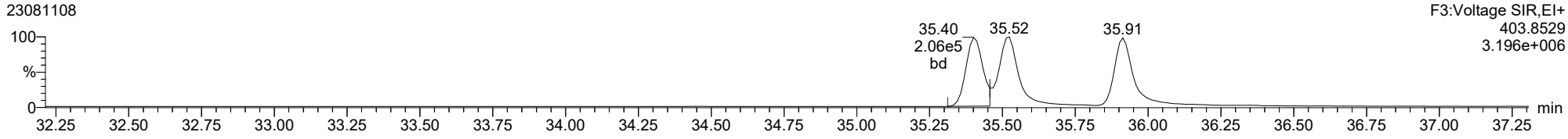
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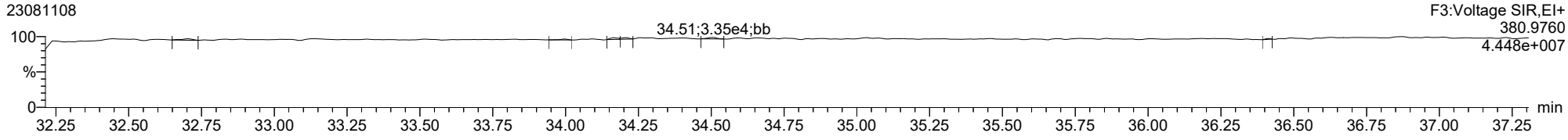
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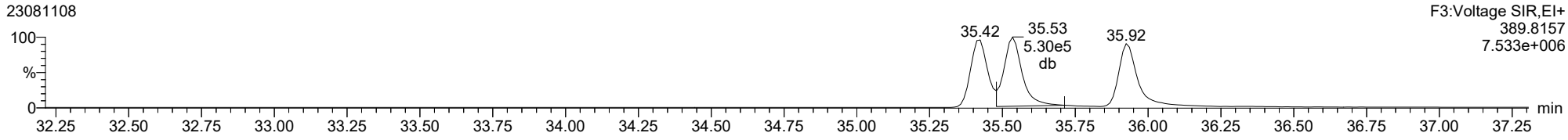
FUNCTION3 PFK



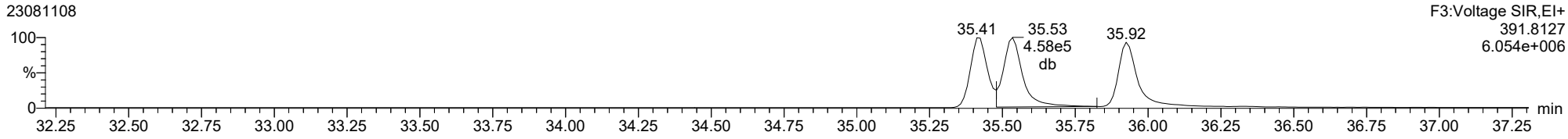
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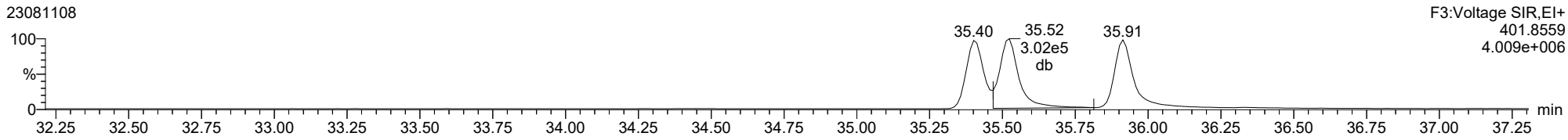
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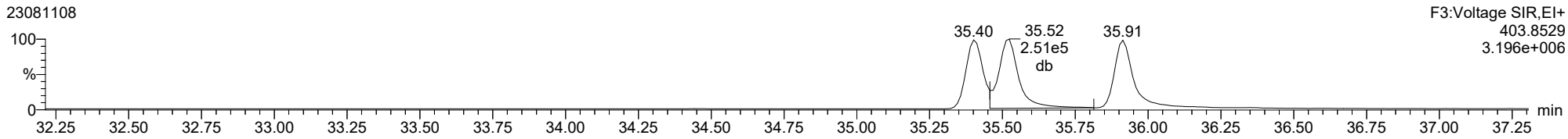
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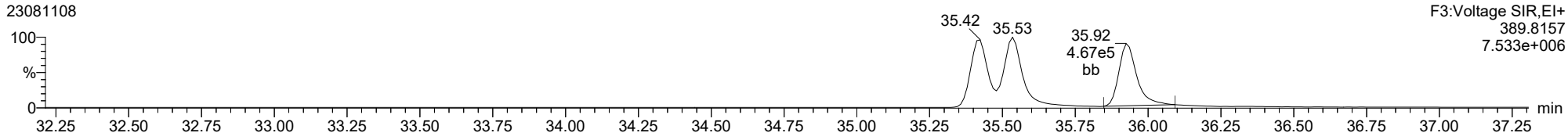


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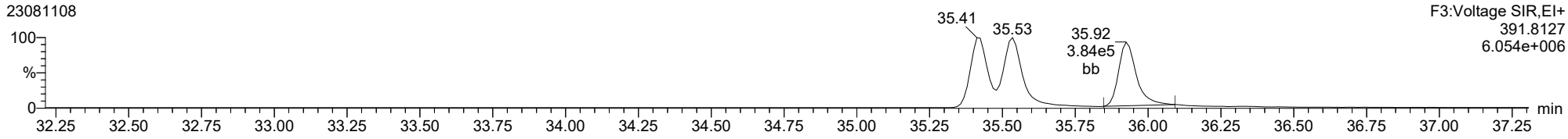


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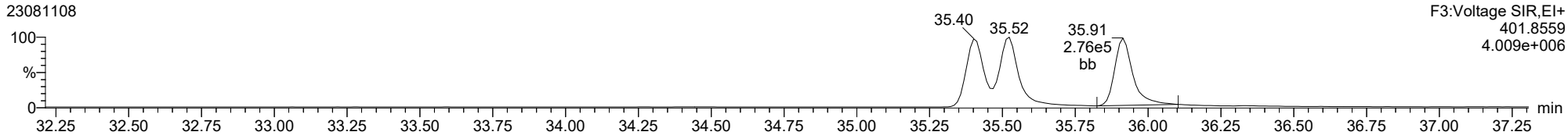
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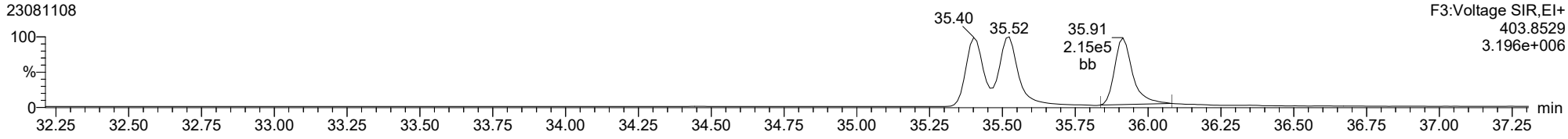
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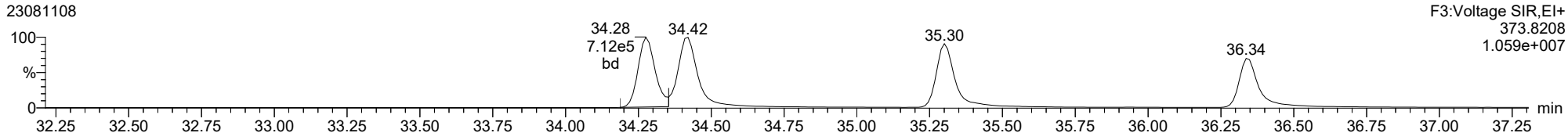


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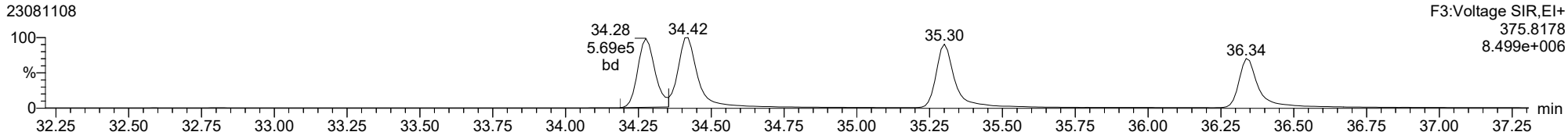


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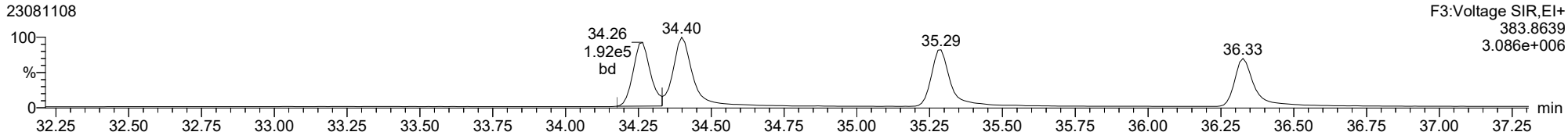
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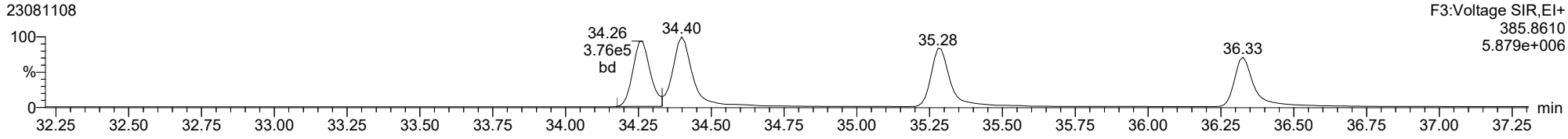
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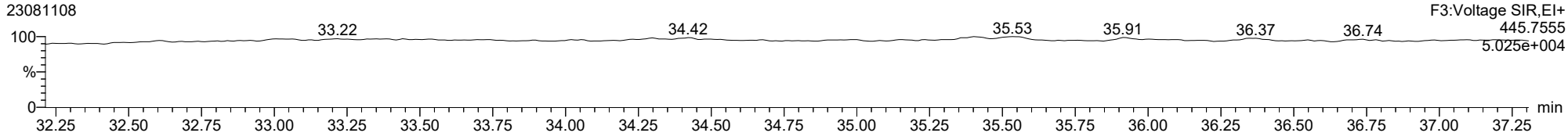
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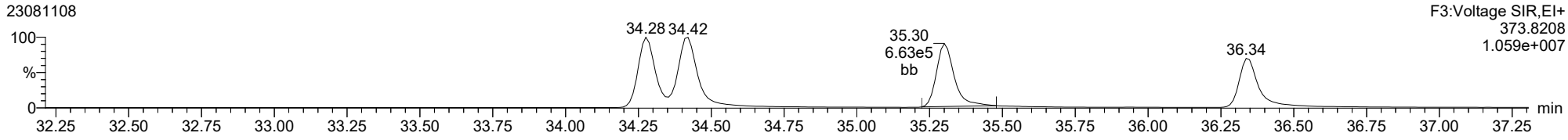


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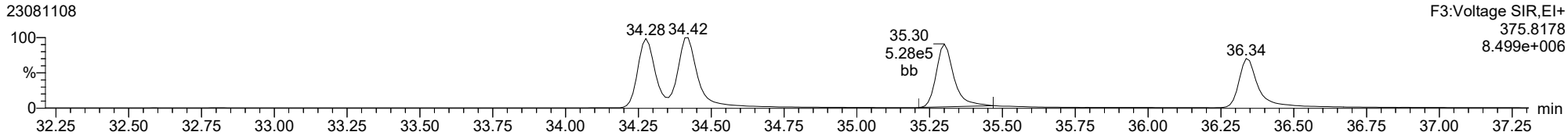


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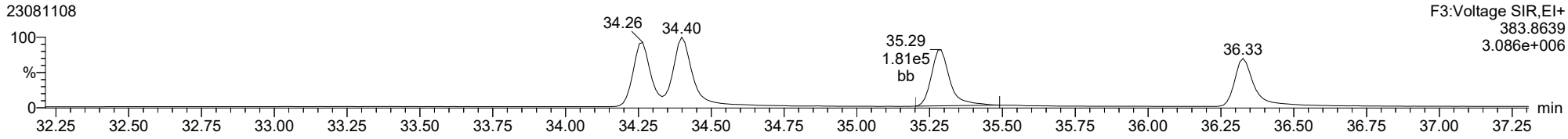
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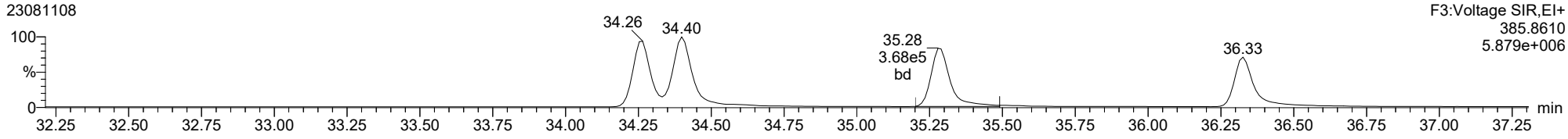
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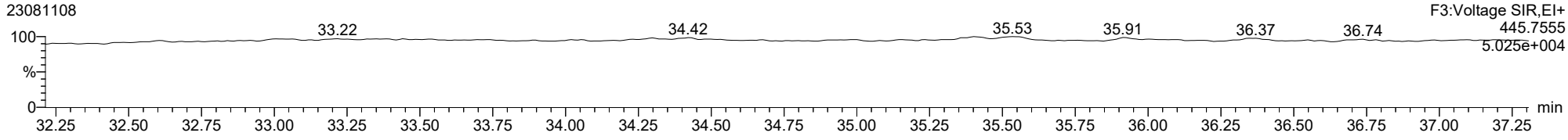
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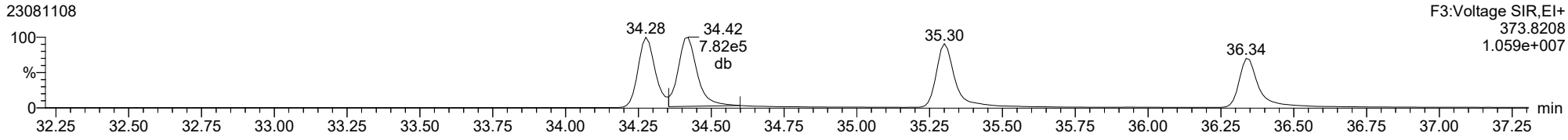


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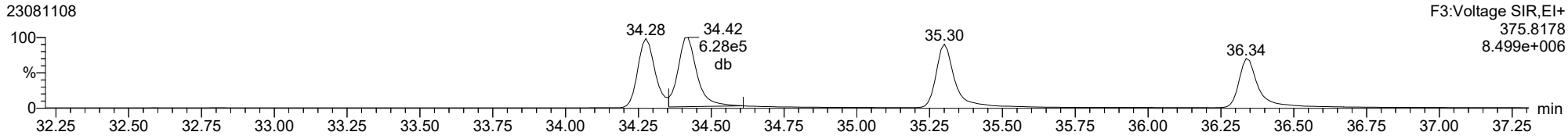


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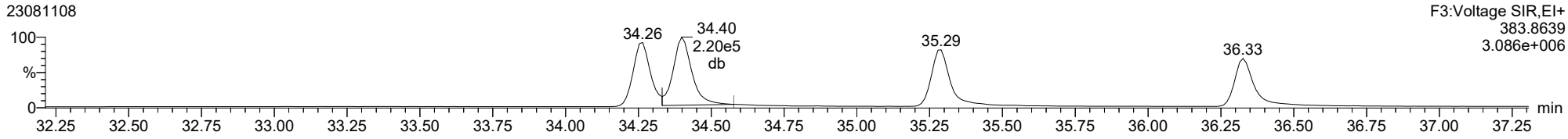
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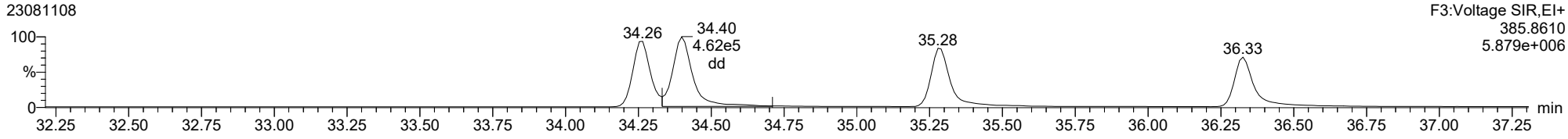
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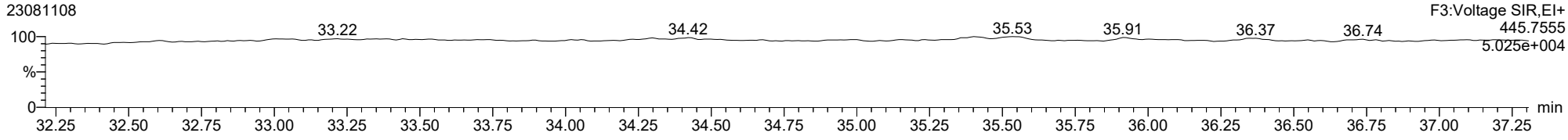
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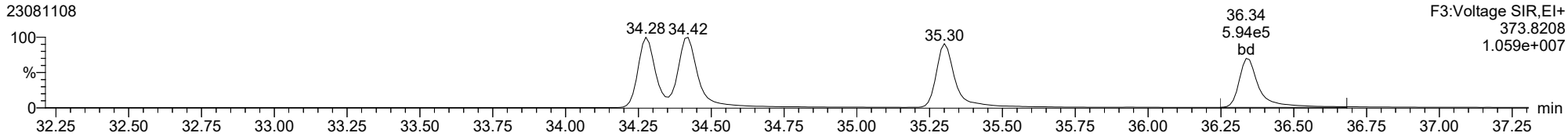


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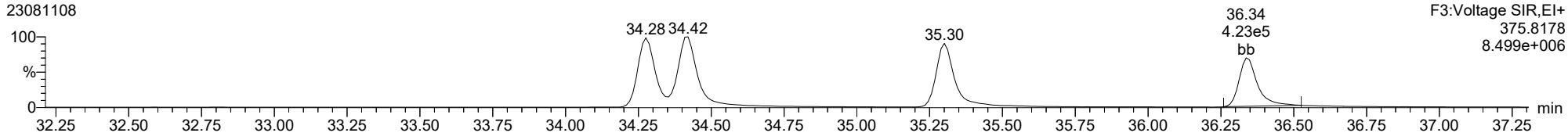


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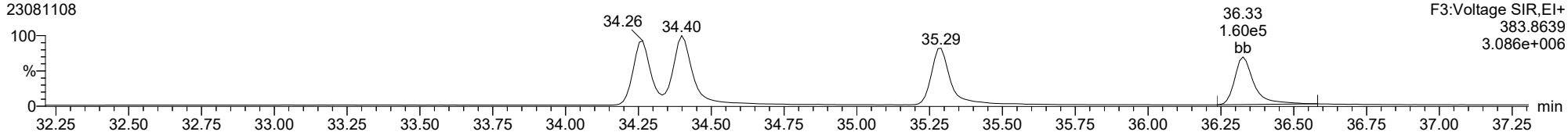
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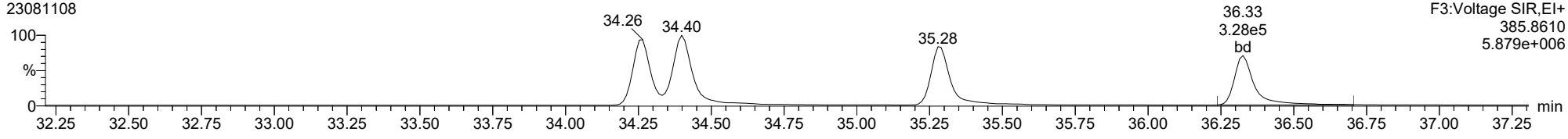
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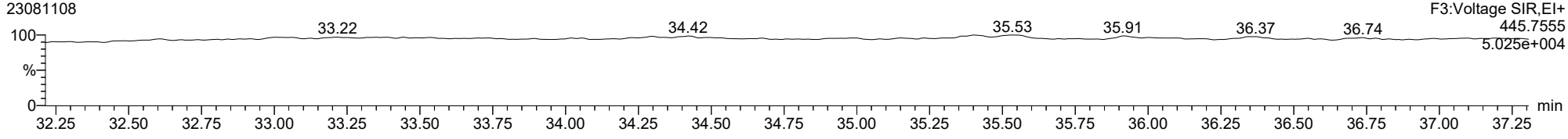
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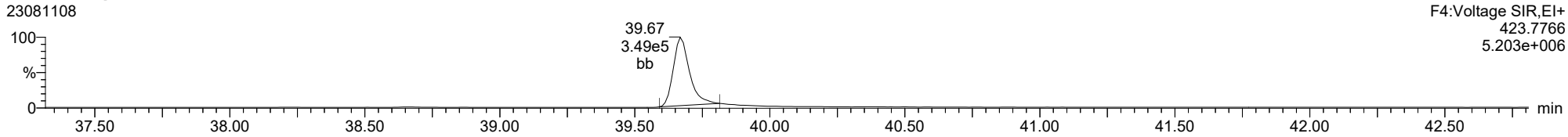


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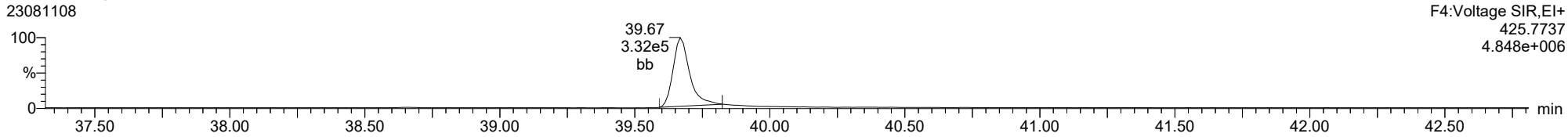


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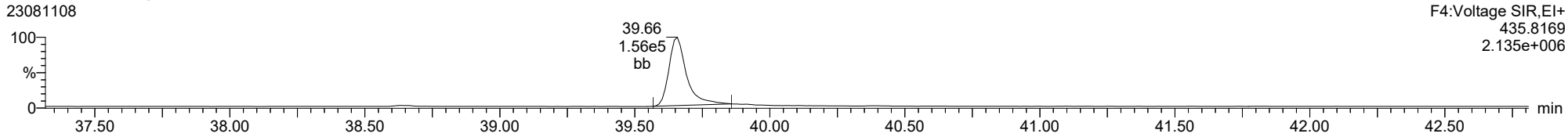
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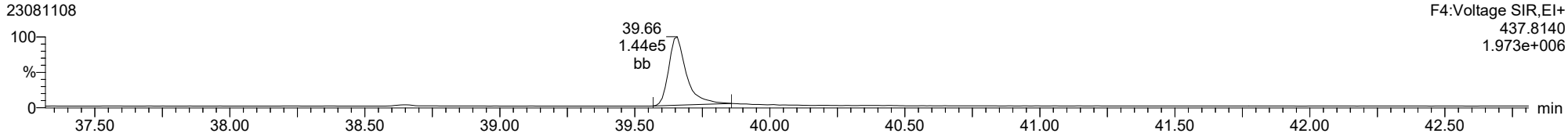
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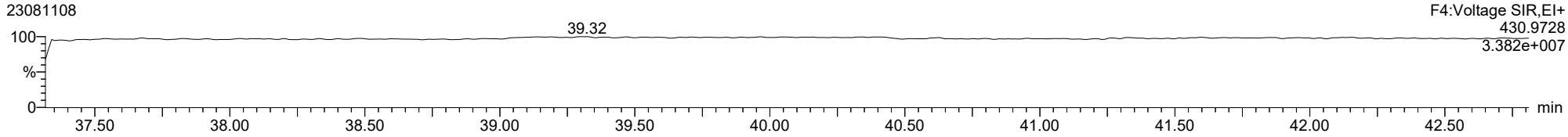
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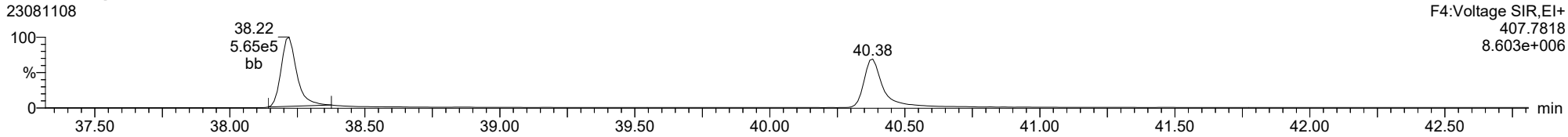


FUNCTION4 PFK

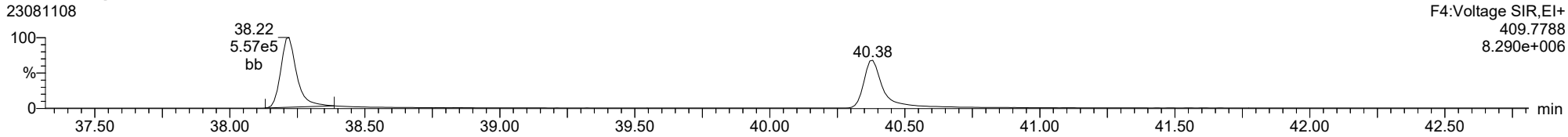


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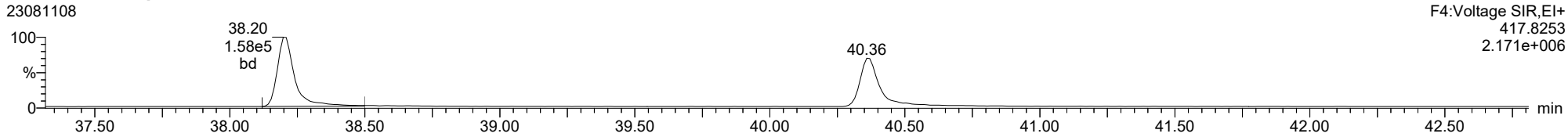
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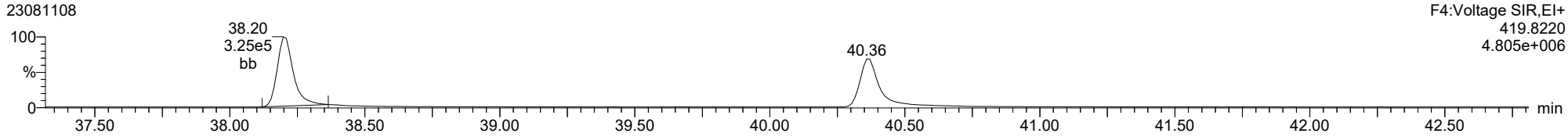
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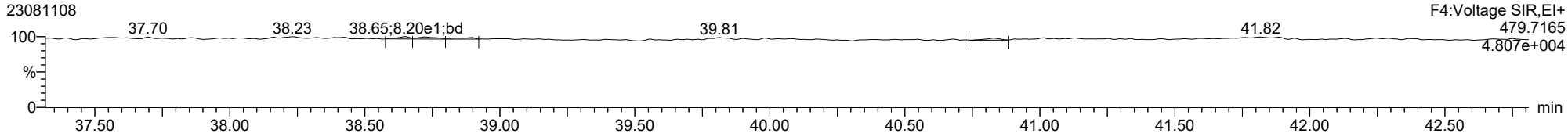
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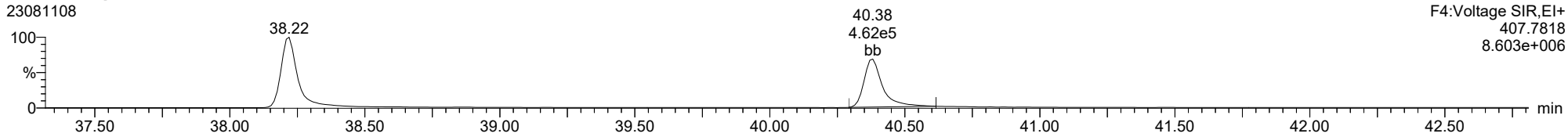


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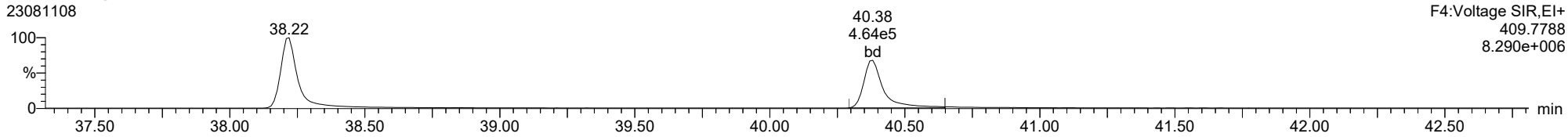


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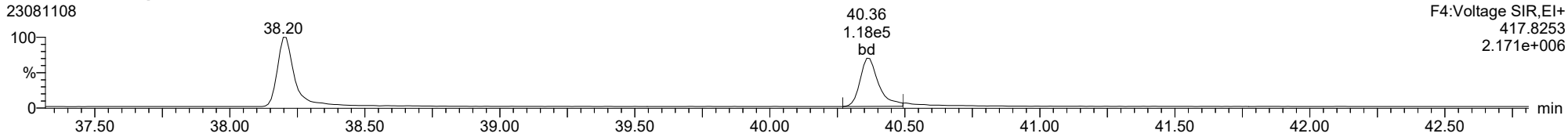
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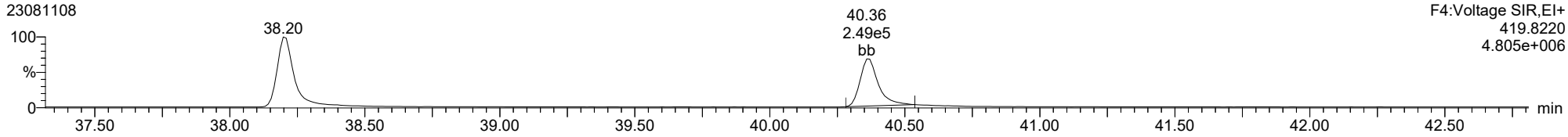
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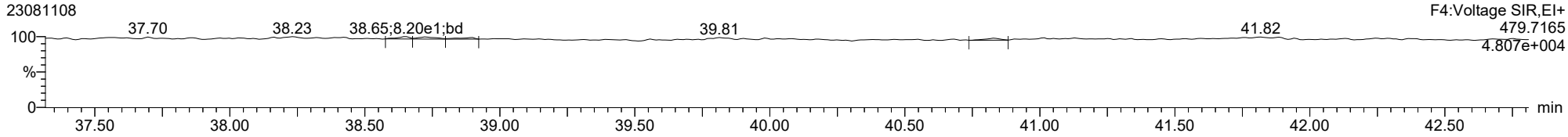
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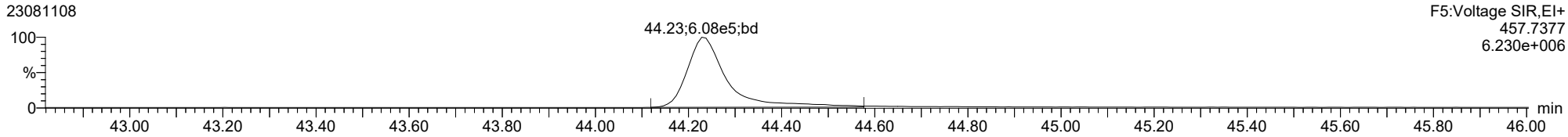


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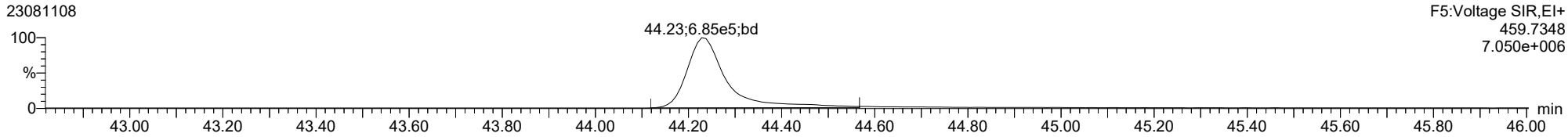


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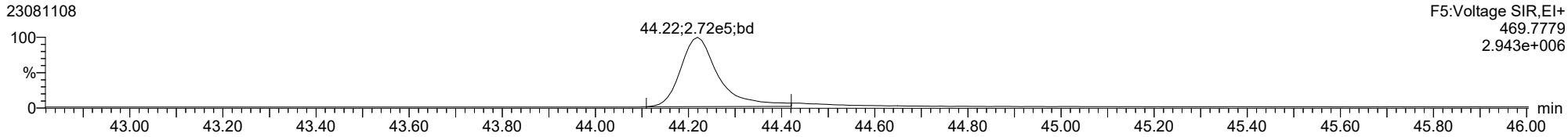
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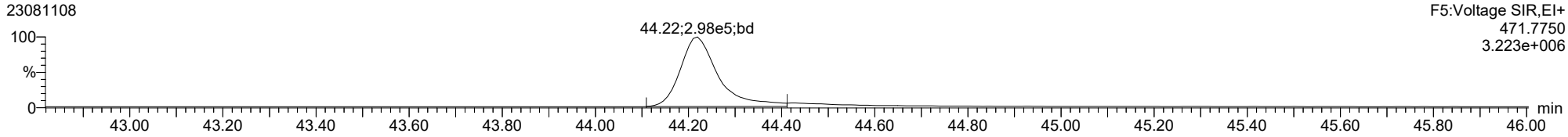
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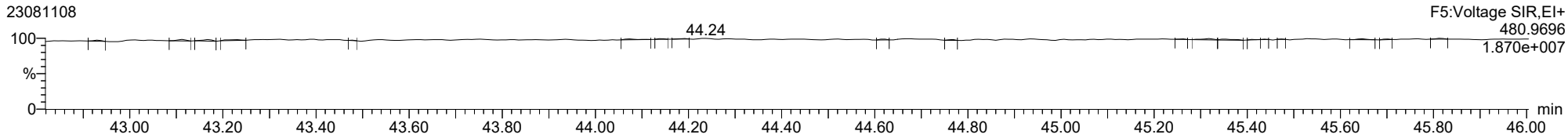
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13C-OCDD

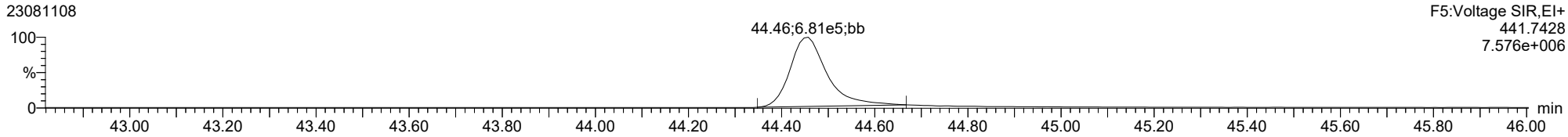


FUNCTION5 PFK

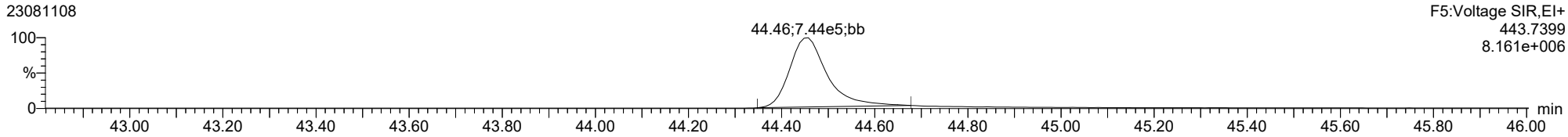


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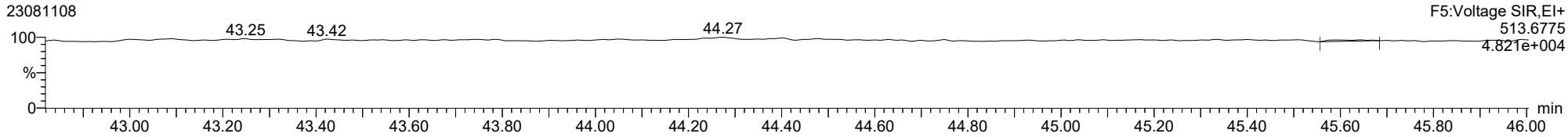
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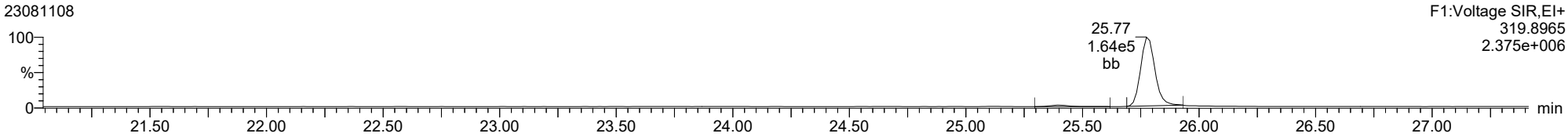


FUNCTION5 DCDPE

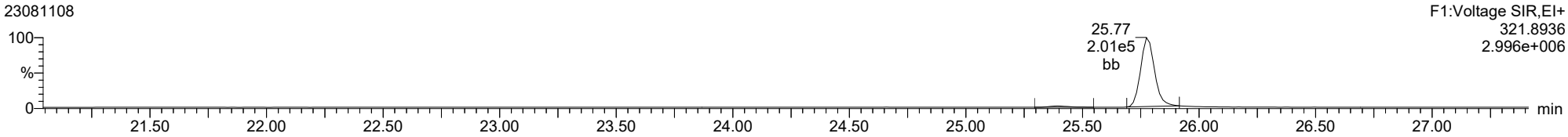


ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

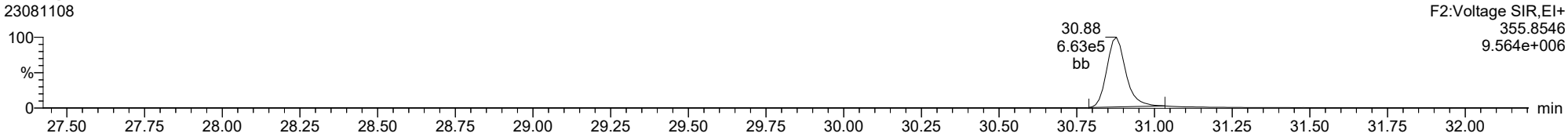
Total-tetradioxins



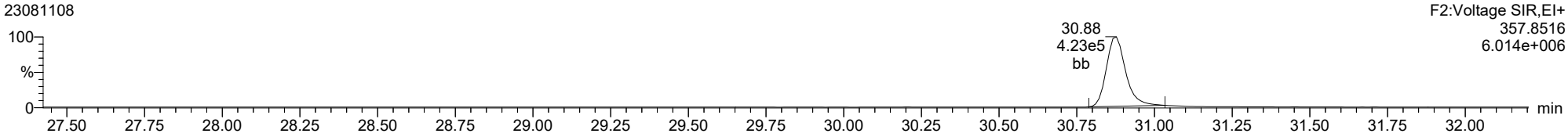
Total-tetradioxins



Total-pentadioxins

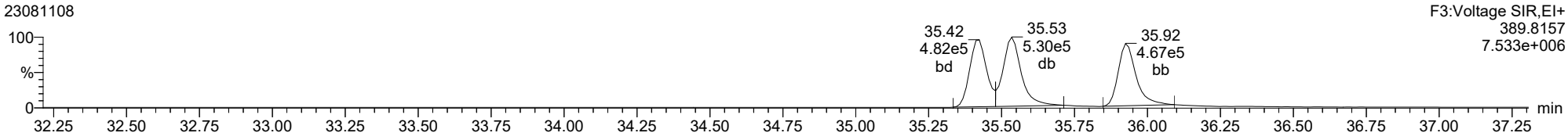


Total-pentadioxins

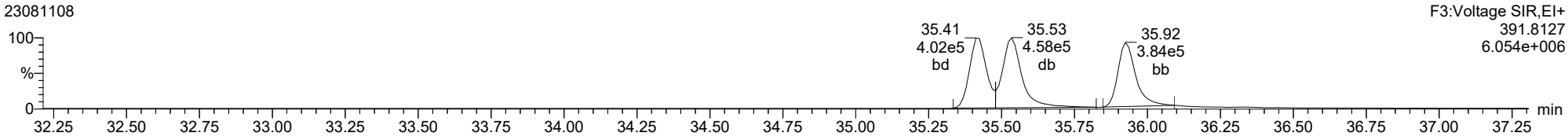


ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

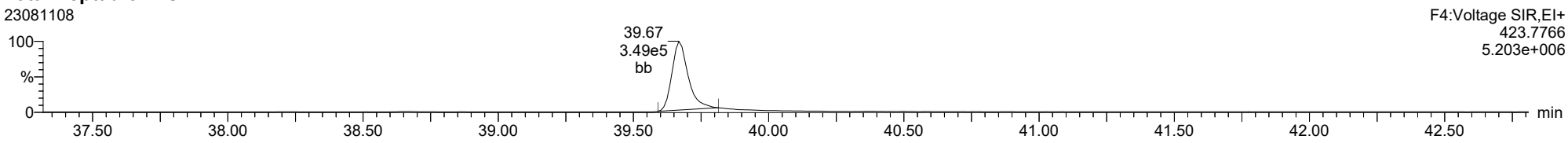
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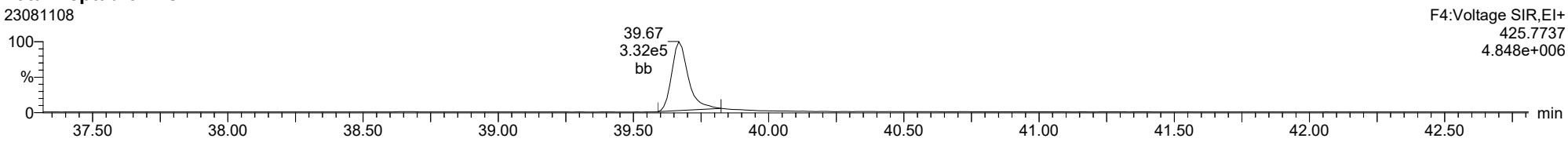
Total-hexadioxins



Total-heptadioxins

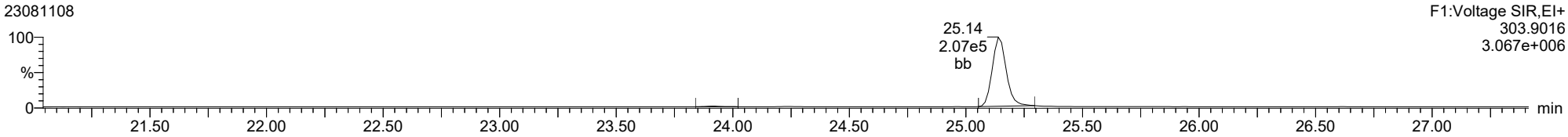


Total-heptadioxins

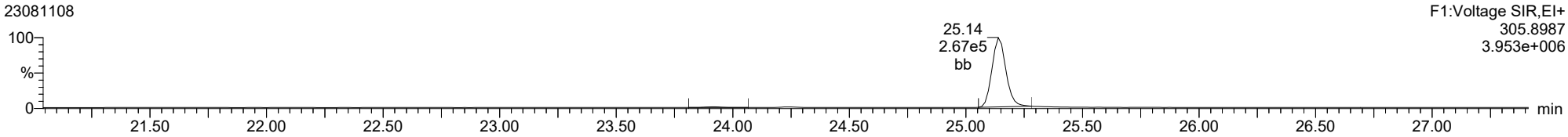


ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

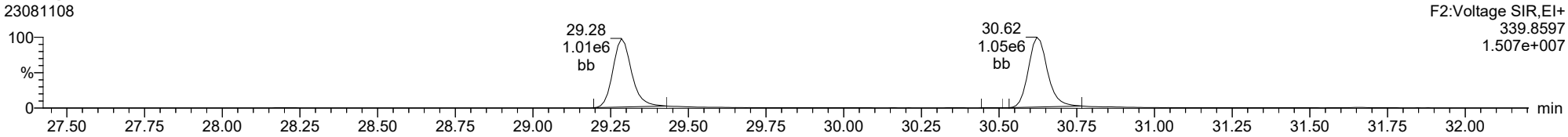
Total-tetrafurans



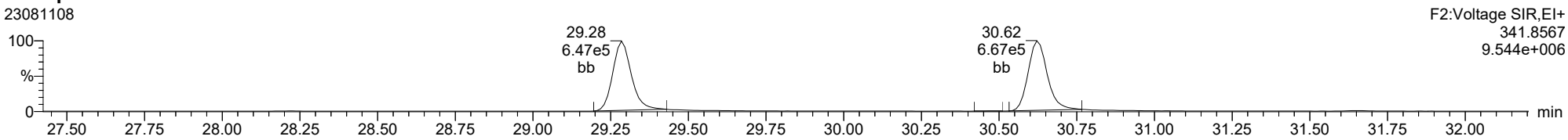
Total-tetrafurans



Total-pentafurans

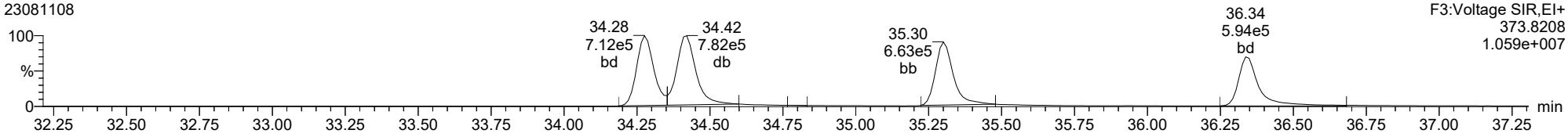


Total-pentafurans

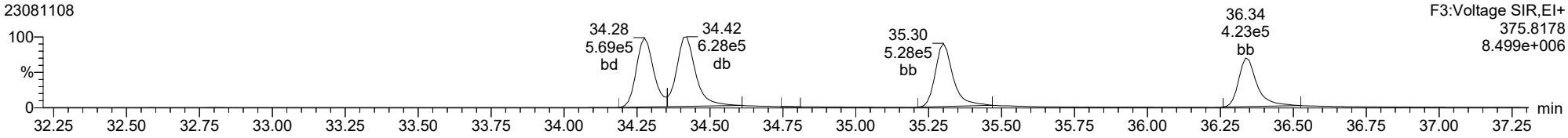


ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

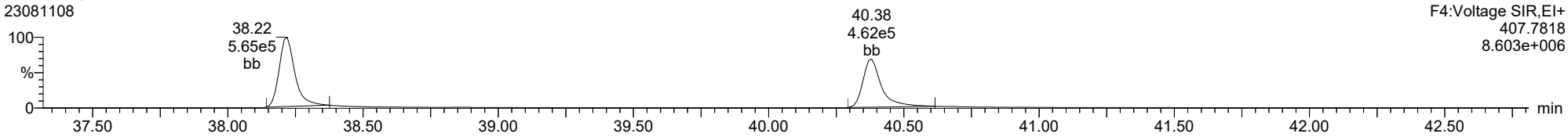
Total-hexafurans



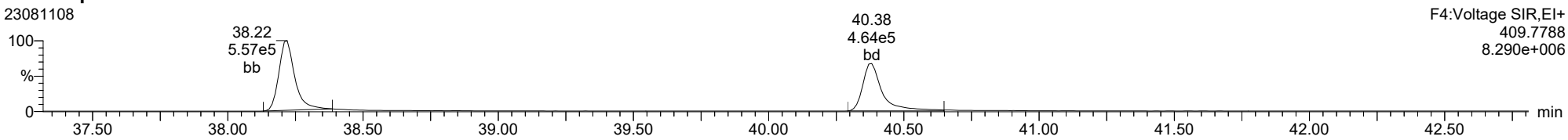
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:25:02 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.139	1.001	1.176e6	1.517e6	0.903	0.775	0.770	1838	1596	1.74e7	2.24e7	9439.9	14021.2	NO	bb	bb	200.683
12378-PeCDF	29.285	1.000	6.873e6	4.363e6	0.923	1.575	1.550	6342	5190	1.05e8	6.61e7	16593.6	12739.4	NO	bb	bb	1003.746
23478-PeCDF	30.622	1.000	7.218e6	4.643e6	0.991	1.555	1.550	6342	5190	1.13e8	7.21e7	17800.7	13902.4	NO	bb	bb	1020.400
123478-HxCDF	34.276	1.000	5.150e6	4.112e6	1.128	1.252	1.240	5119	1953	8.00e7	6.38e7	15621.4	32656.0	NO	bd	bd	1008.590
234678-HxCDF	35.301	1.000	5.220e6	4.187e6	1.081	1.247	1.240	5119	1953	7.99e7	6.42e7	15612.0	32865.0	NO	bb	bb	1036.310
123678-HxCDF	34.421	1.001	5.565e6	4.427e6	1.032	1.257	1.240	5119	1953	8.17e7	6.50e7	15950.5	33289.4	NO	db	db	1022.236
123789-HxCDF	36.337	1.000	4.314e6	3.419e6	0.988	1.262	1.240	5119	1953	6.39e7	5.10e7	12485.9	26087.4	NO	bb	bb	1056.656
1234678-HpCDF	38.220	1.000	4.651e6	4.483e6	1.164	1.037	1.050	6069	7386	7.66e7	7.36e7	12629.8	9967.1	NO	bb	bb	1032.094
1234789-HpCDF	40.381	1.000	3.737e6	3.616e6	1.104	1.033	1.050	6069	7386	5.31e7	5.10e7	8752.5	6907.0	NO	bb	bb	1044.743
OCDF	44.458	1.005	6.691e6	7.348e6	1.130	0.911	0.890	3831	4231	8.23e7	8.95e7	21469.5	21141.7	NO	bb	bb	2176.298
2378-TCDD	25.774	1.000	1.061e6	1.307e6	1.243	0.812	0.770	1257	1421	1.58e7	1.96e7	12528.1	13766.3	NO	bb	bb	205.454
12378-PeCDD	30.878	1.001	5.066e6	3.250e6	1.150	1.559	1.550	1999	1551	7.64e7	4.87e7	38189.0	31421.9	NO	bb	bb	1013.746
123478-HxCDD	35.423	1.001	4.057e6	3.319e6	0.960	1.223	1.240	1937	4756	6.49e7	5.26e7	33525.8	11070.6	NO	bd	bd	967.641
123678-HxCDD	35.535	1.000	4.425e6	3.631e6	0.883	1.219	1.240	1937	4756	6.67e7	5.48e7	34440.8	11527.4	NO	db	db	1048.787
123789-HxCDD	35.925	1.011	3.986e6	3.292e6	0.804	1.211	1.240	1937	4756	6.01e7	5.01e7	31052.7	10540.7	NO	bb	bb	1088.283
1234678-HpCDD	39.668	1.000	3.162e6	2.947e6	1.200	1.073	1.050	4823	2878	4.86e7	4.59e7	10069.1	15933.8	NO	bb	bb	982.937
OCDD	44.238	1.000	5.800e6	6.537e6	1.059	0.887	0.890	4770	6875	7.05e7	7.95e7	14784.9	11558.8	NO	bd	bd	2041.622
13C-2378-TCDF	25.125	1.007	6.605e5	8.257e5	1.835	0.800	0.770	1355	1418	9.81e6	1.21e7	7236.3	8550.4	NO	bb	bb	104.767
13C-12378-PeCDF	29.273	1.174	7.389e5	4.736e5	1.377	1.560	1.550	3865	1916	1.10e7	7.07e6	2852.7	3691.6	NO	bb	bb	113.971
13C-23478-PeCDF	30.610	1.227	7.158e5	4.576e5	1.301	1.564	1.550	3865	1916	1.08e7	6.76e6	2790.1	3529.9	NO	bb	bb	116.672
13C-123478-HxCDF	34.265	0.954	2.757e5	5.383e5	1.091	0.512	0.510	1842	2385	4.22e6	8.27e6	2289.0	3466.7	NO	bd	bd	92.231
13C-123678-HxCDF	34.398	0.958	3.323e5	6.146e5	1.340	0.541	0.510	1842	2385	4.54e6	8.80e6	2464.6	3688.5	NO	dd	db	87.307
13C-234678-HxCDF	35.290	0.983	2.846e5	5.548e5	1.093	0.513	0.510	1842	2385	4.19e6	8.16e6	2275.5	3420.3	NO	bb	bb	94.861
13C-123789-HxCDF	36.326	1.012	2.509e5	4.901e5	0.952	0.512	0.510	1842	2385	3.70e6	7.18e6	2007.2	3011.1	NO	bb	bb	96.229
13C-1234678-HpCDF	38.209	1.064	2.383e5	5.222e5	0.985	0.456	0.440	2249	3500	3.88e6	8.42e6	1723.2	2405.2	NO	bb	bb	95.414
13C-1234789-HpCDF	40.370	1.124	2.063e5	4.313e5	0.756	0.478	0.440	2249	3500	2.71e6	5.94e6	1204.3	1698.2	NO	bd	bb	104.262
13C-1234-TCDD	24.941	0.000	3.426e5	4.302e5	1.000	0.796	0.770	1437	1188	5.12e6	6.56e6	3565.4	5522.3	NO	bb	bb	100.000
13C-2378-TCDD	25.760	1.033	4.096e5	5.176e5	1.110	0.791	0.770	1437	1188	6.14e6	7.70e6	4273.1	6482.2	NO	bb	bb	108.126
13C-12378-PeCDD	30.855	1.237	4.434e5	2.699e5	0.754	1.642	1.550	1010	988	6.57e6	4.04e6	6507.7	4088.0	NO	bb	bb	122.457
13C-123478-HxCDD	35.401	0.986	4.416e5	3.523e5	0.960	1.253	1.240	1408	1550	6.91e6	5.52e6	4909.6	3563.7	NO	bd	bd	102.212
13C-123678-HxCDD	35.524	0.989	4.826e5	3.876e5	1.159	1.245	1.240	1408	1550	7.11e6	5.68e6	5046.4	3668.2	NO	db	db	92.771
13C-1234678-HpCDD	39.657	1.104	2.704e5	2.477e5	0.629	1.092	1.050	1453	1582	4.01e6	3.70e6	2762.1	2340.5	NO	bb	bb	101.737
13C-OCDD	44.229	1.232	5.451e5	5.964e5	0.635	0.914	0.890	1912	2392	6.54e6	7.08e6	3421.6	2960.5	NO	bd	bd	222.103
13C-123789-HxCDD	35.914	0.000	4.468e5	3.624e5	1.000	1.233	1.240	1408	1550	6.84e6	5.48e6	4854.1	3538.7	NO	bb	bb	100.000
37CL-2378-TCDD	25.774	1.033	2.011e6		1.157			1496		3.00e7		20074.5			bb		224.818

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:25:02 Pacific Daylight Time

ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.170		0.770	1838	1596								
1289-TCDF					0.847		0.770	1838	1596								
13468-PECDF					1.241		1.550	461	712								
12389-PECDF					0.880		1.550	6342	5190								
123468-HXCDF					1.206		1.240	5119	1953								
1368-TCDD					1.181		0.770	1257	1421								
1289-TCDD					0.963		0.770	1257	1421								
12479-PECDD					2.166		1.550	1999	1551								
12389-PECDD					1.326		1.550	1999	1551								
124679-HXCDD					1.127		1.240	1937	4756								
1234679-HPCDD					1.303		1.050	4823	2878								
Total-tetrafurans			1.194e6		0.973			1838		1.76e7							203.639
Total-penta1			0.000e0					461		0.00e0							
Total-pentafurans			1.413e7		0.931			6342		2.19e8							2029.440
Total-hexafurans			2.026e7		1.087			5119		3.06e8							4125.241
Total-heptafurans			8.398e6		1.134			6069		1.30e8							2079.518
Total-Furans			5.067e7		1.053			1838		7.54e8							10614.136
Total-tetradioxins			1.084e6		1.129			1257		1.60e7							210.516
Total-pentadioxins			5.077e6		1.548			1999		7.65e7							1015.359
Total-hexadioxins			1.249e7		0.943			1937		1.92e8							3110.180
Total-heptadioxins			3.162e6		1.251			4823		4.86e7							982.937
Total-Dioxins			2.762e7		1.182			1257		4.04e8							7360.637
Total-TEQ			7.828e7					1257		1.16e9							17974.773
FUNCTION1 PFK			3.429e4					454273		8.54e5							
FUNCTION2 PFK			8.951e5					279755		2.13e7							0.000
FUNCTION3 PFK			1.396e5					359621		2.61e6							0.000
FUNCTION4 PFK			2.686e4					287176		8.56e5							
FUNCTION5 PFK			1.797e5					200045		5.77e6							
FUNCTION1 HXCD...			7.815e2					458		1.11e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			7.618e3					592		1.15e5							0.000
FUNCTION3 OCDPE			4.956e3					644		5.21e4							0.000
FUNCTION4 NCDPE			1.915e3					637		2.00e4							0.000
FUNCTION5 DCDPE			2.784e3					452		2.35e4							0.000

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.14	1.176e6	1.517e6	0.903	0.78	0.77	9439.9	YES	NO	bb	bb	200.683
2	Total-tetrafurans	24.23	7.022e3	1.030e4	0.973	0.68	0.77	53.2	YES	NO	bb	db	1.197
3	Total-tetrafurans	23.91	1.051e4	1.448e4	0.973	0.73	0.77	86.3	YES	NO	bd	bd	1.727
4	Total-tetrafurans	22.68	1.913e2	2.601e2	0.973	0.74	0.77	1.9	NO	NO	bb	bb	0.031

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.28	6.873e6	4.363e6	0.923	1.58	1.55	16593.6	YES	NO	bb	bb	1003.7...
2	Total-pentafurans	29.01	5.252e3	3.709e3	0.931	1.42	1.55	11.1	YES	NO	dd	db	0.807
3	Total-pentafurans	28.93	2.668e3	1.651e3	0.931	1.62	1.55	8.0	YES	NO	bd	bd	0.389
4	Total-pentafurans	28.22	2.093e4	1.283e4	0.931	1.63	1.55	39.4	YES	NO	bb	bb	3.039
5	Total-pentafurans	31.87	1.086e3	7.873e2	0.931	1.38	1.55	3.1	NO	NO	dd	db	0.169
6	23478-PeCDF	30.62	7.218e6	4.643e6	0.991	1.55	1.55	17800.7	YES	NO	bb	bb	1020.4...
7	Total-pentafurans	30.49	5.363e3	4.052e3	0.931	1.32	1.55	17.9	YES	NO	bb	bb	0.848
8	Total-pentafurans	30.20	2.868e2	1.979e2	0.931	1.45	1.55	1.7	NO	NO	bb	bb	0.044

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexafurans	35.82	2.293e2	1.911e2	1.087	1.20	1.24	1.9	NO	NO	bb	db	0.046
2	234678-HxCDF	35.30	5.220e6	4.187e6	1.081	1.25	1.24	15612.0	YES	NO	bb	bb	1036.3...
3	123678-HxCDF	34.42	5.565e6	4.427e6	1.032	1.26	1.24	15950.5	YES	NO	db	db	1022.2...
4	123478-HxCDF	34.28	5.150e6	4.112e6	1.128	1.25	1.24	15621.4	YES	NO	bd	bd	1008.5...
5	Total-hexafurans	34.12	3.378e3	3.099e3	1.087	1.09	1.24	11.9	YES	NO	bb	bb	0.713
6	Total-hexafurans	32.79	3.542e3	2.725e3	1.087	1.30	1.24	9.2	YES	NO	db	bb	0.690
7	123789-HxCDF	36.34	4.314e6	3.419e6	0.988	1.26	1.24	12485.9	YES	NO	bb	bb	1056.6...

ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.38	3.737e6	3.616e6	1.104	1.03	1.05	8752.5	YES	NO	bb	bb	1044.7...
2	Total-heptafurans	39.67	4.922e3	4.388e3	1.134	1.12	1.05	9.6	YES	NO	bb	bb	1.175
3	Total-heptafurans	38.85	6.140e3	5.800e3	1.134	1.06	1.05	14.7	YES	NO	bb	bb	1.507
4	1234678-HpCDF	38.22	4.651e6	4.483e6	1.164	1.04	1.05	12629.8	YES	NO	bb	bb	1032.0...

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.14	1.176e6	1.517e6	0.903	0.78	0.77	9439.9	YES	NO	bb	bb	200.683
2	Total-tetrafurans	24.23	7.022e3	1.030e4	0.973	0.68	0.77	53.2	YES	NO	bb	db	1.197
3	Total-tetrafurans	23.91	1.051e4	1.448e4	0.973	0.73	0.77	86.3	YES	NO	bd	bd	1.727
4	Total-tetrafurans	22.68	1.913e2	2.601e2	0.973	0.74	0.77	1.9	NO	NO	bb	bb	0.031
5	12378-PeCDF	29.28	6.873e6	4.363e6	0.923	1.58	1.55	16593.6	YES	NO	bb	bb	1003.7...
6	Total-pentafurans	29.01	5.252e3	3.709e3	0.931	1.42	1.55	11.1	YES	NO	dd	db	0.807
7	Total-pentafurans	28.93	2.668e3	1.651e3	0.931	1.62	1.55	8.0	YES	NO	bd	bd	0.389
8	Total-pentafurans	28.22	2.093e4	1.283e4	0.931	1.63	1.55	39.4	YES	NO	bb	bb	3.039
9	Total-pentafurans	31.87	1.086e3	7.873e2	0.931	1.38	1.55	3.1	NO	NO	dd	db	0.169
10	23478-PeCDF	30.62	7.218e6	4.643e6	0.991	1.55	1.55	17800.7	YES	NO	bb	bb	1020.4...
11	Total-pentafurans	30.49	5.363e3	4.052e3	0.931	1.32	1.55	17.9	YES	NO	bb	bb	0.848
12	Total-pentafurans	30.20	2.868e2	1.979e2	0.931	1.45	1.55	1.7	NO	NO	bb	bb	0.044
13	Total-hexafurans	35.82	2.293e2	1.911e2	1.087	1.20	1.24	1.9	NO	NO	bb	db	0.046
14	234678-HxCDF	35.30	5.220e6	4.187e6	1.081	1.25	1.24	15612.0	YES	NO	bb	bb	1036.3...
15	123678-HxCDF	34.42	5.565e6	4.427e6	1.032	1.26	1.24	15950.5	YES	NO	db	db	1022.2...
16	123478-HxCDF	34.28	5.150e6	4.112e6	1.128	1.25	1.24	15621.4	YES	NO	bd	bd	1008.5...
17	Total-hexafurans	34.12	3.378e3	3.099e3	1.087	1.09	1.24	11.9	YES	NO	bb	bb	0.713
18	Total-hexafurans	32.79	3.542e3	2.725e3	1.087	1.30	1.24	9.2	YES	NO	db	bb	0.690
19	123789-HxCDF	36.34	4.314e6	3.419e6	0.988	1.26	1.24	12485.9	YES	NO	bb	bb	1056.6...
20	1234789-HpCDF	40.38	3.737e6	3.616e6	1.104	1.03	1.05	8752.5	YES	NO	bb	bb	1044.7...
21	Total-heptafurans	39.67	4.922e3	4.388e3	1.134	1.12	1.05	9.6	YES	NO	bb	bb	1.175
22	Total-heptafurans	38.85	6.140e3	5.800e3	1.134	1.06	1.05	14.7	YES	NO	bb	bb	1.507
23	1234678-HpCDF	38.22	4.651e6	4.483e6	1.164	1.04	1.05	12629.8	YES	NO	bb	bb	1032.0...
24	OCDF	44.46	6.691e6	7.348e6	1.130	0.91	0.89	21469.5	YES	NO	bb	bb	2176.2...

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TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.77	1.061e6	1.307e6	1.243	0.81	0.77	12528.1	YES	NO	bb	bb	205.454
2	Total-tetradioxins	25.39	2.251e4	2.836e4	1.129	0.79	0.77	203.9	YES	NO	bd	bb	4.860
3	Total-tetradioxins	24.64	9.094e2	1.193e3	1.129	0.76	0.77	10.6	YES	NO	bb	bb	0.201

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.88	5.066e6	3.250e6	1.150	1.56	1.55	38189.0	YES	NO	bb	bb	1013.7...
2	Total-pentadioxins	30.20	5.265e3	3.663e3	1.548	1.44	1.55	36.0	YES	NO	bb	bb	0.809
3	Total-pentadioxins	29.49	8.899e2	6.316e2	1.548	1.41	1.55	6.0	YES	NO	dd	db	0.138
4	Total-pentadioxins	29.30	4.194e3	3.163e3	1.548	1.33	1.55	26.2	YES	NO	bd	bd	0.667

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDD	35.42	4.057e6	3.319e6	0.960	1.22	1.24	33525.8	YES	NO	bd	bd	967.641
2	Total-hexadioxins	34.42	1.376e3	1.250e3	0.943	1.10	1.24	6.9	NO	NO	dd	dd	0.335
3	Total-hexadioxins	36.55	2.181e2	1.928e2	0.943	1.13	1.24	4.6	NO	NO	bb	bb	0.052
4	Total-hexadioxins	36.33	2.192e4	1.798e4	0.943	1.22	1.24	137.8	YES	NO	bb	bb	5.083
5	123789-HxCDD	35.92	3.986e6	3.292e6	0.804	1.21	1.24	31052.7	YES	NO	bb	bb	1088.2...
6	123678-HxCDD	35.53	4.425e6	3.631e6	0.883	1.22	1.24	34440.8	YES	NO	db	db	1048.7...

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.67	3.162e6	2.947e6	1.200	1.07	1.05	10069.1	YES	NO	bb	bb	982.937

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.77	1.061e6	1.307e6	1.243	0.81	0.77	12528.1	YES	NO	bb	bb	205.454
2	Total-tetradioxins	25.39	2.251e4	2.836e4	1.129	0.79	0.77	203.9	YES	NO	bd	bb	4.860
3	Total-tetradioxins	24.64	9.094e2	1.193e3	1.129	0.76	0.77	10.6	YES	NO	bb	bb	0.201
4	Total-Dioxins	27.06	1.144e2	1.336e2	1.182	0.86	0.77	2.6	NO	NO	bb	db	0.023
5	12378-PeCDD	30.88	5.066e6	3.250e6	1.150	1.56	1.55	38189.0	YES	NO	bb	bb	1013.7...
6	Total-pentadioxins	30.20	5.265e3	3.663e3	1.548	1.44	1.55	36.0	YES	NO	bb	bb	0.809
7	Total-pentadioxins	29.49	8.899e2	6.316e2	1.548	1.41	1.55	6.0	YES	NO	dd	db	0.138
8	Total-pentadioxins	29.30	4.194e3	3.163e3	1.548	1.33	1.55	26.2	YES	NO	bd	bd	0.667
9	123478-HxCDD	35.42	4.057e6	3.319e6	0.960	1.22	1.24	33525.8	YES	NO	bd	bd	967.641
10	Total-hexadioxins	34.42	1.376e3	1.250e3	0.943	1.10	1.24	6.9	NO	NO	dd	dd	0.335
11	Total-hexadioxins	36.55	2.181e2	1.928e2	0.943	1.13	1.24	4.6	NO	NO	bb	bb	0.052
12	Total-hexadioxins	36.33	2.192e4	1.798e4	0.943	1.22	1.24	137.8	YES	NO	bb	bb	5.083
13	123789-HxCDD	35.92	3.986e6	3.292e6	0.804	1.21	1.24	31052.7	YES	NO	bb	bb	1088.2...
14	123678-HxCDD	35.53	4.425e6	3.631e6	0.883	1.22	1.24	34440.8	YES	NO	db	db	1048.7...
15	1234678-HpCDD	39.67	3.162e6	2.947e6	1.200	1.07	1.05	10069.1	YES	NO	bb	bb	982.937
16	OCDD	44.24	5.800e6	6.537e6	1.059	0.89	0.89	14784.9	YES	NO	bd	bd	2041.6...

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.14	1.176e6	1.517e6	0.903	0.78	0.77	9439.9	YES	NO	bb	bb	200.683
2	Total-tetrafurans	24.23	7.022e3	1.030e4	0.973	0.68	0.77	53.2	YES	NO	bb	db	1.197
3	Total-tetrafurans	23.91	1.051e4	1.448e4	0.973	0.73	0.77	86.3	YES	NO	bd	bd	1.727
4	Total-tetrafurans	22.68	1.913e2	2.601e2	0.973	0.74	0.77	1.9	NO	NO	bb	bb	0.031
5	12378-PeCDF	29.28	6.873e6	4.363e6	0.923	1.58	1.55	16593.6	YES	NO	bb	bb	1003.7...
6	Total-pentafurans	29.01	5.252e3	3.709e3	0.931	1.42	1.55	11.1	YES	NO	dd	db	0.807
7	Total-pentafurans	28.93	2.668e3	1.651e3	0.931	1.62	1.55	8.0	YES	NO	bd	bd	0.389
8	Total-pentafurans	28.22	2.093e4	1.283e4	0.931	1.63	1.55	39.4	YES	NO	bb	bb	3.039
9	Total-pentafurans	31.87	1.086e3	7.873e2	0.931	1.38	1.55	3.1	NO	NO	dd	db	0.169
10	23478-PeCDF	30.62	7.218e6	4.643e6	0.991	1.55	1.55	17800.7	YES	NO	bb	bb	1020.4...
11	Total-pentafurans	30.49	5.363e3	4.052e3	0.931	1.32	1.55	17.9	YES	NO	bb	bb	0.848
12	Total-pentafurans	30.20	2.868e2	1.979e2	0.931	1.45	1.55	1.7	NO	NO	bb	bb	0.044
13	Total-hexafurans	35.82	2.293e2	1.911e2	1.087	1.20	1.24	1.9	NO	NO	bb	db	0.046
14	234678-HxCDF	35.30	5.220e6	4.187e6	1.081	1.25	1.24	15612.0	YES	NO	bb	bb	1036.3...
15	123678-HxCDF	34.42	5.565e6	4.427e6	1.032	1.26	1.24	15950.5	YES	NO	db	db	1022.2...
16	123478-HxCDF	34.28	5.150e6	4.112e6	1.128	1.25	1.24	15621.4	YES	NO	bd	bd	1008.5...
17	Total-hexafurans	34.12	3.378e3	3.099e3	1.087	1.09	1.24	11.9	YES	NO	bb	bb	0.713
18	Total-hexafurans	32.79	3.542e3	2.725e3	1.087	1.30	1.24	9.2	YES	NO	db	bb	0.690
19	123789-HxCDF	36.34	4.314e6	3.419e6	0.988	1.26	1.24	12485.9	YES	NO	bb	bb	1056.6...
20	1234789-HpCDF	40.38	3.737e6	3.616e6	1.104	1.03	1.05	8752.5	YES	NO	bb	bb	1044.7...
21	Total-heptafurans	39.67	4.922e3	4.388e3	1.134	1.12	1.05	9.6	YES	NO	bb	bb	1.175
22	Total-heptafurans	38.85	6.140e3	5.800e3	1.134	1.06	1.05	14.7	YES	NO	bb	bb	1.507
23	1234678-HpCDF	38.22	4.651e6	4.483e6	1.164	1.04	1.05	12629.8	YES	NO	bb	bb	1032.0...
24	OCDF	44.46	6.691e6	7.348e6	1.130	0.91	0.89	21469.5	YES	NO	bb	bb	2176.2...
25	2378-TCDD	25.77	1.061e6	1.307e6	1.243	0.81	0.77	12528.1	YES	NO	bb	bb	205.454
26	Total-tetradioxins	25.39	2.251e4	2.836e4	1.129	0.79	0.77	203.9	YES	NO	bd	bb	4.860
27	Total-tetradioxins	24.64	9.094e2	1.193e3	1.129	0.76	0.77	10.6	YES	NO	bb	bb	0.201
28	Total-Dioxins	27.06	1.144e2	1.336e2	1.182	0.86	0.77	2.6	NO	NO	bb	db	0.023
29	12378-PeCDD	30.88	5.066e6	3.250e6	1.150	1.56	1.55	38189.0	YES	NO	bb	bb	1013.7...
30	Total-pentadioxins	30.20	5.265e3	3.663e3	1.548	1.44	1.55	36.0	YES	NO	bb	bb	0.809
31	Total-pentadioxins	29.49	8.899e2	6.316e2	1.548	1.41	1.55	6.0	YES	NO	dd	db	0.138
32	Total-pentadioxins	29.30	4.194e3	3.163e3	1.548	1.33	1.55	26.2	YES	NO	bd	bd	0.667
33	123478-HxCDD	35.42	4.057e6	3.319e6	0.960	1.22	1.24	33525.8	YES	NO	bd	bd	967.641
34	Total-hexadioxins	34.42	1.376e3	1.250e3	0.943	1.10	1.24	6.9	NO	NO	dd	dd	0.335
35	Total-hexadioxins	36.55	2.181e2	1.928e2	0.943	1.13	1.24	4.6	NO	NO	bb	bb	0.052
36	Total-hexadioxins	36.33	2.192e4	1.798e4	0.943	1.22	1.24	137.8	YES	NO	bb	bb	5.083
37	123789-HxCDD	35.92	3.986e6	3.292e6	0.804	1.21	1.24	31052.7	YES	NO	bb	bb	1088.2...

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	123678-HxCDD	35.53	4.425e6	3.631e6	0.883	1.22	1.24	34440.8	YES	NO	db	db	1048.7...
39	1234678-HpCDD	39.67	3.162e6	2.947e6	1.200	1.07	1.05	10069.1	YES	NO	bb	bb	982.937
40	OCDD	44.24	5.800e6	6.537e6	1.059	0.89	0.89	14784.9	YES	NO	bd	bd	2041.6...

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.34	3.429e4					1.9	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	27.50	1.980e4					1.9	NO		bd		0.000
2	FUNCTION2 PFK	28.88	9.545e3					1.5	NO		db		0.000
3	FUNCTION2 PFK	28.85	1.548e4					1.5	NO		dd		0.000
4	FUNCTION2 PFK	28.78	2.633e4					1.9	NO		dd		0.000
5	FUNCTION2 PFK	28.73	2.421e4					1.5	NO		bd		0.000
6	FUNCTION2 PFK	28.58	1.529e4					1.5	NO		bb		0.000
7	FUNCTION2 PFK	28.37	3.510e4					1.6	NO		bb		0.000
8	FUNCTION2 PFK	28.26	2.659e4					1.8	NO		bb		0.000
9	FUNCTION2 PFK	28.18	1.012e4					1.4	NO		bb		0.000
10	FUNCTION2 PFK	28.10	3.736e3					0.7	NO		db		0.000
11	FUNCTION2 PFK	28.05	1.176e4					1.3	NO		bd		0.000
12	FUNCTION2 PFK	27.96	7.873e3					0.8	NO		bb		0.000
13	FUNCTION2 PFK	27.91	5.680e3					1.0	NO		bb		0.000
14	FUNCTION2 PFK	27.79	7.217e3					1.0	NO		bb		0.000
15	FUNCTION2 PFK	27.72	3.615e4					2.3	NO		db		0.000
16	FUNCTION2 PFK	27.65	1.224e4					1.7	NO		bd		0.000
17	FUNCTION2 PFK	27.58	1.907e4					1.4	NO		db		0.000
18	FUNCTION2 PFK	30.25	1.111e4					1.6	NO		dd		0.000
19	FUNCTION2 PFK	30.21	4.748e4					3.3	YES		bd		0.000
20	FUNCTION2 PFK	30.12	1.251e4					1.0	NO		db		0.000
21	FUNCTION2 PFK	30.06	2.456e4					2.2	NO		dd		0.000
22	FUNCTION2 PFK	30.02	2.395e4					2.6	NO		dd		0.000
23	FUNCTION2 PFK	29.98	2.592e4					2.3	NO		dd		0.000
24	FUNCTION2 PFK	29.92	1.037e4					1.4	NO		dd		0.000
25	FUNCTION2 PFK	29.89	1.685e4					1.7	NO		dd		0.000
26	FUNCTION2 PFK	29.82	1.201e4					1.4	NO		dd		0.000
27	FUNCTION2 PFK	29.77	2.300e4					1.9	NO		bd		0.000
28	FUNCTION2 PFK	29.61	5.897e3					0.9	NO		bb		0.000
29	FUNCTION2 PFK	29.37	2.118e4					1.1	NO		bb		0.000
30	FUNCTION2 PFK	29.30	1.346e3					0.4	NO		bb		0.000
31	FUNCTION2 PFK	29.23	2.365e4					1.9	NO		db		0.000
32	FUNCTION2 PFK	29.20	3.160e4					1.9	NO		bd		0.000
33	FUNCTION2 PFK	28.98	1.286e4					1.1	NO		bb		0.000
34	FUNCTION2 PFK	31.76	1.305e4					1.3	NO		dd		0.000
35	FUNCTION2 PFK	31.69	2.733e4					1.7	NO		dd		0.000
36	FUNCTION2 PFK	31.66	2.111e4					1.5	NO		bd		0.000
37	FUNCTION2 PFK	31.56	1.095e3					0.4	NO		bb		0.000

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION2 PFK	31.41	8.409e3					1.2	NO		bb		0.000
39	FUNCTION2 PFK	31.22	1.297e4					1.1	NO		bb		0.000
40	FUNCTION2 PFK	31.17	3.323e3					0.7	NO		db		0.000
41	FUNCTION2 PFK	31.12	1.285e4					1.3	NO		dd		0.000
42	FUNCTION2 PFK	31.07	1.346e4					1.6	NO		dd		0.000
43	FUNCTION2 PFK	31.02	7.621e3					0.9	NO		bd		0.000
44	FUNCTION2 PFK	30.83	1.401e4					1.5	NO		db		0.000
45	FUNCTION2 PFK	30.73	5.731e4					2.9	NO		dd		0.000
46	FUNCTION2 PFK	30.68	4.117e4					2.0	NO		bd		0.000
47	FUNCTION2 PFK	30.53	1.020e4					0.7	NO		bb		0.000
48	FUNCTION2 PFK	30.34	4.679e3					0.7	NO		db		0.000
49	FUNCTION2 PFK	30.30	9.864e3					1.1	NO		dd		0.000
50	FUNCTION2 PFK	32.06	7.490e3					1.0	NO		bb		0.000
51	FUNCTION2 PFK	31.92	2.087e4					1.3	NO		db		0.000
52	FUNCTION2 PFK	31.82	1.776e4					1.5	NO		dd		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	36.72	3.336e4					2.4	NO		bb		0.000
2	FUNCTION3 PFK	34.54	1.062e5					4.9	YES		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.47	2.686e4					3.0	NO		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.16	1.278e4					2.4	NO		bb		
2	FUNCTION5 PFK	44.11	9.338e3					2.0	NO		db		
3	FUNCTION5 PFK	44.08	5.897e3					1.6	NO		bd		
4	FUNCTION5 PFK	43.56	8.573e3					2.1	NO		db		
5	FUNCTION5 PFK	43.51	7.267e3					1.7	NO		bd		
6	FUNCTION5 PFK	43.32	5.670e3					1.4	NO		bb		
7	FUNCTION5 PFK	42.88	4.903e3					1.1	NO		bb		
8	FUNCTION5 PFK	45.82	1.022e4					1.6	NO		bb		
9	FUNCTION5 PFK	45.72	1.632e4					1.6	NO		bb		
10	FUNCTION5 PFK	45.61	7.173e3					1.1	NO		bb		
11	FUNCTION5 PFK	45.44	4.649e3					1.2	NO		bb		
12	FUNCTION5 PFK	45.20	1.793e4					2.2	NO		bb		
13	FUNCTION5 PFK	45.08	2.833e4					2.2	NO		db		
14	FUNCTION5 PFK	44.97	2.164e4					2.6	NO		bd		
15	FUNCTION5 PFK	44.84	7.975e3					1.7	NO		db		
16	FUNCTION5 PFK	44.81	6.372e3					1.4	NO		bd		
17	FUNCTION5 PFK	44.20	4.690e3					1.0	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	25.15	1.614e2					3.9	YES		bb		0.000
2	FUNCTION1 HXCD...	24.66	8.600e1					3.2	YES		bb		0.000
3	FUNCTION1 HXCD...	22.13	8.877e1					5.5	YES		db		0.000
4	FUNCTION1 HXCD...	22.07	9.027e1					3.1	YES		dd		0.000
5	FUNCTION1 HXCD...	21.95	7.917e1					2.1	NO		bd		0.000
6	FUNCTION1 HXCD...	25.77	2.758e2					6.3	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.88	6.520e2					15.4	YES		bb		0.000
2	FUNCTION2 HPCD...	30.62	5.795e2					11.8	YES		bb		0.000
3	FUNCTION2 HPCD...	30.48	5.784e3					156.4	YES		bb		0.000
4	FUNCTION2 HPCD...	29.30	6.029e2					10.9	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.35	5.376e2					7.3	YES		bb		0.000
2	FUNCTION3 OCDPE	35.94	9.866e2					15.2	YES		bb		0.000
3	FUNCTION3 OCDPE	35.69	7.171e1					2.6	NO		db		0.000
4	FUNCTION3 OCDPE	35.53	1.024e3					16.7	YES		dd		0.000
5	FUNCTION3 OCDPE	35.42	8.579e2					15.4	YES		dd		0.000
6	FUNCTION3 OCDPE	35.32	4.169e2					8.2	YES		bd		0.000
7	FUNCTION3 OCDPE	34.43	5.647e2					8.6	YES		db		0.000
8	FUNCTION3 OCDPE	34.29	4.974e2					7.0	YES		bd		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.39	5.944e2					9.3	YES		bb		0.000
2	FUNCTION4 NCDPE	39.69	6.266e2					10.8	YES		bb		0.000
3	FUNCTION4 NCDPE	38.23	6.938e2					11.2	YES		bb		0.000

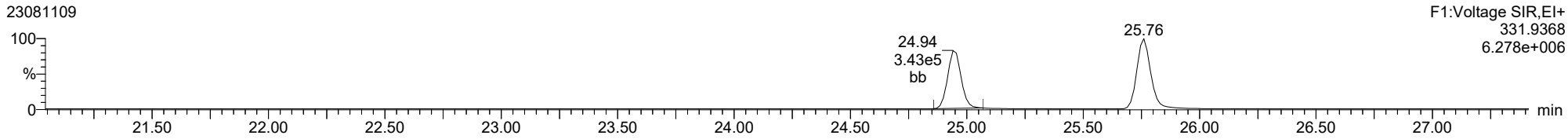
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.47	1.356e3					23.6	YES		db		0.000
2	FUNCTION5 DCDPE	44.25	1.261e3					23.3	YES		bd		0.000
3	FUNCTION5 DCDPE	43.36	1.677e2					4.9	YES		bb		0.000

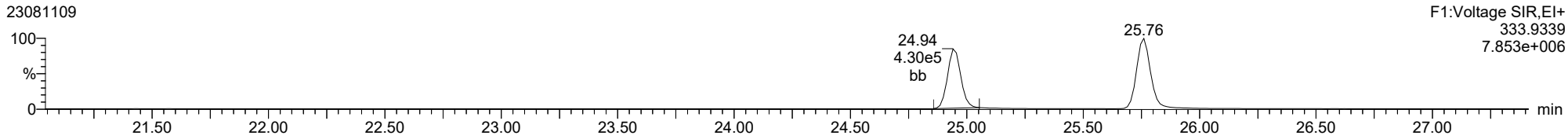
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ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

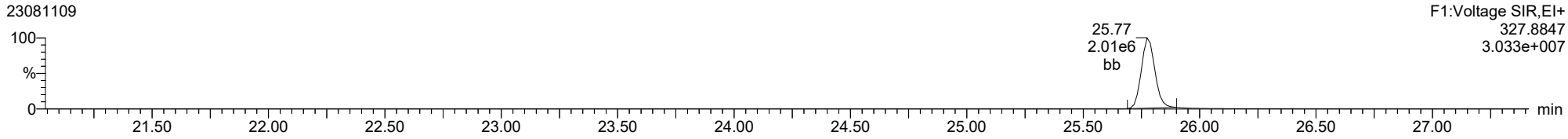
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13C-1234-TCDD

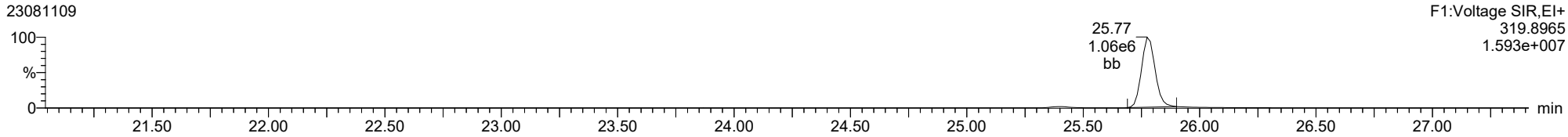


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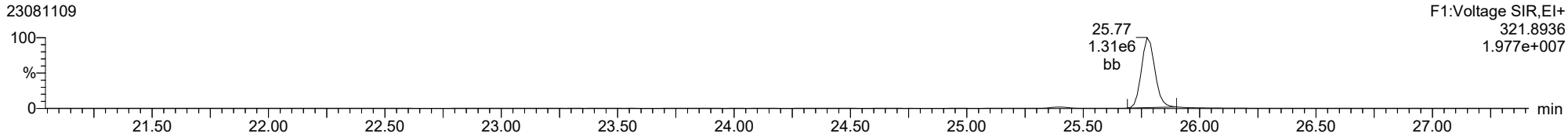


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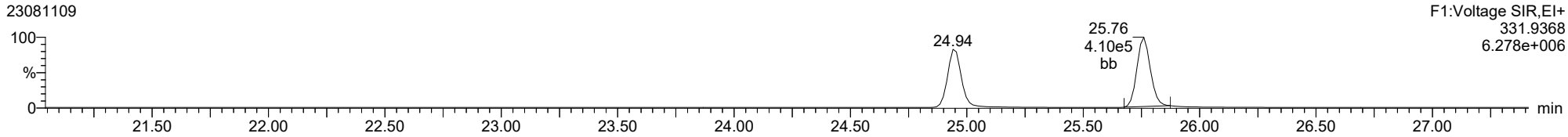
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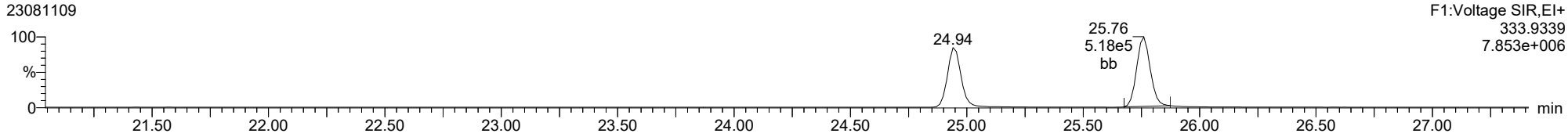
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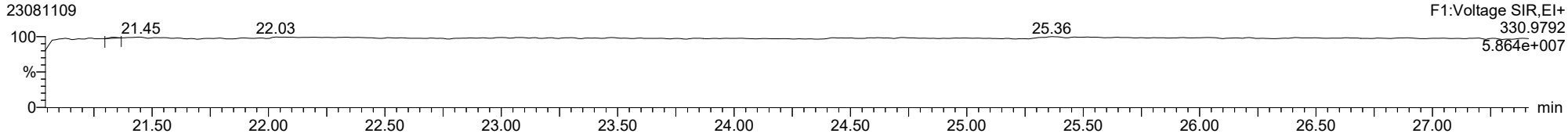
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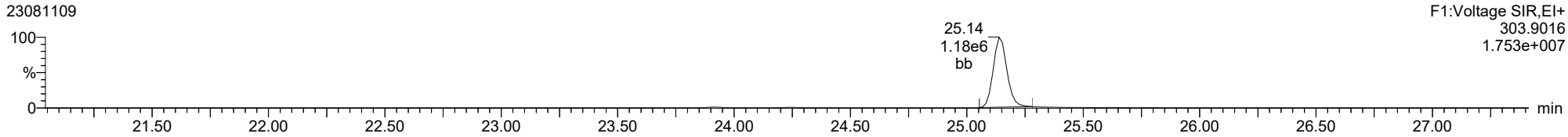


FUNCTION1 PFK

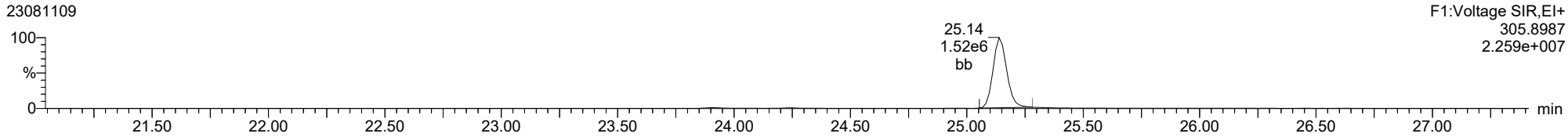


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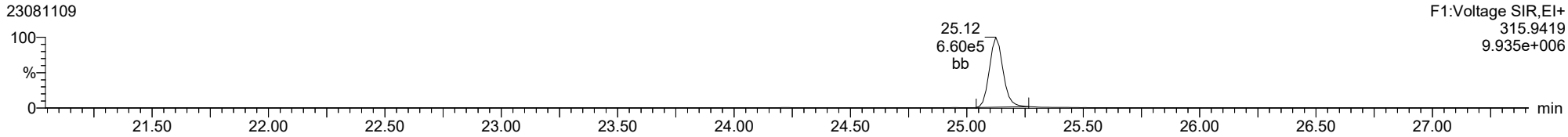
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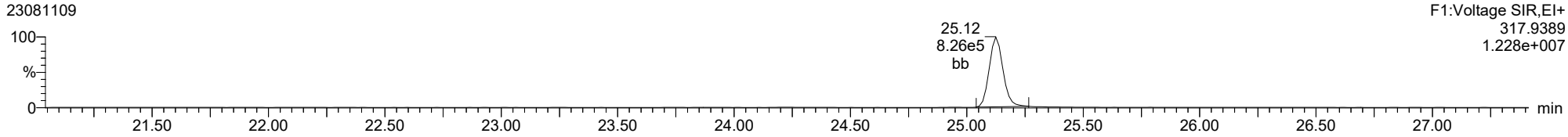
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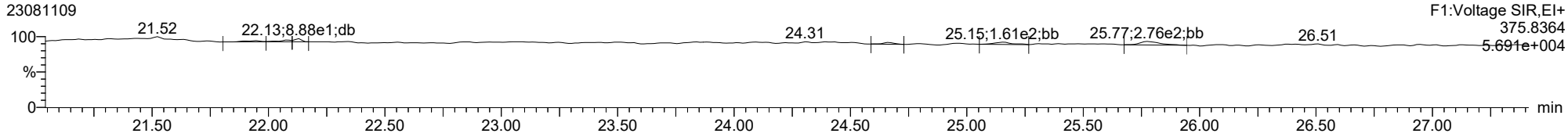
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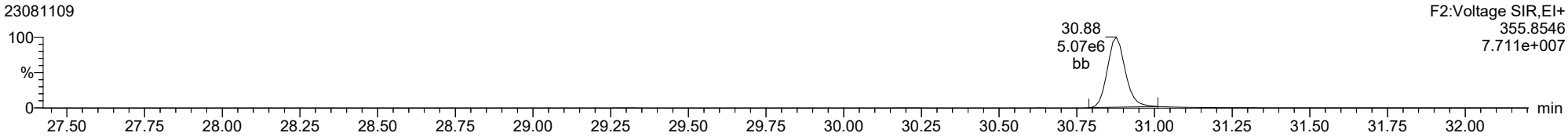


FUNCTION1 HXCDPE

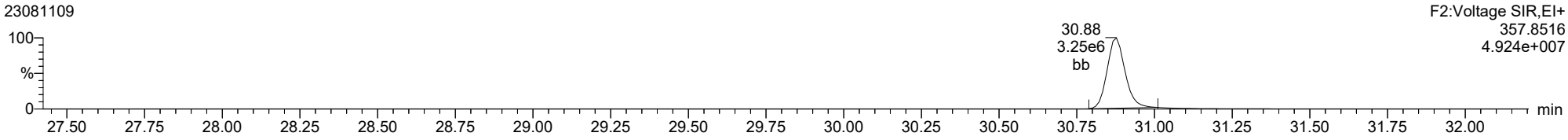


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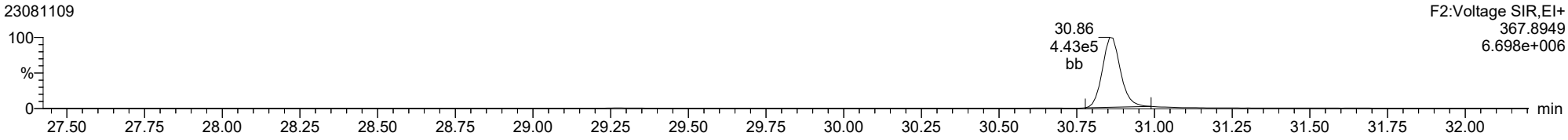
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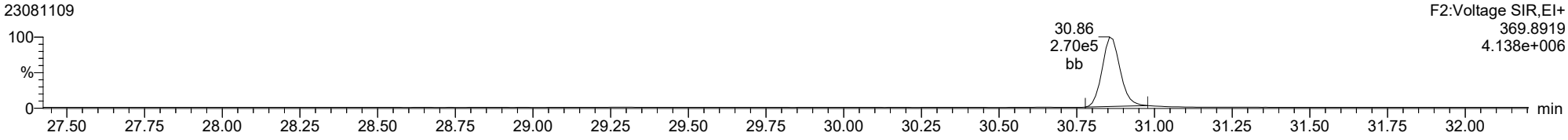
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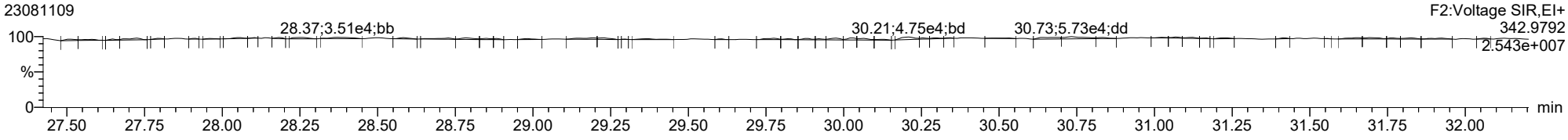
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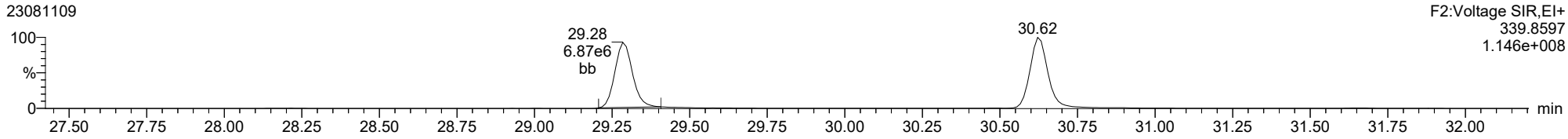


FUNCTION2 PFK

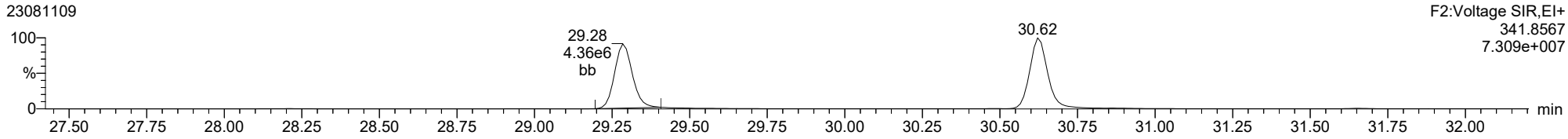


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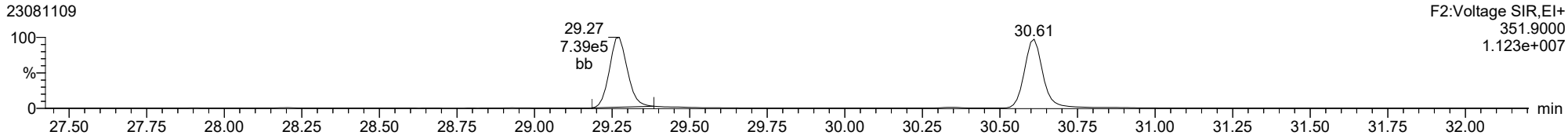
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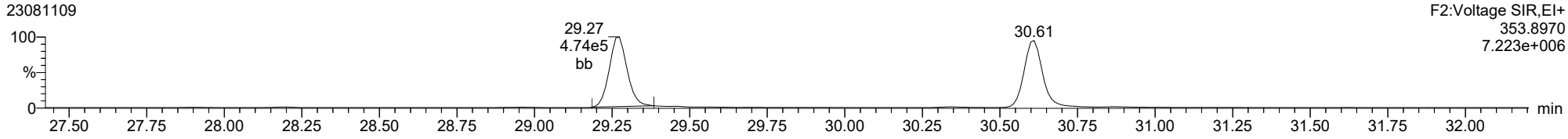
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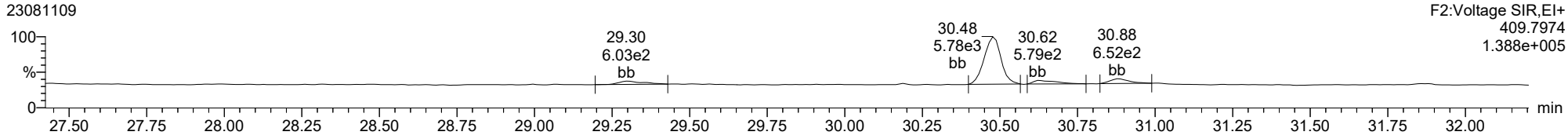
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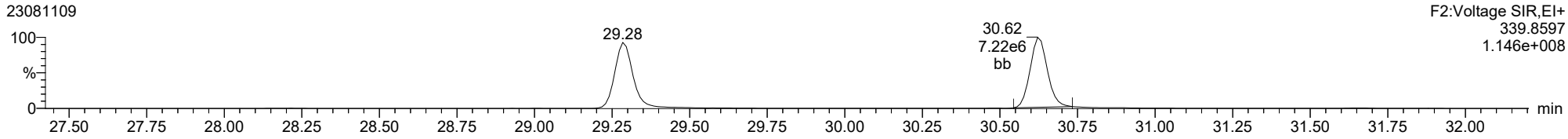


FUNCTION2 HPCDPE

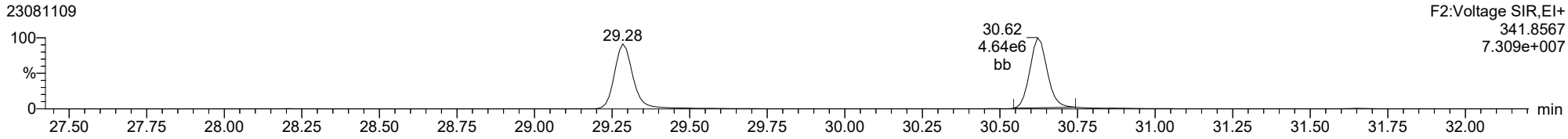


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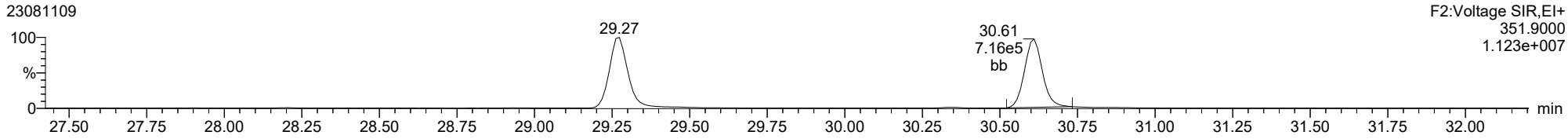
23478-PeCDF



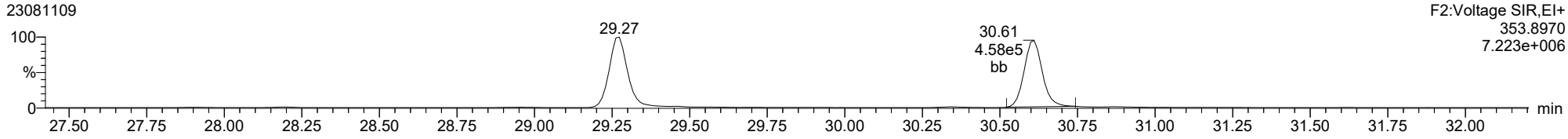
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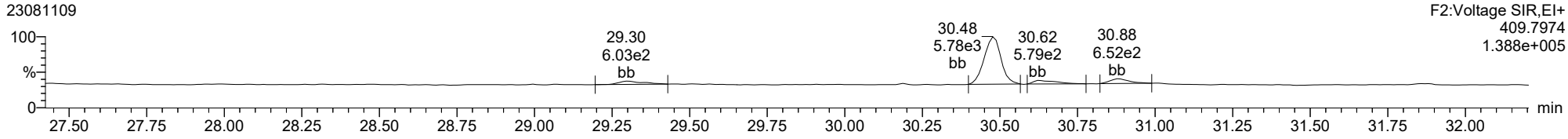
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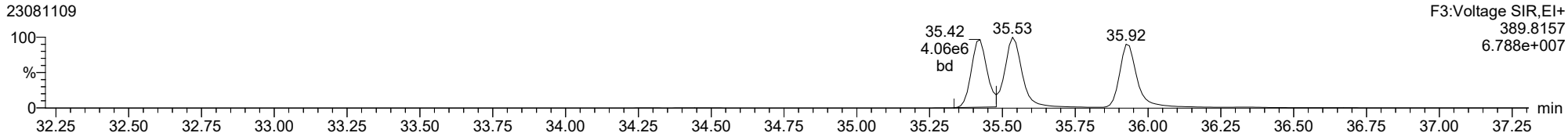


FUNCTION2 HPCDPE

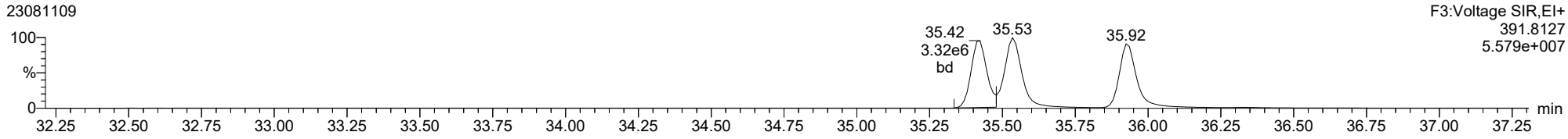


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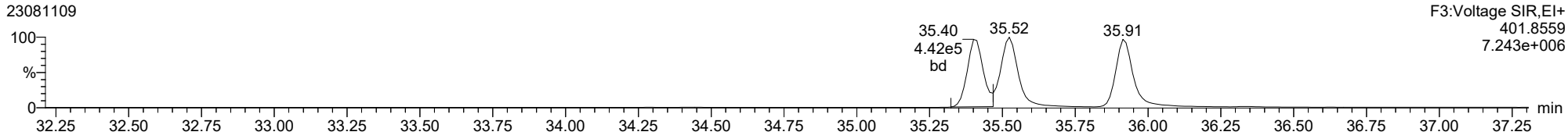
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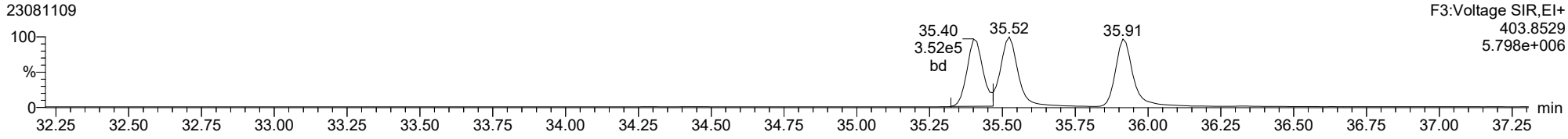
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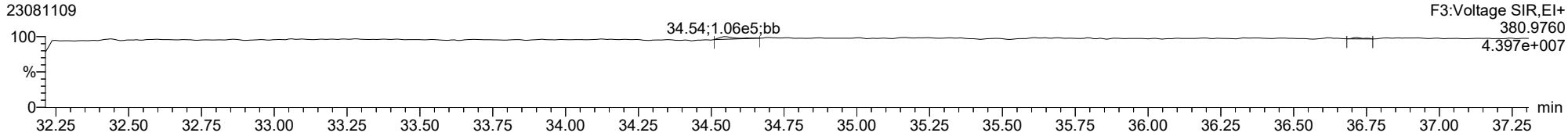
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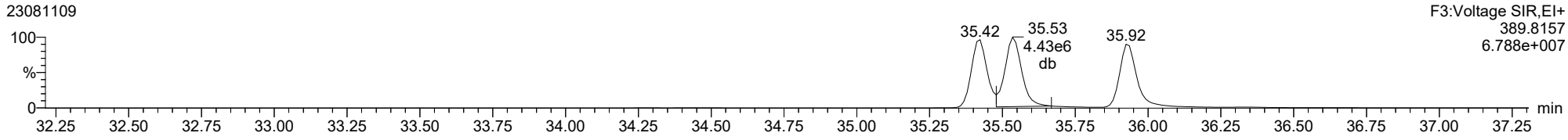


FUNCTION3 PFK

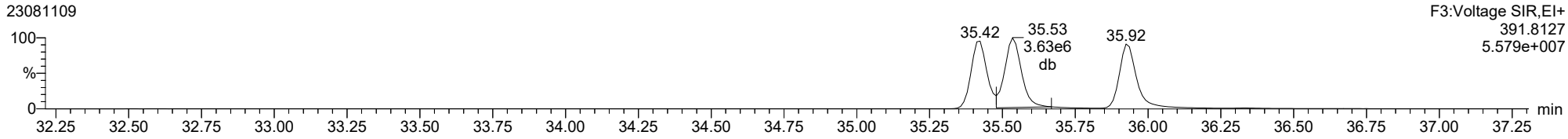


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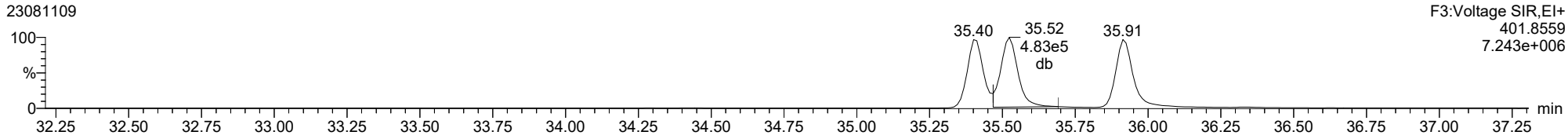
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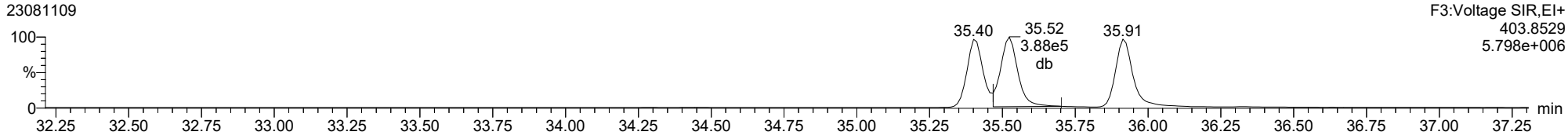
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13C-123678-HxCDD



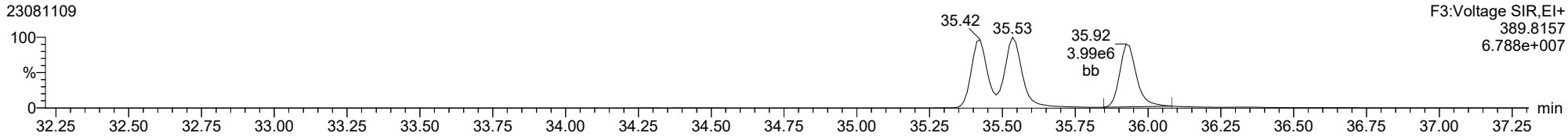
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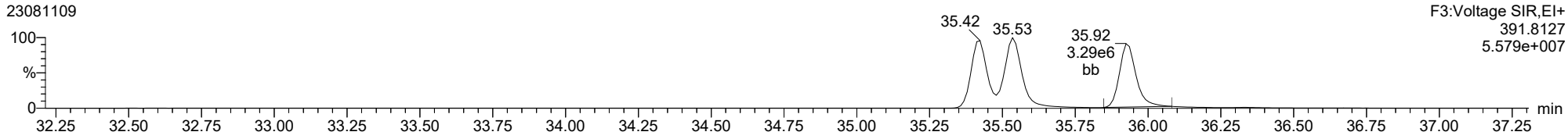
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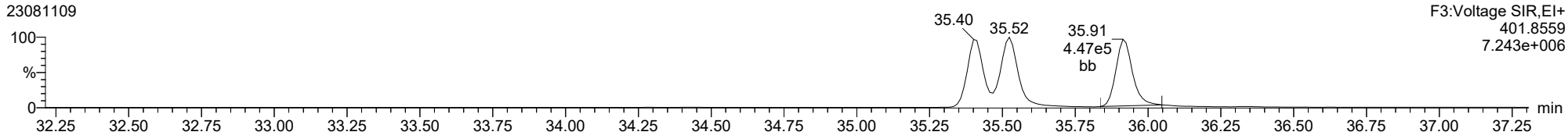
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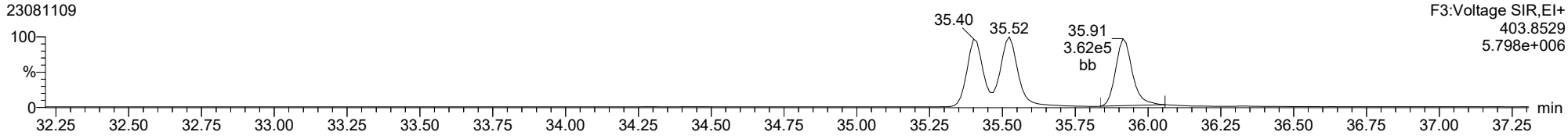
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13C-123789-HxCDD

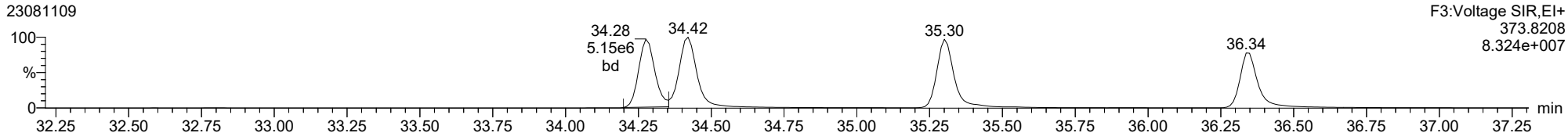


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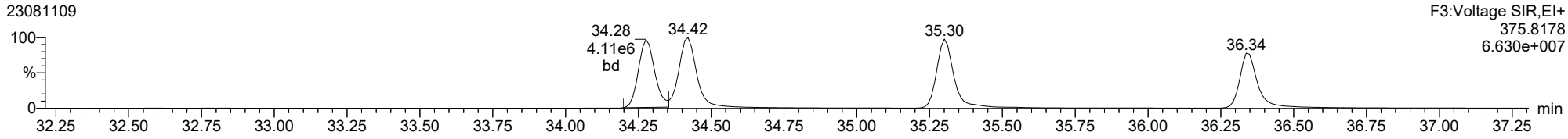


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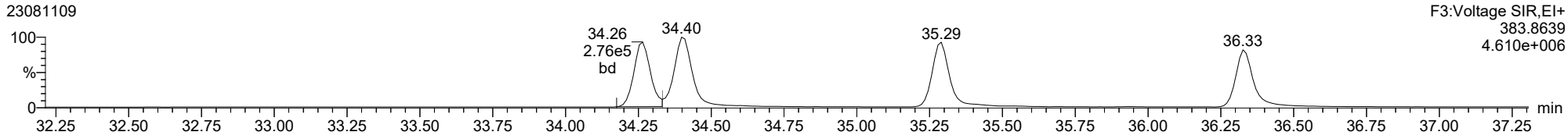
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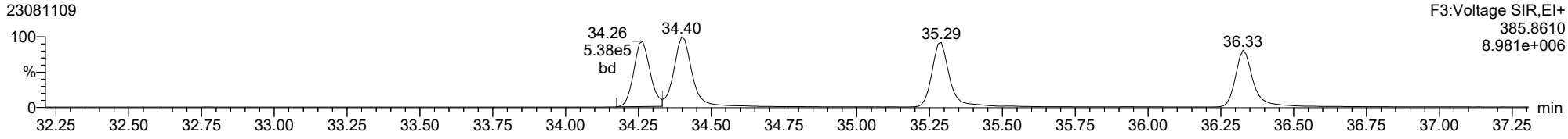
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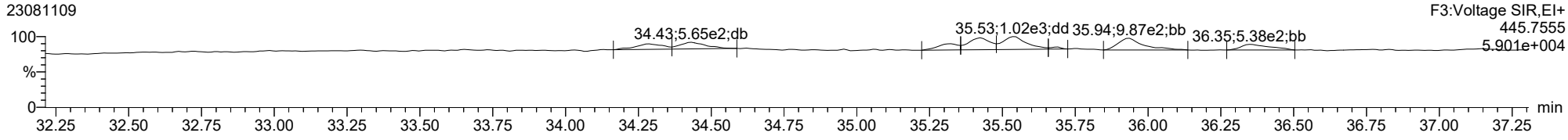
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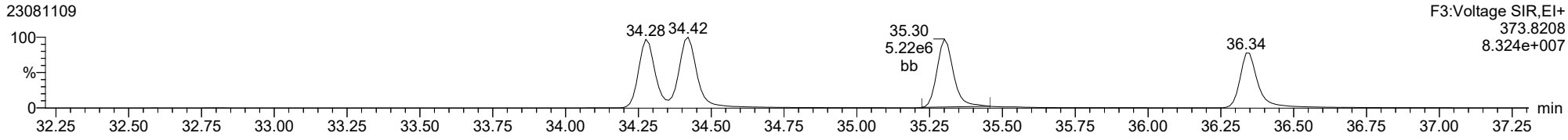


FUNCTION3 OCDPE

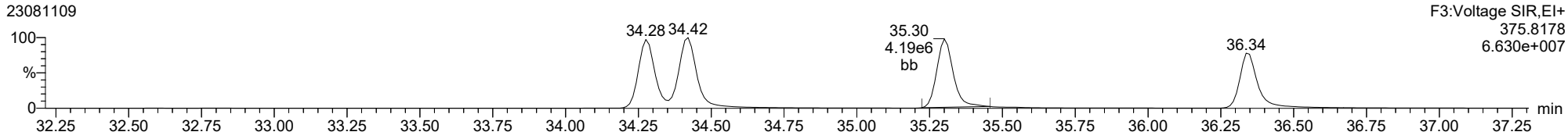


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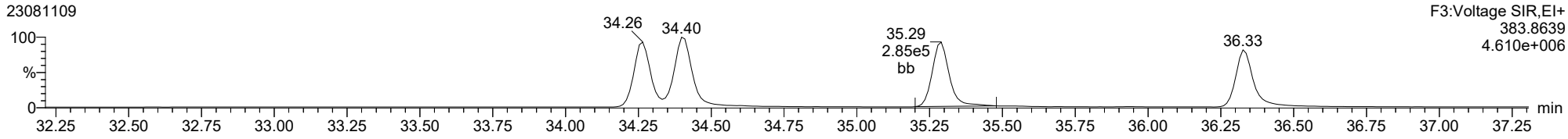
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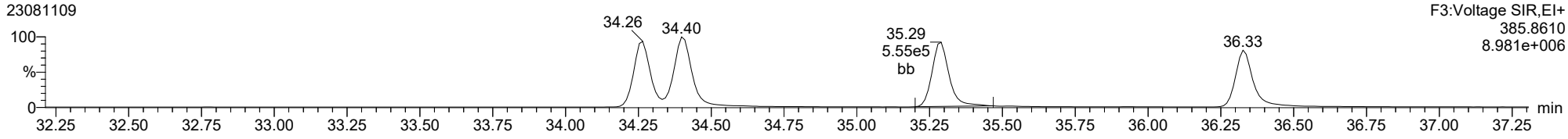
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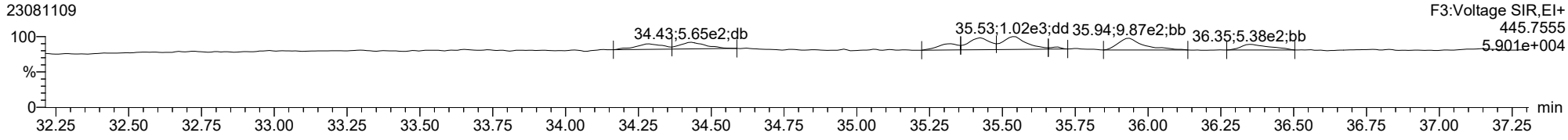
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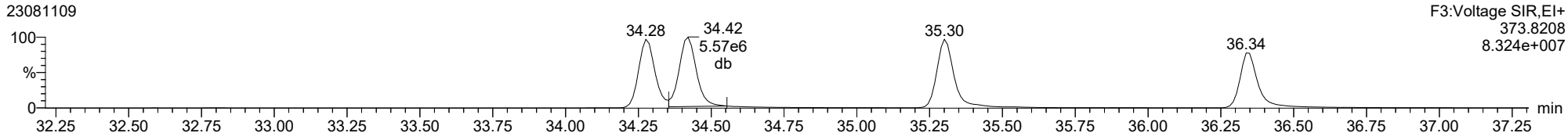


FUNCTION3 OCDPE

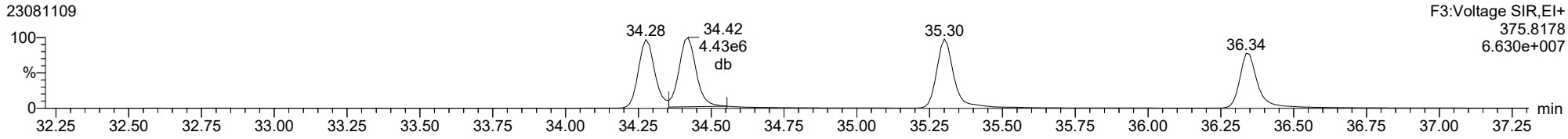


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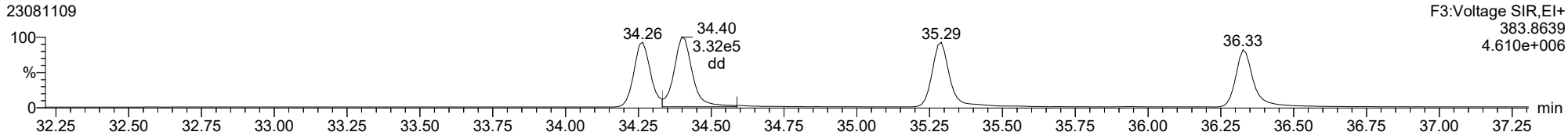
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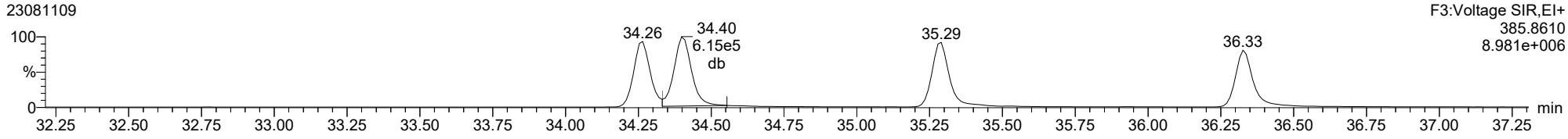
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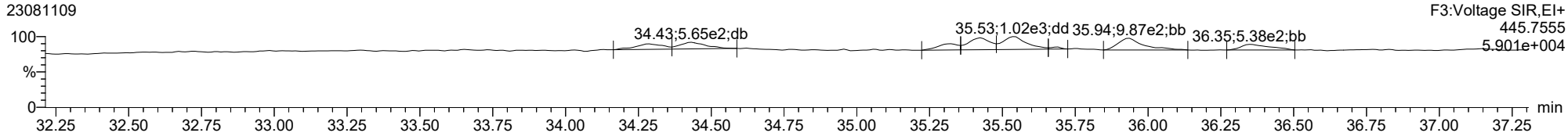
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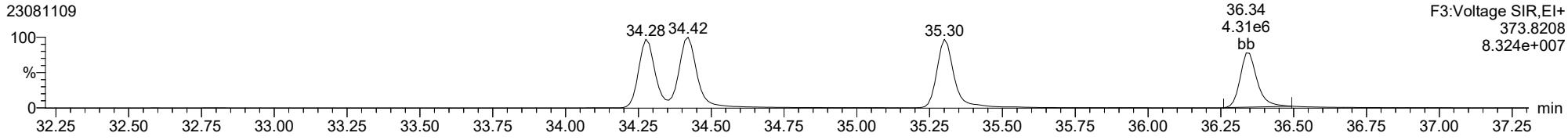


FUNCTION3 OCDPE

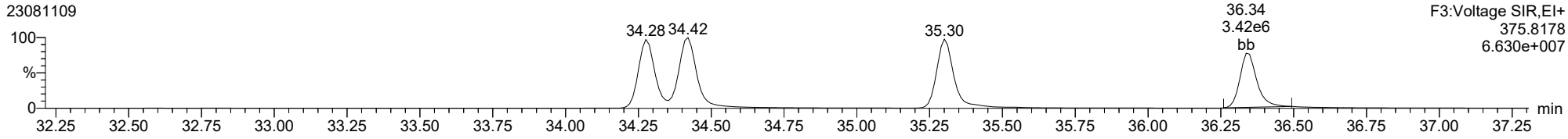


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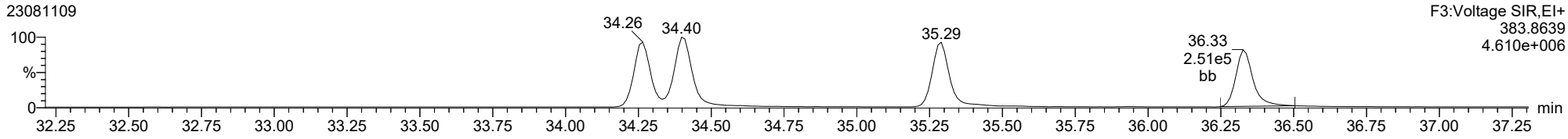
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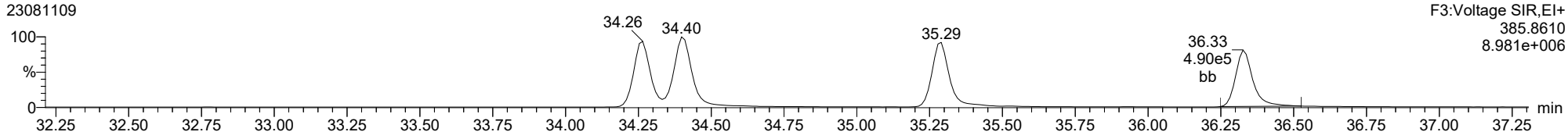
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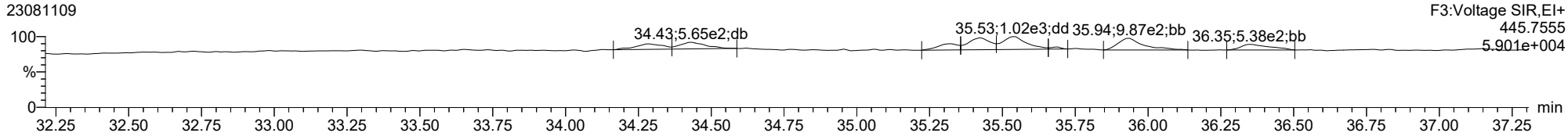
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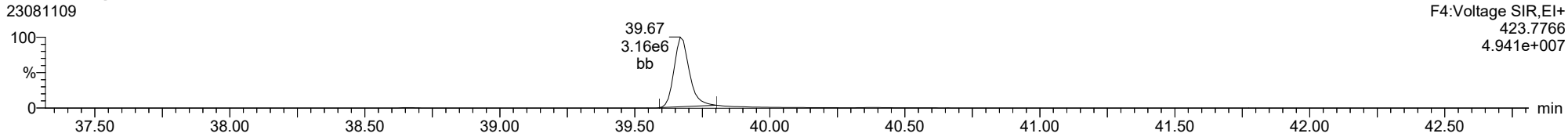


FUNCTION3 OCDPE

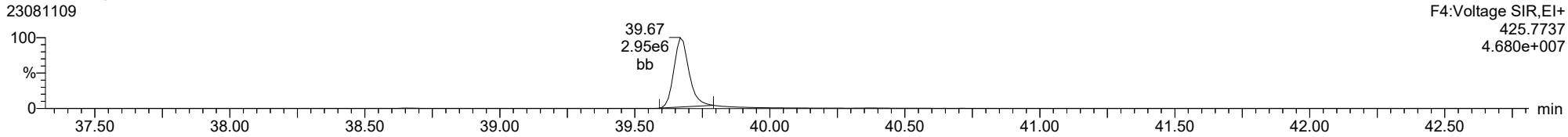


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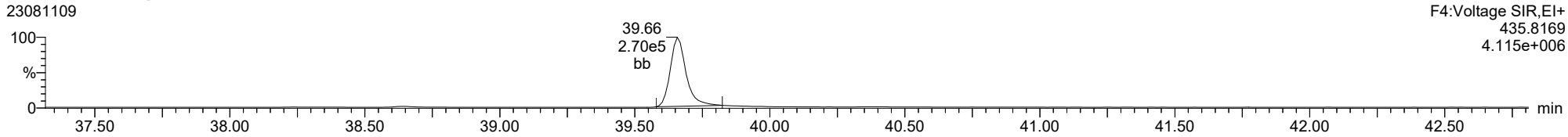
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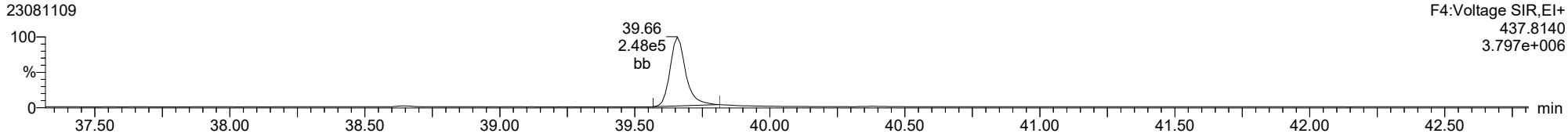
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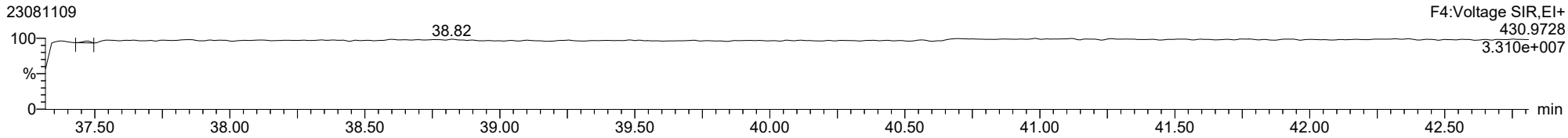
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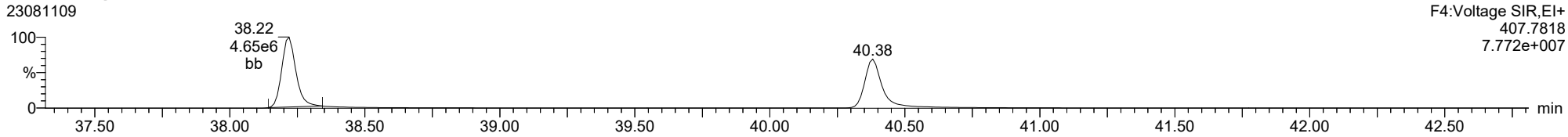


FUNCTION4 PFK

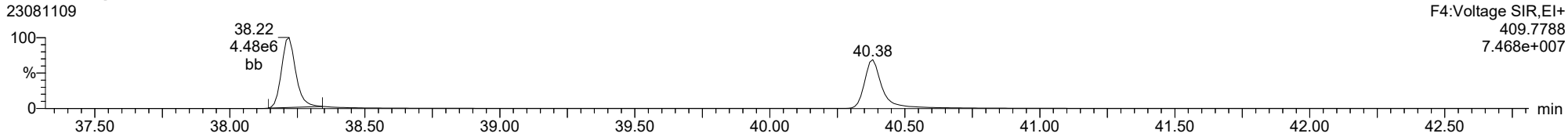


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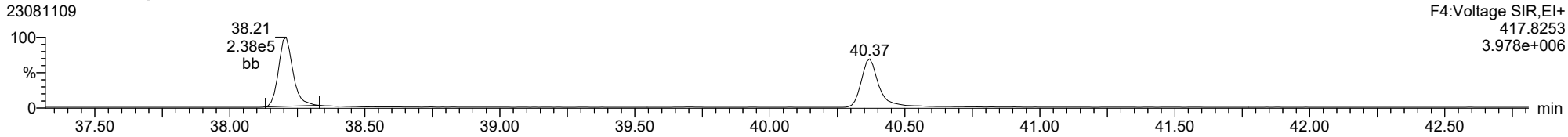
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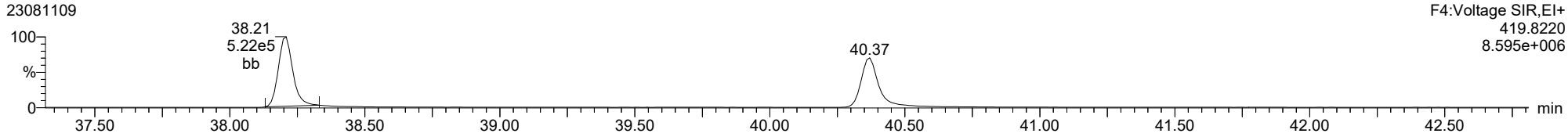
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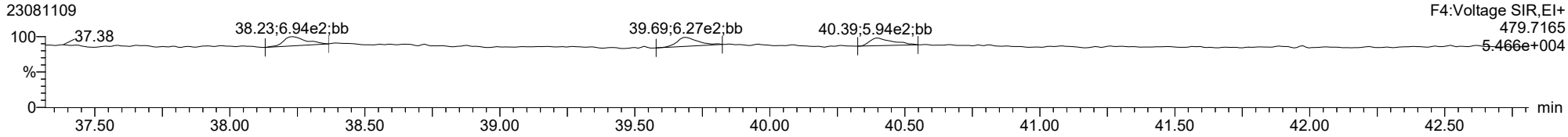
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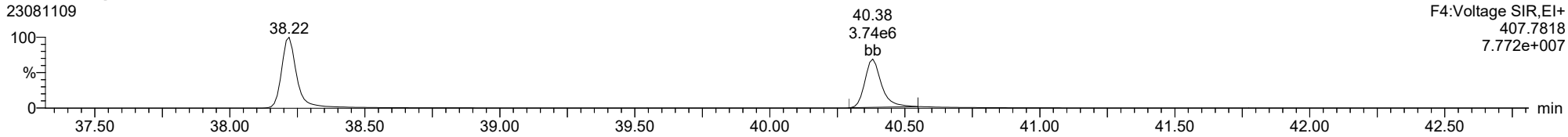


FUNCTION4 NCDPE

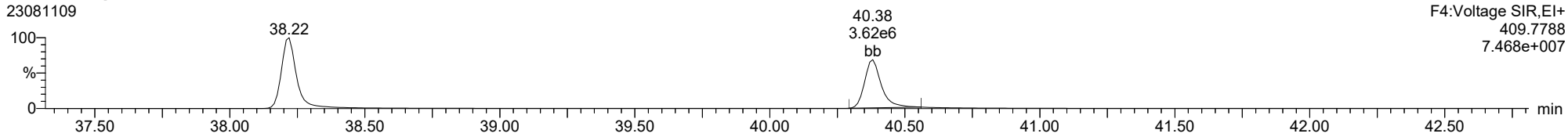


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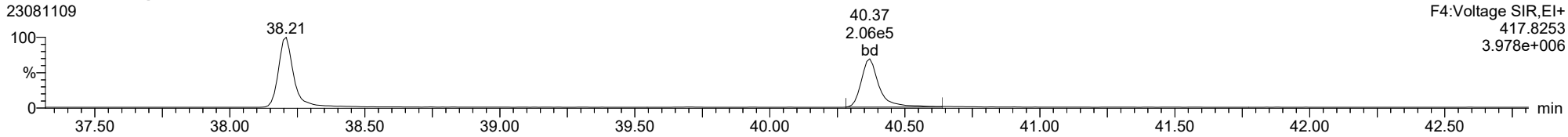
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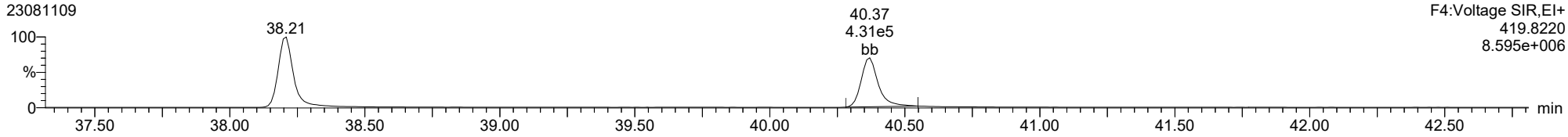
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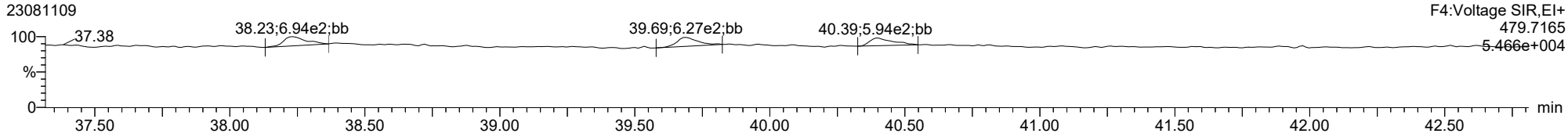
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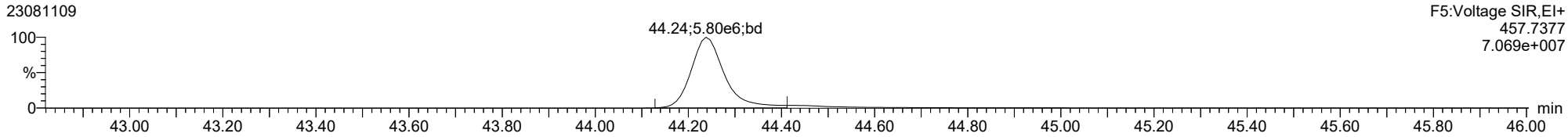


FUNCTION4 NCDPE

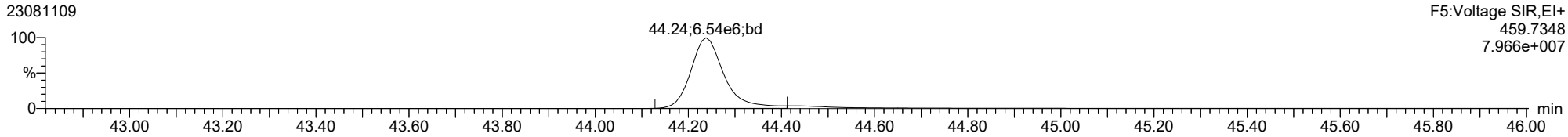


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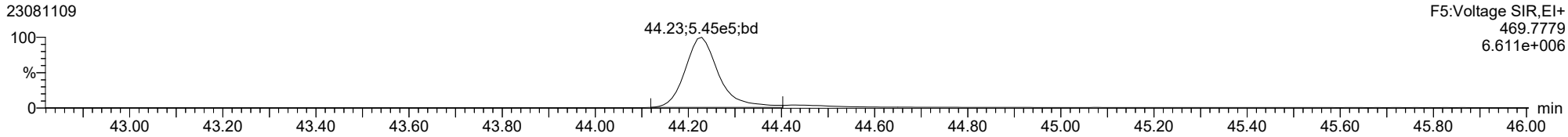
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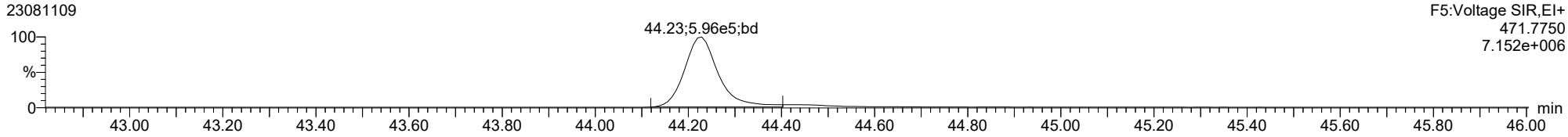
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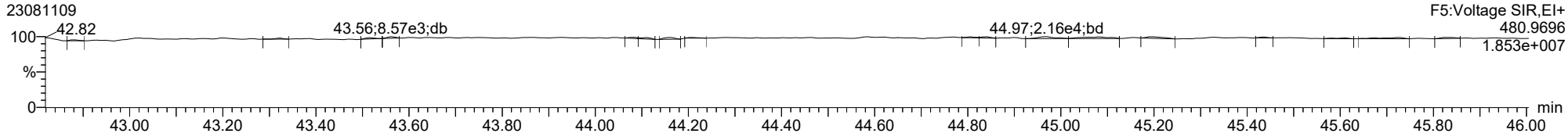
13C-OCDD



13C-OCDD

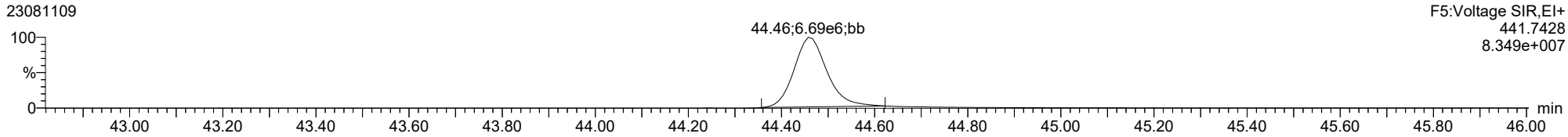


FUNCTION5 PFK

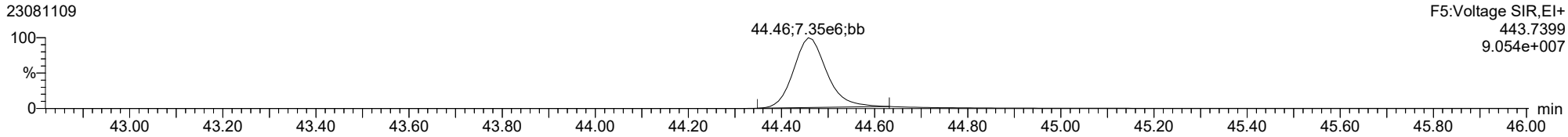


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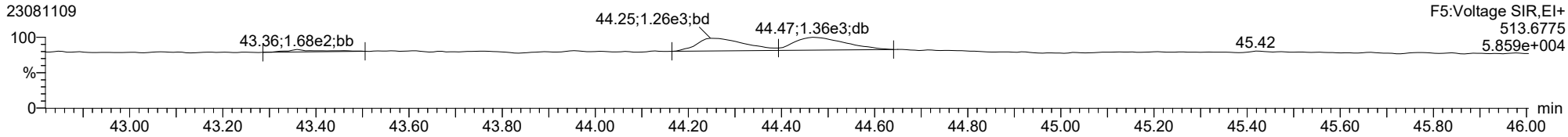
OCDF



OCDF

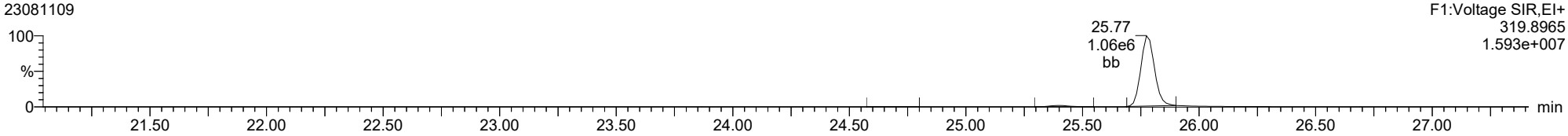


FUNCTION5 DCDPE

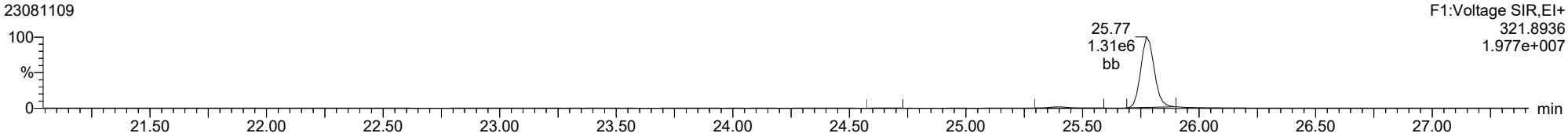


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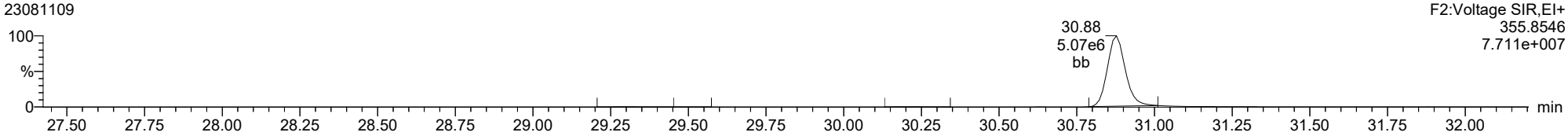
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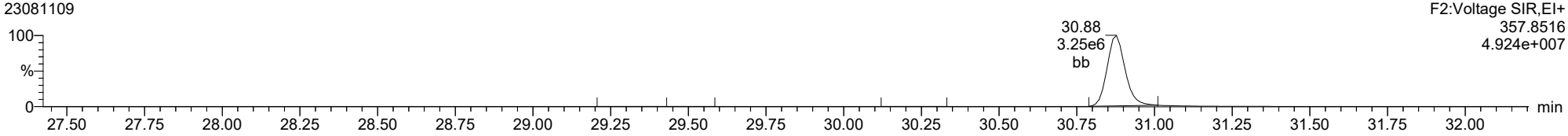
Total-tetradioxins



Total-pentadioxins



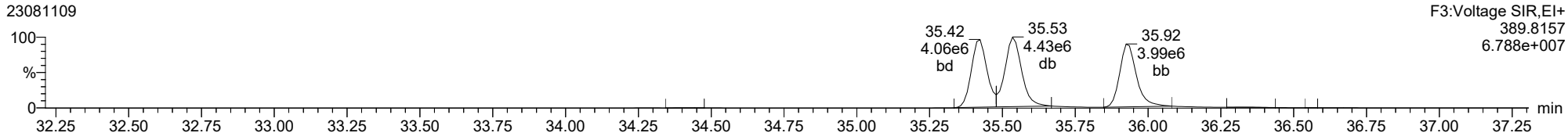
Total-pentadioxins



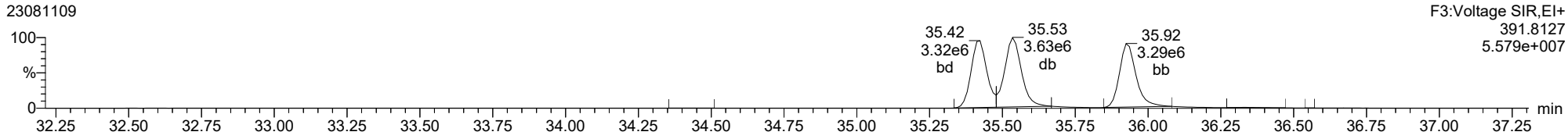
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Printed: Tuesday, August 15, 2023 12:25:02 Pacific Daylight Time

ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

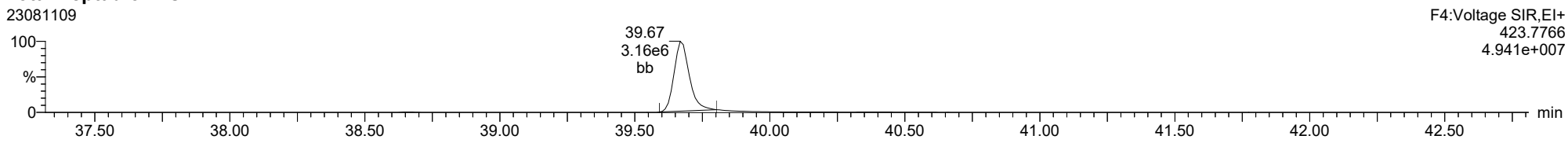
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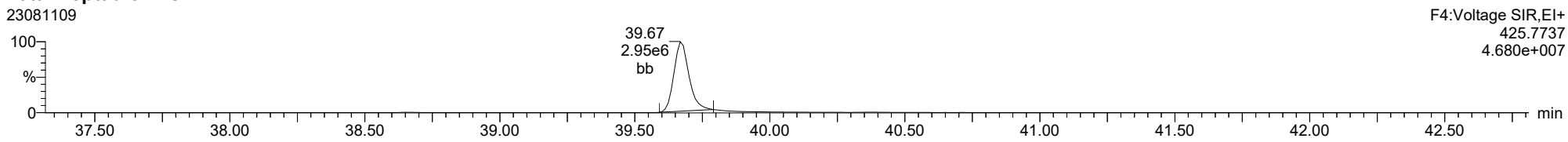
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Total-heptadioxins

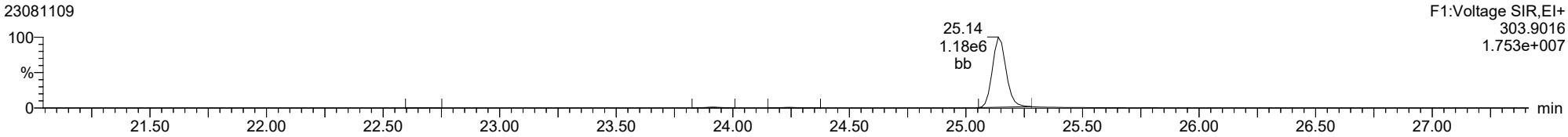


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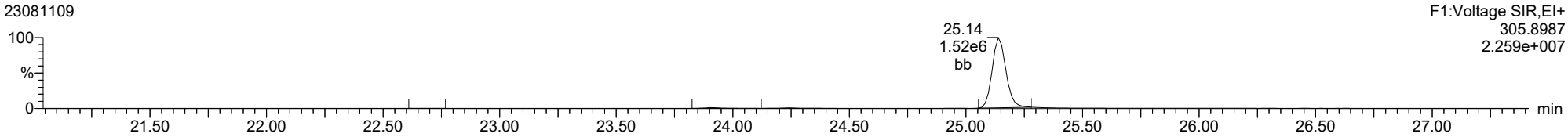


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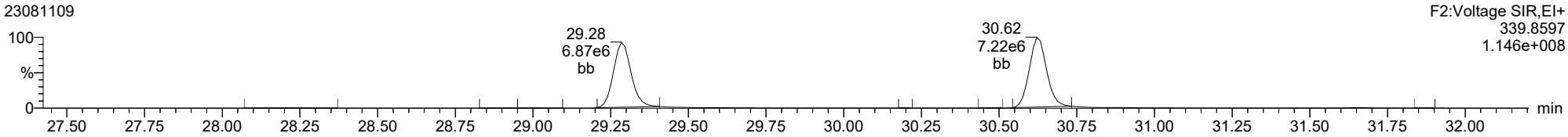
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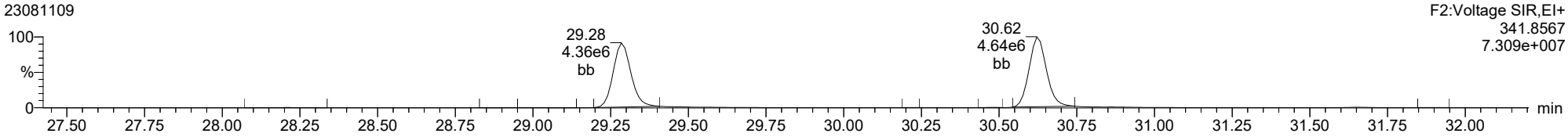
Total-tetrafurans



Total-pentafurans

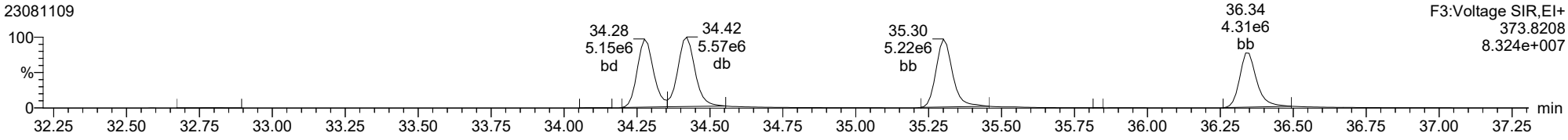


Total-pentafurans

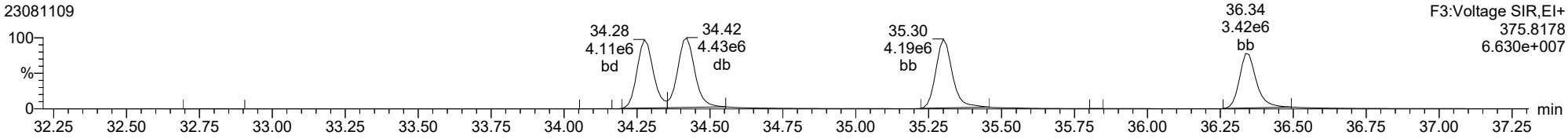


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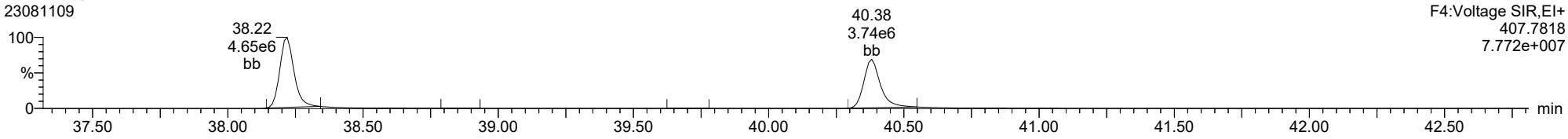
Total-hexafurans



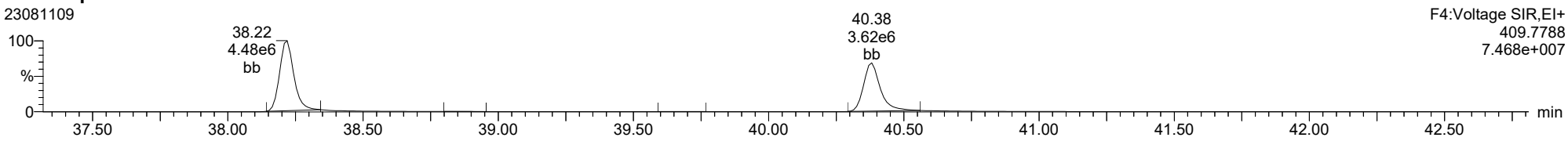
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230811CCVIH.qld
Last Altered: Tuesday, August 15, 2023 12:26:06 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:27:04 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 12 Aug 2023 10:54:09
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.139	1.001	7.423e4	9.642e4	0.903	0.770	0.770	1316	1323	1.10e6	1.40e6	835.9	1058.4	NO	bb	bb	9.781
12378-PeCDF	29.285	1.000	3.963e5	2.779e5	0.923	1.426	1.550	3241	2842	5.71e6	3.77e6	1762.0	1327.2	NO	bb	bb	49.295
23478-PeCDF	30.622	1.000	4.105e5	2.654e5	0.991	1.546	1.550	3241	2842	5.92e6	3.77e6	1825.5	1327.5	NO	bb	bb	50.524
123478-HxCDF	34.276	1.000	2.923e5	2.345e5	1.128	1.246	1.240	2958	2746	4.27e6	3.49e6	1442.8	1272.0	NO	bd	bd	50.046
234678-HxCDF	35.301	1.000	2.850e5	2.420e5	1.081	1.178	1.240	2958	2746	4.13e6	3.29e6	1395.6	1199.7	NO	bb	bd	52.928
123678-HxCDF	34.421	1.001	3.263e5	2.646e5	1.032	1.233	1.240	2958	2746	4.61e6	3.73e6	1557.6	1359.8	NO	db	db	50.926
123789-HxCDF	36.348	1.001	2.398e5	1.932e5	0.988	1.242	1.240	2958	2746	3.27e6	2.65e6	1106.6	965.1	NO	bb	bb	53.421
1234678-HpCDF	38.220	1.000	2.680e5	2.533e5	1.164	1.058	1.050	2121	2525	4.11e6	3.90e6	1936.6	1543.7	NO	bb	bb	51.933
1234789-HpCDF	40.381	1.000	2.267e5	1.989e5	1.104	1.140	1.050	2121	2525	2.82e6	2.56e6	1329.2	1014.9	NO	bd	bb	56.722
OCDF	44.458	1.005	3.318e5	3.955e5	1.130	0.839	0.890	2049	2908	3.61e6	4.04e6	1762.4	1389.6	NO	bb	bd	100.341
2378-TCDD	25.788	1.001	6.359e4	7.771e4	1.243	0.818	0.770	1854	1473	9.15e5	1.10e6	493.4	748.3	NO	bb	bb	9.852
12378-PeCDD	30.878	1.001	2.960e5	1.806e5	1.150	1.639	1.550	2737	2510	4.05e6	2.54e6	1479.9	1012.5	NO	bd	bb	52.791
123478-HxCDD	35.424	1.001	2.141e5	1.779e5	0.960	1.204	1.240	2122	2186	3.33e6	2.73e6	1570.0	1248.1	NO	bd	bd	47.771
123678-HxCDD	35.535	1.000	2.527e5	2.090e5	0.883	1.209	1.240	2122	2186	3.42e6	2.81e6	1612.0	1287.4	NO	db	db	50.765
123789-HxCDD	35.925	1.011	2.356e5	1.782e5	0.804	1.322	1.240	2122	2186	3.10e6	2.53e6	1463.2	1157.3	NO	bd	bb	54.634
1234678-HpCDD	39.668	1.000	1.732e5	1.629e5	1.200	1.063	1.050	2111	2786	2.44e6	2.37e6	1157.1	850.7	NO	bb	bb	48.260
OCDD	44.229	1.000	3.183e5	3.503e5	1.059	0.909	0.890	4632	2511	3.35e6	3.71e6	723.0	1476.0	NO	bd	bd	98.465
13C-2378-TCDF	25.125	1.007	8.531e5	1.079e6	1.835	0.791	0.770	1734	1865	1.24e7	1.58e7	7147.1	8470.2	NO	bb	bb	101.247
13C-12378-PeCDF	29.274	1.174	9.269e5	5.545e5	1.377	1.672	1.550	2784	3824	1.23e7	7.86e6	4432.1	2055.6	NO	bb	bb	103.526
13C-23478-PeCDF	30.611	1.227	8.254e5	5.250e5	1.301	1.572	1.550	2784	3824	1.18e7	7.52e6	4227.8	1966.9	NO	bb	bb	99.839
13C-123478-HxCDF	34.265	0.954	3.145e5	6.185e5	1.091	0.508	0.510	2630	3620	4.61e6	9.02e6	1752.2	2492.5	NO	bd	bd	95.308
13C-123678-HxCDF	34.398	0.958	4.041e5	7.199e5	1.340	0.561	0.510	2630	3620	5.11e6	9.77e6	1944.6	2698.4	NO	dd	db	93.428
13C-234678-HxCDF	35.290	0.983	3.107e5	6.101e5	1.093	0.509	0.510	2630	3620	4.39e6	8.59e6	1669.9	2373.8	NO	bb	bb	93.815
13C-123789-HxCDF	36.326	1.011	2.796e5	5.411e5	0.952	0.517	0.510	2630	3620	3.70e6	7.29e6	1405.3	2013.9	NO	bb	bb	96.081
13C-1234678-HpCDF	38.209	1.064	2.670e5	5.956e5	0.985	0.448	0.440	3962	3758	3.99e6	8.90e6	1008.0	2367.0	NO	bb	bb	97.565
13C-1234789-HpCDF	40.370	1.124	2.132e5	4.666e5	0.756	0.457	0.440	3962	3758	2.79e6	6.08e6	702.9	1616.6	NO	bb	bb	100.207
13C-1234-TCDD	24.941	0.000	4.631e5	5.764e5	1.000	0.803	0.770	1709	1577	6.86e6	8.64e6	4013.1	5475.2	NO	bb	bb	100.000
13C-2378-TCDD	25.760	1.033	5.173e5	6.367e5	1.110	0.812	0.770	1709	1577	7.53e6	9.46e6	4405.6	5997.8	NO	bb	bb	100.045
13C-12378-PeCDD	30.855	1.237	4.863e5	2.988e5	0.754	1.628	1.550	1036	1090	6.82e6	4.17e6	6584.7	3824.7	NO	bb	bb	100.204
13C-123478-HxCDD	35.401	0.986	4.756e5	3.789e5	0.960	1.255	1.240	1331	1854	6.97e6	5.62e6	5236.7	3029.1	NO	bd	bd	99.178
13C-123678-HxCDD	35.524	0.989	5.763e5	4.540e5	1.159	1.269	1.240	1331	1854	7.56e6	6.04e6	5683.5	3256.1	NO	db	db	99.014
13C-1234678-HpCDD	39.657	1.104	3.002e5	2.803e5	0.629	1.071	1.050	1654	2361	4.12e6	3.81e6	2488.1	1614.7	NO	bb	bb	102.767
13C-OCDD	44.220	1.231	6.178e5	6.649e5	0.635	0.929	0.890	3963	2769	6.36e6	6.86e6	1605.4	2476.0	NO	bd	bd	224.998
13C-123789-HxCDD	35.914	0.000	4.983e5	3.993e5	1.000	1.248	1.240	1331	1854	6.97e6	5.63e6	5241.4	3033.7	NO	bb	bb	100.000
37CL-2378-TCDD	25.774	1.033	1.166e5		1.157			1488		1.68e6		1126.4			bb		9.694

Dataset: T:\Autospec\Processed Data Batch\230811CCVIH.qld
Last Altered: Tuesday, August 15, 2023 12:26:06 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:27:04 Pacific Daylight Time

ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.664	0.862	9.752e4	1.225e5	1.170	0.796	0.770	1316	1323	1.51e6	1.89e6	1144.8	1427.5	NO	bb	bb	9.732
1289-TCDF	26.636	1.060	6.770e4	8.840e4	0.847	0.766	0.770	1316	1323	9.36e5	1.22e6	710.9	924.9	NO	db	bb	9.543
13468-PECDF	26.495	0.905	4.921e5	3.243e5	1.241	1.518	1.550	812	936	7.49e6	4.93e6	9225.9	5269.7	NO	bb	bb	44.409
12389-PECDF	31.658	1.081	3.855e5	2.595e5	0.880	1.486	1.550	3241	2842	5.21e6	3.30e6	1607.8	1162.2	NO	bb	bb	49.498
123468-HXCDF	32.583	0.951	3.185e5	2.569e5	1.206	1.240	1.240	2958	2746	4.47e6	3.54e6	1512.4	1287.4	NO	bb	bb	51.156
1368-TCDD	22.921	0.890	6.370e4	7.877e4	1.181	0.809	0.770	1854	1473	9.95e5	1.24e6	537.0	842.9	NO	bb	bb	10.456
1289-TCDD	26.382	1.024	5.199e4	6.302e4	0.963	0.825	0.770	1854	1473	7.14e5	8.77e5	385.3	595.0	NO	bb	bb	10.352
12479-PECDD	28.170	0.913	5.112e5	3.251e5	2.166	1.572	1.550	2737	2510	4.87e6	3.05e6	1779.7	1215.0	NO	bb	bb	49.173
12389-PECDD	31.279	1.014	3.184e5	2.148e5	1.326	1.482	1.550	2737	2510	4.32e6	2.75e6	1579.5	1093.9	NO	bb	bd	51.214
124679-HXCDD	33.374	0.943	2.500e5	2.168e5	1.127	1.153	1.240	2122	2186	3.56e6	2.93e6	1679.9	1340.1	NO	bb	bd	48.490
1234679-HPCDD	38.654	0.975	1.961e5	1.871e5	1.303	1.048	1.050	2111	2786	2.89e6	2.79e6	1368.8	999.6	NO	bb	bb	50.665
Total-tetrafurans			2.407e5		0.973			1316		3.56e6							29.212
Total-penta1			4.921e5					812		7.49e6							44.409
Total-pentafurans			1.261e6		0.931			3241		1.78e7							157.799
Total-hexafurans			1.462e6		1.087			2958		2.08e7							258.476
Total-heptafurans			4.947e5		1.134			2121		6.93e6							108.655
Total-Furans			4.282e6		1.053			1316		6.01e7							698.892
Total-tetradioxins			3.051e5		1.129			1854		4.05e6							52.353
Total-pentadioxins			1.128e6		1.548			2737		1.33e7							153.490
Total-hexadioxins			9.524e5		0.943			2122		1.34e7							201.659
Total-heptadioxins			3.692e5		1.251			2111		5.33e6							98.925
Total-Dioxins			3.073e6		1.182			1854		3.94e7							604.892
Total-TEQ			7.355e6					1854		9.96e7							1303.783
FUNCTION1 PFK			7.808e5					486759		1.68e7							
FUNCTION2 PFK			7.449e5					276212		1.82e7							0.000
FUNCTION3 PFK			8.836e5					361131		2.05e7							0.000
FUNCTION4 PFK			6.975e6					270910		2.31e7							
FUNCTION5 PFK			1.157e5					191309		4.19e6							
FUNCTION1 HXCD...			1.143e2					591		2.28e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			6.533e2					947		1.28e4							0.000
FUNCTION3 OCDPE			7.108e2					608		9.70e3							0.000
FUNCTION4 NCDPE			1.803e2					753		2.86e3							0.000
FUNCTION5 DCDPE			8.904e1					515		1.37e3							0.000

Method: T:\Autospec\Methods\Dioxin230810.mdb 12 Aug 2023 10:54:09
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	6.770e4	8.840e4	0.847	0.77	0.77	710.9	YES	NO	db	bb	9.543
2	2378-TCDF	25.14	7.423e4	9.642e4	0.903	0.77	0.77	835.9	YES	NO	bb	bb	9.781
3	Total-tetrafurans	24.07	5.766e2	7.507e2	0.973	0.77	0.77	6.9	YES	NO	db	dd	0.071
4	Total-tetrafurans	23.92	6.836e2	9.178e2	0.973	0.74	0.77	8.0	YES	NO	bd	bd	0.085
5	1368-TCDF	21.66	9.752e4	1.225e5	1.170	0.80	0.77	1144.8	YES	NO	bb	bb	9.732

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.49	4.921e5	3.243e5	1.241	1.52	1.55	9225.9	YES	NO	bb	bb	44.409

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	31.66	3.855e5	2.595e5	0.880	1.49	1.55	1607.8	YES	NO	bb	bb	49.498
2	23478-PeCDF	30.62	4.105e5	2.654e5	0.991	1.55	1.55	1825.5	YES	NO	bb	bb	50.524
3	12378-PeCDF	29.28	3.963e5	2.779e5	0.923	1.43	1.55	1762.0	YES	NO	bb	bb	49.295
4	Total-pentafurans	28.15	6.847e4	4.336e4	0.931	1.58	1.55	295.6	YES	NO	bb	bb	8.482

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.35	2.398e5	1.932e5	0.988	1.24	1.24	1106.6	YES	NO	bb	bb	53.421
2	234678-HxCDF	35.30	2.850e5	2.420e5	1.081	1.18	1.24	1395.6	YES	NO	bb	bd	52.928
3	123678-HxCDF	34.42	3.263e5	2.646e5	1.032	1.23	1.24	1557.6	YES	NO	db	db	50.926
4	123478-HxCDF	34.28	2.923e5	2.345e5	1.128	1.25	1.24	1442.8	YES	NO	bd	bd	50.046
5	123468-HXCDF	32.58	3.185e5	2.569e5	1.206	1.24	1.24	1512.4	YES	NO	bb	bb	51.156

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.38	2.267e5	1.989e5	1.104	1.14	1.05	1329.2	YES	NO	bd	bb	56.722
2	1234678-HpCDF	38.22	2.680e5	2.533e5	1.164	1.06	1.05	1936.6	YES	NO	bb	bb	51.933

ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	6.770e4	8.840e4	0.847	0.77	0.77	710.9	YES	NO	db	bb	9.543
2	2378-TCDF	25.14	7.423e4	9.642e4	0.903	0.77	0.77	835.9	YES	NO	bb	bb	9.781
3	Total-tetrafurans	24.07	5.766e2	7.507e2	0.973	0.77	0.77	6.9	YES	NO	db	dd	0.071
4	Total-tetrafurans	23.92	6.836e2	9.178e2	0.973	0.74	0.77	8.0	YES	NO	bd	bd	0.085
5	1368-TCDF	21.66	9.752e4	1.225e5	1.170	0.80	0.77	1144.8	YES	NO	bb	bb	9.732
6	12389-PECDF	31.66	3.855e5	2.595e5	0.880	1.49	1.55	1607.8	YES	NO	bb	bb	49.498
7	23478-PeCDF	30.62	4.105e5	2.654e5	0.991	1.55	1.55	1825.5	YES	NO	bb	bb	50.524
8	12378-PeCDF	29.28	3.963e5	2.779e5	0.923	1.43	1.55	1762.0	YES	NO	bb	bb	49.295
9	Total-pentafurans	28.15	6.847e4	4.336e4	0.931	1.58	1.55	295.6	YES	NO	bb	bb	8.482
10	123789-HxCDF	36.35	2.398e5	1.932e5	0.988	1.24	1.24	1106.6	YES	NO	bb	bb	53.421
11	234678-HxCDF	35.30	2.850e5	2.420e5	1.081	1.18	1.24	1395.6	YES	NO	bb	bd	52.928
12	123678-HxCDF	34.42	3.263e5	2.646e5	1.032	1.23	1.24	1557.6	YES	NO	db	db	50.926
13	123478-HxCDF	34.28	2.923e5	2.345e5	1.128	1.25	1.24	1442.8	YES	NO	bd	bd	50.046
14	123468-HXCDF	32.58	3.185e5	2.569e5	1.206	1.24	1.24	1512.4	YES	NO	bb	bb	51.156
15	1234789-HpCDF	40.38	2.267e5	1.989e5	1.104	1.14	1.05	1329.2	YES	NO	bd	bb	56.722
16	1234678-HpCDF	38.22	2.680e5	2.533e5	1.164	1.06	1.05	1936.6	YES	NO	bb	bb	51.933
17	OCDF	44.46	3.318e5	3.955e5	1.130	0.84	0.89	1762.4	YES	NO	bb	bd	100.341
18	13468-PECDF	26.49	4.921e5	3.243e5	1.241	1.52	1.55	9225.9	YES	NO	bb	bb	44.409

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.38	5.199e4	6.302e4	0.963	0.82	0.77	385.3	YES	NO	bb	bb	10.352
2	2378-TCDD	25.79	6.359e4	7.771e4	1.243	0.82	0.77	493.4	YES	NO	bb	bb	9.852
3	Total-tetradioxins	25.45	9.235e4	1.156e5	1.129	0.80	0.77	502.7	YES	NO	bb	bb	15.965
4	Total-tetradioxins	24.97	3.090e4	3.807e4	1.129	0.81	0.77	253.5	YES	NO	bb	bb	5.294
5	Total-tetradioxins	24.12	2.526e3	3.134e3	1.129	0.81	0.77	12.9	YES	NO	bb	bb	0.435
6	1368-TCDD	22.92	6.370e4	7.877e4	1.181	0.81	0.77	537.0	YES	NO	bb	bb	10.456

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12479-PECDD	28.17	5.112e5	3.251e5	2.166	1.57	1.55	1779.7	YES	NO	bb	bb	49.173
2	12389-PECDD	31.28	3.184e5	2.148e5	1.326	1.48	1.55	1579.5	YES	NO	bb	bd	51.214
3	12378-PeCDD	30.88	2.960e5	1.806e5	1.150	1.64	1.55	1479.9	YES	NO	bd	bb	52.791
4	Total-pentadioxins	30.21	1.196e3	8.873e2	1.548	1.35	1.55	5.6	YES	NO	bb	bb	0.172
5	Total-pentadioxins	29.28	9.733e2	7.308e2	1.548	1.33	1.55	4.7	YES	NO	bb	bb	0.140

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDD	35.42	2.141e5	1.779e5	0.960	1.20	1.24	1570.0	YES	NO	bd	bd	47.771
2	124679-HXCDD	33.37	2.500e5	2.168e5	1.127	1.15	1.24	1679.9	YES	NO	bb	bd	48.490
3	123789-HxCDD	35.92	2.356e5	1.782e5	0.804	1.32	1.24	1463.2	YES	NO	bd	bb	54.634
4	123678-HxCDD	35.53	2.527e5	2.090e5	0.883	1.21	1.24	1612.0	YES	NO	db	db	50.765

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234679-HPCDD	38.65	1.961e5	1.871e5	1.303	1.05	1.05	1368.8	YES	NO	bb	bb	50.665
2	1234678-HpCDD	39.67	1.732e5	1.629e5	1.200	1.06	1.05	1157.1	YES	NO	bb	bb	48.260

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.38	5.199e4	6.302e4	0.963	0.82	0.77	385.3	YES	NO	bb	bb	10.352
2	2378-TCDD	25.79	6.359e4	7.771e4	1.243	0.82	0.77	493.4	YES	NO	bb	bb	9.852
3	Total-tetradioxins	25.45	9.235e4	1.156e5	1.129	0.80	0.77	502.7	YES	NO	bb	bb	15.965
4	Total-tetradioxins	24.97	3.090e4	3.807e4	1.129	0.81	0.77	253.5	YES	NO	bb	bb	5.294
5	Total-tetradioxins	24.12	2.526e3	3.134e3	1.129	0.81	0.77	12.9	YES	NO	bb	bb	0.435
6	1368-TCDD	22.92	6.370e4	7.877e4	1.181	0.81	0.77	537.0	YES	NO	bb	bb	10.456
7	12479-PECDD	28.17	5.112e5	3.251e5	2.166	1.57	1.55	1779.7	YES	NO	bb	bb	49.173
8	12389-PECDD	31.28	3.184e5	2.148e5	1.326	1.48	1.55	1579.5	YES	NO	bb	bd	51.214
9	12378-PeCDD	30.88	2.960e5	1.806e5	1.150	1.64	1.55	1479.9	YES	NO	bd	bb	52.791
10	Total-pentadioxins	30.21	1.196e3	8.873e2	1.548	1.35	1.55	5.6	YES	NO	bb	bb	0.172
11	Total-pentadioxins	29.28	9.733e2	7.308e2	1.548	1.33	1.55	4.7	YES	NO	bb	bb	0.140
12	123478-HxCDD	35.42	2.141e5	1.779e5	0.960	1.20	1.24	1570.0	YES	NO	bd	bd	47.771
13	124679-HXCDD	33.37	2.500e5	2.168e5	1.127	1.15	1.24	1679.9	YES	NO	bb	bd	48.490
14	123789-HxCDD	35.92	2.356e5	1.782e5	0.804	1.32	1.24	1463.2	YES	NO	bd	bb	54.634
15	123678-HxCDD	35.53	2.527e5	2.090e5	0.883	1.21	1.24	1612.0	YES	NO	db	db	50.765
16	1234679-HPCDD	38.65	1.961e5	1.871e5	1.303	1.05	1.05	1368.8	YES	NO	bb	bb	50.665
17	1234678-HpCDD	39.67	1.732e5	1.629e5	1.200	1.06	1.05	1157.1	YES	NO	bb	bb	48.260
18	OCDD	44.23	3.183e5	3.503e5	1.059	0.91	0.89	723.0	YES	NO	bd	bd	98.465

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	6.770e4	8.840e4	0.847	0.77	0.77	710.9	YES	NO	db	bb	9.543
2	2378-TCDF	25.14	7.423e4	9.642e4	0.903	0.77	0.77	835.9	YES	NO	bb	bb	9.781
3	Total-tetrafurans	24.07	5.766e2	7.507e2	0.973	0.77	0.77	6.9	YES	NO	db	dd	0.071
4	Total-tetrafurans	23.92	6.836e2	9.178e2	0.973	0.74	0.77	8.0	YES	NO	bd	bd	0.085
5	1368-TCDF	21.66	9.752e4	1.225e5	1.170	0.80	0.77	1144.8	YES	NO	bb	bb	9.732
6	12389-PECDF	31.66	3.855e5	2.595e5	0.880	1.49	1.55	1607.8	YES	NO	bb	bb	49.498
7	23478-PeCDF	30.62	4.105e5	2.654e5	0.991	1.55	1.55	1825.5	YES	NO	bb	bb	50.524
8	12378-PeCDF	29.28	3.963e5	2.779e5	0.923	1.43	1.55	1762.0	YES	NO	bb	bb	49.295
9	Total-pentafurans	28.15	6.847e4	4.336e4	0.931	1.58	1.55	295.6	YES	NO	bb	bb	8.482
10	123789-HxCDF	36.35	2.398e5	1.932e5	0.988	1.24	1.24	1106.6	YES	NO	bb	bb	53.421
11	234678-HxCDF	35.30	2.850e5	2.420e5	1.081	1.18	1.24	1395.6	YES	NO	bb	bd	52.928
12	123678-HxCDF	34.42	3.263e5	2.646e5	1.032	1.23	1.24	1557.6	YES	NO	db	db	50.926
13	123478-HxCDF	34.28	2.923e5	2.345e5	1.128	1.25	1.24	1442.8	YES	NO	bd	bd	50.046
14	123468-HXCDF	32.58	3.185e5	2.569e5	1.206	1.24	1.24	1512.4	YES	NO	bb	bb	51.156
15	1234789-HpCDF	40.38	2.267e5	1.989e5	1.104	1.14	1.05	1329.2	YES	NO	bd	bb	56.722
16	1234678-HpCDF	38.22	2.680e5	2.533e5	1.164	1.06	1.05	1936.6	YES	NO	bb	bb	51.933
17	OCDF	44.46	3.318e5	3.955e5	1.130	0.84	0.89	1762.4	YES	NO	bb	bd	100.341
18	13468-PECDF	26.49	4.921e5	3.243e5	1.241	1.52	1.55	9225.9	YES	NO	bb	bb	44.409
19	1289-TCDD	26.38	5.199e4	6.302e4	0.963	0.82	0.77	385.3	YES	NO	bb	bb	10.352
20	2378-TCDD	25.79	6.359e4	7.771e4	1.243	0.82	0.77	493.4	YES	NO	bb	bb	9.852
21	Total-tetradioxins	25.45	9.235e4	1.156e5	1.129	0.80	0.77	502.7	YES	NO	bb	bb	15.965
22	Total-tetradioxins	24.97	3.090e4	3.807e4	1.129	0.81	0.77	253.5	YES	NO	bb	bb	5.294
23	Total-tetradioxins	24.12	2.526e3	3.134e3	1.129	0.81	0.77	12.9	YES	NO	bb	bb	0.435
24	1368-TCDD	22.92	6.370e4	7.877e4	1.181	0.81	0.77	537.0	YES	NO	bb	bb	10.456
25	12479-PECDD	28.17	5.112e5	3.251e5	2.166	1.57	1.55	1779.7	YES	NO	bb	bb	49.173
26	12389-PECDD	31.28	3.184e5	2.148e5	1.326	1.48	1.55	1579.5	YES	NO	bb	bd	51.214
27	12378-PeCDD	30.88	2.960e5	1.806e5	1.150	1.64	1.55	1479.9	YES	NO	bd	bb	52.791
28	Total-pentadioxins	30.21	1.196e3	8.873e2	1.548	1.35	1.55	5.6	YES	NO	bb	bb	0.172
29	Total-pentadioxins	29.28	9.733e2	7.308e2	1.548	1.33	1.55	4.7	YES	NO	bb	bb	0.140
30	123478-HxCDD	35.42	2.141e5	1.779e5	0.960	1.20	1.24	1570.0	YES	NO	bd	bd	47.771
31	124679-HXCDD	33.37	2.500e5	2.168e5	1.127	1.15	1.24	1679.9	YES	NO	bb	bd	48.490
32	123789-HxCDD	35.92	2.356e5	1.782e5	0.804	1.32	1.24	1463.2	YES	NO	bd	bb	54.634
33	123678-HxCDD	35.53	2.527e5	2.090e5	0.883	1.21	1.24	1612.0	YES	NO	db	db	50.765
34	1234679-HPCDD	38.65	1.961e5	1.871e5	1.303	1.05	1.05	1368.8	YES	NO	bb	bb	50.665
35	1234678-HpCDD	39.67	1.732e5	1.629e5	1.200	1.06	1.05	1157.1	YES	NO	bb	bb	48.260
36	OCDD	44.23	3.183e5	3.503e5	1.059	0.91	0.89	723.0	YES	NO	bd	bd	98.465

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.68	1.767e4					1.1	NO		dd		
2	FUNCTION1 PFK	21.64	3.920e4					1.3	NO		bd		
3	FUNCTION1 PFK	21.35	2.555e4					1.4	NO		db		
4	FUNCTION1 PFK	21.31	1.859e4					1.2	NO		bd		
5	FUNCTION1 PFK	21.24	4.622e4					1.6	NO		db		
6	FUNCTION1 PFK	21.13	2.882e4					1.2	NO		bd		
7	FUNCTION1 PFK	26.01	2.106e4					1.1	NO		bb		
8	FUNCTION1 PFK	25.73	1.039e4					0.8	NO		bb		
9	FUNCTION1 PFK	25.51	1.076e4					0.7	NO		bb		
10	FUNCTION1 PFK	24.96	2.260e4					1.4	NO		db		
11	FUNCTION1 PFK	24.86	4.840e4					1.6	NO		bd		
12	FUNCTION1 PFK	24.46	4.994e3					0.7	NO		bb		
13	FUNCTION1 PFK	23.90	2.884e4					1.5	NO		bb		
14	FUNCTION1 PFK	23.75	1.059e4					1.0	NO		bb		
15	FUNCTION1 PFK	23.57	2.495e4					1.3	NO		bb		
16	FUNCTION1 PFK	22.55	8.571e4					1.9	NO		bb		
17	FUNCTION1 PFK	22.47	5.005e4					1.1	NO		bb		
18	FUNCTION1 PFK	22.19	9.994e3					0.8	NO		bb		
19	FUNCTION1 PFK	21.97	5.856e4					1.4	NO		bb		
20	FUNCTION1 PFK	21.83	2.649e4					1.6	NO		db		
21	FUNCTION1 PFK	21.78	2.302e4					1.3	NO		dd		
22	FUNCTION1 PFK	21.73	6.341e3					0.7	NO		dd		
23	FUNCTION1 PFK	27.24	2.681e4					1.2	NO		bb		
24	FUNCTION1 PFK	27.19	3.113e3					0.5	NO		bb		
25	FUNCTION1 PFK	27.06	7.590e3					0.6	NO		bb		
26	FUNCTION1 PFK	26.78	4.486e4					1.7	NO		bb		
27	FUNCTION1 PFK	26.66	3.174e4					1.2	NO		db		
28	FUNCTION1 PFK	26.57	3.642e4					1.7	NO		bd		
29	FUNCTION1 PFK	26.18	1.151e4					0.9	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.29	2.732e3					0.7	NO		db		0.000
2	FUNCTION2 PFK	28.26	6.938e3					1.0	NO		bd		0.000
3	FUNCTION2 PFK	28.20	9.092e3					1.2	NO		db		0.000
4	FUNCTION2 PFK	28.16	1.377e4					1.4	NO		bd		0.000
5	FUNCTION2 PFK	28.06	3.165e3					0.6	NO		bb		0.000
6	FUNCTION2 PFK	27.87	9.196e3					1.5	NO		bb		0.000
7	FUNCTION2 PFK	27.67	2.199e4					1.4	NO		bb		0.000
8	FUNCTION2 PFK	27.55	2.497e4					1.8	NO		bb		0.000
9	FUNCTION2 PFK	30.21	3.416e4					2.3	NO		db		0.000
10	FUNCTION2 PFK	30.12	2.705e4					1.9	NO		dd		0.000
11	FUNCTION2 PFK	30.06	1.914e4					1.9	NO		bd		0.000
12	FUNCTION2 PFK	29.99	8.490e3					1.3	NO		db		0.000
13	FUNCTION2 PFK	29.96	9.023e3					1.1	NO		bd		0.000
14	FUNCTION2 PFK	29.62	1.941e4					1.6	NO		db		0.000
15	FUNCTION2 PFK	29.50	2.598e4					1.4	NO		dd		0.000
16	FUNCTION2 PFK	29.43	1.158e4					1.2	NO		dd		0.000
17	FUNCTION2 PFK	29.36	1.815e4					1.7	NO		bd		0.000
18	FUNCTION2 PFK	29.32	1.971e4					1.0	NO		db		0.000
19	FUNCTION2 PFK	29.20	2.466e3					0.4	NO		bd		0.000
20	FUNCTION2 PFK	29.15	7.869e3					0.9	NO		bb		0.000
21	FUNCTION2 PFK	28.95	1.003e4					0.9	NO		bb		0.000
22	FUNCTION2 PFK	28.74	8.429e3					1.2	NO		bb		0.000
23	FUNCTION2 PFK	28.68	6.948e3					1.0	NO		bb		0.000
24	FUNCTION2 PFK	28.44	1.258e4					1.2	NO		bb		0.000
25	FUNCTION2 PFK	31.72	1.268e4					1.3	NO		db		0.000
26	FUNCTION2 PFK	31.68	2.085e4					1.9	NO		dd		0.000
27	FUNCTION2 PFK	31.58	2.676e4					1.9	NO		dd		0.000
28	FUNCTION2 PFK	31.50	3.605e4					2.3	NO		bd		0.000
29	FUNCTION2 PFK	31.45	1.724e4					1.1	NO		bb		0.000
30	FUNCTION2 PFK	31.31	1.869e4					2.0	NO		bb		0.000
31	FUNCTION2 PFK	31.21	1.453e4					1.0	NO		bb		0.000
32	FUNCTION2 PFK	31.09	1.215e4					1.1	NO		bb		0.000
33	FUNCTION2 PFK	30.96	2.108e4					1.4	NO		bb		0.000
34	FUNCTION2 PFK	30.69	1.684e4					1.1	NO		bb		0.000
35	FUNCTION2 PFK	30.61	2.085e3					0.5	NO		bb		0.000
36	FUNCTION2 PFK	30.53	1.995e4					1.4	NO		db		0.000
37	FUNCTION2 PFK	30.47	1.901e4					1.5	NO		dd		0.000

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION2 PFK	30.41	1.962e4					2.2	NO		dd		0.000
39	FUNCTION2 PFK	30.37	1.451e4					1.5	NO		dd		0.000
40	FUNCTION2 PFK	30.30	1.968e4					1.6	NO		bd		0.000
41	FUNCTION2 PFK	32.09	4.284e3					0.7	NO		bb		0.000
42	FUNCTION2 PFK	32.05	5.676e3					1.0	NO		bb		0.000
43	FUNCTION2 PFK	32.00	1.141e4					1.7	NO		db		0.000
44	FUNCTION2 PFK	31.96	1.965e4					2.7	NO		dd		0.000
45	FUNCTION2 PFK	31.90	4.123e4					2.9	NO		dd		0.000
46	FUNCTION2 PFK	31.82	3.802e4					2.4	NO		bd		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	33.24	2.228e4					2.1	NO		dd		0.000
2	FUNCTION3 PFK	33.20	3.060e4					2.0	NO		bd		0.000
3	FUNCTION3 PFK	33.12	9.100e3					1.1	NO		db		0.000
4	FUNCTION3 PFK	33.05	4.780e4					2.3	NO		bd		0.000
5	FUNCTION3 PFK	32.88	2.988e4					1.6	NO		bb		0.000
6	FUNCTION3 PFK	32.72	3.441e4					2.1	NO		bb		0.000
7	FUNCTION3 PFK	32.65	2.616e4					2.0	NO		db		0.000
8	FUNCTION3 PFK	32.55	2.560e4					1.0	NO		bd		0.000
9	FUNCTION3 PFK	32.43	2.575e4					1.7	NO		bb		0.000
10	FUNCTION3 PFK	35.61	3.327e3					0.8	NO		bb		0.000
11	FUNCTION3 PFK	35.33	6.250e3					0.8	NO		bb		0.000
12	FUNCTION3 PFK	35.17	3.885e4					2.3	NO		bb		0.000
13	FUNCTION3 PFK	35.09	1.757e4					1.6	NO		bb		0.000
14	FUNCTION3 PFK	34.63	4.442e4					2.3	NO		db		0.000
15	FUNCTION3 PFK	34.55	4.151e3					0.5	NO		bd		0.000
16	FUNCTION3 PFK	34.51	2.328e4					2.2	NO		bb		0.000
17	FUNCTION3 PFK	34.31	2.039e4					1.5	NO		bb		0.000
18	FUNCTION3 PFK	34.24	1.334e4					1.4	NO		bb		0.000
19	FUNCTION3 PFK	34.12	1.911e4					1.6	NO		bb		0.000
20	FUNCTION3 PFK	33.92	2.773e4					1.7	NO		bb		0.000
21	FUNCTION3 PFK	33.69	1.095e4					1.2	NO		bb		0.000
22	FUNCTION3 PFK	33.60	1.130e4					1.4	NO		db		0.000
23	FUNCTION3 PFK	33.51	4.163e4					2.1	NO		dd		0.000
24	FUNCTION3 PFK	33.41	7.814e4					2.3	NO		dd		0.000
25	FUNCTION3 PFK	33.31	2.554e4					1.7	NO		dd		0.000
26	FUNCTION3 PFK	37.26	1.448e3					0.4	NO		bb		0.000
27	FUNCTION3 PFK	36.98	1.246e4					1.1	NO		db		0.000
28	FUNCTION3 PFK	36.88	2.700e4					1.6	NO		dd		0.000
29	FUNCTION3 PFK	36.84	2.160e4					2.2	NO		dd		0.000
30	FUNCTION3 PFK	36.79	1.778e4					1.9	NO		dd		0.000
31	FUNCTION3 PFK	36.69	9.048e4					3.0	NO		bd		0.000
32	FUNCTION3 PFK	36.60	3.859e4					1.9	NO		bb		0.000
33	FUNCTION3 PFK	36.40	5.770e3					0.7	NO		bb		0.000
34	FUNCTION3 PFK	36.11	1.316e4					1.1	NO		bb		0.000
35	FUNCTION3 PFK	35.82	1.595e4					1.2	NO		bb		0.000
36	FUNCTION3 PFK	35.66	1.792e3					0.4	NO		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.38	2.098e3					0.7	NO		bb		
2	FUNCTION4 PFK	38.02	6.654e5					16.6	YES		db		
3	FUNCTION4 PFK	38.01	4.385e5					16.5	YES		dd		
4	FUNCTION4 PFK	37.55	5.756e6					41.2	YES		bd		
5	FUNCTION4 PFK	42.41	8.804e3					1.1	NO		bb		
6	FUNCTION4 PFK	41.94	1.287e4					0.9	NO		bb		
7	FUNCTION4 PFK	41.29	1.609e4					2.0	NO		bb		
8	FUNCTION4 PFK	41.14	3.746e4					0.8	NO		bb		
9	FUNCTION4 PFK	40.23	6.251e3					1.1	NO		bb		
10	FUNCTION4 PFK	39.90	9.302e3					1.5	NO		bb		
11	FUNCTION4 PFK	39.84	6.715e3					1.1	NO		bb		
12	FUNCTION4 PFK	38.57	1.544e4					1.6	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.68	6.792e3					1.8	NO		bb		
2	FUNCTION5 PFK	43.56	4.605e3					1.0	NO		bb		
3	FUNCTION5 PFK	43.41	3.203e3					1.2	NO		bb		
4	FUNCTION5 PFK	43.17	1.090e4					1.2	NO		bb		
5	FUNCTION5 PFK	43.08	6.047e3					1.2	NO		bb		
6	FUNCTION5 PFK	43.01	1.597e4					2.4	NO		bb		
7	FUNCTION5 PFK	42.88	7.377e3					1.3	NO		bb		
8	FUNCTION5 PFK	45.80	2.543e3					0.8	NO		bb		
9	FUNCTION5 PFK	45.67	1.019e4					1.6	NO		bb		
10	FUNCTION5 PFK	45.61	1.682e4					2.4	NO		bb		
11	FUNCTION5 PFK	45.38	4.750e3					1.2	NO		bb		
12	FUNCTION5 PFK	45.35	8.909e2					0.5	NO		bb		
13	FUNCTION5 PFK	45.23	1.909e3					0.7	NO		bb		
14	FUNCTION5 PFK	44.85	8.853e3					1.5	NO		bb		
15	FUNCTION5 PFK	44.81	6.957e2					0.4	NO		bb		
16	FUNCTION5 PFK	44.59	2.188e3					0.7	NO		bb		
17	FUNCTION5 PFK	44.47	9.128e3					1.3	NO		bb		
18	FUNCTION5 PFK	43.99	2.872e3					0.8	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.02	1.143e2					3.9	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.48	4.003e2					7.5	YES		bb		0.000
2	FUNCTION2 HPCD...	28.56	7.715e1					2.2	NO		bb		0.000
3	FUNCTION2 HPCD...	31.32	8.806e1					2.4	NO		bb		0.000
4	FUNCTION2 HPCD...	30.88	8.789e1					1.4	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.90	1.900e2					3.9	YES		bb		0.000
2	FUNCTION3 OCDPE	35.52	2.386e2					5.5	YES		db		0.000
3	FUNCTION3 OCDPE	35.40	1.857e2					4.4	YES		bd		0.000
4	FUNCTION3 OCDPE	34.29	9.642e1					2.1	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	39.09	1.090e2					1.9	NO		bb		0.000
2	FUNCTION4 NCDPE	38.45	7.125e1					1.9	NO		bb		0.000

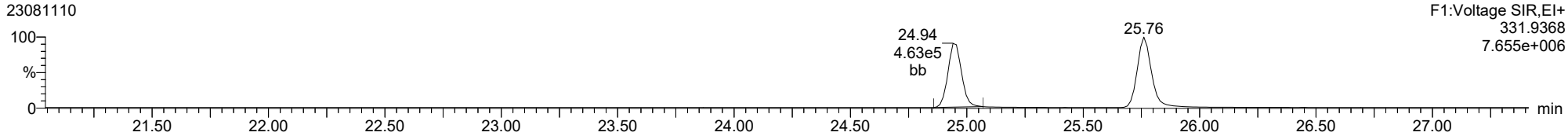
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.77	8.904e1					2.7	NO		bb		0.000

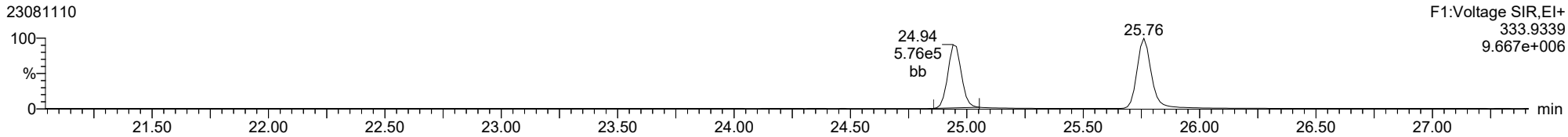
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Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

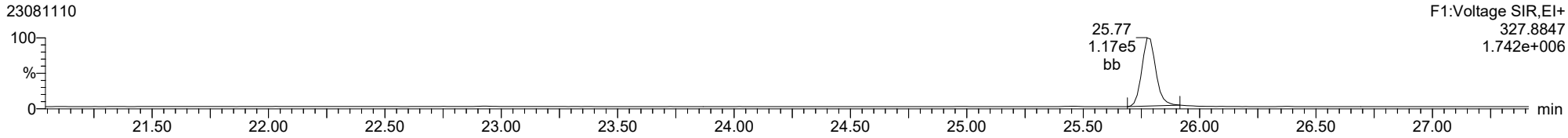
13C-1234-TCDD



13C-1234-TCDD

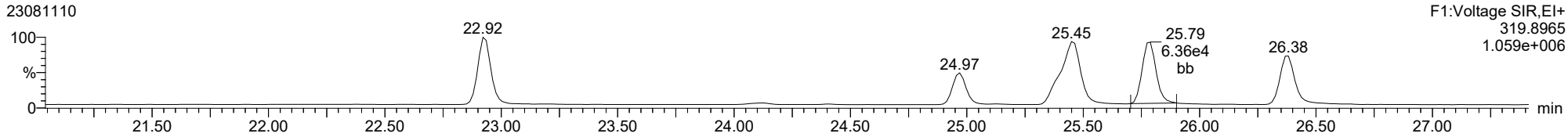


37CL-2378-TCDD

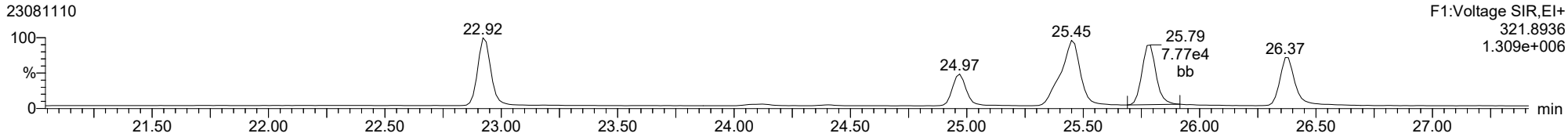


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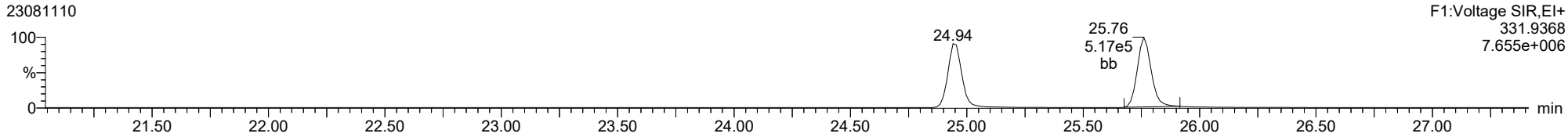
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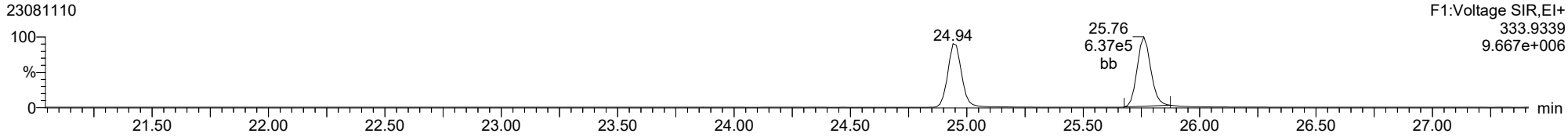
2378-TCDD



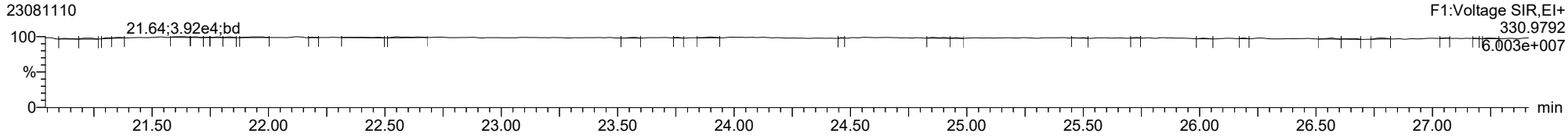
13C-2378-TCDD



13C-2378-TCDD

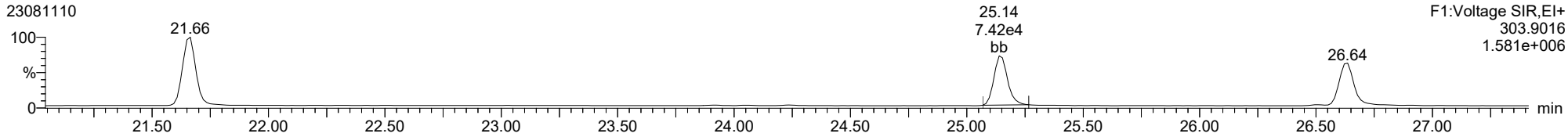


FUNCTION1 PFK

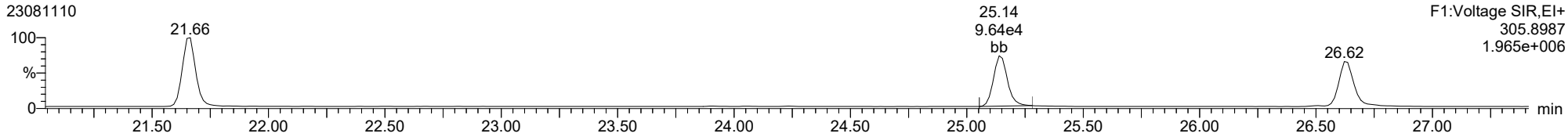


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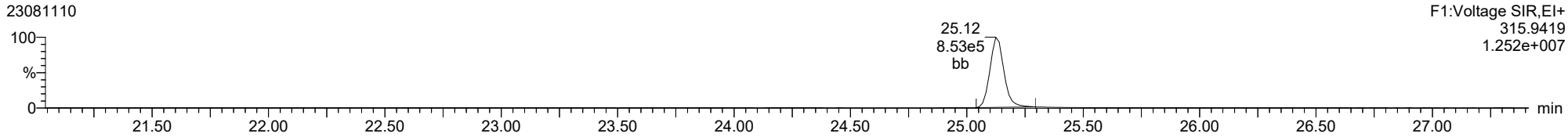
2378-TCDF



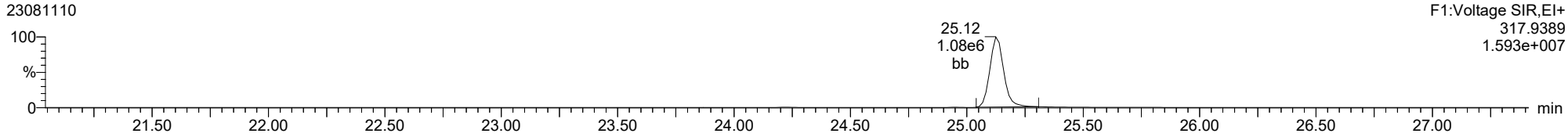
2378-TCDF



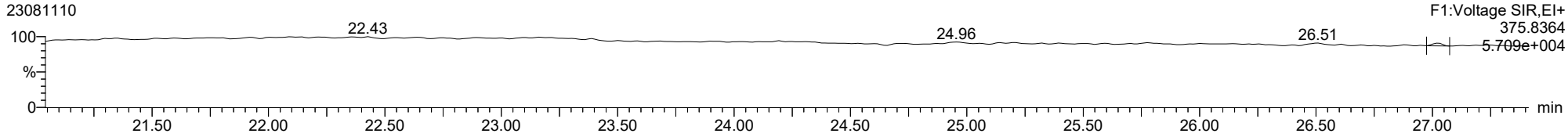
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13C-2378-TCDF

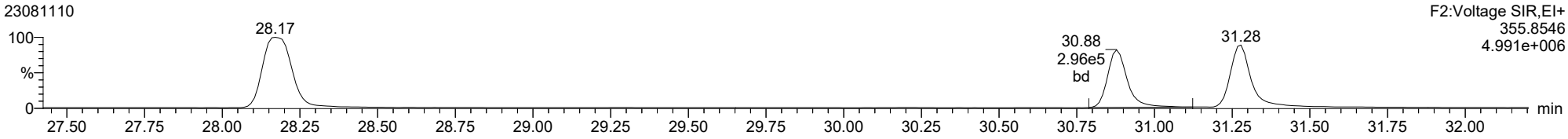


FUNCTION1 HXCDPE

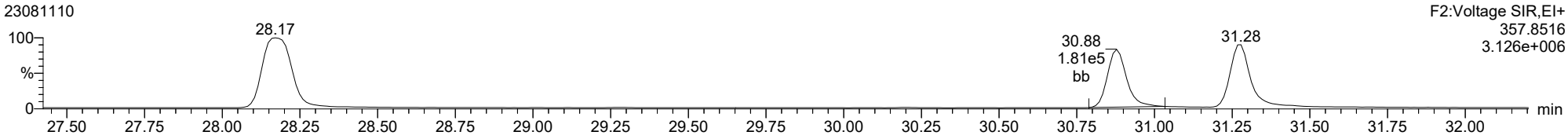


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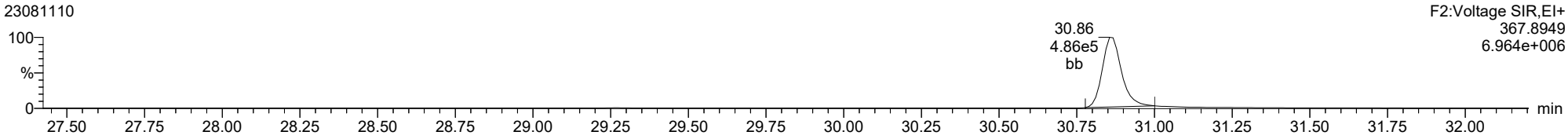
12378-PeCDD



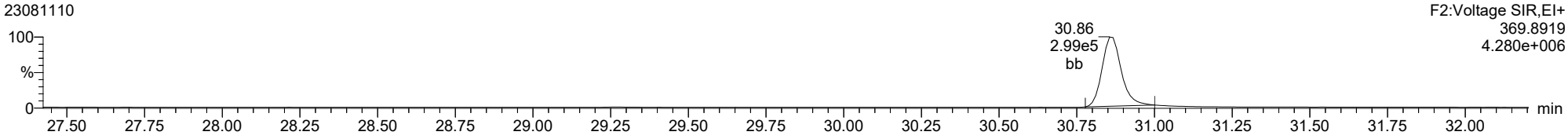
12378-PeCDD



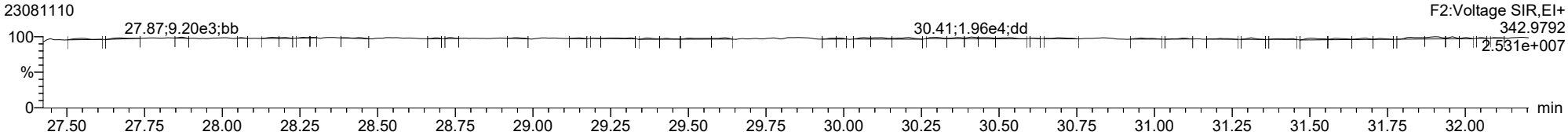
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13C-12378-PeCDD

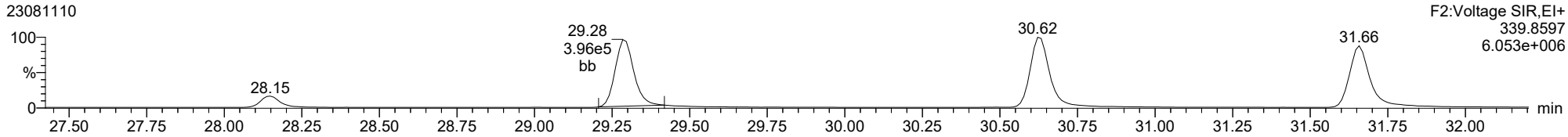


FUNCTION2 PFK

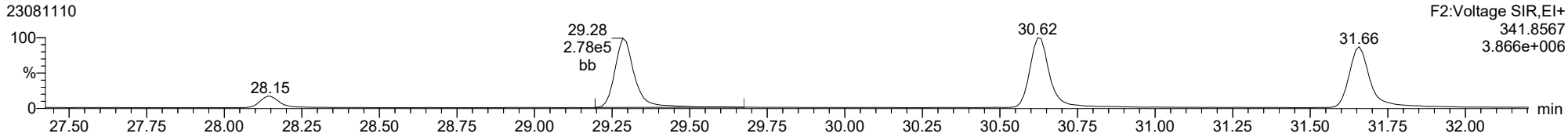


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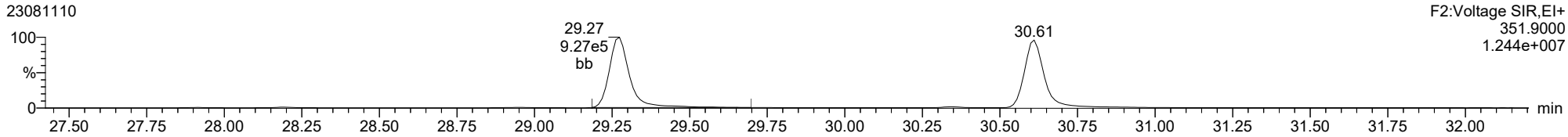
12378-PeCDF



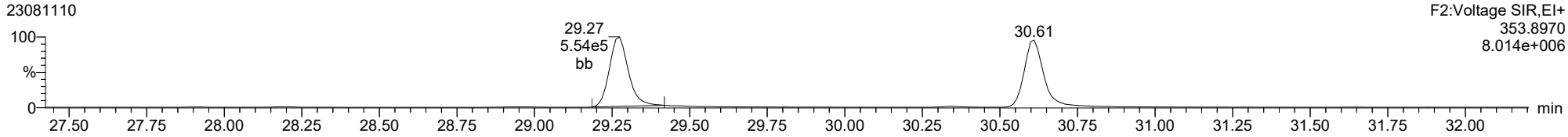
12378-PeCDF



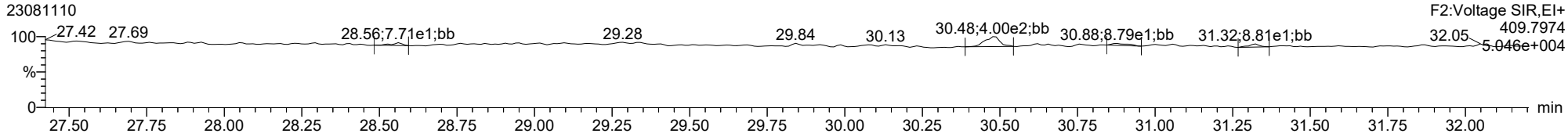
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13C-12378-PeCDF

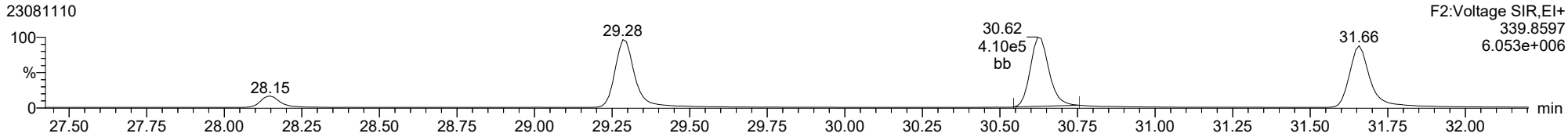


FUNCTION2 HPCDPE

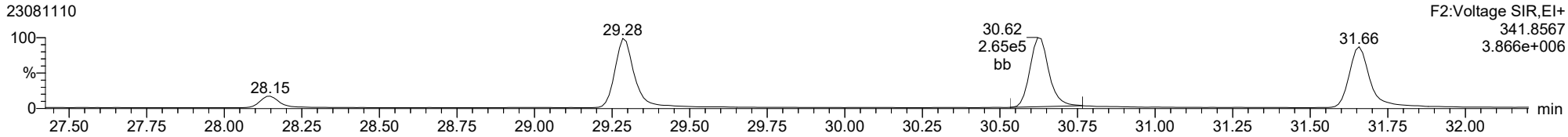


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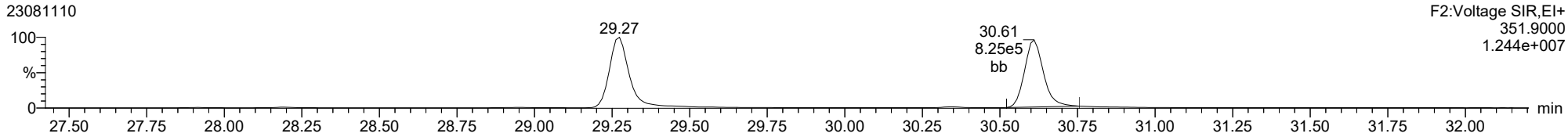
23478-PeCDF



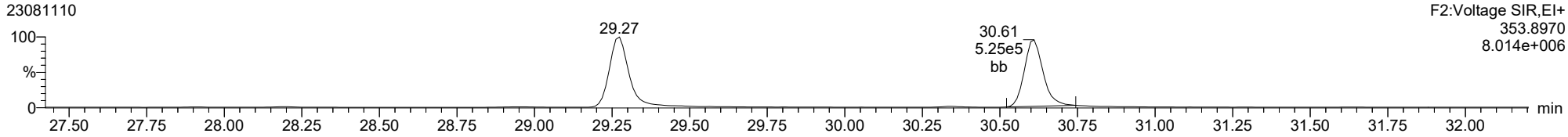
23478-PeCDF



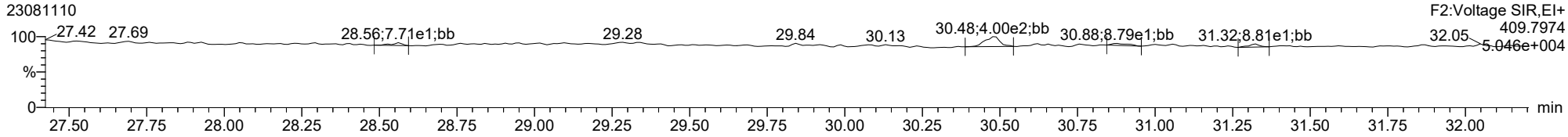
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13C-23478-PeCDF

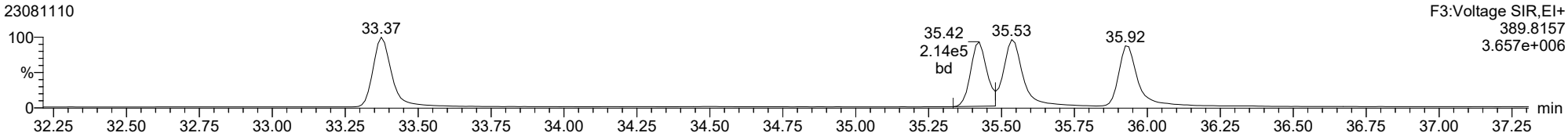


FUNCTION2 HPCDPE

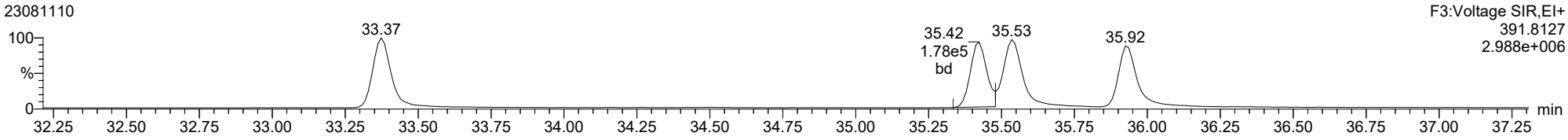


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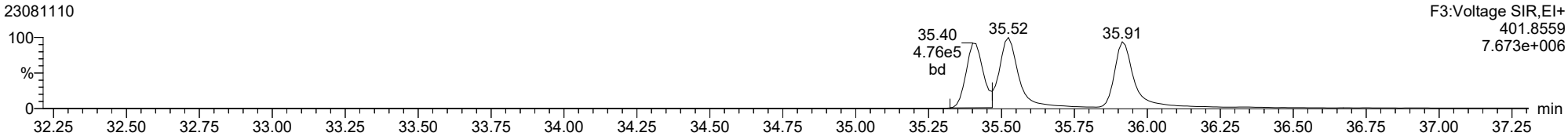
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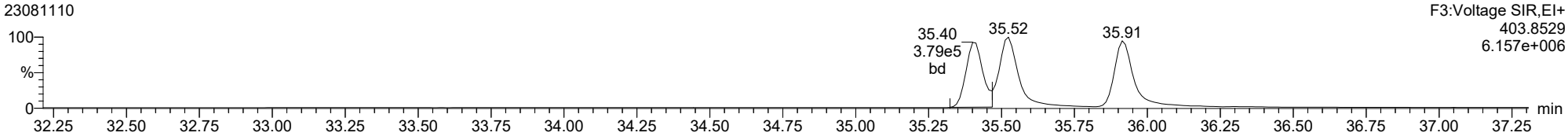
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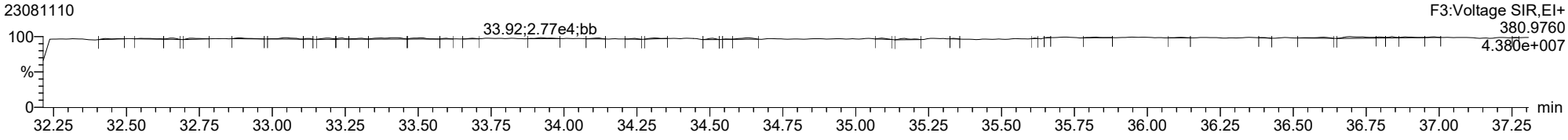
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13C-123478-HxCDD



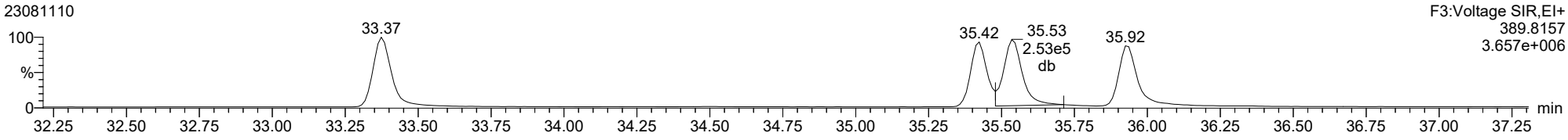
FUNCTION3 PFK



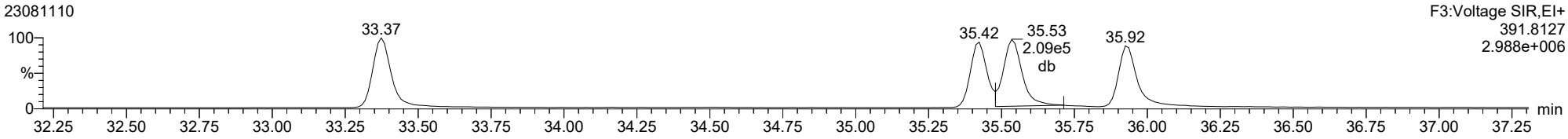
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ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

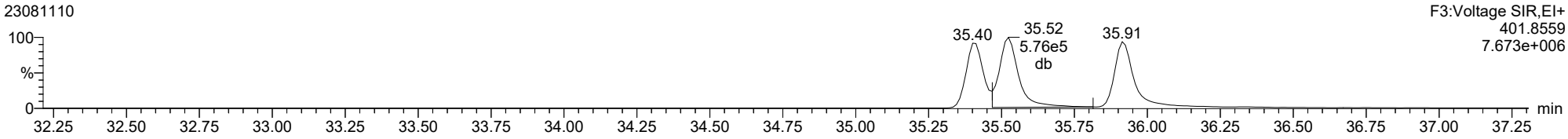
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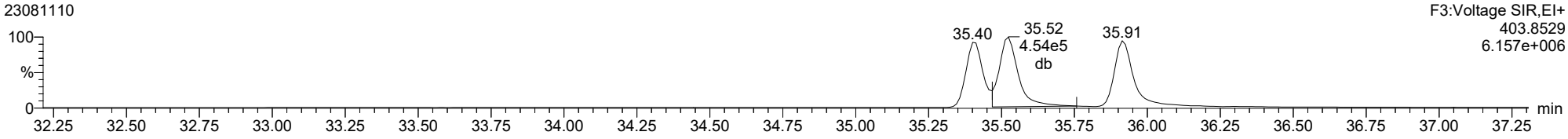
123678-HxCDD



13C-123678-HxCDD

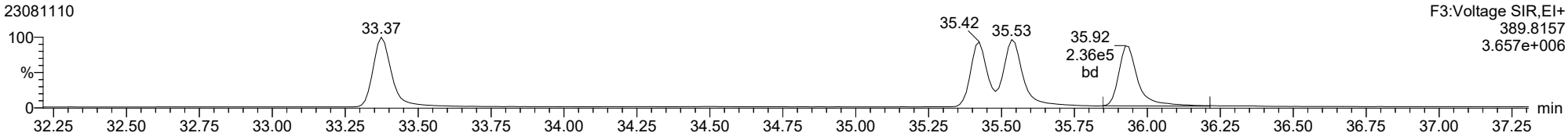


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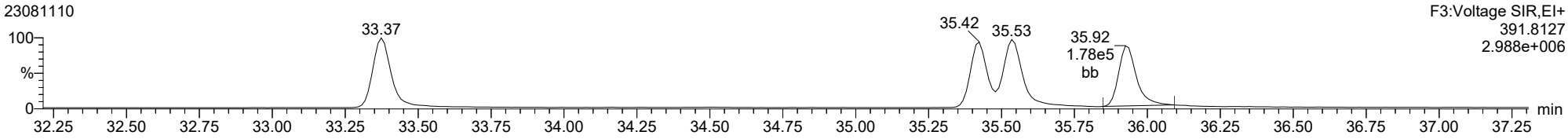


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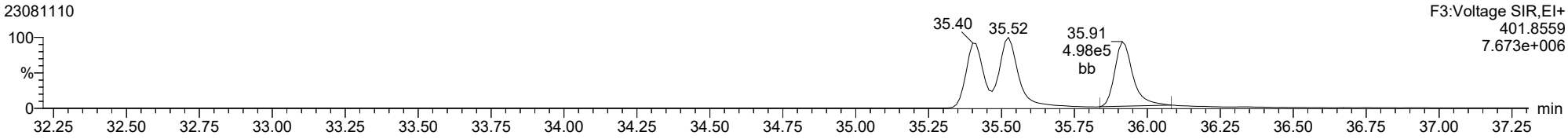
123789-HxCDD



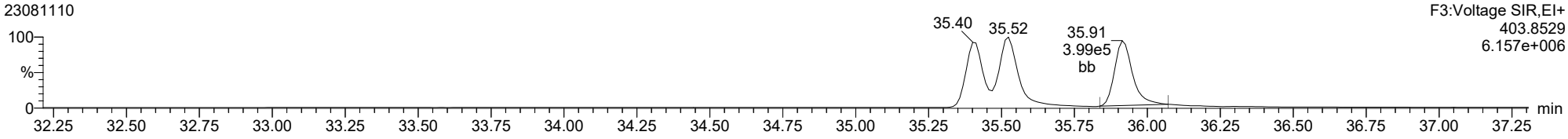
123789-HxCDD



13C-123789-HxCDD

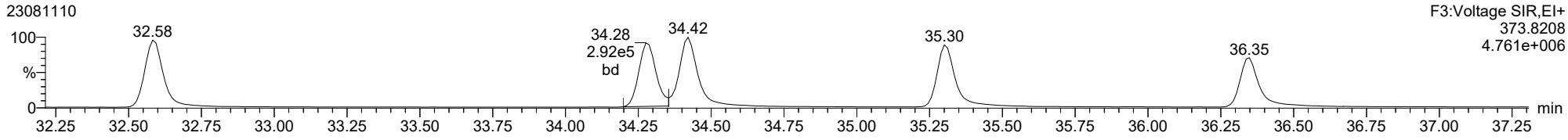


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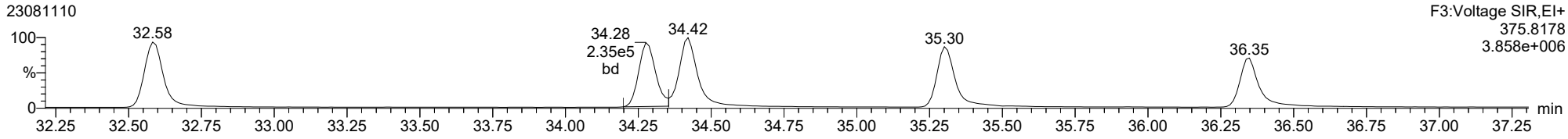


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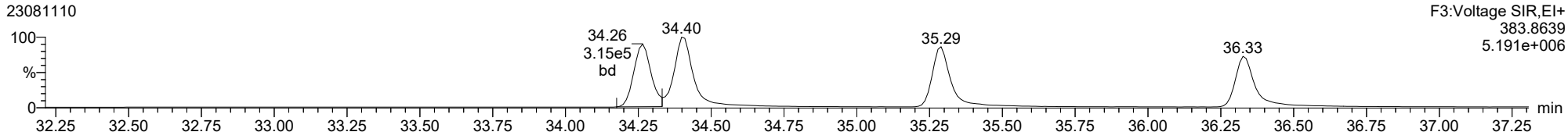
123478-HxCDF



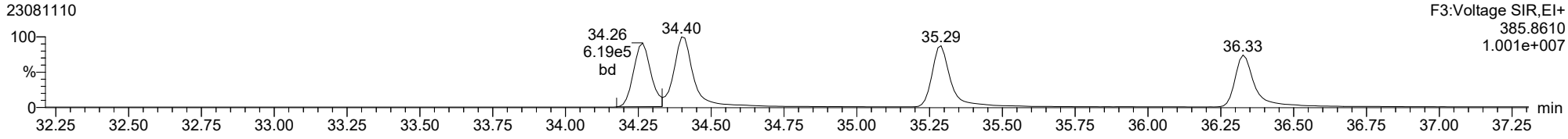
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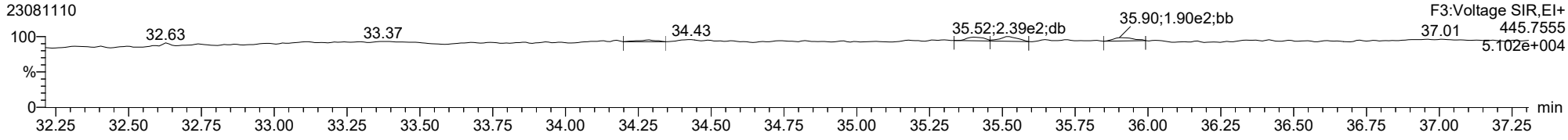
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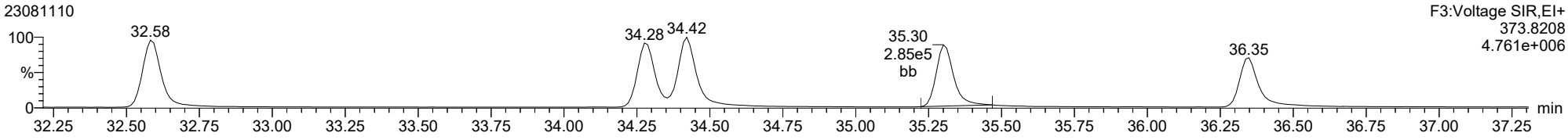


FUNCTION3 OCDPE

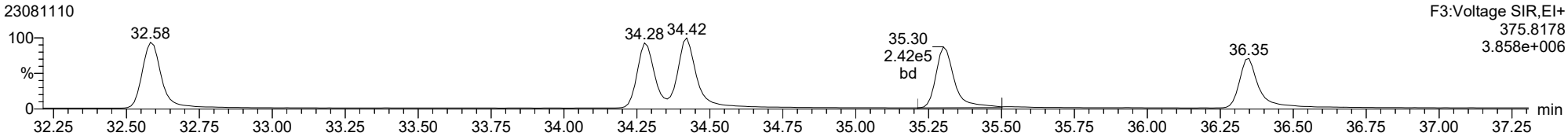


ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

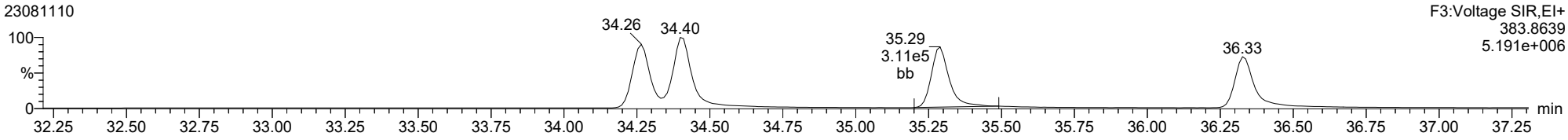
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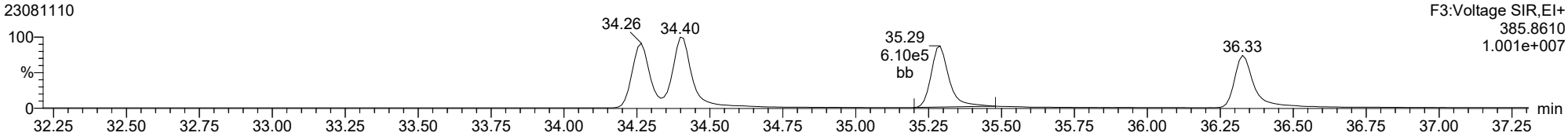
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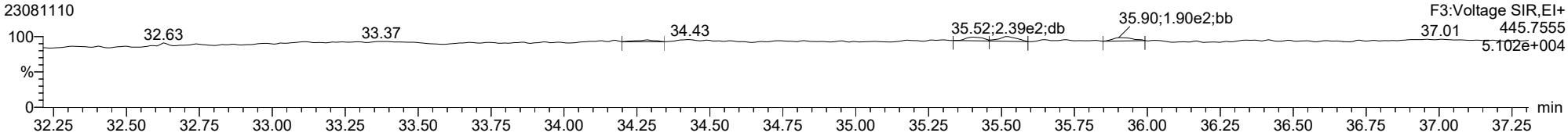
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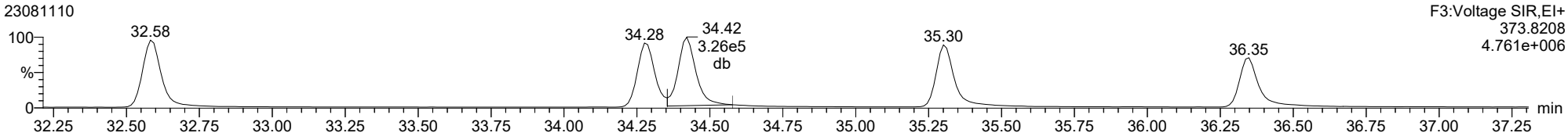


FUNCTION3 OCDPE

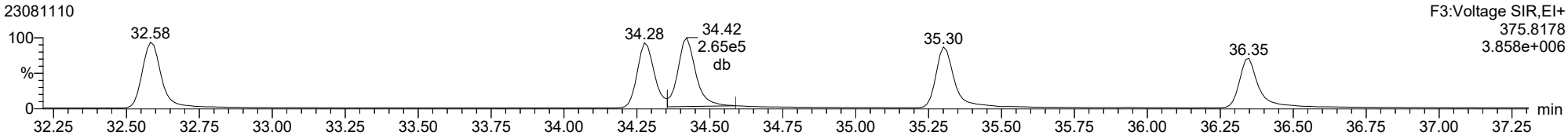


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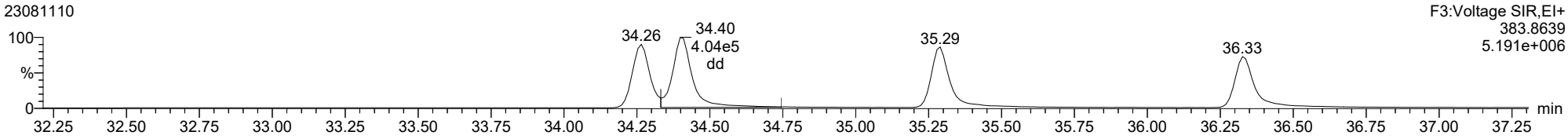
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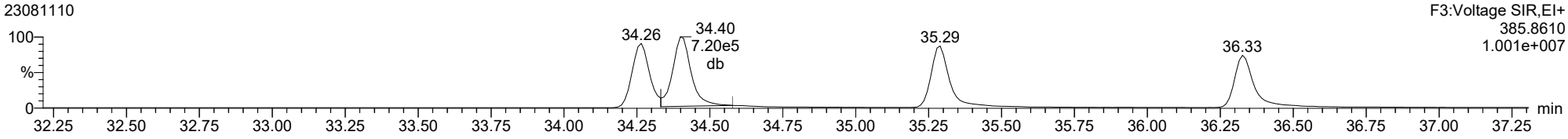
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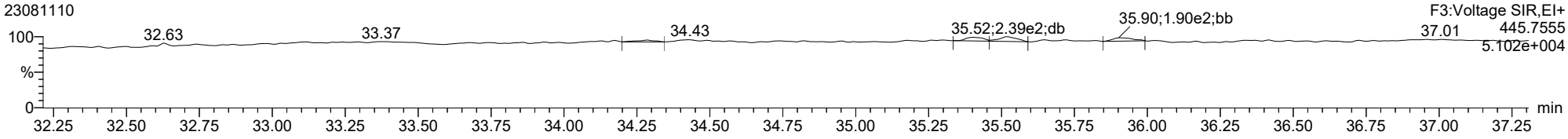
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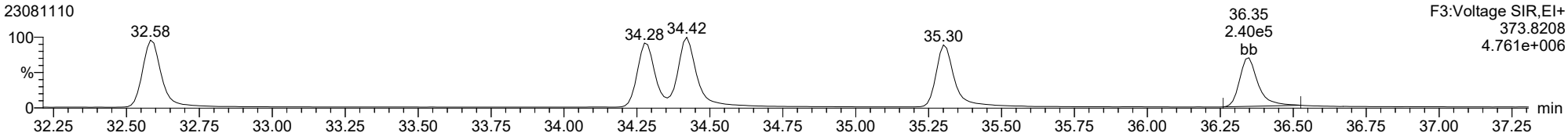


FUNCTION3 OCDPE

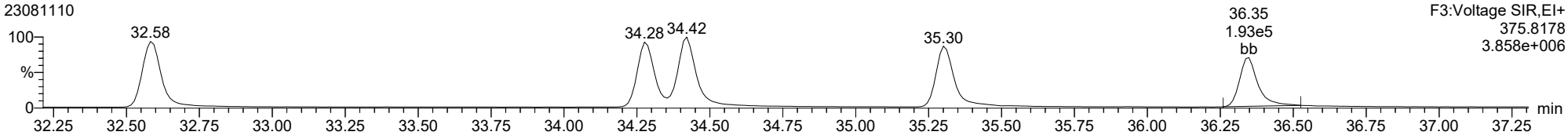


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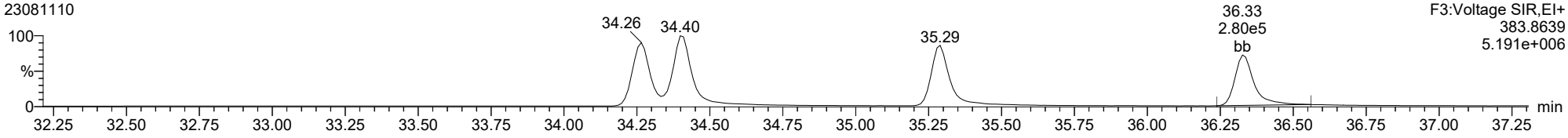
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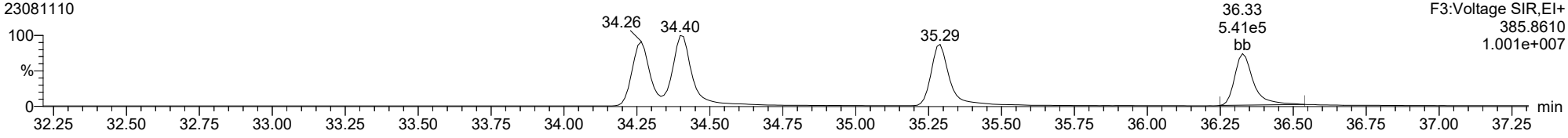
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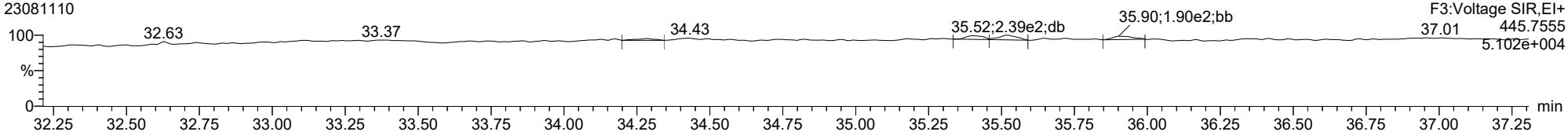
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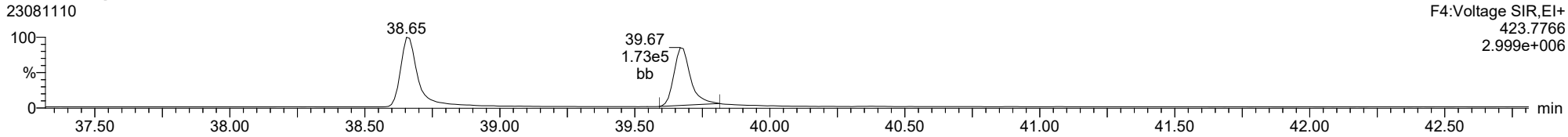


FUNCTION3 OCDPE

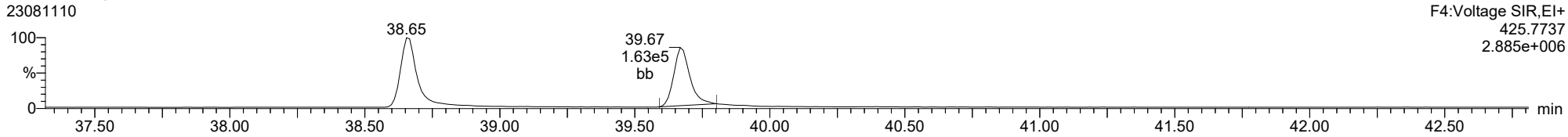


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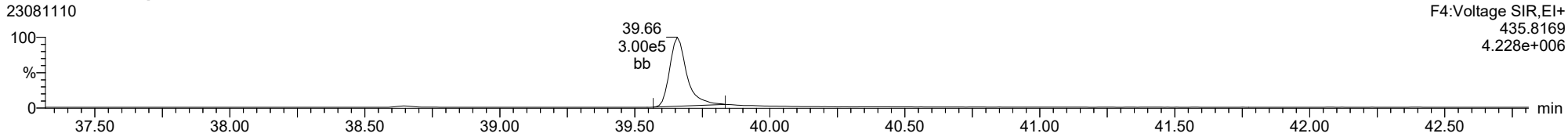
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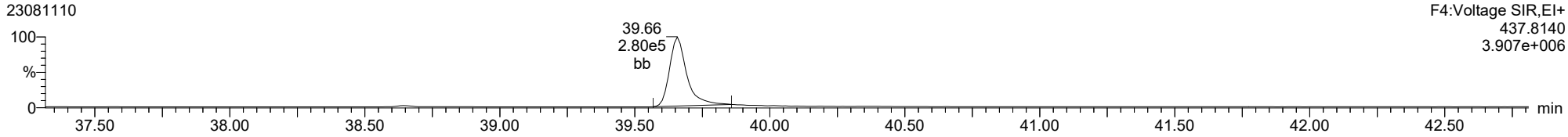
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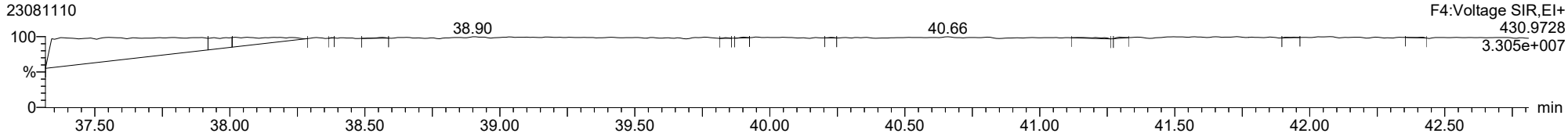
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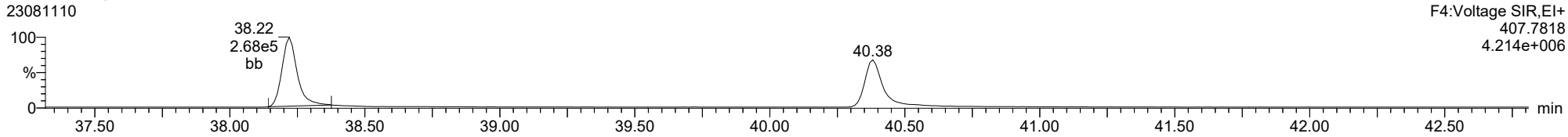


FUNCTION4 PFK

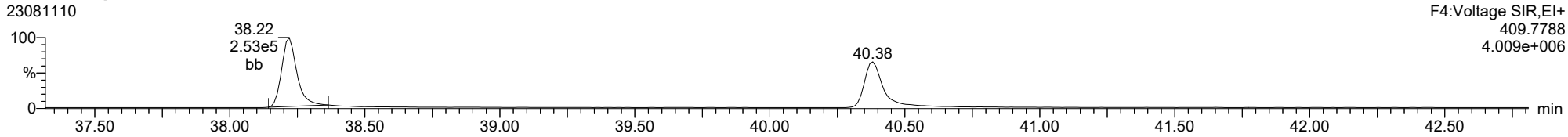


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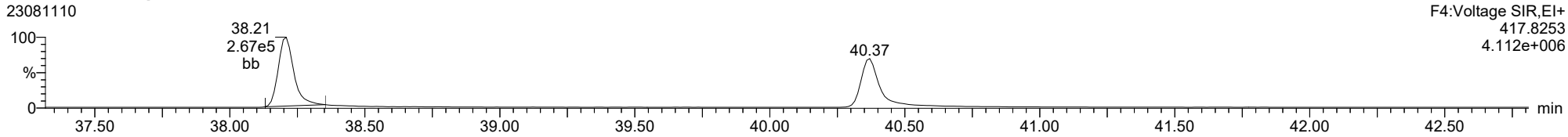
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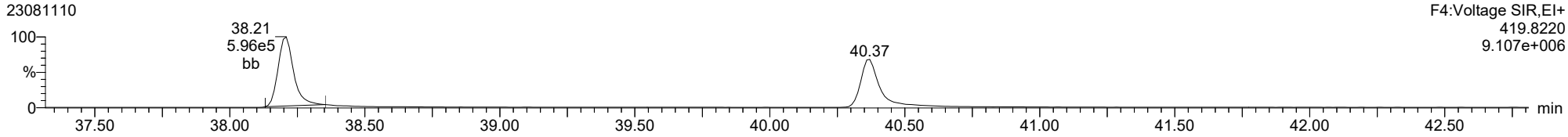
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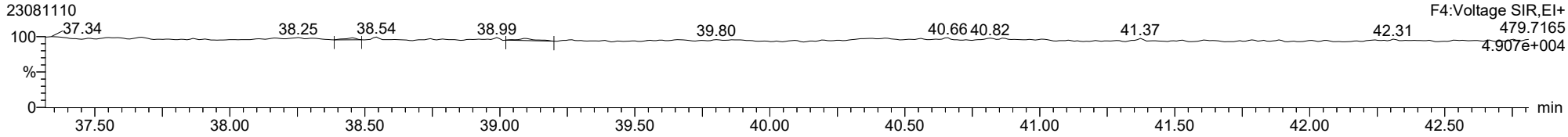
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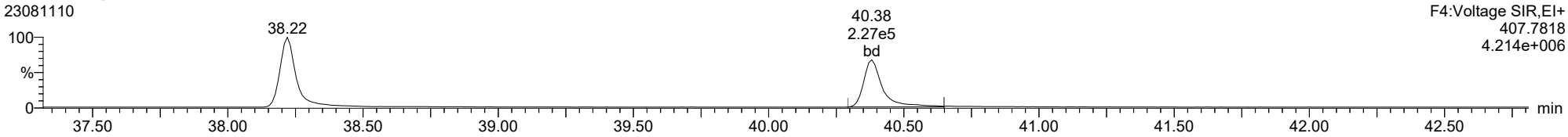


FUNCTION4 NCDPE

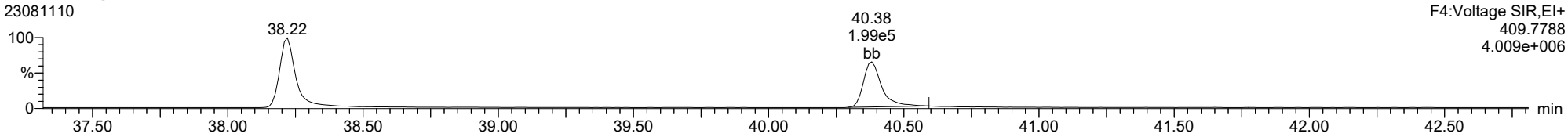


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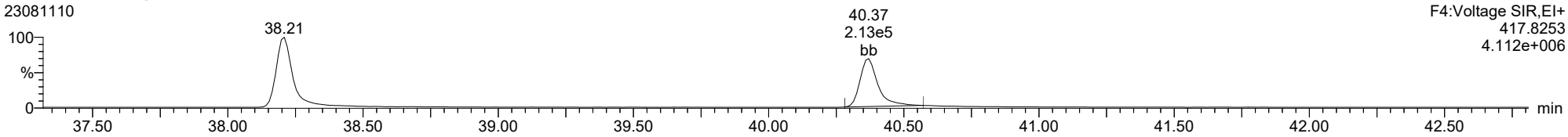
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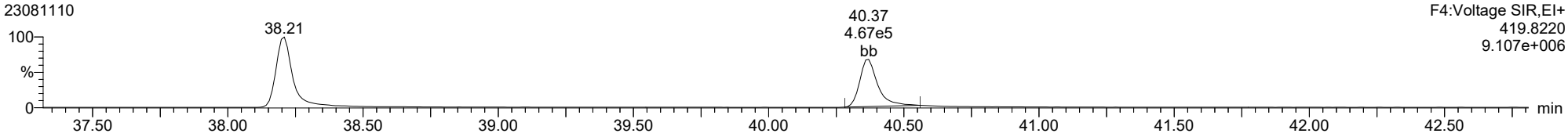
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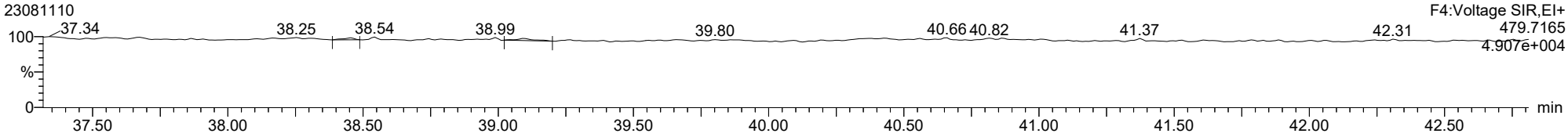
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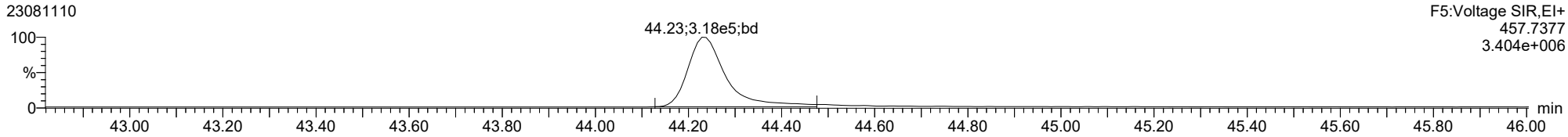


FUNCTION4 NCDPE

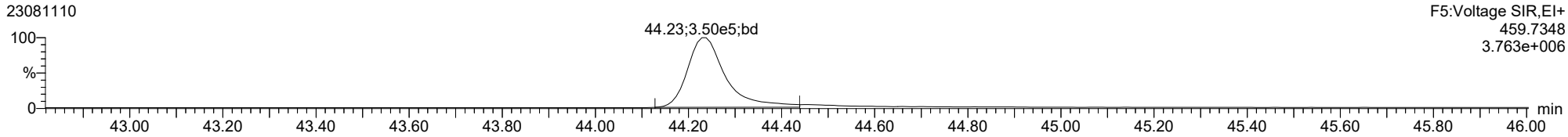


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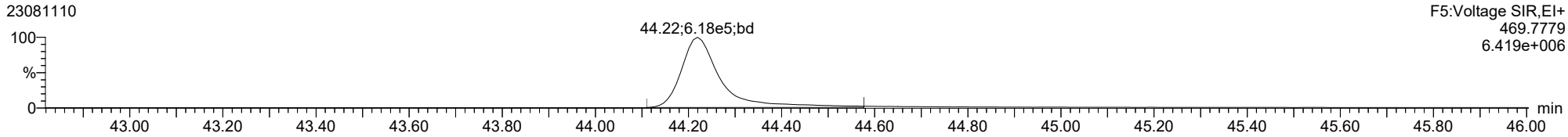
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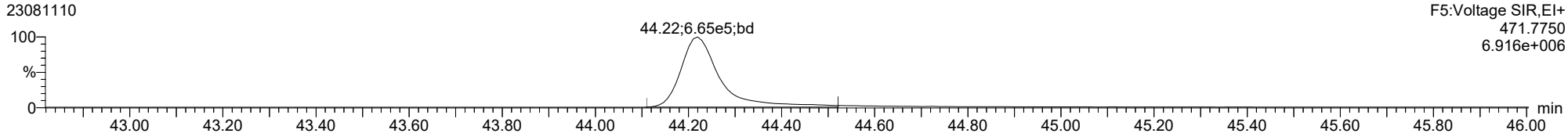
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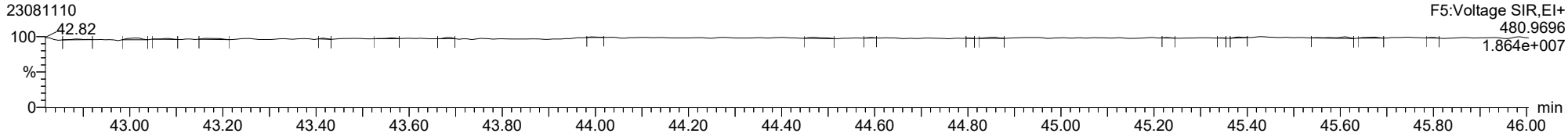
13C-OCDD



13C-OCDD

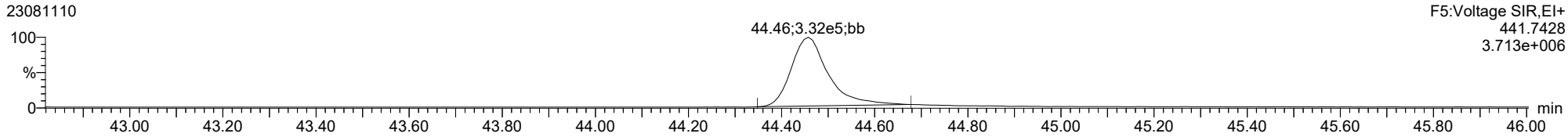


FUNCTION5 PFK

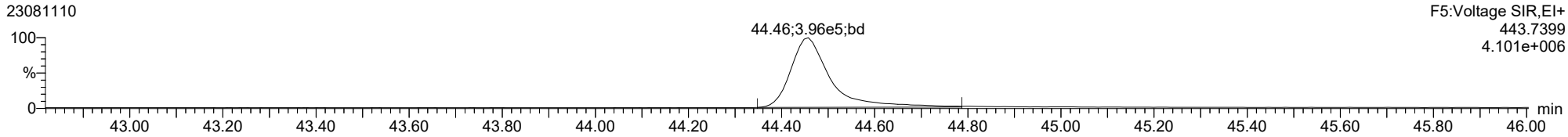


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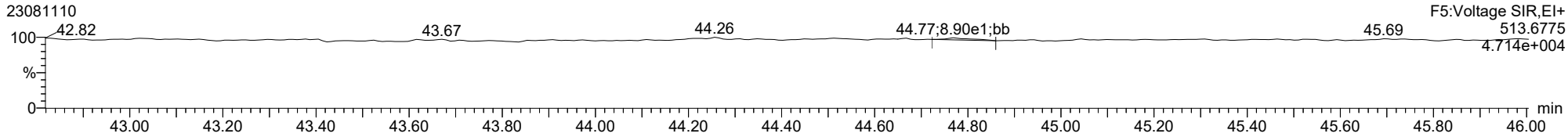
OCDF



OCDF

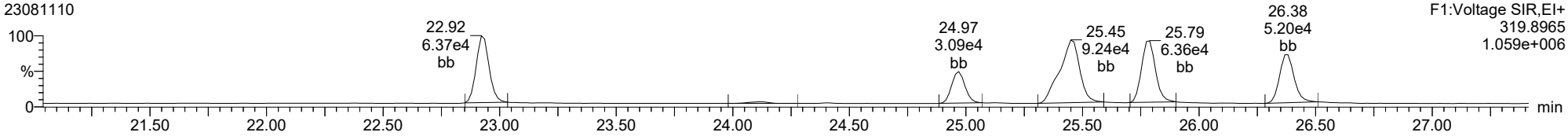


FUNCTION5 DCDPE

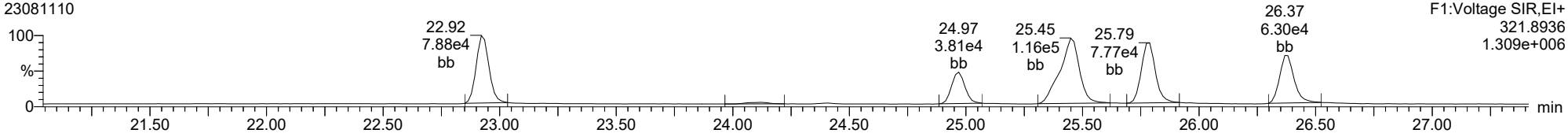


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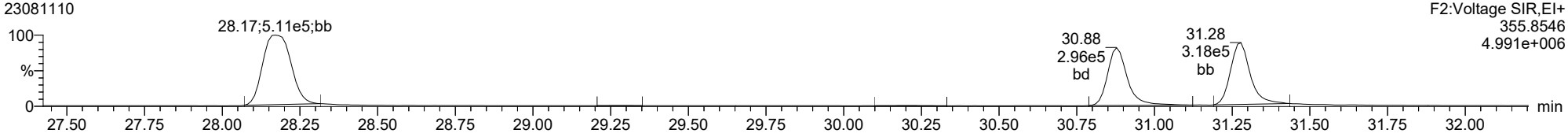
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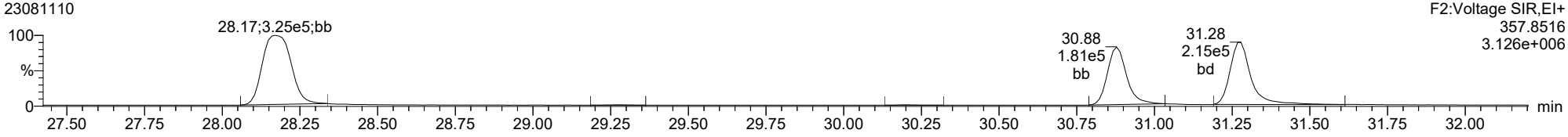
Total-tetradioxins



Total-pentadioxins

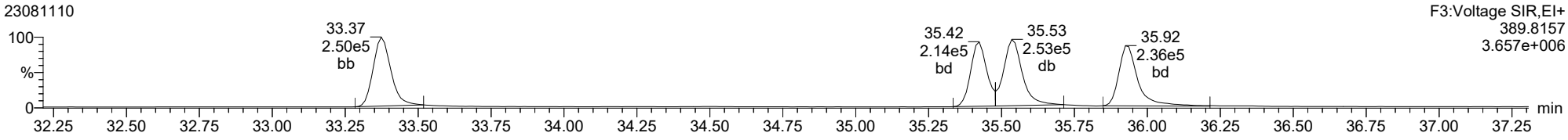


Total-pentadioxins

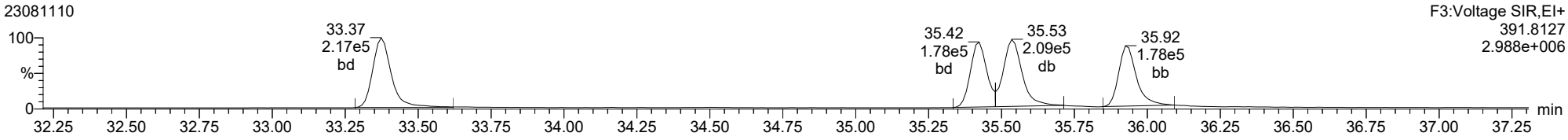


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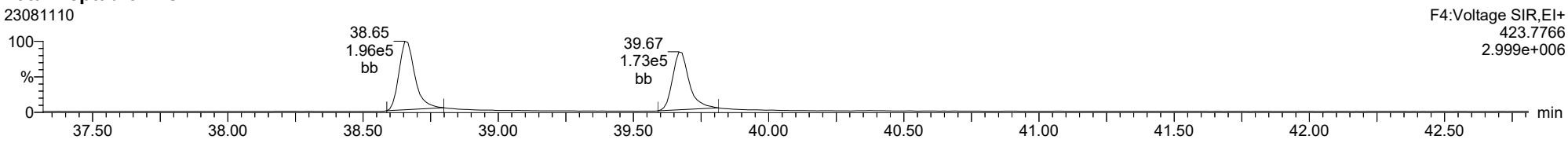
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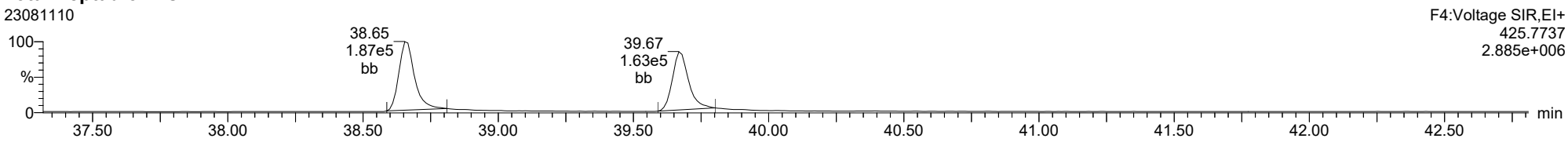
Total-hexadioxins



Total-heptadioxins



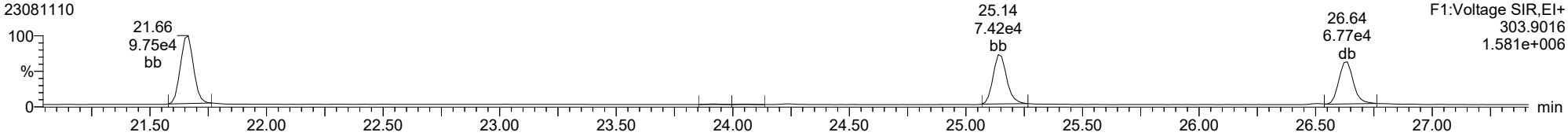
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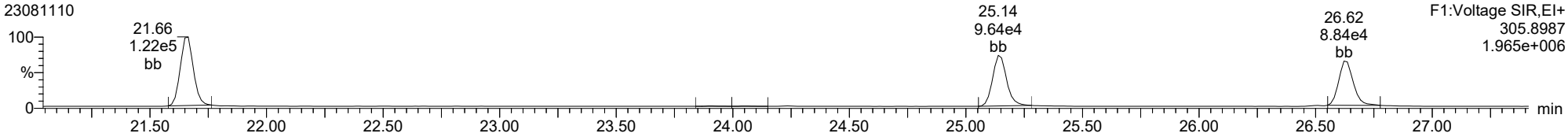
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Last Altered: Tuesday, August 15, 2023 12:26:06 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:27:04 Pacific Daylight Time

ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

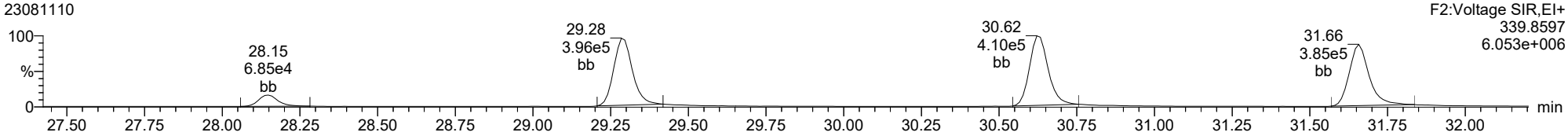
Total-tetrafurans



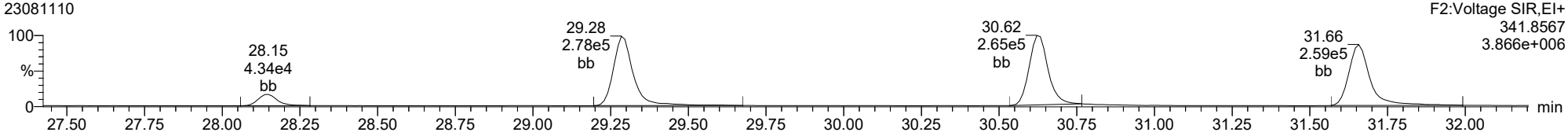
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Total-pentafurans

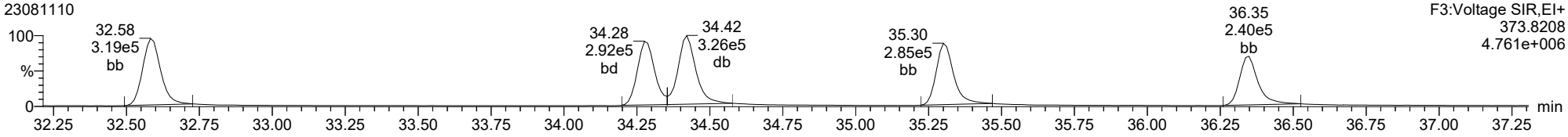


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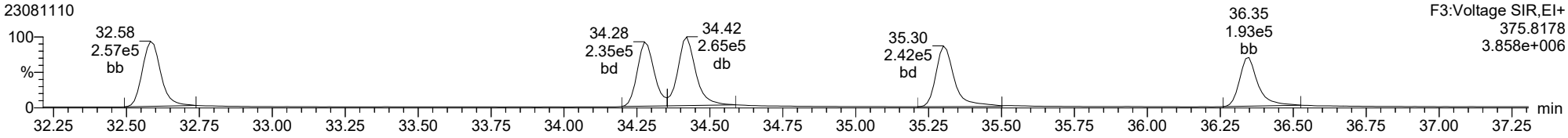


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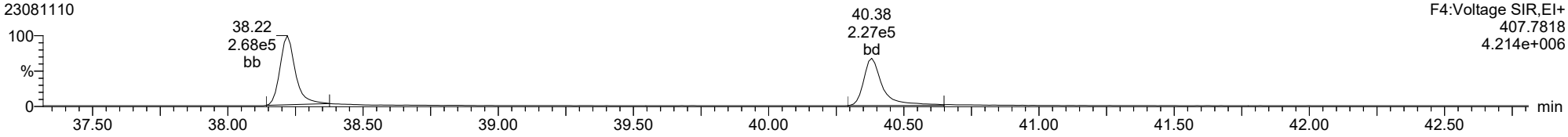
Total-hexafurans



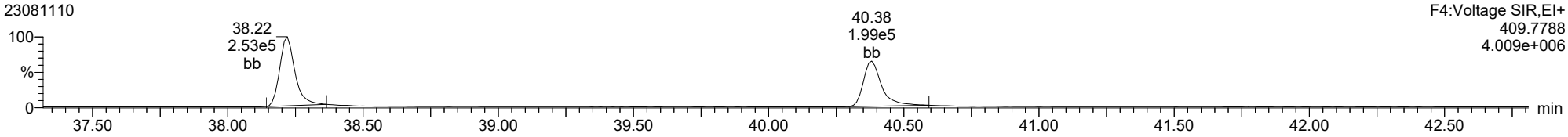
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230811CCVIH.qld
Last Altered: Tuesday, August 15, 2023 12:26:06 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:27:19 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 12 Aug 2023 10:54:09
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.153	1.001	4.331e4	5.635e4	0.903	0.769	0.770	1171	1364	6.11e5	7.81e5	521.7	572.2	NO	bb	bb	9.996
12378-PeCDF	29.296	1.001	2.300e5	1.467e5	0.923	1.568	1.550	3401	1936	3.27e6	2.10e6	960.4	1084.6	NO	bb	bb	49.821
23478-PeCDF	30.632	1.001	2.358e5	1.589e5	0.991	1.484	1.550	3401	1936	3.17e6	2.12e6	932.7	1095.3	NO	bb	bd	51.473
123478-HxCDF	34.276	1.000	1.642e5	1.293e5	1.128	1.271	1.240	2851	1900	2.31e6	1.85e6	809.4	974.2	NO	bd	bd	49.185
234678-HxCDF	35.301	1.000	1.599e5	1.364e5	1.081	1.172	1.240	2851	1900	2.25e6	1.77e6	788.4	931.0	NO	bb	bd	51.332
123678-HxCDF	34.421	1.001	1.857e5	1.474e5	1.032	1.260	1.240	2851	1900	2.46e6	1.94e6	863.3	1019.3	NO	db	db	50.681
123789-HxCDF	36.348	1.001	1.261e5	1.132e5	0.988	1.114	1.240	2851	1900	1.72e6	1.35e6	603.7	712.4	NO	bb	bb	52.524
1234678-HpCDF	38.220	1.000	1.371e5	1.434e5	1.164	0.956	1.050	2040	2251	2.02e6	1.97e6	992.2	876.4	NO	bb	bd	52.328
1234789-HpCDF	40.381	1.000	1.159e5	1.068e5	1.104	1.085	1.050	2040	2251	1.40e6	1.33e6	684.8	590.1	NO	bd	bd	52.933
OCDF	44.457	1.005	1.780e5	1.904e5	1.130	0.935	0.890	2815	2741	1.73e6	1.97e6	616.0	718.6	NO	bd	bd	100.657
2378-TCDD	25.788	1.001	3.895e4	4.595e4	1.243	0.848	0.770	1258	1191	5.44e5	6.56e5	432.3	550.5	NO	bd	bb	9.467
12378-PeCDD	30.878	1.000	1.623e5	1.061e5	1.150	1.529	1.550	2088	1452	2.21e6	1.40e6	1060.9	967.0	NO	bb	bd	51.961
123478-HxCDD	35.423	1.000	1.187e5	9.517e4	0.960	1.247	1.240	1570	2286	1.79e6	1.44e6	1140.2	631.8	NO	bd	bd	47.435
123678-HxCDD	35.535	1.000	1.604e5	1.248e5	0.883	1.285	1.240	1570	2286	1.96e6	1.60e6	1245.8	698.3	NO	dd	dd	54.545
123789-HxCDD	35.936	1.012	1.323e5	9.665e4	0.804	1.369	1.240	1570	2286	1.70e6	1.32e6	1083.8	579.5	NO	dd	bb	53.651
1234678-HpCDD	39.668	1.000	1.024e5	9.440e4	1.200	1.084	1.050	1868	1943	1.23e6	1.16e6	659.7	596.5	NO	bd	bd	50.710
OCDD	44.237	1.000	1.567e5	1.831e5	1.059	0.856	0.890	3012	2068	1.61e6	1.84e6	534.1	892.0	NO	bd	bd	99.090
13C-2378-TCDF	25.125	1.007	4.876e5	6.164e5	1.835	0.791	0.770	1728	1924	6.85e6	8.67e6	3961.1	4508.9	NO	bb	bb	98.121
13C-12378-PeCDF	29.273	1.173	4.998e5	3.192e5	1.377	1.566	1.550	3166	4107	7.06e6	4.51e6	2229.7	1096.9	NO	bb	bb	97.057
13C-23478-PeCDF	30.610	1.227	4.680e5	3.061e5	1.301	1.529	1.550	3166	4107	6.60e6	4.21e6	2084.2	1024.0	NO	bb	bb	97.039
13C-123478-HxCDF	34.265	0.954	1.804e5	3.486e5	1.091	0.517	0.510	1761	2790	2.59e6	4.96e6	1471.6	1778.9	NO	bd	bd	101.993
13C-123678-HxCDF	34.398	0.958	2.248e5	4.119e5	1.340	0.546	0.510	1761	2790	2.78e6	5.32e6	1581.4	1908.5	NO	db	db	99.908
13C-234678-HxCDF	35.290	0.983	1.679e5	3.659e5	1.093	0.459	0.510	1761	2790	2.34e6	4.72e6	1329.7	1691.9	NO	bb	bb	102.658
13C-123789-HxCDF	36.326	1.011	1.540e5	3.073e5	0.952	0.501	0.510	1761	2790	1.96e6	3.85e6	1115.2	1378.3	NO	bb	bd	101.953
13C-1234678-HpCDF	38.209	1.064	1.439e5	3.165e5	0.985	0.455	0.440	2093	3817	2.12e6	4.75e6	1011.4	1244.4	NO	bb	bb	98.323
13C-1234789-HpCDF	40.370	1.124	1.103e5	2.710e5	0.756	0.407	0.440	2093	3817	1.42e6	3.20e6	676.5	837.6	NO	bb	bb	106.094
13C-1234-TCDD	24.955	0.000	2.683e5	3.447e5	1.000	0.779	0.770	1875	1074	4.01e6	5.09e6	2141.0	4737.3	NO	bb	bb	100.000
13C-2378-TCDD	25.760	1.032	3.172e5	4.043e5	1.110	0.785	0.770	1875	1074	4.57e6	5.80e6	2440.5	5394.6	NO	bb	bb	106.068
13C-12378-PeCDD	30.867	1.237	2.730e5	1.761e5	0.754	1.550	1.550	870	984	3.71e6	2.33e6	4270.3	2363.3	NO	bb	bd	97.218
13C-123478-HxCDD	35.412	0.986	2.639e5	2.057e5	0.960	1.283	1.240	1990	2235	3.83e6	3.01e6	1927.1	1344.5	NO	bd	bd	102.882
13C-123678-HxCDD	35.523	0.989	3.306e5	2.617e5	1.159	1.264	1.240	1990	2235	4.19e6	3.34e6	2104.2	1493.8	NO	db	db	107.448
13C-1234678-HpCDD	39.657	1.104	1.755e5	1.480e5	0.629	1.186	1.050	1329	1459	2.14e6	1.98e6	1613.3	1358.5	NO	bb	bb	108.104
13C-OCDD	44.219	1.231	3.081e5	3.396e5	0.635	0.907	0.890	2918	1892	3.11e6	3.46e6	1067.4	1826.4	NO	bd	bd	214.485
13C-123789-HxCDD	35.914	0.000	2.618e5	2.137e5	1.000	1.225	1.240	1990	2235	3.52e6	2.85e6	1768.8	1273.4	NO	bb	bb	100.000
37CL-2378-TCDD	25.788	1.033	7.197e4		1.157			956		1.03e6		1082.1			bb		10.144

Dataset: T:\Autospec\Processed Data Batch\230811CCVIH.qld
Last Altered: Tuesday, August 15, 2023 12:26:06 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:27:19 Pacific Daylight Time

ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.664	0.862	5.587e4	7.239e4	1.170	0.772	0.770	1171	1364	8.88e5	1.11e6	758.3	815.1	NO	bb	bd	9.927
1289-TCDF	26.636	1.060	4.034e4	5.528e4	0.847	0.730	0.770	1171	1364	5.63e5	7.36e5	480.7	539.5	NO	db	db	10.229
13468-PECDF	26.495	0.905	2.957e5	1.928e5	1.241	1.534	1.550	874	914	4.38e6	2.89e6	5017.4	3159.3	NO	bb	bb	48.064
12389-PECDF	31.657	1.081	2.152e5	1.509e5	0.880	1.426	1.550	3401	1936	2.88e6	1.91e6	847.6	988.4	NO	bb	bd	50.811
123468-HXCDF	32.582	0.951	1.856e5	1.442e5	1.206	1.287	1.240	2851	1900	2.57e6	2.03e6	901.0	1070.2	NO	bb	bb	51.712
1368-TCDD	22.921	0.890	3.755e4	4.802e4	1.181	0.782	0.770	1258	1191	5.66e5	7.25e5	450.1	608.8	NO	bb	bb	10.046
1289-TCDD	26.382	1.024	2.982e4	3.935e4	0.963	0.758	0.770	1258	1191	4.24e5	5.11e5	337.3	429.0	NO	bb	bd	9.958
12479-PECDD	28.170	0.913	2.948e5	1.865e5	2.166	1.580	1.550	2088	1452	2.74e6	1.73e6	1310.2	1194.8	NO	bb	bb	49.462
12389-PECDD	31.279	1.013	1.853e5	1.220e5	1.326	1.519	1.550	2088	1452	2.47e6	1.60e6	1184.3	1101.7	NO	bb	bd	51.590
124679-HXCDD	33.373	0.942	1.421e5	1.193e5	1.127	1.191	1.240	1570	2286	2.01e6	1.64e6	1280.1	719.5	NO	bb	bb	49.407
1234679-HPCDD	38.665	0.975	1.054e5	1.006e5	1.303	1.048	1.050	1868	1943	1.56e6	1.49e6	836.7	766.1	NO	bb	bb	48.873
Total-tetrafurans			1.395e5		0.973			1171		2.06e6							30.152
Total-penta1			2.957e5					874		4.38e6							48.064
Total-pentafurans			7.213e5		0.931			3401		9.89e6							161.015
Total-hexafurans			8.216e5		1.087			2851		1.13e7							255.434
Total-heptafurans			2.571e5		1.134			2040		3.48e6							106.883
Total-Furans			2.413e6		1.053			1171		3.29e7							702.205
Total-tetradioxins			1.808e5		1.129			1258		2.36e6							49.895
Total-pentadioxins			6.424e5		1.548			2088		7.42e6							153.014
Total-hexadioxins			5.534e5		0.943			1570		7.46e6							205.039
Total-heptadioxins			2.077e5		1.251			1868		2.79e6							99.583
Total-Dioxins			1.741e6		1.182			1258		2.16e7							606.622
Total-TEQ			4.154e6					1258		5.45e7							1308.826
FUNCTION1 PFK			0.000e0					481142		0.00e0							
FUNCTION2 PFK			4.874e5					229819		1.22e7							0.000
FUNCTION3 PFK			3.763e5					413268		3.62e6							0.000
FUNCTION4 PFK			5.619e6					286001		6.99e7							
FUNCTION5 PFK			7.251e4					183835		3.22e6							
FUNCTION1 HXCD...			8.350e2					627		1.16e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			6.582e2					812		1.25e4							0.000
FUNCTION3 OCDPE			3.234e2					512		5.07e3							0.000
FUNCTION4 NCDPE			1.681e2					714		2.55e3							0.000
FUNCTION5 DCDPE			0.000e0					517		0.00e0							

Method: T:\Autospec\Methods\Dioxin230810.mdb 12 Aug 2023 10:54:09
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	4.034e4	5.528e4	0.847	0.73	0.77	480.7	YES	NO	db	db	10.229
2	2378-TCDF	25.15	4.331e4	5.635e4	0.903	0.77	0.77	521.7	YES	NO	bb	bb	9.996
3	1368-TCDF	21.66	5.587e4	7.239e4	1.170	0.77	0.77	758.3	YES	NO	bb	bd	9.927

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.49	2.957e5	1.928e5	1.241	1.53	1.55	5017.4	YES	NO	bb	bb	48.064

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.30	2.300e5	1.467e5	0.923	1.57	1.55	960.4	YES	NO	bb	bb	49.821
2	Total-pentafurans	28.15	4.032e4	2.576e4	0.931	1.57	1.55	166.0	YES	NO	bb	bb	8.910
3	12389-PECDF	31.66	2.152e5	1.509e5	0.880	1.43	1.55	847.6	YES	NO	bb	bd	50.811
4	23478-PeCDF	30.63	2.358e5	1.589e5	0.991	1.48	1.55	932.7	YES	NO	bb	bd	51.473

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.35	1.261e5	1.132e5	0.988	1.11	1.24	603.7	YES	NO	bb	bb	52.524
2	234678-HxCDF	35.30	1.599e5	1.364e5	1.081	1.17	1.24	788.4	YES	NO	bb	bd	51.332
3	123678-HxCDF	34.42	1.857e5	1.474e5	1.032	1.26	1.24	863.3	YES	NO	db	db	50.681
4	123478-HxCDF	34.28	1.642e5	1.293e5	1.128	1.27	1.24	809.4	YES	NO	bd	bd	49.185
5	123468-HXCDF	32.58	1.856e5	1.442e5	1.206	1.29	1.24	901.0	YES	NO	bb	bb	51.712

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.38	1.159e5	1.068e5	1.104	1.09	1.05	684.8	YES	NO	bd	bd	52.933
2	1234678-HpCDF	38.22	1.371e5	1.434e5	1.164	0.96	1.05	992.2	YES	NO	bb	bd	52.328
3	Total-heptafurans	41.14	2.445e2	2.274e2	1.134	1.08	1.05	3.8	NO	NO	bd	bb	0.099
4	Total-heptafurans	40.89	3.939e2	3.374e2	1.134	1.17	1.05	4.1	YES	NO	dd	dd	0.153
5	Total-heptafurans	40.65	3.498e3	3.037e3	1.134	1.15	1.05	20.1	YES	NO	dd	dd	1.370

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	4.034e4	5.528e4	0.847	0.73	0.77	480.7	YES	NO	db	db	10.229
2	2378-TCDF	25.15	4.331e4	5.635e4	0.903	0.77	0.77	521.7	YES	NO	bb	bb	9.996
3	1368-TCDF	21.66	5.587e4	7.239e4	1.170	0.77	0.77	758.3	YES	NO	bb	bd	9.927
4	12378-PeCDF	29.30	2.300e5	1.467e5	0.923	1.57	1.55	960.4	YES	NO	bb	bb	49.821
5	Total-pentafurans	28.15	4.032e4	2.576e4	0.931	1.57	1.55	166.0	YES	NO	bb	bb	8.910
6	12389-PECDF	31.66	2.152e5	1.509e5	0.880	1.43	1.55	847.6	YES	NO	bb	bd	50.811
7	23478-PeCDF	30.63	2.358e5	1.589e5	0.991	1.48	1.55	932.7	YES	NO	bb	bd	51.473
8	123789-HxCDF	36.35	1.261e5	1.132e5	0.988	1.11	1.24	603.7	YES	NO	bb	bb	52.524
9	234678-HxCDF	35.30	1.599e5	1.364e5	1.081	1.17	1.24	788.4	YES	NO	bb	bd	51.332
10	123678-HxCDF	34.42	1.857e5	1.474e5	1.032	1.26	1.24	863.3	YES	NO	db	db	50.681
11	123478-HxCDF	34.28	1.642e5	1.293e5	1.128	1.27	1.24	809.4	YES	NO	bd	bd	49.185
12	123468-HXCDF	32.58	1.856e5	1.442e5	1.206	1.29	1.24	901.0	YES	NO	bb	bb	51.712
13	1234789-HpCDF	40.38	1.159e5	1.068e5	1.104	1.09	1.05	684.8	YES	NO	bd	bd	52.933
14	1234678-HpCDF	38.22	1.371e5	1.434e5	1.164	0.96	1.05	992.2	YES	NO	bb	bd	52.328
15	Total-heptafurans	41.14	2.445e2	2.274e2	1.134	1.08	1.05	3.8	NO	NO	bd	bb	0.099
16	Total-heptafurans	40.89	3.939e2	3.374e2	1.134	1.17	1.05	4.1	YES	NO	dd	dd	0.153
17	Total-heptafurans	40.65	3.498e3	3.037e3	1.134	1.15	1.05	20.1	YES	NO	dd	dd	1.370
18	OCDF	44.46	1.780e5	1.904e5	1.130	0.93	0.89	616.0	YES	NO	bd	bd	100.657
19	13468-PECDF	26.49	2.957e5	1.928e5	1.241	1.53	1.55	5017.4	YES	NO	bb	bb	48.064

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.46	5.650e4	6.995e4	1.129	0.81	0.77	438.0	YES	NO	bb	bb	15.526
2	Total-tetradioxins	24.97	1.801e4	2.188e4	1.129	0.82	0.77	222.5	YES	NO	bb	bb	4.898
3	1368-TCDD	22.92	3.755e4	4.802e4	1.181	0.78	0.77	450.1	YES	NO	bb	bb	10.046
4	1289-TCDD	26.38	2.982e4	3.935e4	0.963	0.76	0.77	337.3	YES	NO	bb	bd	9.958
5	2378-TCDD	25.79	3.895e4	4.595e4	1.243	0.85	0.77	432.3	YES	NO	bd	bb	9.467

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.28	1.853e5	1.220e5	1.326	1.52	1.55	1184.3	YES	NO	bb	bd	51.590
2	12378-PeCDD	30.88	1.623e5	1.061e5	1.150	1.53	1.55	1060.9	YES	NO	bb	bd	51.961
3	12479-PECDD	28.17	2.948e5	1.865e5	2.166	1.58	1.55	1310.2	YES	NO	bb	bb	49.462

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.94	1.323e5	9.665e4	0.804	1.37	1.24	1083.8	YES	NO	dd	bb	53.651
2	123678-HxCDD	35.53	1.604e5	1.248e5	0.883	1.28	1.24	1245.8	YES	NO	dd	dd	54.545
3	123478-HxCDD	35.42	1.187e5	9.517e4	0.960	1.25	1.24	1140.2	YES	NO	bd	bd	47.435
4	124679-HXCDD	33.37	1.421e5	1.193e5	1.127	1.19	1.24	1280.1	YES	NO	bb	bb	49.407

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.67	1.024e5	9.440e4	1.200	1.08	1.05	659.7	YES	NO	bd	bd	50.710
2	1234679-HPCDD	38.67	1.054e5	1.006e5	1.303	1.05	1.05	836.7	YES	NO	bb	bb	48.873

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.46	5.650e4	6.995e4	1.129	0.81	0.77	438.0	YES	NO	bb	bb	15.526
2	Total-tetradioxins	24.97	1.801e4	2.188e4	1.129	0.82	0.77	222.5	YES	NO	bb	bb	4.898
3	1368-TCDD	22.92	3.755e4	4.802e4	1.181	0.78	0.77	450.1	YES	NO	bb	bb	10.046
4	1289-TCDD	26.38	2.982e4	3.935e4	0.963	0.76	0.77	337.3	YES	NO	bb	bd	9.958
5	2378-TCDD	25.79	3.895e4	4.595e4	1.243	0.85	0.77	432.3	YES	NO	bd	bb	9.467
6	12389-PECDD	31.28	1.853e5	1.220e5	1.326	1.52	1.55	1184.3	YES	NO	bb	bd	51.590
7	12378-PeCDD	30.88	1.623e5	1.061e5	1.150	1.53	1.55	1060.9	YES	NO	bb	bd	51.961
8	12479-PECDD	28.17	2.948e5	1.865e5	2.166	1.58	1.55	1310.2	YES	NO	bb	bb	49.462
9	123789-HxCDD	35.94	1.323e5	9.665e4	0.804	1.37	1.24	1083.8	YES	NO	dd	bb	53.651
10	123678-HxCDD	35.53	1.604e5	1.248e5	0.883	1.28	1.24	1245.8	YES	NO	dd	dd	54.545
11	123478-HxCDD	35.42	1.187e5	9.517e4	0.960	1.25	1.24	1140.2	YES	NO	bd	bd	47.435
12	124679-HXCDD	33.37	1.421e5	1.193e5	1.127	1.19	1.24	1280.1	YES	NO	bb	bb	49.407
13	1234678-HpCDD	39.67	1.024e5	9.440e4	1.200	1.08	1.05	659.7	YES	NO	bd	bd	50.710
14	1234679-HPCDD	38.67	1.054e5	1.006e5	1.303	1.05	1.05	836.7	YES	NO	bb	bb	48.873
15	OCDD	44.24	1.567e5	1.831e5	1.059	0.86	0.89	534.1	YES	NO	bd	bd	99.090

Dataset: T:\Autospec\Processed Data Batch\230811CCVIH.qld
Last Altered: Tuesday, August 15, 2023 12:26:06 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:27:19 Pacific Daylight Time

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	4.034e4	5.528e4	0.847	0.73	0.77	480.7	YES	NO	db	db	10.229
2	2378-TCDF	25.15	4.331e4	5.635e4	0.903	0.77	0.77	521.7	YES	NO	bb	bb	9.996
3	1368-TCDF	21.66	5.587e4	7.239e4	1.170	0.77	0.77	758.3	YES	NO	bb	bd	9.927
4	12378-PeCDF	29.30	2.300e5	1.467e5	0.923	1.57	1.55	960.4	YES	NO	bb	bb	49.821
5	Total-pentafurans	28.15	4.032e4	2.576e4	0.931	1.57	1.55	166.0	YES	NO	bb	bb	8.910
6	12389-PECDF	31.66	2.152e5	1.509e5	0.880	1.43	1.55	847.6	YES	NO	bb	bd	50.811
7	23478-PeCDF	30.63	2.358e5	1.589e5	0.991	1.48	1.55	932.7	YES	NO	bb	bd	51.473
8	123789-HxCDF	36.35	1.261e5	1.132e5	0.988	1.11	1.24	603.7	YES	NO	bb	bb	52.524
9	234678-HxCDF	35.30	1.599e5	1.364e5	1.081	1.17	1.24	788.4	YES	NO	bb	bd	51.332
10	123678-HxCDF	34.42	1.857e5	1.474e5	1.032	1.26	1.24	863.3	YES	NO	db	db	50.681
11	123478-HxCDF	34.28	1.642e5	1.293e5	1.128	1.27	1.24	809.4	YES	NO	bd	bd	49.185
12	123468-HXCDF	32.58	1.856e5	1.442e5	1.206	1.29	1.24	901.0	YES	NO	bb	bb	51.712
13	1234789-HpCDF	40.38	1.159e5	1.068e5	1.104	1.09	1.05	684.8	YES	NO	bd	bd	52.933
14	1234678-HpCDF	38.22	1.371e5	1.434e5	1.164	0.96	1.05	992.2	YES	NO	bb	bd	52.328
15	Total-heptafurans	41.14	2.445e2	2.274e2	1.134	1.08	1.05	3.8	NO	NO	bd	bb	0.099
16	Total-heptafurans	40.89	3.939e2	3.374e2	1.134	1.17	1.05	4.1	YES	NO	dd	dd	0.153
17	Total-heptafurans	40.65	3.498e3	3.037e3	1.134	1.15	1.05	20.1	YES	NO	dd	dd	1.370
18	OCDF	44.46	1.780e5	1.904e5	1.130	0.93	0.89	616.0	YES	NO	bd	bd	100.657
19	13468-PECDF	26.49	2.957e5	1.928e5	1.241	1.53	1.55	5017.4	YES	NO	bb	bb	48.064
20	Total-tetradioxins	25.46	5.650e4	6.995e4	1.129	0.81	0.77	438.0	YES	NO	bb	bb	15.526
21	Total-tetradioxins	24.97	1.801e4	2.188e4	1.129	0.82	0.77	222.5	YES	NO	bb	bb	4.898
22	1368-TCDD	22.92	3.755e4	4.802e4	1.181	0.78	0.77	450.1	YES	NO	bb	bb	10.046
23	1289-TCDD	26.38	2.982e4	3.935e4	0.963	0.76	0.77	337.3	YES	NO	bb	bd	9.958
24	2378-TCDD	25.79	3.895e4	4.595e4	1.243	0.85	0.77	432.3	YES	NO	bd	bb	9.467
25	12389-PECDD	31.28	1.853e5	1.220e5	1.326	1.52	1.55	1184.3	YES	NO	bb	bd	51.590
26	12378-PeCDD	30.88	1.623e5	1.061e5	1.150	1.53	1.55	1060.9	YES	NO	bb	bd	51.961
27	12479-PECDD	28.17	2.948e5	1.865e5	2.166	1.58	1.55	1310.2	YES	NO	bb	bb	49.462
28	123789-HxCDD	35.94	1.323e5	9.665e4	0.804	1.37	1.24	1083.8	YES	NO	dd	bb	53.651
29	123678-HxCDD	35.53	1.604e5	1.248e5	0.883	1.28	1.24	1245.8	YES	NO	dd	dd	54.545
30	123478-HxCDD	35.42	1.187e5	9.517e4	0.960	1.25	1.24	1140.2	YES	NO	bd	bd	47.435
31	124679-HXCDD	33.37	1.421e5	1.193e5	1.127	1.19	1.24	1280.1	YES	NO	bb	bb	49.407
32	1234678-HpCDD	39.67	1.024e5	9.440e4	1.200	1.08	1.05	659.7	YES	NO	bd	bd	50.710
33	1234679-HPCDD	38.67	1.054e5	1.006e5	1.303	1.05	1.05	836.7	YES	NO	bb	bb	48.873
34	OCDD	44.24	1.567e5	1.831e5	1.059	0.86	0.89	534.1	YES	NO	bd	bd	99.090

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.97	5.006e3					0.8	NO		bb		0.000
2	FUNCTION2 PFK	28.64	1.227e3					0.5	NO		bb		0.000
3	FUNCTION2 PFK	28.59	9.247e3					1.7	NO		db		0.000
4	FUNCTION2 PFK	28.55	1.616e4					1.5	NO		dd		0.000
5	FUNCTION2 PFK	28.48	1.220e4					1.7	NO		dd		0.000
6	FUNCTION2 PFK	28.44	1.402e4					1.8	NO		bd		0.000
7	FUNCTION2 PFK	28.35	2.228e3					0.9	NO		bb		0.000
8	FUNCTION2 PFK	28.30	4.845e3					1.1	NO		bb		0.000
9	FUNCTION2 PFK	28.08	1.896e4					2.0	NO		bb		0.000
10	FUNCTION2 PFK	28.00	4.249e4					2.6	NO		db		0.000
11	FUNCTION2 PFK	27.89	2.054e4					2.4	NO		dd		0.000
12	FUNCTION2 PFK	27.84	3.689e4					4.5	YES		dd		0.000
13	FUNCTION2 PFK	27.80	5.492e4					5.0	YES		dd		0.000
14	FUNCTION2 PFK	27.72	4.091e4					2.8	NO		dd		0.000
15	FUNCTION2 PFK	27.64	1.167e4					1.8	NO		bd		0.000
16	FUNCTION2 PFK	27.57	8.795e3					1.6	NO		bb		0.000
17	FUNCTION2 PFK	31.89	9.658e3					1.4	NO		bb		0.000
18	FUNCTION2 PFK	31.40	3.647e3					0.8	NO		bb		0.000
19	FUNCTION2 PFK	31.35	4.747e4					2.1	NO		db		0.000
20	FUNCTION2 PFK	31.18	1.696e4					1.9	NO		bd		0.000
21	FUNCTION2 PFK	31.06	1.879e4					2.3	NO		bb		0.000
22	FUNCTION2 PFK	30.73	3.629e3					0.7	NO		bb		0.000
23	FUNCTION2 PFK	30.39	1.190e4					1.3	NO		bb		0.000
24	FUNCTION2 PFK	30.21	1.249e3					0.5	NO		bb		0.000
25	FUNCTION2 PFK	30.03	9.791e2					0.4	NO		bb		0.000
26	FUNCTION2 PFK	29.98	4.183e3					0.9	NO		bb		0.000
27	FUNCTION2 PFK	29.89	3.617e3					1.0	NO		bb		0.000
28	FUNCTION2 PFK	29.77	2.797e3					0.6	NO		bb		0.000
29	FUNCTION2 PFK	29.69	7.735e3					1.2	NO		bb		0.000
30	FUNCTION2 PFK	29.62	1.303e4					1.3	NO		bb		0.000
31	FUNCTION2 PFK	29.37	3.649e4					2.9	NO		bb		0.000
32	FUNCTION2 PFK	29.18	5.105e3					0.9	NO		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	32.26	3.763e5					8.8	YES		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.99	1.135e4					1.3	NO		bd		
2	FUNCTION4 PFK	38.88	5.579e3					1.1	NO		bb		
3	FUNCTION4 PFK	38.80	1.168e4					1.6	NO		bb		
4	FUNCTION4 PFK	38.69	9.737e3					1.3	NO		bb		
5	FUNCTION4 PFK	38.25	1.166e5					5.2	YES		db		
6	FUNCTION4 PFK	37.91	1.120e6					16.6	YES		dd		
7	FUNCTION4 PFK	37.84	2.215e5					18.5	YES		dd		
8	FUNCTION4 PFK	37.81	6.404e5					19.7	YES		dd		
9	FUNCTION4 PFK	37.70	2.057e5					22.0	YES		dd		
10	FUNCTION4 PFK	37.60	1.227e6					26.8	YES		dd		
11	FUNCTION4 PFK	37.48	5.511e5					29.6	YES		dd		
12	FUNCTION4 PFK	37.43	3.867e5					31.1	YES		dd		
13	FUNCTION4 PFK	37.36	7.118e5					32.6	YES		bd		
14	FUNCTION4 PFK	41.89	1.929e4					1.3	NO		bb		
15	FUNCTION4 PFK	41.74	3.622e4					1.9	NO		bb		
16	FUNCTION4 PFK	41.60	1.168e4					1.3	NO		db		
17	FUNCTION4 PFK	41.55	5.316e3					0.8	NO		bd		
18	FUNCTION4 PFK	41.50	1.097e4					1.6	NO		bb		
19	FUNCTION4 PFK	40.96	3.761e3					0.6	NO		bb		
20	FUNCTION4 PFK	40.85	1.359e3					0.4	NO		bb		
21	FUNCTION4 PFK	40.80	8.617e3					0.9	NO		bb		
22	FUNCTION4 PFK	40.60	1.895e4					1.8	NO		db		
23	FUNCTION4 PFK	40.55	2.765e4					2.2	NO		dd		
24	FUNCTION4 PFK	40.49	2.015e4					2.0	NO		dd		
25	FUNCTION4 PFK	40.45	2.099e4					2.3	NO		bd		
26	FUNCTION4 PFK	40.23	1.769e4					2.1	NO		bb		
27	FUNCTION4 PFK	39.60	3.578e4					2.8	NO		db		
28	FUNCTION4 PFK	39.55	1.128e4					1.7	NO		bd		
29	FUNCTION4 PFK	39.07	2.212e4					1.8	NO		db		
30	FUNCTION4 PFK	42.75	3.285e3					0.6	NO		bb		
31	FUNCTION4 PFK	42.70	2.754e4					1.5	NO		db		
32	FUNCTION4 PFK	42.58	1.807e4					1.7	NO		dd		
33	FUNCTION4 PFK	42.53	1.476e4					1.7	NO		dd		
34	FUNCTION4 PFK	42.46	2.480e4					2.1	NO		bd		
35	FUNCTION4 PFK	42.03	2.481e4					1.9	NO		db		
36	FUNCTION4 PFK	41.99	1.512e4					1.7	NO		bd		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.12	2.768e3					0.9	NO		bb		
2	FUNCTION5 PFK	43.91	6.915e3					1.3	NO		db		
3	FUNCTION5 PFK	43.87	7.246e3					1.9	NO		bd		
4	FUNCTION5 PFK	43.73	4.916e3					1.3	NO		bb		
5	FUNCTION5 PFK	43.40	4.518e3					1.3	NO		bb		
6	FUNCTION5 PFK	43.15	1.986e3					0.8	NO		bb		
7	FUNCTION5 PFK	43.00	1.071e4					1.7	NO		bb		
8	FUNCTION5 PFK	42.86	3.711e3					1.2	NO		bb		
9	FUNCTION5 PFK	45.91	1.126e4					2.2	NO		bb		
10	FUNCTION5 PFK	45.79	4.830e3					1.2	NO		bb		
11	FUNCTION5 PFK	45.73	1.131e3					0.7	NO		bb		
12	FUNCTION5 PFK	45.62	5.239e3					1.4	NO		bb		
13	FUNCTION5 PFK	45.12	4.609e3					1.0	NO		bb		
14	FUNCTION5 PFK	44.21	2.676e3					0.7	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.49	1.225e2					2.9	NO		bb		0.000
2	FUNCTION1 HXCD...	25.56	8.311e1					2.6	NO		bb		0.000
3	FUNCTION1 HXCD...	25.24	1.010e2					2.0	NO		db		0.000
4	FUNCTION1 HXCD...	25.14	1.579e2					2.7	NO		dd		0.000
5	FUNCTION1 HXCD...	25.04	1.523e2					4.4	YES		bd		0.000
6	FUNCTION1 HXCD...	24.11	1.289e2					2.1	NO		bb		0.000
7	FUNCTION1 HXCD...	21.37	8.930e1					1.9	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.49	3.116e2					7.1	YES		bb		0.000
2	FUNCTION2 HPCD...	32.15	1.442e2					3.3	YES		bb		0.000
3	FUNCTION2 HPCD...	31.01	8.310e1					3.1	YES		db		0.000
4	FUNCTION2 HPCD...	30.88	1.193e2					2.0	NO		bd		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.95	1.152e2					3.0	NO		bb		0.000
2	FUNCTION3 OCDPE	35.41	1.159e2					4.5	YES		bb		0.000
3	FUNCTION3 OCDPE	34.62	9.236e1					2.5	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.66	8.194e1					2.0	NO		bb		0.000
2	FUNCTION4 NCDPE	39.66	8.616e1					1.6	NO		bb		0.000

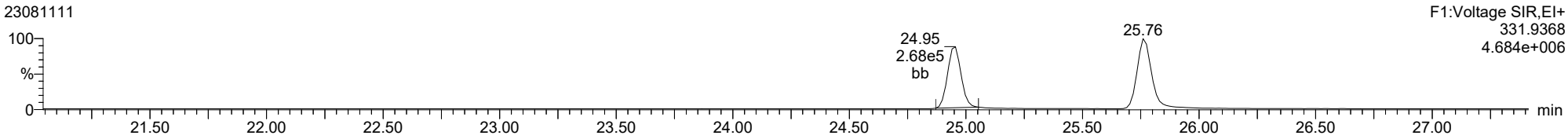
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

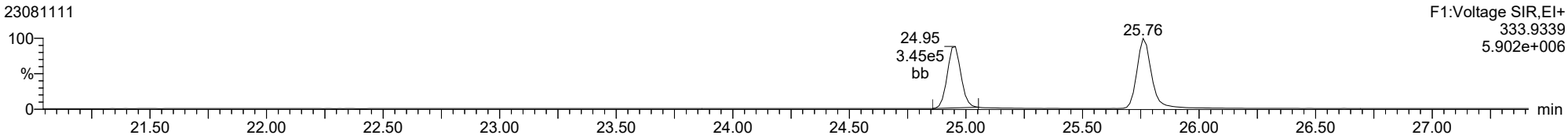
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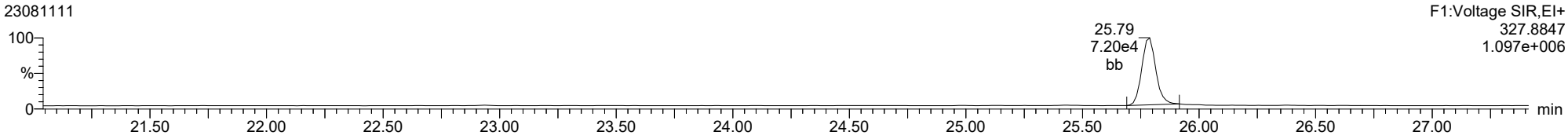
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13C-1234-TCDD

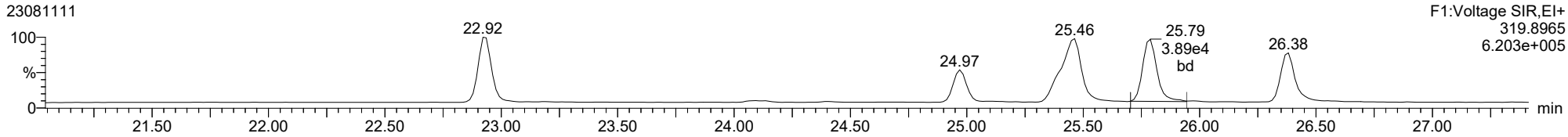


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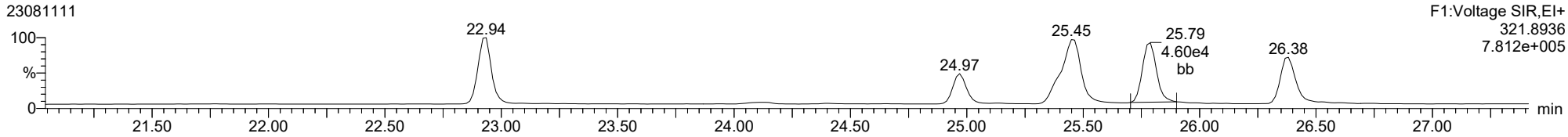


ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

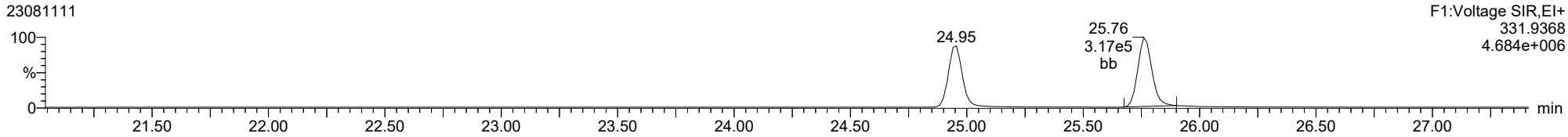
2378-TCDD



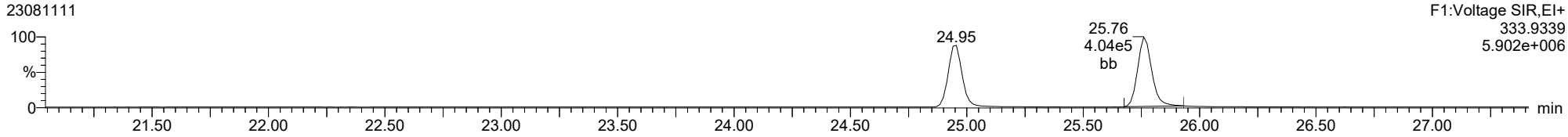
2378-TCDD



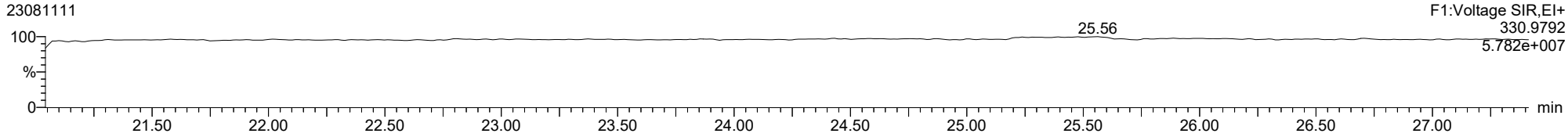
13C-2378-TCDD



13C-2378-TCDD

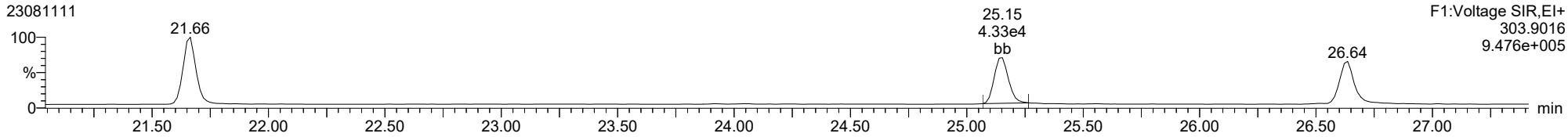


FUNCTION1 PFK

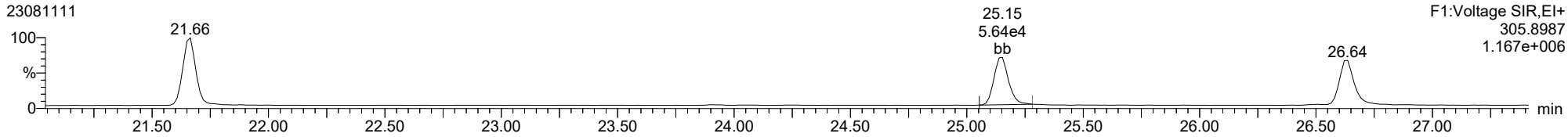


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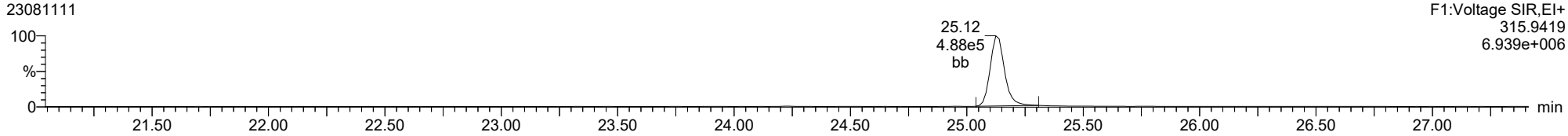
2378-TCDF



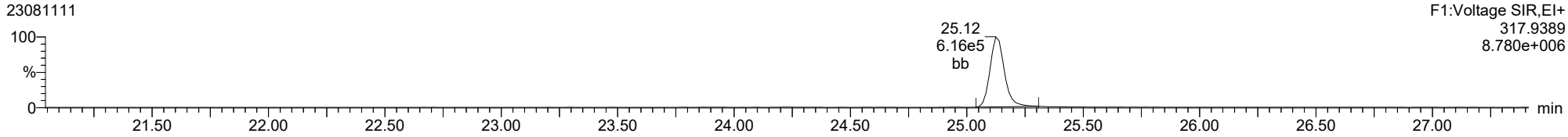
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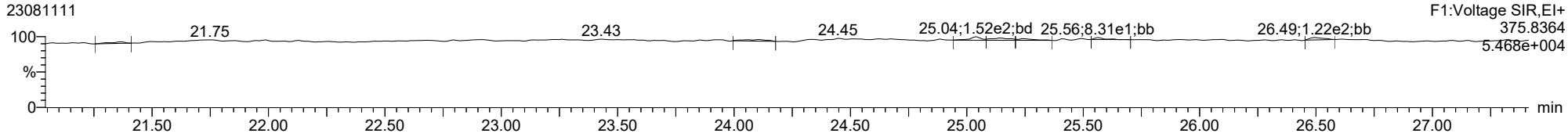
13C-2378-TCDF



13C-2378-TCDF

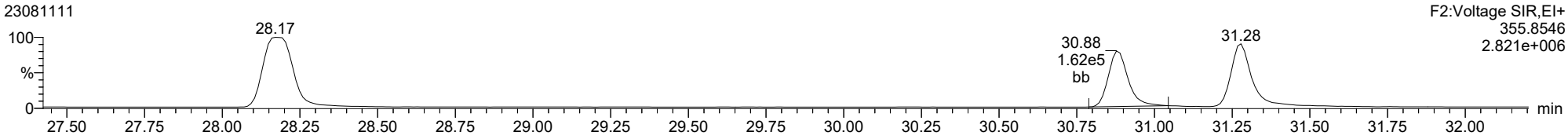


FUNCTION1 HXCDPE

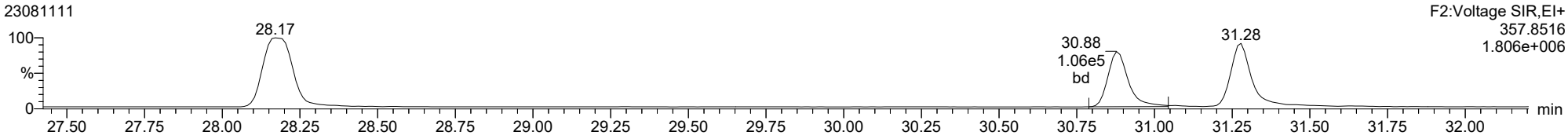


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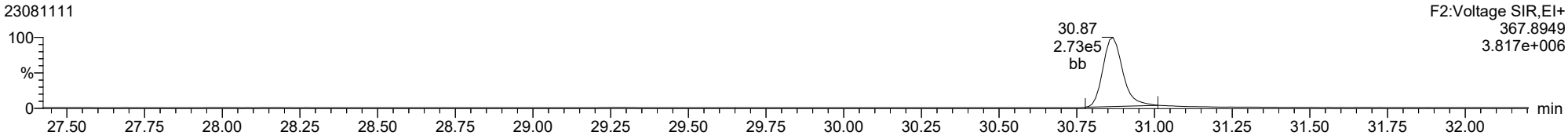
12378-PeCDD



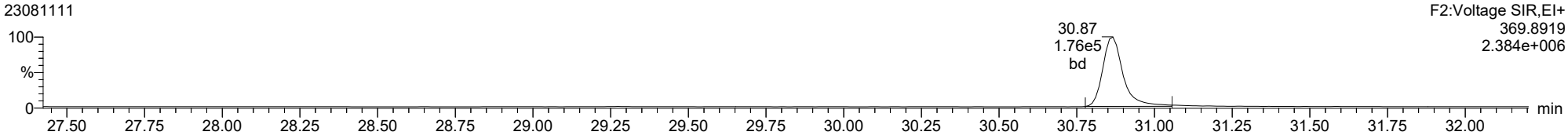
12378-PeCDD



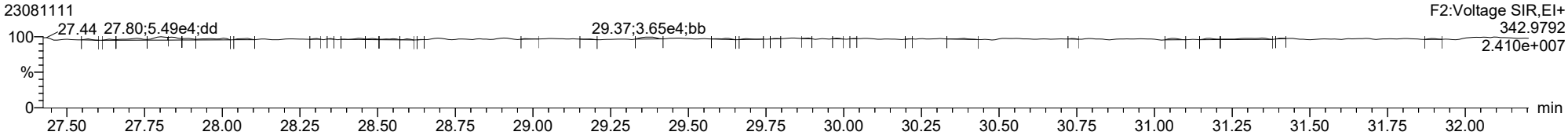
13C-12378-PeCDD



13C-12378-PeCDD

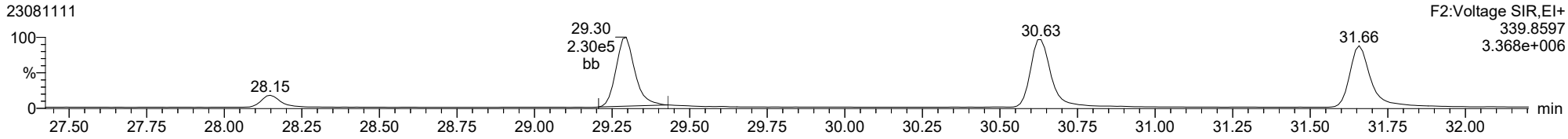


FUNCTION2 PFK

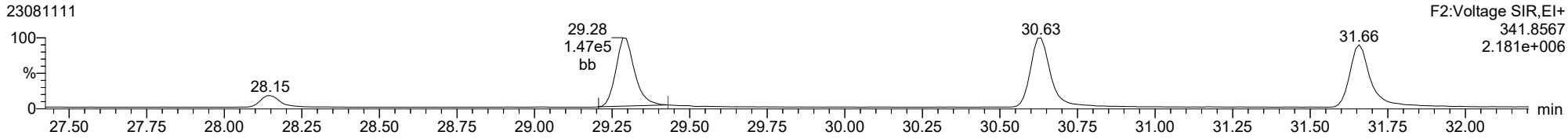


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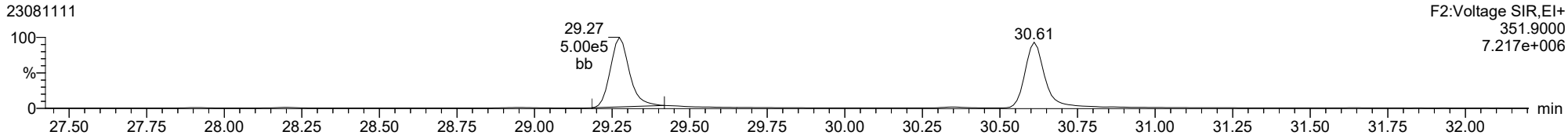
12378-PeCDF



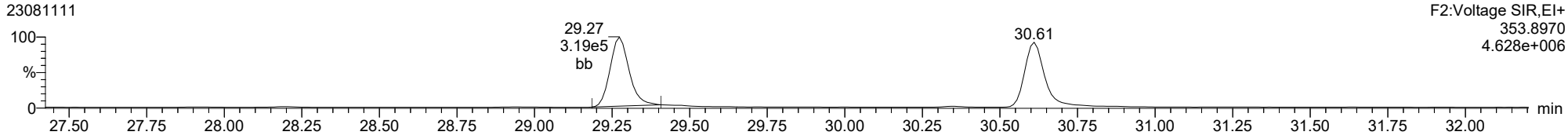
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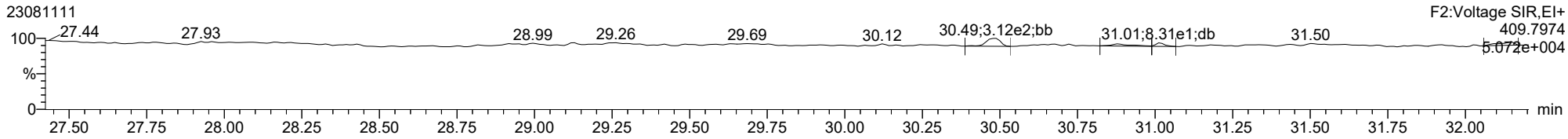
13C-12378-PeCDF



13C-12378-PeCDF

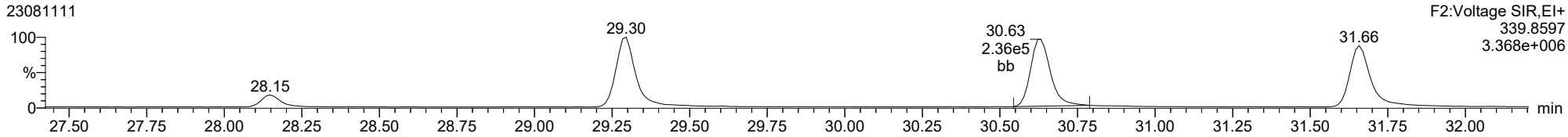


FUNCTION2 HPCDPE

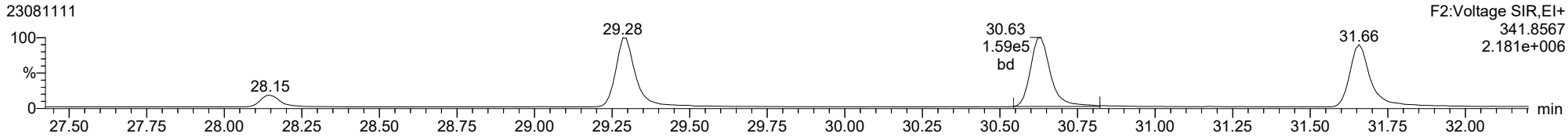


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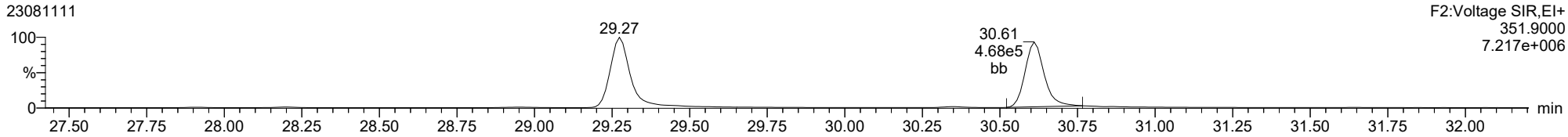
23478-PeCDF



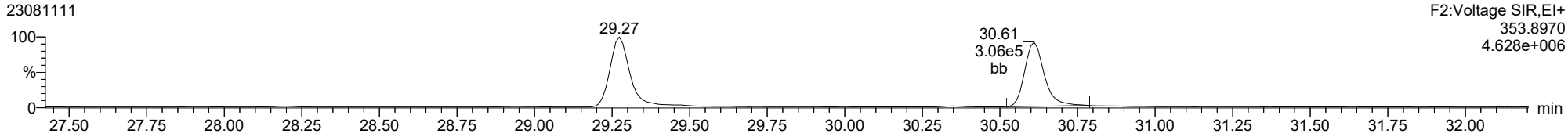
23478-PeCDF



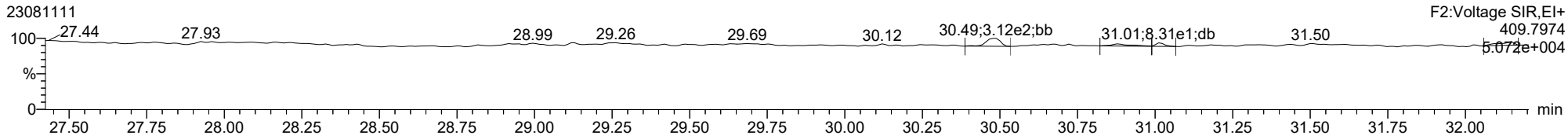
13C-23478-PeCDF



13C-23478-PeCDF

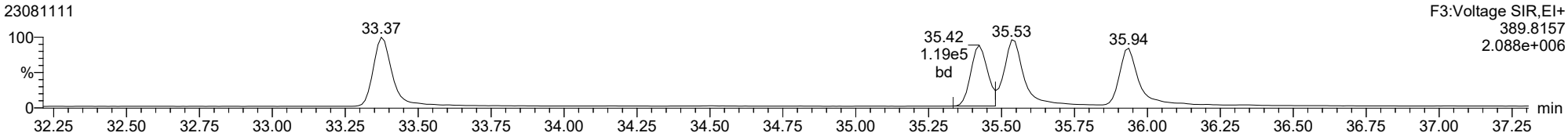


FUNCTION2 HPCDPE

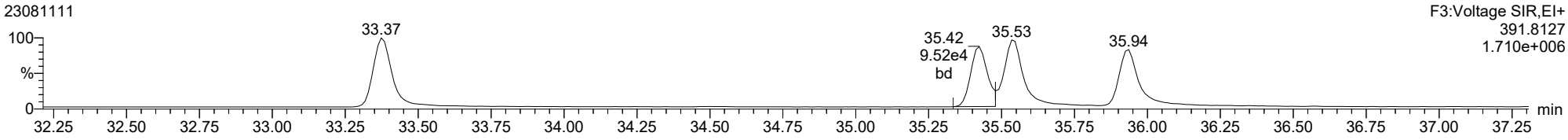


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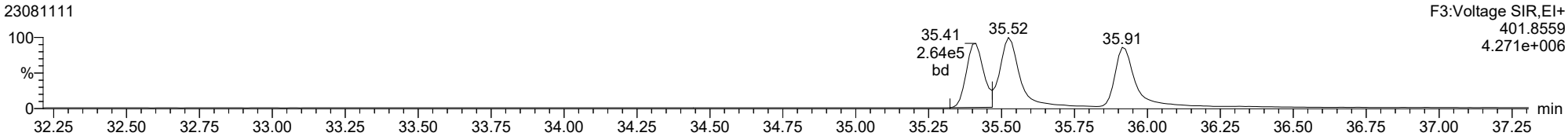
123478-HxCDD



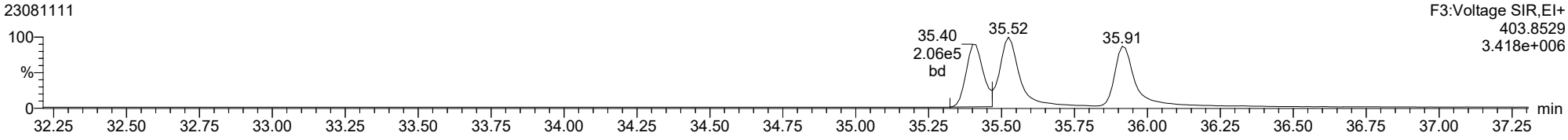
123478-HxCDD



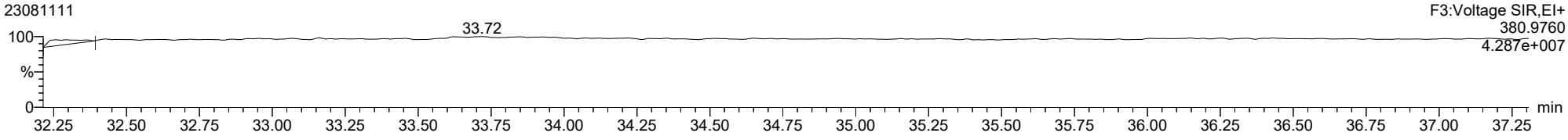
13C-123478-HxCDD



13C-123478-HxCDD



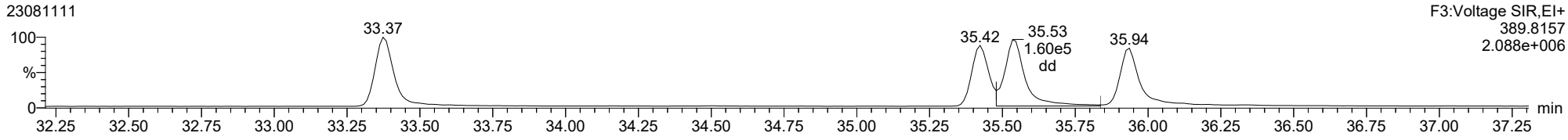
FUNCTION3 PFK



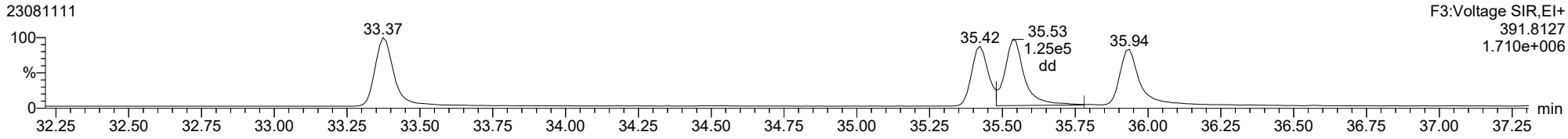
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Printed: Tuesday, August 15, 2023 12:27:19 Pacific Daylight Time

ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

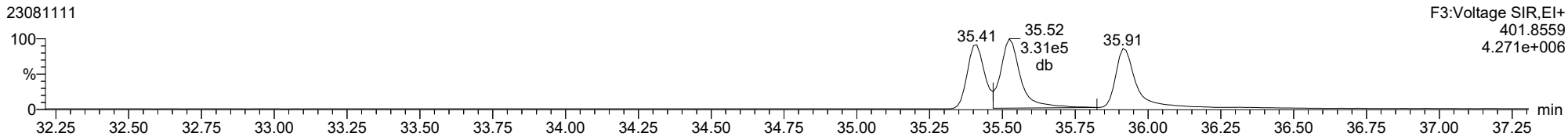
123678-HxCDD



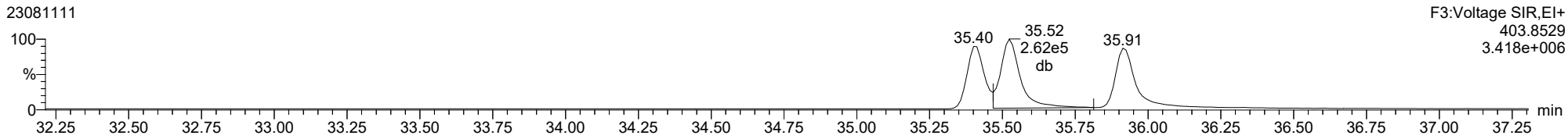
123678-HxCDD



13C-123678-HxCDD

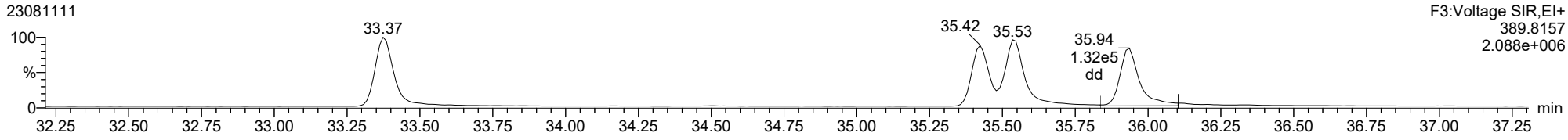


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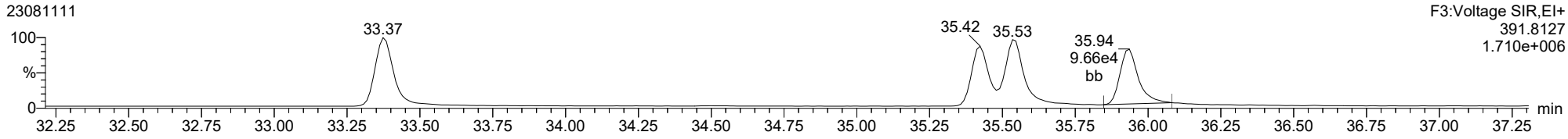


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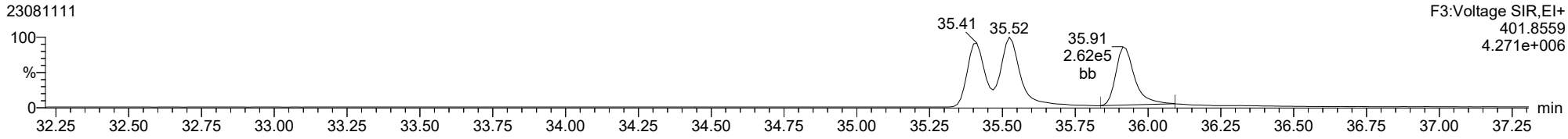
123789-HxCDD



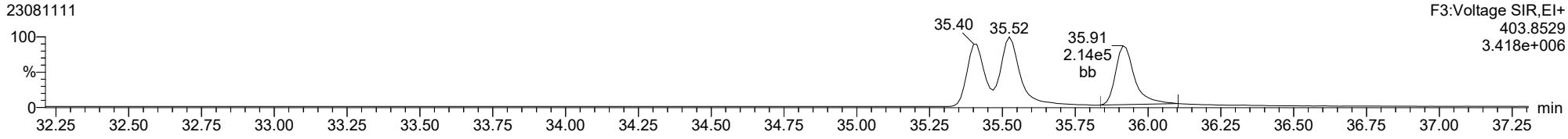
123789-HxCDD



13C-123789-HxCDD



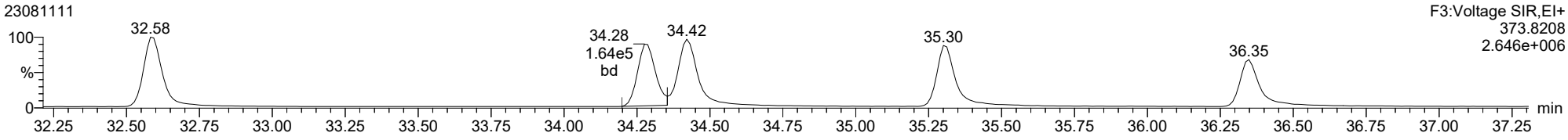
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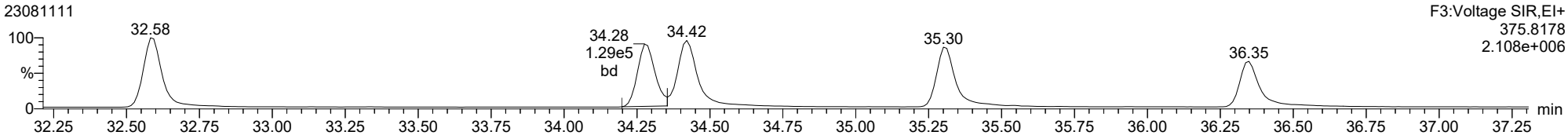
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ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

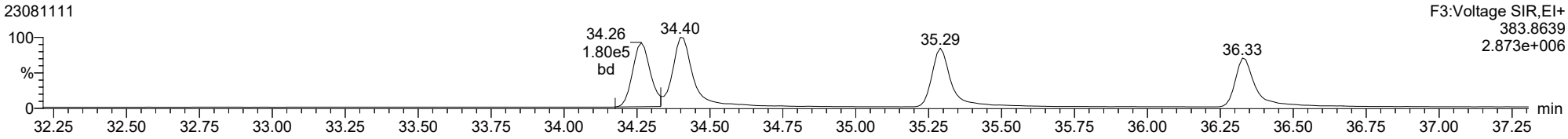
123478-HxCDF



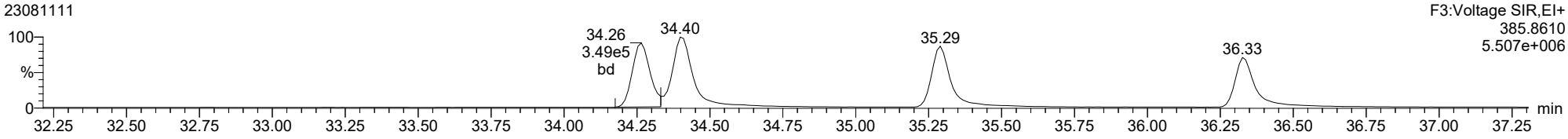
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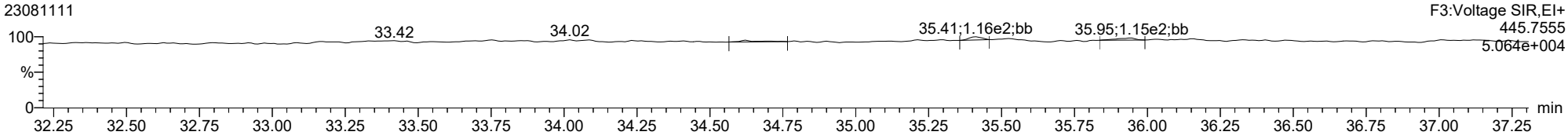
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13C-123478-HxCDF

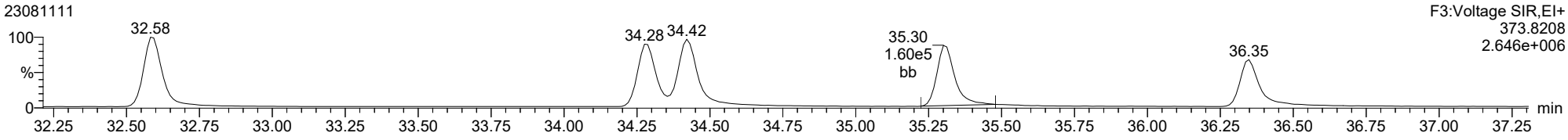


FUNCTION3 OCDPE

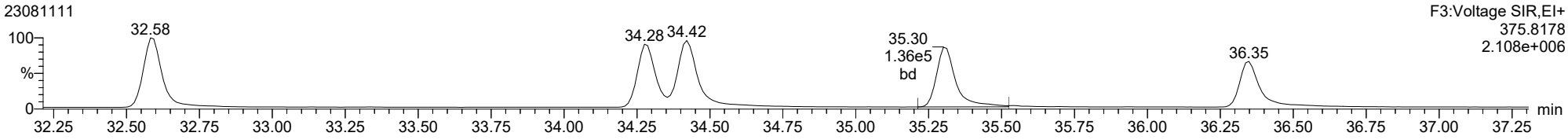


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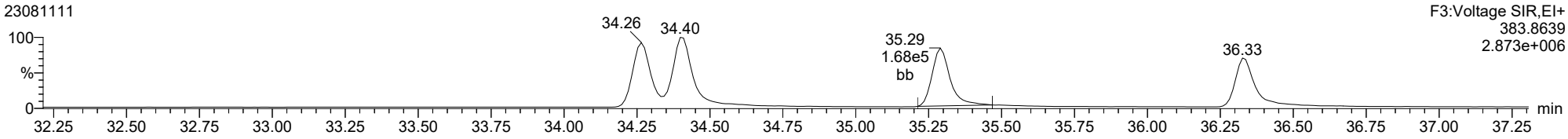
234678-HxCDF



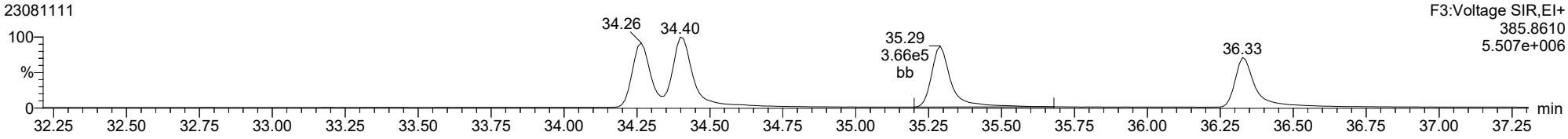
234678-HxCDF



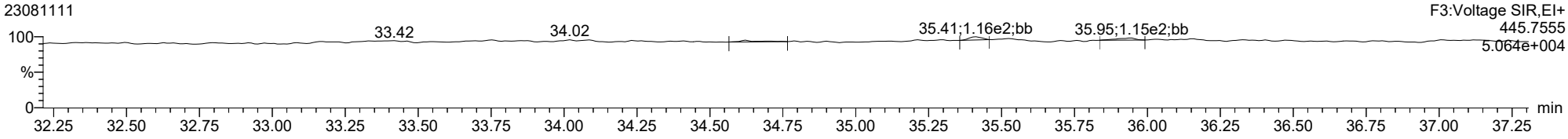
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13C-234678-HxCDF

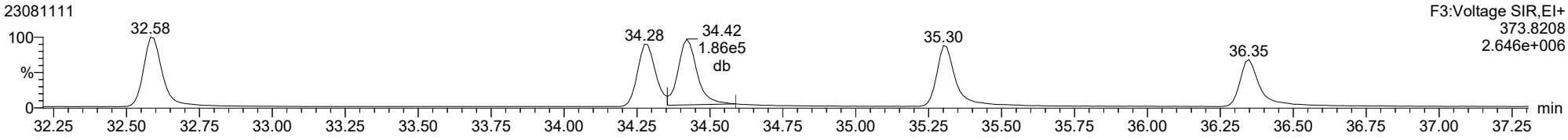


FUNCTION3 OCDPE

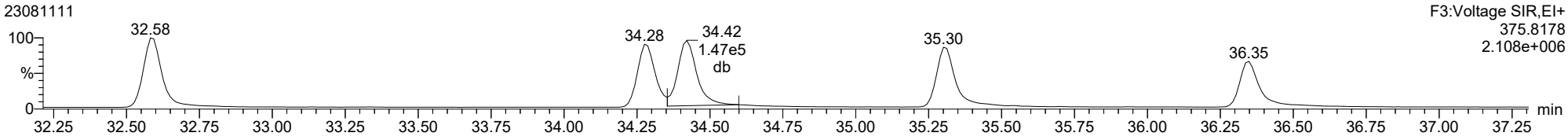


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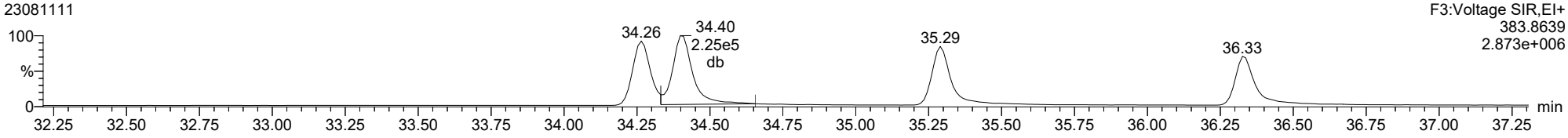
123678-HxCDF



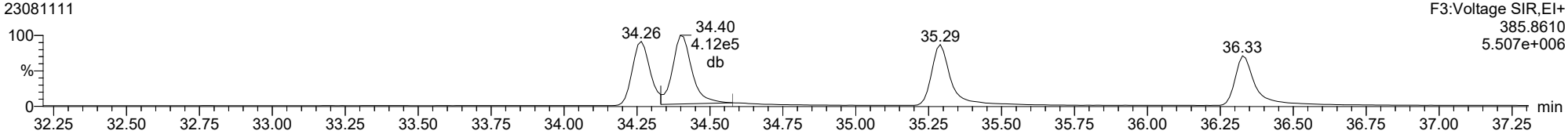
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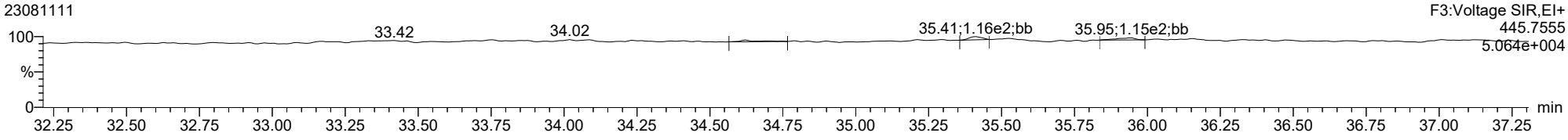
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13C-123678-HxCDF

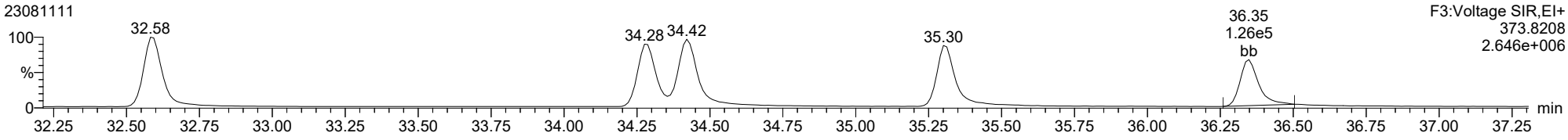


FUNCTION3 OCDPE

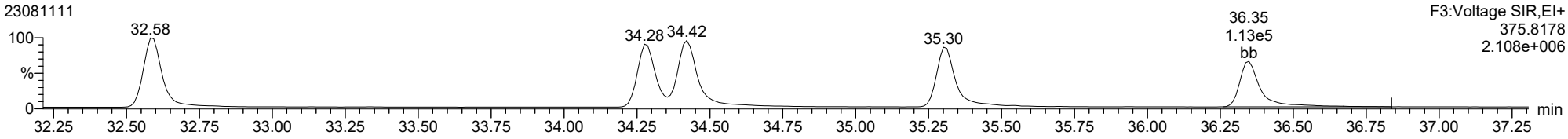


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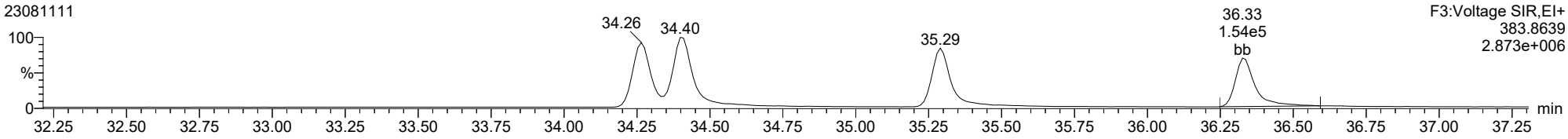
123789-HxCDF



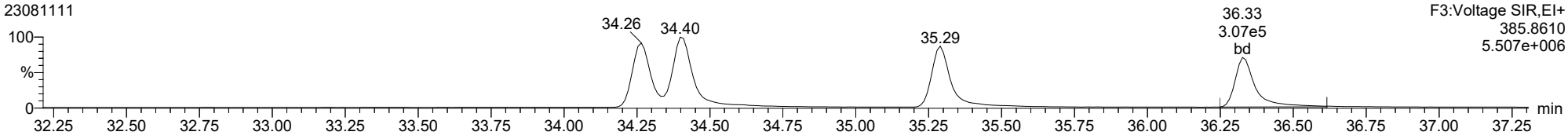
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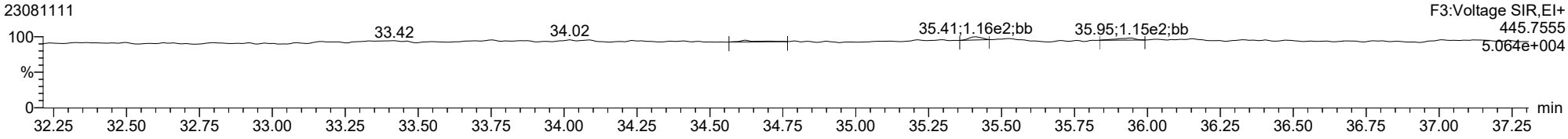
13C-123789-HxCDF



13C-123789-HxCDF

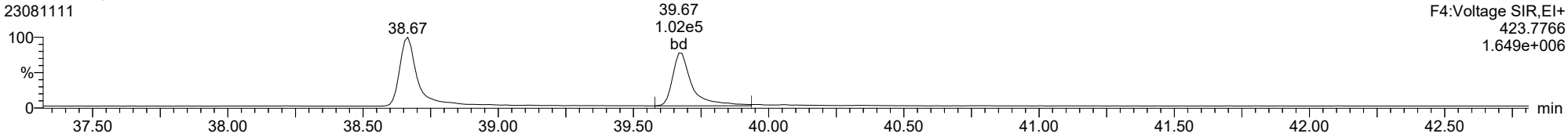


FUNCTION3 OCDPE

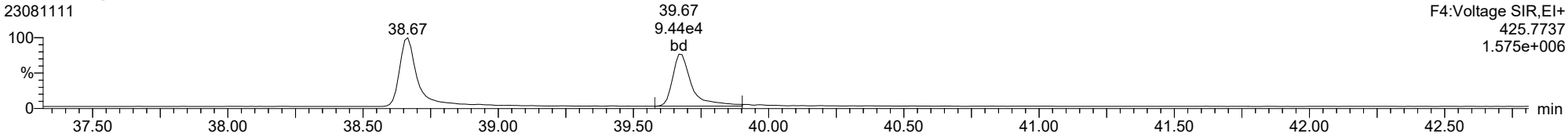


ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

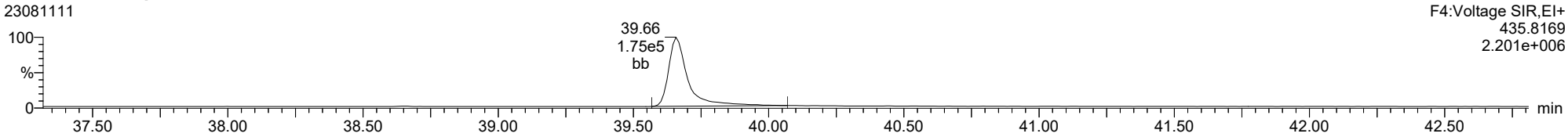
1234678-HpCDD



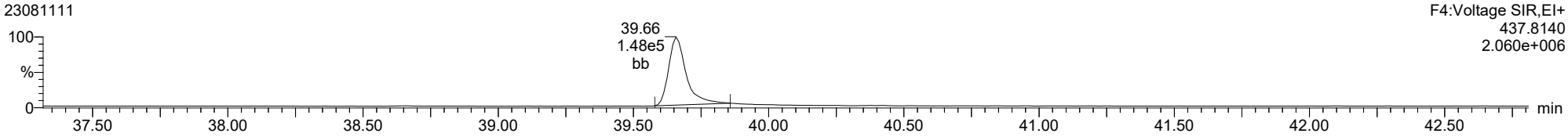
1234678-HpCDD



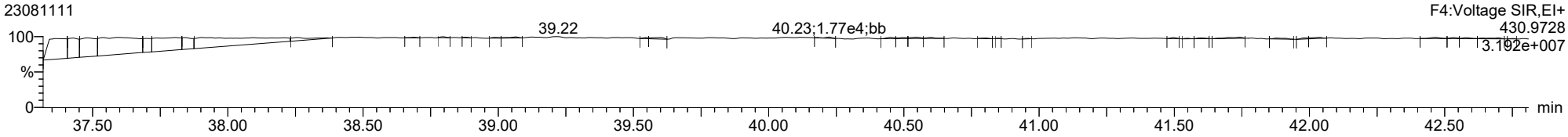
13C-1234678-HpCDD



13C-1234678-HpCDD

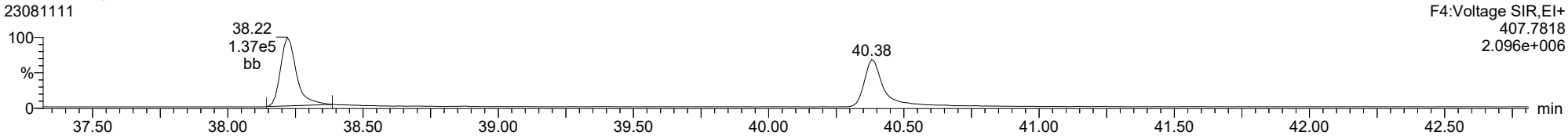


FUNCTION4 PFK

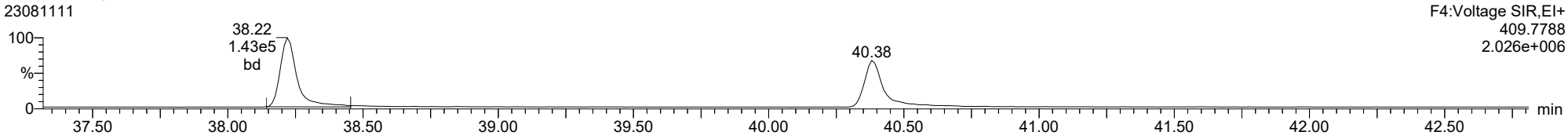


ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

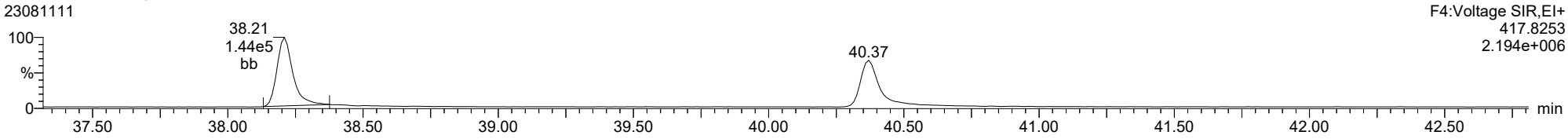
1234678-HpCDF



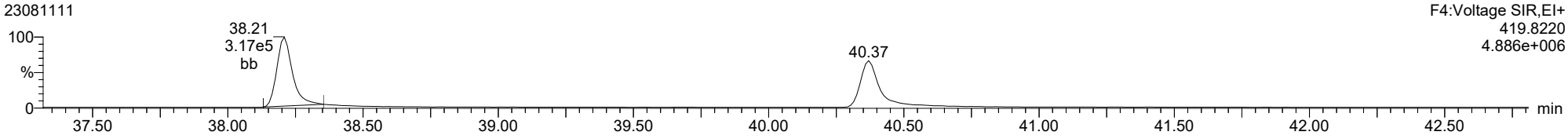
1234678-HpCDF



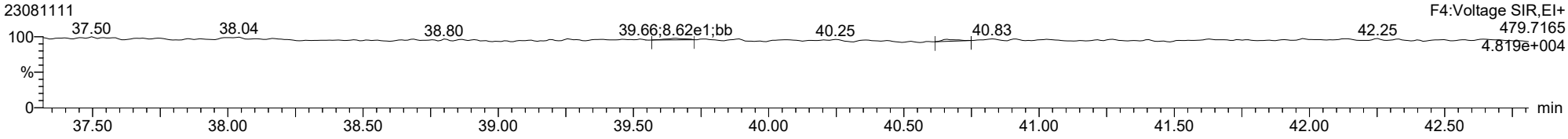
13C-1234678-HpCDF



13C-1234678-HpCDF

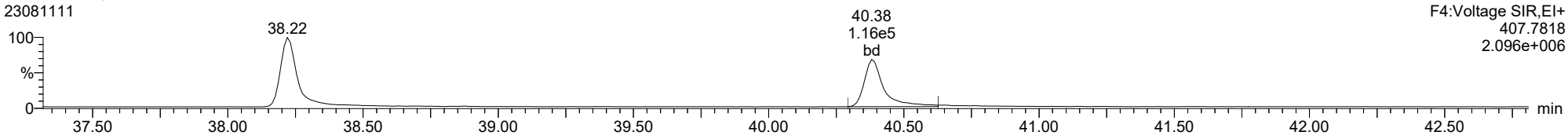


FUNCTION4 NCDPE

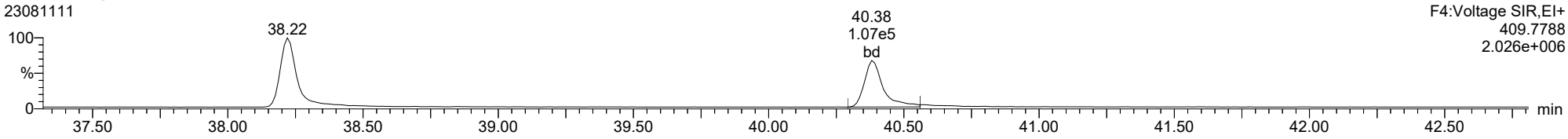


ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

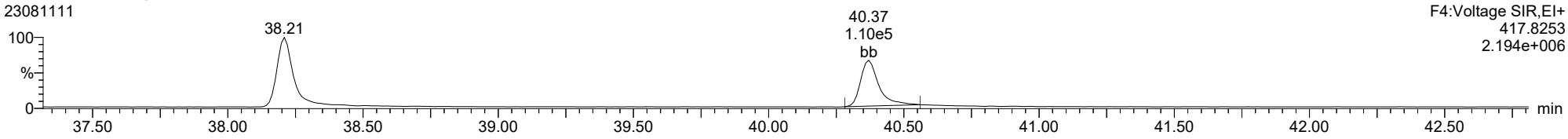
1234789-HpCDF



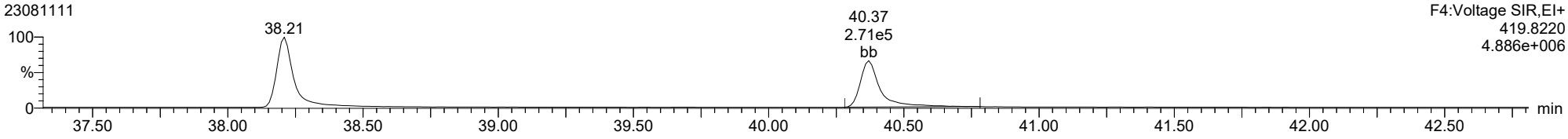
1234789-HpCDF



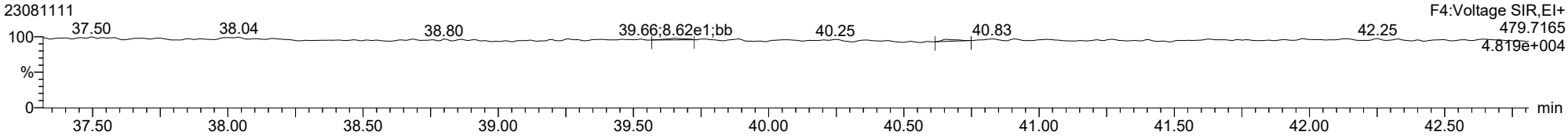
13C-1234789-HpCDF



13C-1234789-HpCDF

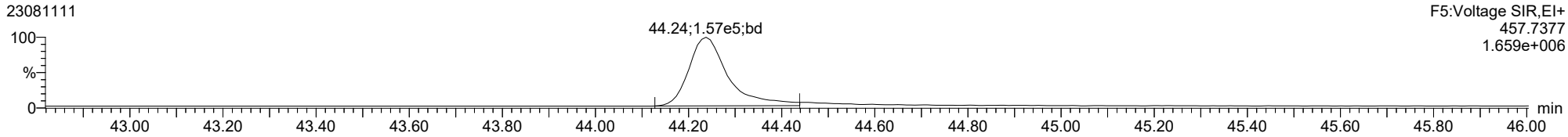


FUNCTION4 NCDPE

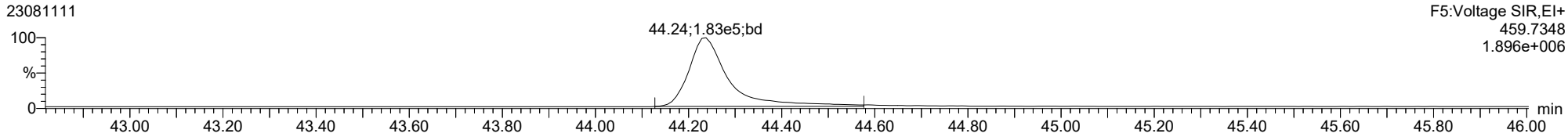


ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

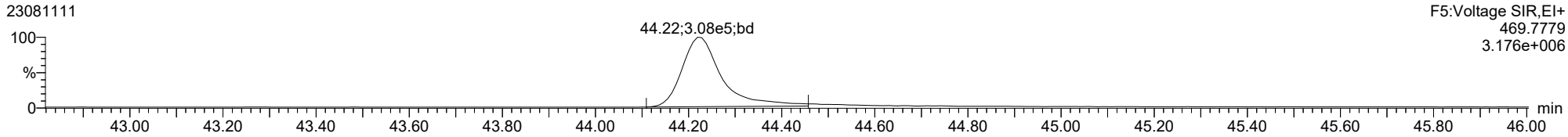
OCDD



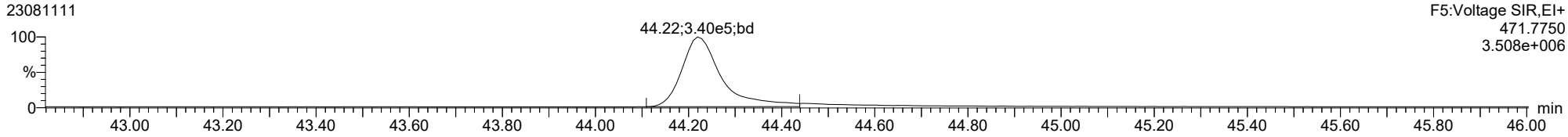
OCDD



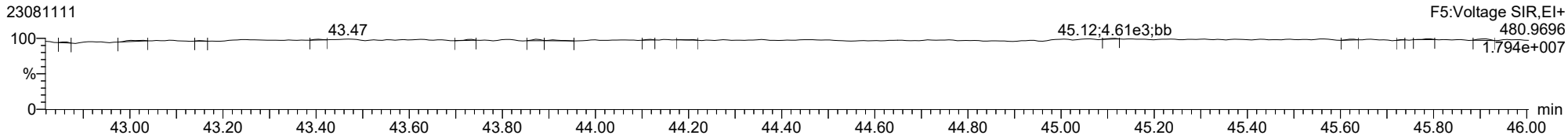
13C-OCDD



13C-OCDD

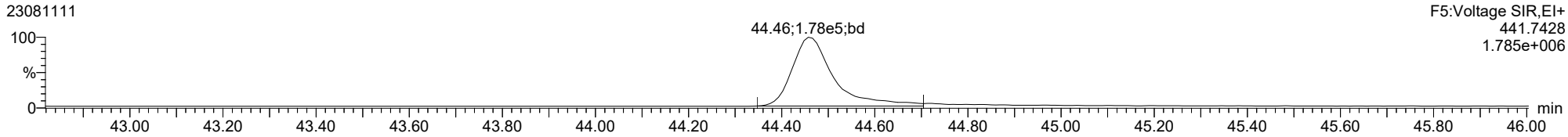


FUNCTION5 PFK

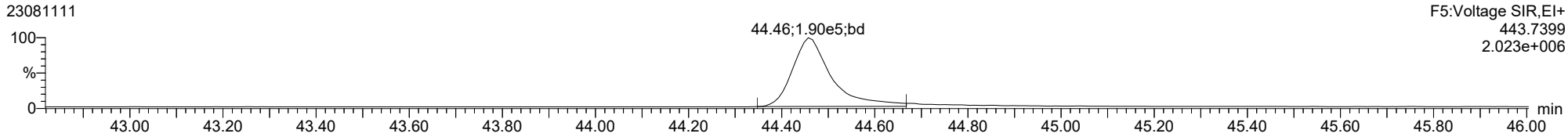


ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

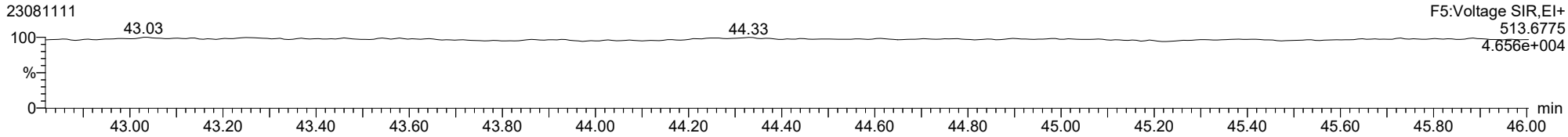
OCDF



OCDF

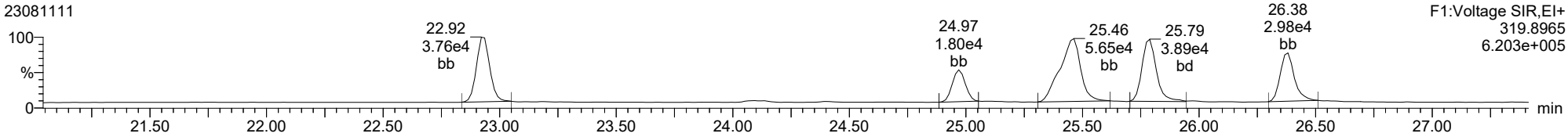


FUNCTION5 DCDPE

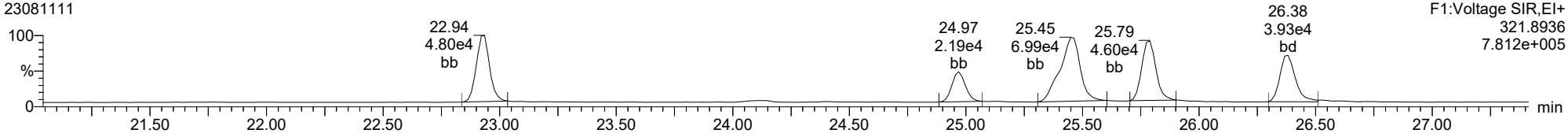


ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

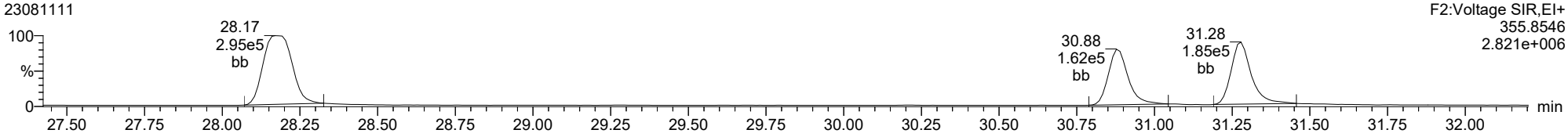
Total-tetradioxins



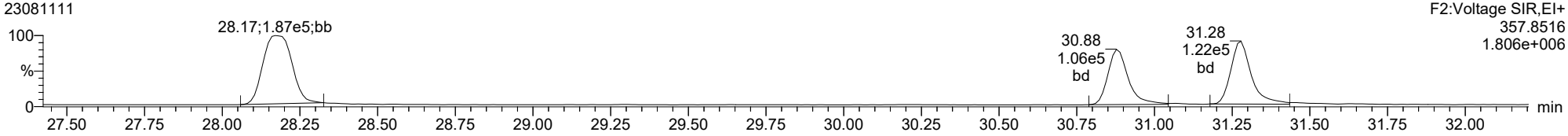
Total-tetradioxins



Total-pentadioxins

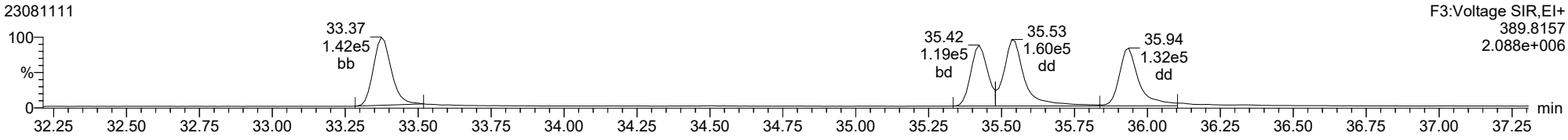


Total-pentadioxins

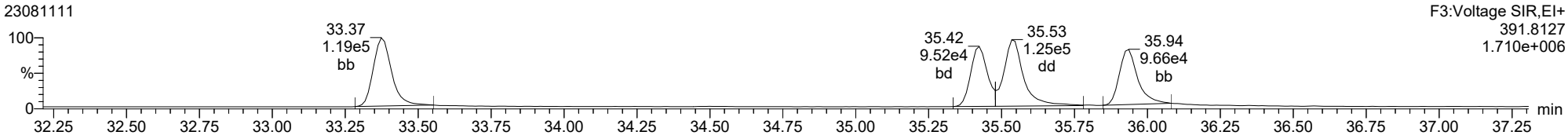


ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

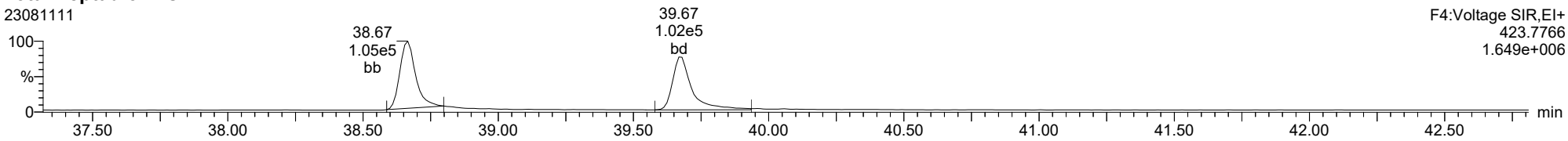
Total-hexadioxins



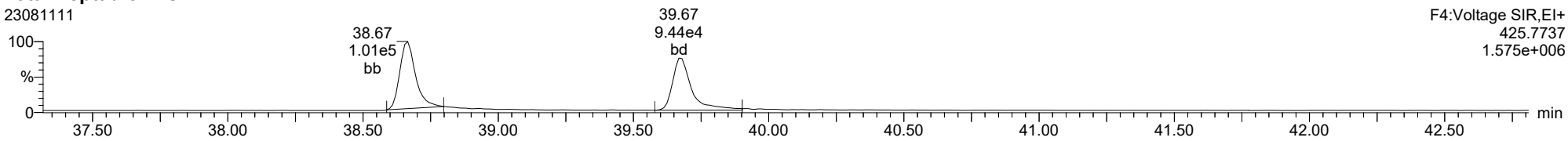
Total-hexadioxins



Total-heptadioxins

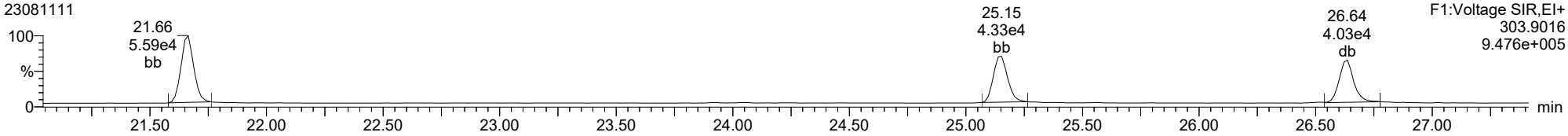


Total-heptadioxins

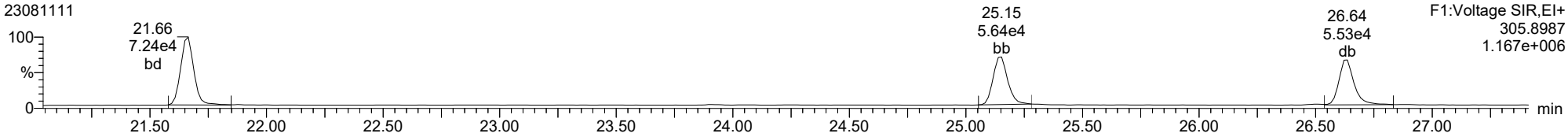


ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

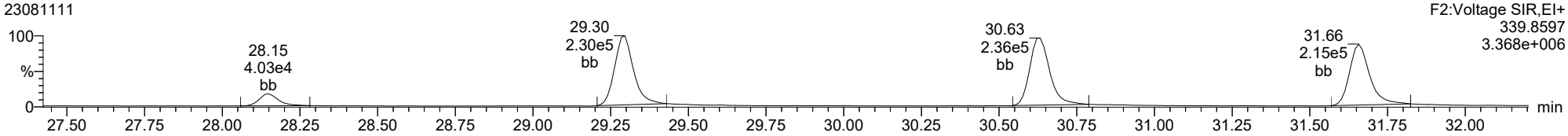
Total-tetrafurans



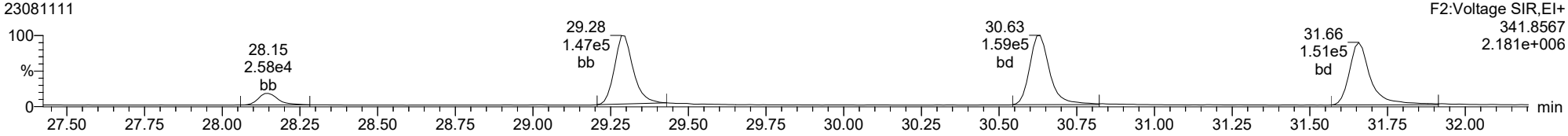
Total-tetrafurans



Total-pentafurans

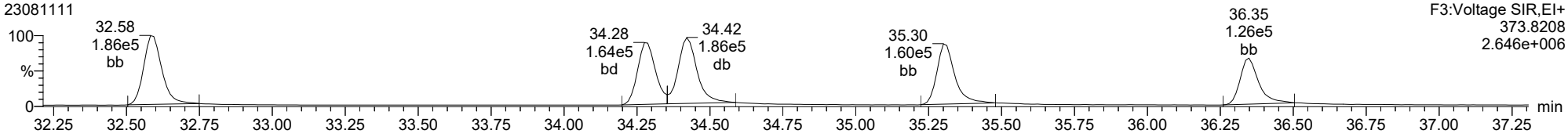


Total-pentafurans

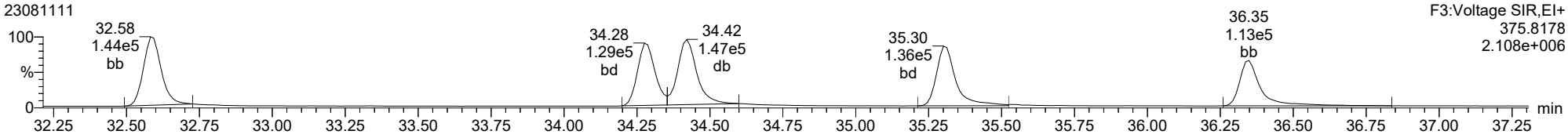


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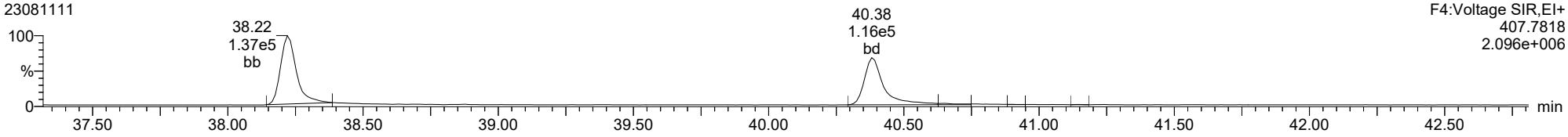
Total-hexafurans



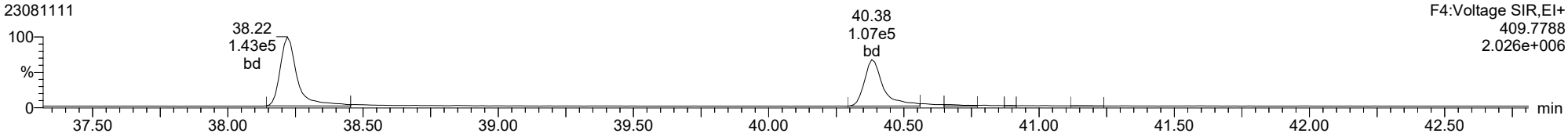
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1613B

Laboratory: Analytical Resources, LLC
Client: Floyd - Snider
Calibration: GH00041
Sequence: SLH0135

SDG: 23L0564
Project: Smith-Kem
Laboratory ID: SLH0135-SCV1
Sequence Name: ICVCF
Standard ID: H008219

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
2,3,7,8-TCDF	10.000	9.78	-2.2	
2,3,7,8-TCDD	10.000	9.85	-1.5	
1,2,3,7,8-PeCDF	50.000	49.3	-1.4	
2,3,4,7,8-PeCDF	50.000	50.5	1.0	
1,2,3,7,8-PeCDD	50.000	52.8	5.6	
1,2,3,4,7,8-HxCDF	50.000	50.0	0.09	
1,2,3,6,7,8-HxCDF	50.000	50.9	1.9	
2,3,4,6,7,8-HxCDF	50.000	52.9	5.9	
1,2,3,7,8,9-HxCDF	50.000	53.4	6.8	
1,2,3,4,7,8-HxCDD	50.000	47.8	-4.5	
1,2,3,6,7,8-HxCDD	50.000	50.8	1.5	
1,2,3,7,8,9-HxCDD	50.000	54.6	9.3	
1,2,3,4,6,7,8-HpCDF	50.000	51.9	3.9	
1,2,3,4,7,8,9-HpCDF	50.000	56.7	13.4	
1,2,3,4,6,7,8-HpCDD	50.000	48.3	-3.5	
OCDF	100.00	100	0.3	
OCDD	100.00	98.5	-1.5	
13C12-2,3,7,8-TCDF	100.00	101	1.2	
13C12-2,3,7,8-TCDD	100.00	100	0.05	
13C12-1,2,3,7,8-PeCDF	100.00	104	3.5	
13C12-2,3,4,7,8-PeCDF	100.00	99.8	-0.2	
13C12-1,2,3,7,8-PeCDD	100.00	100	0.2	
13C12-1,2,3,4,7,8-HxCDF	100.00	95.3	-4.7	
13C12-1,2,3,6,7,8-HxCDF	100.00	93.4	-6.6	
13C12-2,3,4,6,7,8-HxCDF	100.00	93.8	-6.2	
13C12-1,2,3,7,8,9-HxCDF	100.00	96.1	-3.9	
13C12-1,2,3,4,7,8-HxCDD	100.00	99.2	-0.8	
13C12-1,2,3,6,7,8-HxCDD	100.00	99.0	-1.0	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	97.6	-2.4	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	100	0.2	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	103	2.8	
13C12-OCDD	200.00	225	12.5	
37Cl4-2,3,7,8-TCDD	10.000	9.69	-3.1	

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1613B

Laboratory:	Analytical Resources, LLC	**SDG:**	23L0564
Client:	Floyd - Snider	**Project:**	Smith-Kem
Calibration:	GH00041	**Laboratory ID:**	SLH0135-SCV1
Sequence:	SLH0135	**Sequence Name:**	ICVCF
		Standard ID:	H008219

* Indicates values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23L0564
Client: Floyd - Snider
Project: Smith-Kem
Calibration: GH00041
Laboratory ID: SLH0135-SCV1
Sequence: SLH0135
Standard ID: H008219

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
OCDF	100.00	100	0.3	
OCDD	100.00	98.5	-1.5	
13C12-2,3,7,8-TCDF	100.00	101	1.2	
13C12-2,3,7,8-TCDD	100.00	100	0.05	
13C12-1,2,3,7,8-PeCDF	100.00	104	3.5	
13C12-2,3,4,7,8-PeCDF	100.00	99.8	-0.2	
13C12-1,2,3,7,8-PeCDD	100.00	100	0.2	
13C12-1,2,3,4,7,8-HxCDF	100.00	95.3	-4.7	
13C12-1,2,3,6,7,8-HxCDF	100.00	93.4	-6.6	
13C12-2,3,4,6,7,8-HxCDF	100.00	93.8	-6.2	
13C12-1,2,3,7,8,9-HxCDF	100.00	96.1	-3.9	
13C12-1,2,3,4,7,8-HxCDD	100.00	99.2	-0.8	
13C12-1,2,3,6,7,8-HxCDD	100.00	99.0	-1.0	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	97.6	-2.4	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	100	0.2	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	103	2.8	
13C12-OCDD	200.00	225	12.5	
37Cl4-2,3,7,8-TCDD	10.000	9.69	-3.1	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23L0564
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	AUTOSPEC01	Calibration:	GH00041
Lab File ID:	24011802	Calibration Date:	08/11/2023
Sequence:	SMA0233	Injection Date:	01/18/24
Lab Sample ID:	SMA0233-ICV1	Injection Time:	10:22
Sequence Name:	CS3R7		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
2,3,7,8-TCDF	A	10.000	9.56	0.9031472	0.8632573		-4.4	+/-16
2,3,7,8-TCDD	A	10.000	9.09	1.2429820	1.1294940		-9.1	+/-22
1,2,3,7,8-PeCDF	A	50.000	50.2	0.9232368	0.9269805		0.4	+/-18
2,3,4,7,8-PeCDF	A	50.000	49.2	0.9906617	0.9745795		-1.6	+/-18
1,2,3,7,8-PeCDD	A	50.000	49.3	1.1500860	1.1339670		-1.4	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	49.5	1.1281700	1.1175950		-0.9	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	45.9	1.0323580	0.9467232		-8.3	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	50.2	1.0814700	1.0854740		0.4	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	52.7	0.9876148	1.0417790		5.5	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	43.8	0.9600870	0.8402050		-12.5	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	48.7	0.8826935	0.8593259		-2.6	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	47.9	0.8037436	0.7706505		-4.1	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	47.3	1.1637090	1.0998590		-5.5	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	51.4	1.1036300	1.1337550		2.7	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	45.8	1.1996030	1.0996500		-8.3	+/-14
OCDF	A	100.00	94.3	1.1302050	1.0659590		-5.7	+/-37
OCDD	A	100.00	93.1	1.0586660	0.9857763		-6.9	+/-21
13C12-2,3,7,8-TCDF	A	100.00	86.3	1.8353850	1.5835584		-13.7	+/-29
13C12-2,3,7,8-TCDD	A	100.00	108	1.1095460	1.1963941		7.8	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	89.5	1.3765480	1.2322693		-10.5	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	89.1	1.3012340	1.1599564		-10.9	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	104	0.7536802	0.7807918		3.6	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	90.9	1.0906500	0.9909965		-9.1	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	95.4	1.3402290	1.2782741		-4.6	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	92.4	1.0934470	1.0100506		-7.6	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	94.0	0.9516050	0.8942199		-6.0	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	101	0.9598962	0.9729690		1.4	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	102	1.1592550	1.1811579		1.9	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	90.1	0.9849488	0.8877788		-9.9	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	85.7	0.7558011	0.6480261		-14.3	+/-23

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23L0564
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	AUTOSPEC01	Calibration:	GH00041
Lab File ID:	24011802	Calibration Date:	08/11/2023
Sequence:	SMA0233	Injection Date:	01/18/24
Lab Sample ID:	SMA0233-ICV1	Injection Time:	10:22
Sequence Name:	CS3R7		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	102	0.6292861	0.6408945		1.8	+/-28
13C12-OCDD	A	200.00	166	0.6351422	0.5281140		-16.9	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	10.3	1.1573510	1.1918122		3.0	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:44:40 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240116.mdb 16 Jan 2024 11:29:56
Calibration: T:\Autospec\Curves\230811IClH.cdb 12 Aug 2023 09:45:18

ID: CS3S1, Name: 24011802, Date: 18-Jan-2024, Time: 10:22:45, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.054	1.001	2.685e4	3.416e4	0.903	0.786	0.770	1149	1918	3.72e5	4.88e5	323.8	254.1	NO	bd	bb	9.558
12378-PeCDF	29.205	1.001	1.561e5	9.878e4	0.923	1.581	1.550	2671	1865	2.10e6	1.34e6	787.7	717.1	NO	bd	bd	50.203
23478-PeCDF	30.542	1.000	1.514e5	1.009e5	0.991	1.501	1.550	2671	1865	2.11e6	1.35e6	790.7	724.5	NO	bb	bd	49.188
123478-HxCDF	34.196	1.000	1.180e5	9.461e4	1.128	1.247	1.240	2085	1998	1.74e6	1.39e6	835.9	694.3	NO	bd	bd	49.531
234678-HxCDF	35.233	1.001	1.154e5	9.503e4	1.081	1.215	1.240	2085	1998	1.75e6	1.40e6	840.4	699.5	NO	bb	bb	50.185
123678-HxCDF	34.341	1.001	1.298e5	1.025e5	1.032	1.266	1.240	2085	1998	1.82e6	1.46e6	872.7	732.8	NO	db	db	45.852
123789-HxCDF	36.269	1.000	9.780e4	8.103e4	0.988	1.207	1.240	2085	1998	1.27e6	1.02e6	611.4	511.6	NO	bd	bd	52.742
1234678-HpCDF	38.141	1.000	9.156e4	9.588e4	1.164	0.955	1.050	1513	1501	1.35e6	1.35e6	894.9	897.4	NO	bd	bd	47.257
1234789-HpCDF	40.313	1.001	7.246e4	6.858e4	1.104	1.056	1.050	1513	1501	8.74e5	8.50e5	577.8	566.5	NO	bd	bb	51.365
OCDF	44.366	1.005	1.025e5	1.136e5	1.130	0.902	0.890	1573	1217	1.08e6	1.18e6	683.8	971.1	NO	bd	bd	94.316
2378-TCDD	25.704	1.001	2.612e4	3.419e4	1.243	0.764	0.770	1448	1248	3.68e5	4.65e5	253.9	372.3	NO	bb	db	9.087
12378-PeCDD	30.798	1.000	1.196e5	7.795e4	1.150	1.535	1.550	2725	1464	1.59e6	1.06e6	582.4	721.1	NO	bd	bd	49.299
123478-HxCDD	35.355	1.001	8.584e4	7.109e4	0.960	1.208	1.240	1160	1504	1.34e6	1.09e6	1154.5	727.9	NO	bd	bd	43.757
123678-HxCDD	35.466	1.000	1.048e5	9.005e4	0.883	1.164	1.240	1160	1504	1.46e6	1.18e6	1255.2	786.7	NO	db	db	48.676
123789-HxCDD	35.856	1.011	8.801e4	7.133e4	0.804	1.234	1.240	1160	1504	1.25e6	1.02e6	1077.8	679.6	NO	bb	bb	47.941
1234678-HpCDD	39.600	1.000	7.038e4	6.491e4	1.200	1.084	1.050	1531	1535	9.08e5	8.92e5	592.8	581.2	NO	bd	bd	45.834
OCDD	44.137	1.000	9.300e4	1.069e5	1.059	0.870	0.890	1288	1677	1.03e6	1.15e6	796.0	687.3	NO	bd	bd	93.115
13C-2378-TCDF	25.040	1.007	3.067e5	4.001e5	1.835	0.767	0.770	1516	1872	4.48e6	5.83e6	2953.1	3112.8	NO	bb	bb	86.279
13C-12378-PeCDF	29.183	1.173	3.249e5	2.251e5	1.377	1.443	1.550	2013	2994	4.52e6	3.04e6	2245.3	1014.7	NO	bb	bb	89.519
13C-23478-PeCDF	30.531	1.228	3.111e5	2.066e5	1.301	1.506	1.550	2013	2994	4.19e6	2.80e6	2084.1	936.7	NO	bb	bb	89.143
13C-123478-HxCDF	34.185	0.954	1.297e5	2.508e5	1.091	0.517	0.510	1753	2196	1.89e6	3.65e6	1077.3	1663.6	NO	bd	bd	90.863
13C-123678-HxCDF	34.319	0.957	1.716e5	3.192e5	1.340	0.538	0.510	1753	2196	2.09e6	4.00e6	1192.4	1820.4	NO	dd	db	95.377
13C-234678-HxCDF	35.210	0.982	1.312e5	2.565e5	1.093	0.512	0.510	1753	2196	1.88e6	3.64e6	1073.2	1658.1	NO	bb	bb	92.373
13C-123789-HxCDF	36.258	1.012	1.170e5	2.263e5	0.952	0.517	0.510	1753	2196	1.49e6	2.83e6	850.4	1290.6	NO	bb	bb	93.970
13C-1234678-HpCDF	38.130	1.064	1.037e5	2.371e5	0.985	0.438	0.440	1593	2458	1.44e6	3.36e6	906.4	1367.3	NO	bd	bd	90.135
13C-1234789-HpCDF	40.291	1.124	7.465e4	1.741e5	0.756	0.429	0.440	1593	2458	8.82e5	2.05e6	553.7	832.3	NO	bb	bb	85.740
13C-1234-TCDD	24.870	0.000	1.969e5	2.494e5	1.000	0.790	0.770	1819	1557	2.99e6	3.76e6	1641.4	2413.2	NO	bb	bb	100.000
13C-2378-TCDD	25.676	1.032	2.318e5	3.022e5	1.110	0.767	0.770	1819	1557	3.37e6	4.33e6	1851.8	2782.6	NO	bb	bb	107.827
13C-12378-PeCDD	30.787	1.238	2.165e5	1.320e5	0.754	1.641	1.550	1472	1165	3.10e6	1.90e6	2104.7	1633.9	NO	bb	bb	103.597
13C-123478-HxCDD	35.333	0.986	2.070e5	1.666e5	0.960	1.242	1.240	1273	1482	3.05e6	2.49e6	2395.9	1678.2	NO	bd	bd	101.362
13C-123678-HxCDD	35.455	0.989	2.479e5	2.056e5	1.159	1.205	1.240	1273	1482	3.37e6	2.73e6	2647.0	1841.5	NO	db	db	101.889
13C-1234678-HpCDD	39.589	1.104	1.279e5	1.181e5	0.629	1.083	1.050	1690	1171	1.82e6	1.67e6	1075.1	1424.2	NO	bb	bb	101.845
13C-OCDD	44.128	1.231	1.891e5	2.164e5	0.635	0.874	0.890	1822	1746	2.28e6	2.53e6	1248.6	1450.6	NO	bb	bb	166.298
13C-123789-HxCDD	35.845	0.000	2.120e5	1.719e5	1.000	1.234	1.240	1273	1482	2.96e6	2.41e6	2325.2	1624.2	NO	bb	bb	100.000
37CL-2378-TCDD	25.704	1.033	5.319e4		1.157			1266		7.38e5		583.2			bb		10.298

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:44:40 Pacific Standard Time

ID: CS3S1, Name: 24011802, Date: 18-Jan-2024, Time: 10:22:45, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.579	0.862	3.366e4	4.491e4	1.170	0.749	0.770	1149	1918	5.14e5	6.98e5	447.5	363.6	NO	bb	bb	9.498
1289-TCDF	26.537	1.060	2.458e4	3.377e4	0.847	0.728	0.770	1149	1918	3.38e5	4.35e5	294.2	226.7	NO	db	dd	9.751
13468-PECDF	26.410	0.905	2.094e5	1.372e5	1.241	1.526	1.550	558	897	3.16e6	2.07e6	5662.6	2302.7	NO	bb	bb	50.785
12389-PECDF	31.578	1.082	1.489e5	9.451e4	0.880	1.575	1.550	2671	1865	1.87e6	1.19e6	699.4	635.4	NO	bd	bd	50.312
123468-HXCDF	32.503	0.951	1.338e5	1.066e5	1.206	1.255	1.240	2085	1998	1.92e6	1.52e6	920.2	761.6	NO	bb	bb	52.408
1368-TCDD	22.850	0.890	2.517e4	3.252e4	1.181	0.774	0.770	1448	1248	3.88e5	4.90e5	267.9	392.5	NO	bd	bb	9.150
1289-TCDD	26.297	1.024	2.184e4	2.738e4	0.963	0.798	0.770	1448	1248	2.96e5	3.89e5	204.3	312.1	NO	bd	bb	9.573
12479-PECDD	28.091	0.912	2.102e5	1.408e5	2.166	1.493	1.550	2725	1464	1.91e6	1.28e6	701.1	877.0	NO	bd	bd	46.502
12389-PECDD	31.188	1.013	1.426e5	9.430e4	1.326	1.512	1.550	2725	1464	1.79e6	1.20e6	657.8	821.0	NO	dd	dd	51.263
124679-HXCDD	33.294	0.942	1.015e5	8.378e4	1.127	1.212	1.240	1160	1504	1.44e6	1.18e6	1240.7	786.8	NO	bb	bb	44.027
1234679-HPCDD	38.597	0.975	8.741e4	8.379e4	1.303	1.043	1.050	1531	1535	1.19e6	1.16e6	775.9	758.1	NO	bd	bd	53.413
Total-tetrafurans			8.509e4		0.973			1149		1.22e6							28.807
Total-penta1			2.094e5					558		3.16e6							50.785
Total-pentafurans			4.812e5		0.931			2671		6.43e6							158.072
Total-hexafurans			5.948e5		1.087			2085		8.51e6							250.719
Total-heptafurans			1.640e5		1.134			1513		2.23e6							98.621
Total-Furans			1.637e6		1.053			1149		2.26e7							681.320
Total-tetradioxins			1.232e5		1.129			1448		1.63e6							47.226
Total-pentadioxins			4.746e5		1.548			2725		5.31e6							147.733
Total-hexadioxins			3.801e5		0.943			1160		5.48e6							184.401
Total-heptadioxins			1.578e5		1.251			1531		2.10e6							99.247
Total-Dioxins			1.229e6		1.182			1448		1.55e7							571.722
Total-TEQ			2.866e6					1448		3.82e7							1253.043
FUNCTION1 PFK			5.843e7					607103		4.48e7							
FUNCTION2 PFK			7.487e5					391405		2.01e7							0.000
FUNCTION3 PFK			1.585e6					475806		3.78e7							0.000
FUNCTION4 PFK			9.305e5					320487		2.25e7							
FUNCTION5 PFK			1.876e5					225701		6.55e6							
FUNCTION1 HXCD...			1.329e3					774		1.02e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			2.962e2					638		6.21e3							0.000
FUNCTION3 OCDPE			0.000e0					840		0.00e0							
FUNCTION4 NCDPE			5.935e2					673		1.17e4							0.000
FUNCTION5 DCDPE			8.030e1					642		1.25e3							0.000

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:44:40 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240116.mdb 16 Jan 2024 11:29:56
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: CS3S1, Name: 24011802, Date: 18-Jan-2024, Time: 10:22:45, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.54	2.458e4	3.377e4	0.847	0.73	0.77	294.2	YES	NO	db	dd	9.751
2	2378-TCDF	25.05	2.685e4	3.416e4	0.903	0.79	0.77	323.8	YES	NO	bd	bb	9.558
3	1368-TCDF	21.58	3.366e4	4.491e4	1.170	0.75	0.77	447.5	YES	NO	bb	bb	9.498

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.41	2.094e5	1.372e5	1.241	1.53	1.55	5662.6	YES	NO	bb	bb	50.785

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.06	2.480e4	1.681e4	0.931	1.48	1.55	130.4	YES	NO	bb	bb	8.370
2	12389-PECDF	31.58	1.489e5	9.451e4	0.880	1.58	1.55	699.4	YES	NO	bd	bd	50.312
3	23478-PeCDF	30.54	1.514e5	1.009e5	0.991	1.50	1.55	790.7	YES	NO	bb	bd	49.188
4	12378-PeCDF	29.21	1.561e5	9.878e4	0.923	1.58	1.55	787.7	YES	NO	bd	bd	50.203

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.27	9.780e4	8.103e4	0.988	1.21	1.24	611.4	YES	NO	bd	bd	52.742
2	234678-HxCDF	35.23	1.154e5	9.503e4	1.081	1.21	1.24	840.4	YES	NO	bb	bb	50.185
3	123678-HxCDF	34.34	1.298e5	1.025e5	1.032	1.27	1.24	872.7	YES	NO	db	db	45.852
4	123478-HxCDF	34.20	1.180e5	9.461e4	1.128	1.25	1.24	835.9	YES	NO	bd	bd	49.531
5	123468-HXCDF	32.50	1.338e5	1.066e5	1.206	1.25	1.24	920.2	YES	NO	bb	bb	52.408

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.14	9.156e4	9.588e4	1.164	0.95	1.05	894.9	YES	NO	bd	bd	47.257
2	1234789-HpCDF	40.31	7.246e4	6.858e4	1.104	1.06	1.05	577.8	YES	NO	bd	bb	51.365

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
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ID: CS3S1, Name: 24011802, Date: 18-Jan-2024, Time: 10:22:45, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.06	2.480e4	1.681e4	0.931	1.48	1.55	130.4	YES	NO	bb	bb	8.370
2	1289-TCDF	26.54	2.458e4	3.377e4	0.847	0.73	0.77	294.2	YES	NO	db	dd	9.751
3	2378-TCDF	25.05	2.685e4	3.416e4	0.903	0.79	0.77	323.8	YES	NO	bd	bb	9.558
4	1368-TCDF	21.58	3.366e4	4.491e4	1.170	0.75	0.77	447.5	YES	NO	bb	bb	9.498
5	12389-PECDF	31.58	1.489e5	9.451e4	0.880	1.58	1.55	699.4	YES	NO	bd	bd	50.312
6	23478-PeCDF	30.54	1.514e5	1.009e5	0.991	1.50	1.55	790.7	YES	NO	bb	bd	49.188
7	12378-PeCDF	29.21	1.561e5	9.878e4	0.923	1.58	1.55	787.7	YES	NO	bd	bd	50.203
8	123789-HxCDF	36.27	9.780e4	8.103e4	0.988	1.21	1.24	611.4	YES	NO	bd	bd	52.742
9	234678-HxCDF	35.23	1.154e5	9.503e4	1.081	1.21	1.24	840.4	YES	NO	bb	bb	50.185
10	123678-HxCDF	34.34	1.298e5	1.025e5	1.032	1.27	1.24	872.7	YES	NO	db	db	45.852
11	123478-HxCDF	34.20	1.180e5	9.461e4	1.128	1.25	1.24	835.9	YES	NO	bd	bd	49.531
12	123468-HXCDF	32.50	1.338e5	1.066e5	1.206	1.25	1.24	920.2	YES	NO	bb	bb	52.408
13	1234678-HpCDF	38.14	9.156e4	9.588e4	1.164	0.95	1.05	894.9	YES	NO	bd	bd	47.257
14	OCDF	44.37	1.025e5	1.136e5	1.130	0.90	0.89	683.8	YES	NO	bd	bd	94.316
15	1234789-HpCDF	40.31	7.246e4	6.858e4	1.104	1.06	1.05	577.8	YES	NO	bd	bb	51.365
16	13468-PECDF	26.41	2.094e5	1.372e5	1.241	1.53	1.55	5662.6	YES	NO	bb	bb	50.785

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	22.85	2.517e4	3.252e4	1.181	0.77	0.77	267.9	YES	NO	bd	bb	9.150
2	1289-TCDD	26.30	2.184e4	2.738e4	0.963	0.80	0.77	204.3	YES	NO	bd	bb	9.573
3	2378-TCDD	25.70	2.612e4	3.419e4	1.243	0.76	0.77	253.9	YES	NO	bb	db	9.087
4	Total-tetradioxins	25.38	3.727e4	5.002e4	1.129	0.75	0.77	267.6	YES	NO	bd	bd	14.482
5	Total-tetradioxins	24.88	1.158e4	1.534e4	1.129	0.75	0.77	123.8	YES	NO	bb	bb	4.466
6	Total-tetradioxins	24.04	1.202e3	1.614e3	1.129	0.74	0.77	8.1	YES	NO	bb	bb	0.467

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	31.48	2.157e3	1.447e3	1.548	1.49	1.55	9.1	YES	NO	db	dd	0.668
2	12389-PECDD	31.19	1.426e5	9.430e4	1.326	1.51	1.55	657.8	YES	NO	dd	dd	51.263
3	12378-PeCDD	30.80	1.196e5	7.795e4	1.150	1.53	1.55	582.4	YES	NO	bd	bd	49.299
4	12479-PECDD	28.09	2.102e5	1.408e5	2.166	1.49	1.55	701.1	YES	NO	bd	bd	46.502

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDD	35.36	8.584e4	7.109e4	0.960	1.21	1.24	1154.5	YES	NO	bd	bd	43.757
2	124679-HXCDD	33.29	1.015e5	8.378e4	1.127	1.21	1.24	1240.7	YES	NO	bb	bb	44.027
3	123789-HxCDD	35.86	8.801e4	7.133e4	0.804	1.23	1.24	1077.8	YES	NO	bb	bb	47.941
4	123678-HxCDD	35.47	1.048e5	9.005e4	0.883	1.16	1.24	1255.2	YES	NO	db	db	48.676

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.60	7.038e4	6.491e4	1.200	1.08	1.05	592.8	YES	NO	bd	bd	45.834
2	1234679-HPCDD	38.60	8.741e4	8.379e4	1.303	1.04	1.05	775.9	YES	NO	bd	bd	53.413

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	22.85	2.517e4	3.252e4	1.181	0.77	0.77	267.9	YES	NO	bd	bb	9.150
2	1289-TCDD	26.30	2.184e4	2.738e4	0.963	0.80	0.77	204.3	YES	NO	bd	bb	9.573
3	2378-TCDD	25.70	2.612e4	3.419e4	1.243	0.76	0.77	253.9	YES	NO	bb	db	9.087
4	Total-tetradioxins	25.38	3.727e4	5.002e4	1.129	0.75	0.77	267.6	YES	NO	bd	bd	14.482
5	Total-tetradioxins	24.88	1.158e4	1.534e4	1.129	0.75	0.77	123.8	YES	NO	bb	bb	4.466
6	Total-tetradioxins	24.04	1.202e3	1.614e3	1.129	0.74	0.77	8.1	YES	NO	bb	bb	0.467
7	Total-pentadioxins	31.48	2.157e3	1.447e3	1.548	1.49	1.55	9.1	YES	NO	db	dd	0.668
8	12389-PECDD	31.19	1.426e5	9.430e4	1.326	1.51	1.55	657.8	YES	NO	dd	dd	51.263
9	12378-PeCDD	30.80	1.196e5	7.795e4	1.150	1.53	1.55	582.4	YES	NO	bd	bd	49.299
10	12479-PECDD	28.09	2.102e5	1.408e5	2.166	1.49	1.55	701.1	YES	NO	bd	bd	46.502
11	123478-HxCDD	35.36	8.584e4	7.109e4	0.960	1.21	1.24	1154.5	YES	NO	bd	bd	43.757
12	124679-HXCDD	33.29	1.015e5	8.378e4	1.127	1.21	1.24	1240.7	YES	NO	bb	bb	44.027
13	123789-HxCDD	35.86	8.801e4	7.133e4	0.804	1.23	1.24	1077.8	YES	NO	bb	bb	47.941
14	123678-HxCDD	35.47	1.048e5	9.005e4	0.883	1.16	1.24	1255.2	YES	NO	db	db	48.676
15	1234678-HpCDD	39.60	7.038e4	6.491e4	1.200	1.08	1.05	592.8	YES	NO	bd	bd	45.834
16	1234679-HPCDD	38.60	8.741e4	8.379e4	1.303	1.04	1.05	775.9	YES	NO	bd	bd	53.413
17	OCDD	44.14	9.300e4	1.069e5	1.059	0.87	0.89	796.0	YES	NO	bd	bd	93.115

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.06	2.480e4	1.681e4	0.931	1.48	1.55	130.4	YES	NO	bb	bb	8.370
2	1289-TCDF	26.54	2.458e4	3.377e4	0.847	0.73	0.77	294.2	YES	NO	db	dd	9.751
3	2378-TCDF	25.05	2.685e4	3.416e4	0.903	0.79	0.77	323.8	YES	NO	bd	bb	9.558
4	1368-TCDF	21.58	3.366e4	4.491e4	1.170	0.75	0.77	447.5	YES	NO	bb	bb	9.498
5	12389-PECDF	31.58	1.489e5	9.451e4	0.880	1.58	1.55	699.4	YES	NO	bd	bd	50.312
6	23478-PeCDF	30.54	1.514e5	1.009e5	0.991	1.50	1.55	790.7	YES	NO	bb	bd	49.188
7	12378-PeCDF	29.21	1.561e5	9.878e4	0.923	1.58	1.55	787.7	YES	NO	bd	bd	50.203
8	123789-HxCDF	36.27	9.780e4	8.103e4	0.988	1.21	1.24	611.4	YES	NO	bd	bd	52.742
9	234678-HxCDF	35.23	1.154e5	9.503e4	1.081	1.21	1.24	840.4	YES	NO	bb	bb	50.185
10	123678-HxCDF	34.34	1.298e5	1.025e5	1.032	1.27	1.24	872.7	YES	NO	db	db	45.852
11	123478-HxCDF	34.20	1.180e5	9.461e4	1.128	1.25	1.24	835.9	YES	NO	bd	bd	49.531
12	123468-HXCDF	32.50	1.338e5	1.066e5	1.206	1.25	1.24	920.2	YES	NO	bb	bb	52.408
13	1234678-HpCDF	38.14	9.156e4	9.588e4	1.164	0.95	1.05	894.9	YES	NO	bd	bd	47.257
14	OCDF	44.37	1.025e5	1.136e5	1.130	0.90	0.89	683.8	YES	NO	bd	bd	94.316
15	1234789-HpCDF	40.31	7.246e4	6.858e4	1.104	1.06	1.05	577.8	YES	NO	bd	bb	51.365
16	13468-PECDF	26.41	2.094e5	1.372e5	1.241	1.53	1.55	5662.6	YES	NO	bb	bb	50.785
17	1368-TCDD	22.85	2.517e4	3.252e4	1.181	0.77	0.77	267.9	YES	NO	bd	bb	9.150
18	1289-TCDD	26.30	2.184e4	2.738e4	0.963	0.80	0.77	204.3	YES	NO	bd	bb	9.573
19	2378-TCDD	25.70	2.612e4	3.419e4	1.243	0.76	0.77	253.9	YES	NO	bb	db	9.087
20	Total-tetradioxins	25.38	3.727e4	5.002e4	1.129	0.75	0.77	267.6	YES	NO	bd	bd	14.482
21	Total-tetradioxins	24.88	1.158e4	1.534e4	1.129	0.75	0.77	123.8	YES	NO	bb	bb	4.466
22	Total-tetradioxins	24.04	1.202e3	1.614e3	1.129	0.74	0.77	8.1	YES	NO	bb	bb	0.467
23	Total-pentadioxins	31.48	2.157e3	1.447e3	1.548	1.49	1.55	9.1	YES	NO	db	dd	0.668
24	12389-PECDD	31.19	1.426e5	9.430e4	1.326	1.51	1.55	657.8	YES	NO	dd	dd	51.263
25	12378-PeCDD	30.80	1.196e5	7.795e4	1.150	1.53	1.55	582.4	YES	NO	bd	bd	49.299
26	12479-PECDD	28.09	2.102e5	1.408e5	2.166	1.49	1.55	701.1	YES	NO	bd	bd	46.502
27	123478-HxCDD	35.36	8.584e4	7.109e4	0.960	1.21	1.24	1154.5	YES	NO	bd	bd	43.757
28	124679-HXCDD	33.29	1.015e5	8.378e4	1.127	1.21	1.24	1240.7	YES	NO	bb	bb	44.027
29	123789-HxCDD	35.86	8.801e4	7.133e4	0.804	1.23	1.24	1077.8	YES	NO	bb	bb	47.941
30	123678-HxCDD	35.47	1.048e5	9.005e4	0.883	1.16	1.24	1255.2	YES	NO	db	db	48.676
31	1234678-HpCDD	39.60	7.038e4	6.491e4	1.200	1.08	1.05	592.8	YES	NO	bd	bd	45.834
32	1234679-HPCDD	38.60	8.741e4	8.379e4	1.303	1.04	1.05	775.9	YES	NO	bd	bd	53.413
33	OCDD	44.14	9.300e4	1.069e5	1.059	0.87	0.89	796.0	YES	NO	bd	bd	93.115

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.07	5.843e7					73.7	YES		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	27.61	1.116e4					1.0	NO		db		0.000
2	FUNCTION2 PFK	27.53	4.220e4					2.3	NO		bd		0.000
3	FUNCTION2 PFK	27.38	3.521e3					0.8	NO		bb		0.000
4	FUNCTION2 PFK	29.19	2.410e4					1.4	NO		bb		0.000
5	FUNCTION2 PFK	29.07	8.870e3					1.4	NO		bb		0.000
6	FUNCTION2 PFK	29.02	1.061e4					0.8	NO		bb		0.000
7	FUNCTION2 PFK	28.92	1.429e3					0.3	NO		bb		0.000
8	FUNCTION2 PFK	28.87	3.231e4					1.2	NO		bb		0.000
9	FUNCTION2 PFK	28.73	3.681e4					1.9	NO		bb		0.000
10	FUNCTION2 PFK	28.58	8.211e3					0.8	NO		bb		0.000
11	FUNCTION2 PFK	28.51	1.656e4					1.3	NO		db		0.000
12	FUNCTION2 PFK	28.46	2.290e4					2.3	NO		bd		0.000
13	FUNCTION2 PFK	28.40	1.372e4					1.1	NO		bb		0.000
14	FUNCTION2 PFK	28.21	5.414e4					2.1	NO		bb		0.000
15	FUNCTION2 PFK	28.14	8.201e3					1.0	NO		bb		0.000
16	FUNCTION2 PFK	28.08	2.234e4					2.3	NO		db		0.000
17	FUNCTION2 PFK	28.02	5.064e4					2.1	NO		dd		0.000
18	FUNCTION2 PFK	27.96	3.769e4					1.8	NO		bd		0.000
19	FUNCTION2 PFK	27.80	2.387e4					1.5	NO		bb		0.000
20	FUNCTION2 PFK	31.07	2.484e4					2.1	NO		db		0.000
21	FUNCTION2 PFK	31.00	2.374e4					1.4	NO		dd		0.000
22	FUNCTION2 PFK	30.95	2.575e4					1.5	NO		bd		0.000
23	FUNCTION2 PFK	30.79	1.518e3					0.4	NO		bb		0.000
24	FUNCTION2 PFK	30.73	5.263e3					0.6	NO		bb		0.000
25	FUNCTION2 PFK	30.69	7.945e3					1.0	NO		db		0.000
26	FUNCTION2 PFK	30.65	1.620e4					1.3	NO		dd		0.000
27	FUNCTION2 PFK	30.55	5.213e4					1.7	NO		bd		0.000
28	FUNCTION2 PFK	30.43	4.249e3					0.6	NO		bb		0.000
29	FUNCTION2 PFK	30.16	1.718e4					1.4	NO		db		0.000
30	FUNCTION2 PFK	30.10	1.434e4					1.3	NO		bd		0.000
31	FUNCTION2 PFK	29.96	4.751e3					0.6	NO		bb		0.000
32	FUNCTION2 PFK	29.80	1.463e3					0.3	NO		bb		0.000
33	FUNCTION2 PFK	29.55	1.890e3					0.4	NO		bb		0.000
34	FUNCTION2 PFK	29.41	7.969e3					0.9	NO		bb		0.000
35	FUNCTION2 PFK	29.26	1.222e4					1.1	NO		bb		0.000
36	FUNCTION2 PFK	31.87	1.475e3					0.3	NO		bb		0.000
37	FUNCTION2 PFK	31.82	1.700e3					0.4	NO		bb		0.000

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION2 PFK	31.76	1.501e3					0.0	NO		bb		0.000
39	FUNCTION2 PFK	31.60	1.802e3					0.4	NO		bb		0.000
40	FUNCTION2 PFK	31.52	5.227e3					0.6	NO		bb		0.000
41	FUNCTION2 PFK	31.39	1.138e4					1.0	NO		db		0.000
42	FUNCTION2 PFK	31.33	3.000e4					1.5	NO		bd		0.000
43	FUNCTION2 PFK	31.23	1.618e4					1.4	NO		db		0.000
44	FUNCTION2 PFK	31.15	2.875e4					1.7	NO		bd		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	32.41	1.263e5					2.0	NO		dd		0.000
2	FUNCTION3 PFK	32.38	2.153e4					1.6	NO		dd		0.000
3	FUNCTION3 PFK	32.34	3.258e4					2.0	NO		dd		0.000
4	FUNCTION3 PFK	32.27	1.770e4					1.4	NO		bd		0.000
5	FUNCTION3 PFK	32.22	2.078e4					2.0	NO		db		0.000
6	FUNCTION3 PFK	32.20	1.719e4					1.5	NO		bd		0.000
7	FUNCTION3 PFK	33.85	1.390e4					1.4	NO		db		0.000
8	FUNCTION3 PFK	33.81	4.224e4					1.9	NO		dd		0.000
9	FUNCTION3 PFK	33.75	2.010e4					1.3	NO		dd		0.000
10	FUNCTION3 PFK	33.71	3.188e4					1.8	NO		dd		0.000
11	FUNCTION3 PFK	33.64	3.176e4					1.4	NO		dd		0.000
12	FUNCTION3 PFK	33.56	1.450e4					1.1	NO		dd		0.000
13	FUNCTION3 PFK	33.51	3.265e4					1.3	NO		dd		0.000
14	FUNCTION3 PFK	33.43	9.585e3					0.8	NO		bd		0.000
15	FUNCTION3 PFK	33.31	1.888e4					1.0	NO		bb		0.000
16	FUNCTION3 PFK	33.20	1.258e4					0.8	NO		db		0.000
17	FUNCTION3 PFK	33.16	1.435e4					0.9	NO		dd		0.000
18	FUNCTION3 PFK	33.10	9.158e3					0.7	NO		bd		0.000
19	FUNCTION3 PFK	33.05	2.395e3					0.5	NO		bb		0.000
20	FUNCTION3 PFK	32.76	6.226e4					1.5	NO		bb		0.000
21	FUNCTION3 PFK	32.63	2.339e4					1.6	NO		db		0.000
22	FUNCTION3 PFK	32.58	2.610e4					1.8	NO		dd		0.000
23	FUNCTION3 PFK	35.07	3.619e4					2.0	NO		db		0.000
24	FUNCTION3 PFK	35.01	4.234e4					1.3	NO		bd		0.000
25	FUNCTION3 PFK	34.92	2.970e4					2.1	NO		db		0.000
26	FUNCTION3 PFK	34.86	7.554e4					2.1	NO		bd		0.000
27	FUNCTION3 PFK	34.75	1.183e4					0.9	NO		bb		0.000
28	FUNCTION3 PFK	34.70	1.164e4					1.1	NO		db		0.000
29	FUNCTION3 PFK	34.66	2.162e4					1.1	NO		dd		0.000
30	FUNCTION3 PFK	34.62	1.118e4					0.9	NO		bd		0.000
31	FUNCTION3 PFK	34.55	5.480e3					0.6	NO		db		0.000
32	FUNCTION3 PFK	34.52	9.213e3					0.8	NO		bd		0.000
33	FUNCTION3 PFK	34.42	3.482e3					0.7	NO		bb		0.000
34	FUNCTION3 PFK	34.24	4.351e4					1.9	NO		db		0.000
35	FUNCTION3 PFK	34.20	1.580e4					0.9	NO		bd		0.000
36	FUNCTION3 PFK	34.05	7.333e3					0.7	NO		bb		0.000
37	FUNCTION3 PFK	33.98	2.628e3					0.4	NO		bb		0.000

ID: CS3S1, Name: 24011802, Date: 18-Jan-2024, Time: 10:22:45, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION3 PFK	33.92	2.478e4					1.3	NO		bb		0.000
39	FUNCTION3 PFK	36.30	9.019e3					0.7	NO		bd		0.000
40	FUNCTION3 PFK	36.26	7.870e3					0.6	NO		db		0.000
41	FUNCTION3 PFK	36.21	7.340e3					0.6	NO		bd		0.000
42	FUNCTION3 PFK	36.11	1.257e4					1.0	NO		db		0.000
43	FUNCTION3 PFK	36.07	8.996e3					0.9	NO		bd		0.000
44	FUNCTION3 PFK	36.00	7.133e4					2.0	NO		bb		0.000
45	FUNCTION3 PFK	35.88	4.084e4					2.2	NO		db		0.000
46	FUNCTION3 PFK	35.82	1.682e4					1.4	NO		bd		0.000
47	FUNCTION3 PFK	35.76	2.129e4					1.3	NO		bb		0.000
48	FUNCTION3 PFK	35.61	1.248e4					1.0	NO		db		0.000
49	FUNCTION3 PFK	35.56	5.005e4					1.5	NO		dd		0.000
50	FUNCTION3 PFK	35.48	2.079e4					1.5	NO		dd		0.000
51	FUNCTION3 PFK	35.42	3.016e4					1.5	NO		dd		0.000
52	FUNCTION3 PFK	35.32	3.444e4					1.3	NO		dd		0.000
53	FUNCTION3 PFK	35.23	7.189e4					2.3	NO		dd		0.000
54	FUNCTION3 PFK	35.15	2.737e4					1.2	NO		bd		0.000
55	FUNCTION3 PFK	37.09	8.773e3					0.6	NO		bb		0.000
56	FUNCTION3 PFK	37.03	2.256e4					1.1	NO		db		0.000
57	FUNCTION3 PFK	36.99	1.291e4					1.0	NO		dd		0.000
58	FUNCTION3 PFK	36.95	2.658e4					1.4	NO		bd		0.000
59	FUNCTION3 PFK	36.88	3.224e4					1.2	NO		bb		0.000
60	FUNCTION3 PFK	36.74	5.148e3					0.5	NO		bb		0.000
61	FUNCTION3 PFK	36.65	7.870e3					0.8	NO		bb		0.000
62	FUNCTION3 PFK	36.49	7.442e3					0.6	NO		bb		0.000
63	FUNCTION3 PFK	36.45	1.115e4					1.0	NO		db		0.000
64	FUNCTION3 PFK	36.38	5.321e4					1.3	NO		dd		0.000

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Printed: Friday, January 19, 2024 09:44:40 Pacific Standard Time

ID: CS3S1, Name: 24011802, Date: 18-Jan-2024, Time: 10:22:45, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.57	2.854e4					1.7	NO		db		
2	FUNCTION4 PFK	37.49	8.948e4					3.5	YES		dd		
3	FUNCTION4 PFK	37.42	2.470e4					3.1	YES		dd		
4	FUNCTION4 PFK	37.32	8.895e4					4.2	YES		dd		
5	FUNCTION4 PFK	37.29	2.819e4					3.8	YES		bd		
6	FUNCTION4 PFK	39.70	4.513e4					2.6	NO		db		
7	FUNCTION4 PFK	39.58	5.292e3					0.7	NO		bd		
8	FUNCTION4 PFK	39.46	6.895e3					0.8	NO		bb		
9	FUNCTION4 PFK	39.40	1.158e3					0.3	NO		bb		
10	FUNCTION4 PFK	39.24	6.494e3					0.7	NO		bb		
11	FUNCTION4 PFK	39.19	9.454e3					1.3	NO		db		
12	FUNCTION4 PFK	39.15	1.623e4					1.5	NO		bd		
13	FUNCTION4 PFK	38.95	1.213e4					0.7	NO		bb		
14	FUNCTION4 PFK	38.91	5.119e3					0.8	NO		bb		
15	FUNCTION4 PFK	38.82	1.201e4					1.5	NO		bb		
16	FUNCTION4 PFK	38.71	8.353e3					1.0	NO		bb		
17	FUNCTION4 PFK	38.54	2.868e3					0.6	NO		bb		
18	FUNCTION4 PFK	38.46	1.950e4					2.0	NO		bb		
19	FUNCTION4 PFK	38.12	1.015e4					1.2	NO		bb		
20	FUNCTION4 PFK	38.05	7.301e3					0.9	NO		bb		
21	FUNCTION4 PFK	37.66	1.015e4					1.3	NO		bb		
22	FUNCTION4 PFK	41.22	1.186e4					1.3	NO		dd		
23	FUNCTION4 PFK	41.17	1.511e4					1.7	NO		bd		
24	FUNCTION4 PFK	41.05	2.117e4					1.8	NO		db		
25	FUNCTION4 PFK	40.96	2.894e4					1.4	NO		bd		
26	FUNCTION4 PFK	40.76	1.105e3					0.3	NO		bb		
27	FUNCTION4 PFK	40.71	1.267e3					0.4	NO		bb		
28	FUNCTION4 PFK	40.58	1.235e4					1.6	NO		db		
29	FUNCTION4 PFK	40.54	4.990e3					0.6	NO		bd		
30	FUNCTION4 PFK	40.47	1.673e4					1.3	NO		db		
31	FUNCTION4 PFK	40.44	6.922e3					0.8	NO		bd		
32	FUNCTION4 PFK	40.31	6.357e4					2.4	NO		db		
33	FUNCTION4 PFK	40.18	3.011e4					2.0	NO		dd		
34	FUNCTION4 PFK	40.08	3.934e4					2.1	NO		bd		
35	FUNCTION4 PFK	40.03	1.049e4					0.9	NO		bb		
36	FUNCTION4 PFK	39.88	5.574e3					0.8	NO		bb		
37	FUNCTION4 PFK	39.76	3.797e4					2.0	NO		bb		

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION4 PFK	42.50	3.640e4					0.3	NO		bb		
39	FUNCTION4 PFK	42.36	9.035e3					0.9	NO		bb		
40	FUNCTION4 PFK	42.26	5.298e3					0.6	NO		bb		
41	FUNCTION4 PFK	42.20	3.282e4					2.0	NO		bb		
42	FUNCTION4 PFK	42.05	8.362e3					1.0	NO		bb		
43	FUNCTION4 PFK	42.00	1.007e4					1.4	NO		bb		
44	FUNCTION4 PFK	41.91	1.388e4					1.3	NO		bb		
45	FUNCTION4 PFK	41.85	2.790e3					0.6	NO		bb		
46	FUNCTION4 PFK	41.79	1.398e4					1.1	NO		bb		
47	FUNCTION4 PFK	41.71	1.288e4					1.0	NO		bb		
48	FUNCTION4 PFK	41.64	2.874e3					0.5	NO		bb		
49	FUNCTION4 PFK	41.59	6.430e3					0.9	NO		bb		
50	FUNCTION4 PFK	41.39	5.072e3					0.7	NO		bb		
51	FUNCTION4 PFK	41.32	1.586e4					1.3	NO		db		
52	FUNCTION4 PFK	41.26	9.152e3					1.1	NO		dd		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.32	8.789e3					1.3	NO		db		
2	FUNCTION5 PFK	44.28	6.040e3					1.2	NO		dd		
3	FUNCTION5 PFK	44.24	1.025e4					1.7	NO		bd		
4	FUNCTION5 PFK	43.96	2.774e3					0.7	NO		bb		
5	FUNCTION5 PFK	43.88	1.358e4					1.1	NO		bb		
6	FUNCTION5 PFK	43.74	9.579e2					0.5	NO		bb		
7	FUNCTION5 PFK	43.69	1.064e4					1.7	NO		bb		
8	FUNCTION5 PFK	43.56	5.023e3					1.1	NO		bb		
9	FUNCTION5 PFK	43.50	9.429e3					1.4	NO		bb		
10	FUNCTION5 PFK	43.45	5.211e3					1.1	NO		bb		
11	FUNCTION5 PFK	43.17	2.528e3					0.9	NO		bb		
12	FUNCTION5 PFK	43.07	9.364e3					1.4	NO		bb		
13	FUNCTION5 PFK	42.71	9.244e3					1.3	NO		db		
14	FUNCTION5 PFK	42.65	7.923e3					1.5	NO		bd		
15	FUNCTION5 PFK	42.59	2.007e4					2.5	NO		db		
16	FUNCTION5 PFK	42.54	7.302e3					1.9	NO		bd		
17	FUNCTION5 PFK	45.80	2.130e4					1.8	NO		bb		
18	FUNCTION5 PFK	45.56	1.092e4					1.5	NO		bb		
19	FUNCTION5 PFK	45.35	8.549e3					0.9	NO		bb		
20	FUNCTION5 PFK	45.30	6.285e3					1.3	NO		bb		
21	FUNCTION5 PFK	45.22	2.351e3					0.7	NO		bb		
22	FUNCTION5 PFK	44.68	9.039e3					1.5	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.40	1.269e2					1.5	NO		bb		0.000
2	FUNCTION1 HXCD...	24.50	9.495e1					1.2	NO		bb		0.000
3	FUNCTION1 HXCD...	23.97	7.415e1					1.4	NO		db		0.000
4	FUNCTION1 HXCD...	23.80	1.256e2					1.7	NO		bd		0.000
5	FUNCTION1 HXCD...	21.79	8.081e1					2.3	NO		bb		0.000
6	FUNCTION1 HXCD...	21.68	8.783e1					2.2	NO		bb		0.000
7	FUNCTION1 HXCD...	21.31	7.385e2					2.9	NO		bb		0.000

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ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	28.69	7.752e1					2.1	NO		bb		0.000
2	FUNCTION2 HPCD...	30.78	8.127e1					2.9	NO		bb		0.000
3	FUNCTION2 HPCD...	30.42	1.374e2					4.8	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.97	1.019e2					2.3	NO		bb		0.000
2	FUNCTION4 NCDPE	40.31	1.278e2					4.0	YES		db		0.000
3	FUNCTION4 NCDPE	40.22	8.674e1					4.5	YES		bd		0.000
4	FUNCTION4 NCDPE	39.85	9.226e1					2.1	NO		bb		0.000
5	FUNCTION4 NCDPE	37.96	9.249e1					2.4	NO		db		0.000
6	FUNCTION4 NCDPE	37.88	9.236e1					2.1	NO		bd		0.000

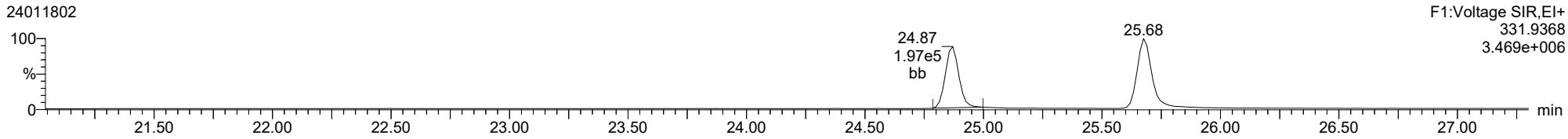
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	45.32	8.030e1					1.9	NO		bb		0.000

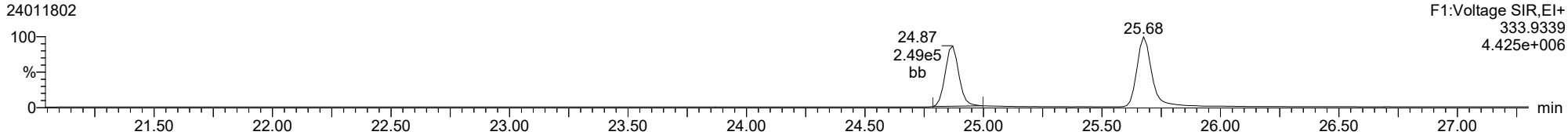
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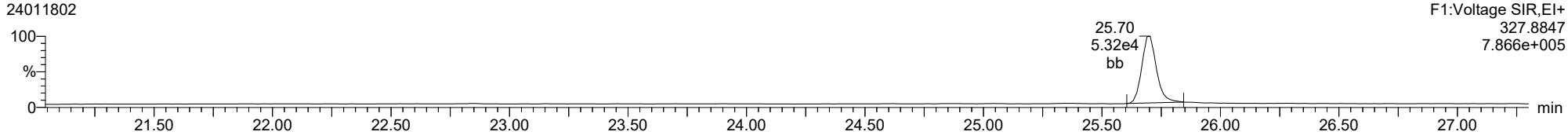
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13C-1234-TCDD



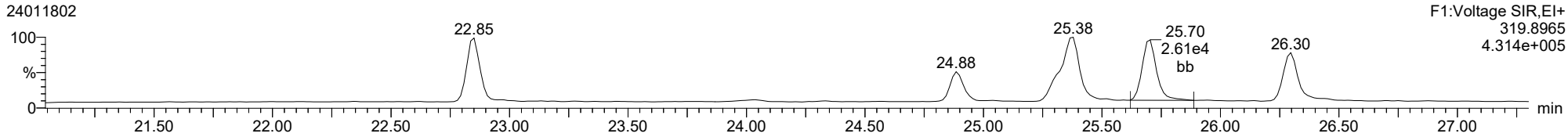
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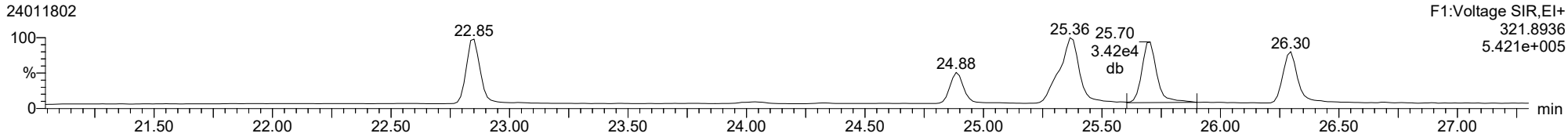
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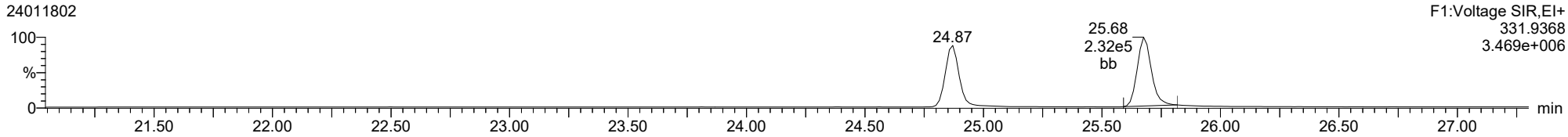
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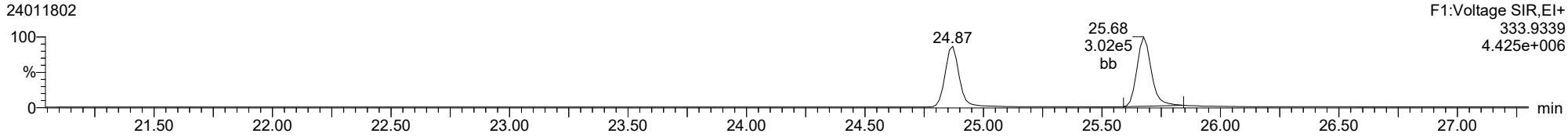
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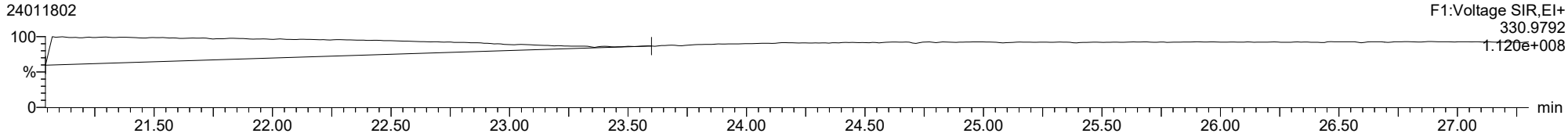
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13C-2378-TCDD



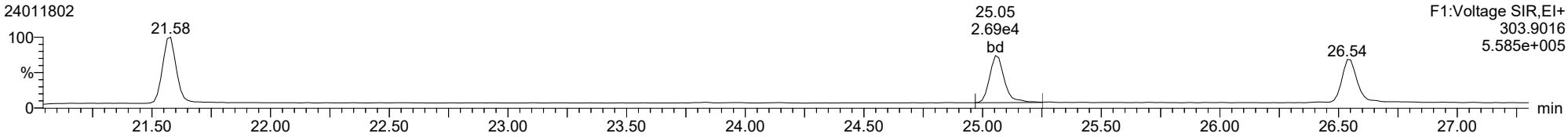
FUNCTION1 PFK



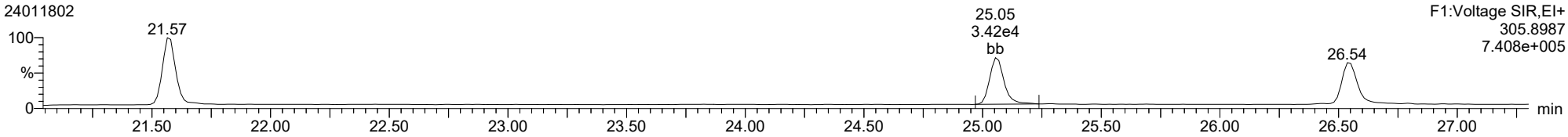
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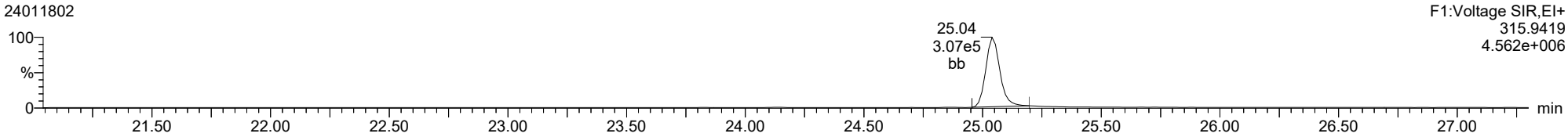
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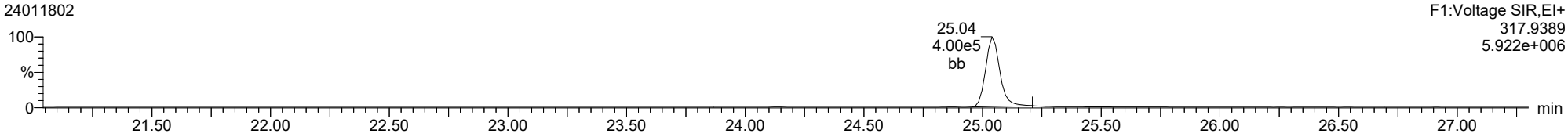
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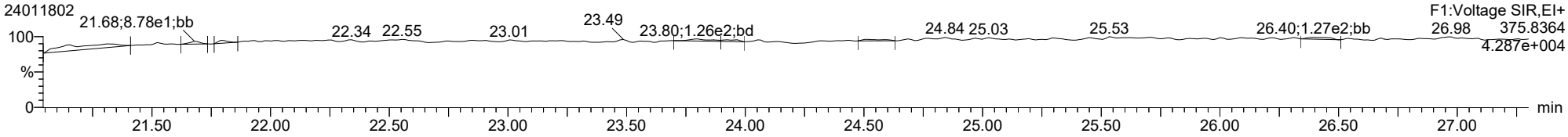
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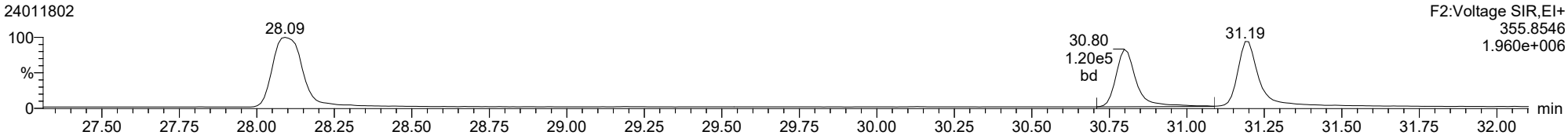


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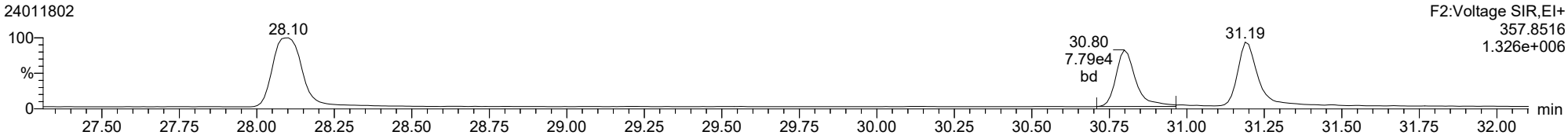


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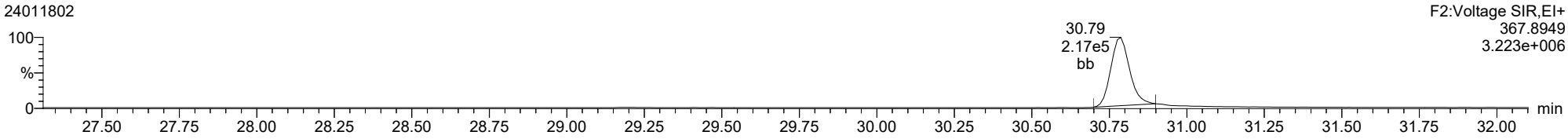
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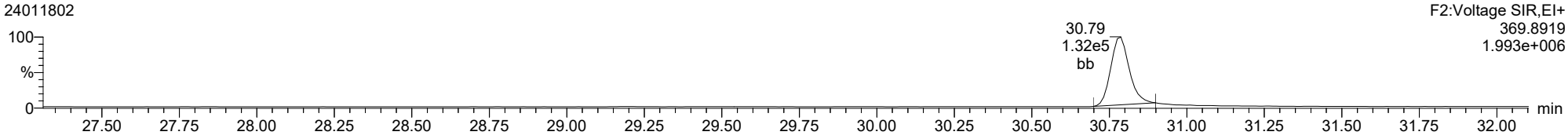
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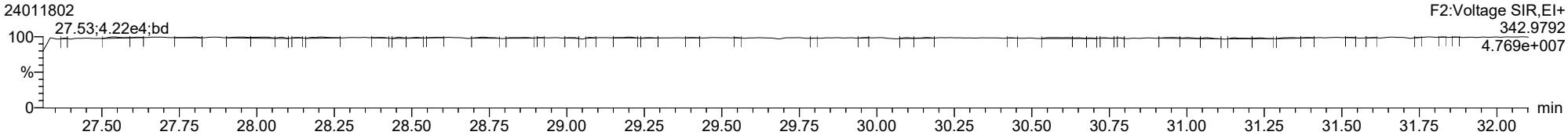
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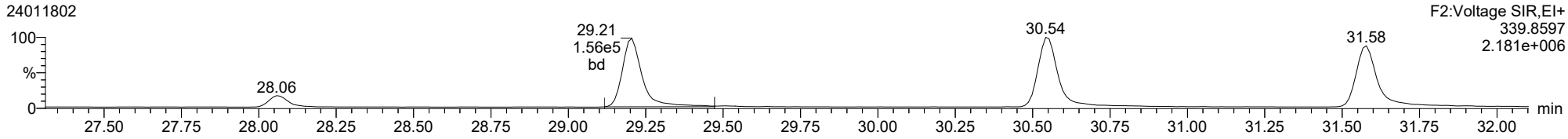


FUNCTION2 PFK

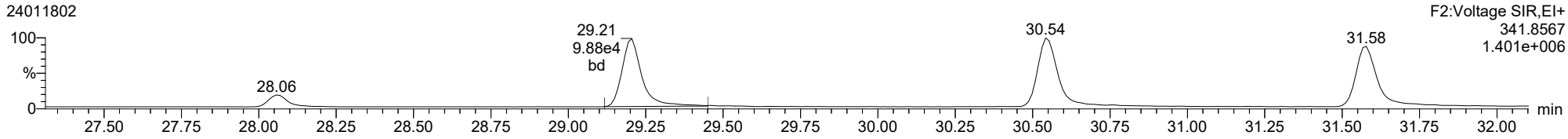


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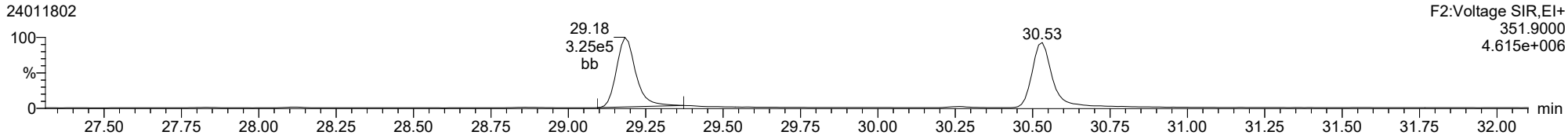
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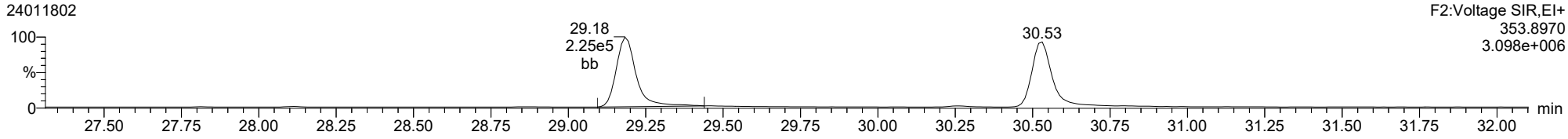
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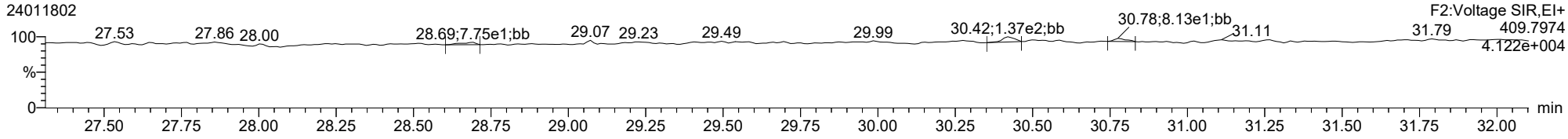
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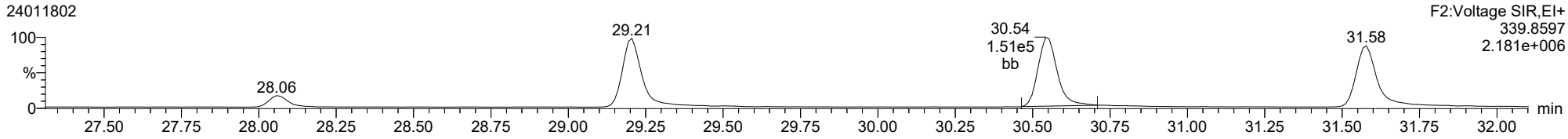


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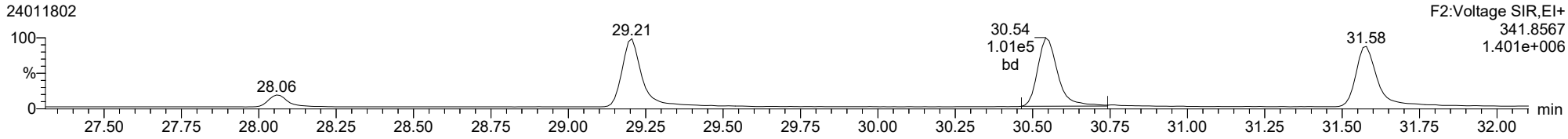


ID: CS3S1, Name: 24011802, Date: 18-Jan-2024, Time: 10:22:45, Conditions: AUTOSPEC01, User: pk

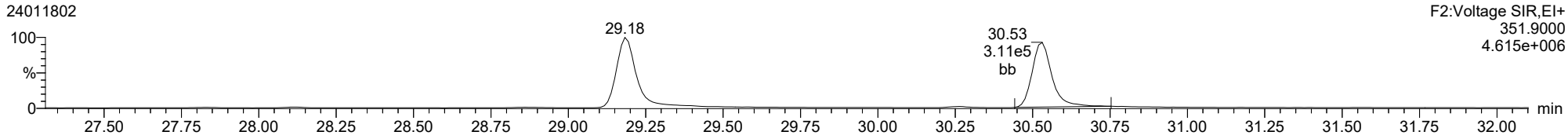
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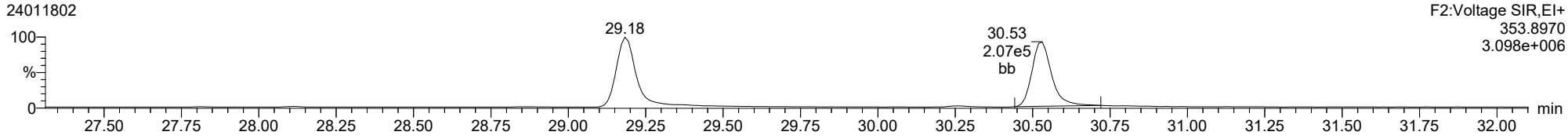
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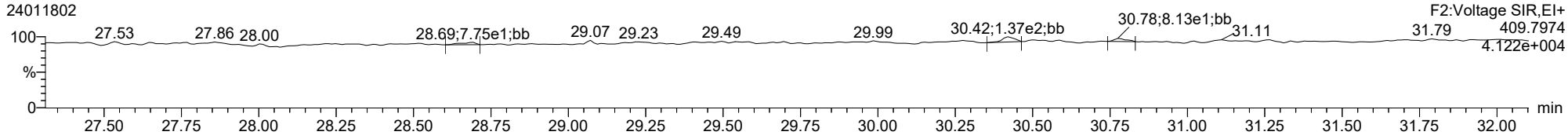
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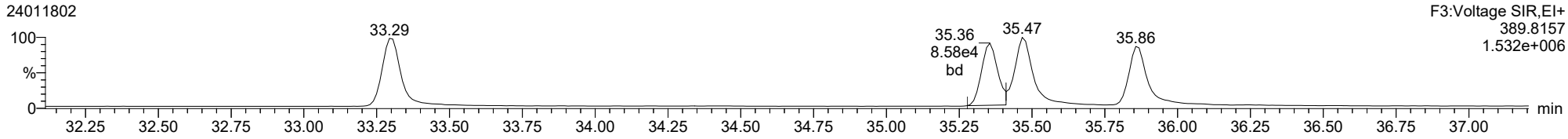


FUNCTION2 HPCDPE

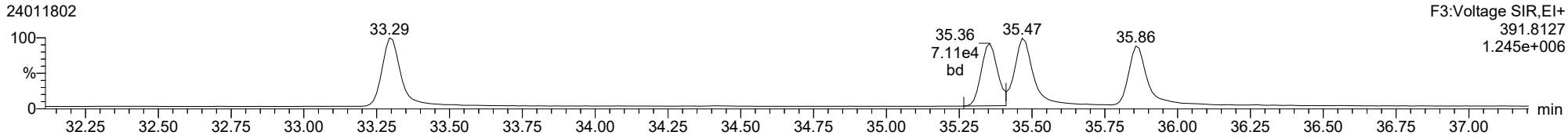


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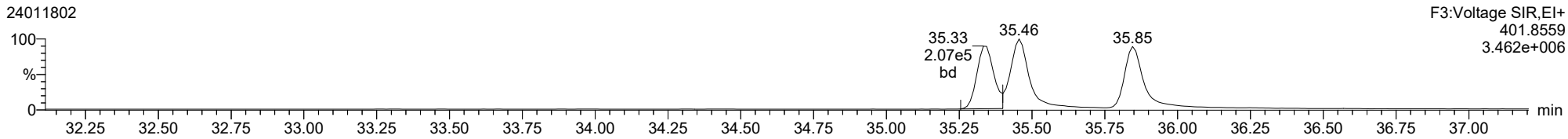
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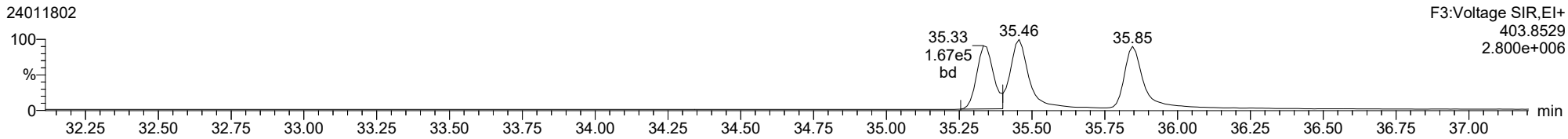
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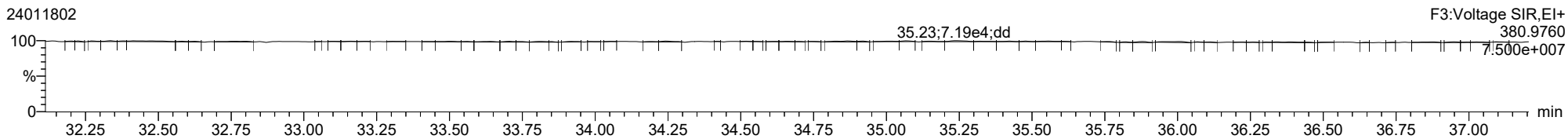
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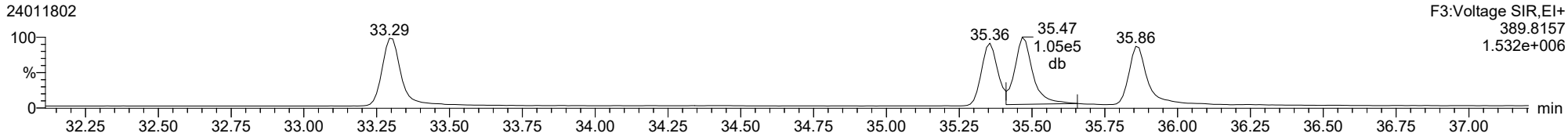


FUNCTION3 PFK

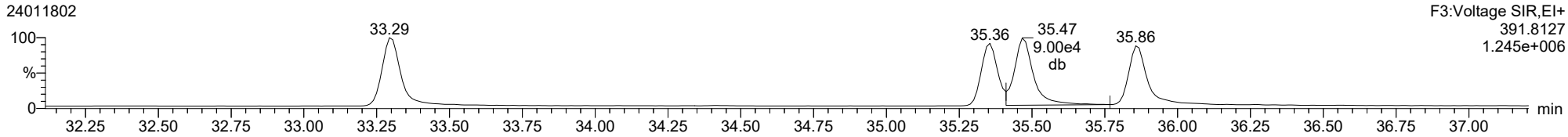


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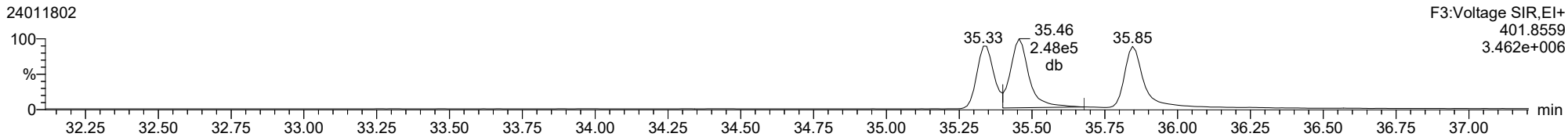
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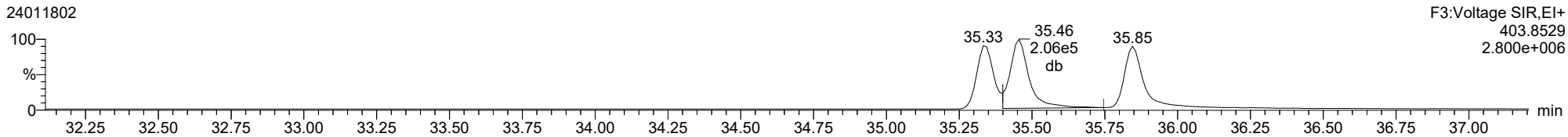
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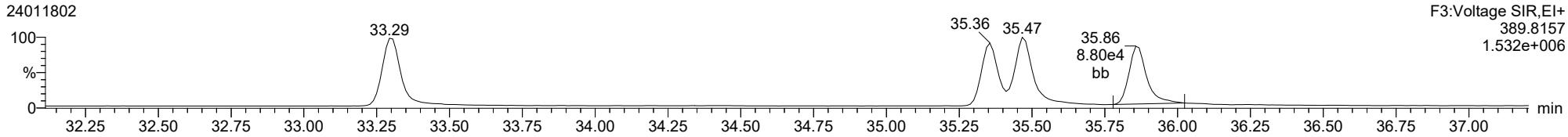


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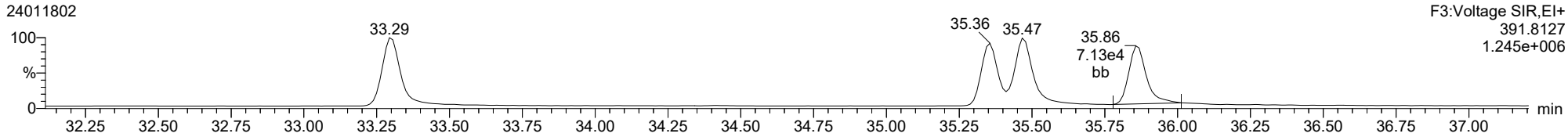


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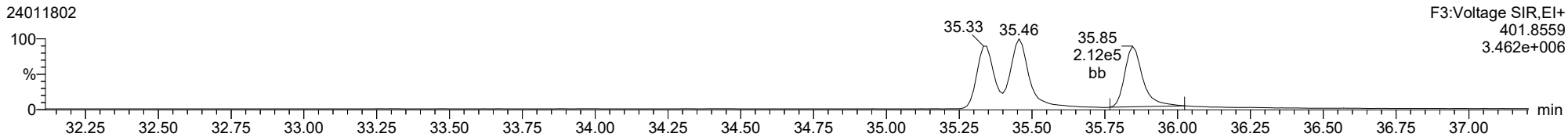
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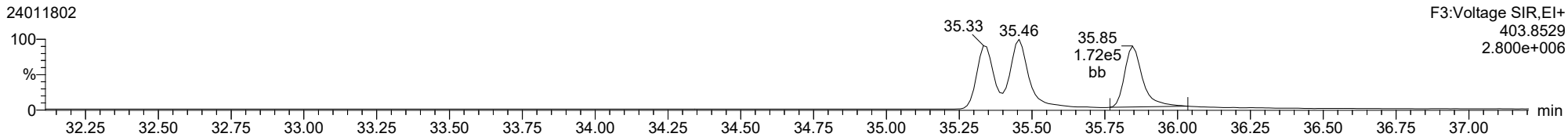
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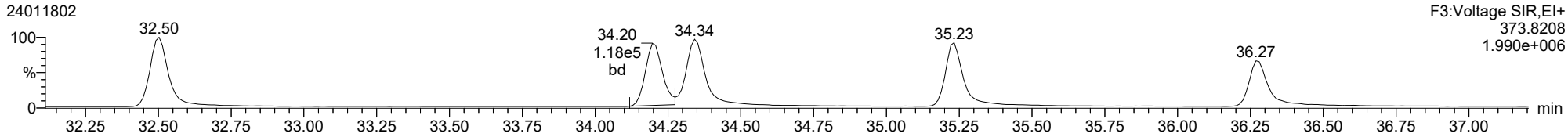


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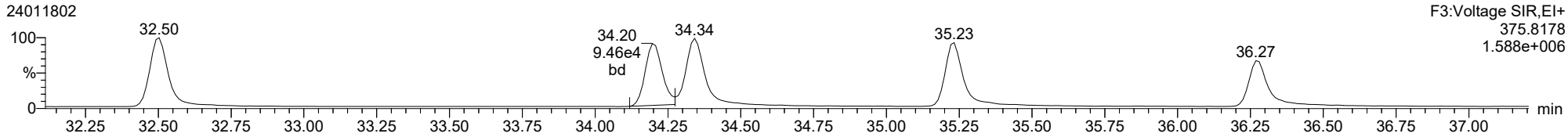


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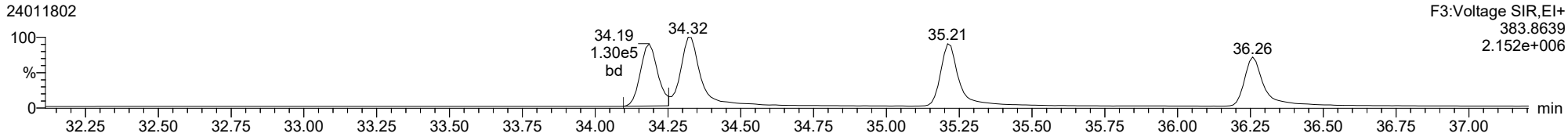
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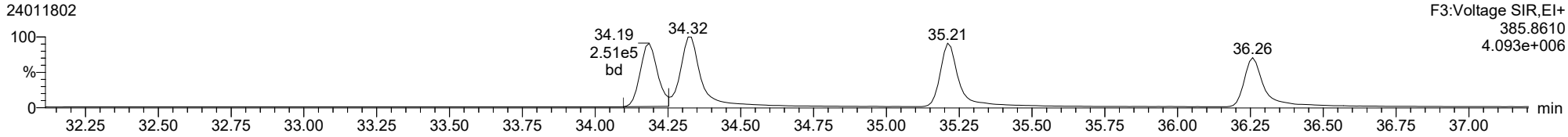
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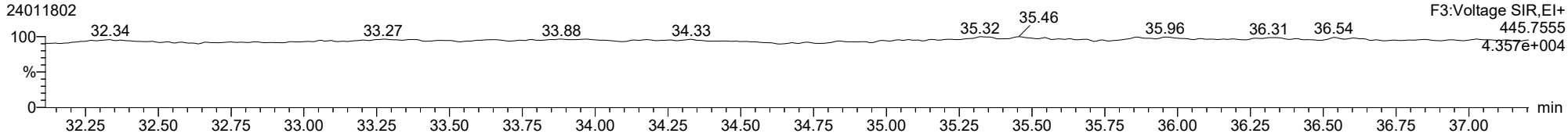
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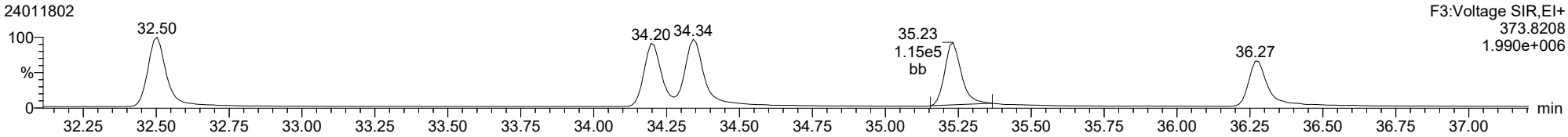
FUNCTION3 OCDPE



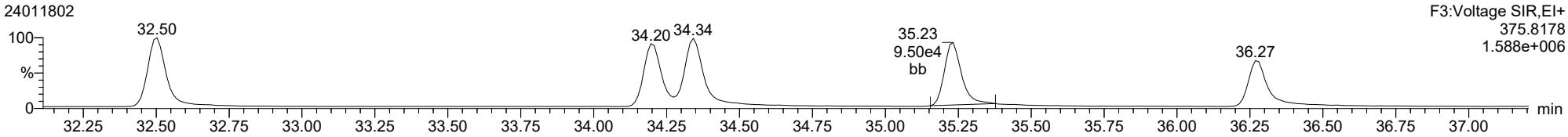
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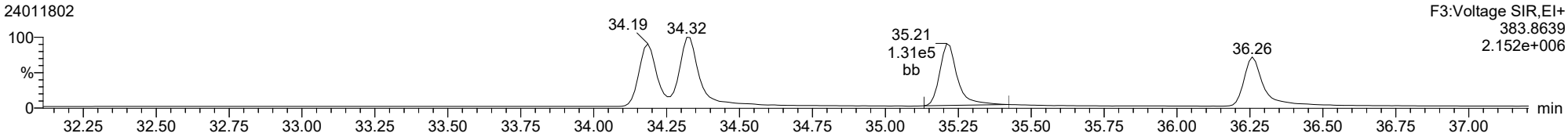
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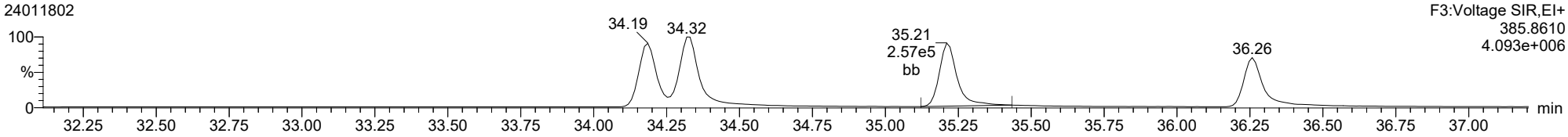
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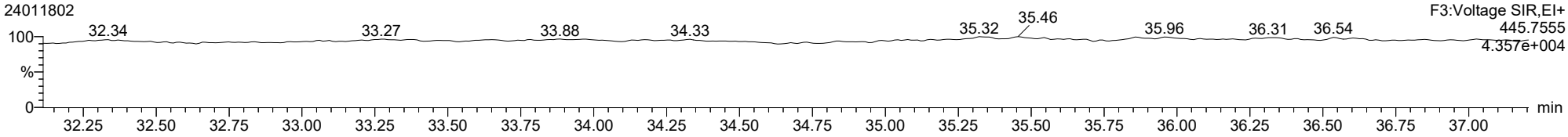
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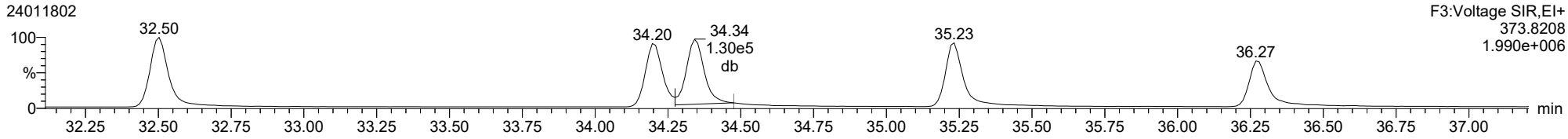


FUNCTION3 OCDPE

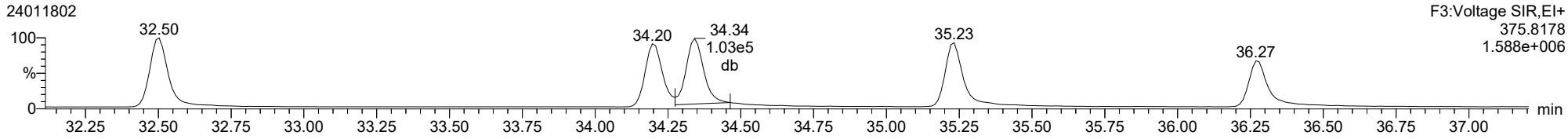


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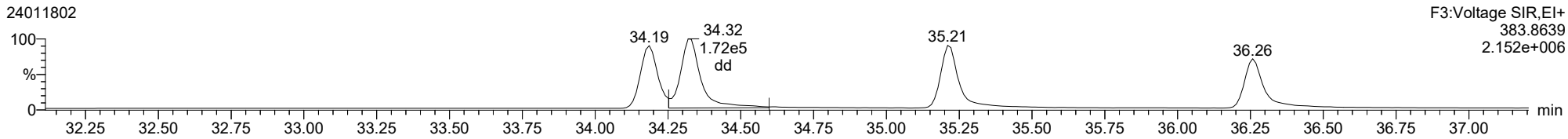
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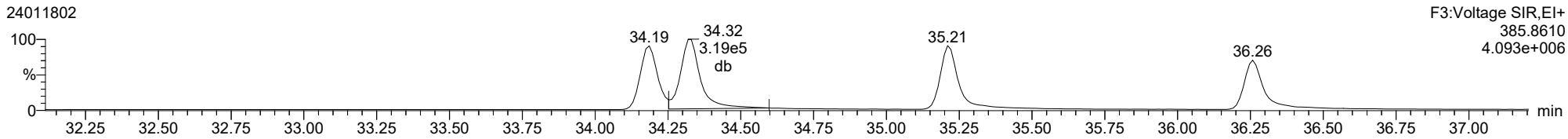
123678-HxCDF



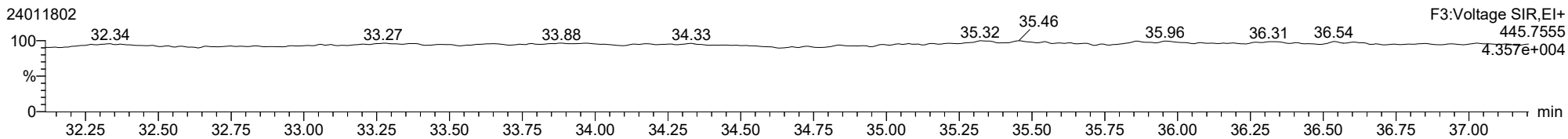
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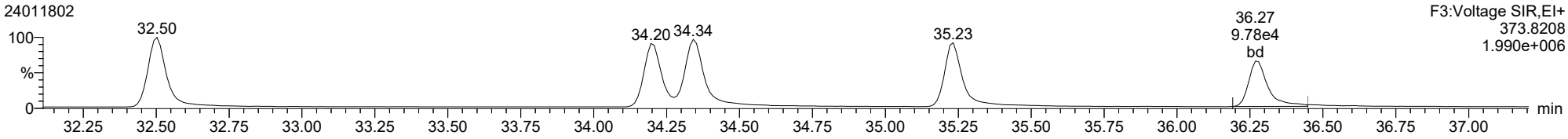


FUNCTION3 OCDPE

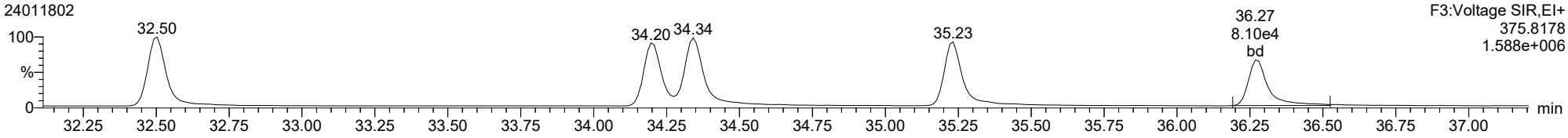


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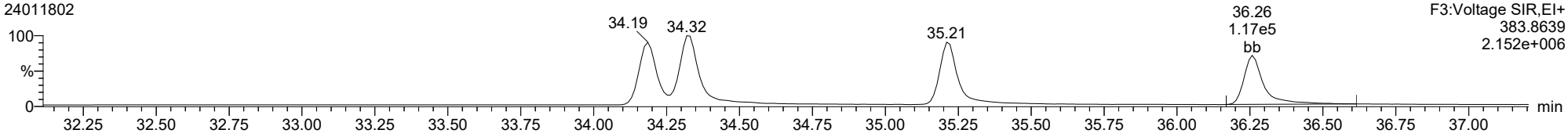
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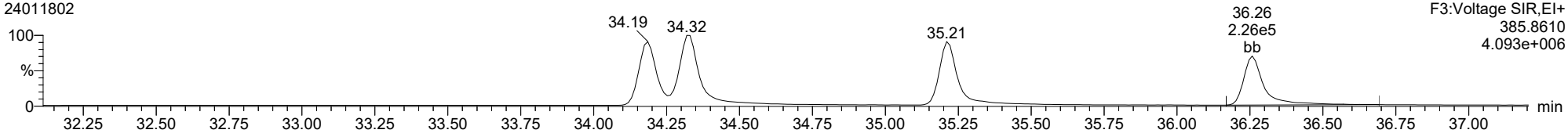
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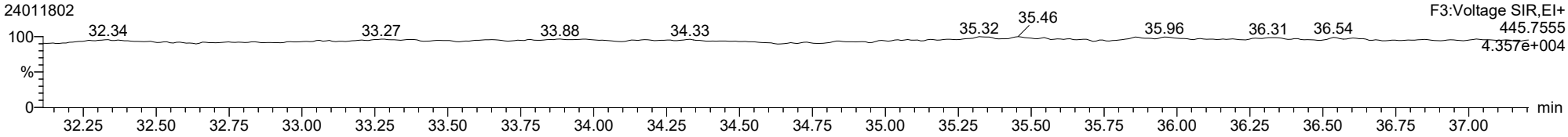
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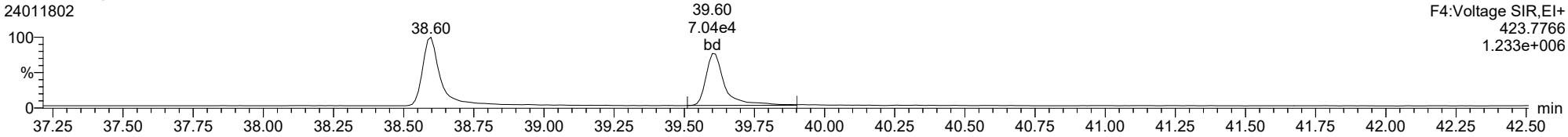


FUNCTION3 OCDPE

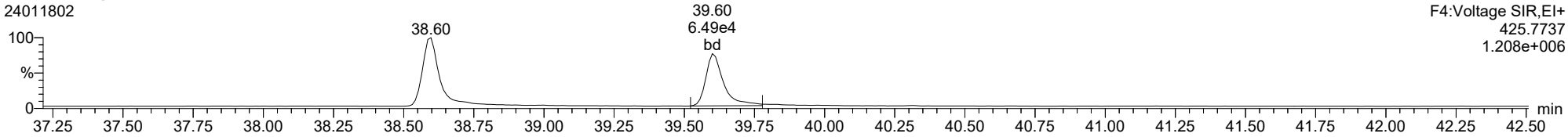


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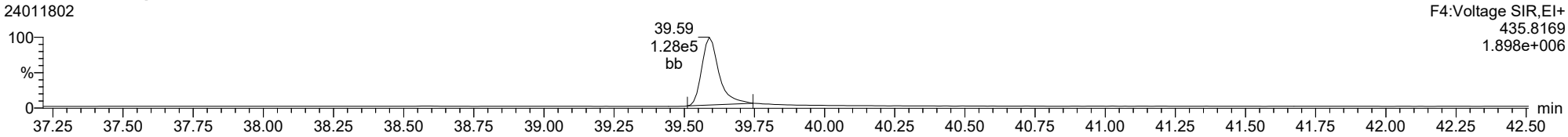
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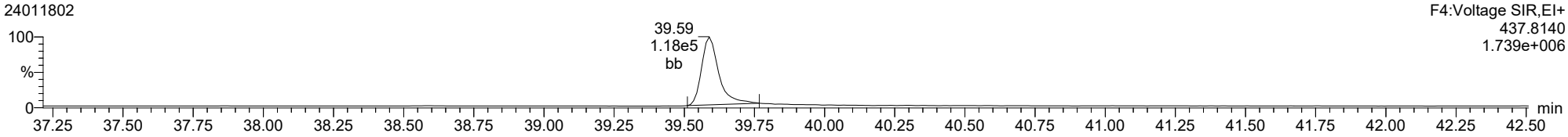
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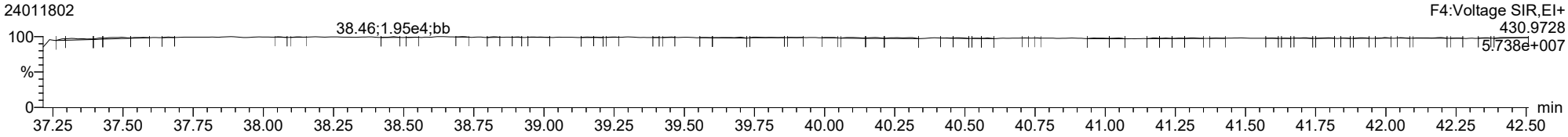
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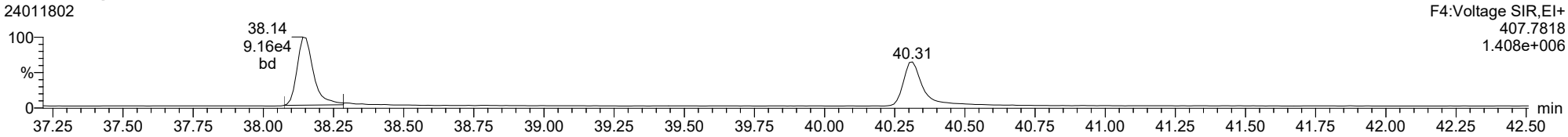


FUNCTION4 PFK

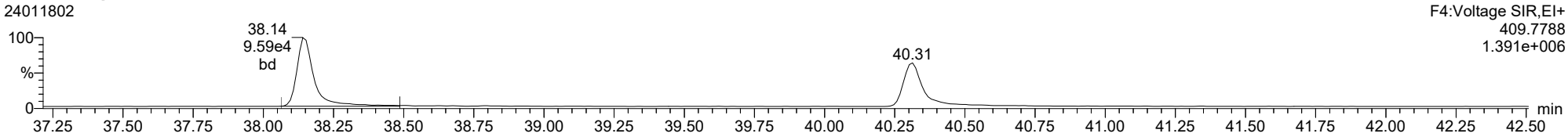


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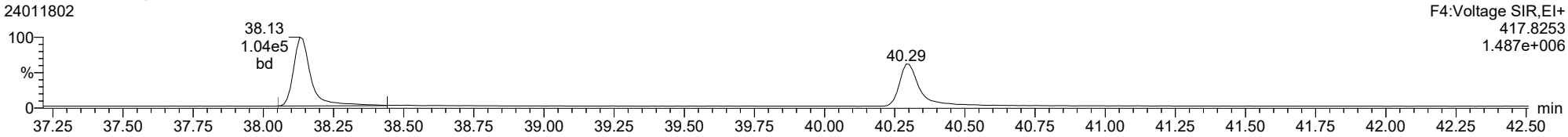
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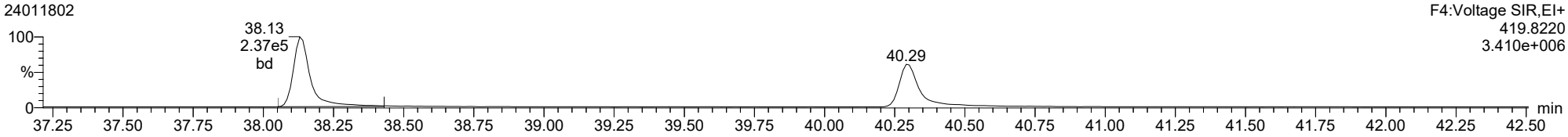
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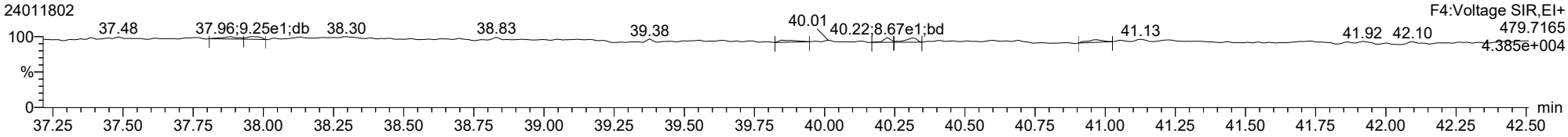
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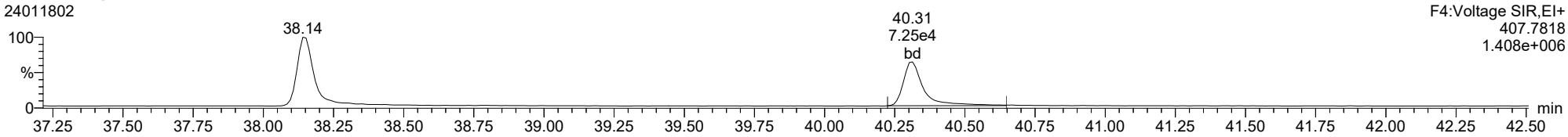


FUNCTION4 NCDPE

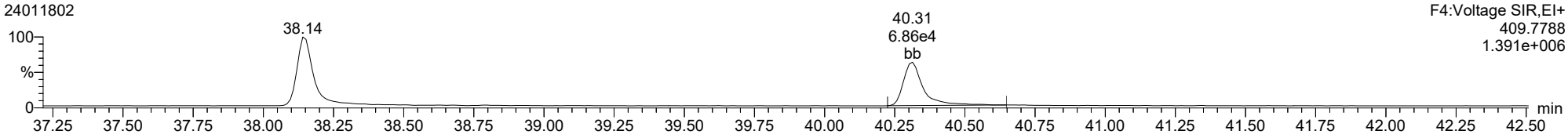


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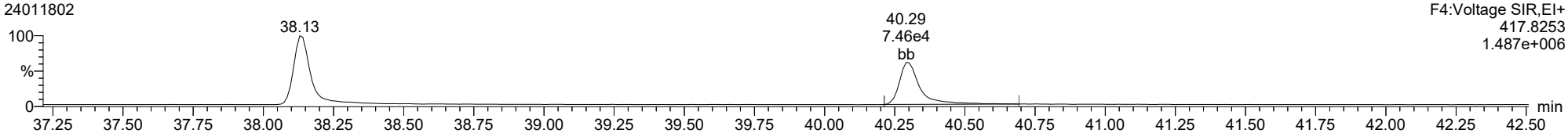
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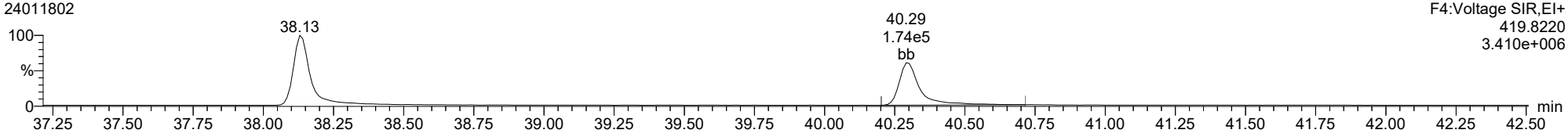
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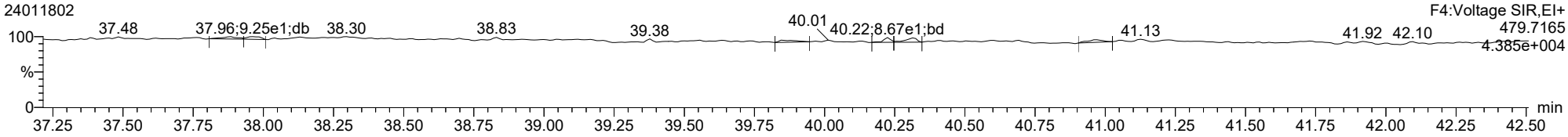
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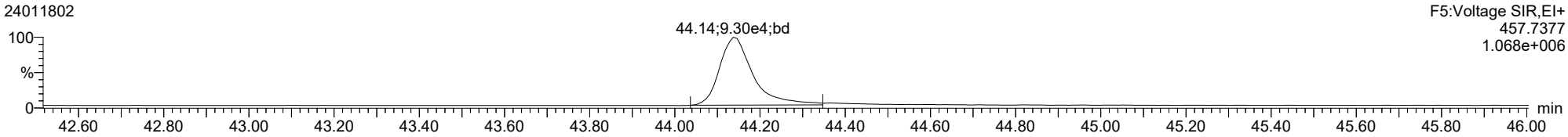


FUNCTION4 NCDPE

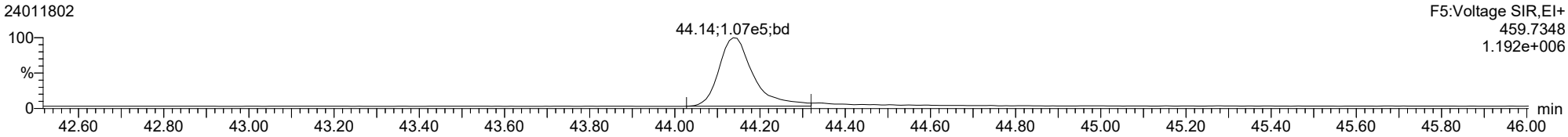


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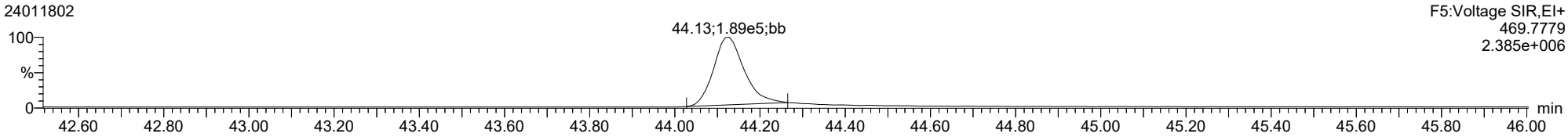
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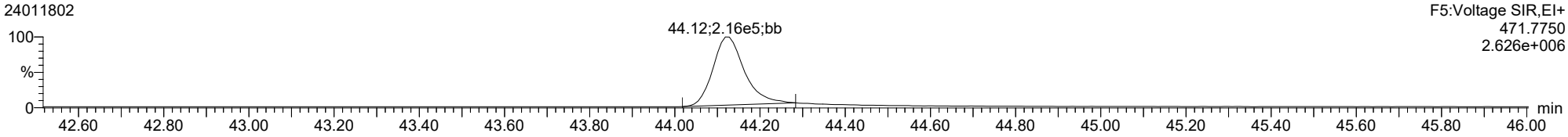
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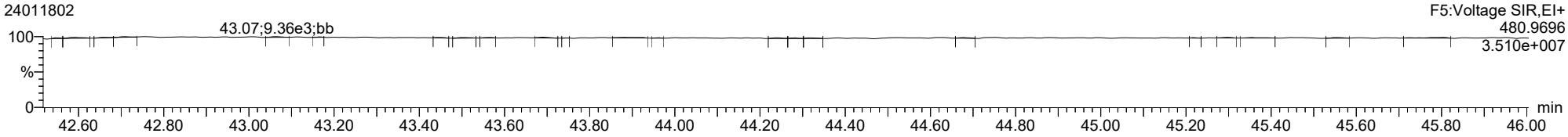
13C-OCDD



13C-OCDD



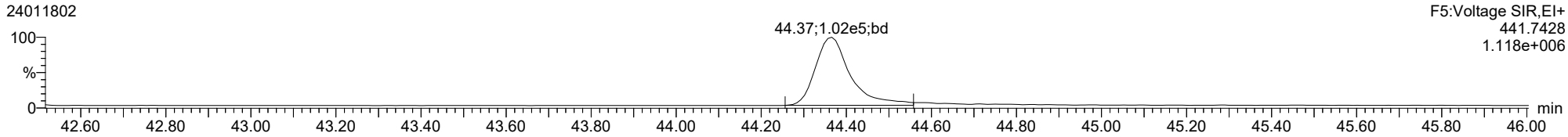
FUNCTION5 PFK



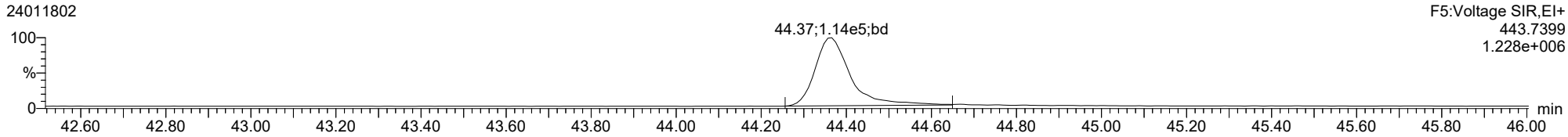
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Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:44:40 Pacific Standard Time

ID: CS3S1, Name: 24011802, Date: 18-Jan-2024, Time: 10:22:45, Conditions: AUTOSPEC01, User: pk

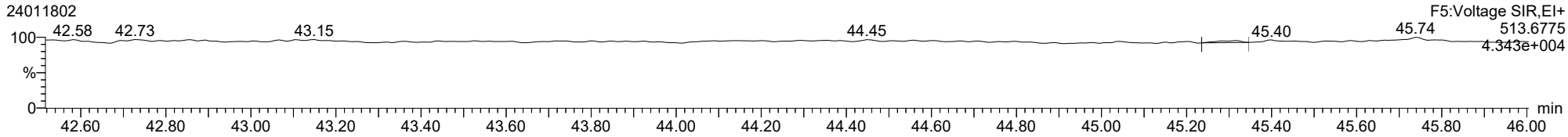
OCDF



OCDF

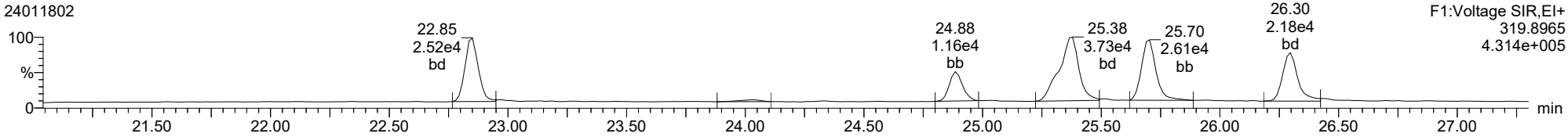


FUNCTION5 DCDPE

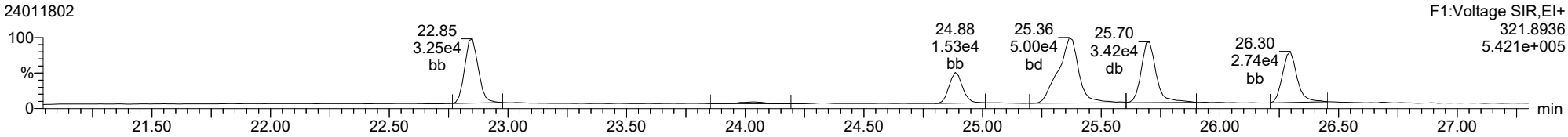


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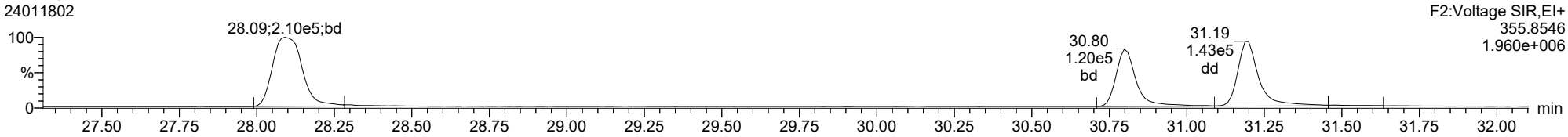
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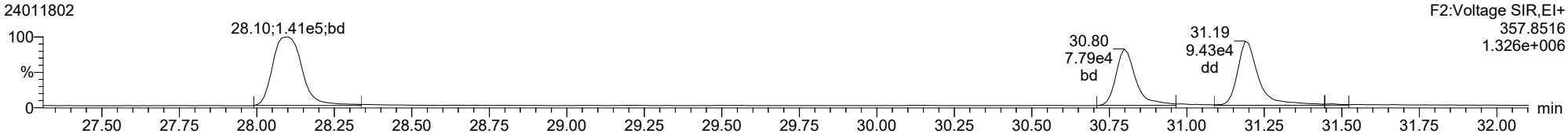
Total-tetradioxins



Total-pentadioxins

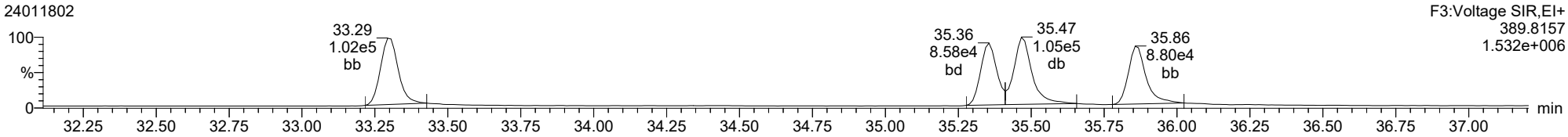


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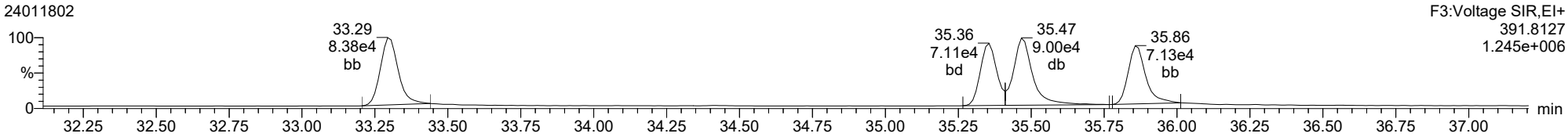


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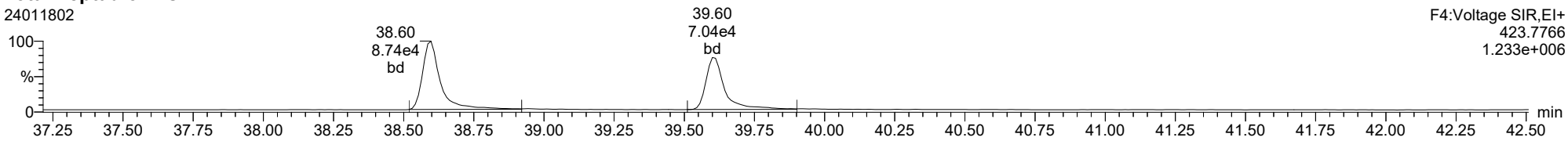
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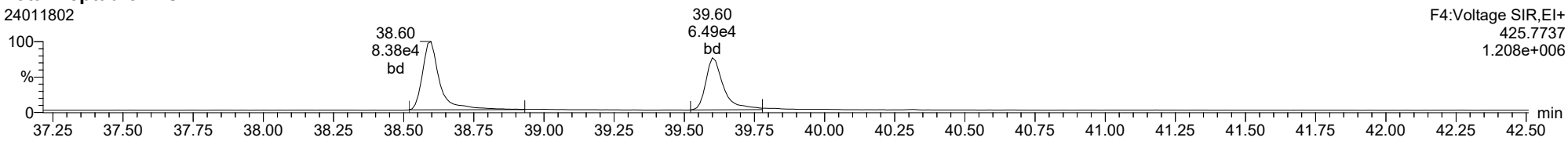
Total-hexadioxins



Total-heptadioxins

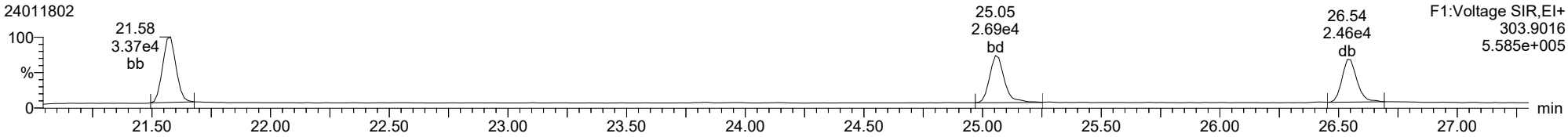


Total-heptadioxins

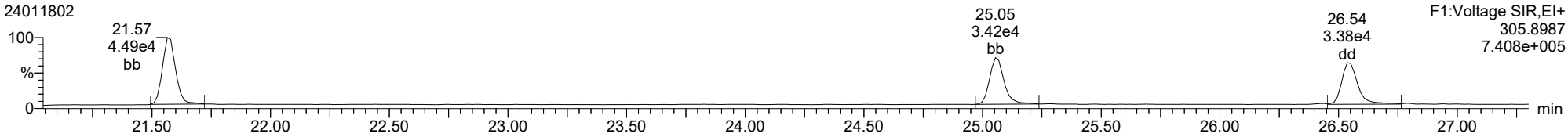


ID: CS3S1, Name: 24011802, Date: 18-Jan-2024, Time: 10:22:45, Conditions: AUTOSPEC01, User: pk

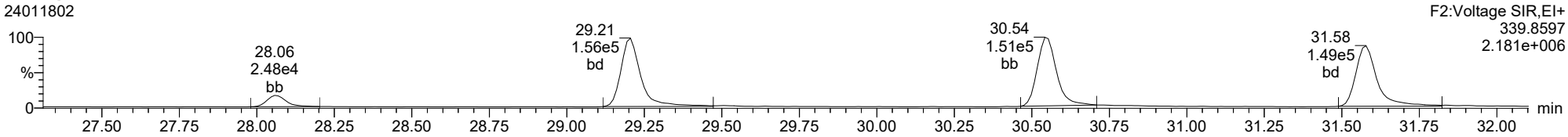
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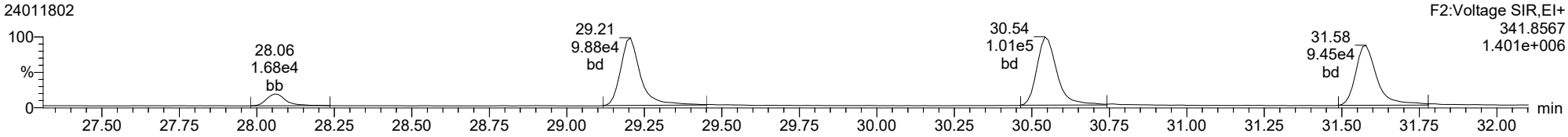
Total-tetrafurans



Total-pentafurans



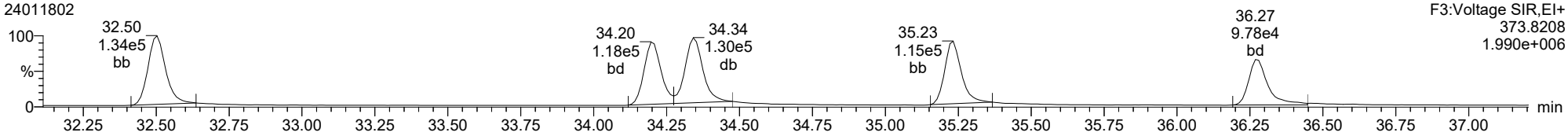
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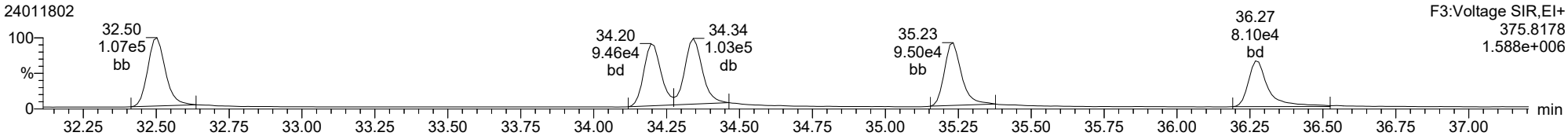
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Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:44:40 Pacific Standard Time

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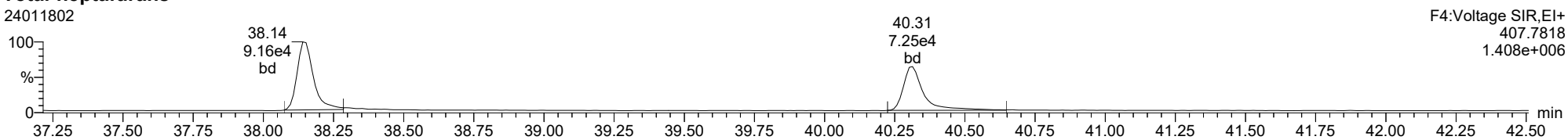
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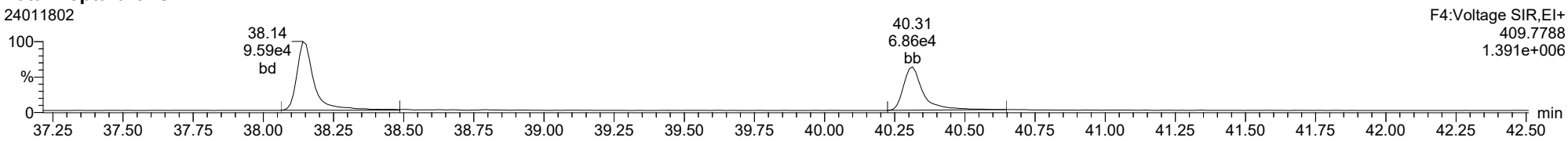
Total-hexafurans



Total-heptafurans

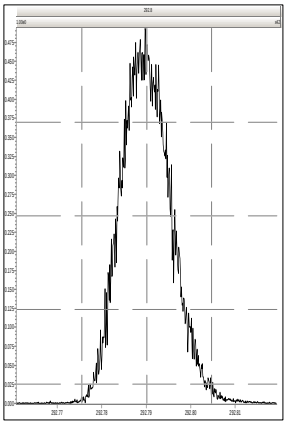


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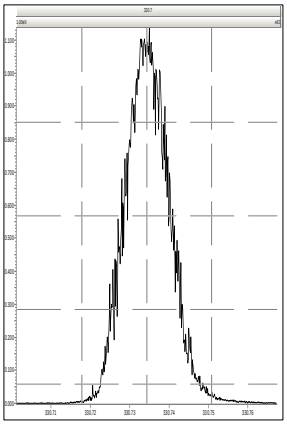


Printed: Thursday, January 18, 2024 10:20:53 Pacific Standard Time

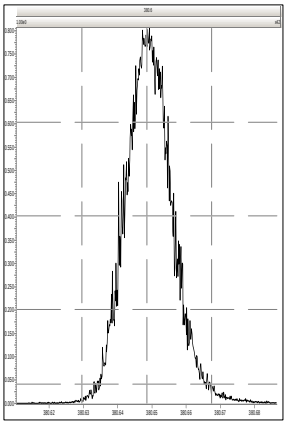
M 292.9824 R 11628



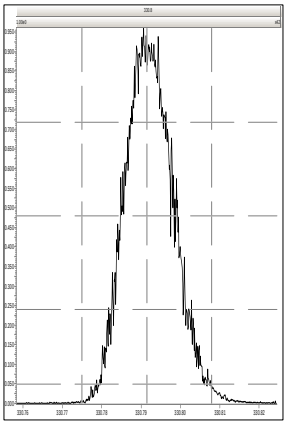
M 330.9792 R 13196



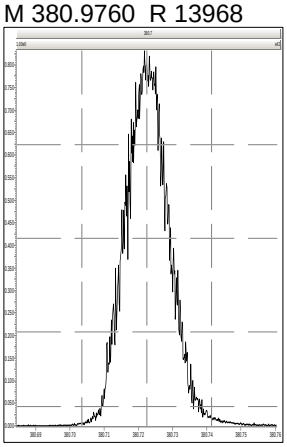
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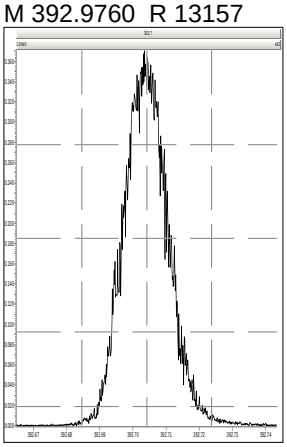
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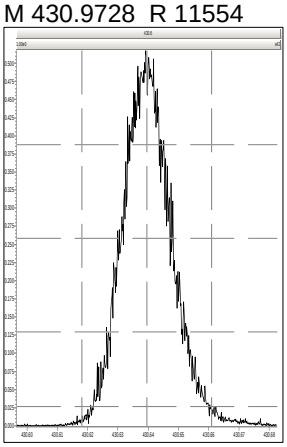
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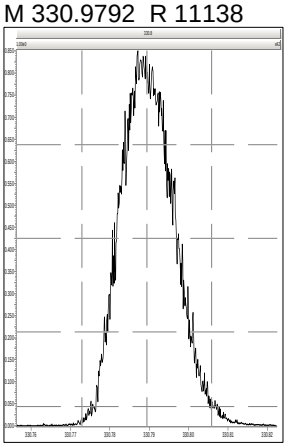
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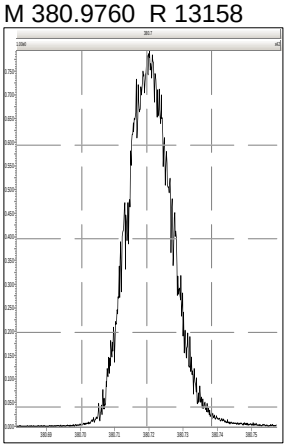
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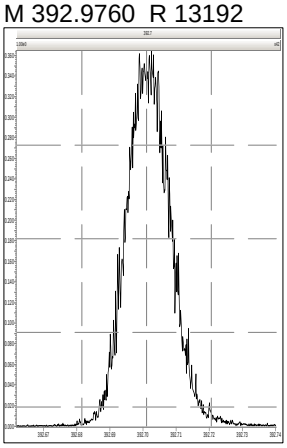
M 330.9792 R 11138



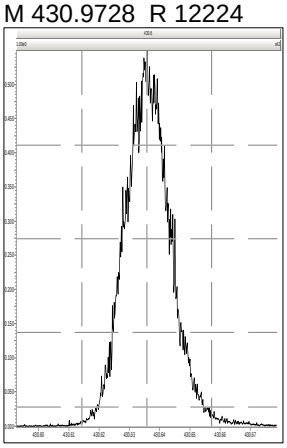
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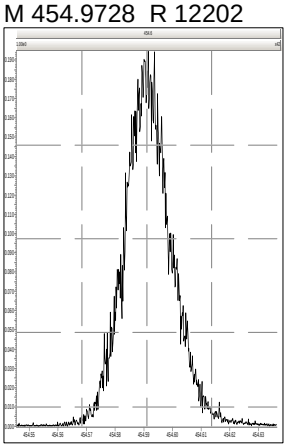
M 392.9760 R 13192



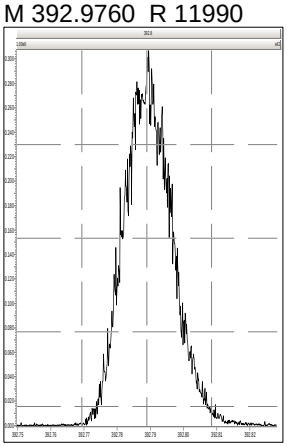
M 430.9728 R 12224



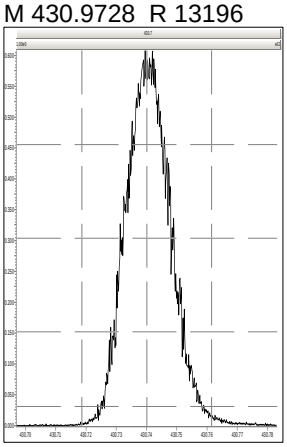
M 454.9728 R 12202



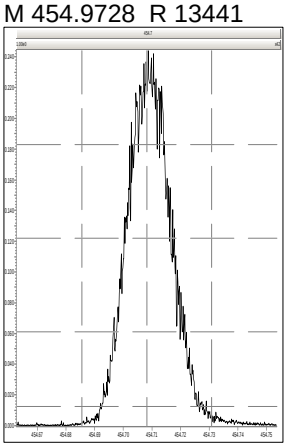
M 392.9760 R 11990



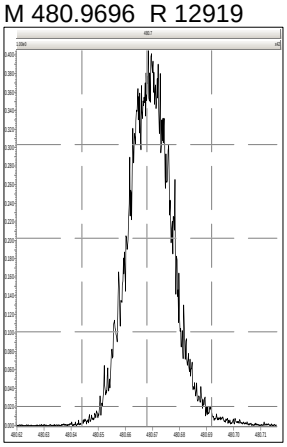
M 430.9728 R 13196



M 454.9728 R 13441

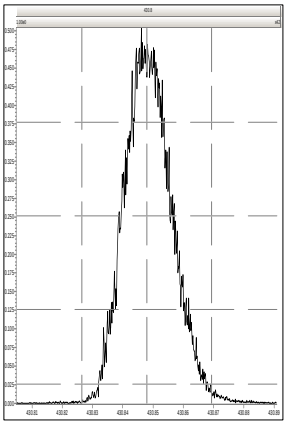


M 480.9696 R 12919

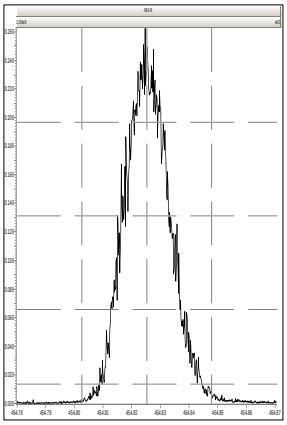


Printed: Thursday, January 18, 2024 10:20:53 Pacific Standard Time

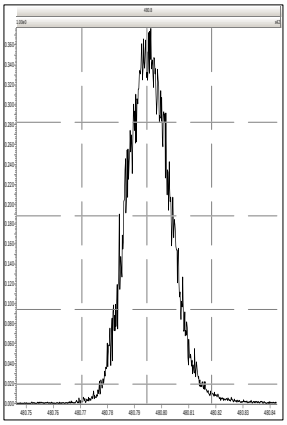
M 430.9728 R 12077



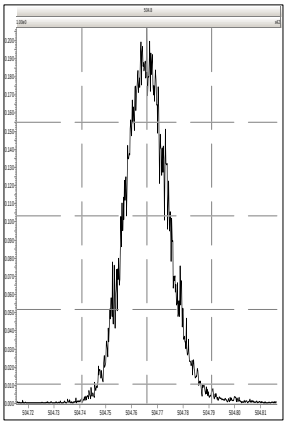
M 454.9728 R 12891



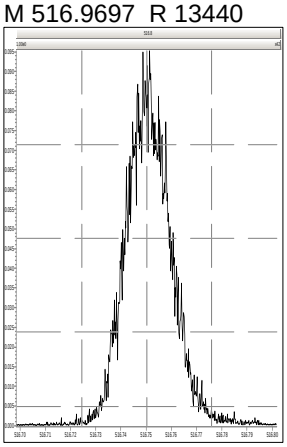
M 480.9696 R 12919

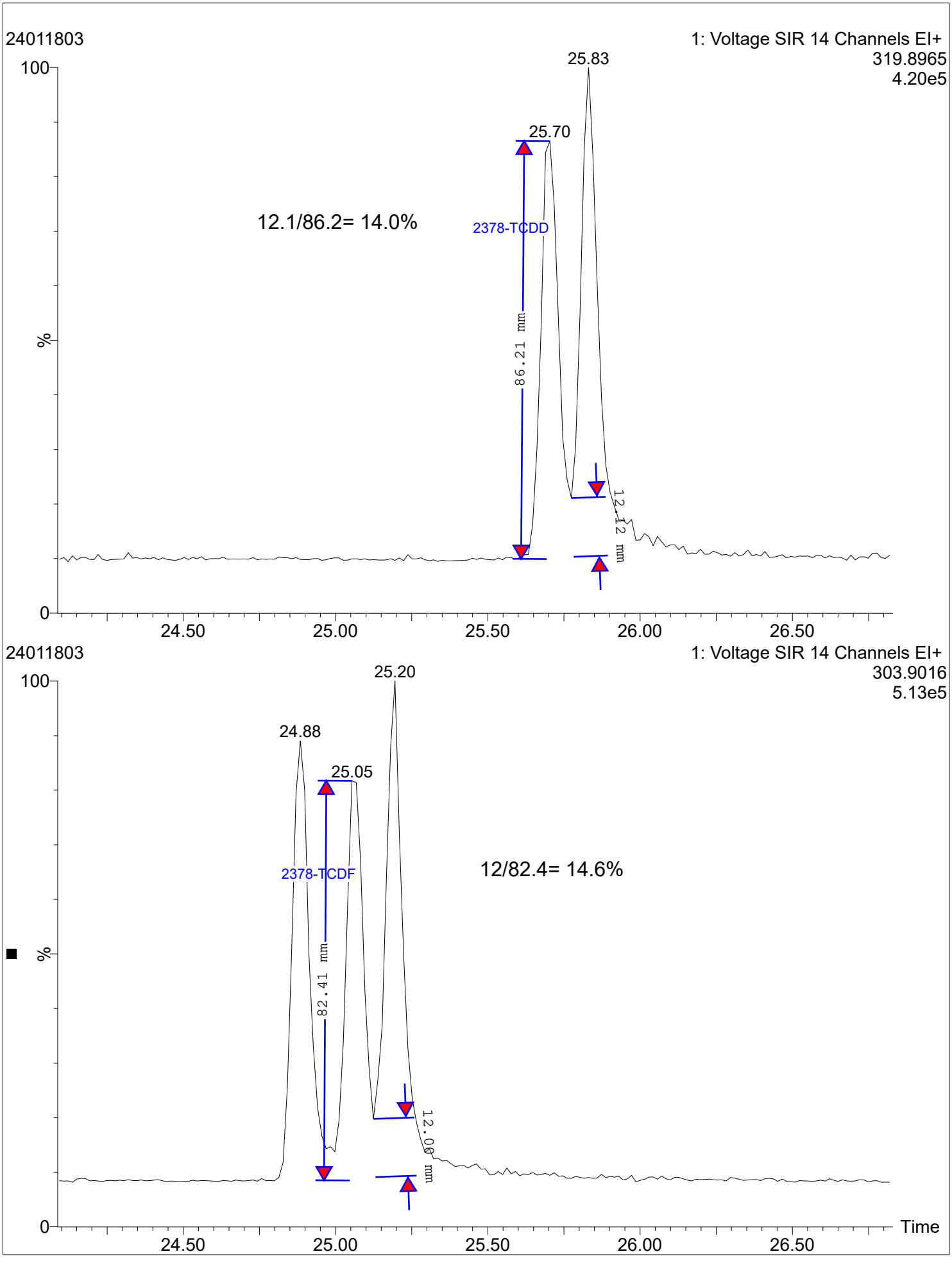


M 504.9696 R 13001



M 516.9697 R 13440




24011803
1: Voltage SIR 14 Channels EI+
319.8965
4.20e5
100
25.83
25.70
12.1/86.2= 14.0%
2378-TCDD
86.21 mm
12.12 mm
%
0
24.50
25.00
25.50
26.00
26.50
24011803
1: Voltage SIR 14 Channels EI+
303.9016
5.13e5
100
25.20
24.88
25.05
2378-TCDF
12/82.4= 14.6%
82.41 mm
12.08 mm
%
0
Time
24.50
25.00
25.50
26.00
26.50

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23L0564
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	AUTOSPEC01	Calibration:	GH00041
Lab File ID:	24011814	Calibration Date:	08/11/2023
Sequence:	SMA0233	Injection Date:	01/18/24
Lab Sample ID:	SMA0233-CCV1	Injection Time:	20:27
Sequence Name:	CS3R8		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
2,3,7,8-TCDF	A	10.000	9.28	0.9031472	0.8382478		-7.2	+/-16
2,3,7,8-TCDD	A	10.000	8.97	1.2429820	1.1151130		-10.3	+/-22
1,2,3,7,8-PeCDF	A	50.000	47.1	0.9232368	0.8692498		-5.8	+/-18
2,3,4,7,8-PeCDF	A	50.000	49.8	0.9906617	0.9865145		-0.4	+/-18
1,2,3,7,8-PeCDD	A	50.000	47.8	1.1500860	1.0988610		-4.5	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	47.4	1.1281700	1.0696670		-5.2	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	47.6	1.0323580	0.9835679		-4.7	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	51.4	1.0814700	1.1122400		2.8	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	48.0	0.9876148	0.9485127		-4.0	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	43.6	0.9600870	0.8369079		-12.8	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	45.0	0.8826935	0.7938214		-10.1	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	49.5	0.8037436	0.7951645		-1.1	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	47.7	1.1637090	1.1109960		-4.5	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	48.6	1.1036300	1.0735500		-2.7	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	43.6	1.1996030	1.0468760		-12.7	+/-14
OCDF	A	100.00	86.1	1.1302050	0.9735021		-13.9	+/-37
OCDD	A	100.00	90.5	1.0586660	0.9579662		-9.5	+/-21
13C12-2,3,7,8-TCDF	A	100.00	82.5	1.8353850	1.5142202		-17.5	+/-29
13C12-2,3,7,8-TCDD	A	100.00	104	1.1095460	1.1591830		4.5	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	90.2	1.3765480	1.2412977		-9.8	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	87.5	1.3012340	1.1382198		-12.5	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	103	0.7536802	0.7753107		2.9	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	88.1	1.0906500	0.9613458		-11.9	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	82.9	1.3402290	1.1108993		-17.1	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	88.8	1.0934470	0.9707612		-11.2	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	87.1	0.9516050	0.8292851		-12.9	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	103	0.9598962	0.9869597		2.8	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	97.1	1.1592550	1.1254867		-2.9	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	78.3	0.9849488	0.7715930		-21.7	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	78.1	0.7558011	0.5904228		-21.9	+/-23
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	98.0	0.6292861	0.6165900		-2.0	+/-28
13C12-OCDD	A	200.00	161	0.6351422	0.5121615		-19.4	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	10.2	1.1573510	1.1842384		2.3	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:47:56 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin240116.mdb 16 Jan 2024 11:29:56
Calibration: T:\Autospec\Curves\230811IClH.cdb 12 Aug 2023 09:45:18

ID: CS3S2, Name: 24011814, Date: 18-Jan-2024, Time: 20:27:17, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.040	1.001	2.155e4	2.813e4	0.903	0.766	0.770	803	1105	3.25e5	4.09e5	404.5	370.3	NO	bb	bb	9.281
12378-PeCDF	29.194	1.001	1.304e5	8.073e4	0.923	1.616	1.550	1602	1372	1.83e6	1.16e6	1140.4	844.5	NO	bd	bb	47.076
23478-PeCDF	30.542	1.001	1.343e5	8.545e4	0.991	1.572	1.550	1602	1372	1.89e6	1.24e6	1181.2	905.5	NO	bd	bb	49.791
123478-HxCDF	34.197	1.001	1.089e5	8.657e4	1.128	1.258	1.240	1740	1482	1.69e6	1.35e6	971.8	908.7	NO	bd	bd	47.407
234678-HxCDF	35.222	1.000	1.187e5	8.653e4	1.081	1.372	1.240	1740	1482	1.69e6	1.36e6	969.6	916.3	NO	bd	bb	51.423
123678-HxCDF	34.341	1.001	1.172e5	9.048e4	1.032	1.295	1.240	1740	1482	1.69e6	1.35e6	969.3	910.9	NO	db	db	47.637
123789-HxCDF	36.269	1.000	8.284e4	6.666e4	0.988	1.243	1.240	1740	1482	1.27e6	1.02e6	727.9	685.2	NO	bb	bb	48.020
1234678-HpCDF	38.141	1.000	8.342e4	7.951e4	1.164	1.049	1.050	1471	1414	1.27e6	1.23e6	864.9	868.3	NO	bd	bd	47.735
1234789-HpCDF	40.314	1.001	6.310e4	5.737e4	1.104	1.100	1.050	1471	1414	8.87e5	8.08e5	602.9	571.6	NO	bd	bb	48.637
OCDF	44.367	1.005	9.213e4	9.740e4	1.130	0.946	0.890	967	1065	1.05e6	1.19e6	1090.8	1117.0	NO	bd	bb	86.135
2378-TCDD	25.690	1.001	2.190e4	2.869e4	1.243	0.763	0.770	1165	849	3.13e5	4.10e5	268.8	482.3	NO	bd	bb	8.971
12378-PeCDD	30.787	1.000	1.005e5	6.627e4	1.150	1.516	1.550	1662	1012	1.40e6	9.17e5	840.0	906.0	NO	bd	bb	47.773
123478-HxCDD	35.344	1.000	8.681e4	7.017e4	0.960	1.237	1.240	1015	1439	1.33e6	1.09e6	1311.6	758.4	NO	bd	bd	43.585
123678-HxCDD	35.467	1.001	9.383e4	7.597e4	0.883	1.235	1.240	1015	1439	1.37e6	1.13e6	1354.7	781.8	NO	db	db	44.966
123789-HxCDD	35.857	1.012	8.831e4	7.132e4	0.804	1.238	1.240	1015	1439	1.27e6	1.04e6	1252.9	721.9	NO	bd	bd	49.466
1234678-HpCDD	39.600	1.000	6.241e4	6.027e4	1.200	1.036	1.050	1309	1103	9.46e5	8.83e5	722.5	800.9	NO	bb	bd	43.634
OCDD	44.138	1.000	8.552e4	1.010e5	1.059	0.847	0.890	840	1158	1.02e6	1.19e6	1218.3	1028.9	NO	bd	bd	90.488
13C-2378-TCDF	25.026	1.007	2.580e5	3.347e5	1.835	0.771	0.770	1056	1085	3.88e6	4.98e6	3672.6	4589.0	NO	bb	bb	82.502
13C-12378-PeCDF	29.172	1.174	2.990e5	1.869e5	1.377	1.600	1.550	2122	2329	4.14e6	2.71e6	1951.0	1163.9	NO	bd	bb	90.175
13C-23478-PeCDF	30.520	1.228	2.678e5	1.777e5	1.301	1.507	1.550	2122	2329	3.90e6	2.59e6	1836.2	1110.1	NO	bb	bb	87.472
13C-123478-HxCDF	34.174	0.953	1.246e5	2.408e5	1.091	0.517	0.510	1196	1833	1.87e6	3.63e6	1565.6	1978.2	NO	bd	bd	88.144
13C-123678-HxCDF	34.319	0.957	1.355e5	2.868e5	1.340	0.472	0.510	1196	1833	1.93e6	3.76e6	1618.3	2054.0	NO	db	dd	82.889
13C-234678-HxCDF	35.210	0.982	1.248e5	2.442e5	1.093	0.511	0.510	1196	1833	1.82e6	3.58e6	1521.7	1952.3	NO	bb	bb	88.780
13C-123789-HxCDF	36.258	1.012	1.077e5	2.075e5	0.952	0.519	0.510	1196	1833	1.45e6	2.82e6	1215.4	1539.9	NO	bd	bb	87.146
13C-1234678-HpCDF	38.130	1.064	8.918e4	2.041e5	0.985	0.437	0.440	1002	1736	1.37e6	3.14e6	1366.1	1808.0	NO	MM	bd	78.338
13C-1234789-HpCDF	40.291	1.124	6.771e4	1.567e5	0.756	0.432	0.440	1002	1736	9.16e5	2.12e6	914.8	1223.9	NO	bb	bb	78.119
13C-1234-TCDD	24.856	0.000	1.722e5	2.192e5	1.000	0.786	0.770	1145	1045	2.66e6	3.35e6	2320.3	3206.6	NO	bb	bb	100.000
13C-2378-TCDD	25.662	1.032	1.979e5	2.558e5	1.110	0.774	0.770	1145	1045	2.97e6	3.83e6	2592.3	3665.1	NO	bb	bb	104.474
13C-12378-PeCDD	30.776	1.238	1.886e5	1.148e5	0.754	1.643	1.550	809	753	2.80e6	1.72e6	3457.6	2284.5	NO	bb	bb	102.870
13C-123478-HxCDD	35.333	0.986	2.067e5	1.684e5	0.960	1.227	1.240	1271	1349	3.32e6	2.68e6	2612.7	1983.0	NO	bd	bd	102.819
13C-123678-HxCDD	35.444	0.989	2.349e5	1.929e5	1.159	1.218	1.240	1271	1349	3.26e6	2.70e6	2563.7	2004.3	NO	db	db	97.087
13C-1234678-HpCDD	39.589	1.104	1.208e5	1.135e5	0.629	1.064	1.050	1181	1140	1.90e6	1.77e6	1605.7	1550.3	NO	bb	bb	97.982
13C-OCDD	44.129	1.231	1.876e5	2.018e5	0.635	0.930	0.890	1252	1504	2.36e6	2.62e6	1888.2	1741.7	NO	bb	bb	161.275
13C-123789-HxCDD	35.846	0.000	2.094e5	1.707e5	1.000	1.227	1.240	1271	1349	3.10e6	2.51e6	2441.3	1857.9	NO	bb	bb	100.000
37CL-2378-TCDD	25.690	1.033	4.635e4		1.157			932		6.76e5		724.5			bb		10.232

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
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ID: CS3S2, Name: 24011814, Date: 18-Jan-2024, Time: 20:27:17, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.551	0.861	2.660e4	3.495e4	1.170	0.761	0.770	803	1105	4.35e5	5.54e5	540.9	501.5	NO	bb	bb	8.873
1289-TCDF	26.537	1.060	2.100e4	2.609e4	0.847	0.805	0.770	803	1105	3.01e5	3.74e5	374.9	337.9	NO	db	db	9.382
13468-PECDF	26.396	0.905	1.853e5	1.213e5	1.241	1.528	1.550	604	729	2.88e6	1.88e6	4776.2	2575.1	NO	bb	bb	50.846
12389-PECDF	31.567	1.082	1.255e5	8.251e4	0.880	1.521	1.550	1602	1372	1.72e6	1.11e6	1074.1	806.5	NO	bb	bd	48.681
123468-HXCDF	32.492	0.951	1.157e5	9.321e4	1.206	1.241	1.240	1740	1482	1.78e6	1.42e6	1021.4	960.8	NO	bb	bb	47.410
1368-TCDD	22.836	0.890	2.096e4	2.825e4	1.181	0.742	0.770	1165	849	3.26e5	4.33e5	279.8	509.7	NO	bb	bd	9.185
1289-TCDD	26.283	1.024	1.751e4	2.483e4	0.963	0.705	0.770	1165	849	2.55e5	3.39e5	219.3	398.7	NO	bb	dd	9.691
12479-PECDD	28.080	0.912	1.742e5	1.150e5	2.166	1.515	1.550	1662	1012	1.64e6	1.07e6	984.8	1059.4	NO	bd	bd	43.990
12389-PECDD	31.188	1.013	1.196e5	8.094e4	1.326	1.477	1.550	1662	1012	1.65e6	1.09e6	992.2	1073.5	NO	bd	bb	49.819
124679-HXCDD	33.294	0.942	9.371e4	7.869e4	1.127	1.191	1.240	1015	1439	1.42e6	1.14e6	1395.6	794.4	NO	bb	bb	40.790
1234679-HPCDD	38.586	0.975	7.456e4	7.483e4	1.303	0.996	1.050	1309	1103	1.19e6	1.15e6	909.4	1042.9	NO	bb	bd	48.931
Total-tetrafurans			6.915e4		0.973			803		1.06e6							27.536
Total-penta1			1.853e5					604		2.88e6							50.846
Total-pentafurans			4.116e5		0.931			1602		5.77e6							153.556
Total-hexafurans			5.432e5		1.087			1740		8.11e6							241.897
Total-heptafurans			1.468e5		1.134			1471		2.17e6							96.530
Total-Furans			1.448e6		1.053			803		2.10e7							656.501
Total-tetradioxins			1.026e5		1.129			1165		1.40e6							46.732
Total-pentadioxins			3.942e5		1.548			1662		4.68e6							141.581
Total-hexadioxins			3.627e5		0.943			1015		5.39e6							178.807
Total-heptadioxins			1.370e5		1.251			1309		2.14e6							92.565
Total-Dioxins			1.082e6		1.182			1165		1.46e7							550.174
Total-TEQ			2.530e6					1165		3.57e7							1206.675
FUNCTION1 PFK			3.088e5					460751		8.03e6							
FUNCTION2 PFK			1.465e5					181965		5.69e6							0.000
FUNCTION3 PFK			4.367e5					343180		1.29e7							0.000
FUNCTION4 PFK			9.101e6					253962		8.33e7							
FUNCTION5 PFK			2.983e5					187668		8.34e6							
FUNCTION1 HXCD...			0.000e0					517		0.00e0							
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			0.000e0					513		0.00e0							
FUNCTION3 OCDPE			0.000e0					356		0.00e0							
FUNCTION4 NCDPE			0.000e0					495		0.00e0							
FUNCTION5 DCDPE			8.446e1					321		1.13e3							0.000

Method: T:\Autospec\Methods\Dioxin240116.mdb 16 Jan 2024 11:29:56
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: CS3S2, Name: 24011814, Date: 18-Jan-2024, Time: 20:27:17, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.54	2.100e4	2.609e4	0.847	0.80	0.77	374.9	YES	NO	db	db	9.382
2	2378-TCDF	25.04	2.155e4	2.813e4	0.903	0.77	0.77	404.5	YES	NO	bb	bb	9.281
3	1368-TCDF	21.55	2.660e4	3.495e4	1.170	0.76	0.77	540.9	YES	NO	bb	bb	8.873

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.40	1.853e5	1.213e5	1.241	1.53	1.55	4776.2	YES	NO	bb	bb	50.846

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	31.57	1.255e5	8.251e4	0.880	1.52	1.55	1074.1	YES	NO	bb	bd	48.681
2	23478-PeCDF	30.54	1.343e5	8.545e4	0.991	1.57	1.55	1181.2	YES	NO	bd	bb	49.791
3	12378-PeCDF	29.19	1.304e5	8.073e4	0.923	1.62	1.55	1140.4	YES	NO	bd	bb	47.076
4	Total-pentafurans	28.05	2.136e4	1.336e4	0.931	1.60	1.55	202.3	YES	NO	bb	bb	8.008

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.27	8.284e4	6.666e4	0.988	1.24	1.24	727.9	YES	NO	bb	bb	48.020
2	234678-HxCDF	35.22	1.187e5	8.653e4	1.081	1.37	1.24	969.6	YES	NO	bd	bb	51.423
3	123678-HxCDF	34.34	1.172e5	9.048e4	1.032	1.30	1.24	969.3	YES	NO	db	db	47.637
4	123478-HxCDF	34.20	1.089e5	8.657e4	1.128	1.26	1.24	971.8	YES	NO	bd	bd	47.407
5	123468-HXCDF	32.49	1.157e5	9.321e4	1.206	1.24	1.24	1021.4	YES	NO	bb	bb	47.410

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.14	8.342e4	7.951e4	1.164	1.05	1.05	864.9	YES	NO	bd	bd	47.735
2	1234789-HpCDF	40.31	6.310e4	5.737e4	1.104	1.10	1.05	602.9	YES	NO	bd	bb	48.637
3	Total-heptafurans	38.80	2.413e2	2.222e2	1.134	1.09	1.05	4.1	NO	NO	db	bb	0.158

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
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ID: CS3S2, Name: 24011814, Date: 18-Jan-2024, Time: 20:27:17, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.54	2.100e4	2.609e4	0.847	0.80	0.77	374.9	YES	NO	db	db	9.382
2	2378-TCDF	25.04	2.155e4	2.813e4	0.903	0.77	0.77	404.5	YES	NO	bb	bb	9.281
3	1368-TCDF	21.55	2.660e4	3.495e4	1.170	0.76	0.77	540.9	YES	NO	bb	bb	8.873
4	12389-PECDF	31.57	1.255e5	8.251e4	0.880	1.52	1.55	1074.1	YES	NO	bb	bd	48.681
5	23478-PeCDF	30.54	1.343e5	8.545e4	0.991	1.57	1.55	1181.2	YES	NO	bd	bb	49.791
6	12378-PeCDF	29.19	1.304e5	8.073e4	0.923	1.62	1.55	1140.4	YES	NO	bd	bb	47.076
7	Total-pentafurans	28.05	2.136e4	1.336e4	0.931	1.60	1.55	202.3	YES	NO	bb	bb	8.008
8	123789-HxCDF	36.27	8.284e4	6.666e4	0.988	1.24	1.24	727.9	YES	NO	bb	bb	48.020
9	234678-HxCDF	35.22	1.187e5	8.653e4	1.081	1.37	1.24	969.6	YES	NO	bd	bb	51.423
10	123678-HxCDF	34.34	1.172e5	9.048e4	1.032	1.30	1.24	969.3	YES	NO	db	db	47.637
11	123478-HxCDF	34.20	1.089e5	8.657e4	1.128	1.26	1.24	971.8	YES	NO	bd	bd	47.407
12	123468-HXCDF	32.49	1.157e5	9.321e4	1.206	1.24	1.24	1021.4	YES	NO	bb	bb	47.410
13	1234678-HpCDF	38.14	8.342e4	7.951e4	1.164	1.05	1.05	864.9	YES	NO	bd	bd	47.735
14	1234789-HpCDF	40.31	6.310e4	5.737e4	1.104	1.10	1.05	602.9	YES	NO	bd	bb	48.637
15	Total-heptafurans	38.80	2.413e2	2.222e2	1.134	1.09	1.05	4.1	NO	NO	db	bb	0.158
16	OCDF	44.37	9.213e4	9.740e4	1.130	0.95	0.89	1090.8	YES	NO	bd	bb	86.135
17	13468-PECDF	26.40	1.853e5	1.213e5	1.241	1.53	1.55	4776.2	YES	NO	bb	bb	50.846

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	22.84	2.096e4	2.825e4	1.181	0.74	0.77	279.8	YES	NO	bb	bd	9.185
2	1289-TCDD	26.28	1.751e4	2.483e4	0.963	0.70	0.77	219.3	YES	NO	bb	dd	9.691
3	2378-TCDD	25.69	2.190e4	2.869e4	1.243	0.76	0.77	268.8	YES	NO	bd	bb	8.971
4	Total-tetradioxins	25.35	3.173e4	4.133e4	1.129	0.77	0.77	298.0	YES	NO	bb	bb	14.263
5	Total-tetradioxins	24.87	1.049e4	1.318e4	1.129	0.80	0.77	134.4	YES	NO	bd	bb	4.622

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.79	1.005e5	6.627e4	1.150	1.52	1.55	840.0	YES	NO	bd	bb	47.773
2	12479-PECDD	28.08	1.742e5	1.150e5	2.166	1.51	1.55	984.8	YES	NO	bd	bd	43.990
3	12389-PECDD	31.19	1.196e5	8.094e4	1.326	1.48	1.55	992.2	YES	NO	bd	bb	49.819

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.86	8.831e4	7.132e4	0.804	1.24	1.24	1252.9	YES	NO	bd	bd	49.466
2	123678-HxCDD	35.47	9.383e4	7.597e4	0.883	1.24	1.24	1354.7	YES	NO	db	db	44.966
3	123478-HxCDD	35.34	8.681e4	7.017e4	0.960	1.24	1.24	1311.6	YES	NO	bd	bd	43.585
4	124679-HXCDD	33.29	9.371e4	7.869e4	1.127	1.19	1.24	1395.6	YES	NO	bb	bb	40.790

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234679-HPCDD	38.59	7.456e4	7.483e4	1.303	1.00	1.05	909.4	YES	NO	bb	bd	48.931
2	1234678-HpCDD	39.60	6.241e4	6.027e4	1.200	1.04	1.05	722.5	YES	NO	bb	bd	43.634

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	22.84	2.096e4	2.825e4	1.181	0.74	0.77	279.8	YES	NO	bb	bd	9.185
2	1289-TCDD	26.28	1.751e4	2.483e4	0.963	0.70	0.77	219.3	YES	NO	bb	dd	9.691
3	2378-TCDD	25.69	2.190e4	2.869e4	1.243	0.76	0.77	268.8	YES	NO	bd	bb	8.971
4	Total-tetradioxins	25.35	3.173e4	4.133e4	1.129	0.77	0.77	298.0	YES	NO	bb	bb	14.263
5	Total-tetradioxins	24.87	1.049e4	1.318e4	1.129	0.80	0.77	134.4	YES	NO	bd	bb	4.622
6	12378-PeCDD	30.79	1.005e5	6.627e4	1.150	1.52	1.55	840.0	YES	NO	bd	bb	47.773
7	12479-PECDD	28.08	1.742e5	1.150e5	2.166	1.51	1.55	984.8	YES	NO	bd	bd	43.990
8	123789-HxCDD	35.86	8.831e4	7.132e4	0.804	1.24	1.24	1252.9	YES	NO	bd	bd	49.466
9	123678-HxCDD	35.47	9.383e4	7.597e4	0.883	1.24	1.24	1354.7	YES	NO	db	db	44.966
10	123478-HxCDD	35.34	8.681e4	7.017e4	0.960	1.24	1.24	1311.6	YES	NO	bd	bd	43.585
11	124679-HXCDD	33.29	9.371e4	7.869e4	1.127	1.19	1.24	1395.6	YES	NO	bb	bb	40.790
12	12389-PECDD	31.19	1.196e5	8.094e4	1.326	1.48	1.55	992.2	YES	NO	bd	bb	49.819
13	1234679-HPCDD	38.59	7.456e4	7.483e4	1.303	1.00	1.05	909.4	YES	NO	bb	bd	48.931
14	1234678-HpCDD	39.60	6.241e4	6.027e4	1.200	1.04	1.05	722.5	YES	NO	bb	bd	43.634
15	OCDD	44.14	8.552e4	1.010e5	1.059	0.85	0.89	1218.3	YES	NO	bd	bd	90.488

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.54	2.100e4	2.609e4	0.847	0.80	0.77	374.9	YES	NO	db	db	9.382
2	2378-TCDF	25.04	2.155e4	2.813e4	0.903	0.77	0.77	404.5	YES	NO	bb	bb	9.281
3	1368-TCDF	21.55	2.660e4	3.495e4	1.170	0.76	0.77	540.9	YES	NO	bb	bb	8.873
4	12389-PECDF	31.57	1.255e5	8.251e4	0.880	1.52	1.55	1074.1	YES	NO	bb	bd	48.681
5	23478-PeCDF	30.54	1.343e5	8.545e4	0.991	1.57	1.55	1181.2	YES	NO	bd	bb	49.791
6	12378-PeCDF	29.19	1.304e5	8.073e4	0.923	1.62	1.55	1140.4	YES	NO	bd	bb	47.076
7	Total-pentafurans	28.05	2.136e4	1.336e4	0.931	1.60	1.55	202.3	YES	NO	bb	bb	8.008
8	123789-HxCDF	36.27	8.284e4	6.666e4	0.988	1.24	1.24	727.9	YES	NO	bb	bb	48.020
9	234678-HxCDF	35.22	1.187e5	8.653e4	1.081	1.37	1.24	969.6	YES	NO	bd	bb	51.423
10	123678-HxCDF	34.34	1.172e5	9.048e4	1.032	1.30	1.24	969.3	YES	NO	db	db	47.637
11	123478-HxCDF	34.20	1.089e5	8.657e4	1.128	1.26	1.24	971.8	YES	NO	bd	bd	47.407
12	123468-HXCDF	32.49	1.157e5	9.321e4	1.206	1.24	1.24	1021.4	YES	NO	bb	bb	47.410
13	1234678-HpCDF	38.14	8.342e4	7.951e4	1.164	1.05	1.05	864.9	YES	NO	bd	bd	47.735
14	1234789-HpCDF	40.31	6.310e4	5.737e4	1.104	1.10	1.05	602.9	YES	NO	bd	bb	48.637
15	Total-heptafurans	38.80	2.413e2	2.222e2	1.134	1.09	1.05	4.1	NO	NO	db	bb	0.158
16	OCDF	44.37	9.213e4	9.740e4	1.130	0.95	0.89	1090.8	YES	NO	bd	bb	86.135
17	13468-PECDF	26.40	1.853e5	1.213e5	1.241	1.53	1.55	4776.2	YES	NO	bb	bb	50.846
18	1368-TCDD	22.84	2.096e4	2.825e4	1.181	0.74	0.77	279.8	YES	NO	bb	bd	9.185
19	1289-TCDD	26.28	1.751e4	2.483e4	0.963	0.70	0.77	219.3	YES	NO	bb	dd	9.691
20	2378-TCDD	25.69	2.190e4	2.869e4	1.243	0.76	0.77	268.8	YES	NO	bd	bb	8.971
21	Total-tetradioxins	25.35	3.173e4	4.133e4	1.129	0.77	0.77	298.0	YES	NO	bb	bb	14.263
22	Total-tetradioxins	24.87	1.049e4	1.318e4	1.129	0.80	0.77	134.4	YES	NO	bd	bb	4.622
23	12378-PeCDD	30.79	1.005e5	6.627e4	1.150	1.52	1.55	840.0	YES	NO	bd	bb	47.773
24	12479-PECDD	28.08	1.742e5	1.150e5	2.166	1.51	1.55	984.8	YES	NO	bd	bd	43.990
25	123789-HxCDD	35.86	8.831e4	7.132e4	0.804	1.24	1.24	1252.9	YES	NO	bd	bd	49.466
26	123678-HxCDD	35.47	9.383e4	7.597e4	0.883	1.24	1.24	1354.7	YES	NO	db	db	44.966
27	123478-HxCDD	35.34	8.681e4	7.017e4	0.960	1.24	1.24	1311.6	YES	NO	bd	bd	43.585
28	124679-HXCDD	33.29	9.371e4	7.869e4	1.127	1.19	1.24	1395.6	YES	NO	bb	bb	40.790
29	12389-PECDD	31.19	1.196e5	8.094e4	1.326	1.48	1.55	992.2	YES	NO	bd	bb	49.819
30	1234679-HPCDD	38.59	7.456e4	7.483e4	1.303	1.00	1.05	909.4	YES	NO	bb	bd	48.931
31	1234678-HpCDD	39.60	6.241e4	6.027e4	1.200	1.04	1.05	722.5	YES	NO	bb	bd	43.634
32	OCDD	44.14	8.552e4	1.010e5	1.059	0.85	0.89	1218.3	YES	NO	bd	bd	90.488

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	23.71	1.323e4					1.1	NO		bd		
2	FUNCTION1 PFK	23.66	3.407e3					0.5	NO		bb		
3	FUNCTION1 PFK	23.30	2.076e4					1.3	NO		db		
4	FUNCTION1 PFK	23.13	6.407e4					1.6	NO		bd		
5	FUNCTION1 PFK	22.79	3.685e4					1.3	NO		bb		
6	FUNCTION1 PFK	22.74	9.702e3					0.7	NO		bb		
7	FUNCTION1 PFK	22.53	2.146e4					1.2	NO		bb		
8	FUNCTION1 PFK	22.47	3.386e3					0.5	NO		bb		
9	FUNCTION1 PFK	22.34	4.352e3					0.6	NO		bb		
10	FUNCTION1 PFK	22.07	1.214e4					0.8	NO		bb		
11	FUNCTION1 PFK	21.25	4.435e3					0.7	NO		bb		
12	FUNCTION1 PFK	21.11	4.943e3					0.8	NO		bb		
13	FUNCTION1 PFK	26.99	2.352e4					1.4	NO		bb		
14	FUNCTION1 PFK	26.51	1.043e4					0.8	NO		bb		
15	FUNCTION1 PFK	25.80	1.136e4					0.9	NO		db		
16	FUNCTION1 PFK	25.75	2.689e4					1.1	NO		bd		
17	FUNCTION1 PFK	24.93	1.958e4					1.1	NO		bb		
18	FUNCTION1 PFK	23.75	1.833e4					1.1	NO		db		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.26	2.726e3					0.8	NO		bb		0.000
2	FUNCTION2 PFK	28.12	7.319e3					1.2	NO		bb		0.000
3	FUNCTION2 PFK	28.06	9.172e3					2.0	NO		bb		0.000
4	FUNCTION2 PFK	28.00	9.615e2					0.5	NO		bb		0.000
5	FUNCTION2 PFK	27.81	8.624e3					1.3	NO		bb		0.000
6	FUNCTION2 PFK	27.47	1.857e3					0.7	NO		db		0.000
7	FUNCTION2 PFK	27.44	2.031e3					0.8	NO		bd		0.000
8	FUNCTION2 PFK	27.40	2.967e3					0.9	NO		bb		0.000
9	FUNCTION2 PFK	27.34	6.167e3					1.2	NO		bb		0.000
10	FUNCTION2 PFK	29.87	1.038e3					0.5	NO		bb		0.000
11	FUNCTION2 PFK	29.83	3.404e3					0.7	NO		bb		0.000
12	FUNCTION2 PFK	29.61	2.189e3					0.6	NO		db		0.000
13	FUNCTION2 PFK	29.56	1.798e3					0.5	NO		bd		0.000
14	FUNCTION2 PFK	29.52	4.608e3					1.0	NO		bb		0.000
15	FUNCTION2 PFK	29.22	2.461e3					0.7	NO		bb		0.000
16	FUNCTION2 PFK	29.08	3.121e3					0.7	NO		db		0.000
17	FUNCTION2 PFK	29.05	4.068e3					0.8	NO		dd		0.000
18	FUNCTION2 PFK	28.98	9.198e3					1.5	NO		bd		0.000
19	FUNCTION2 PFK	28.94	9.100e2					0.4	NO		bb		0.000
20	FUNCTION2 PFK	28.89	6.783e2					0.3	NO		bb		0.000
21	FUNCTION2 PFK	28.69	2.139e3					0.8	NO		db		0.000
22	FUNCTION2 PFK	28.66	3.130e3					0.7	NO		bd		0.000
23	FUNCTION2 PFK	28.61	9.028e2					0.4	NO		bb		0.000
24	FUNCTION2 PFK	28.46	9.035e3					1.6	NO		db		0.000
25	FUNCTION2 PFK	28.41	5.490e3					1.1	NO		bd		0.000
26	FUNCTION2 PFK	31.99	8.961e2					0.4	NO		bb		0.000
27	FUNCTION2 PFK	31.52	6.185e3					1.4	NO		db		0.000
28	FUNCTION2 PFK	31.48	1.808e3					0.5	NO		bd		0.000
29	FUNCTION2 PFK	31.34	1.648e3					0.5	NO		db		0.000
30	FUNCTION2 PFK	31.30	6.553e3					1.2	NO		bd		0.000
31	FUNCTION2 PFK	31.23	3.535e3					0.8	NO		bb		0.000
32	FUNCTION2 PFK	30.94	5.387e3					1.3	NO		bb		0.000
33	FUNCTION2 PFK	30.78	2.759e3					0.5	NO		bb		0.000
34	FUNCTION2 PFK	30.71	1.790e4					1.9	NO		bb		0.000
35	FUNCTION2 PFK	30.41	2.985e3					0.6	NO		bb		0.000
36	FUNCTION2 PFK	29.91	8.563e2					0.4	NO		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	32.55	1.276e4					1.2	NO		bb		0.000
2	FUNCTION3 PFK	32.32	1.755e4					1.4	NO		bb		0.000
3	FUNCTION3 PFK	32.24	1.276e4					1.2	NO		db		0.000
4	FUNCTION3 PFK	32.20	6.391e3					0.9	NO		bd		0.000
5	FUNCTION3 PFK	35.10	1.480e4					1.2	NO		bb		0.000
6	FUNCTION3 PFK	34.97	1.572e3					0.4	NO		bb		0.000
7	FUNCTION3 PFK	34.92	5.967e3					0.9	NO		bb		0.000
8	FUNCTION3 PFK	34.78	2.977e4					1.3	NO		bb		0.000
9	FUNCTION3 PFK	34.63	9.467e3					1.0	NO		bb		0.000
10	FUNCTION3 PFK	34.55	9.921e3					1.1	NO		bb		0.000
11	FUNCTION3 PFK	34.48	1.675e3					0.4	NO		bb		0.000
12	FUNCTION3 PFK	34.42	1.541e4					0.9	NO		db		0.000
13	FUNCTION3 PFK	34.34	1.637e4					1.6	NO		bd		0.000
14	FUNCTION3 PFK	33.62	1.951e4					1.5	NO		bb		0.000
15	FUNCTION3 PFK	33.49	1.005e4					0.9	NO		bb		0.000
16	FUNCTION3 PFK	33.43	1.148e4					1.0	NO		bb		0.000
17	FUNCTION3 PFK	33.31	2.229e3					0.6	NO		bb		0.000
18	FUNCTION3 PFK	33.15	1.686e4					1.6	NO		bb		0.000
19	FUNCTION3 PFK	33.04	6.666e3					0.9	NO		bb		0.000
20	FUNCTION3 PFK	32.74	1.758e4					1.3	NO		bb		0.000
21	FUNCTION3 PFK	37.04	9.140e3					1.1	NO		bb		0.000
22	FUNCTION3 PFK	36.83	9.439e3					1.1	NO		bb		0.000
23	FUNCTION3 PFK	36.74	2.641e4					2.0	NO		db		0.000
24	FUNCTION3 PFK	36.69	2.176e4					1.9	NO		bd		0.000
25	FUNCTION3 PFK	36.56	6.555e3					0.9	NO		bb		0.000
26	FUNCTION3 PFK	36.49	2.574e4					1.3	NO		bb		0.000
27	FUNCTION3 PFK	36.34	1.930e3					0.5	NO		bb		0.000
28	FUNCTION3 PFK	36.15	1.804e4					1.7	NO		bb		0.000
29	FUNCTION3 PFK	36.09	5.190e3					0.7	NO		bb		0.000
30	FUNCTION3 PFK	35.80	3.395e3					0.6	NO		bb		0.000
31	FUNCTION3 PFK	35.76	1.982e3					0.5	NO		bb		0.000
32	FUNCTION3 PFK	35.70	5.066e3					0.7	NO		bb		0.000
33	FUNCTION3 PFK	35.52	3.832e3					0.5	NO		bb		0.000
34	FUNCTION3 PFK	35.38	5.944e4					2.8	NO		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.27	7.386e5					38.1	YES		bd		
2	FUNCTION4 PFK	39.42	4.393e3					0.6	NO		bb		
3	FUNCTION4 PFK	39.17	1.684e4					1.6	NO		bb		
4	FUNCTION4 PFK	39.00	1.146e3					0.4	NO		bb		
5	FUNCTION4 PFK	38.87	2.430e4					2.7	NO		db		
6	FUNCTION4 PFK	38.73	1.796e5					6.1	YES		dd		
7	FUNCTION4 PFK	38.66	7.035e4					6.7	YES		dd		
8	FUNCTION4 PFK	38.62	8.299e4					7.8	YES		dd		
9	FUNCTION4 PFK	38.58	2.244e5					8.4	YES		dd		
10	FUNCTION4 PFK	38.48	4.121e5					11.5	YES		dd		
11	FUNCTION4 PFK	38.33	2.913e5					15.1	YES		dd		
12	FUNCTION4 PFK	37.87	2.224e6					26.3	YES		dd		
13	FUNCTION4 PFK	37.77	2.266e6					29.3	YES		dd		
14	FUNCTION4 PFK	37.54	8.670e5					33.7	YES		dd		
15	FUNCTION4 PFK	37.44	5.032e5					35.9	YES		dd		
16	FUNCTION4 PFK	37.37	5.071e5					37.0	YES		dd		
17	FUNCTION4 PFK	37.33	4.130e5					37.5	YES		dd		
18	FUNCTION4 PFK	40.97	5.645e3					0.9	NO		db		
19	FUNCTION4 PFK	40.95	6.905e3					1.1	NO		bd		
20	FUNCTION4 PFK	40.86	8.508e3					0.8	NO		bb		
21	FUNCTION4 PFK	40.76	3.531e3					0.5	NO		db		
22	FUNCTION4 PFK	40.70	1.106e4					1.2	NO		dd		
23	FUNCTION4 PFK	40.68	2.738e3					0.6	NO		bd		
24	FUNCTION4 PFK	40.63	1.748e4					1.4	NO		db		
25	FUNCTION4 PFK	40.53	5.660e3					0.9	NO		bd		
26	FUNCTION4 PFK	40.48	1.499e4					1.8	NO		db		
27	FUNCTION4 PFK	40.39	2.831e3					0.6	NO		bd		
28	FUNCTION4 PFK	40.35	1.144e3					0.4	NO		bb		
29	FUNCTION4 PFK	40.15	3.225e3					0.7	NO		bb		
30	FUNCTION4 PFK	40.10	2.144e3					0.4	NO		bb		
31	FUNCTION4 PFK	39.87	2.796e3					0.5	NO		bb		
32	FUNCTION4 PFK	39.76	3.714e3					0.8	NO		bb		
33	FUNCTION4 PFK	39.62	1.062e3					0.4	NO		bb		
34	FUNCTION4 PFK	42.44	9.553e3					0.9	NO		bb		
35	FUNCTION4 PFK	42.40	3.374e3					0.7	NO		bb		
36	FUNCTION4 PFK	42.33	9.229e3					1.4	NO		bb		
37	FUNCTION4 PFK	42.24	7.727e3					1.0	NO		bb		

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION4 PFK	42.09	5.607e3					0.6	NO		bb		
39	FUNCTION4 PFK	41.92	6.128e3					1.0	NO		bb		
40	FUNCTION4 PFK	41.76	7.062e2					0.2	NO		bb		
41	FUNCTION4 PFK	41.65	9.174e3					1.3	NO		bb		
42	FUNCTION4 PFK	41.55	1.335e4					1.4	NO		db		
43	FUNCTION4 PFK	41.44	3.389e4					2.0	NO		dd		
44	FUNCTION4 PFK	41.38	1.170e4					1.4	NO		bd		
45	FUNCTION4 PFK	41.27	4.105e4					1.9	NO		db		
46	FUNCTION4 PFK	41.18	2.369e4					2.0	NO		bd		
47	FUNCTION4 PFK	41.12	6.039e3					0.8	NO		bb		

ID: CS3S2, Name: 24011814, Date: 18-Jan-2024, Time: 20:27:17, Conditions: AUTOSPEC01, User: pk

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	42.58	1.470e4					3.4	YES		bd		
2	FUNCTION5 PFK	44.99	1.486e4					2.5	NO		dd		
3	FUNCTION5 PFK	44.93	1.827e4					2.1	NO		bd		
4	FUNCTION5 PFK	44.87	3.187e4					3.2	YES		bb		
5	FUNCTION5 PFK	44.54	7.727e2					0.5	NO		bb		
6	FUNCTION5 PFK	43.93	1.504e4					2.4	NO		db		
7	FUNCTION5 PFK	43.87	9.880e3					1.9	NO		dd		
8	FUNCTION5 PFK	43.83	6.449e3					1.7	NO		dd		
9	FUNCTION5 PFK	43.78	1.121e4					1.5	NO		dd		
10	FUNCTION5 PFK	43.74	1.013e4					1.9	NO		bd		
11	FUNCTION5 PFK	43.68	2.624e4					2.2	NO		bb		
12	FUNCTION5 PFK	43.43	7.466e2					0.4	NO		bb		
13	FUNCTION5 PFK	43.40	3.367e3					1.0	NO		bb		
14	FUNCTION5 PFK	43.22	5.729e3					1.0	NO		bb		
15	FUNCTION5 PFK	43.18	1.145e4					1.8	NO		bb		
16	FUNCTION5 PFK	42.73	6.546e3					1.7	NO		bb		
17	FUNCTION5 PFK	42.62	1.129e4					2.4	NO		db		
18	FUNCTION5 PFK	45.90	1.076e4					1.2	NO		db		
19	FUNCTION5 PFK	45.73	2.330e4					1.8	NO		bd		
20	FUNCTION5 PFK	45.68	1.013e4					1.6	NO		db		
21	FUNCTION5 PFK	45.62	1.427e4					1.6	NO		bd		
22	FUNCTION5 PFK	45.44	1.293e4					2.0	NO		bb		
23	FUNCTION5 PFK	45.18	2.026e3					0.7	NO		bb		
24	FUNCTION5 PFK	45.12	1.018e4					1.9	NO		bb		
25	FUNCTION5 PFK	45.05	1.611e4					2.0	NO		db		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ID: CS3S2, Name: 24011814, Date: 18-Jan-2024, Time: 20:27:17, Conditions: AUTOSPEC01, User: pk

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

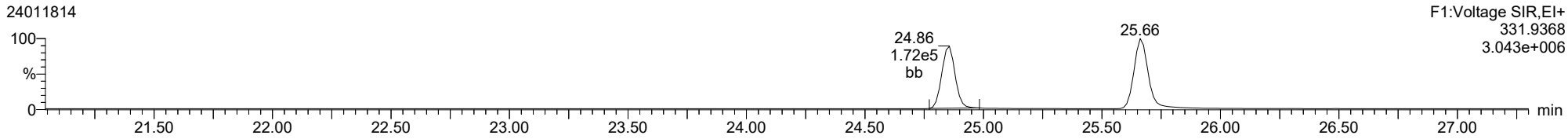
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.96	8.446e1					3.5	YES		bb		0.000

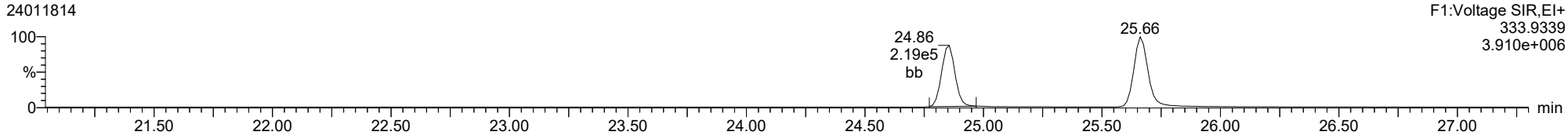
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ID: CS3S2, Name: 24011814, Date: 18-Jan-2024, Time: 20:27:17, Conditions: AUTOSPEC01, User: pk

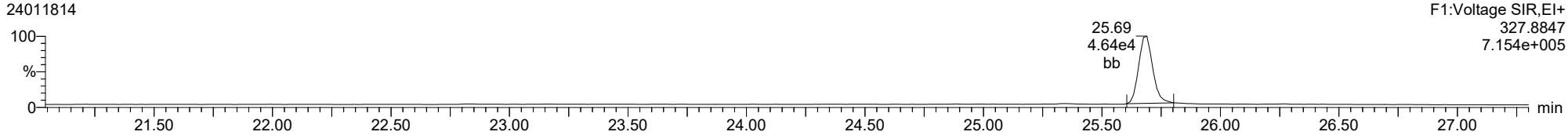
13C-1234-TCDD



13C-1234-TCDD

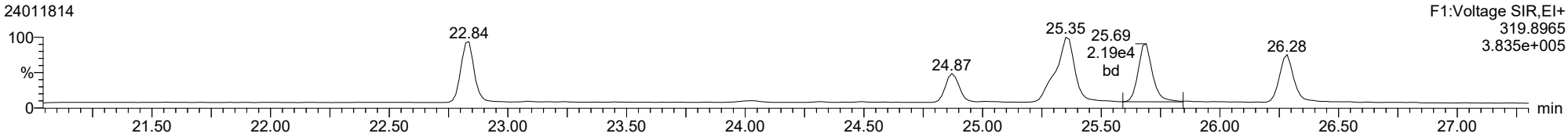


37CL-2378-TCDD

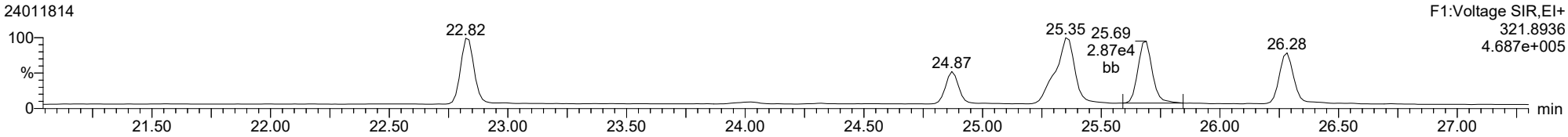


ID: CS3S2, Name: 24011814, Date: 18-Jan-2024, Time: 20:27:17, Conditions: AUTOSPEC01, User: pk

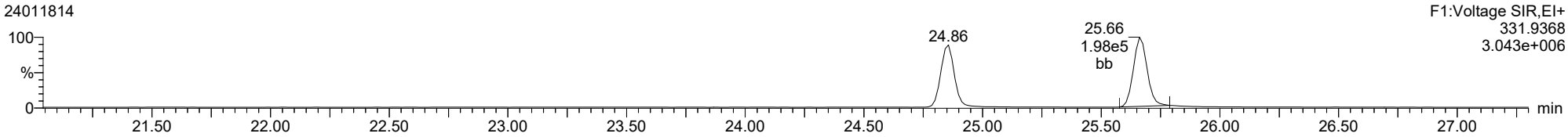
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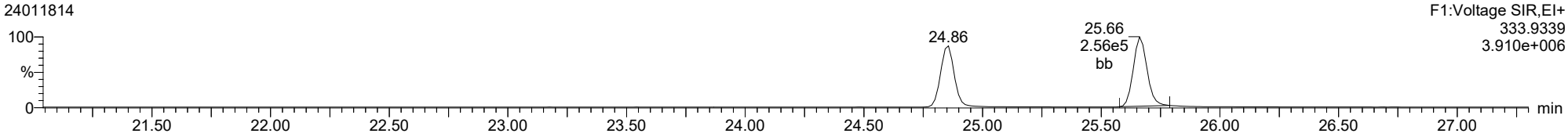
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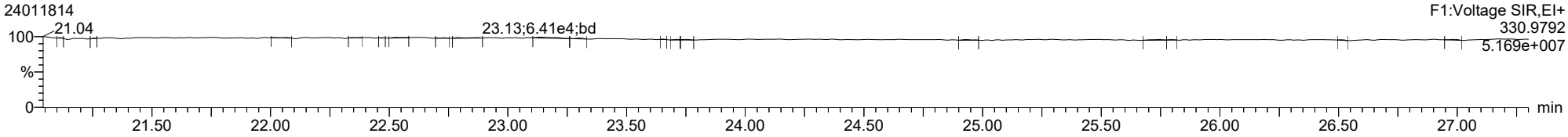
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13C-2378-TCDD

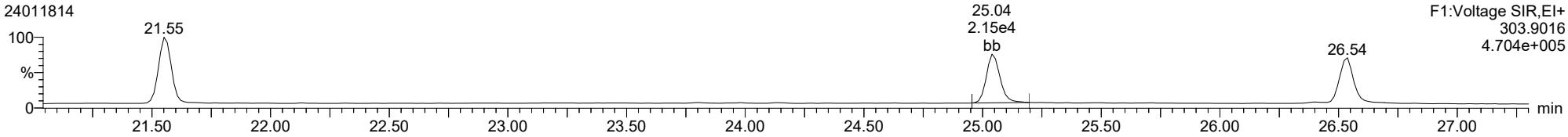


FUNCTION1 PFK

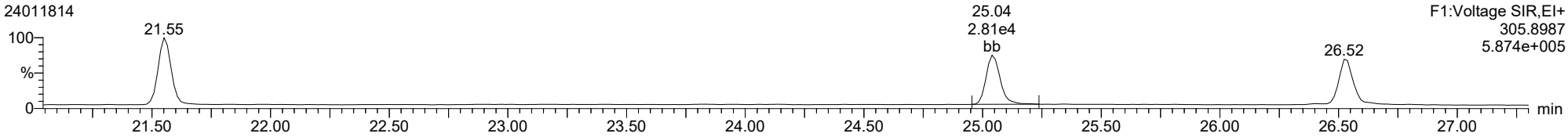


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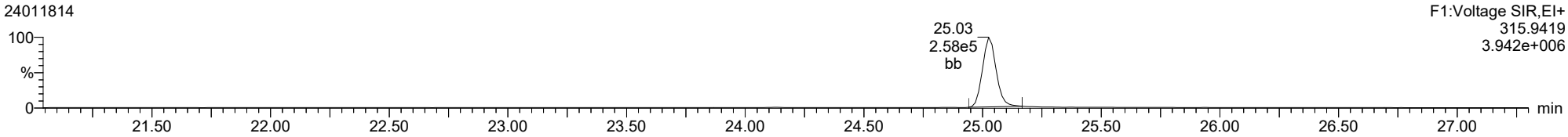
2378-TCDF



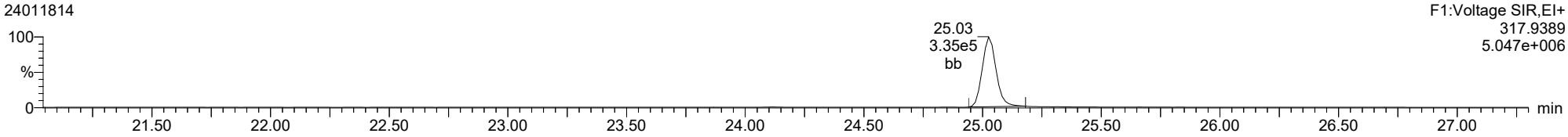
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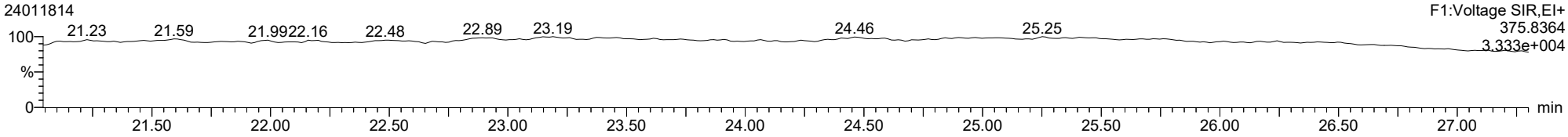
13C-2378-TCDF



13C-2378-TCDF

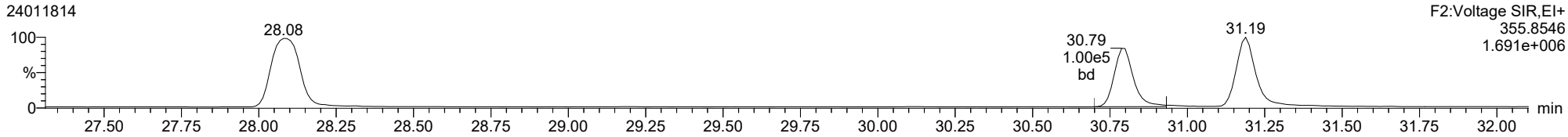


FUNCTION1 HXCDPE

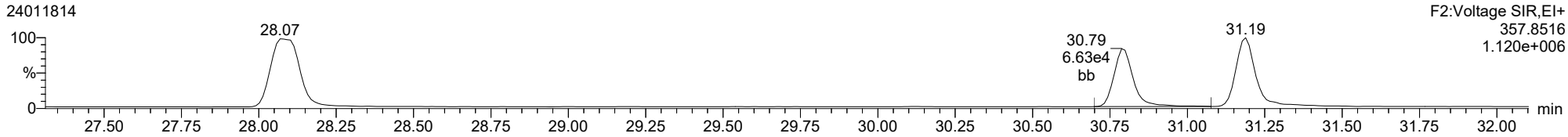


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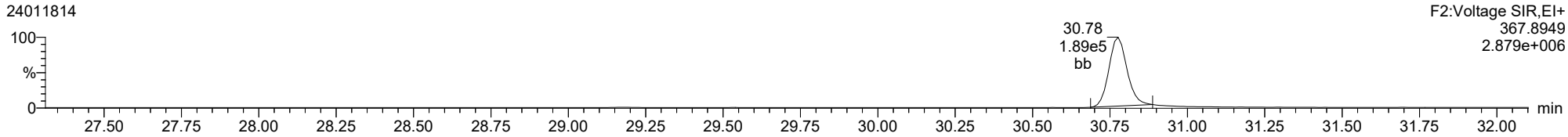
12378-PeCDD



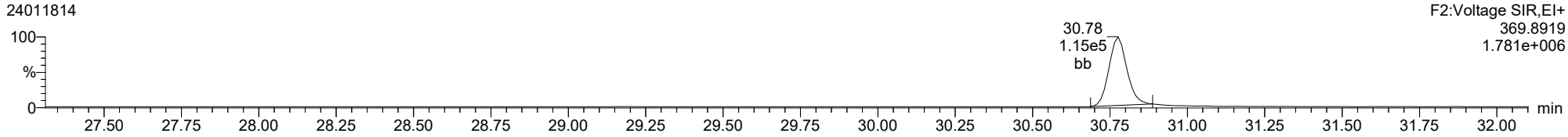
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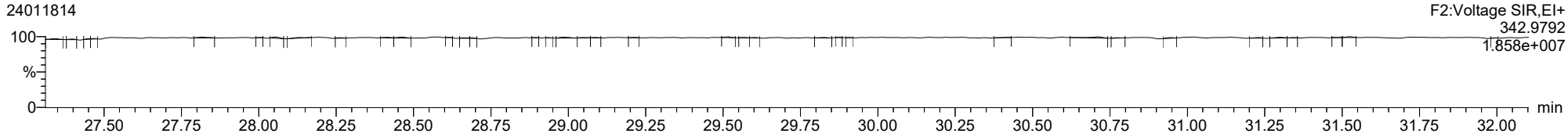
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13C-12378-PeCDD

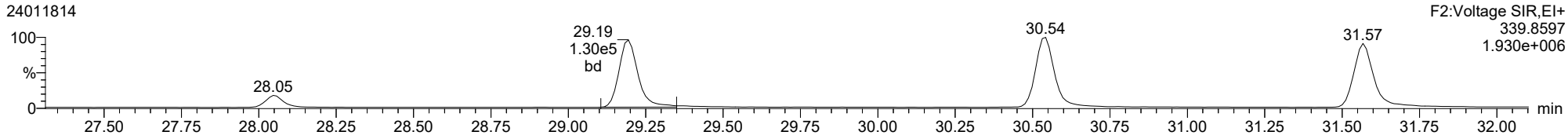


FUNCTION2 PFK

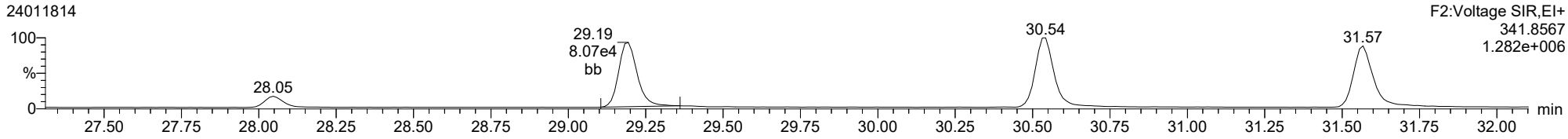


ID: CS3S2, Name: 24011814, Date: 18-Jan-2024, Time: 20:27:17, Conditions: AUTOSPEC01, User: pk

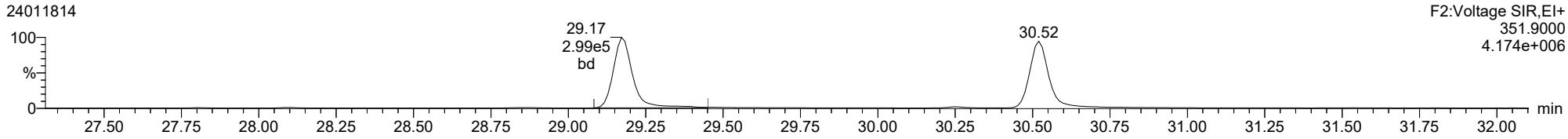
12378-PeCDF



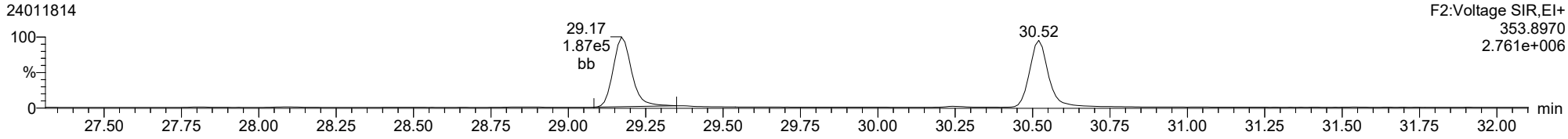
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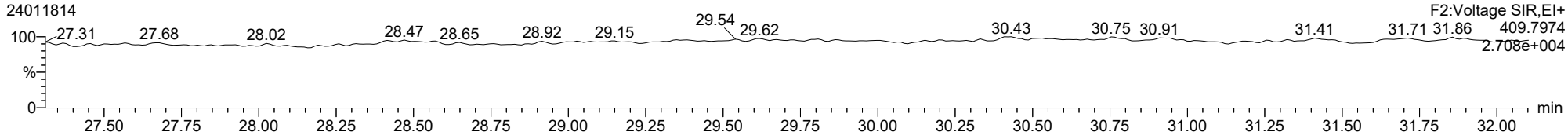
13C-12378-PeCDF



13C-12378-PeCDF

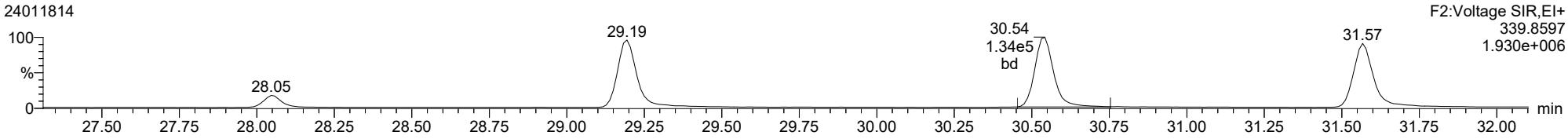


FUNCTION2 HPCDPE

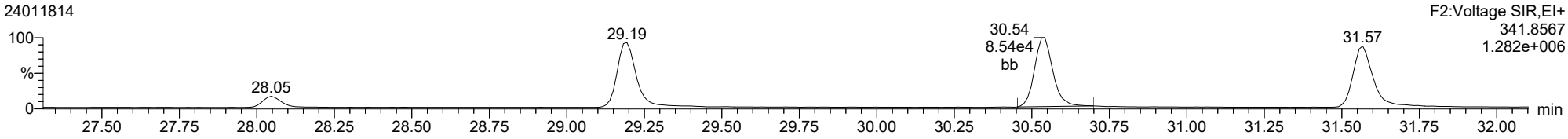


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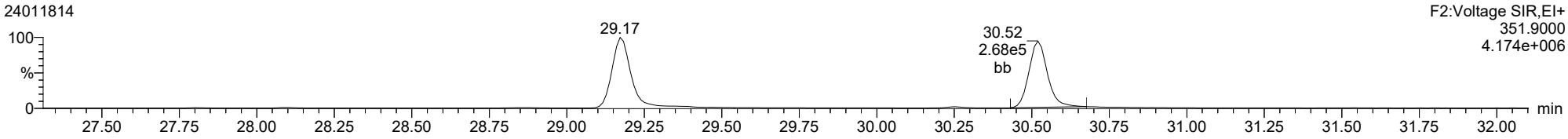
23478-PeCDF



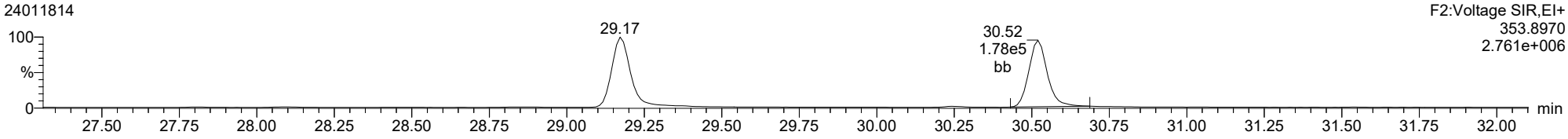
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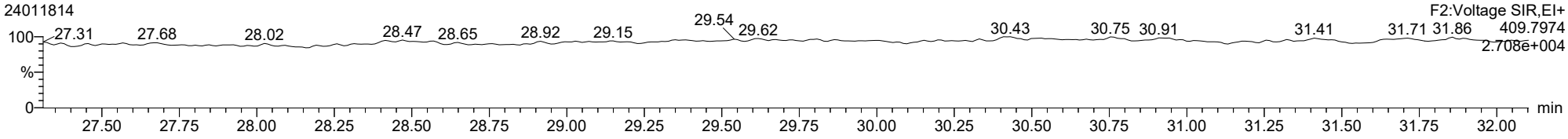
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13C-23478-PeCDF

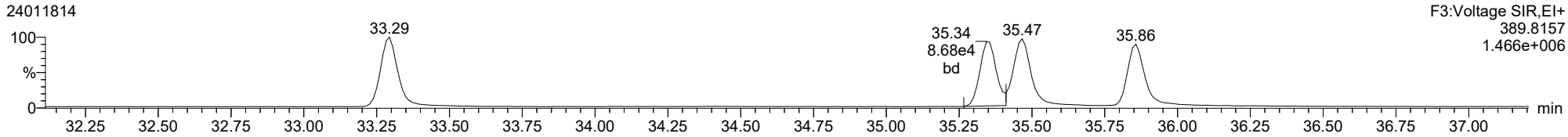


FUNCTION2 HPCDPE

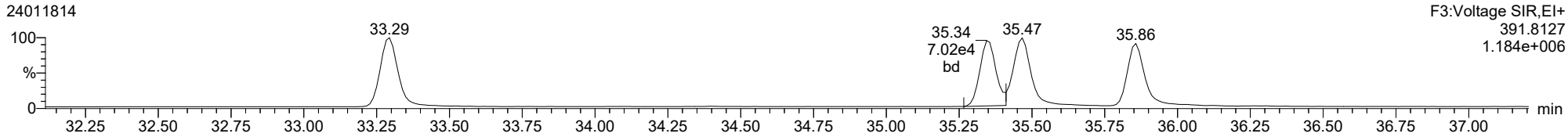


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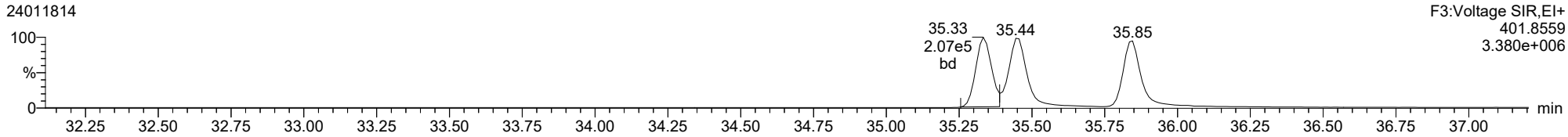
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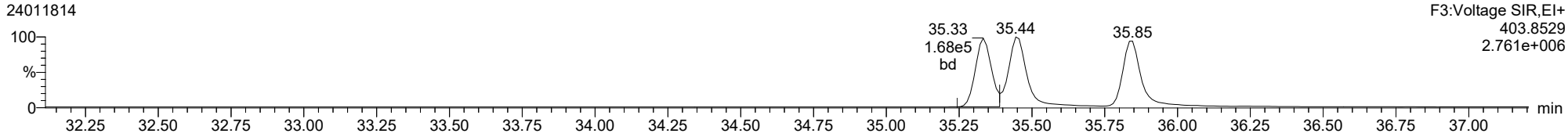
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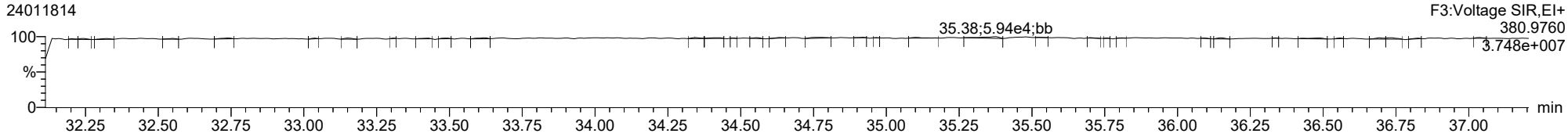
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13C-123478-HxCDD



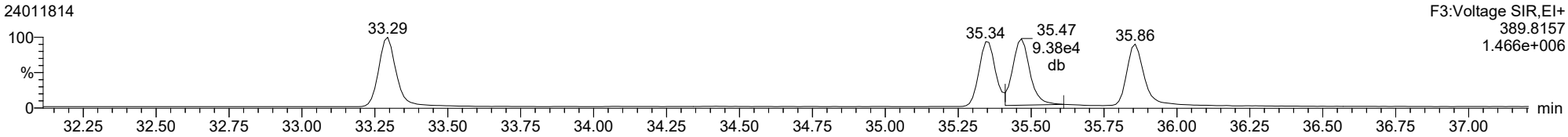
FUNCTION3 PFK



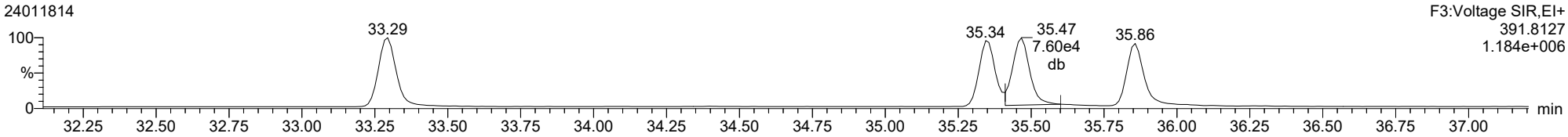
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ID: CS3S2, Name: 24011814, Date: 18-Jan-2024, Time: 20:27:17, Conditions: AUTOSPEC01, User: pk

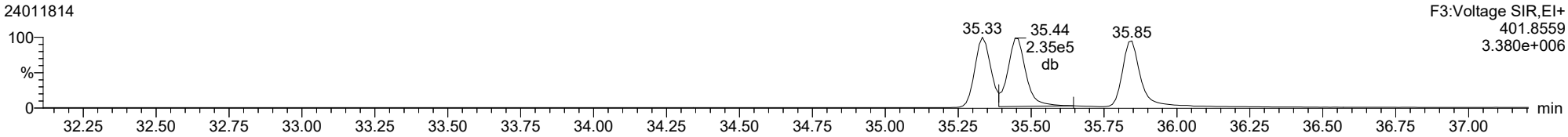
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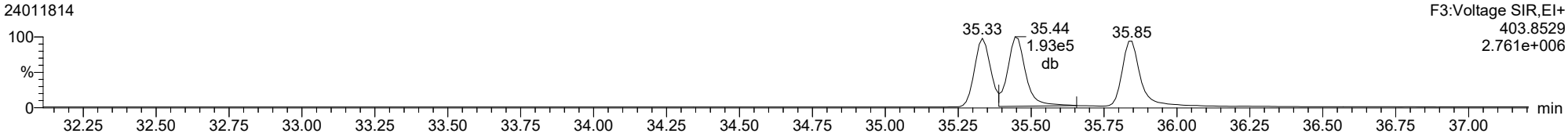
123678-HxCDD



13C-123678-HxCDD

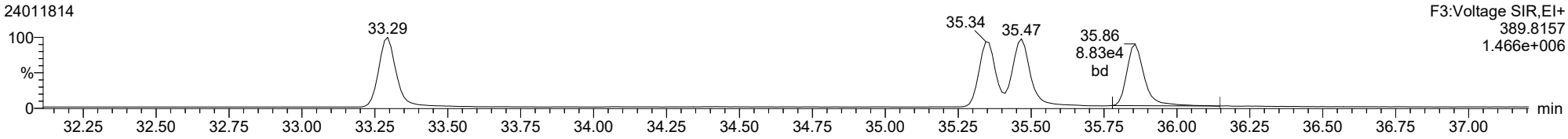


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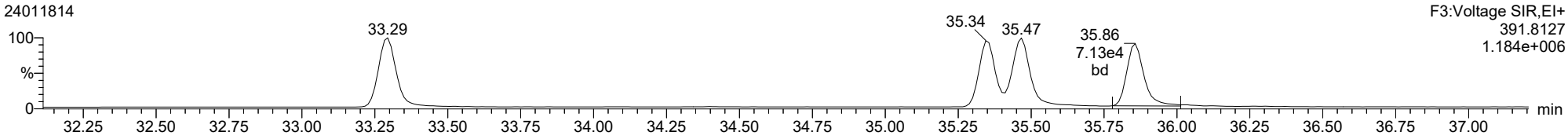


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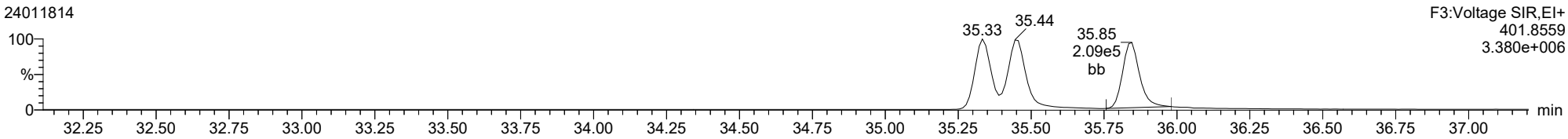
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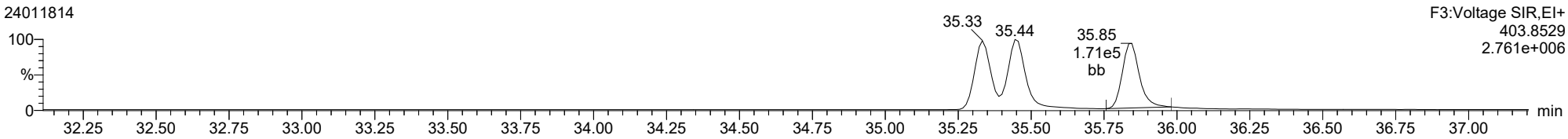
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13C-123789-HxCDD

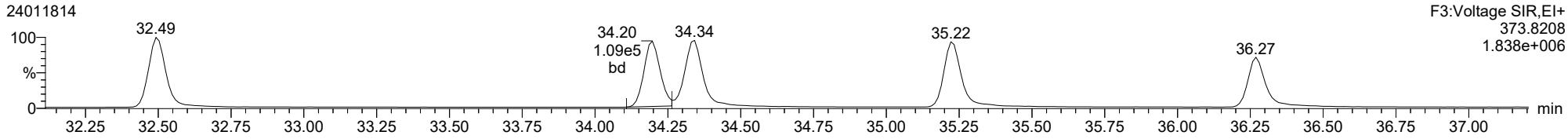


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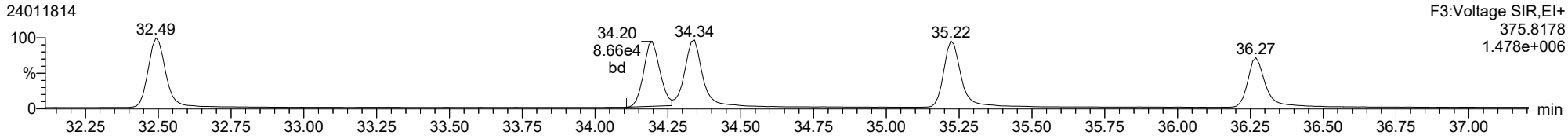


ID: CS3S2, Name: 24011814, Date: 18-Jan-2024, Time: 20:27:17, Conditions: AUTOSPEC01, User: pk

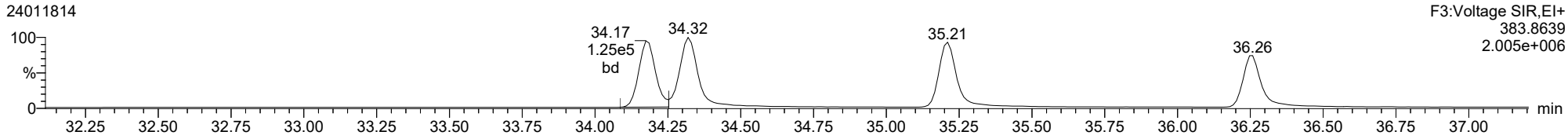
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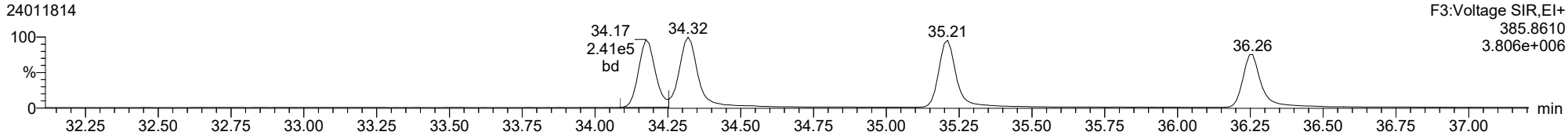
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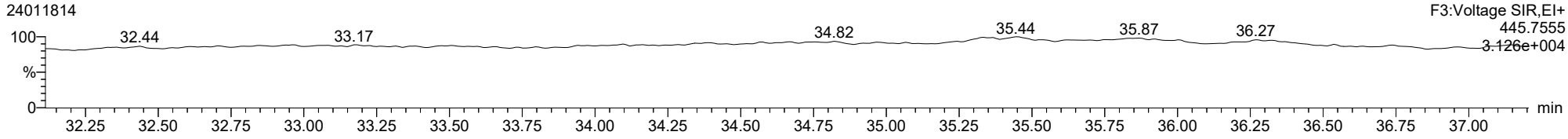
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13C-123478-HxCDF



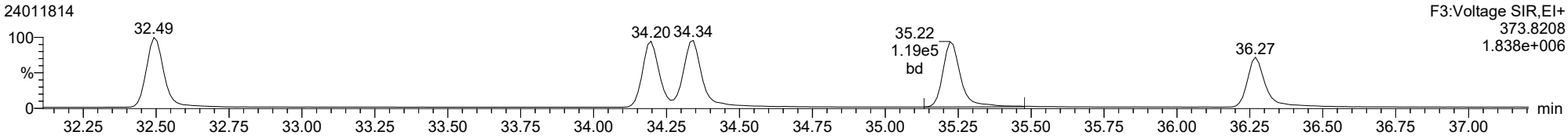
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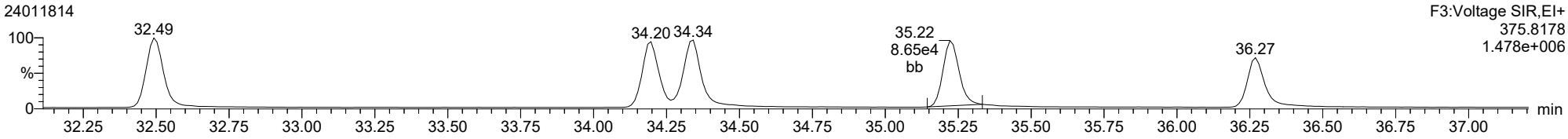
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ID: CS3S2, Name: 24011814, Date: 18-Jan-2024, Time: 20:27:17, Conditions: AUTOSPEC01, User: pk

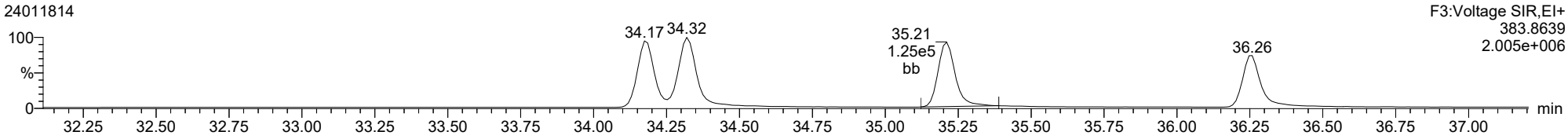
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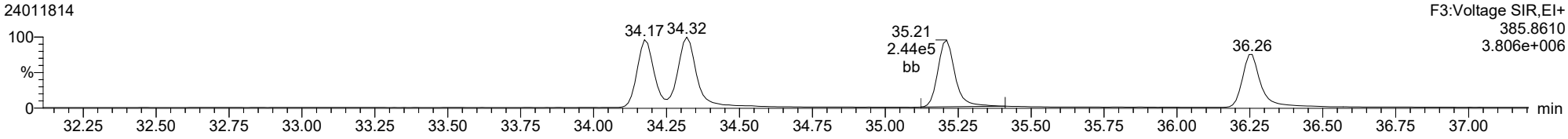
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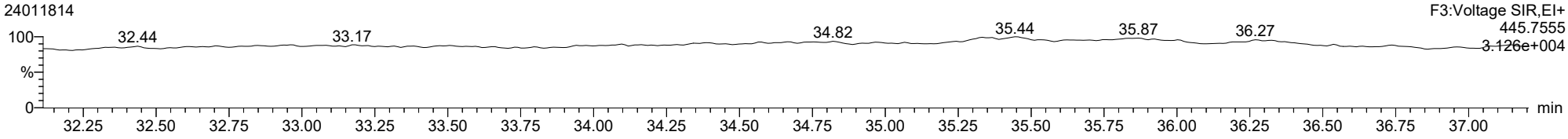
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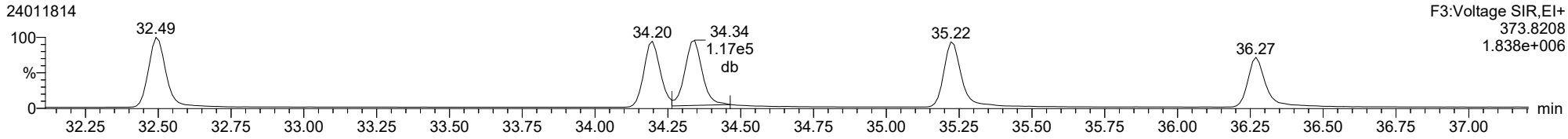


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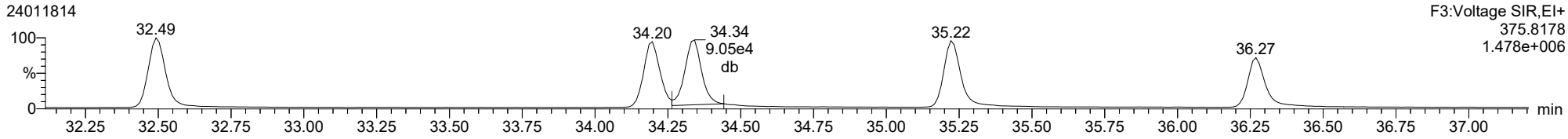


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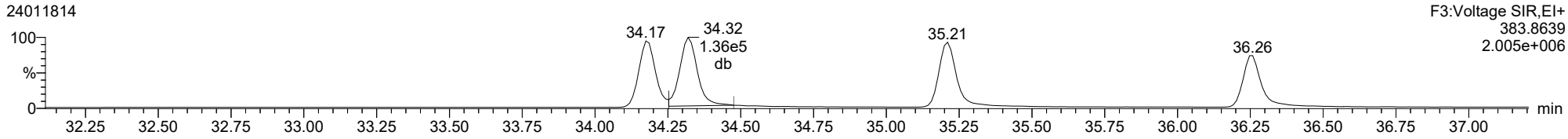
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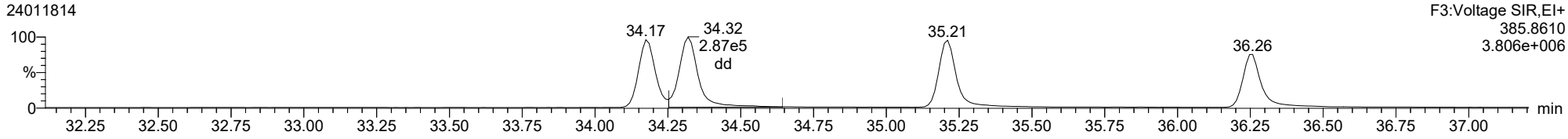
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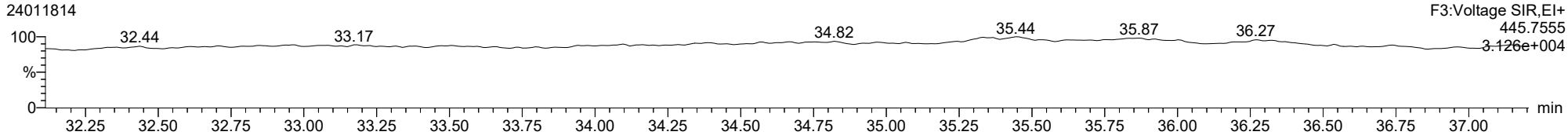
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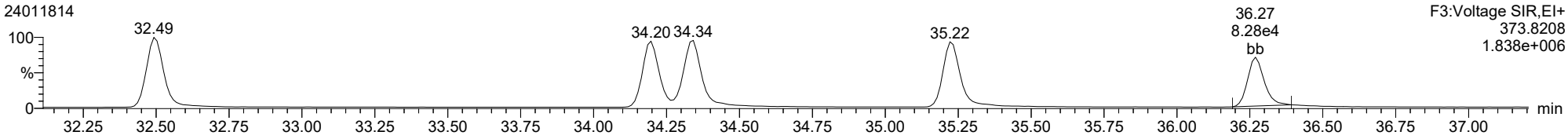


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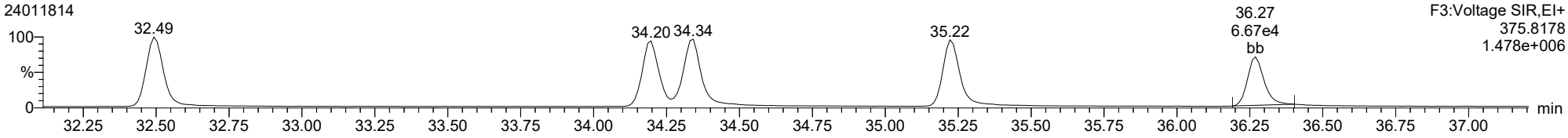


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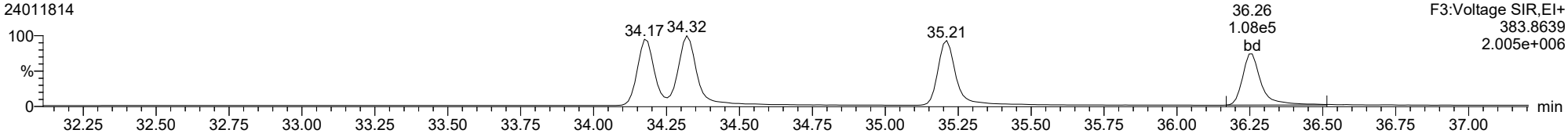
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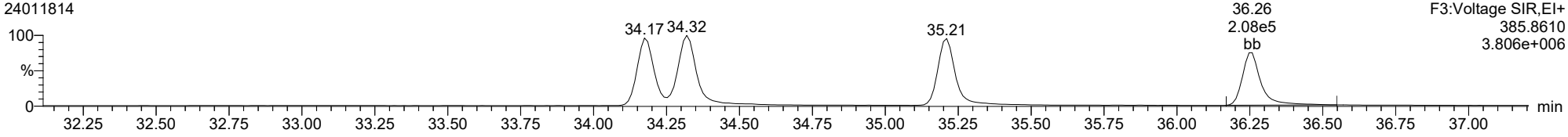
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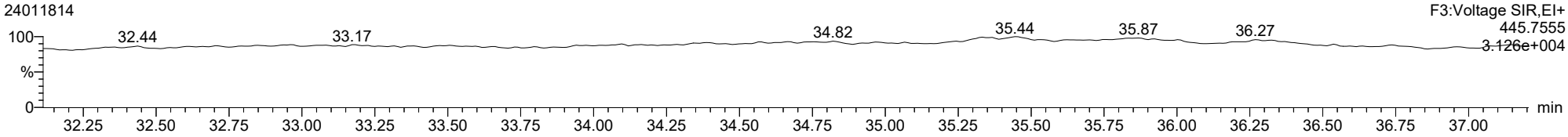
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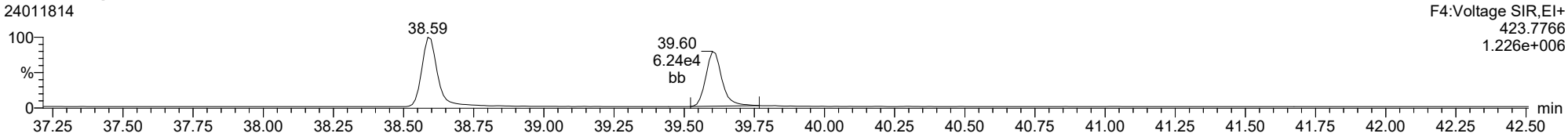


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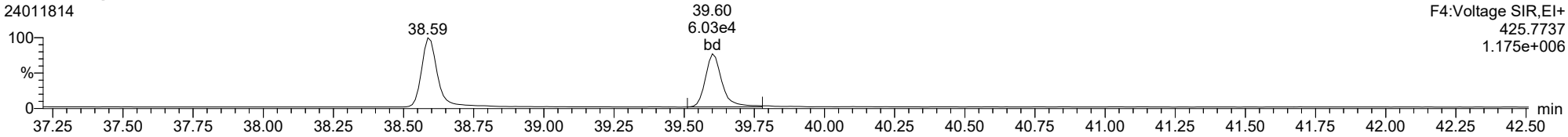


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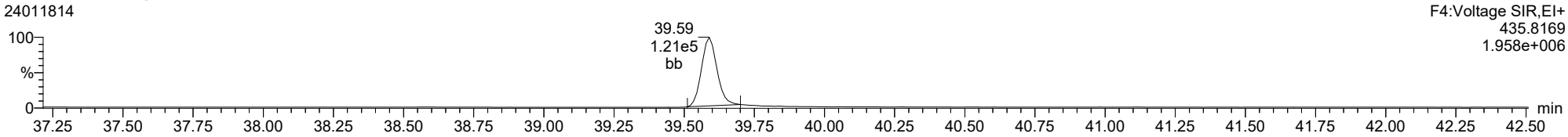
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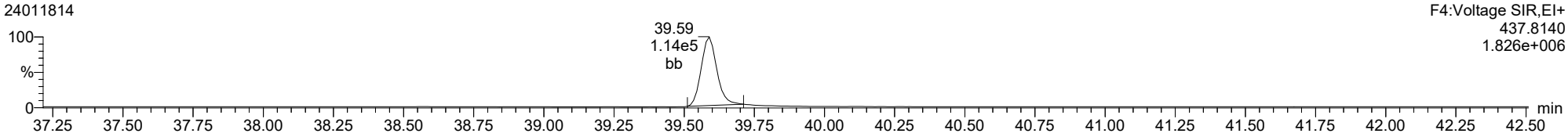
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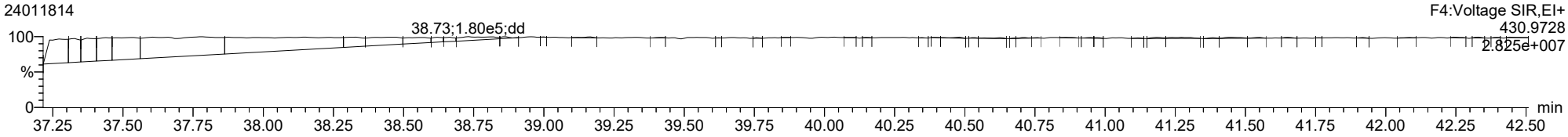
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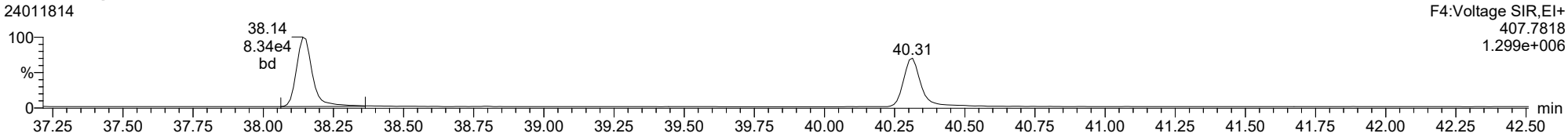


FUNCTION4 PFK

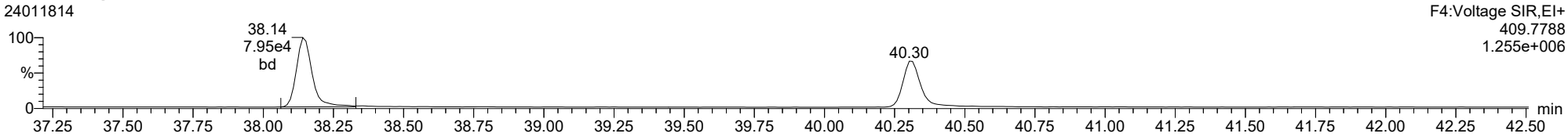


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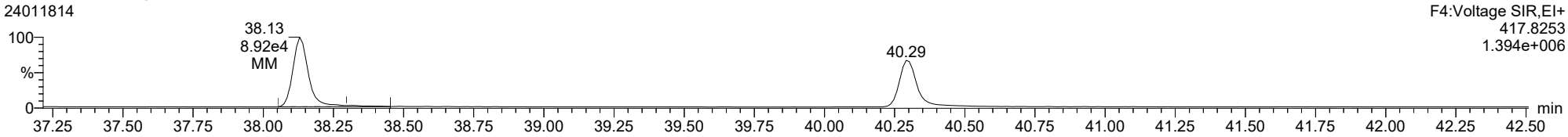
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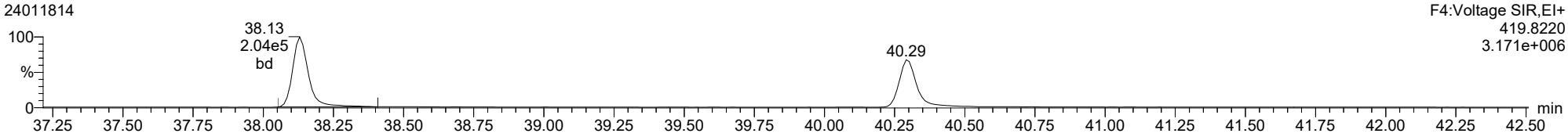
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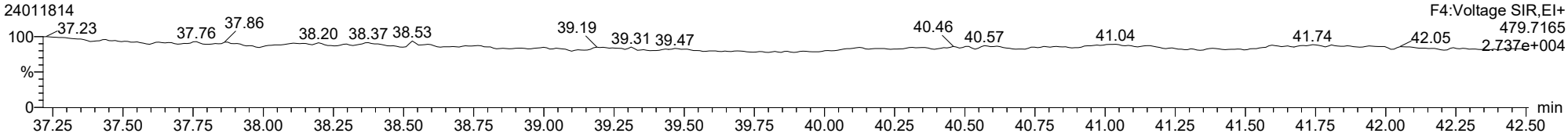
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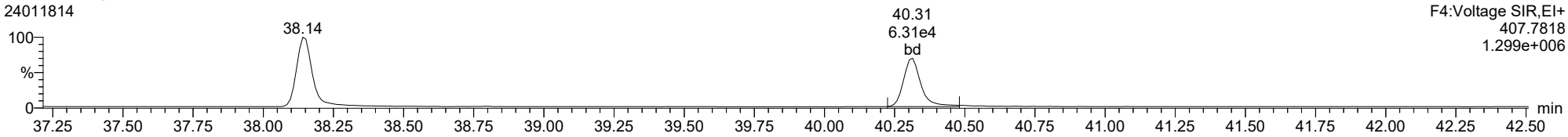


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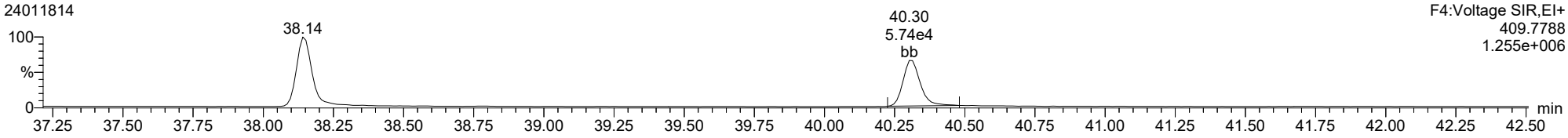


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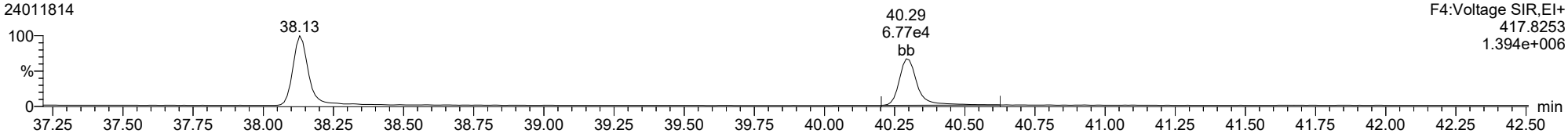
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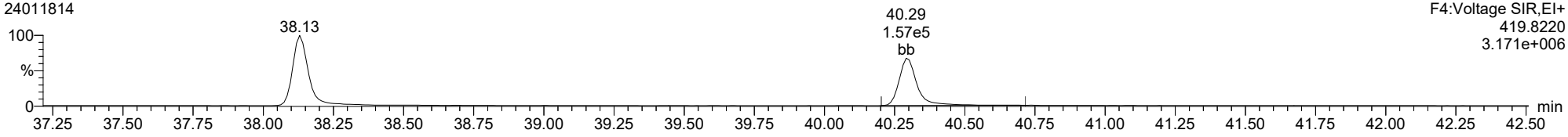
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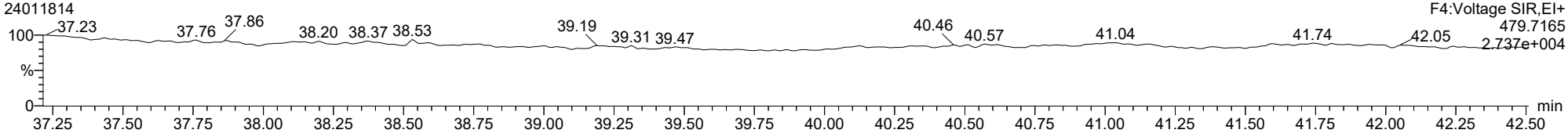
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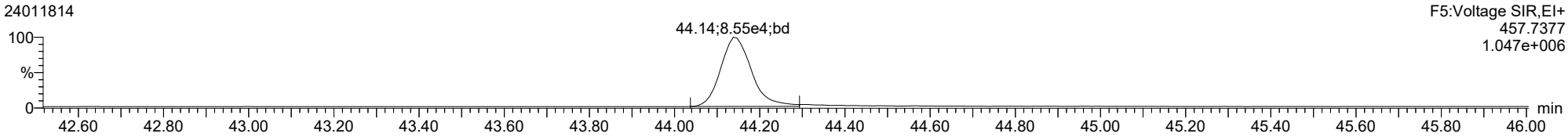


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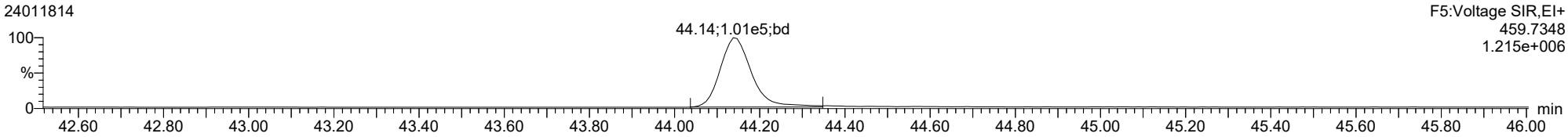


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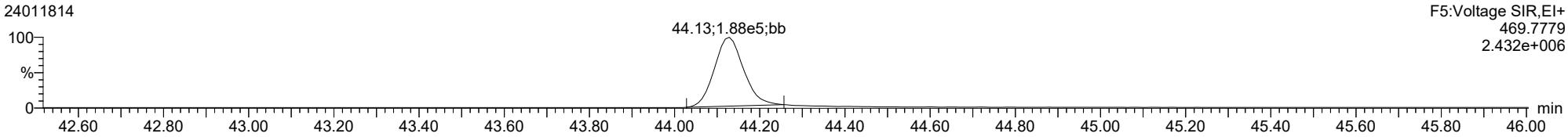
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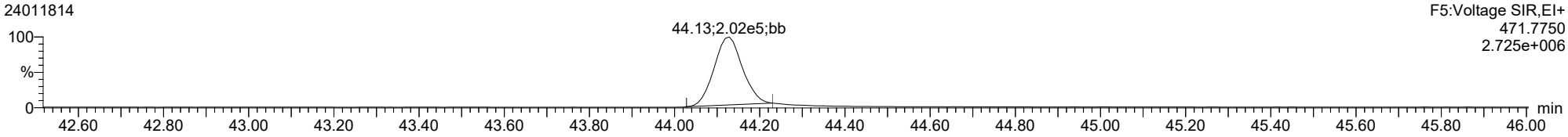
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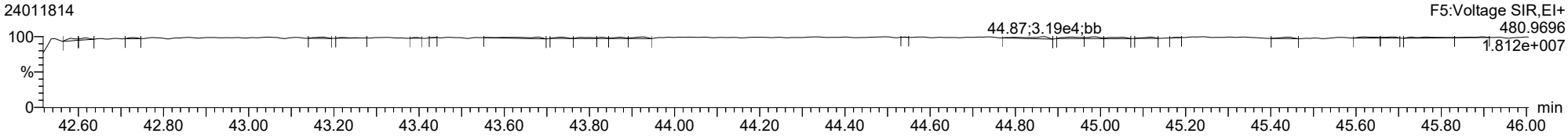
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13C-OCDD



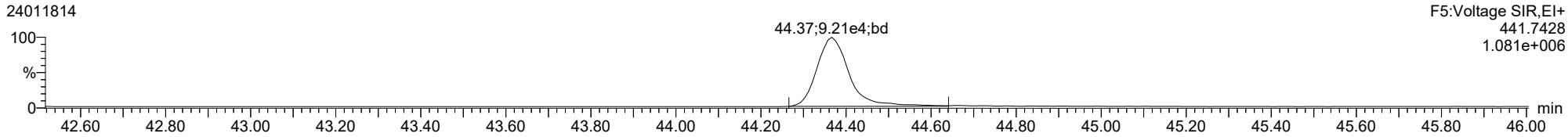
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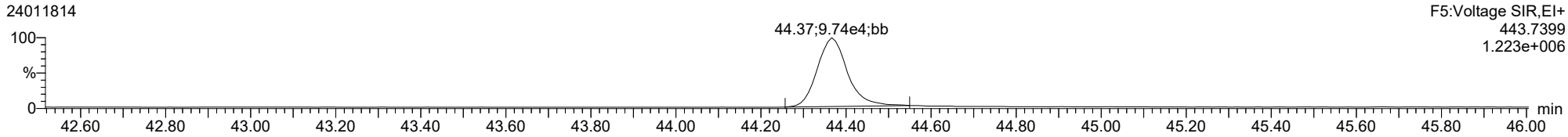
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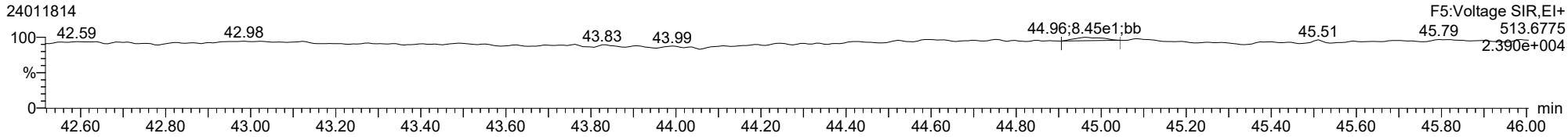
OCDF



OCDF

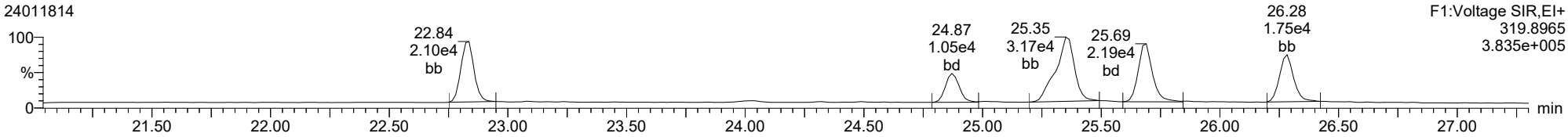


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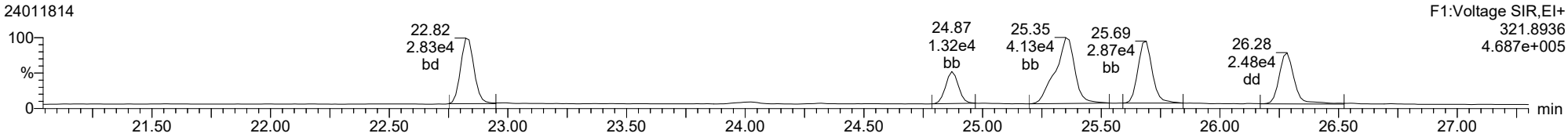


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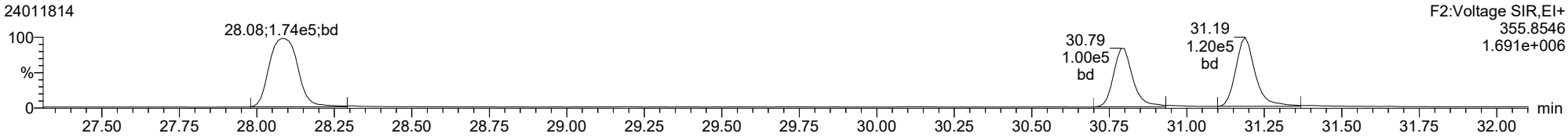
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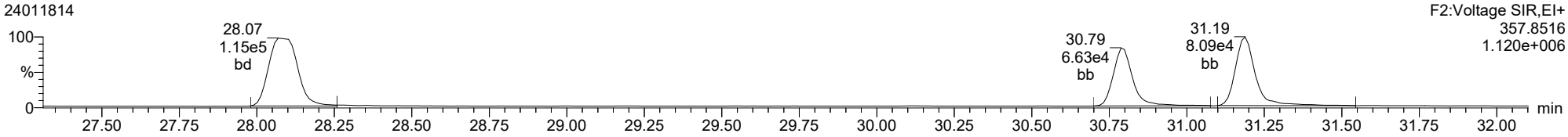
Total-tetradioxins



Total-pentadioxins

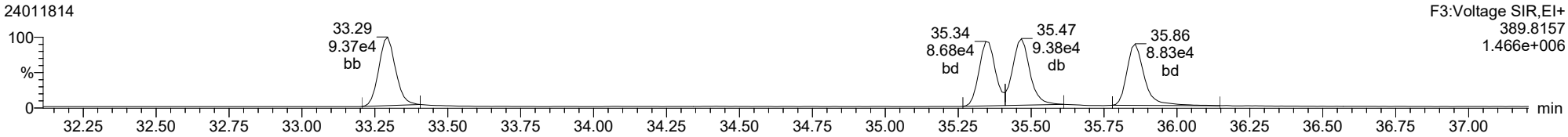


Total-pentadioxins

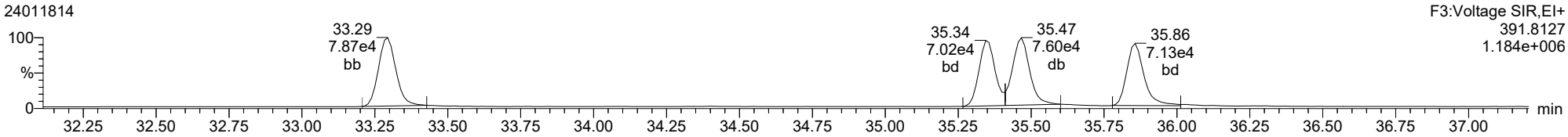


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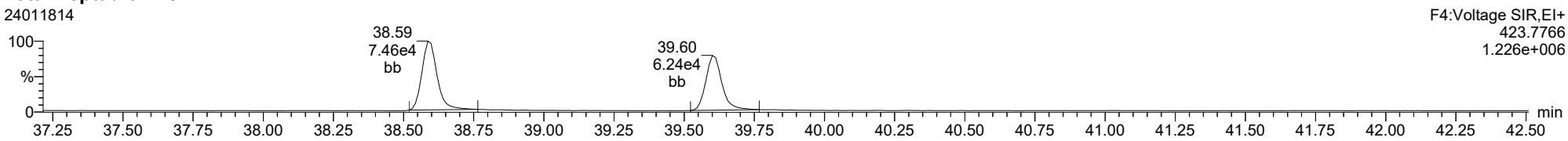
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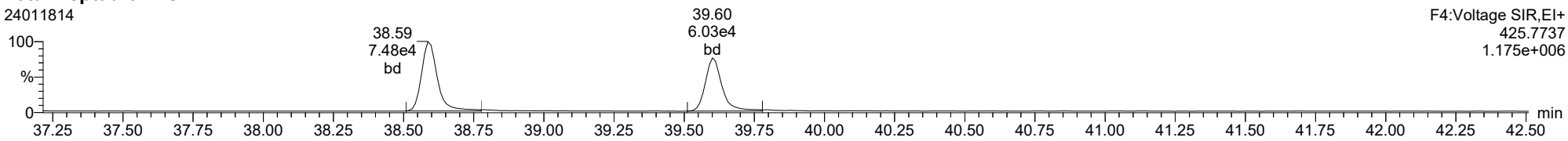
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Total-heptadioxins



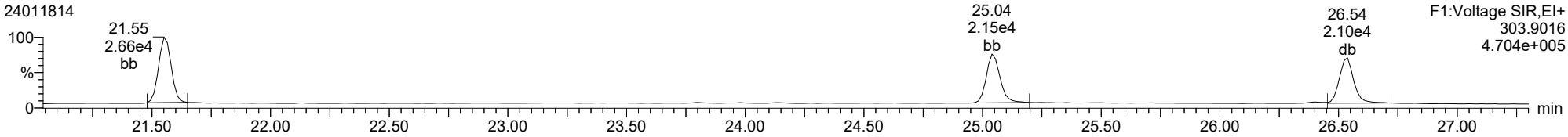
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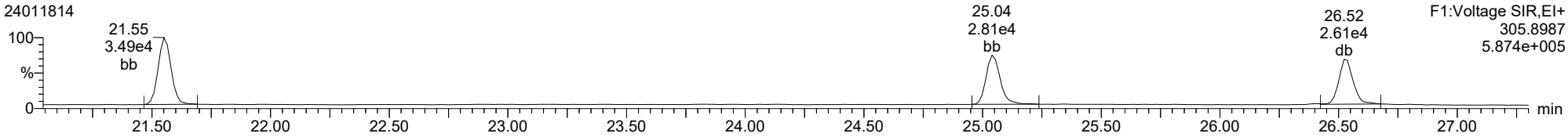
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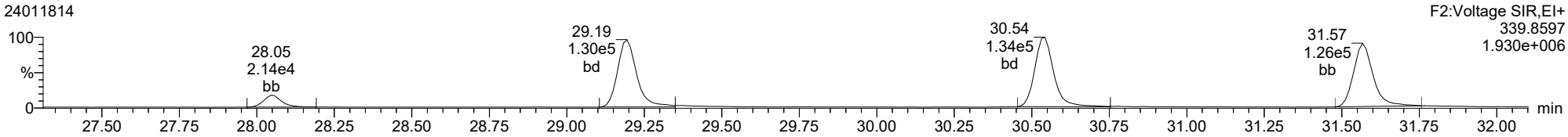
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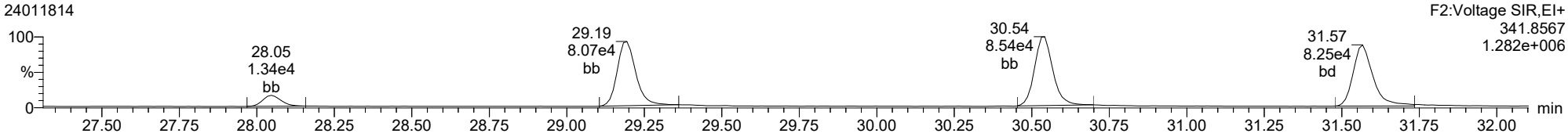
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Total-pentafurans



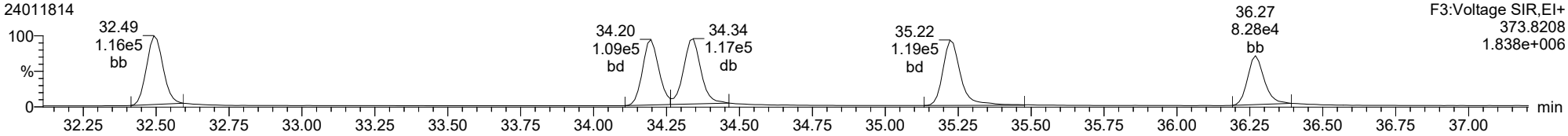
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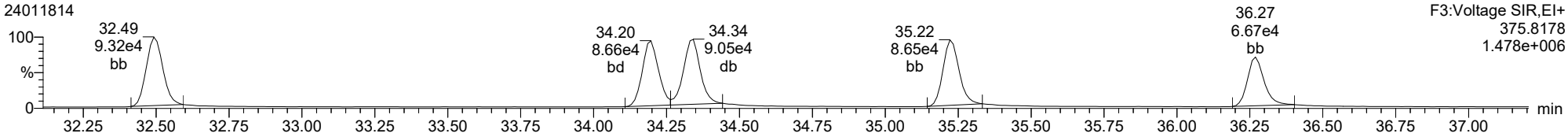
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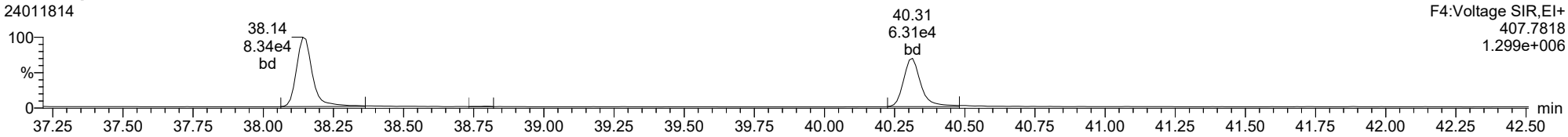
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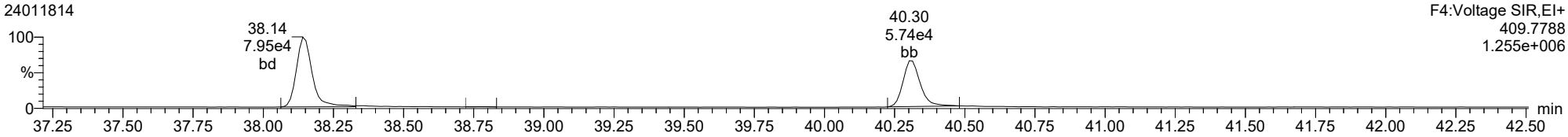
Total-hexafurans



Total-heptafurans

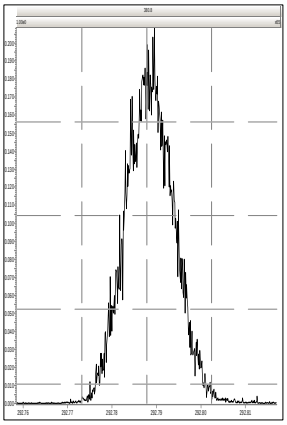


Total-heptafurans

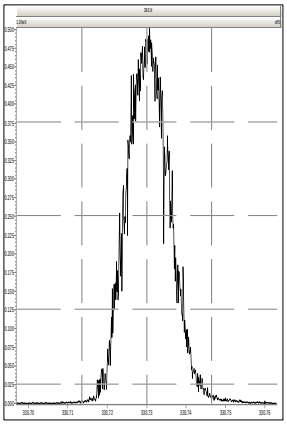


Printed: Thursday, January 18, 2024 21:20:20 Pacific Standard Time

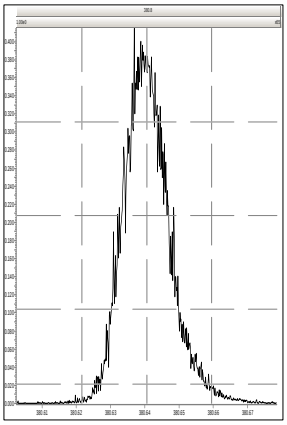
M 292.9824 R 11849



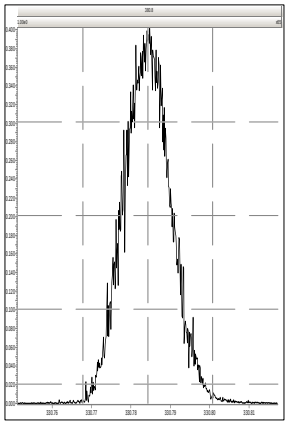
M 330.9792 R 13945



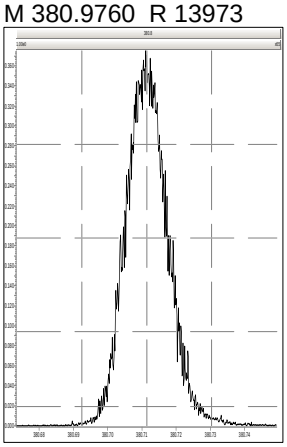
M 380.9760 R 12376



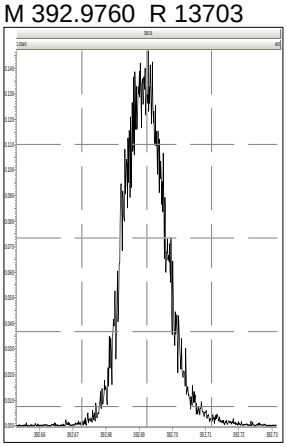
M 330.9792 R 12196



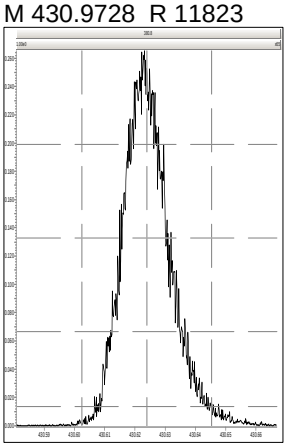
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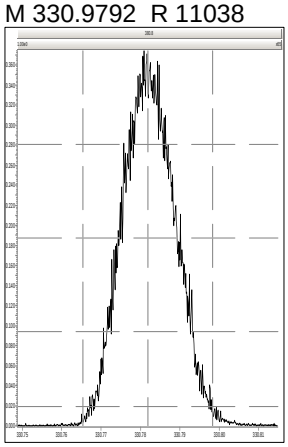
M 392.9760 R 13703



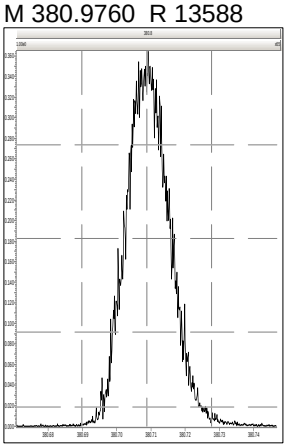
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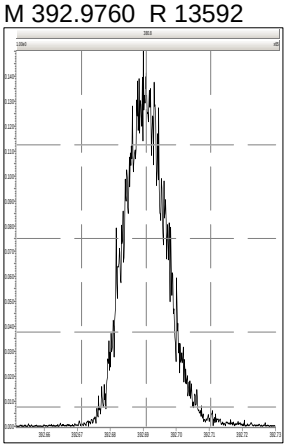
M 330.9792 R 11038



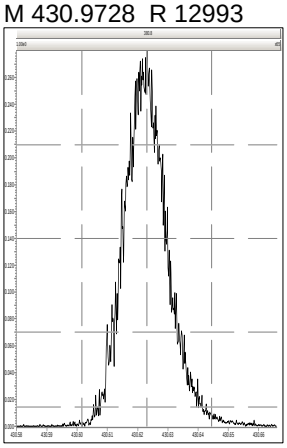
M 380.9760 R 13588



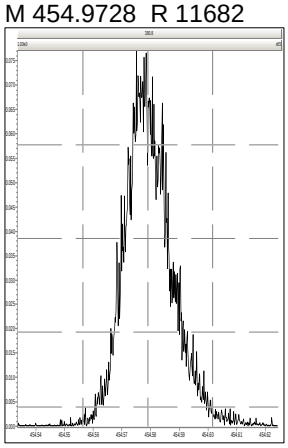
M 392.9760 R 13592



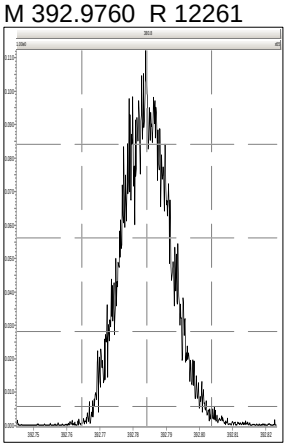
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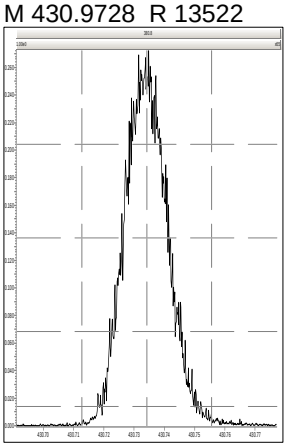
M 454.9728 R 11682



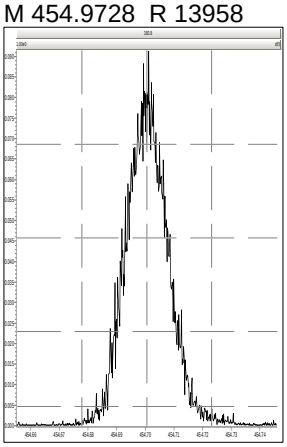
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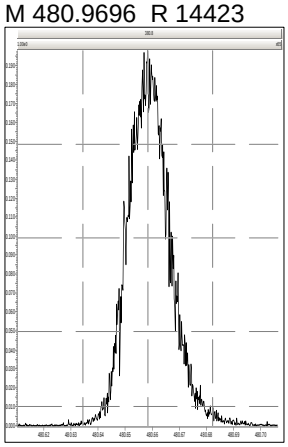
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M 454.9728 R 13958

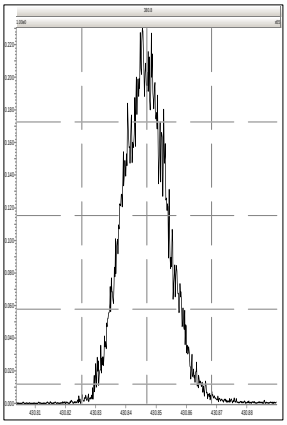


M 480.9696 R 14423

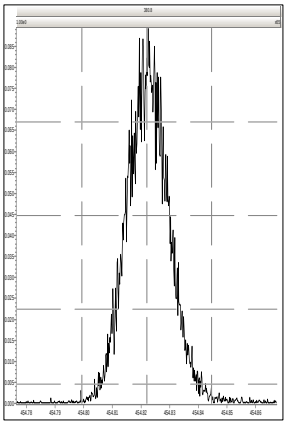


Printed: Thursday, January 18, 2024 21:20:20 Pacific Standard Time

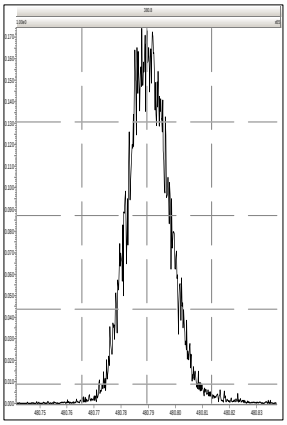
M 430.9728 R 12448



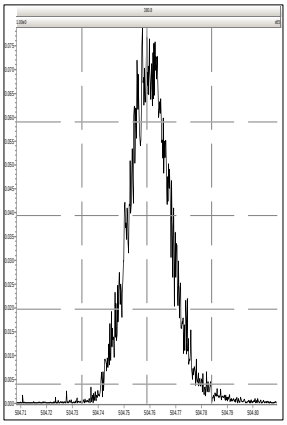
M 454.9728 R 13481



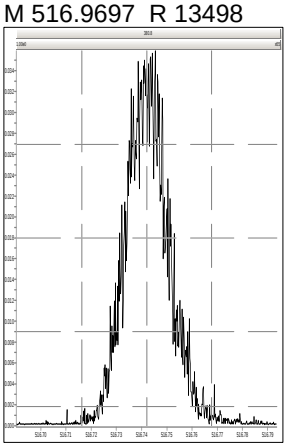
M 480.9696 R 14089

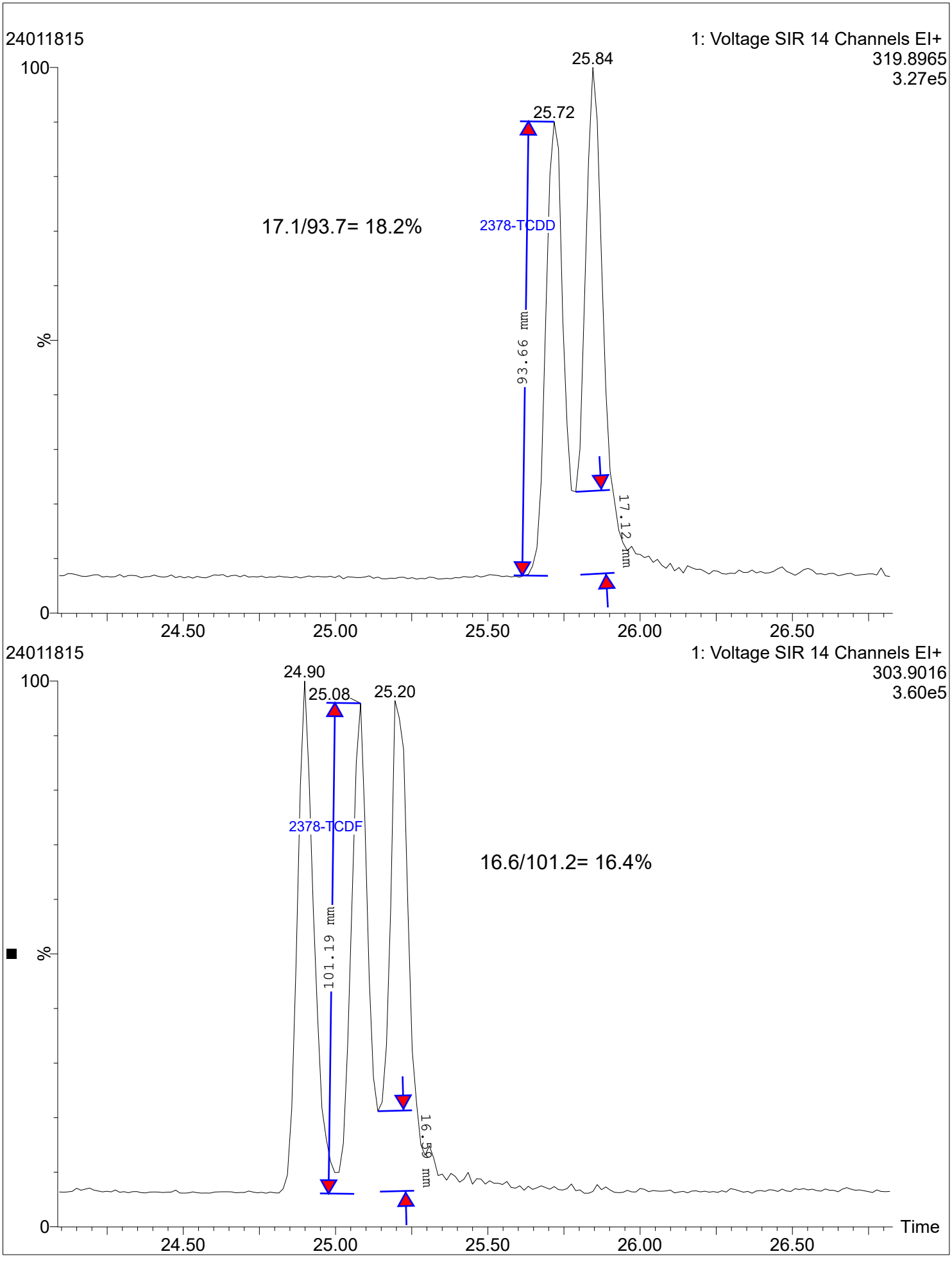


M 504.9696 R 14085



M 516.9697 R 13498




24011815
1: Voltage SIR 14 Channels EI+
319.8965
3.27e5
100
25.84
25.72
17.1/93.7= 18.2%
2378-TCDD
93.66 mm
17.12 mm
%
0
24.50
25.00
25.50
26.00
26.50
24011815
1: Voltage SIR 14 Channels EI+
303.9016
3.60e5
100
24.90
25.08
25.20
2378-TCDF
16.6/101.2= 16.4%
101.19 mm
16.59 mm
%
0
Time
24.50
25.00
25.50
26.00
26.50

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23L0564
Instrument .ID: AUTOSPEC01
Lab File ID: 23081103
Date Analyzed: 08/11/23
Time Analyzed: 11:19
Lab Sample ID: SLH0135-RES1
Sequence: SLH0135

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 14.9

3467-TCDF/2378-TCDF: 10.5

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLH0135-ICV1	CS3F1	23081102	08/11/2023	10:28
SLH0135-RES1	ISCF1	23081103	08/11/2023	11:19
SLH0135-CAL1	CSLCF	23081104	08/11/2023	12:07
SLH0135-CAL2	CS1CF	23081105	08/11/2023	13:01
SLH0135-CAL3	CS2CF	23081106	08/11/2023	13:56
SLH0135-CAL4	CS3CF	23081107	08/11/2023	14:52
SLH0135-CAL5	CS4CF	23081108	08/11/2023	15:40
SLH0135-CAL6	CS5CF	23081109	08/11/2023	16:29
SLH0135-SCV1	ICVCF	23081110	08/11/2023	17:18
SLH0135-CCV1	CS3F2	23081111	08/11/2023	18:06
SLH0135-RES2	ISCF2	23081112	08/11/2023	18:59

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23L0564
Instrument .ID: AUTOSPEC01
Lab File ID: 23081112
Date Analyzed: 08/11/23
Time Analyzed: 18:59
Lab Sample ID: SLH0135-RES2
Sequence: SLH0135

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 18.4

3467-TCDF/2378-TCDF: 15.3

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLH0135-ICV1	CS3F1	23081102	08/11/2023	10:28
SLH0135-RES1	ISCF1	23081103	08/11/2023	11:19
SLH0135-CAL1	CSLCF	23081104	08/11/2023	12:07
SLH0135-CAL2	CS1CF	23081105	08/11/2023	13:01
SLH0135-CAL3	CS2CF	23081106	08/11/2023	13:56
SLH0135-CAL4	CS3CF	23081107	08/11/2023	14:52
SLH0135-CAL5	CS4CF	23081108	08/11/2023	15:40
SLH0135-CAL6	CS5CF	23081109	08/11/2023	16:29
SLH0135-SCV1	ICVCF	23081110	08/11/2023	17:18
SLH0135-CCV1	CS3F2	23081111	08/11/2023	18:06
SLH0135-RES2	ISCF2	23081112	08/11/2023	18:59

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23L0564
Instrument .ID: AUTOSPEC01
Lab File ID: 24011803
Date Analyzed: 01/18/24
Time Analyzed: 11:13
Lab Sample ID: SMA0233-RES1
Sequence: SMA0233

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 14

3467-TCDF/2378-TCDF: 14.6

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SMA0233-ICV1	CS3R7	24011802	01/18/2024	10:22
SMA0233-RES1	ISCR7	24011803	01/18/2024	11:13
BLL0751-BLK2	Blank	24011804	01/18/2024	12:06
BLL0751-BS2	LCS	24011805	01/18/2024	12:55
BLL0751-DUP2	Duplicate	24011807	01/18/2024	14:44
23L0564-01	H4H-01-0.5-1.0	24011810	01/18/2024	17:11
23L0564-02	H4H-02-0.5-1.0	24011811	01/18/2024	18:00
23L0564-03	H4H-03-0.5-1.0	24011812	01/18/2024	18:49
23L0564-04	H4H-04-0.5-1.0	24011813	01/18/2024	19:38
SMA0233-CCV1	CS3R8	24011814	01/18/2024	20:27
SMA0233-RES2	ISCR8	24011815	01/18/2024	21:20

Analytical Resources, LLC
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CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23L0564
Instrument .ID: AUTOSPEC01
Lab File ID: 24011815
Date Analyzed: 01/18/24
Time Analyzed: 21:20
Lab Sample ID: SMA0233-RES2
Sequence: SMA0233

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 18.2

3467-TCDF/2378-TCDF: 16.4

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SMA0233-ICV1	CS3R7	24011802	01/18/2024	10:22
SMA0233-RES1	ISCR7	24011803	01/18/2024	11:13
BLL0751-BLK2	Blank	24011804	01/18/2024	12:06
BLL0751-BS2	LCS	24011805	01/18/2024	12:55
BLL0751-DUP2	Duplicate	24011807	01/18/2024	14:44
23L0564-01	H4H-01-0.5-1.0	24011810	01/18/2024	17:11
23L0564-02	H4H-02-0.5-1.0	24011811	01/18/2024	18:00
23L0564-03	H4H-03-0.5-1.0	24011812	01/18/2024	18:49
23L0564-04	H4H-04-0.5-1.0	24011813	01/18/2024	19:38
SMA0233-CCV1	CS3R8	24011814	01/18/2024	20:27
SMA0233-RES2	ISCR8	24011815	01/18/2024	21:20

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23L0564
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SLH0135	Instrument:	AUTOSPEC01
		Calibration:	GH00041

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CS3F1	SLH0135-ICV1	23081102	NA	08/11/23 10:28
ISCF1	SLH0135-RES1	23081103	NA	08/11/23 11:19
CSLCF	SLH0135-CAL1	23081104	NA	08/11/23 12:07
CS1CF	SLH0135-CAL2	23081105	NA	08/11/23 13:01
CS2CF	SLH0135-CAL3	23081106	NA	08/11/23 13:56
CS3CF	SLH0135-CAL4	23081107	NA	08/11/23 14:52
CS4CF	SLH0135-CAL5	23081108	NA	08/11/23 15:40
CS5CF	SLH0135-CAL6	23081109	NA	08/11/23 16:29
ICVCF	SLH0135-SCV1	23081110	NA	08/11/23 17:18
CS3F2	SLH0135-CCV1	23081111	NA	08/11/23 18:06
ISCF2	SLH0135-RES2	23081112	NA	08/11/23 18:59

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23L0564
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SMA0233	Instrument:	AUTOSPEC01
		Calibration:	GH00041

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CS3R7	SMA0233-ICV1	24011802	NA	01/18/24 10:22
ISCR7	SMA0233-RES1	24011803	NA	01/18/24 11:13
Blank	BLL0751-BLK2	24011804	Solid	01/18/24 12:06
LCS	BLL0751-BS2	24011805	Solid	01/18/24 12:55
H4H-01-0.5-1.0	BLL0751-DUP2	24011807	Solid	01/18/24 14:44
H4H-01-0.5-1.0	23L0564-01	24011810	Solid	01/18/24 17:11
H4H-02-0.5-1.0	23L0564-02	24011811	Solid	01/18/24 18:00
H4H-03-0.5-1.0	23L0564-03	24011812	Solid	01/18/24 18:49
H4H-04-0.5-1.0	23L0564-04	24011813	Solid	01/18/24 19:38
CS3R8	SMA0233-CCV1	24011814	NA	01/18/24 20:27
ISCR8	SMA0233-RES2	24011815	NA	01/18/24 21:20

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Printed: 1/19/2024 11:44:10AM

ANALYSIS SEQUENCE

SMA0233

Instrument: AUTOSPEC01 HRGCMS Column ID: L7621
Calibration ID: GH00041 Tune File: JUL0323_1-5
EM Voltage: 350 Resolution check times : 10:20, 21:20

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
SMA0233-ICV1	CS3R7	QC		1	L006734		01/18/2024 10:22	24011802	PK	
SMA0233-RES1	ISCR7	QC		2	L013640		01/18/2024 11:13	24011803	PK	
BLL0751-BLK2	Blank	QC		3		L013949	01/18/2024 12:06	24011804	PK	
BLL0751-BS2	LCS	QC		4		L013949	01/18/2024 12:55	24011805	PK	
BLL0751-DUP1	Duplicate	QC		5		L013949	01/18/2024 13:56	24011806	PK	
BLL0751-DUP2	Duplicate	QC		6		L013949	01/18/2024 14:44	24011807	PK	
23L0361-01	BW23-TOTE-1-C	1613B Dioxin	D 01	7		L013949	01/18/2024 15:33	24011808	PK	
23L0361-02	BW23-TOTE-2-C	1613B Dioxin	D 01	8		L013949	01/18/2024 16:22	24011809	PK	
23L0564-01	H4H-01-0.5-1.0	1613B Dioxin	A 01	9		L013949	01/18/2024 17:11	24011810	PK	
23L0564-02	H4H-02-0.5-1.0	1613B Dioxin	A 01	10		L013949	01/18/2024 18:00	24011811	PK	
23L0564-03	H4H-03-0.5-1.0	1613B Dioxin	A 01	11		L013949	01/18/2024 18:49	24011812	PK	
23L0564-04	H4H-04-0.5-1.0	1613B Dioxin	A 01	12		L013949	01/18/2024 19:38	24011813	PK	
SMA0233-CCV1	CS3R8	QC		13	L006734		01/18/2024 20:27	24011814	PK	
SMA0233-RES2	ISCR8	QC		14	L013640		01/18/2024 21:20	24011815	PK	

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:39:48 Pacific Standard Time 1/19/24 pk

Event	Details	Sample ID
Process Extract		
Process Integrate		
Process Quantify		
Dataset Created		
Peak deleted	Sample:24011804, Compound:TF, RT:22.836	3
Peak deleted	Sample:24011804, Compound:TF, RT:25.068	3
Peak deleted	Sample:24011805, Compound:PF, RT:28.815	4
Pre modification peak	Sample:24011806, Compound:HD, RT:35.378	5
Peak modified	Sample:24011806, Compound:HD, RT:35.378	5
Pre modification peak	Sample:24011806, Compound:HF, RT:34.364	5
Peak modified	Sample:24011806, Compound:HF, RT:34.364	5
Pre modification peak	Sample:24011806, Compound:HF, RT:35.244	5
Peak modified	Sample:24011806, Compound:HF, RT:35.244	5
Pre modification peak	Sample:24011806, Compound:HF, RT:36.269	5
Peak modified	Sample:24011806, Compound:HF, RT:36.269	5
Peak modified	Sample:24011806, Compound:HF, RT:36.269	5
Pre modification peak	Sample:24011806, Compound:PD, RT:30.810	5
Peak modified	Sample:24011806, Compound:PD, RT:30.810	5
Pre modification peak	Sample:24011807, Compound:HPF, RT:40.391	6
Peak modified	Sample:24011807, Compound:HPF, RT:40.391	6
Pre modification peak	Sample:24011807, Compound:HPF, RT:40.403	6
Peak modified	Sample:24011807, Compound:HPF, RT:40.403	6
Peak deleted	Sample:24011807, Compound:PF, RT:31.199	6
Pre modification peak	Sample:24011808, Compound:HF, RT:35.255	7
Peak modified	Sample:24011808, Compound:HF, RT:35.255	7
Peak modified	Sample:24011808, Compound:HF, RT:35.255	7
Peak added	Sample:24011808, Compound:TD, RT:25.704	7
Peak added	Sample:24011808, Compound:TD, RT:25.704	7
Peak modified	Sample:24011808, Compound:TD, RT:25.704	7
Pre modification peak	Sample:24011809, Compound:HF, RT:34.353	8
Peak modified	Sample:24011809, Compound:HF, RT:34.353	8
Pre modification peak	Sample:24011809, Compound:HPF, RT:40.314	8
Peak modified	Sample:24011809, Compound:HPF, RT:40.314	8
Pre modification peak	Sample:24011809, Compound:TF, RT:25.054	8
Peak modified	Sample:24011809, Compound:TF, RT:25.054	8
Pre modification peak	Sample:24011810, Compound:PF, RT:29.228	9
Peak modified	Sample:24011810, Compound:PF, RT:29.228	9
Pre modification peak	Sample:24011810, Compound:PF, RT:29.228	9
Peak modified	Sample:24011810, Compound:PF, RT:29.228	9
Pre modification peak	Sample:24011811, Compound:HD, RT:35.367	10
Peak modified	Sample:24011811, Compound:HD, RT:35.367	10
Pre modification peak	Sample:24011811, Compound:HD, RT:35.478	10
Peak modified	Sample:24011811, Compound:HD, RT:35.478	10
Pre modification peak	Sample:24011811, Compound:PD, RT:30.810	10
Peak modified	Sample:24011811, Compound:PD, RT:30.810	10
Peak added	Sample:24011811, Compound:TF, RT:25.011	10
Peak added	Sample:24011811, Compound:TF, RT:25.011	10
Peak deleted	Sample:24011811, Compound:TF, RT:25.026	10
Peak added	Sample:24011811, Compound:TF, RT:25.026	10
Pre modification peak	Sample:24011811, Compound:TF, RT:25.054	10
Peak modified	Sample:24011811, Compound:TF, RT:25.054	10
Peak deleted	Sample:24011811, Compound:TF, RT:25.096	10
Peak modified	Sample:24011811, Compound:TF, RT:25.096	10
Pre modification peak	Sample:24011812, Compound:HF, RT:34.353	11
Peak modified	Sample:24011812, Compound:HF, RT:34.353	11

Dataset: T:\Autospec\Processed Data Batch\240118D1.qld
Last Altered: Friday, January 19, 2024 09:38:40 Pacific Standard Time
Printed: Friday, January 19, 2024 09:39:48 Pacific Standard Time

Event	Details	Sample ID
Peak deleted	Sample:24011812, Compound:PF, RT:27.434	11
Pre modification peak	Sample:24011812, Compound:PF, RT:29.205	11
Peak modified	Sample:24011812, Compound:PF, RT:29.205	11
Peak deleted	Sample:24011812, Compound:PF, RT:30.776	11
Peak deleted	Sample:24011812, Compound:PF, RT:31.634	11
Pre modification peak	Sample:24011813, Compound:HF, RT:36.258	12
Peak modified	Sample:24011813, Compound:HF, RT:36.258	12
Peak deleted	Sample:24011813, Compound:HPF, RT:39.144	12
Pre modification peak	Sample:24011813, Compound:PD, RT:30.799	12
Peak modified	Sample:24011813, Compound:PD, RT:30.799	12
Peak deleted	Sample:24011813, Compound:TF, RT:25.337	12
Pre modification peak	Sample:24011814, Compound:13C-1234678-HpCDF, RT:38.130	13
Peak modified	Sample:24011814, Compound:13C-1234678-HpCDF, RT:38.130	13
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\240118D1.qld'	
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\240118D1.qld'	
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\240118D1.qld'	

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23L0564
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SMA0233	Instrument:	AUTOSPEC01
Sample ID:	SMA0233-ICV1	Calibration:	GH00041
File ID:	24011802	Analyzed:	01/18/24 10:22

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	86.3	71 - 129	25.0398	25.134	-0.0942	N/A	
13C12-2,3,7,8-TCDD	100.00	108	82 - 118	25.6755	25.76963	-0.0941	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	89.5	76 - 124	29.1828	29.2753	-0.0925	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	89.1	77 - 123	30.5308	30.6141	-0.0833	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	104	62 - 138	30.787	30.86477	-0.0778	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	90.9	76 - 124	34.1853	34.26848	-0.0832	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	95.4	70 - 130	34.319	34.40585	-0.0868	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	92.4	73 - 127	35.2103	35.29345	-0.0832	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	94.0	74 - 126	36.2577	36.3333	-0.0756	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	101	85 - 115	35.3328	35.40857	-0.0758	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	102	85 - 115	35.4553	35.52743	-0.0721	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	90.1	78 - 122	38.1295	38.21063	-0.0811	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	85.7	77 - 123	40.2908	40.372	-0.0812	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	102	72 - 128	39.5888	39.66083	-0.0720	N/A	
13C12-OCDD	200.00	83.1	48 - 152	44.1278	44.22563	-0.0978	N/A	
37Cl4-2,3,7,8-TCDD	10.000	103	0 - 200	25.7037	25.78615	-0.0824	N/A	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23L0564
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SMA0233	Instrument:	AUTOSPEC01
Sample ID:	BLL0751-BLK2	Calibration:	GH00041
File ID:	24011804	Analyzed:	01/18/24 12:06

Surrogate Compound	Spike Level ng/kg wet	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	200.00	51.8	24 - 169	25.0538	25.134	-0.0802	N/A	
13C12-2,3,7,8-TCDD	200.00	65.2	25 - 164	25.6895	25.76963	-0.0801	N/A	
13C12-1,2,3,7,8-PeCDF	200.00	64.2	24 - 185	29.1967	29.2753	-0.0786	N/A	
13C12-2,3,4,7,8-PeCDF	200.00	60.1	21 - 178	30.5335	30.6141	-0.0806	N/A	
13C12-1,2,3,7,8-PeCDD	200.00	70.4	25 - 181	30.7897	30.86477	-0.0751	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.00	64.8	26 - 152	34.1878	34.26848	-0.0807	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.00	67.2	26 - 123	34.3327	34.40585	-0.0731	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.00	65.2	28 - 136	35.224	35.29345	-0.0695	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.00	63.6	29 - 147	36.26	36.3333	-0.0733	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.00	72.2	32 - 141	35.3465	35.40857	-0.0621	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.00	73.0	28 - 130	35.458	35.52743	-0.0694	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.00	61.5	28 - 143	38.143	38.21063	-0.0676	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.00	60.1	26 - 138	40.3043	40.372	-0.0677	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.00	74.3	23 - 140	39.5913	39.66083	-0.0695	N/A	
13C12-OCDD	400.00	55.7	17 - 157	44.1302	44.22563	-0.0954	N/A	
37Cl4-2,3,7,8-TCDD	80.000	89.6	35 - 197	25.7035	25.78615	-0.0827	N/A	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23L0564
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SMA0233	Instrument:	AUTOSPEC01
Sample ID:	BLL0751-BS2	Calibration:	GH00041
File ID:	24011805	Analyzed:	01/18/24 12:55

Surrogate Compound	Spike Level ng/kg wet	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	200.00	64.1	24 - 169	25.0257	25.134	-0.1083	N/A	
13C12-2,3,7,8-TCDD	200.00	74.9	25 - 164	25.6613	25.76963	-0.1083	N/A	
13C12-1,2,3,7,8-PeCDF	200.00	63.8	24 - 185	29.1717	29.2753	-0.1036	N/A	
13C12-2,3,4,7,8-PeCDF	200.00	59.7	21 - 178	30.5087	30.6141	-0.1054	N/A	
13C12-1,2,3,7,8-PeCDD	200.00	69.8	25 - 181	30.7762	30.86477	-0.0886	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.00	71.4	26 - 152	34.174	34.26848	-0.0945	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.00	71.3	26 - 123	34.3188	34.40585	-0.0870	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.00	74.6	28 - 136	35.199	35.29345	-0.0945	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.00	71.5	29 - 147	36.2462	36.3333	-0.0871	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.00	84.4	32 - 141	35.3327	35.40857	-0.0759	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.00	83.9	28 - 130	35.4442	35.52743	-0.0832	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.00	67.2	28 - 143	38.1292	38.21063	-0.0814	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.00	63.3	26 - 138	40.2905	40.372	-0.0815	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.00	82.7	23 - 140	39.5775	39.66083	-0.0833	N/A	
13C12-OCDD	400.00	63.0	17 - 157	44.1185	44.22563	-0.1071	N/A	
37Cl4-2,3,7,8-TCDD	80.000	88.1	35 - 197	25.6755	25.78615	-0.1107	N/A	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23L0564
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SMA0233	Instrument:	AUTOSPEC01
Sample ID:	BLL0751-DUP2	Calibration:	GH00041
File ID:	24011807	Analyzed:	01/18/24 14:44

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	199.78	62.0	24 - 169	25.0822	25.134	-0.0518	N/A	
13C12-2,3,7,8-TCDD	199.78	77.1	25 - 164	25.7178	25.76963	-0.0518	N/A	
13C12-1,2,3,7,8-PeCDF	199.78	60.8	24 - 185	29.2498	29.2753	-0.0255	N/A	
13C12-2,3,4,7,8-PeCDF	199.78	57.3	21 - 178	30.5978	30.6141	-0.0163	N/A	
13C12-1,2,3,7,8-PeCDD	199.78	67.5	25 - 181	30.843	30.86477	-0.0218	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.78	63.5	26 - 152	34.2523	34.26848	-0.0162	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.78	54.0	26 - 123	34.3972	34.40585	-0.0087	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.78	54.2	28 - 136	35.2883	35.29345	-0.0052	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.78	56.3	29 - 147	36.3245	36.3333	-0.0088	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.78	67.1	32 - 141	35.411	35.40857	0.0024	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.78	57.5	28 - 130	35.5335	35.52743	0.0061	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.78	42.5	28 - 143	38.2075	38.21063	-0.0031	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.78	38.4	26 - 138	40.3802	40.372	0.0082	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.78	53.9	23 - 140	39.667	39.66083	0.0062	N/A	
13C12-OCDD	399.56	29.5	17 - 157	44.2105	44.22563	-0.0151	N/A	
37Cl4-2,3,7,8-TCDD	79.911	106	35 - 197	25.732	25.78615	-0.0541	N/A	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23L0564
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SMA0233	Instrument:	AUTOSPEC01
Sample ID:	23L0564-01	Calibration:	GH00041
File ID:	24011810	Analyzed:	01/18/24 17:11

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	199.78	47.8	24 - 169	25.054	25.134	-0.0800	N/A	
13C12-2,3,7,8-TCDD	199.78	65.3	25 - 164	25.6895	25.76963	-0.0801	N/A	
13C12-1,2,3,7,8-PeCDF	199.78	59.2	24 - 185	29.2053	29.2753	-0.0700	N/A	
13C12-2,3,4,7,8-PeCDF	199.78	59.1	21 - 178	30.5533	30.6141	-0.0608	N/A	
13C12-1,2,3,7,8-PeCDD	199.78	73.0	25 - 181	30.8207	30.86477	-0.0441	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.78	63.7	26 - 152	34.2302	34.26848	-0.0383	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.78	54.0	26 - 123	34.3638	34.40585	-0.0421	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.78	59.7	28 - 136	35.255	35.29345	-0.0384	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.78	61.6	29 - 147	36.3025	36.3333	-0.0308	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.78	74.5	32 - 141	35.3777	35.40857	-0.0309	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.78	64.8	28 - 130	35.5002	35.52743	-0.0272	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.78	49.2	28 - 143	38.1853	38.21063	-0.0253	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.78	45.6	26 - 138	40.3468	40.372	-0.0252	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.78	63.9	23 - 140	39.6448	39.66083	-0.0160	N/A	
13C12-OCDD	399.56	42.6	17 - 157	44.1923	44.22563	-0.0333	N/A	
37Cl4-2,3,7,8-TCDD	79.911	82.4	35 - 197	25.7037	25.78615	-0.0824	N/A	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23L0564
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SMA0233	Instrument:	AUTOSPEC01
Sample ID:	23L0564-02	Calibration:	GH00041
File ID:	24011811	Analyzed:	01/18/24 18:00

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	199.08	61.4	24 - 169	25.0398	25.134	-0.0942	N/A	
13C12-2,3,7,8-TCDD	199.08	79.0	25 - 164	25.6753	25.76963	-0.0943	N/A	
13C12-1,2,3,7,8-PeCDF	199.08	70.4	24 - 185	29.1942	29.2753	-0.0811	N/A	
13C12-2,3,4,7,8-PeCDF	199.08	70.4	21 - 178	30.5312	30.6141	-0.0829	N/A	
13C12-1,2,3,7,8-PeCDD	199.08	82.6	25 - 181	30.7873	30.86477	-0.0775	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.08	66.7	26 - 152	34.197	34.26848	-0.0715	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.08	57.8	26 - 123	34.3308	34.40585	-0.0750	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.08	65.1	28 - 136	35.222	35.29345	-0.0714	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.08	67.3	29 - 147	36.2693	36.3333	-0.0640	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.08	81.4	32 - 141	35.3557	35.40857	-0.0529	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.08	68.4	28 - 130	35.4672	35.52743	-0.0602	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.08	55.9	28 - 143	38.1412	38.21063	-0.0694	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.08	55.8	26 - 138	40.3138	40.372	-0.0582	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.08	75.4	23 - 140	39.6007	39.66083	-0.0601	N/A	
13C12-OCDD	398.16	55.5	17 - 157	44.1378	44.22563	-0.0878	N/A	
37Cl4-2,3,7,8-TCDD	79.632	83.3	35 - 197	25.7037	25.78615	-0.0824	N/A	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23L0564
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SMA0233	Instrument:	AUTOSPEC01
Sample ID:	23L0564-03	Calibration:	GH00041
File ID:	24011812	Analyzed:	01/18/24 18:49

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	199.70	53.5	24 - 169	25.0538	25.134	-0.0802	N/A	
13C12-2,3,7,8-TCDD	199.70	73.4	25 - 164	25.6895	25.76963	-0.0801	N/A	
13C12-1,2,3,7,8-PeCDF	199.70	78.2	24 - 185	29.1942	29.2753	-0.0811	N/A	
13C12-2,3,4,7,8-PeCDF	199.70	76.2	21 - 178	30.5313	30.6141	-0.0828	N/A	
13C12-1,2,3,7,8-PeCDD	199.70	90.2	25 - 181	30.7875	30.86477	-0.0773	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.70	71.0	26 - 152	34.197	34.26848	-0.0715	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.70	63.5	26 - 123	34.3307	34.40585	-0.0752	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.70	73.3	28 - 136	35.233	35.29345	-0.0605	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.70	76.0	29 - 147	36.2693	36.3333	-0.0640	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.70	91.5	32 - 141	35.3557	35.40857	-0.0529	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.70	77.3	28 - 130	35.4782	35.52743	-0.0492	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.70	65.2	28 - 143	38.1523	38.21063	-0.0583	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.70	67.8	26 - 138	40.3138	40.372	-0.0582	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.70	91.6	23 - 140	39.6007	39.66083	-0.0601	N/A	
13C12-OCDD	399.40	70.5	17 - 157	44.1475	44.22563	-0.0781	N/A	
37Cl4-2,3,7,8-TCDD	79.879	84.4	35 - 197	25.7037	25.78615	-0.0824	N/A	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23L0564
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SMA0233	Instrument:	AUTOSPEC01
Sample ID:	23L0564-04	Calibration:	GH00041
File ID:	24011813	Analyzed:	01/18/24 19:38

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	199.64	66.7	24 - 169	25.0398	25.134	-0.0942	N/A	
13C12-2,3,7,8-TCDD	199.64	85.5	25 - 164	25.6755	25.76963	-0.0941	N/A	
13C12-1,2,3,7,8-PeCDF	199.64	72.4	24 - 185	29.1828	29.2753	-0.0925	N/A	
13C12-2,3,4,7,8-PeCDF	199.64	71.7	21 - 178	30.52	30.6141	-0.0941	N/A	
13C12-1,2,3,7,8-PeCDD	199.64	85.8	25 - 181	30.7762	30.86477	-0.0886	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.64	72.5	26 - 152	34.1857	34.26848	-0.0828	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.64	68.1	26 - 123	34.3305	34.40585	-0.0754	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.64	74.5	28 - 136	35.2218	35.29345	-0.0716	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.64	76.8	29 - 147	36.258	36.3333	-0.0753	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.64	87.6	32 - 141	35.3443	35.40857	-0.0643	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.64	78.2	28 - 130	35.4668	35.52743	-0.0606	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.64	64.1	28 - 143	38.1408	38.21063	-0.0698	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.64	65.3	26 - 138	40.3023	40.372	-0.0697	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.64	84.7	23 - 140	39.6005	39.66083	-0.0603	N/A	
13C12-OCDD	399.27	67.5	17 - 157	44.1375	44.22563	-0.0881	N/A	
37Cl4-2,3,7,8-TCDD	79.855	89.2	35 - 197	25.6897	25.78615	-0.0965	N/A	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23L0564
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SMA0233	Instrument:	AUTOSPEC01
Sample ID:	SMA0233-CCV1	Calibration:	GH00041
File ID:	24011814	Analyzed:	01/18/24 20:27

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	82.5	71 - 129	25.0258	25.134	-0.1082	N/A	
13C12-2,3,7,8-TCDD	100.00	104	82 - 118	25.6615	25.76963	-0.1081	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	90.2	76 - 124	29.1718	29.2753	-0.1035	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	87.5	77 - 123	30.5198	30.6141	-0.0943	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	103	62 - 138	30.7762	30.86477	-0.0886	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	88.1	76 - 124	34.1743	34.26848	-0.0942	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	82.9	70 - 130	34.3193	34.40585	-0.0866	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	88.8	73 - 127	35.2105	35.29345	-0.0829	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	87.1	74 - 126	36.258	36.3333	-0.0753	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	103	85 - 115	35.333	35.40857	-0.0756	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	97.1	85 - 115	35.4445	35.52743	-0.0829	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	78.3	78 - 122	38.1297	38.21063	-0.0809	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	78.1	77 - 123	40.2913	40.372	-0.0807	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	98.0	72 - 128	39.5893	39.66083	-0.0715	N/A	
13C12-OCDD	200.00	80.6	48 - 152	44.1285	44.22563	-0.0971	N/A	
37Cl4-2,3,7,8-TCDD	10.000	102	0 - 200	25.6897	25.78615	-0.0965	N/A	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

HOLDING TIME SUMMARY

Analysis: EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23L0564
Client: Floyd - Snider
Project: Smith-Kem

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
H4H-01-0.5-1.0 23L0564-01	09/07/23 09:40	09/08/23 11:58	01/02/24 14:00	117	365	01/18/24 17:11	16	365	
H4H-02-0.5-1.0 23L0564-02	09/07/23 10:00	09/08/23 11:58	01/02/24 14:00	117	365	01/18/24 18:00	16	365	
H4H-03-0.5-1.0 23L0564-03	09/07/23 10:10	09/08/23 11:58	01/02/24 14:00	117	365	01/18/24 18:49	16	365	
H4H-04-0.5-1.0 23L0564-04	09/07/23 10:20	09/08/23 11:58	01/02/24 14:00	117	365	01/18/24 19:38	16	365	
Duplicate BLL0751-DUP2	09/07/23 09:40	09/08/23 11:58	01/02/24 14:00	117	365	01/18/24 14:44	16	365	

* Indicates hold time exceedance.

Analytical Resources, LLC
Analytical Chemists and Consultants

METHOD DETECTION AND REPORTING LIMITS

EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23L0564
Client: Floyd - Snider
Project: Smith-Kem
Matrix: Solid
Instrument: AUTOSPEC01

Analyte	MDL	RL	Units
2,3,7,8-TCDF	0.058	1.00	ng/kg
2,3,7,8-TCDD	0.150	1.00	ng/kg
1,2,3,7,8-PeCDF	0.240	1.00	ng/kg
2,3,4,7,8-PeCDF	0.220	1.00	ng/kg
1,2,3,7,8-PeCDD	0.170	1.00	ng/kg
1,2,3,4,7,8-HxCDF	0.280	1.00	ng/kg
1,2,3,6,7,8-HxCDF	0.200	1.00	ng/kg
2,3,4,6,7,8-HxCDF	0.170	1.00	ng/kg
1,2,3,7,8,9-HxCDF	0.190	1.00	ng/kg
1,2,3,4,7,8-HxCDD	0.170	1.00	ng/kg
1,2,3,6,7,8-HxCDD	0.180	1.00	ng/kg
1,2,3,7,8,9-HxCDD	0.220	1.00	ng/kg
1,2,3,4,6,7,8-HpCDF	0.210	1.00	ng/kg
1,2,3,4,7,8,9-HpCDF	0.240	1.00	ng/kg
1,2,3,4,6,7,8-HpCDD	0.560	2.50	ng/kg
OCDF	1.10	2.50	ng/kg
OCDD	4.60	10.0	ng/kg
Total TCDF		1.00	ng/kg
Total TCDD		1.00	ng/kg
Total PeCDF		1.00	ng/kg
Total PeCDD		1.00	ng/kg
Total HxCDF		1.00	ng/kg
Total HxCDD		1.00	ng/kg
Total HpCDF		1.00	ng/kg
Total HpCDD		1.00	ng/kg

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

CS3WT

Calibration and Verification Solution (EPA-1613CS3) combined with Window Defining and 2,3,7,8-TCDD Resolution Testing Congeners

PRODUCT CODE:	CS3WT
LOT NUMBER:	CS3WT0918
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/24/2018
LAST TESTED: (mm/dd/yyyy)	10/29/2018
EXPIRY DATE: (mm/dd/yyyy)	10/29/2025
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

CS3WT is a solution/mixture of native and $^{13}C_{12}$-labelled chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

CS3WT was designed and prepared to be used as a HRMS calibration standard according to U.S. EPA Method 1613B.

It is to be used for calibration verification in place of EPA-1613CS3 (Lot: 13CS30918). It also contains the PCDD and PCDF window defining congeners for a DB-5 (or equivalent) capillary column as well as the TCDD isomers required to test and confirm the resolution of 2,3,7,8-TCDD.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%. The individual native 2,3,7,8-substituted PCDD and PCDF congeners all have chemical purities of >98%; the other congeners (window defining and resolution testing) should only be considered semi-quantitative.

This current lot of CS3WT is to be used with the 1613 calibration solutions having the following lot numbers:

PRODUCT CODE	LOT NUMBER
EPA-1613CS1	13CS10918
EPA-1613CS2	13CS20918
EPA-1613CS3	13CS30918
EPA-1613CS4	13CS40918
EPA-1613CS5	13CS50918
EPA-1613CSL	13CSL0918
EPA-1613CS0.5	13CS0.50918

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Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.
- Only the 2,3,7,8-substituted PCDDs and PCDFs should be used for quantitation. The other congeners (window defining and 2378-TCDD resolution testing) should be considered semi-quantitative (within ±20% of their design value). Impurities have been identified where possible.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **CS3WT; Components and Concentrations (ng/ml, in nonane/4.5% toluene)**

QUANTITATIVE ANALYTES (ng/ml, ±5%)	
Native PCDDs & PCDFs:	
2,3,7,8-TCDD	10
2,3,7,8-TCDF	10
1,2,3,7,8-PeCDD	50
1,2,3,7,8-PeCDF	50
2,3,4,7,8-PeCDF	50
1,2,3,4,7,8-HxCDD	50
1,2,3,6,7,8-HxCDD	50
1,2,3,7,8,9-HxCDD	50
1,2,3,4,7,8-HxCDF	50
1,2,3,6,7,8-HxCDF	50
1,2,3,7,8,9-HxCDF	50
2,3,4,6,7,8-HxCDF	50
1,2,3,4,6,7,8-HpCDD *(WD)*	50
1,2,3,4,6,7,8-HpCDF *(WD)*	50
1,2,3,4,7,8,9-HpCDF *(WD)*	50
OCDD	100
OCDF	100
Labelled PCDDs & PCDFs:	
$^{13}C_{12}$-2,3,7,8-TCDD	100
$^{13}C_{12}$-2,3,7,8-TCDF	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100
$^{13}C_{12}$-OCDD	200
Cleanup Standard:	
$^{37}Cl_4$-2,3,7,8-TCDD	10
Internal Standards:	
$^{13}C_{12}$-1,2,3,4-TCDD	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100

SEMI-QUANTITATIVE ANALYTES (ng/ml, ±20%)	
Window Definers:*	
1,3,6,8-TCDD	10
1,2,8,9-TCDD	10
1,3,6,8-TCDF	10
1,2,8,9-TCDF	10
1,2,4,6,8/1,2,4,7,9-PeCDD	50
1,2,3,8,9-PeCDD	50
1,3,4,6,8-PeCDF	50
1,2,3,8,9-PeCDF	50
1,2,4,6,7,9-HxCDD	50
1,2,3,4,6,8-HxCDF	50
1,2,3,4,6,7,9-HpCDD	50
2378-TCDD Resolution Testing Isomers:	
1,2,3,4-TCDD	5
1,2,3,7/1,2,3,8-TCDD	5
1,2,3,9-TCDD	10

** 1,2,3,4,6,7-HxCDD (last eluting HxCDD) not included; coelutes with 1,2,3,7,8,9-HxCDD. Use 1,2,3,4,6,7,9-HpCDD to set window.*

** 1,2,3,4,8,9-HxCDF (last eluting HxCDF) not included; can interfere with 1,2,3,7,8,9-HxCDF. Use 1,2,3,4,6,7,8-HpCDF to set window.*

WD – Window Definer

Certified By: _____ **Date:** 10/30/2018
(mm/dd/yyyy)

B.G. Chittim, General Manager

Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

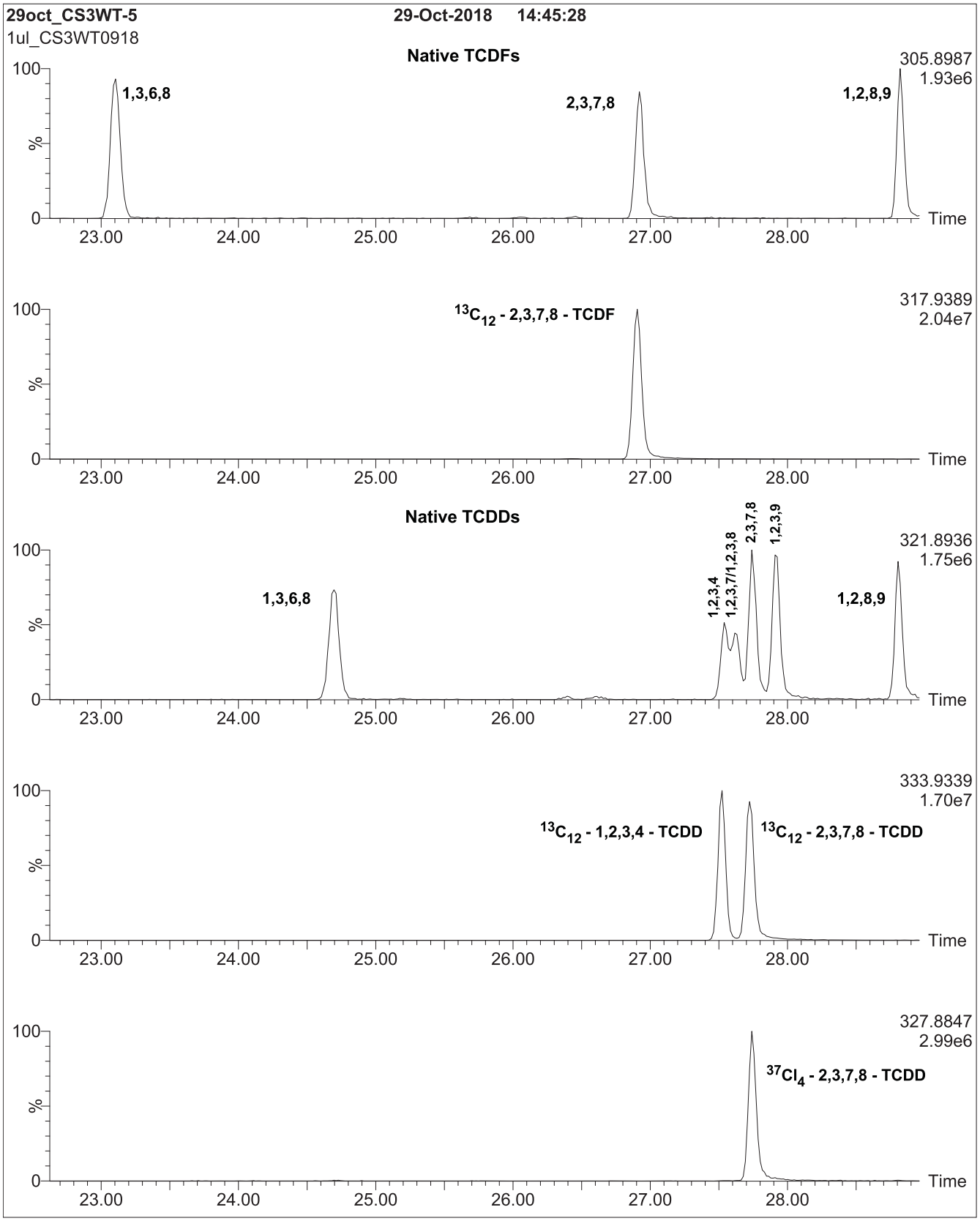


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

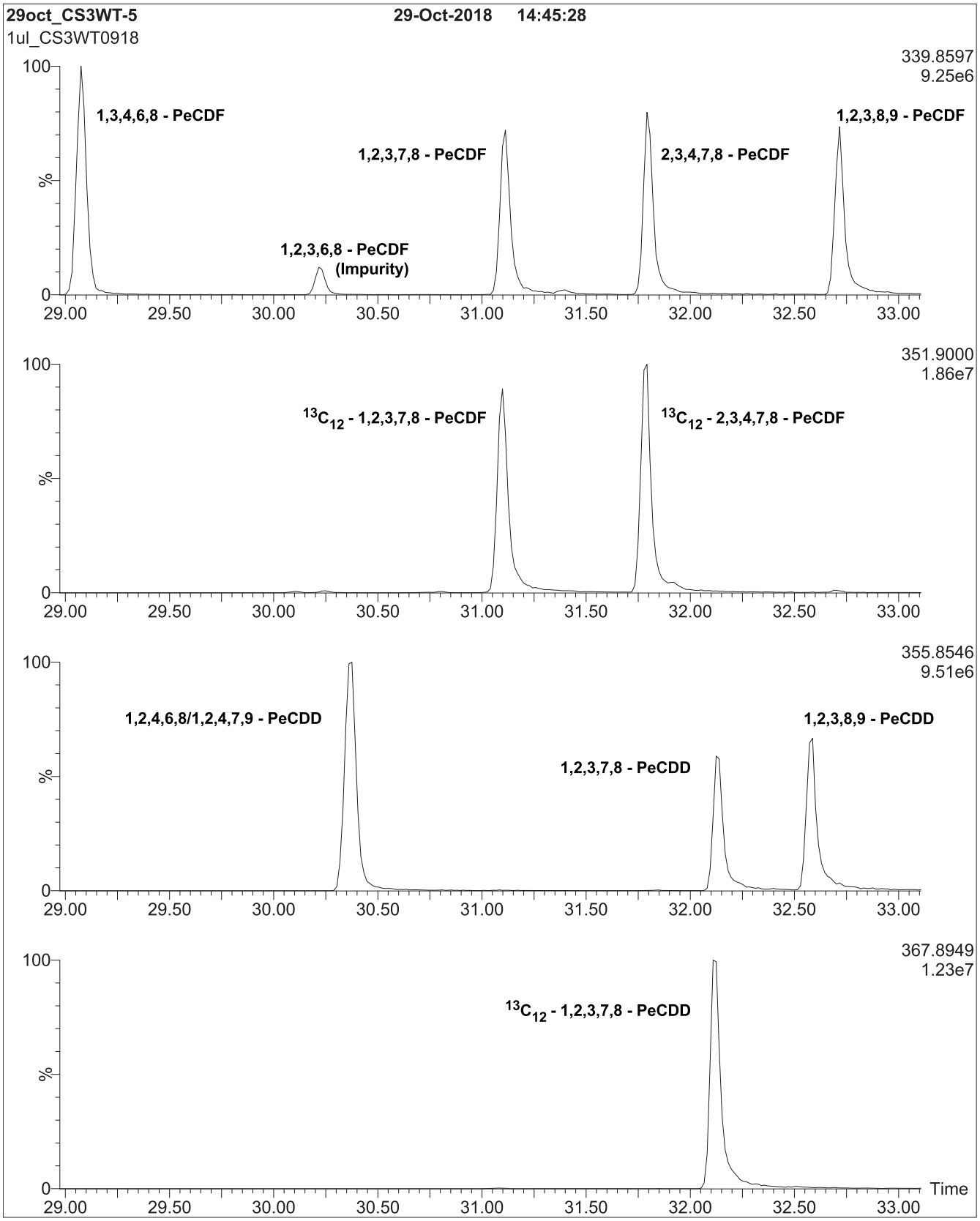


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

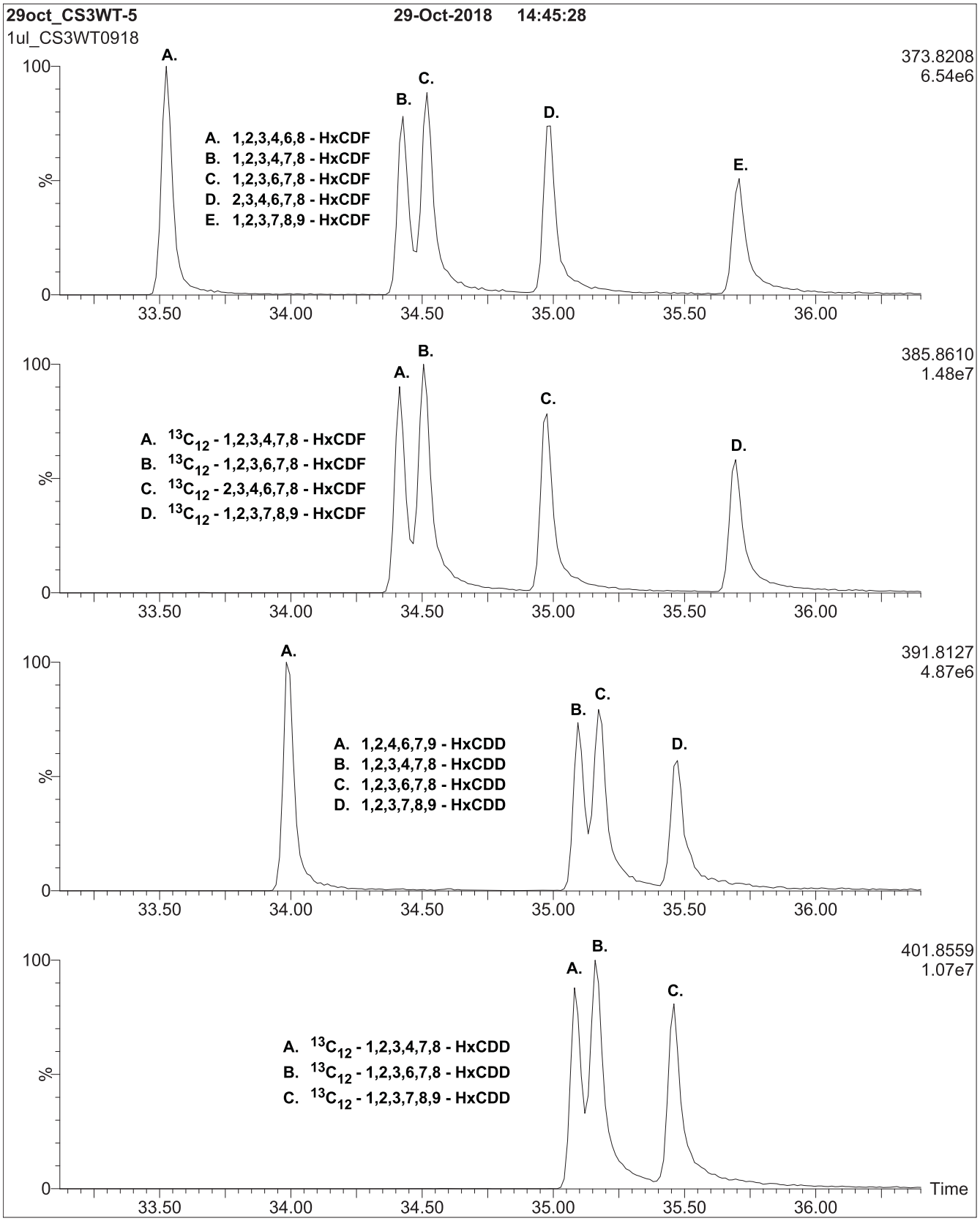


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

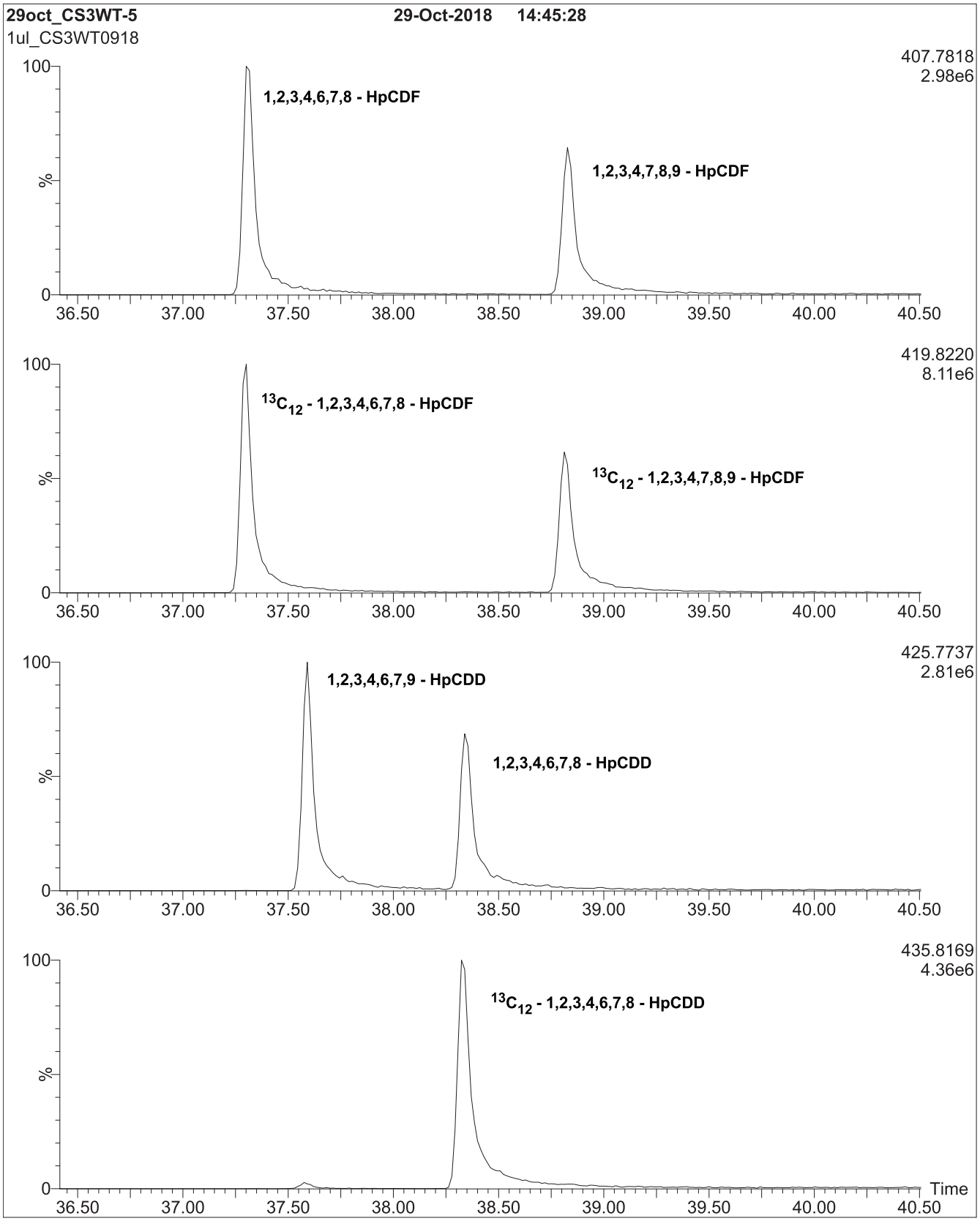
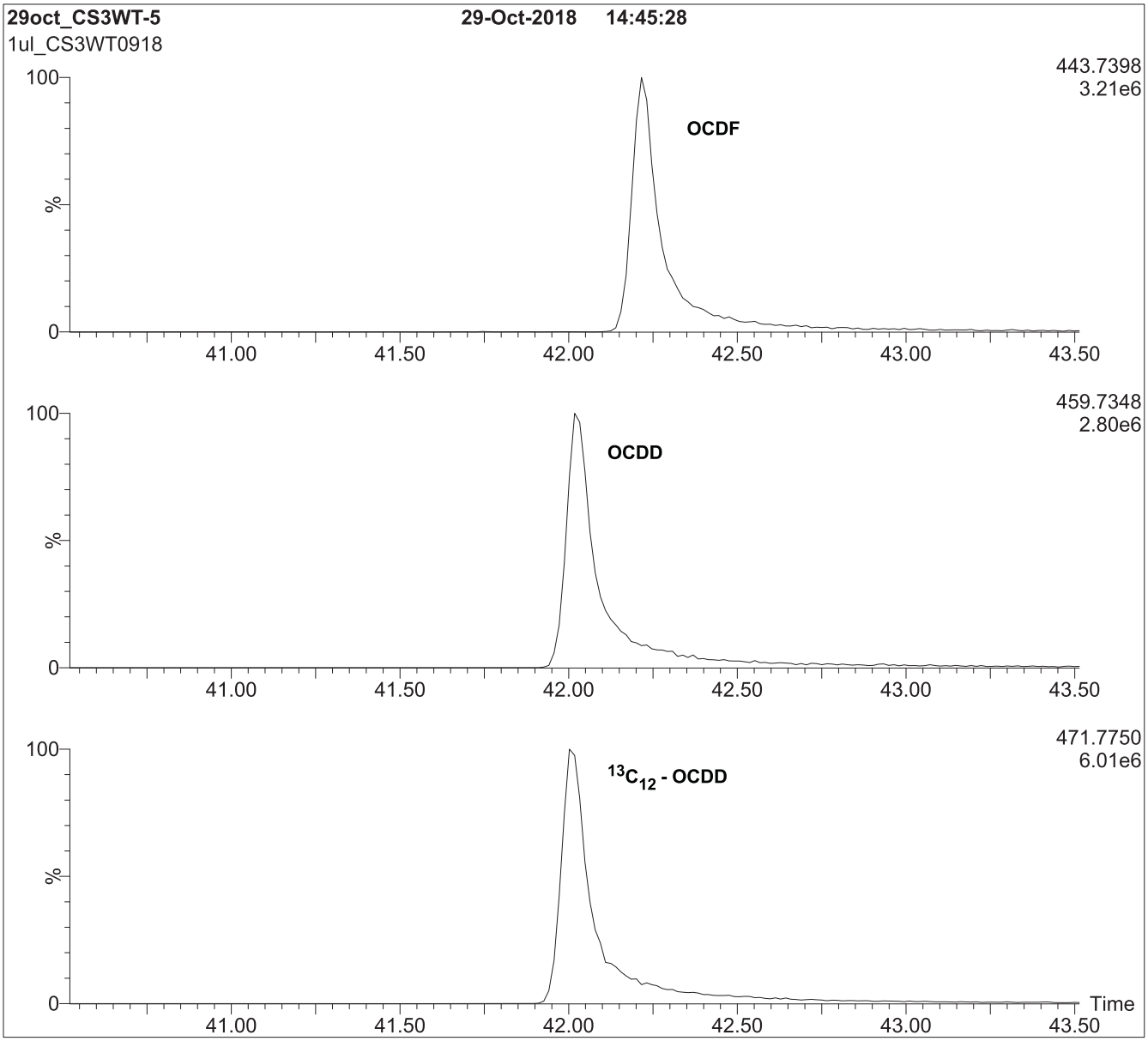


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow:	Constant at 1 ml/min	Oven:	150 °C (1 min)
Injector:	280 °C (Splitless Injection)		12 °C/min to 200 °C
Ionization:	EI+		3 °C/min to 235 °C
Detector:	280 °C		235 °C (8 min)
	SIR at 10,000 mass resolving power		8 °C/min to 310 °C
			310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005456
1613 CS1 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

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Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019
(mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

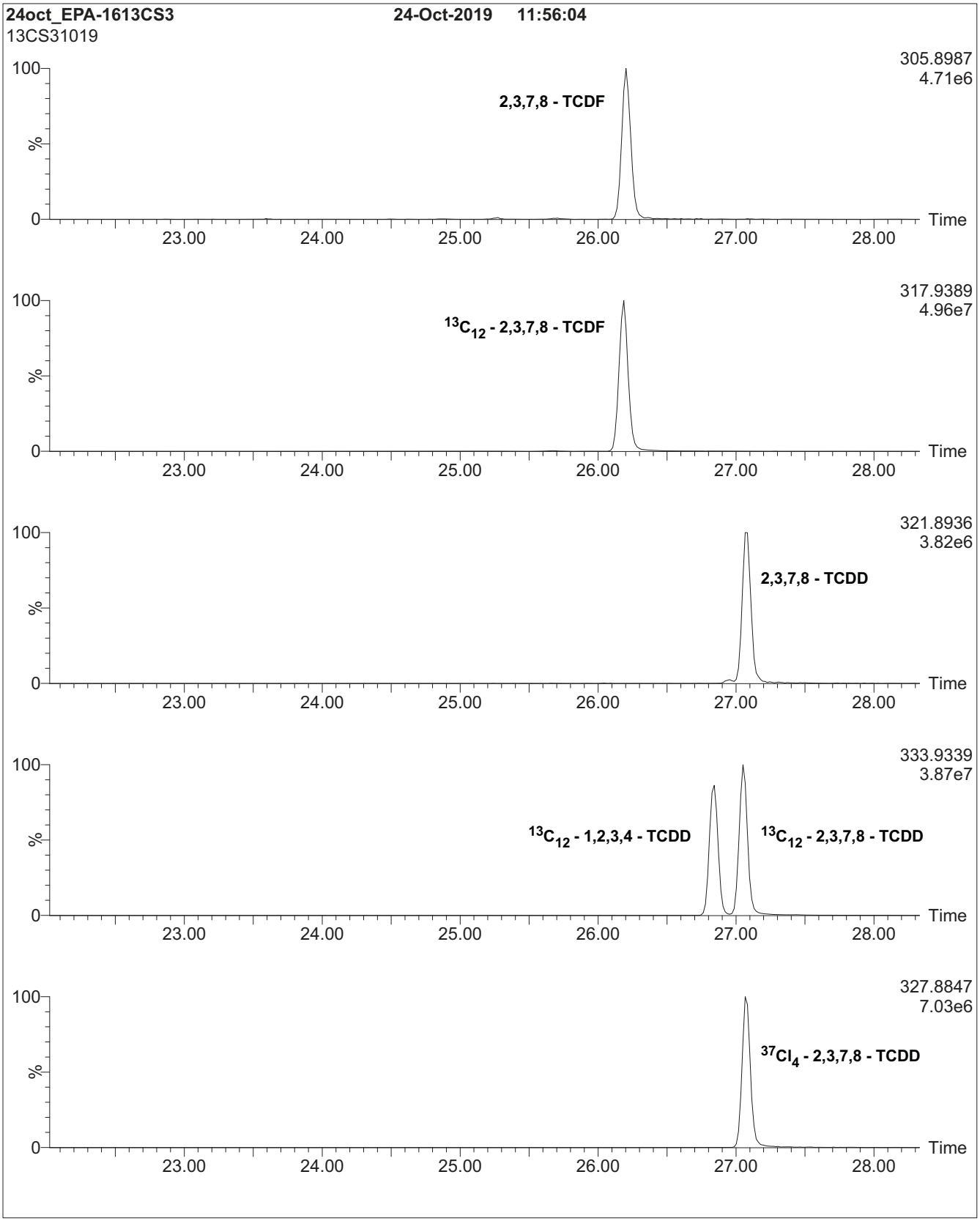


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

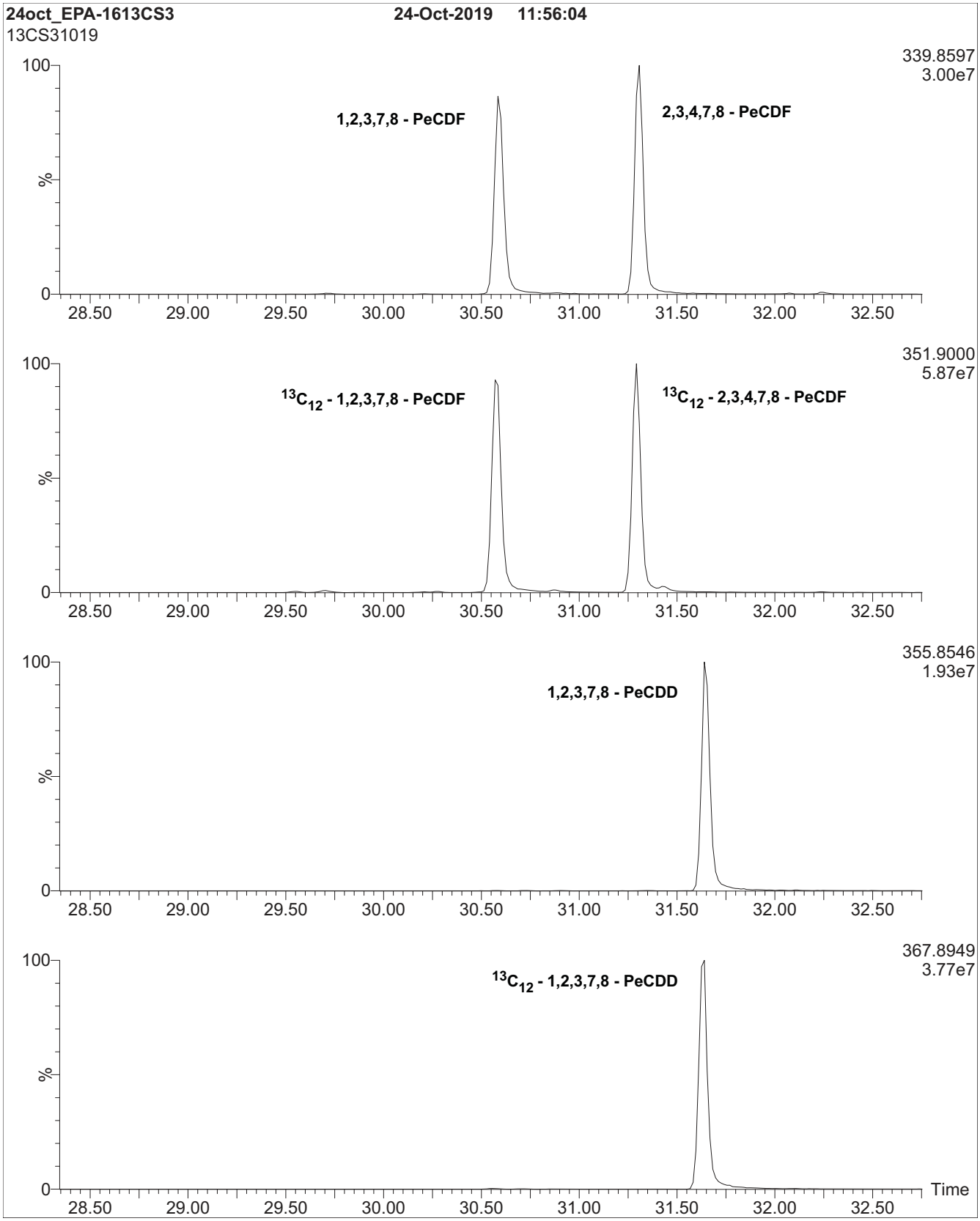


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

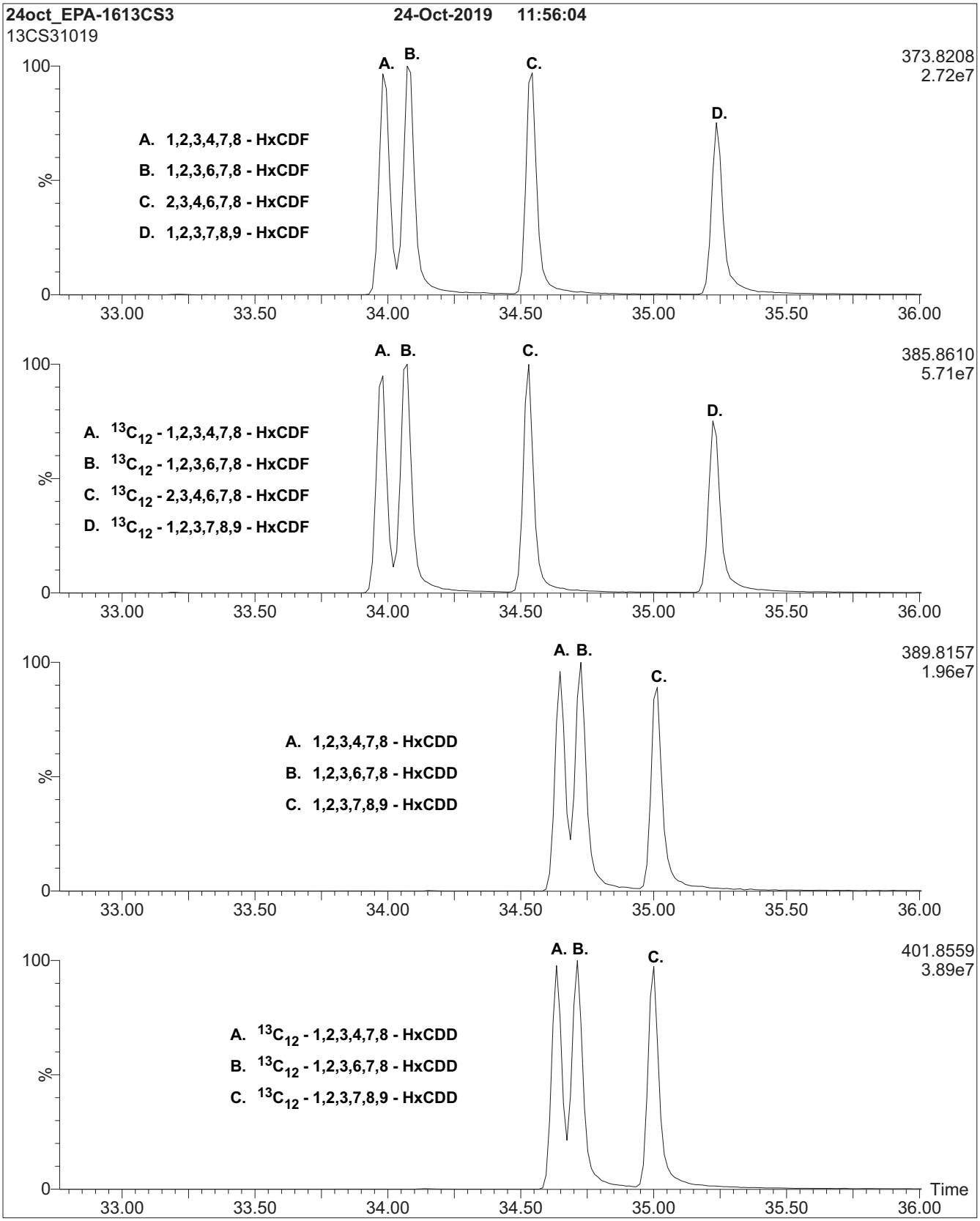


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

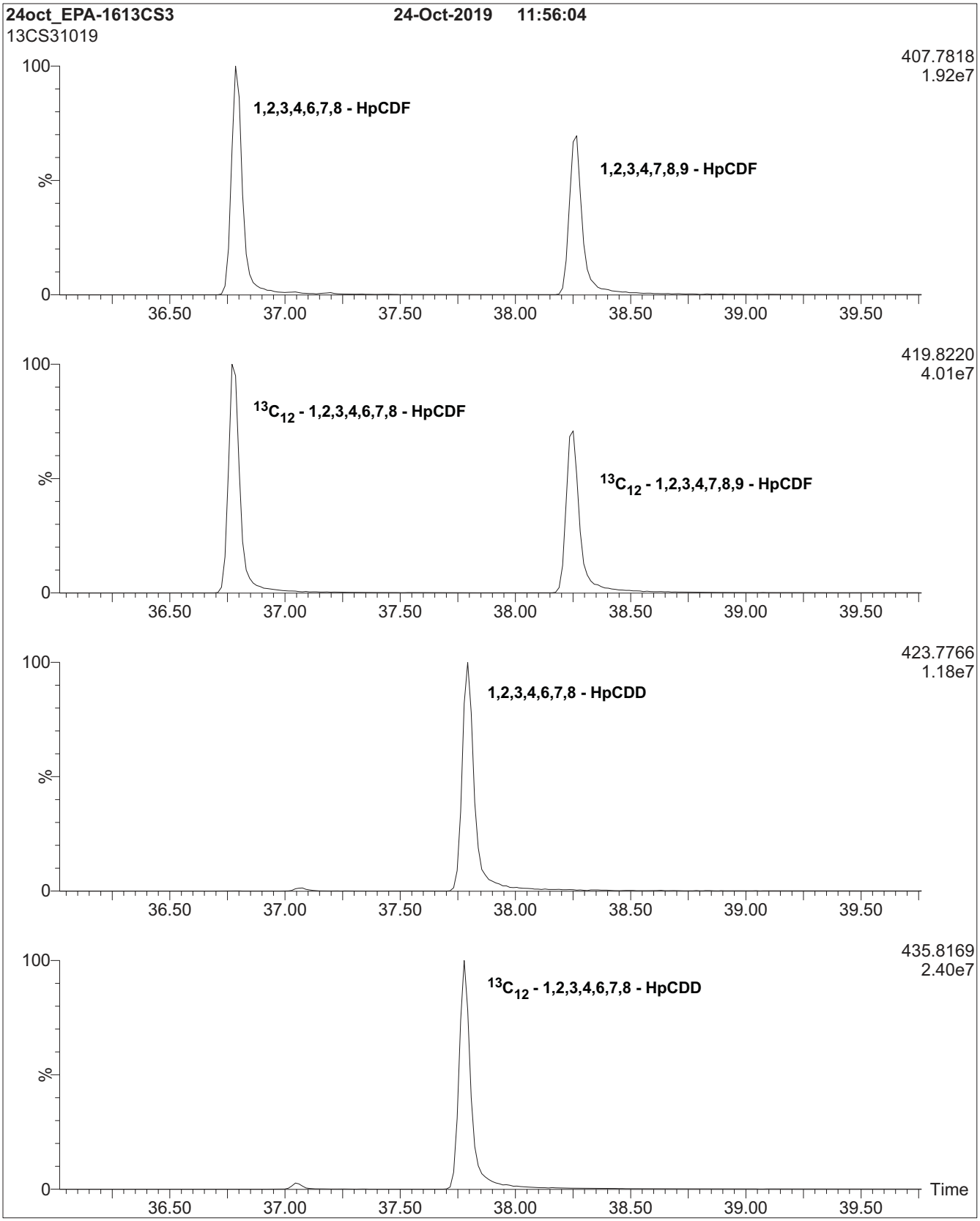
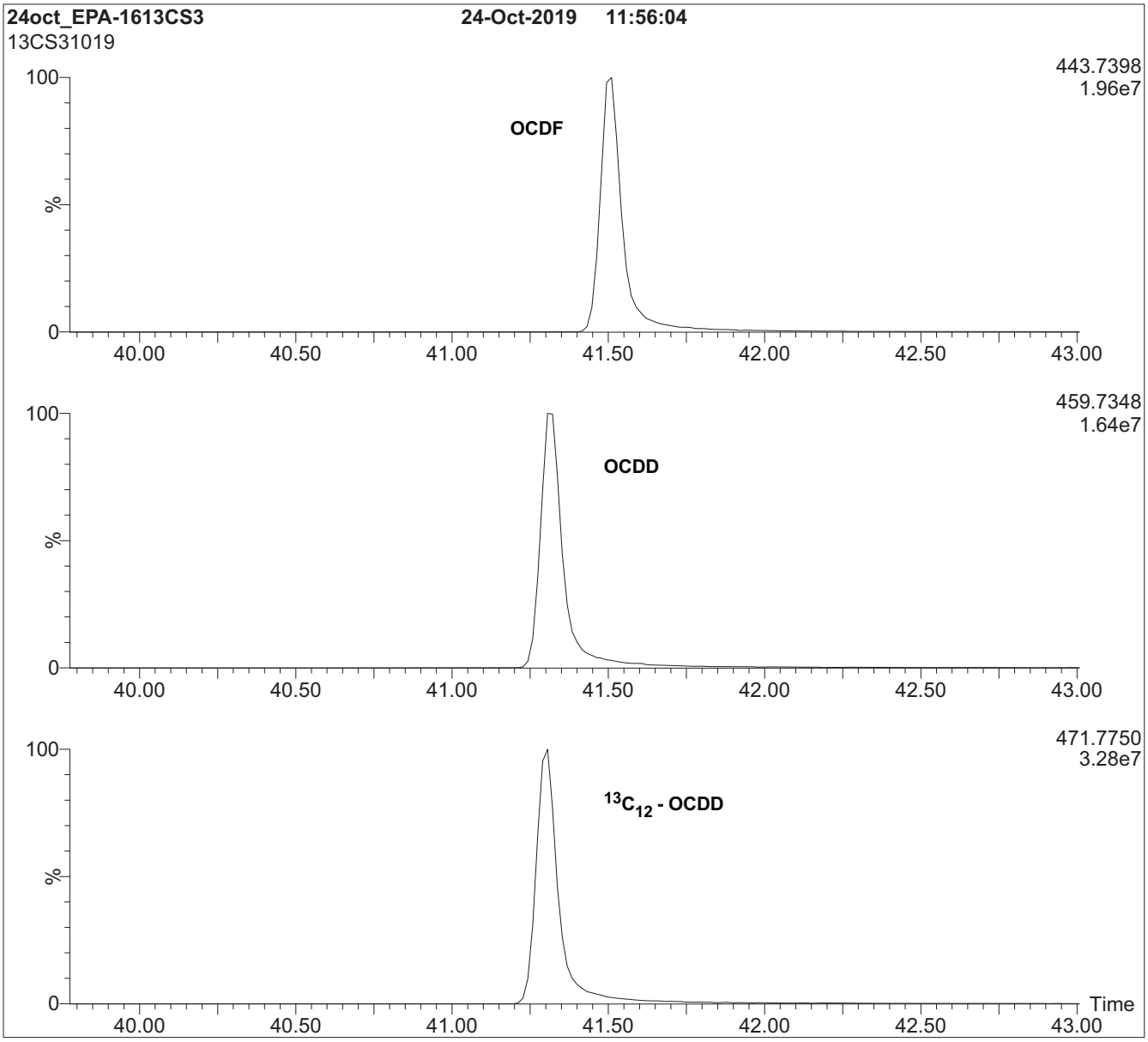


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005457
1613 CS2 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019
(mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

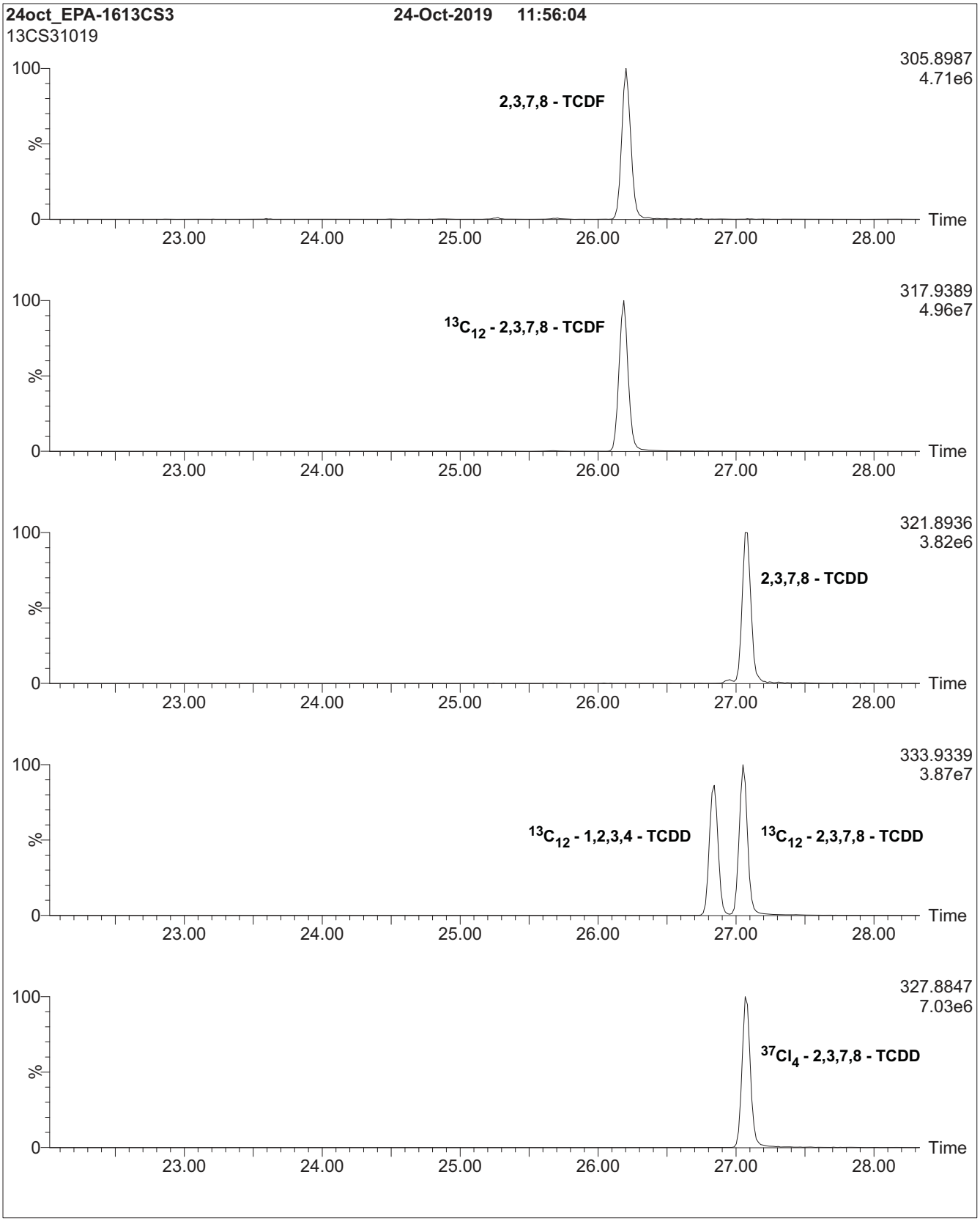


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

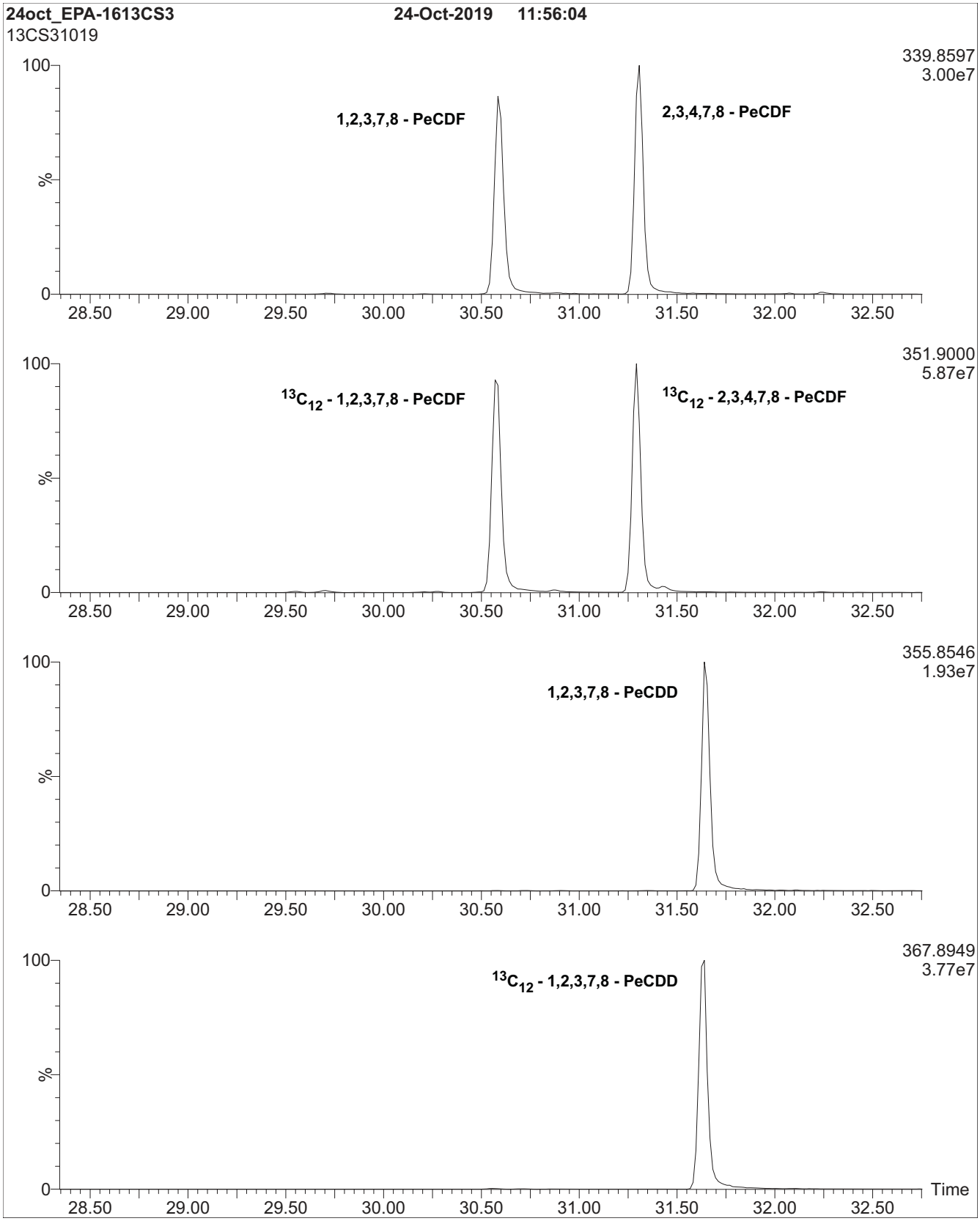


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

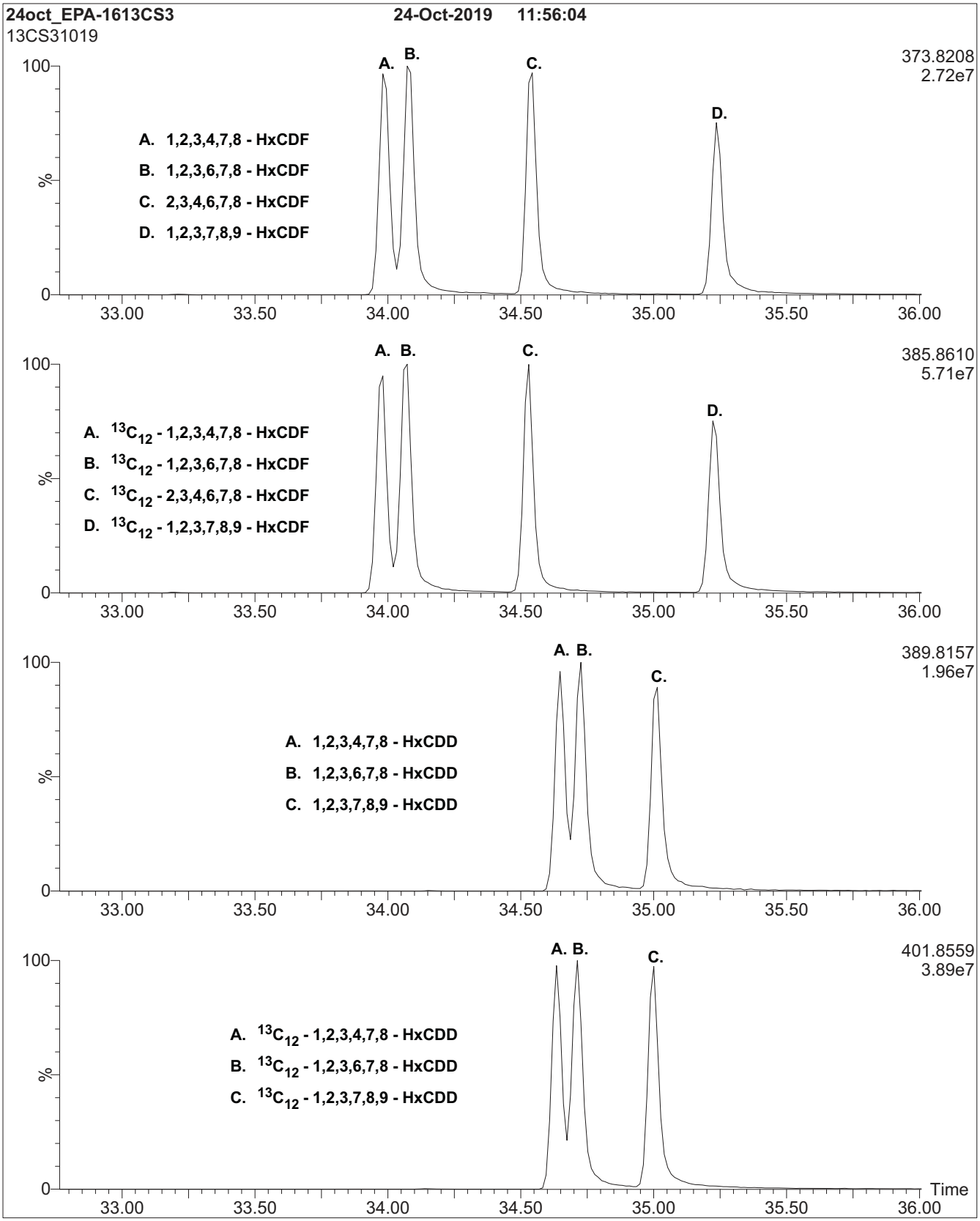


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

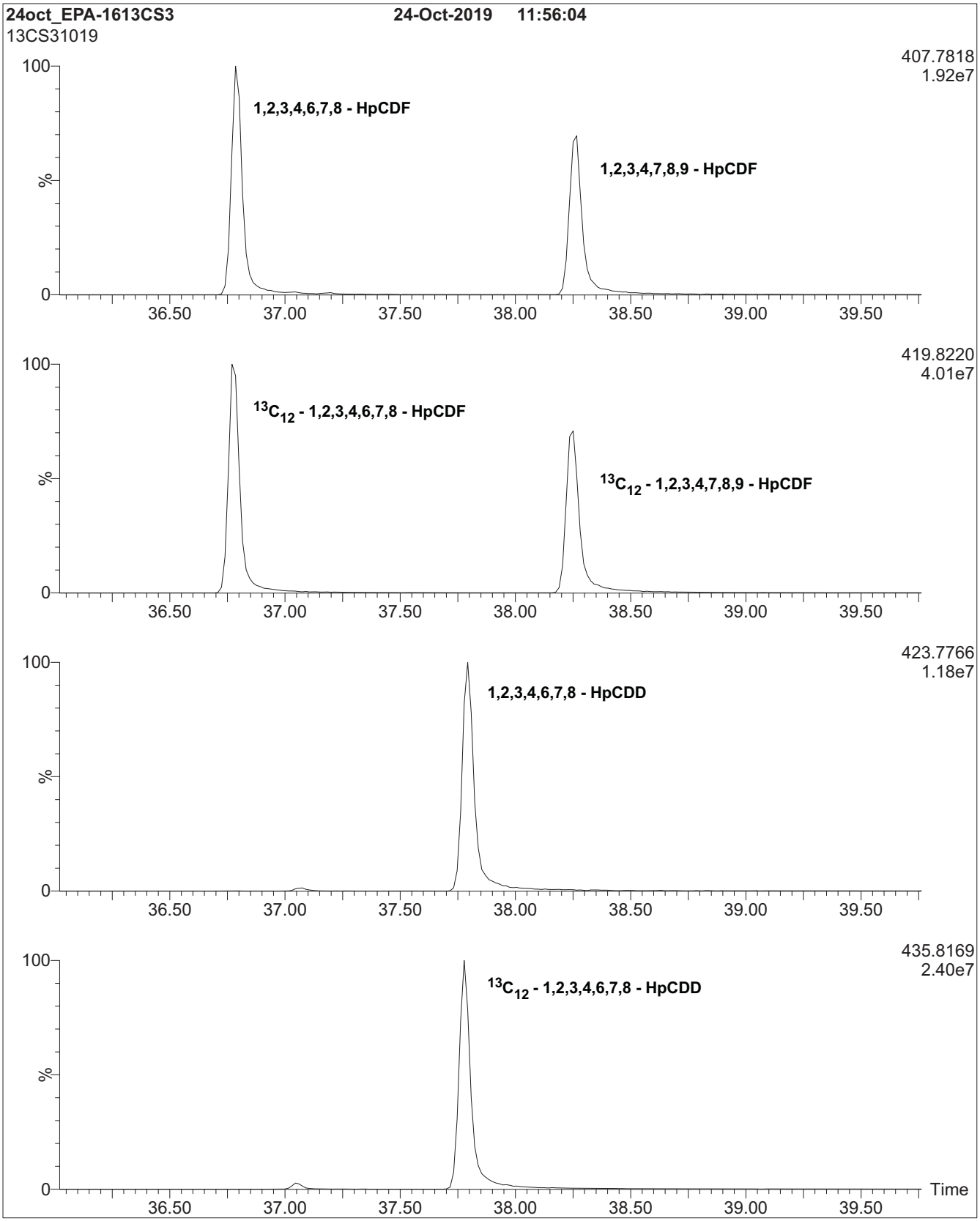
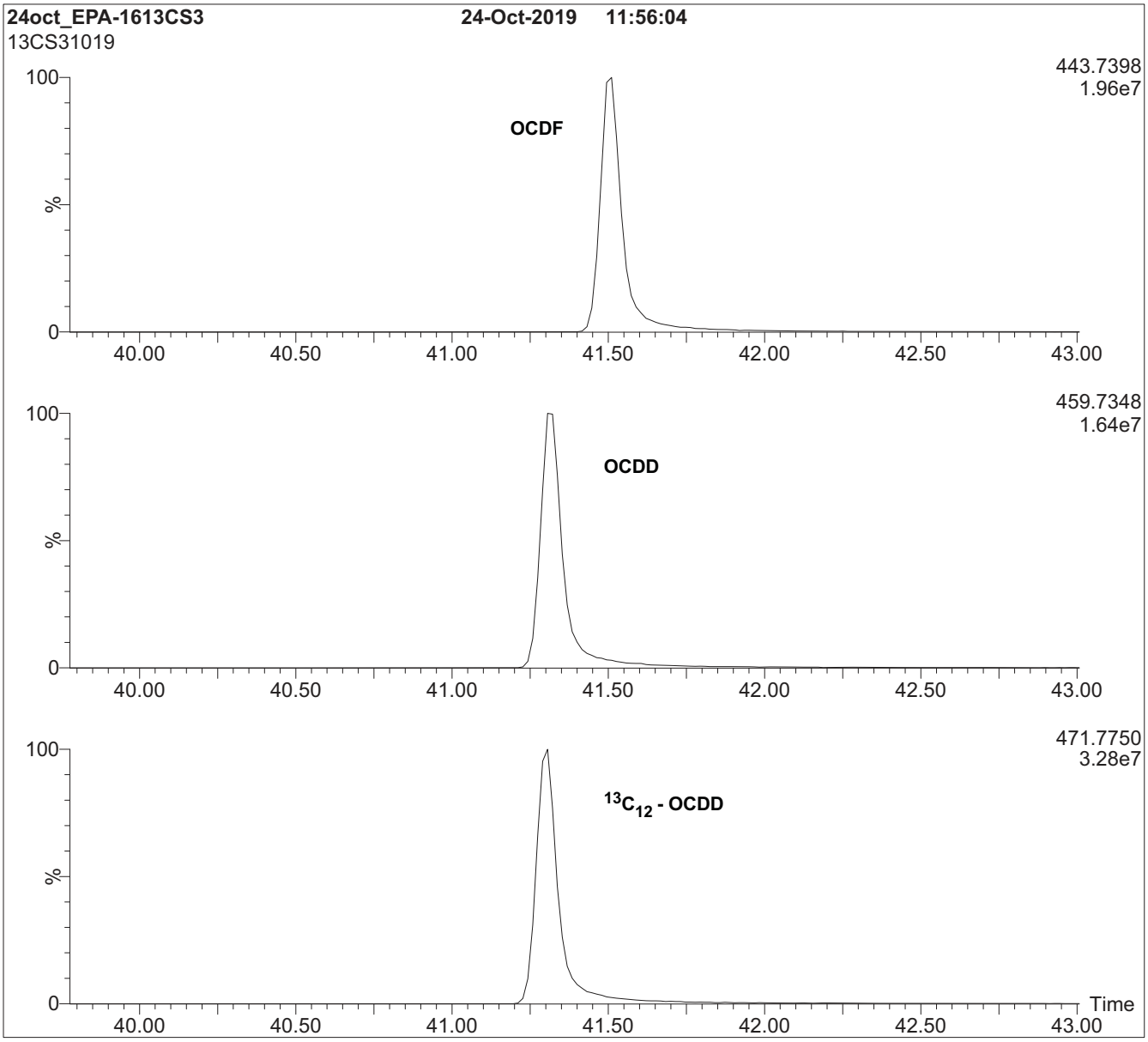


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005458
1613 CS4 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019
(mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

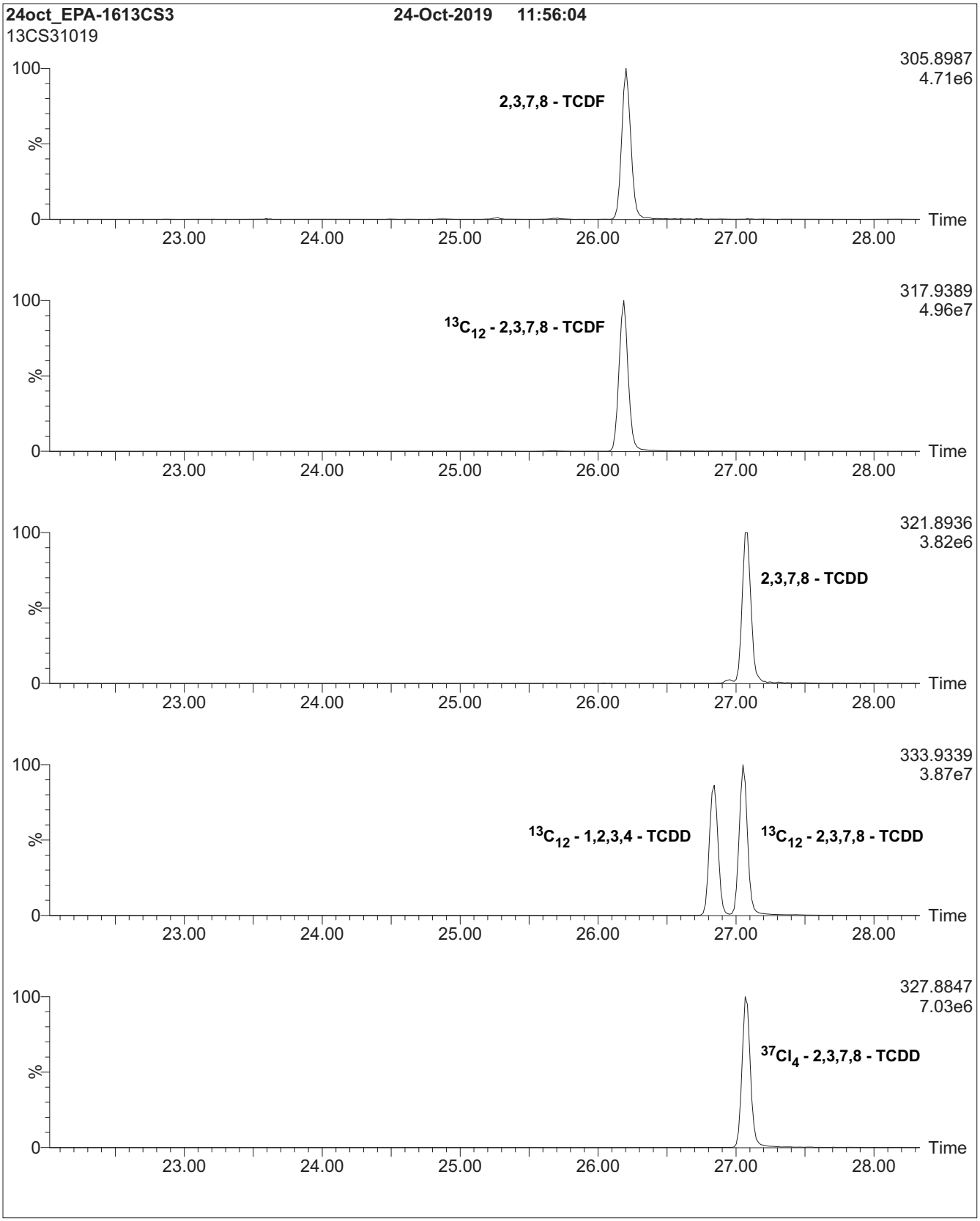


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

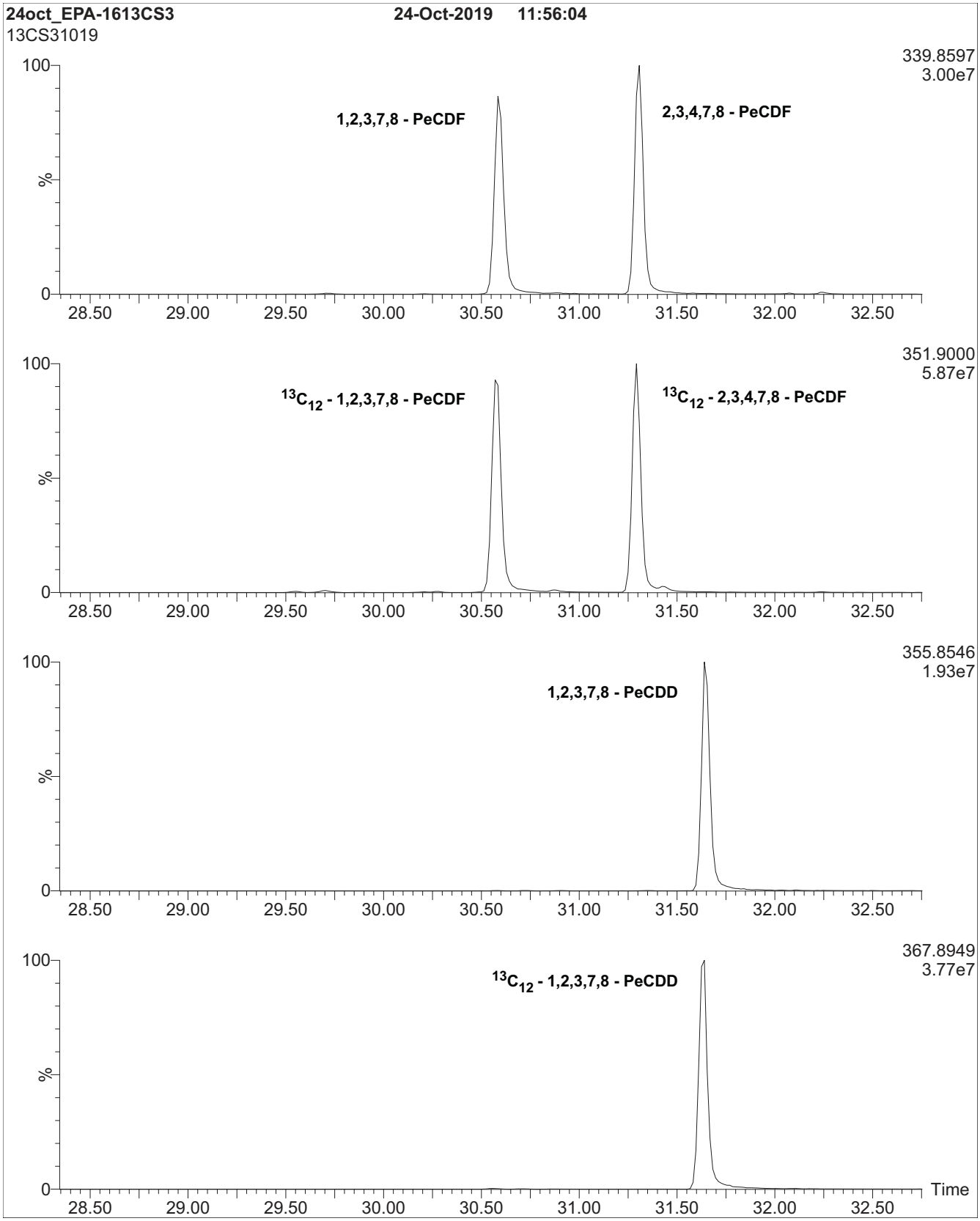


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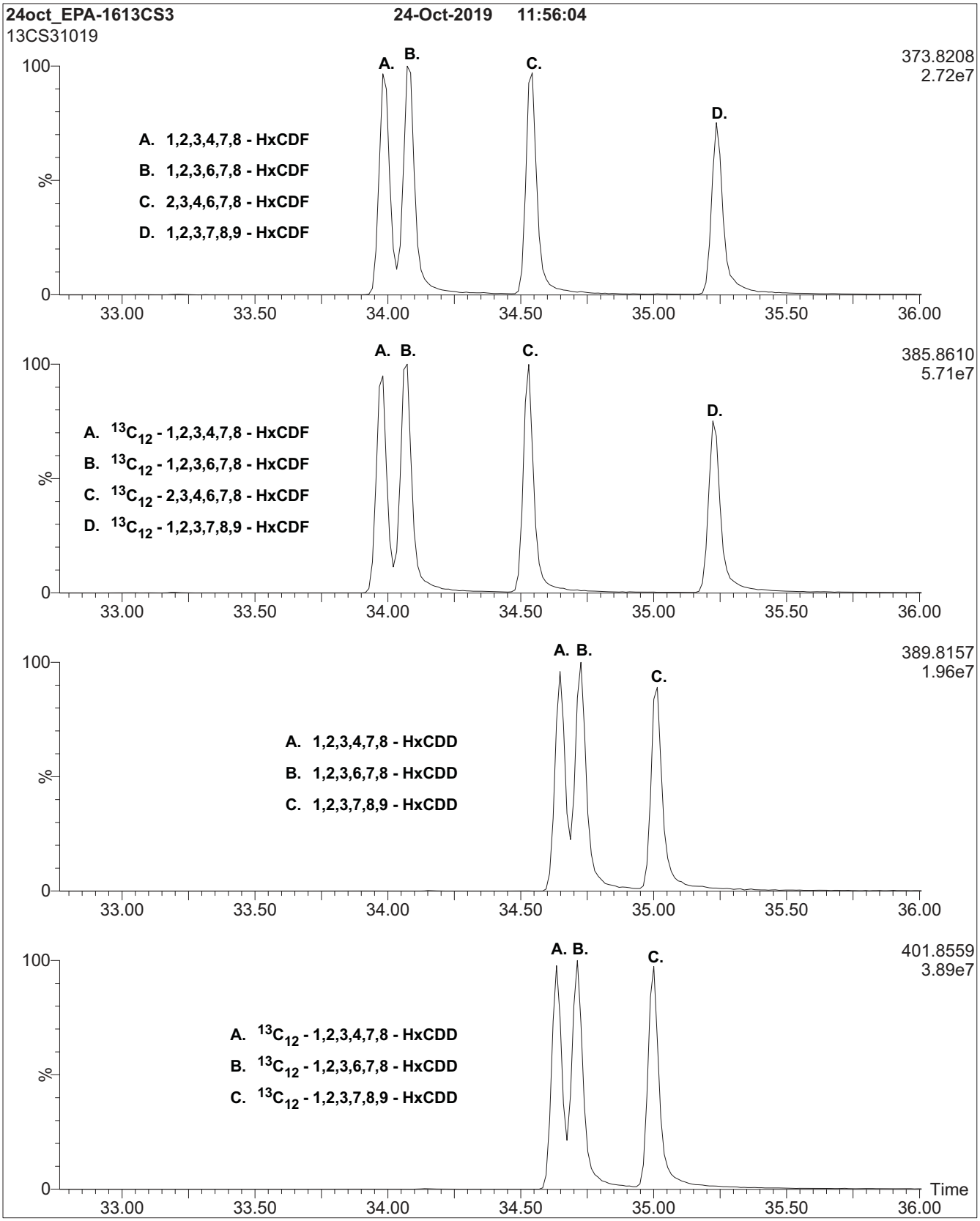


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

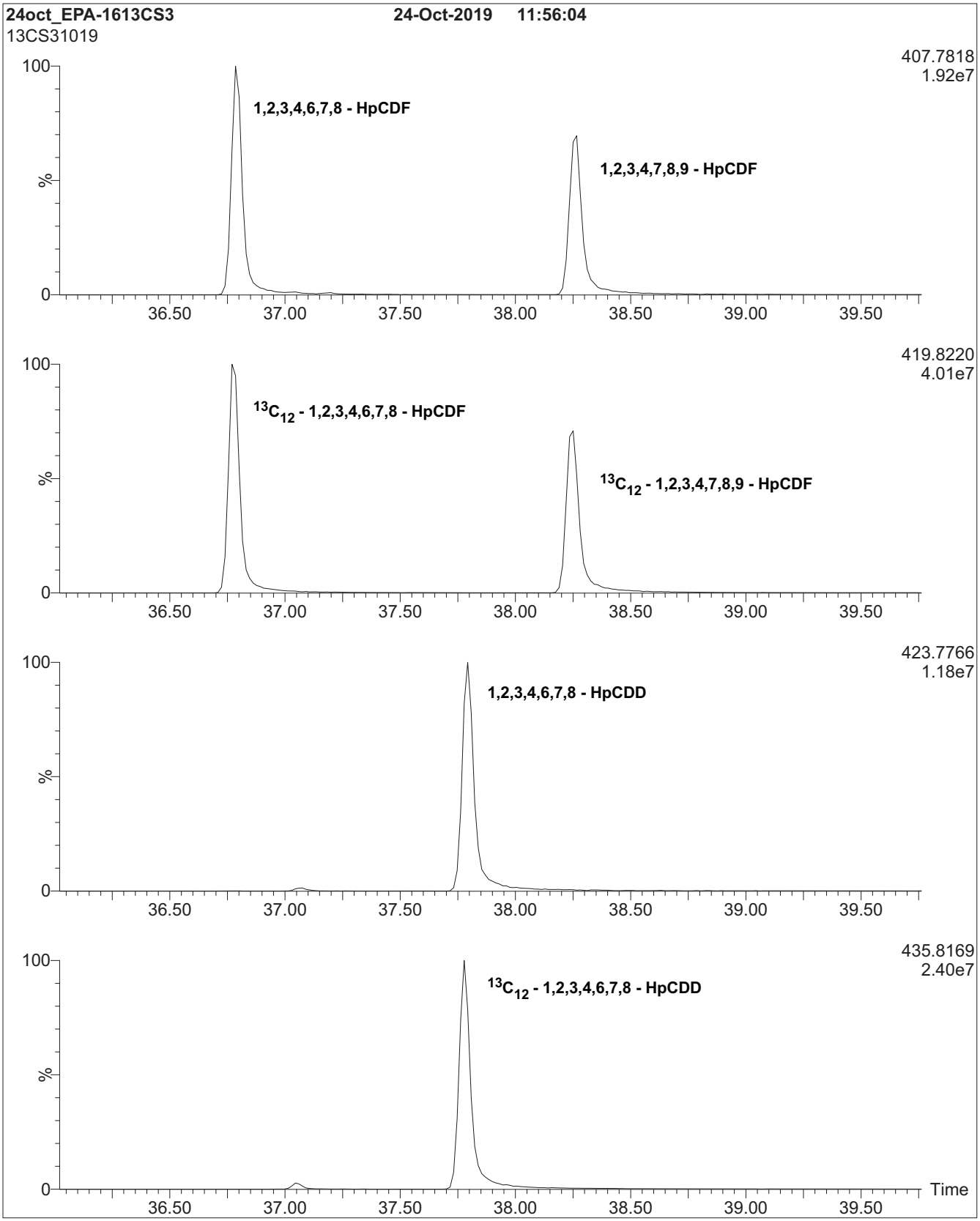
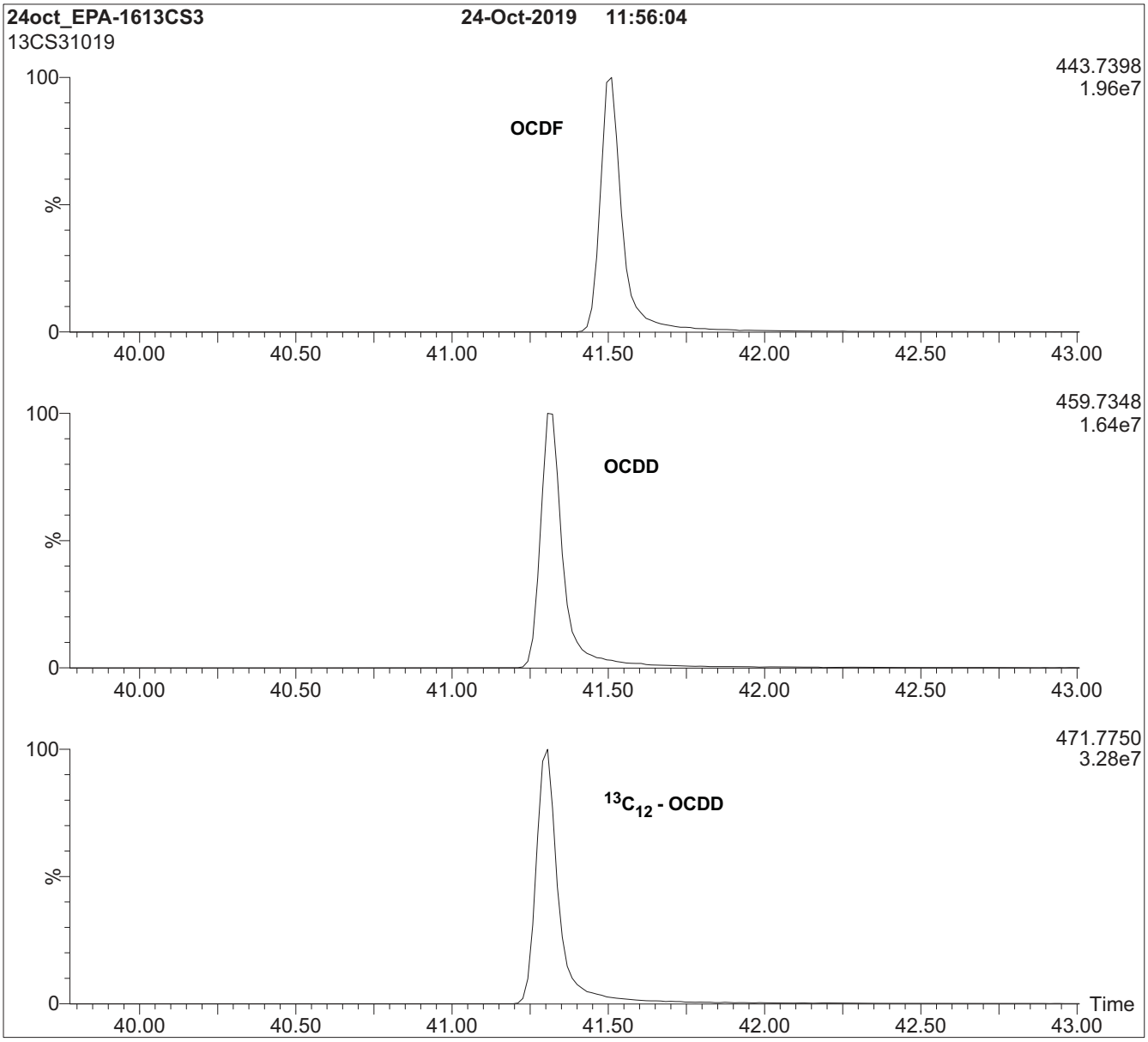


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005459
1613 CS5 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019
(mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

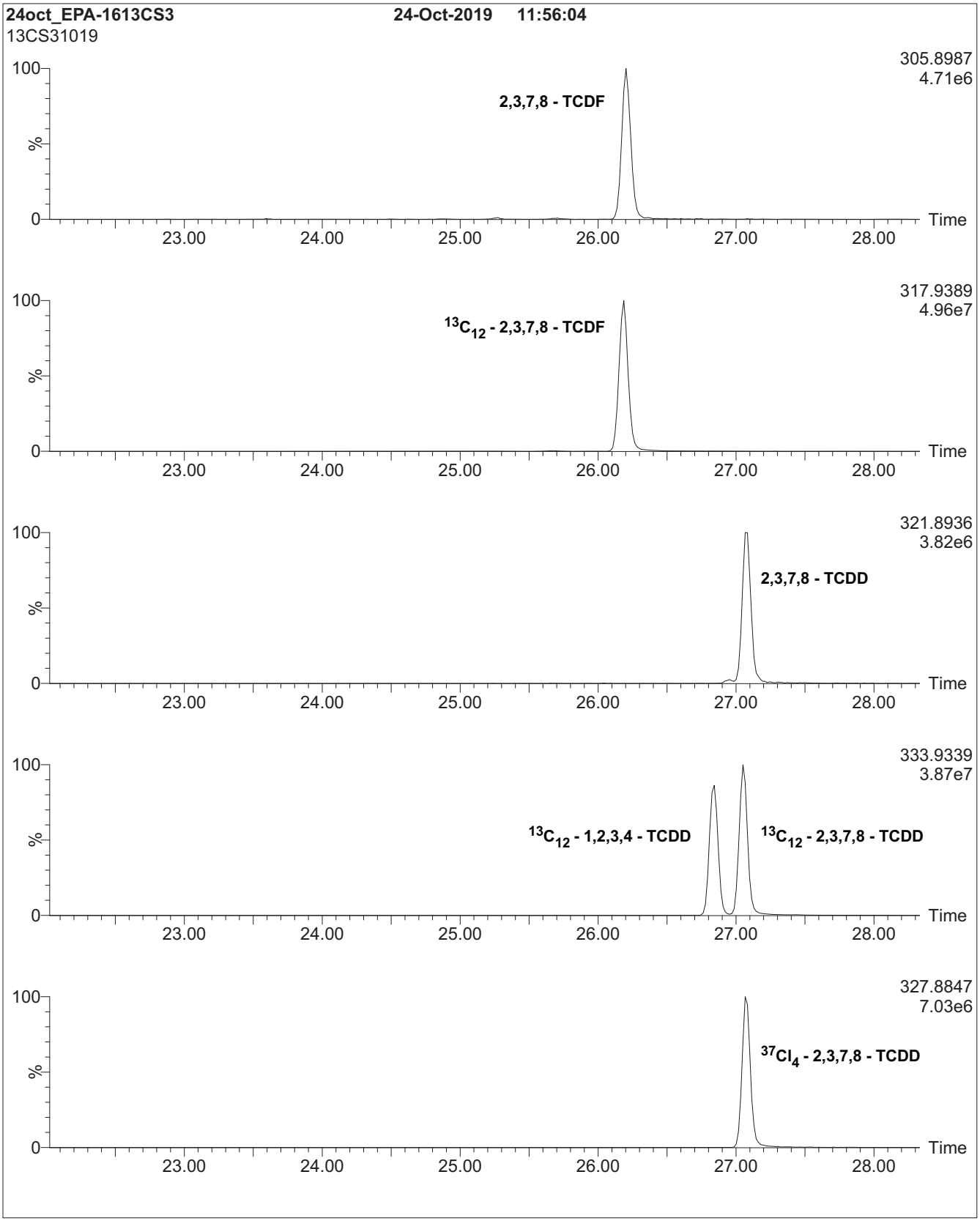


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

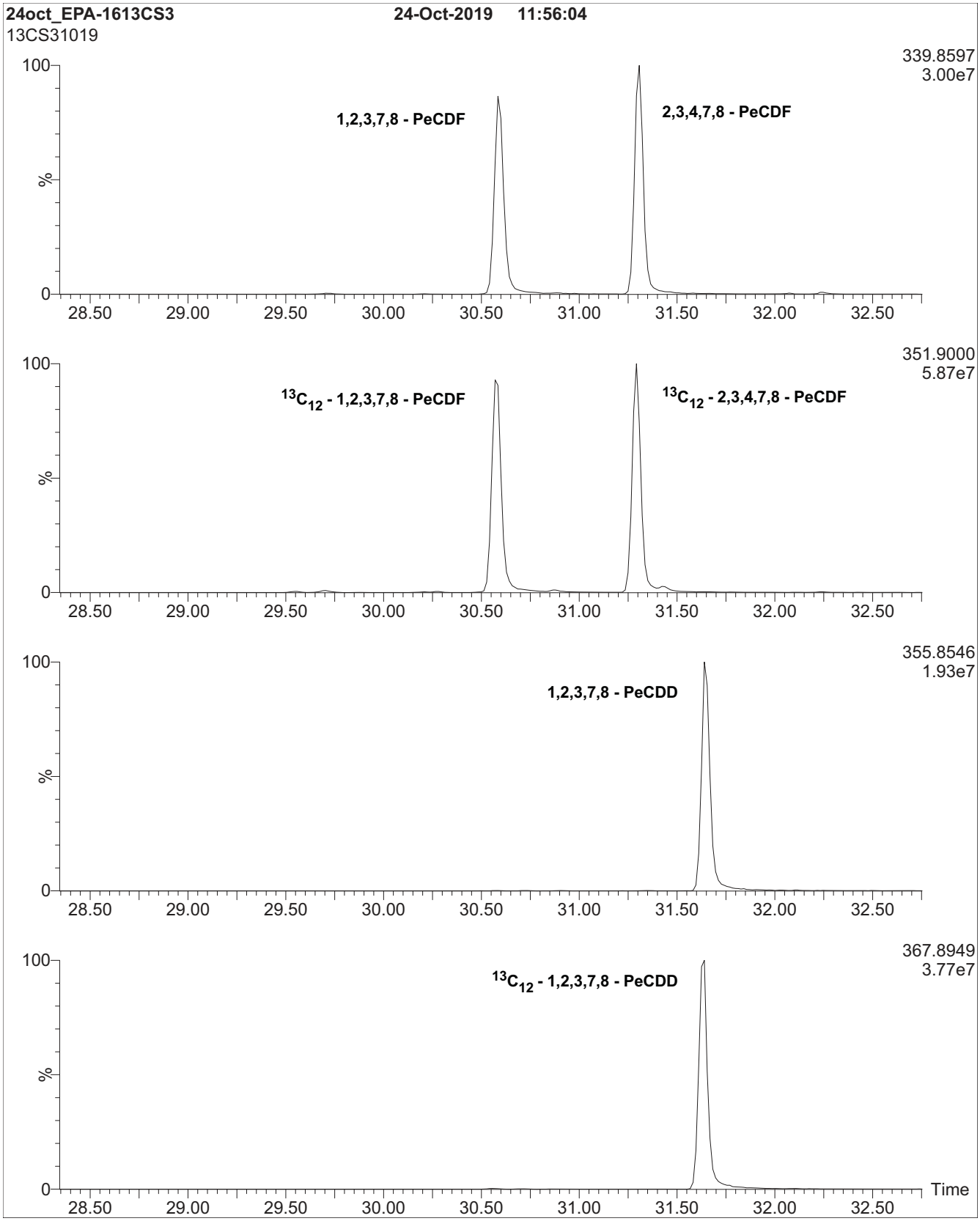


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

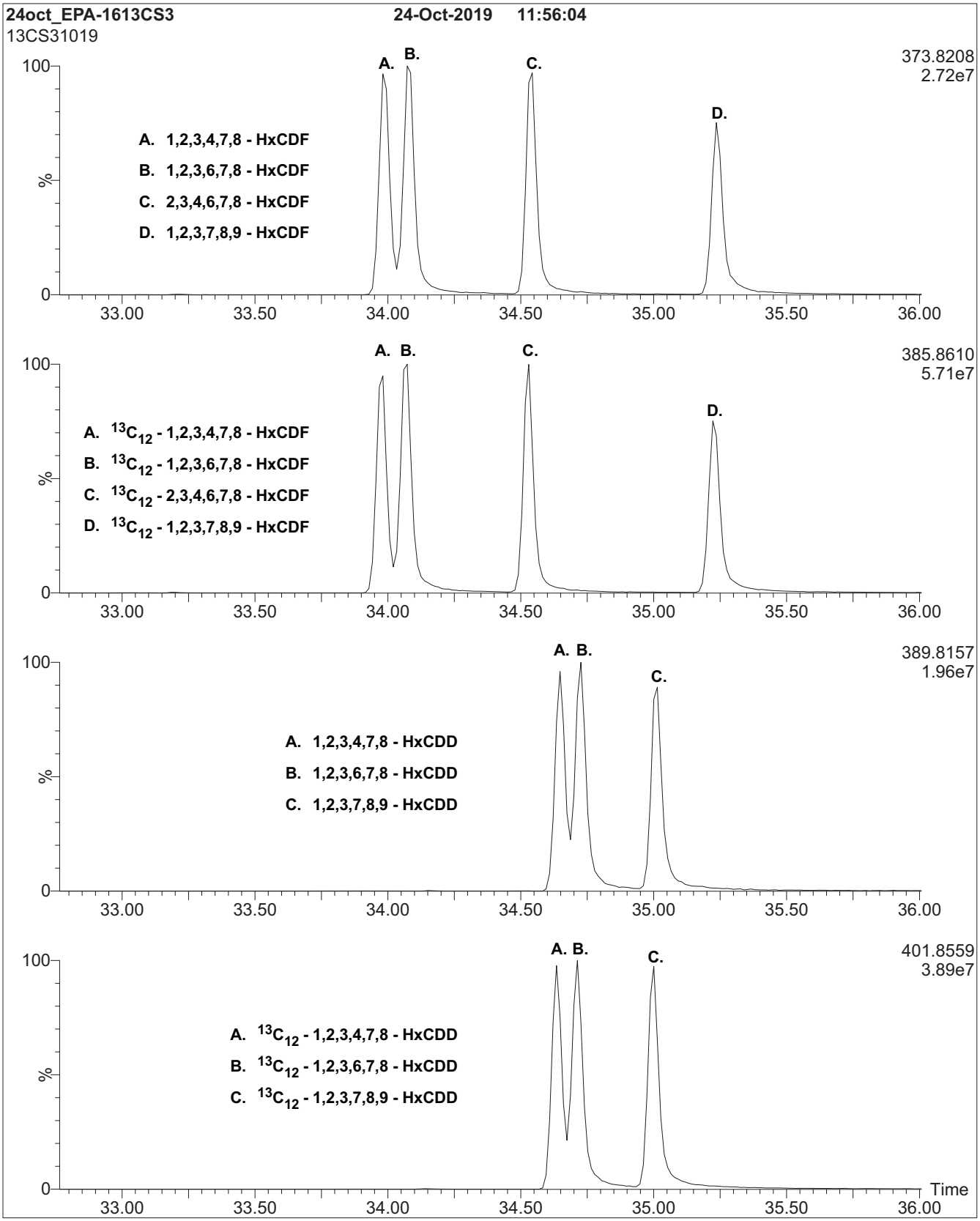


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

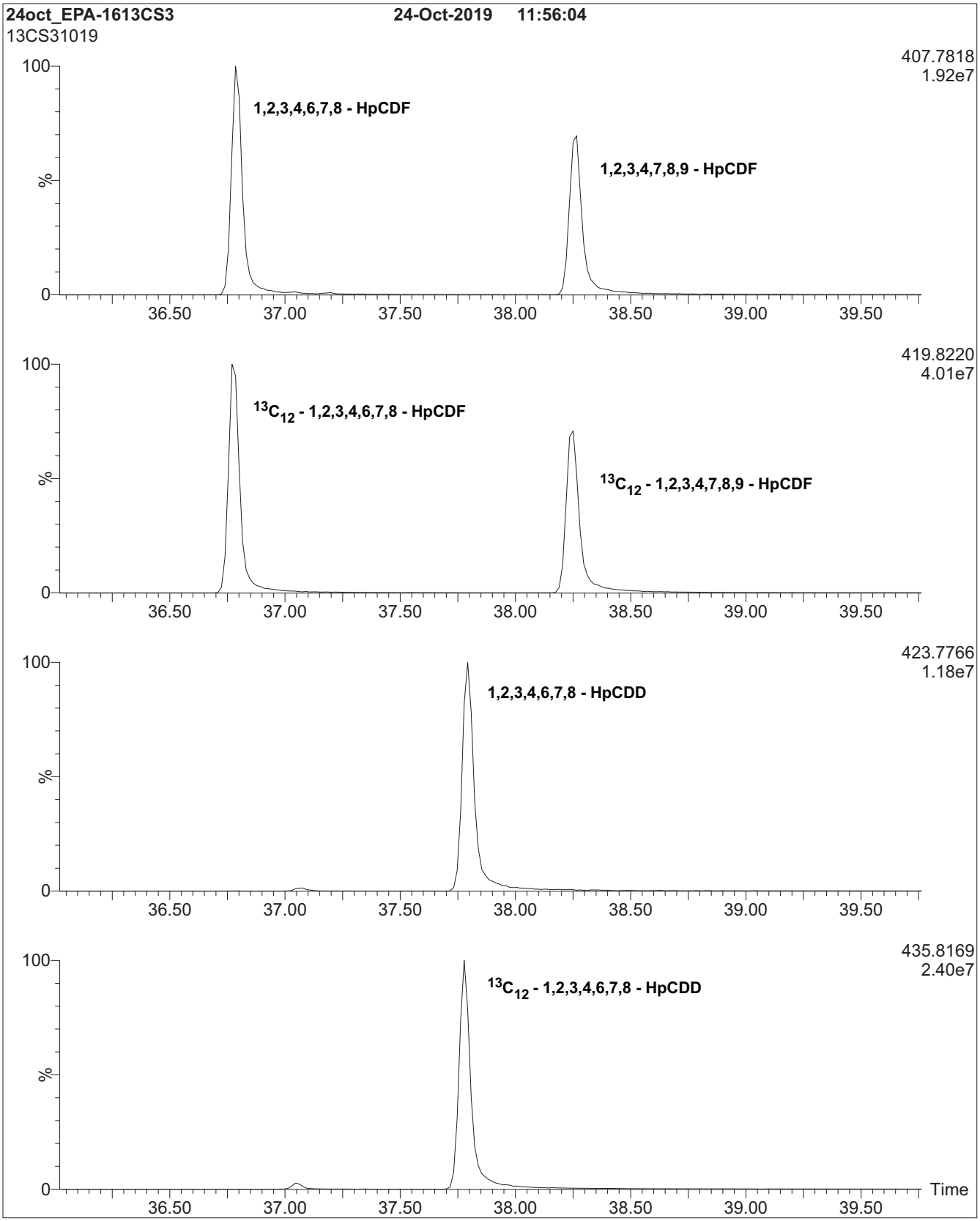
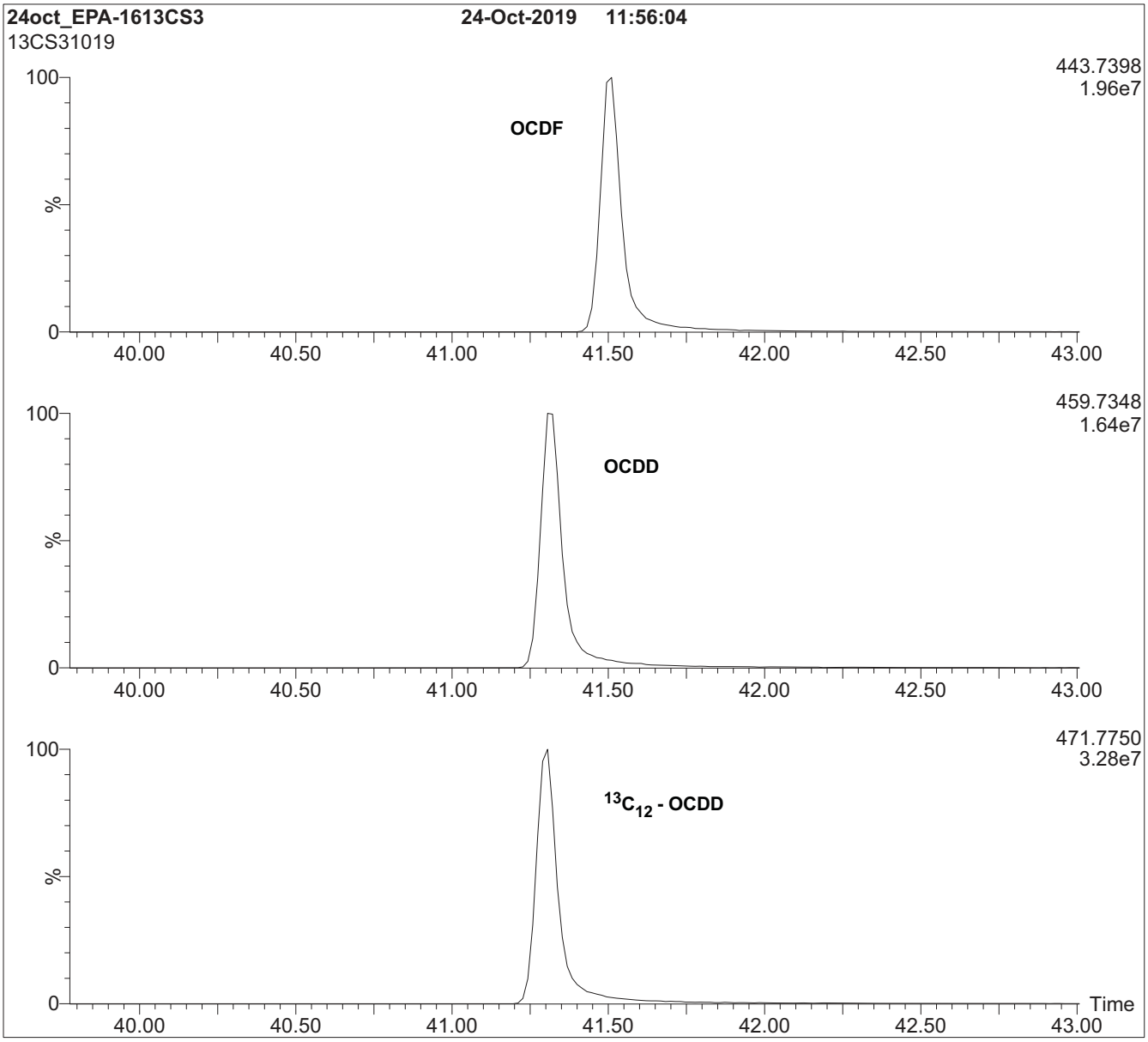


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005460
1613 CSL CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019
(mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

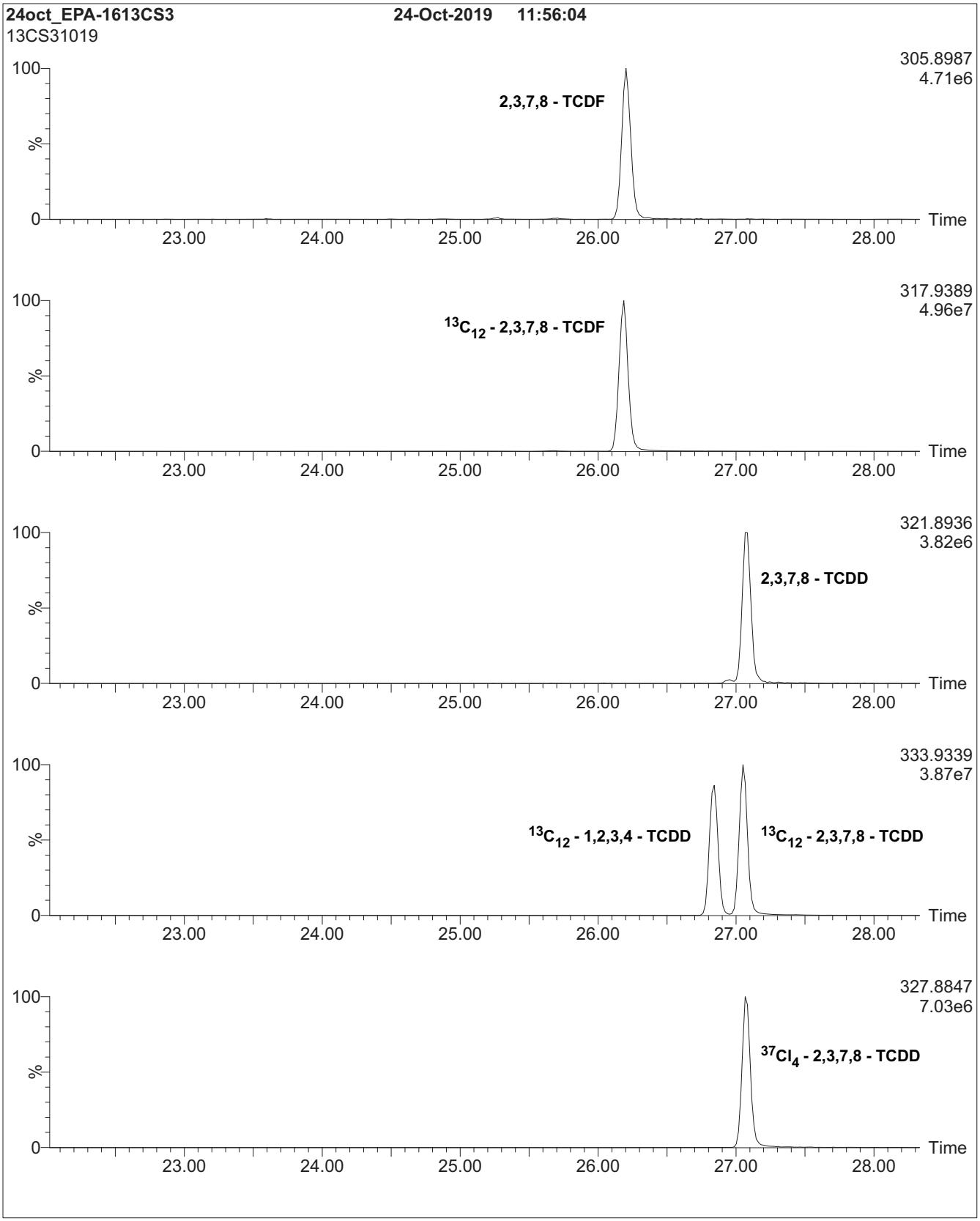


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

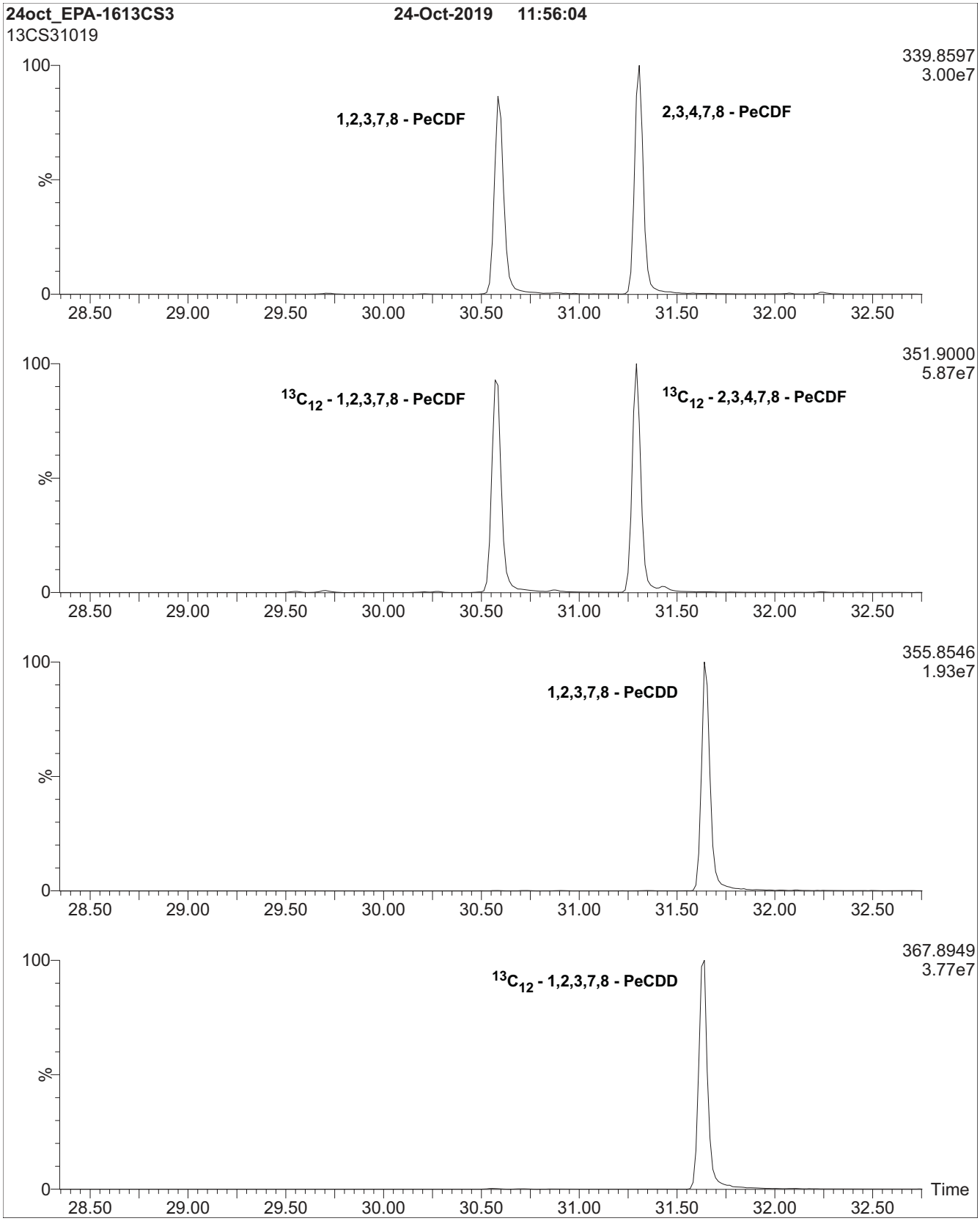


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

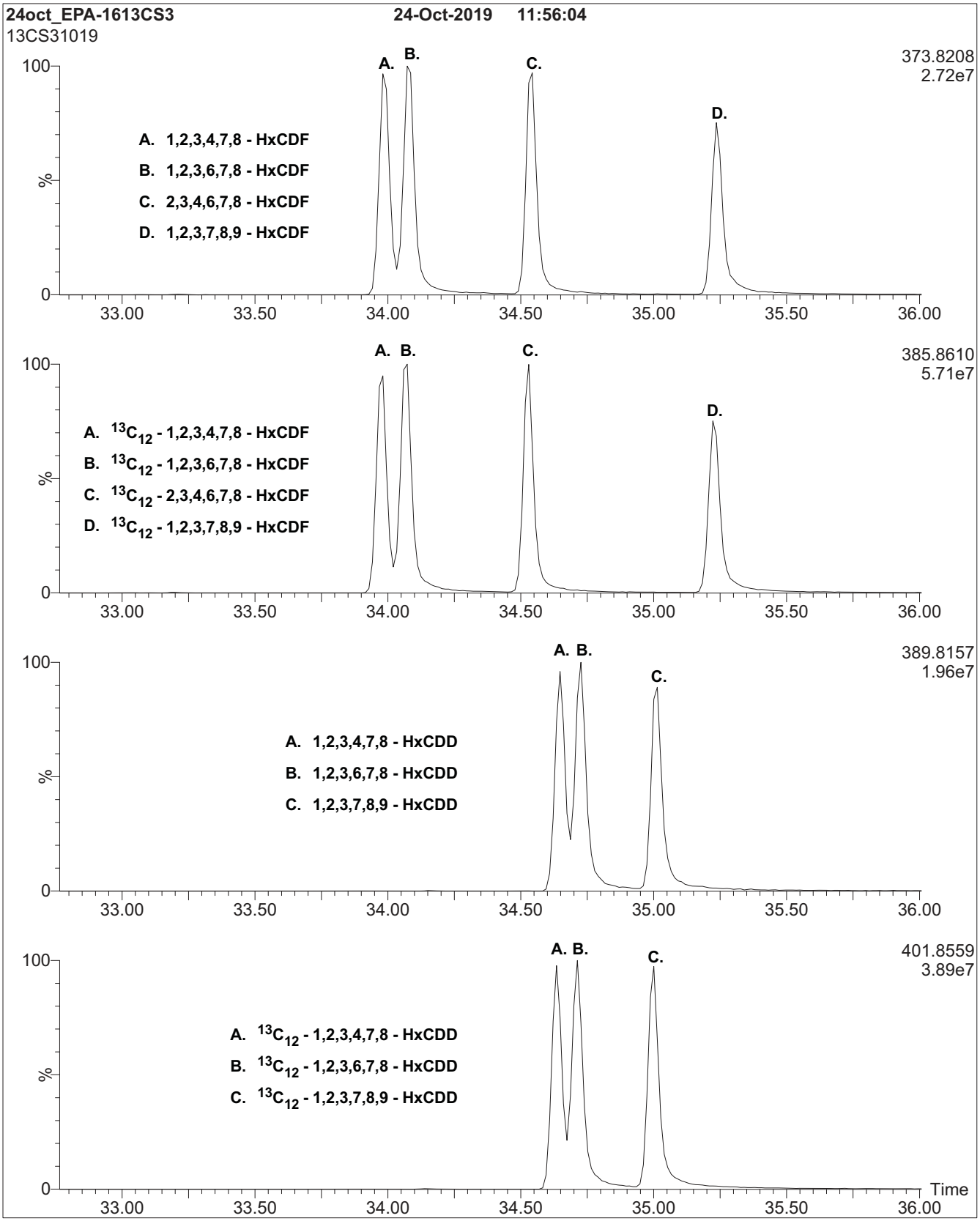


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

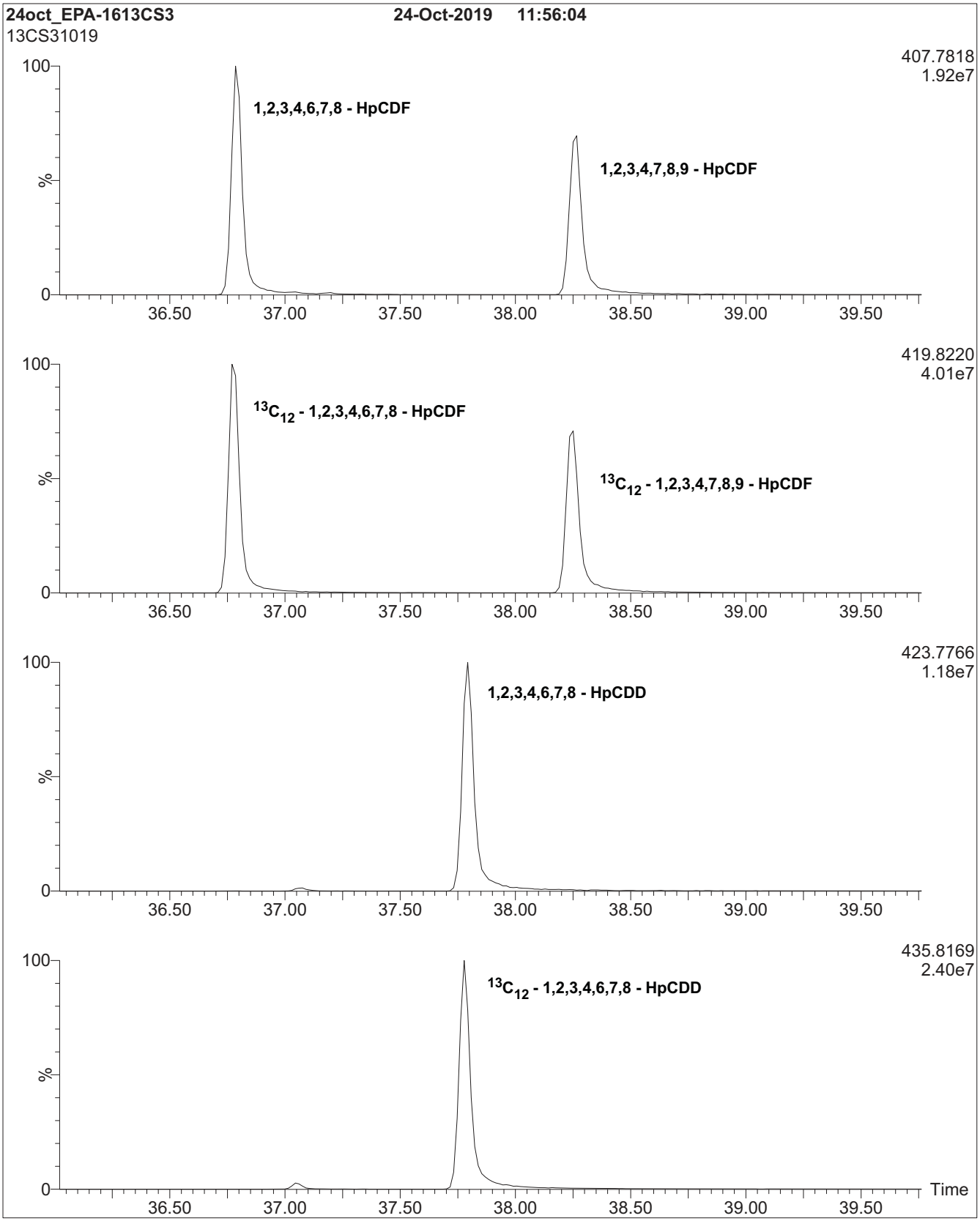
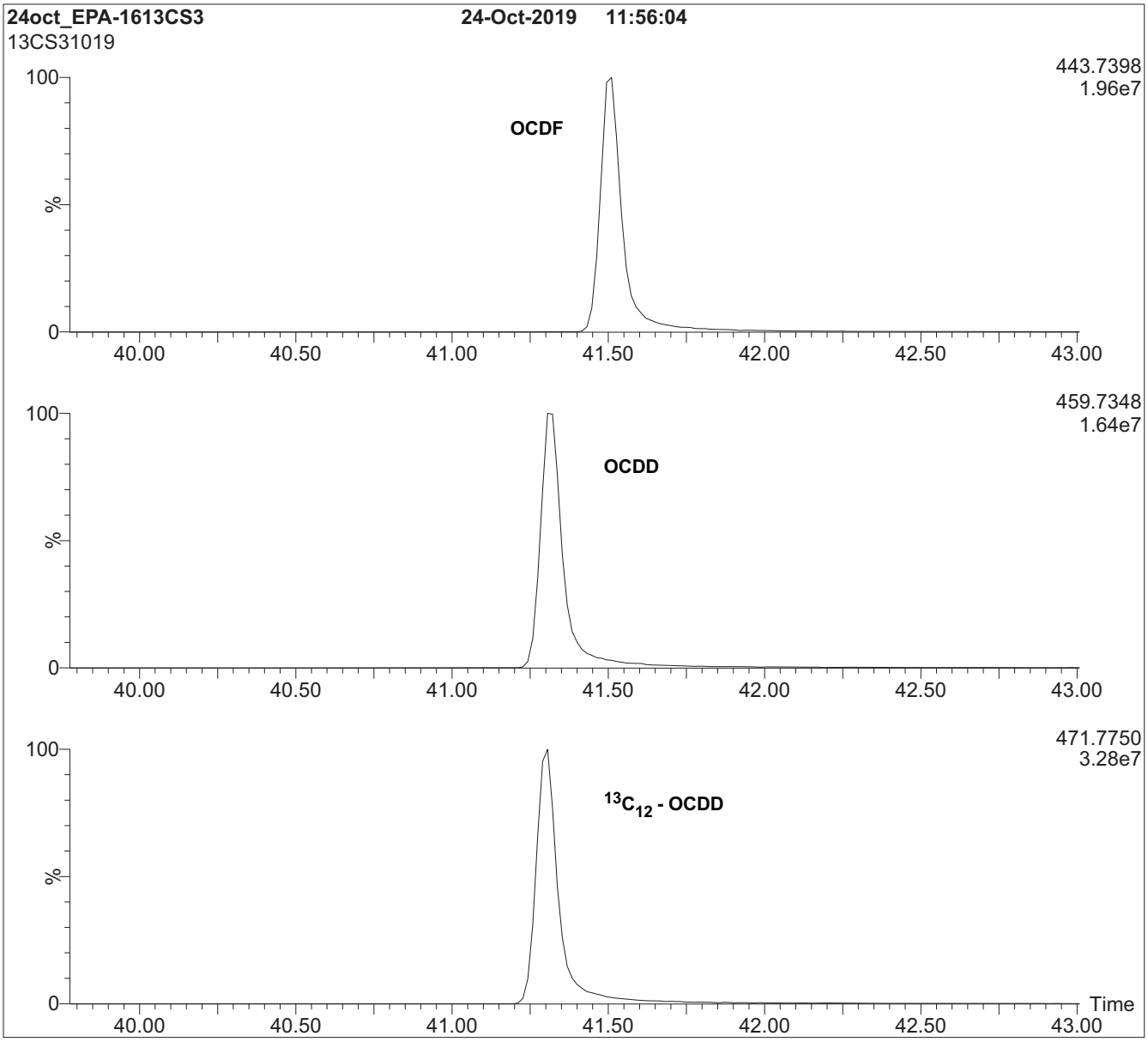


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

EPA-1613PAR

U.S. EPA Method 1613 Native PCDD/PCDF Precision and Recovery Stock Solution

PRODUCT CODE:	EPA-1613PAR
LOT NUMBER:	13PAR1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/25/2021
LAST TESTED: (mm/dd/yyyy)	11/03/2021
EXPIRY DATE: (mm/dd/yyyy)	11/03/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

J013397
Recd. JR
12/20/21

DESCRIPTION:

EPA-1613PAR is a solution/mixture of all the 2,3,7,8-substituted polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

EPA-1613PAR was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

The individual PCDDs and PCDFs all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

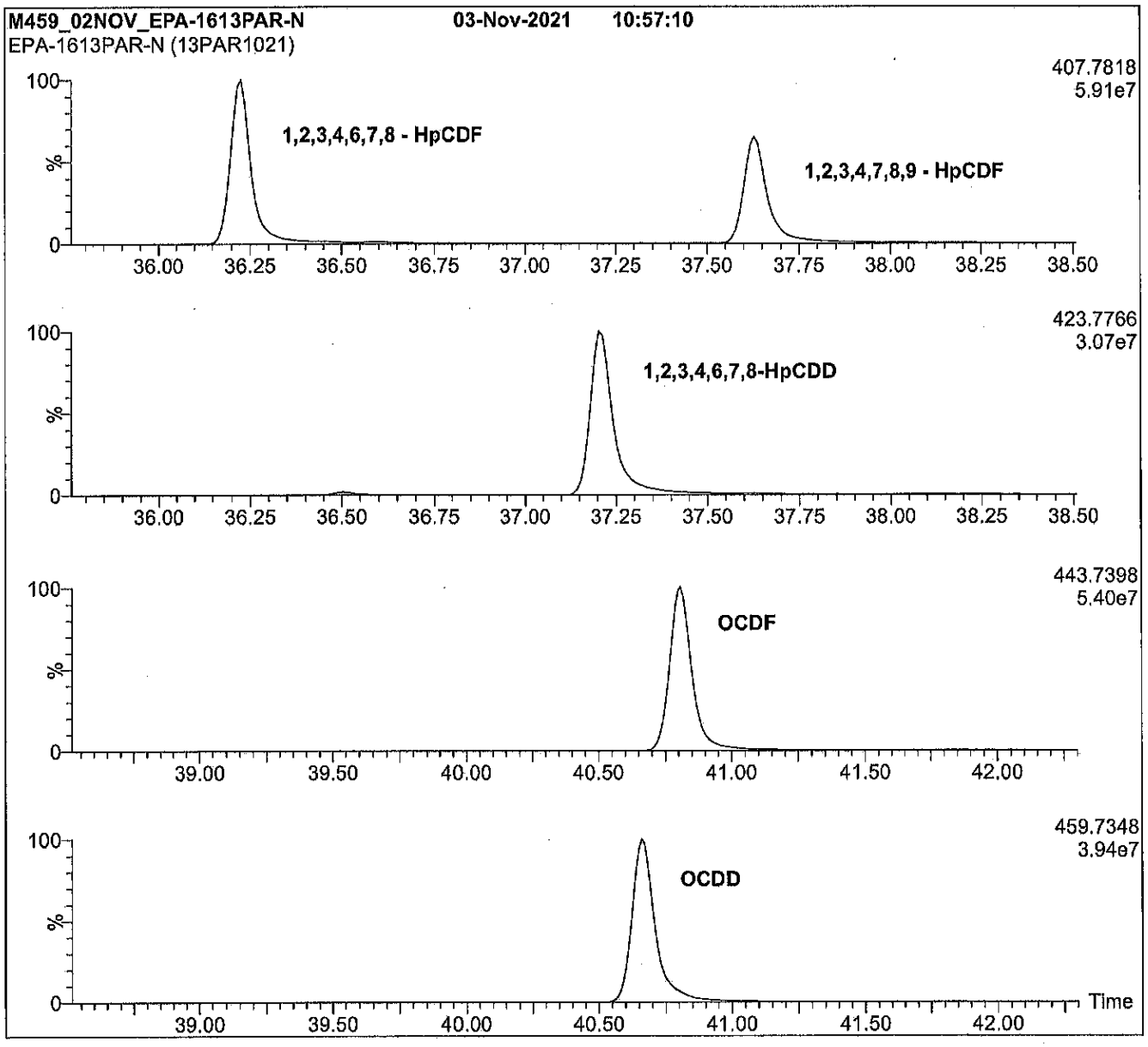
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Table A: **EPA-1613PAR; Components and Concentrations (ng/mL, ± 5% in nonane/2.4% toluene)**

Compound	Acronym	CAS #	Concentration (ng/mL)
PCDDs:			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin	2,3,7,8-TCDD	1746-01-6	40.0
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin	1,2,3,7,8-PeCDD	40321-76-4	200
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin	1,2,3,4,7,8-HxCDD	39227-28-6	200
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin	1,2,3,6,7,8-HxCDD	57653-85-7	200
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin	1,2,3,7,8,9-HxCDD	19408-74-3	200
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin	1,2,3,4,6,7,8-HpCDD	35822-46-9	200
Octachlorodibenzo-*p*-dioxin	OCDD	3268-87-9	400
PCDFs:			
2,3,7,8-Tetrachlorodibenzofuran	2,3,7,8-TCDF	51207-31-9	40.0
1,2,3,7,8-Pentachlorodibenzofuran	1,2,3,7,8-PeCDF	57117-41-6	200
2,3,4,7,8-Pentachlorodibenzofuran	2,3,4,7,8-PeCDF	57117-31-4	200
1,2,3,4,7,8-Hexachlorodibenzofuran	1,2,3,4,7,8-HxCDF	70648-26-9	200
1,2,3,6,7,8-Hexachlorodibenzofuran	1,2,3,6,7,8-HxCDF	57117-44-9	200
1,2,3,7,8,9-Hexachlorodibenzofuran	1,2,3,7,8,9-HxCDF	72918-21-9	200
2,3,4,6,7,8-Hexachlorodibenzofuran	2,3,4,6,7,8-HxCDF	60851-34-5	200
1,2,3,4,6,7,8-Heptachlorodibenzofuran	1,2,3,4,6,7,8-HpCDF	67562-39-4	200
1,2,3,4,7,8,9-Heptachlorodibenzofuran	1,2,3,4,7,8,9-HpCDF	55673-89-7	200
Octachlorodibenzofuran	OCDF	39001-02-0	400

Certified By: _____ **Date:** 11/05/2021
(mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: **EPA-1613PAR; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

EPA-1613PAR

U.S. EPA Method 1613 Native PCDD/PCDF Precision and Recovery Stock Solution

PRODUCT CODE:	EPA-1613PAR
LOT NUMBER:	13PAR1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/25/2021
LAST TESTED: (mm/dd/yyyy)	11/03/2021
EXPIRY DATE: (mm/dd/yyyy)	11/03/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

J013397
Recd. JR
12/20/21

DESCRIPTION:

EPA-1613PAR is a solution/mixture of all the 2,3,7,8-substituted polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

EPA-1613PAR was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

The individual PCDDs and PCDFs all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, ...x_n$ on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613PAR; Components and Concentrations (ng/mL, ± 5% in nonane/2.4% toluene)**

Compound	Acronym	CAS #	Concentration (ng/mL)
PCDDs:			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin	2,3,7,8-TCDD	1746-01-6	40.0
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin	1,2,3,7,8-PeCDD	40321-76-4	200
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin	1,2,3,4,7,8-HxCDD	39227-28-6	200
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin	1,2,3,6,7,8-HxCDD	57653-85-7	200
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin	1,2,3,7,8,9-HxCDD	19408-74-3	200
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin	1,2,3,4,6,7,8-HpCDD	35822-46-9	200
Octachlorodibenzo-*p*-dioxin	OCDD	3268-87-9	400
PCDFs:			
2,3,7,8-Tetrachlorodibenzofuran	2,3,7,8-TCDF	51207-31-9	40.0
1,2,3,7,8-Pentachlorodibenzofuran	1,2,3,7,8-PeCDF	57117-41-6	200
2,3,4,7,8-Pentachlorodibenzofuran	2,3,4,7,8-PeCDF	57117-31-4	200
1,2,3,4,7,8-Hexachlorodibenzofuran	1,2,3,4,7,8-HxCDF	70648-26-9	200
1,2,3,6,7,8-Hexachlorodibenzofuran	1,2,3,6,7,8-HxCDF	57117-44-9	200
1,2,3,7,8,9-Hexachlorodibenzofuran	1,2,3,7,8,9-HxCDF	72918-21-9	200
2,3,4,6,7,8-Hexachlorodibenzofuran	2,3,4,6,7,8-HxCDF	60851-34-5	200
1,2,3,4,6,7,8-Heptachlorodibenzofuran	1,2,3,4,6,7,8-HpCDF	67562-39-4	200
1,2,3,4,7,8,9-Heptachlorodibenzofuran	1,2,3,4,7,8,9-HpCDF	55673-89-7	200
Octachlorodibenzofuran	OCDF	39001-02-0	400

Certified By: _____ **Date:** 11/05/2021
(mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: **EPA-1613PAR; HRGC/HRMS Data (60 m DB-5 Column)**

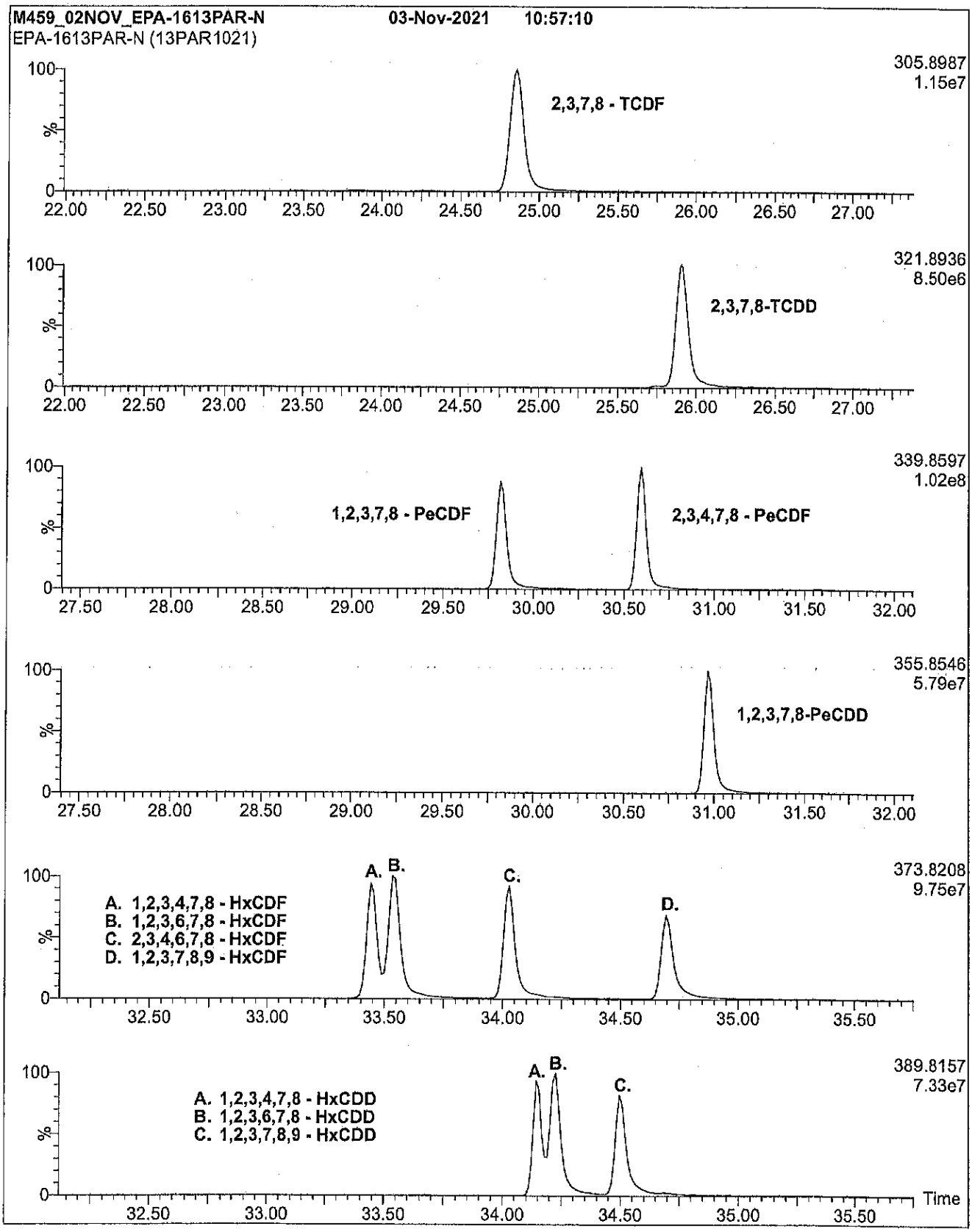
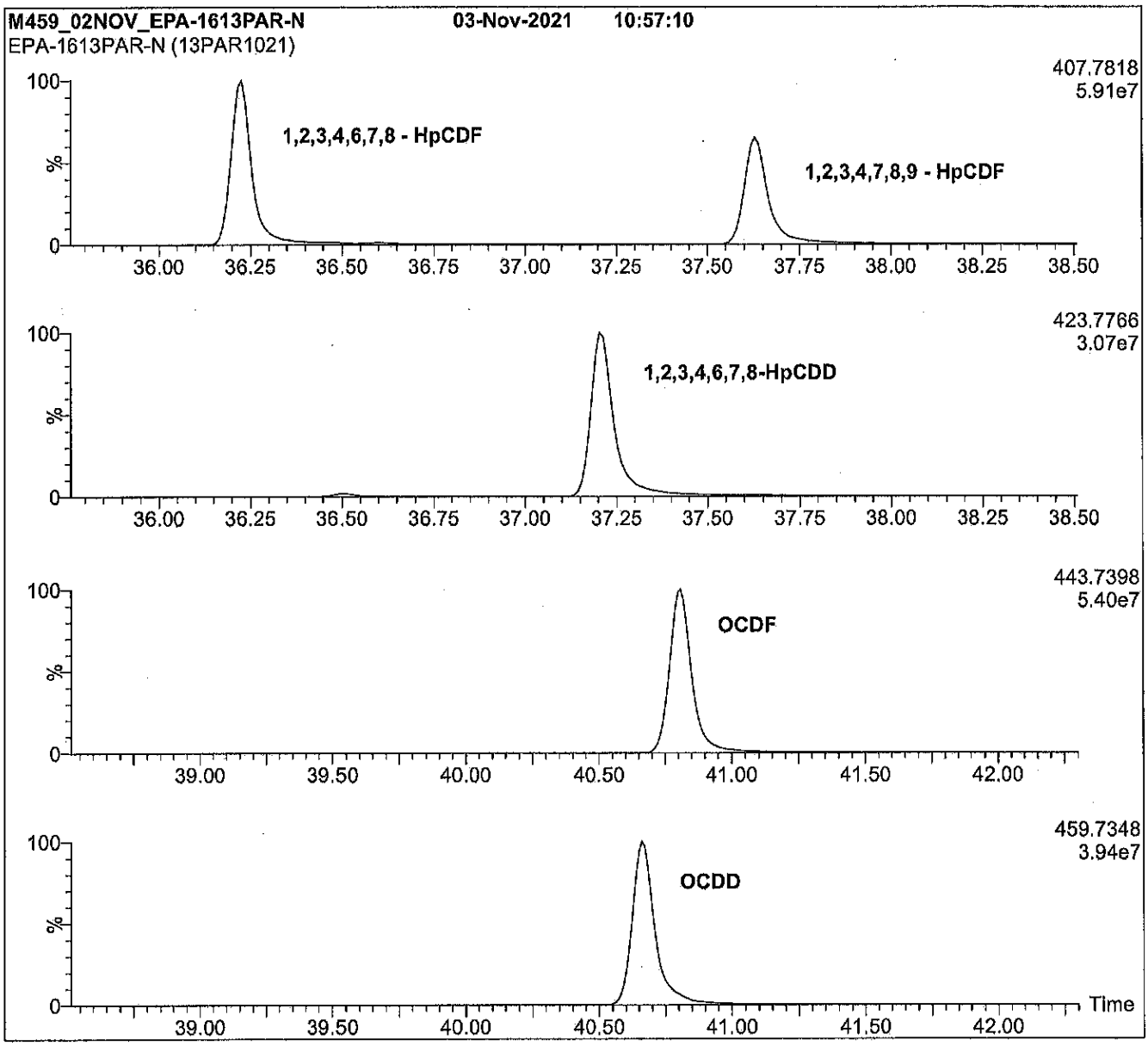


Figure 1: **EPA-1613PAR; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

K9821

CS3WT

Calibration and Verification Solution (EPA-1613CS3) combined with Window Defining and 2,3,7,8-TCDD Resolution Testing Congeners

PRODUCT CODE:	CS3WT
LOT NUMBER:	CS3WT1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	11/01/2021
LAST TESTED: (mm/dd/yyyy)	11/02/2021
EXPIRY DATE: (mm/dd/yyyy)	11/02/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

CS3WT is a solution/mixture of native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$) polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Tables A and B.

CS3WT is an HRGC/HRMS calibration solution that was designed and prepared to be used according to U.S. EPA Method 1613, Revision B, in place of EPA-1613CS3 (lot: 13CS31021). Additionally, it contains the PCDD and PCDF isomers required to set retention time windows as well as test and establish isomer specificity for 2,3,7,8-TCDD on a DB-5 (or equivalent) capillary column.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-($^{37}Cl_4$)tetrachlorodibenzo-*p*-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%. The individual native 2,3,7,8-substituted PCDD and PCDF congeners all have chemical purities of >98%; the other congeners (window defining and resolution testing) should only be considered semi-quantitative.

This current lot of CS3WT is to be used with the 1613 calibration solutions having the following lot numbers:

PRODUCT CODE	LOT NUMBER
EPA-1613CS1	13CS11021
EPA-1613CS2	13CS21021
EPA-1613CS3	13CS31021
EPA-1613CS4	13CS41021
EPA-1613CS5	13CS51021
EPA-1613CSL	13CSL1021
EPA-1613CS0.5	13CS0.51021

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INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) has been assigned to the quantitative components in this product. A maximum combined percent relative uncertainty of ±20% has been assigned to the semi-quantitative components in this product.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **CS3WT; Quantitative Components and Concentrations (ng/mL, ± 5%, in nonane/4.5% toluene)**

Compound		Acronym	CAS #	Concentration (ng/mL)
Native PCDDs:	**Designation[a]**			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin		2,3,7,8-TCDD	1746-01-6	10.0
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin		1,2,3,7,8-PeCDD	40321-76-4	50.0
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin		1,2,3,4,7,8-HxCDD	39227-28-6	50.0
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin		1,2,3,6,7,8-HxCDD	57653-85-7	50.0
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin	Last HxCDD[b]	1,2,3,7,8,9-HxCDD	19408-74-3	50.0
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin	Last HpCDD	1,2,3,4,6,7,8-HpCDD	35822-46-9	50.0
Octachlorodibenzo-*p*-dioxin		OCDD	3268-87-9	100
Native PCDFs:	**Designation[a]**			
2,3,7,8-Tetrachlorodibenzofuran		2,3,7,8-TCDF	51207-31-9	10.0
1,2,3,7,8-Pentachlorodibenzofuran		1,2,3,7,8-PeCDF	57117-41-6	50.0
2,3,4,7,8-Pentachlorodibenzofuran		2,3,4,7,8-PeCDF	57117-31-4	50.0
1,2,3,4,7,8-Hexachlorodibenzofuran		1,2,3,4,7,8-HxCDF	70648-26-9	50.0
1,2,3,6,7,8-Hexachlorodibenzofuran		1,2,3,6,7,8-HxCDF	57117-44-9	50.0
1,2,3,7,8,9-Hexachlorodibenzofuran		1,2,3,7,8,9-HxCDF	72918-21-9	50.0
2,3,4,6,7,8-Hexachlorodibenzofuran		2,3,4,6,7,8-HxCDF	60851-34-5	50.0
1,2,3,4,6,7,8-Heptachlorodibenzofuran	First HpCDF[c]	1,2,3,4,6,7,8-HpCDF	67562-39-4	50.0
1,2,3,4,7,8,9-Heptachlorodibenzofuran	Last HpCDF	1,2,3,4,7,8,9-HpCDF	55673-89-7	50.0
Octachlorodibenzofuran		OCDF	39001-02-0	100
Mass-Labelled PCDDs:				
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-2,3,7,8-TCDD	76523-40-5	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,7,8-PeCDD	109719-79-1	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	109719-80-4	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	109719-81-5	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	109719-83-7	100
Octachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-OCDD	114423-97-1	200
Mass-Labelled PCDFs:				
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,7,8-TCDF	89059-46-1	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,7,8-PeCDF	109719-77-9	100
2,3,4,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,4,7,8-PeCDF	116843-02-8	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	114423-98-2	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	116843-03-9	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	116843-04-0	100
2,3,4,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	116843-05-1	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	109719-84-8	100
1,2,3,4,7,8,9-Heptachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	109719-94-0	100
Cleanup Standard:				
2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin		$^{37}Cl_4$-2,3,7,8-TCDD	85508-50-5	10.0
Internal Standards:				
1,2,3,4-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4-TCDD	114423-99-3	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	109719-82-6	100

[a] First/Last eluting isomer for the specified homologue group (see Table B for additional Window Definers).
[b, c] – see Table B for footnote.

Table B: **CS3WT; Semi-Quantitative Components and Concentrations (ng/mL, ± 20%, in nonane/4.5% toluene)**

Compound		Acronym	CAS #	Concentration (ng/mL)
PCDD Window Definers:	**Designation[a]**			
1,3,6,8-Tetrachlorodibenzo-*p*-dioxin	First TCDD	1,3,6,8-TCDD	33423-92-6	10.0
1,2,8,9-Tetrachlorodibenzo-*p*-dioxin	Last TCDD	1,2,8,9-TCDD	62470-54-6	10.0
1,2,4,6,8-/1,2,4,7,9-Pentachlorodibenzo-*p*-dioxin	First PeCDD	1,2,4,6,8-PeCDD 1,2,4,7,9-PeCDD	71998-76-0 82291-37-0	50.0[d]
1,2,3,8,9-Pentachlorodibenzo-*p*-dioxin	Last PeCDD	1,2,3,8,9-PeCDD	71925-18-3	50.0
1,2,4,6,7,9-Hexachlorodibenzo-*p*-dioxin	First HxCDD	1,2,4,6,7,9-HxCDD	39227-62-8	50.0
1,2,3,4,6,7,9-Heptachlorodibenzo-*p*-dioxin	First HpCDD	1,2,3,4,6,7,9-HpCDD	58200-70-7	50.0
PCDF Window Definers:	**Designation[a]**			
1,3,6,8-Tetrachlorodibenzofuran	First TCDF	1,3,6,8-TCDF	71998-72-6	10.0
1,2,8,9-Tetrachlorodibenzofuran	Last TCDF	1,2,8,9-TCDF	70648-22-5	10.0
1,3,4,6,8-Pentachlorodibenzofuran	First PeCDF	1,3,4,6,8-PeCDF	83704-55-6	50.0
1,2,3,8,9-Pentachlorodibenzofuran	Last PeCDF	1,2,3,8,9-PeCDF	83704-54-5	50.0
1,2,3,4,6,8-Hexachlorodibenzofuran	First HxCDF	1,2,3,4,6,8-HxCDF	69698-60-8	50.0
2,3,7,8-TCDD Resolution Testing Isomers:				
1,2,3,4-Tetrachlorodibenzo-*p*-dioxin		1,2,3,4-TCDD	30746-58-8	5.00
1,2,3,7-/1,2,3,8-Tetrachlorodibenzo-*p*-dioxin		1,2,3,7-TCDD 1,2,3,8-TCDD	67028-18-6 53555-02-5	5.00[d]
1,2,3,9-Tetrachlorodibenzo-*p*-dioxin		1,2,3,9-TCDD	71669-26-6	10.0

[a] First/Last eluting isomer for the specified homologue group (see Table A for additional Window Definers).

[b] 1,2,3,4,6,7-HxCDD (last eluting HxCDD) not included; coelutes with 1,2,3,7,8,9-HxCDD on a 60 m DB-5 column. Use 1,2,3,7,8,9-HxCDD (see Table A) and 1,2,3,4,6,7,9-HpCDD to approximate the end of the HxCDD window.

[c] 1,2,3,4,8,9-HxCDF (last eluting HxCDF) not included; can interfere with 1,2,3,7,8,9-HxCDF on a 60 m DB-5 column. Use 1,2,3,4,6,7,8-HpCDF (see Table A) to approximate the end of the HxCDF window.

[d] Total concentration of isomers.

Certified By: _____ **Date:** 11/05/2021 (mm/dd/yyyy)

B.G. Chittim, General Manager

Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

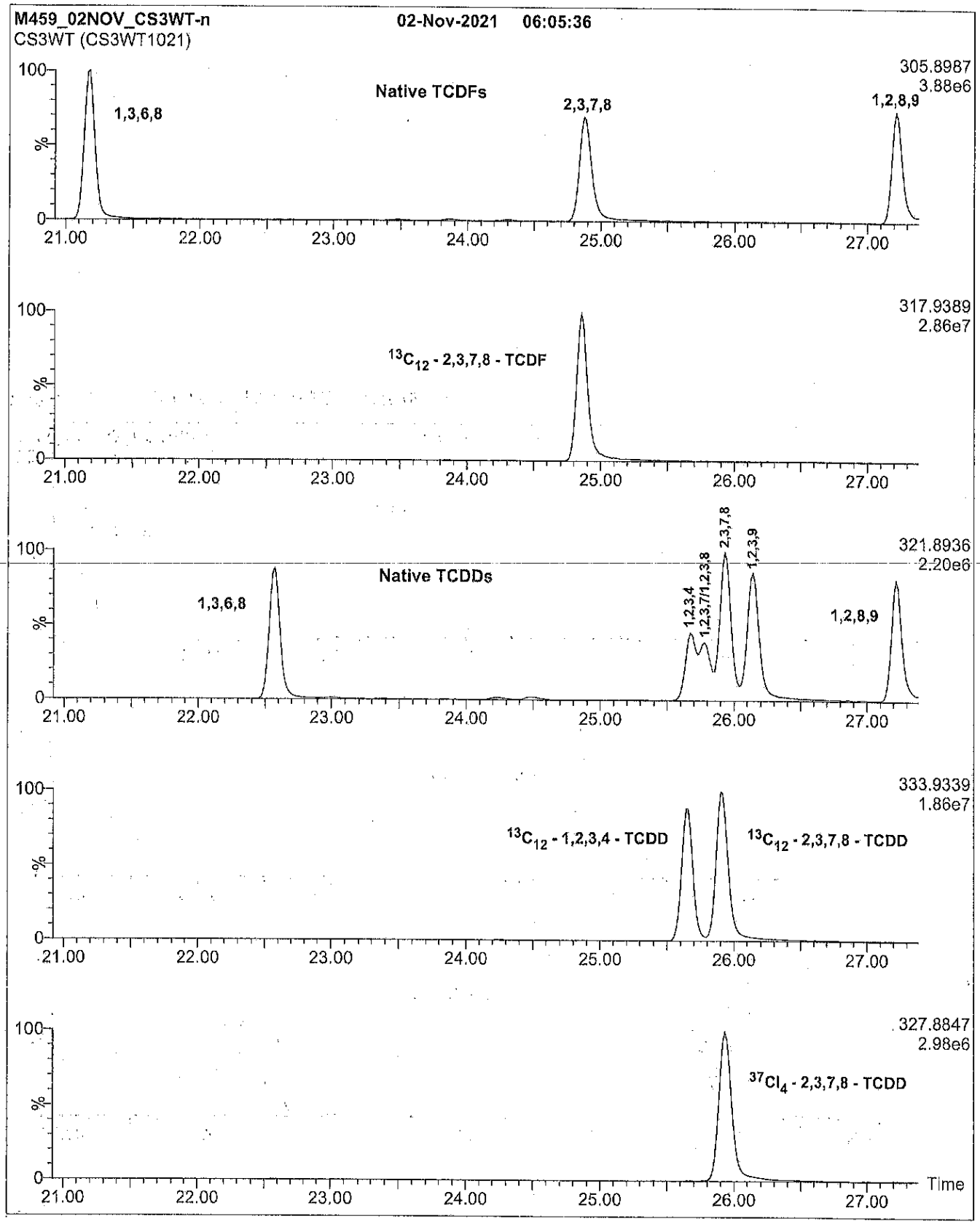


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

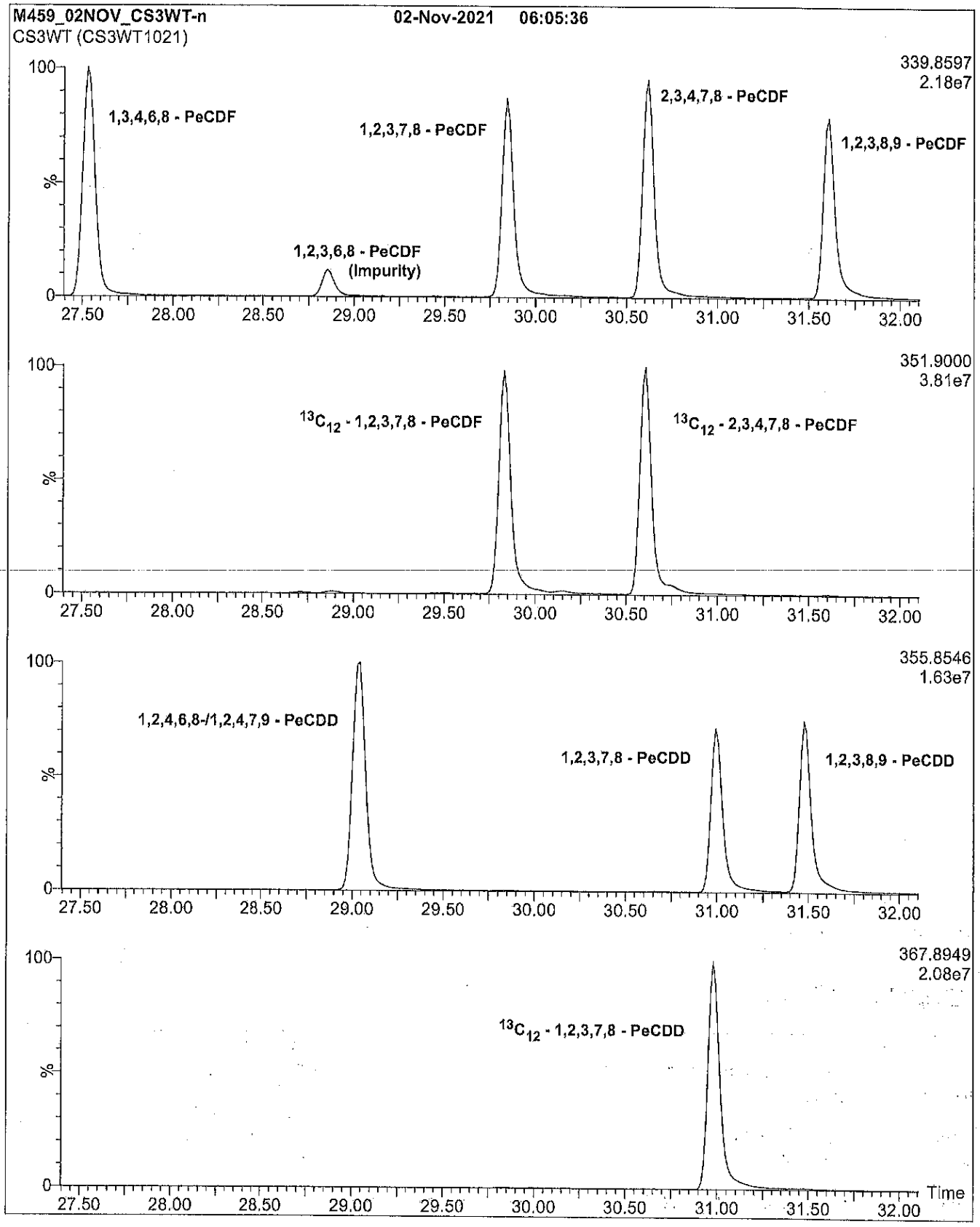


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

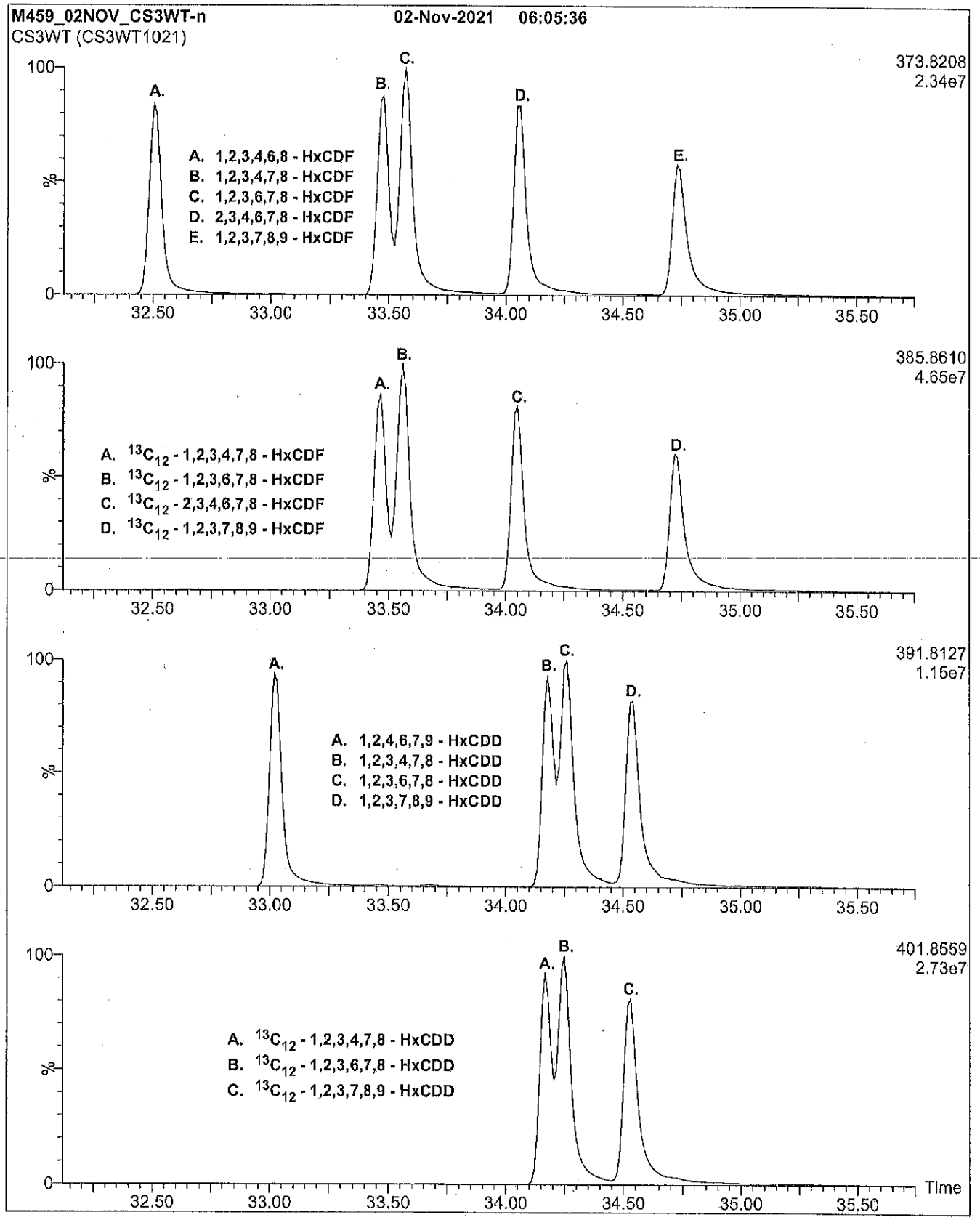


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

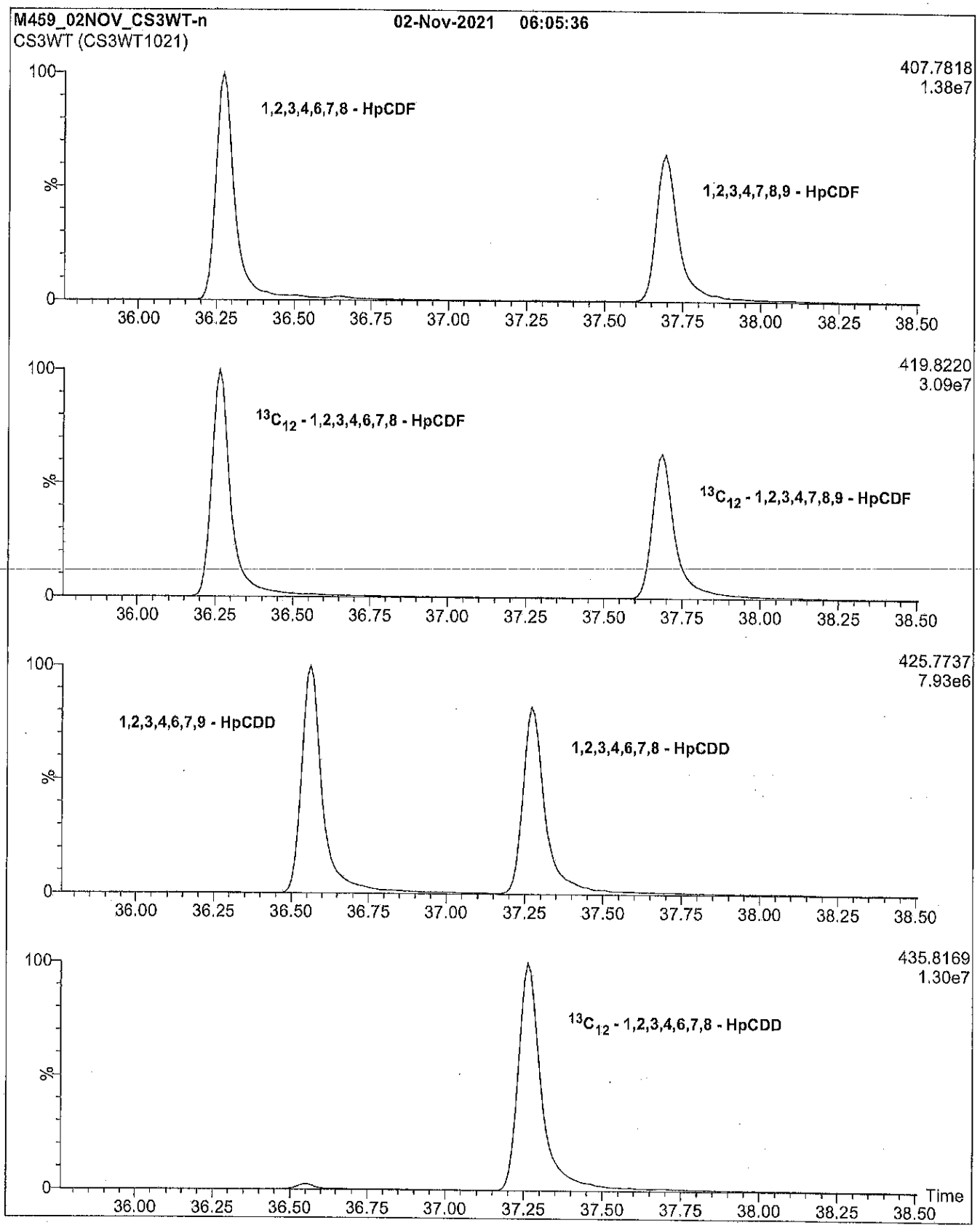
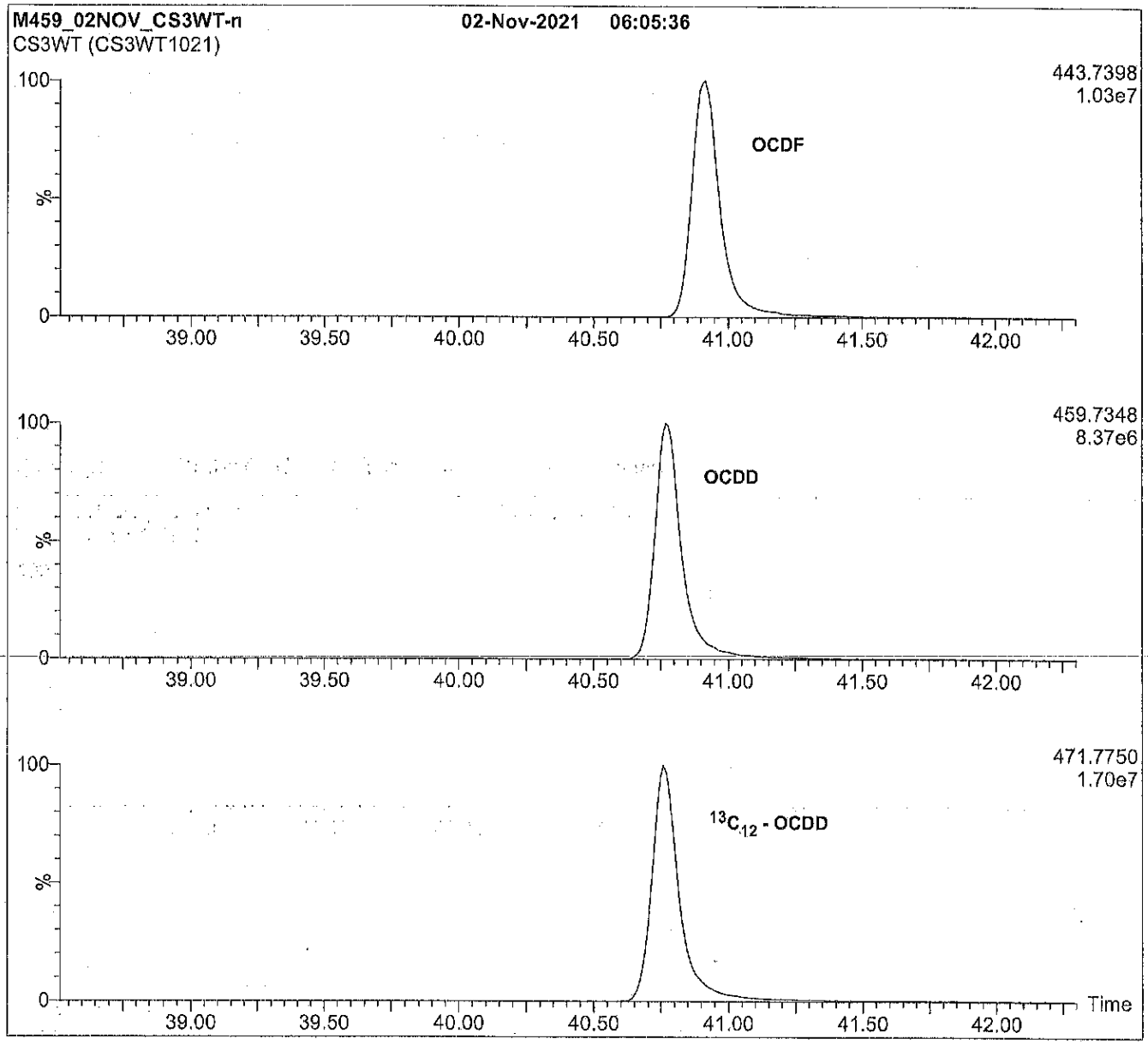


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Standard Record

Standard ID: L002084 **Printed: 3/2/2023 8:59:18AM**

Description:	Dioxin ISC Mix	Expires:	24-Feb-2024
Standard Type:	Other	Prepared:	24-Feb-2023
Solvent:	Nonane	Prepared By:	Peter Kepler
Final Volume (mls):	1	Department:	HRGCMS
Vials:	1	Last Edit:	24-Feb-2023 11:19 by PK
Vendor:	NA	Lot #:	1234
Vendor Catalog #:			

Comments

Stock: H9902: 2378-TCDF, 3467-TCDF, 2348-TCDF, 1278-TCDD, 2378-TCDD. each @ 1000 ng/mL

10 ul to 1 mL FV in Nonane. Final Conc = 10 ng/mL. Analytes and units not available in Element.

Analyte	CAS Number	Concentration	Units
2,3,7,8-TCDF	51207-31-9	10	ug/mL
2,3,7,8-TCDD	1746-01-6	10	ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

CS3WT

Calibration and Verification Solution (EPA-1613CS3) combined with Window Defining and 2,3,7,8-TCDD Resolution Testing Congeners

PRODUCT CODE:	CS3WT
LOT NUMBER:	CS3WT1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	11/01/2021
LAST TESTED: (mm/dd/yyyy)	11/02/2021
EXPIRY DATE: (mm/dd/yyyy)	11/02/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

LOO 6734

DESCRIPTION:

CS3WT is a solution/mixture of native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$) polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Tables A and B.

CS3WT is an HRGC/HRMS calibration solution that was designed and prepared to be used according to U.S. EPA Method 1613, Revision B, in place of EPA-1613CS3 (lot: 13CS31021). Additionally, it contains the PCDD and PCDF isomers required to set retention time windows as well as test and establish isomer specificity for 2,3,7,8-TCDD on a DB-5 (or equivalent) capillary column.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-($^{37}Cl_4$)tetrachlorodibenzo-*p*-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%. The individual native 2,3,7,8-substituted PCDD and PCDF congeners all have chemical purities of >98%; the other congeners (window defining and resolution testing) should only be considered semi-quantitative.

This current lot of CS3WT is to be used with the 1613 calibration solutions having the following lot numbers:

PRODUCT CODE	LOT NUMBER
EPA-1613CS1	13CS11021
EPA-1613CS2	13CS21021
EPA-1613CS3	13CS31021
EPA-1613CS4	13CS41021
EPA-1613CS5	13CS51021
EPA-1613CSL	13CSL1021
EPA-1613CS0.5	13CS0.51021

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Quantitative Components and Concentrations of the Solution/Mixture
Table B: Semi-Quantitative Components and Concentrations of the Solution/Mixture
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.
- Only the 2,3,7,8-substituted PCDDs and PCDFs should be used for quantitation. The other congeners (window defining and 2,3,7,8-TCDD resolution testing) should be considered semi-quantitative (within ±20% of their design value). Impurities have been identified where possible.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) has been assigned to the quantitative components in this product. A maximum combined percent relative uncertainty of ±20% has been assigned to the semi-quantitative components in this product.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **CS3WT; Quantitative Components and Concentrations (ng/mL, ± 5%, in nonane/4.5% toluene)**

Compound		Acronym	CAS #	Concentration (ng/mL)
Native PCDDs:	**Designation[a]**			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin		2,3,7,8-TCDD	1746-01-6	10.0
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin		1,2,3,7,8-PeCDD	40321-76-4	50.0
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin		1,2,3,4,7,8-HxCDD	39227-28-6	50.0
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin		1,2,3,6,7,8-HxCDD	57653-85-7	50.0
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin	Last HxCDD[b]	1,2,3,7,8,9-HxCDD	19408-74-3	50.0
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin	Last HpCDD	1,2,3,4,6,7,8-HpCDD	35822-46-9	50.0
Octachlorodibenzo-*p*-dioxin		OCDD	3268-87-9	100
Native PCDFs:	**Designation[a]**			
2,3,7,8-Tetrachlorodibenzofuran		2,3,7,8-TCDF	51207-31-9	10.0
1,2,3,7,8-Pentachlorodibenzofuran		1,2,3,7,8-PeCDF	57117-41-6	50.0
2,3,4,7,8-Pentachlorodibenzofuran		2,3,4,7,8-PeCDF	57117-31-4	50.0
1,2,3,4,7,8-Hexachlorodibenzofuran		1,2,3,4,7,8-HxCDF	70648-26-9	50.0
1,2,3,6,7,8-Hexachlorodibenzofuran		1,2,3,6,7,8-HxCDF	57117-44-9	50.0
1,2,3,7,8,9-Hexachlorodibenzofuran		1,2,3,7,8,9-HxCDF	72918-21-9	50.0
2,3,4,6,7,8-Hexachlorodibenzofuran		2,3,4,6,7,8-HxCDF	60851-34-5	50.0
1,2,3,4,6,7,8-Heptachlorodibenzofuran	First HpCDF[c]	1,2,3,4,6,7,8-HpCDF	67562-39-4	50.0
1,2,3,4,7,8,9-Heptachlorodibenzofuran	Last HpCDF	1,2,3,4,7,8,9-HpCDF	55673-89-7	50.0
Octachlorodibenzofuran		OCDF	39001-02-0	100
Mass-Labelled PCDDs:				
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-2,3,7,8-TCDD	76523-40-5	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,7,8-PeCDD	109719-79-1	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	109719-80-4	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	109719-81-5	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	109719-83-7	100
Octachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-OCDD	114423-97-1	200
Mass-Labelled PCDFs:				
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,7,8-TCDF	89059-46-1	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,7,8-PeCDF	109719-77-9	100
2,3,4,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,4,7,8-PeCDF	116843-02-8	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	114423-98-2	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	116843-03-9	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	116843-04-0	100
2,3,4,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	116843-05-1	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	109719-84-8	100
1,2,3,4,7,8,9-Heptachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	109719-94-0	100
Cleanup Standard:				
2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin		$^{37}Cl_4$-2,3,7,8-TCDD	85508-50-5	10.0
Internal Standards:				
1,2,3,4-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4-TCDD	114423-99-3	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	109719-82-6	100

[a] First/Last eluting isomer for the specified homologue group (see Table B for additional Window Definers).
[b, c] – see Table B for footnote.

Table B: **CS3WT; Semi-Quantitative Components and Concentrations (ng/mL, ± 20%, in nonane/4.5% toluene)**

Compound		Acronym	CAS #	Concentration (ng/mL)
PCDD Window Definers:	**Designation[a]**			
1,3,6,8-Tetrachlorodibenzo-*p*-dioxin	First TCDD	1,3,6,8-TCDD	33423-92-6	10.0
1,2,8,9-Tetrachlorodibenzo-*p*-dioxin	Last TCDD	1,2,8,9-TCDD	62470-54-6	10.0
1,2,4,6,8-/1,2,4,7,9-Pentachlorodibenzo-*p*-dioxin	First PeCDD	1,2,4,6,8-PeCDD 1,2,4,7,9-PeCDD	71998-76-0 82291-37-0	50.0[d]
1,2,3,8,9-Pentachlorodibenzo-*p*-dioxin	Last PeCDD	1,2,3,8,9-PeCDD	71925-18-3	50.0
1,2,4,6,7,9-Hexachlorodibenzo-*p*-dioxin	First HxCDD	1,2,4,6,7,9-HxCDD	39227-62-8	50.0
1,2,3,4,6,7,9-Heptachlorodibenzo-*p*-dioxin	First HpCDD	1,2,3,4,6,7,9-HpCDD	58200-70-7	50.0
PCDF Window Definers:	**Designation[a]**			
1,3,6,8-Tetrachlorodibenzofuran	First TCDF	1,3,6,8-TCDF	71998-72-6	10.0
1,2,8,9-Tetrachlorodibenzofuran	Last TCDF	1,2,8,9-TCDF	70648-22-5	10.0
1,3,4,6,8-Pentachlorodibenzofuran	First PeCDF	1,3,4,6,8-PeCDF	83704-55-6	50.0
1,2,3,8,9-Pentachlorodibenzofuran	Last PeCDF	1,2,3,8,9-PeCDF	83704-54-5	50.0
1,2,3,4,6,8-Hexachlorodibenzofuran	First HxCDF	1,2,3,4,6,8-HxCDF	69698-60-8	50.0
2,3,7,8-TCDD Resolution Testing Isomers:				
1,2,3,4-Tetrachlorodibenzo-*p*-dioxin		1,2,3,4-TCDD	30746-58-8	5.00
1,2,3,7-/1,2,3,8-Tetrachlorodibenzo-*p*-dioxin		1,2,3,7-TCDD 1,2,3,8-TCDD	67028-18-6 53555-02-5	5.00[d]
1,2,3,9-Tetrachlorodibenzo-*p*-dioxin		1,2,3,9-TCDD	71669-26-6	10.0

[a] First/Last eluting isomer for the specified homologue group (see Table A for additional Window Definers).

[b] 1,2,3,4,6,7-HxCDD (last eluting HxCDD) not included; coelutes with 1,2,3,7,8,9-HxCDD on a 60 m DB-5 column. Use 1,2,3,7,8,9-HxCDD (see Table A) and 1,2,3,4,6,7,9-HpCDD to approximate the end of the HxCDD window.

[c] 1,2,3,4,8,9-HxCDF (last eluting HxCDF) not included; can interfere with 1,2,3,7,8,9-HxCDF on a 60 m DB-5 column. Use 1,2,3,4,6,7,8-HpCDF (see Table A) to approximate the end of the HxCDF window.

[d] Total concentration of isomers.

Certified By: _____ **Date:** 11/05/2021 (mm/dd/yyyy)

B.G. Chittim, General Manager

Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

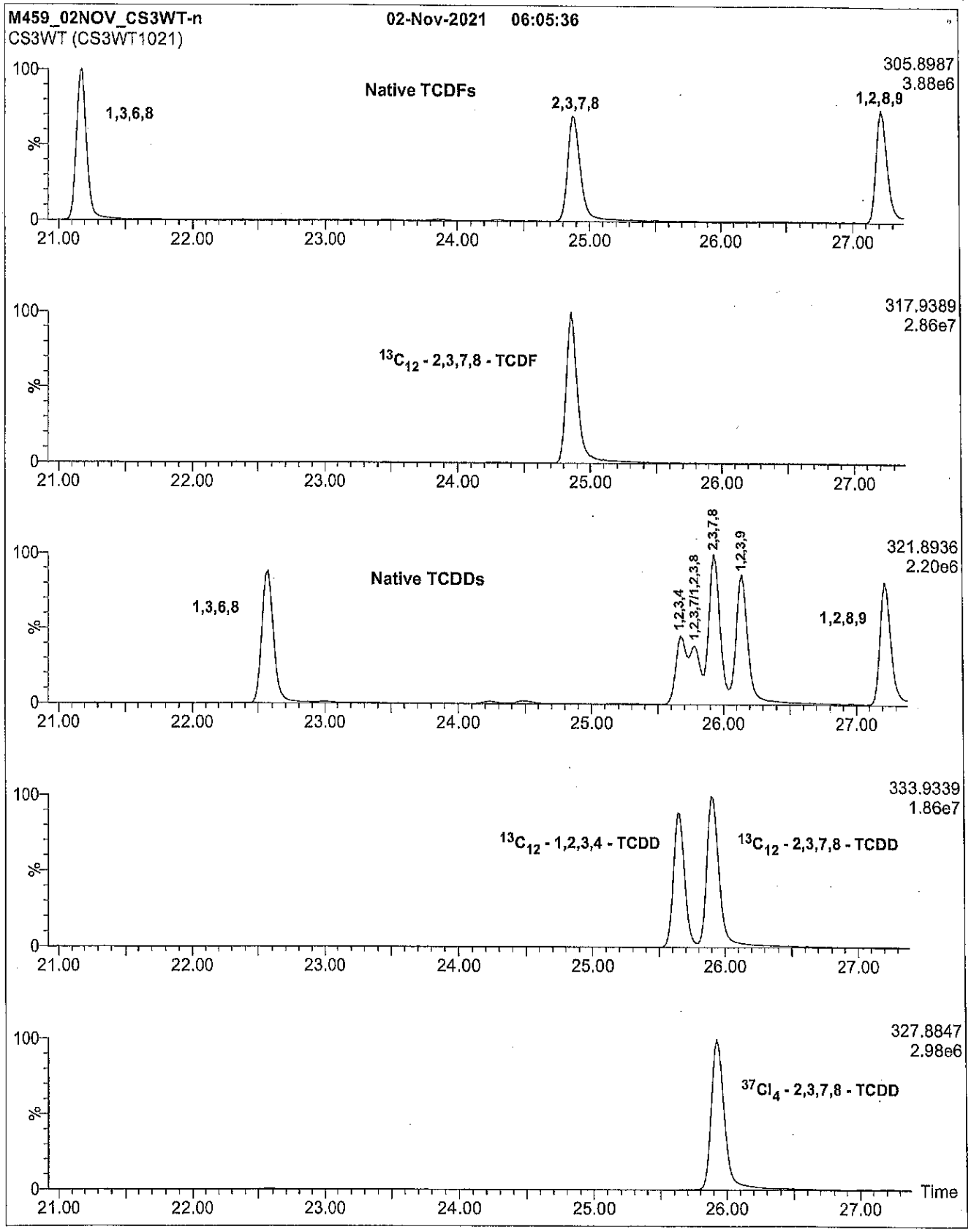


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

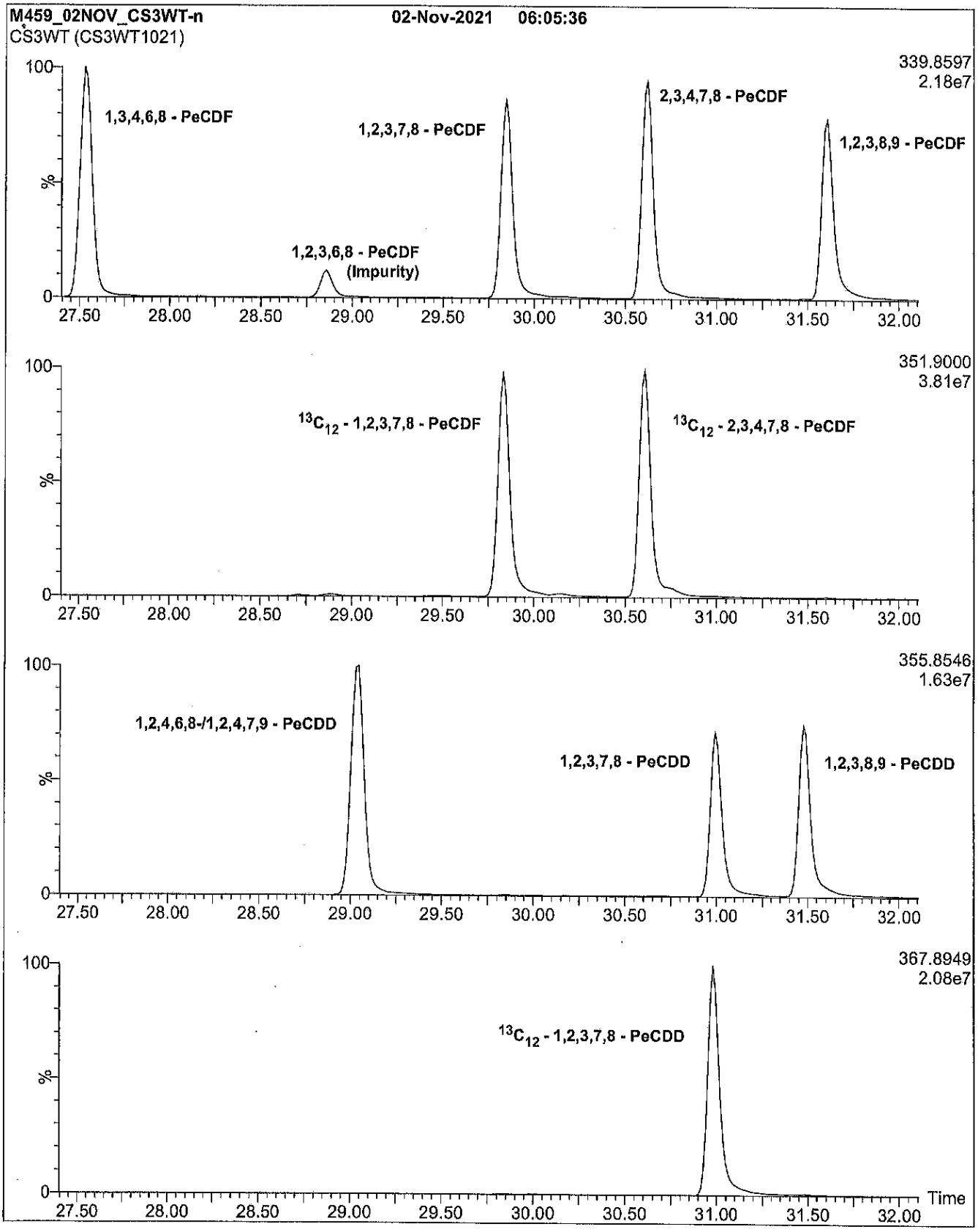


Figure 1: CS3WT; HRGC/HRMS Data (60 m DB-5 Column)

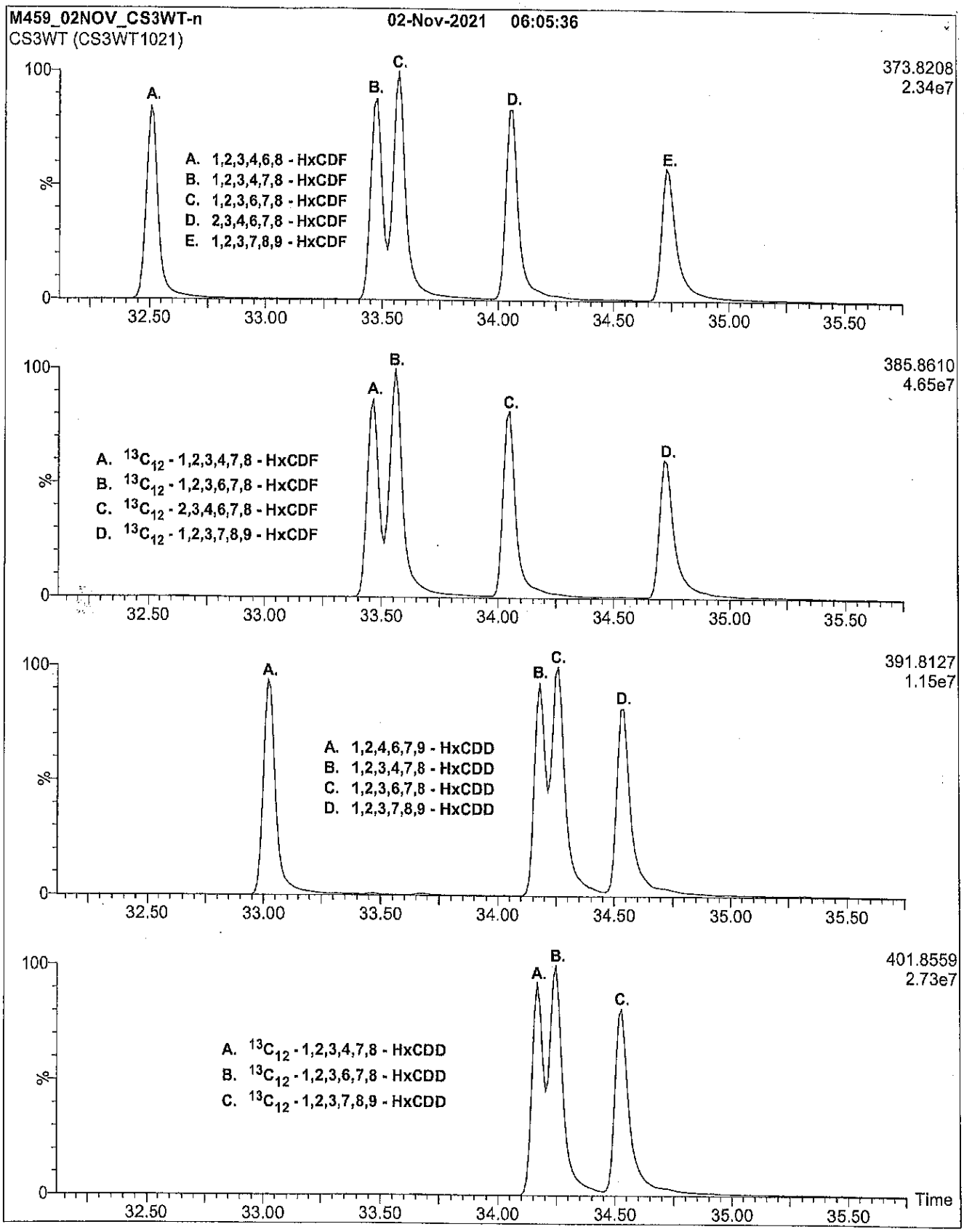


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

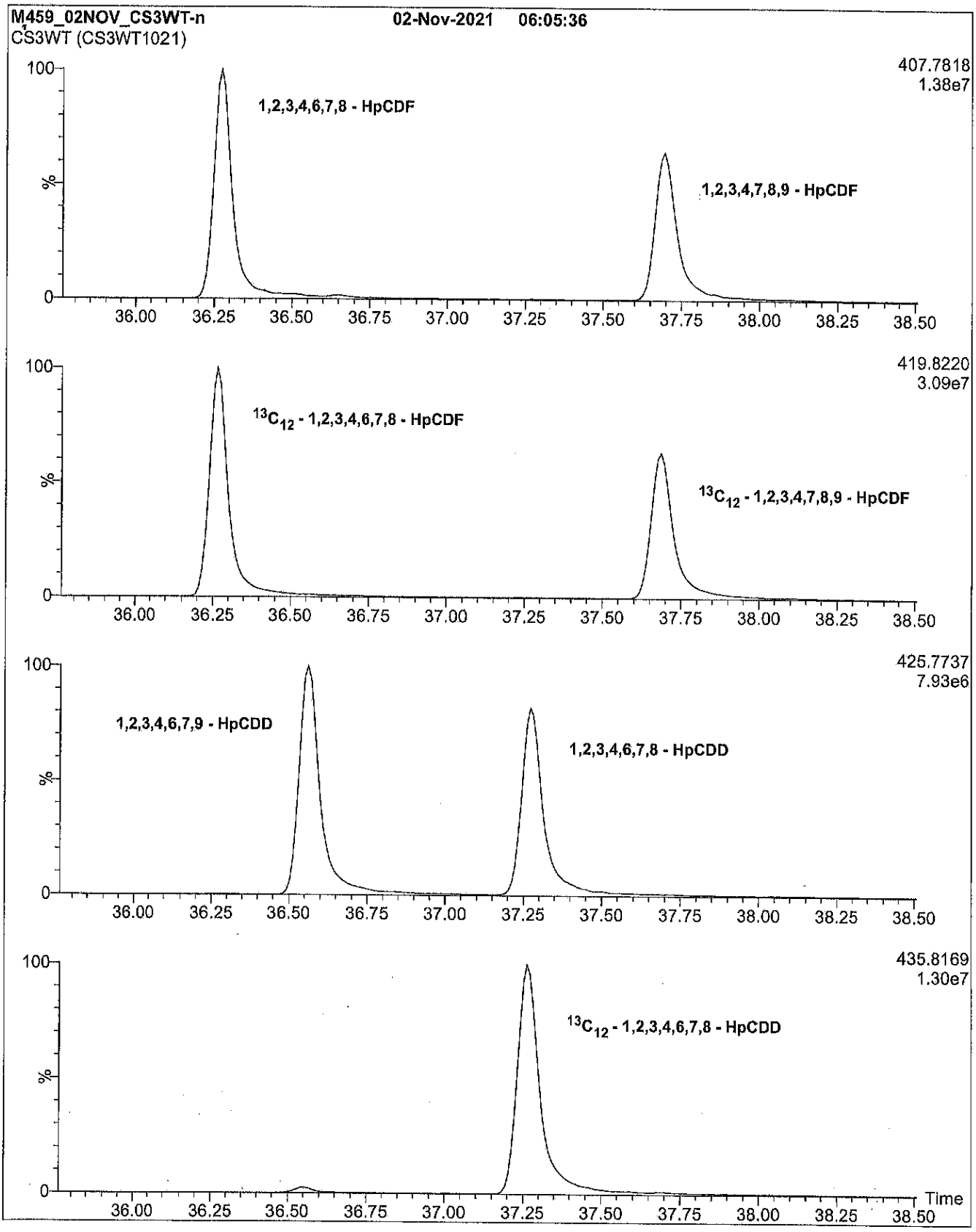
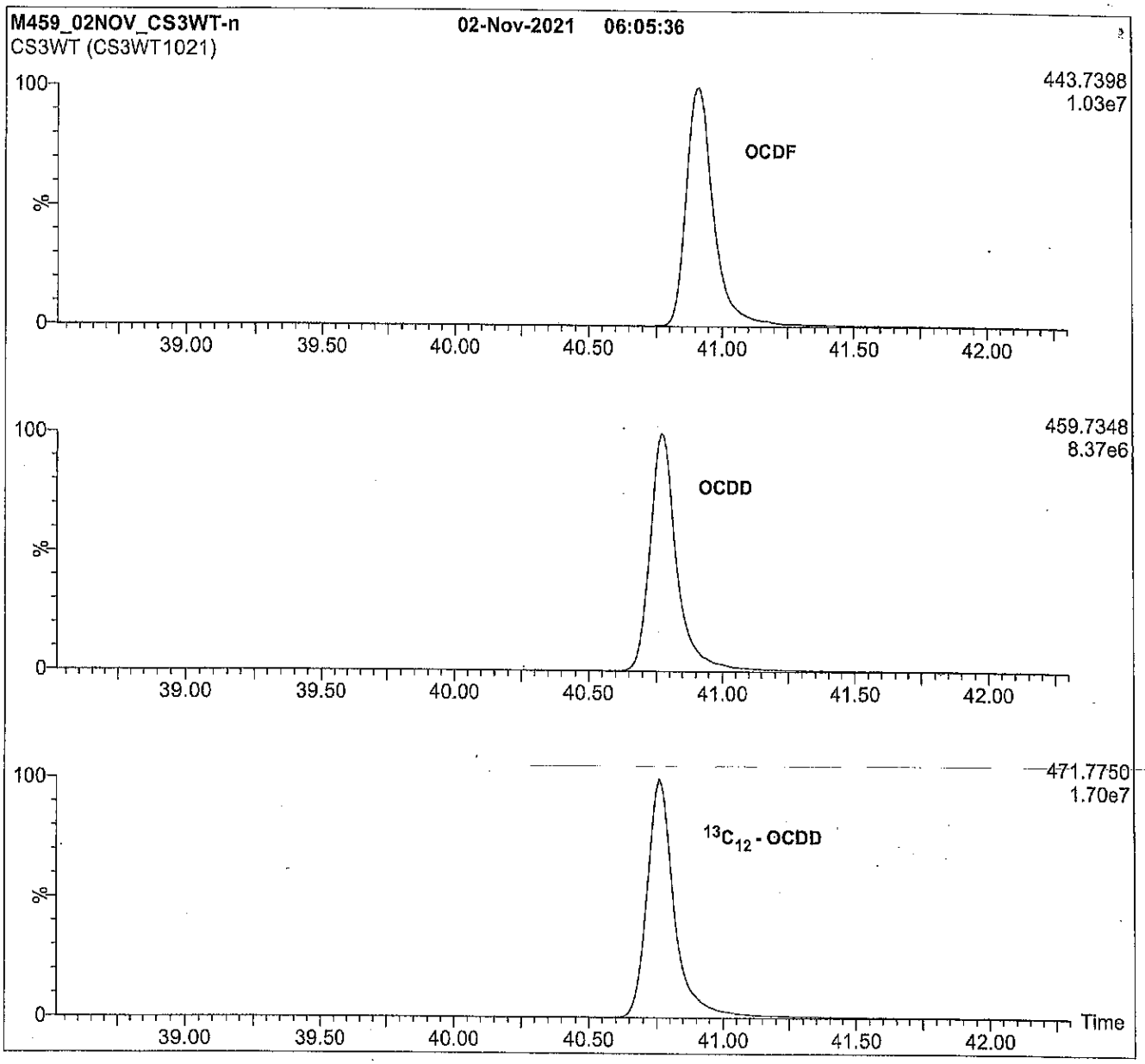


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613LCS

U.S. EPA Method 1613
Labelled Compound Stock Solution

PRODUCT CODE:	EPA-1613LCS
LOT NUMBER:	13LCS1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/29/2021
LAST TESTED: (mm/dd/yyyy)	10/31/2021
EXPIRY DATE: (mm/dd/yyyy)	10/31/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

L 10372

DESCRIPTION:

EPA-1613LCS is a solution/mixture of mass-labelled ($^{13}C_{12}$) polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

EPA-1613LCS was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613LCS; Components and Concentrations (ng/mL, ± 5% in nonane/3.2% toluene)**

Compound	Acronym	CAS #	Concentration (ng/mL)
Mass-Labelled PCDDs:			
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-2,3,7,8-TCDD	76523-40-5	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,7,8-PeCDD	109719-79-1	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	109719-80-4	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	109719-81-5	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	109719-83-7	100
Octachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-OCDD	114423-97-1	200
Mass-Labelled PCDFs:			
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-2,3,7,8-TCDF	89059-46-1	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,7,8-PeCDF	109719-77-9	100
2,3,4,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-2,3,4,7,8-PeCDF	116843-02-8	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	114423-98-2	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	116843-03-9	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	116843-04-0	100
2,3,4,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	116843-05-1	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	109719-84-8	100
1,2,3,4,7,8,9-Heptachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	109719-94-0	100

Certified By: _____ **Date:** 11/05/2021
(mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

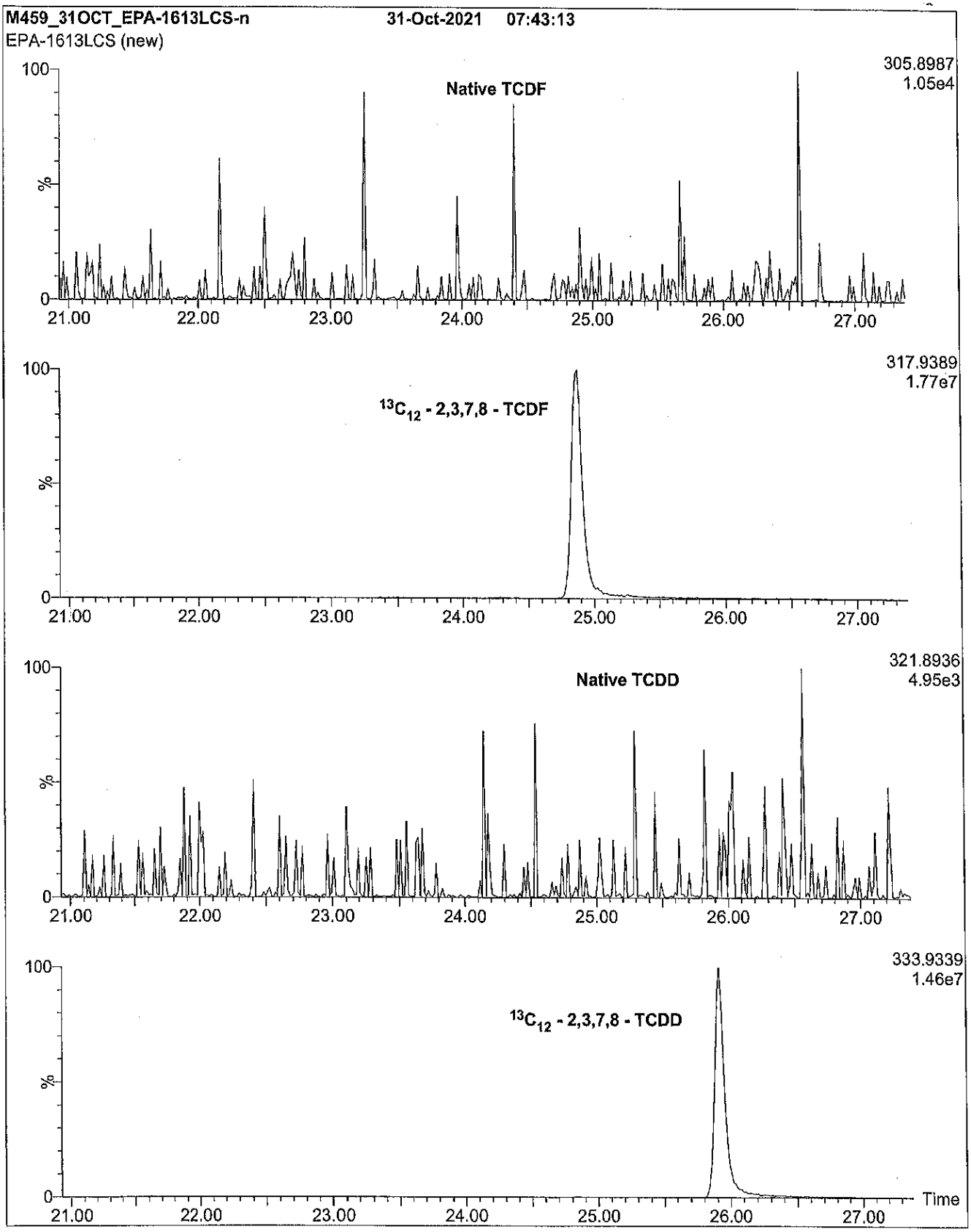


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

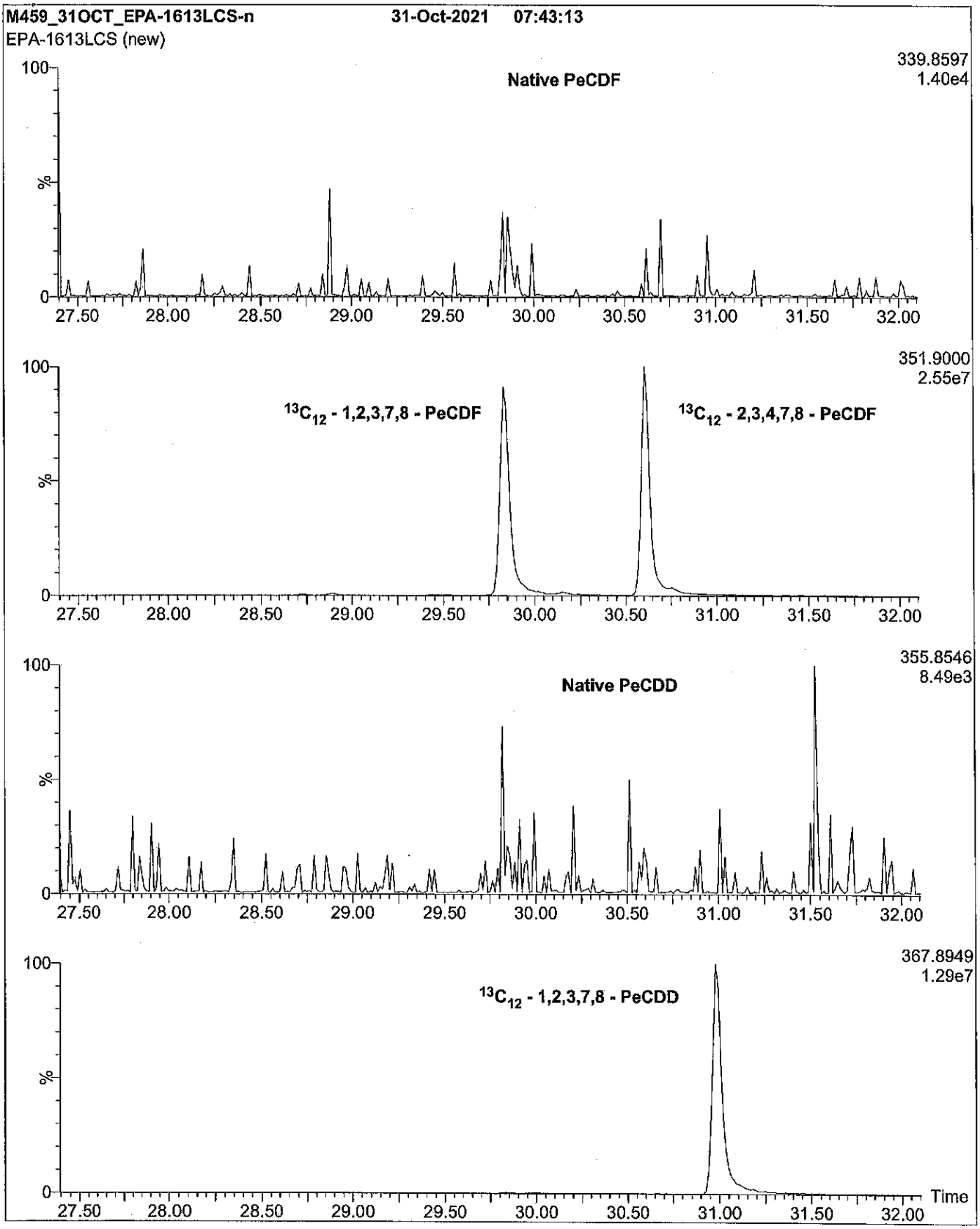


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

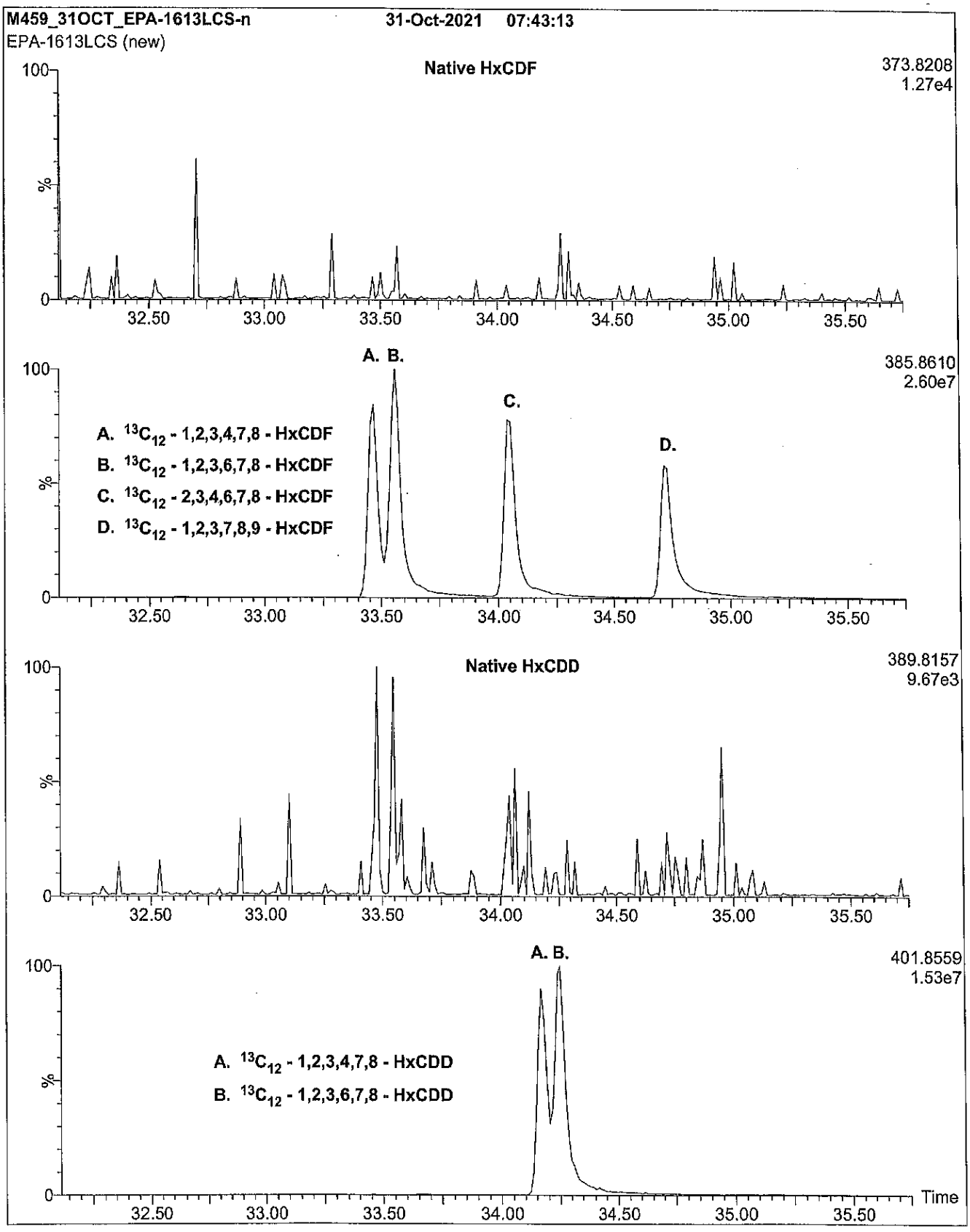


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

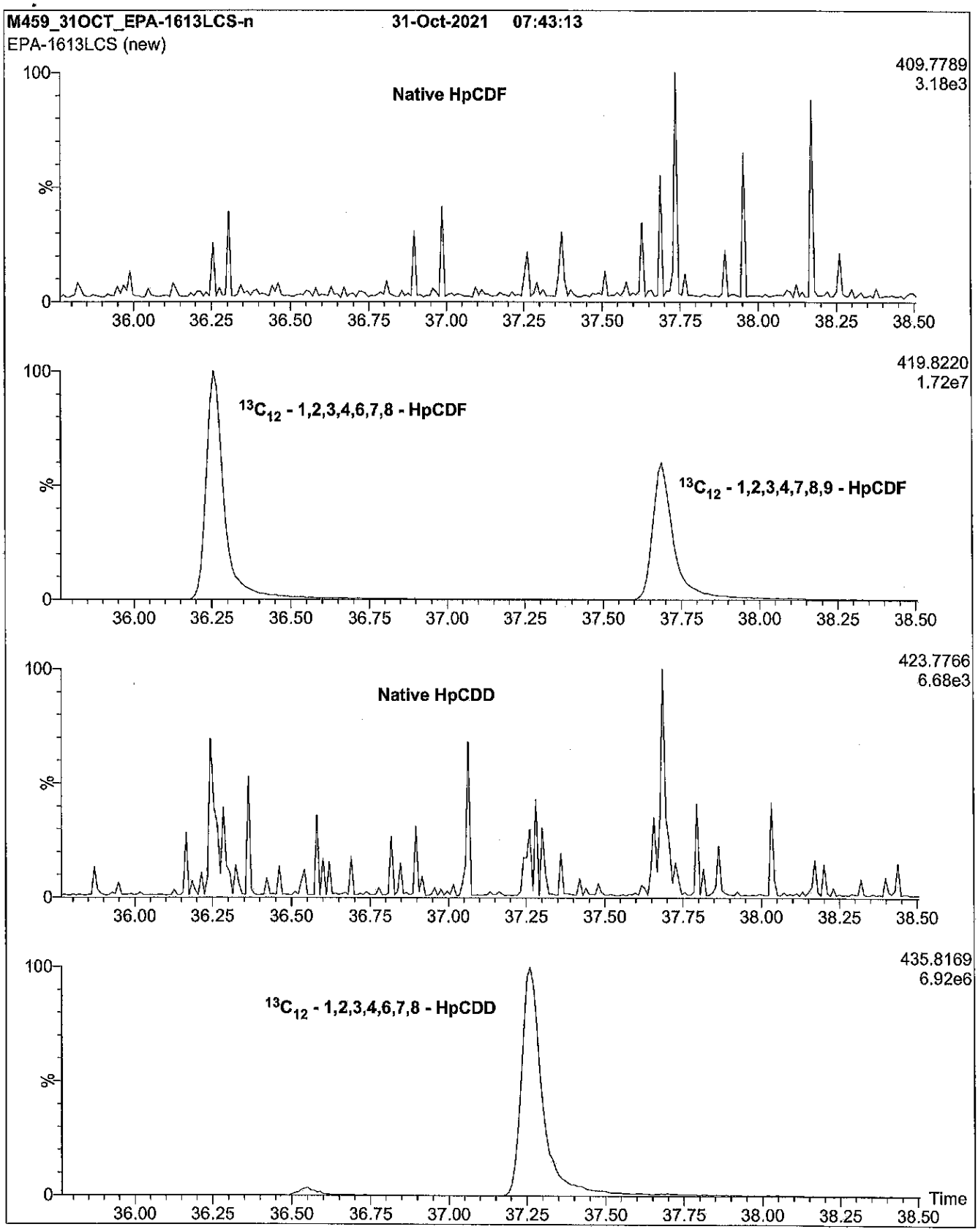
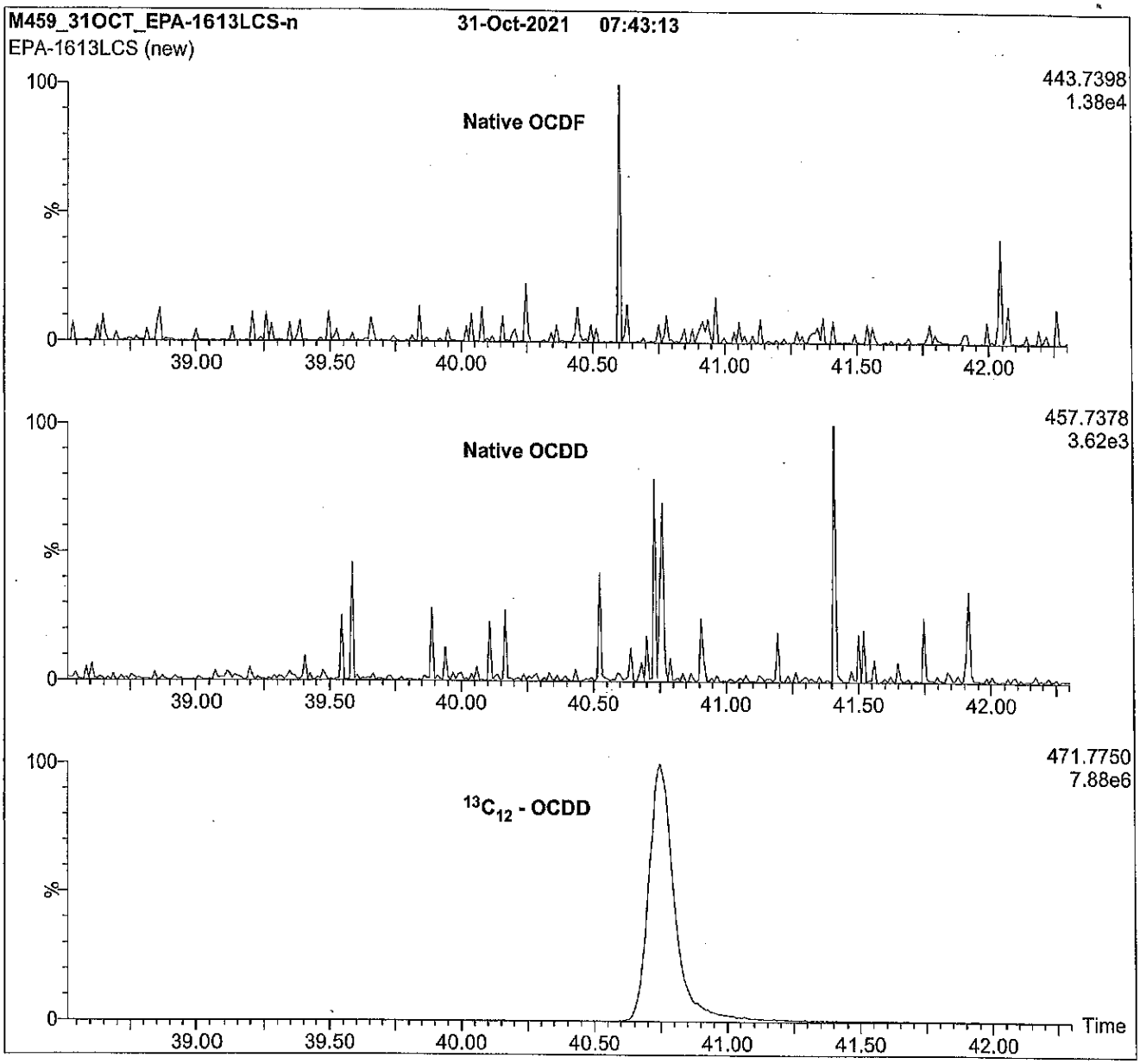


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

EPA-1613CSS

U.S. EPA Method 1613 Cleanup Standard Spiking Solution

PRODUCT CODE:	EPA-1613CSS
LOT NUMBER:	13CSS1021
SOLVENT(S):	Nonane
DATE PREPARED: (mm/dd/yyyy)	10/29/2021
LAST TESTED: (mm/dd/yyyy)	10/31/2021
EXPIRY DATE: (mm/dd/yyyy)	10/31/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

L 10373

DESCRIPTION:

EPA-1613CSS contains 2,3,7,8-($^{37}Cl_4$)tetrachlorodibenzo-*p*-dioxin at the concentration given in Table A.

EPA-1613CSS was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

Table A: EPA-1613CSS; Components and Concentrations (ng/mL, ± 5% in nonane)

Compound	Acronym	CAS #	Concentration (ng/mL)
2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin	$^{37}Cl_4$-2,3,7,8-TCDD	85508-50-5	40.0

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/05/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

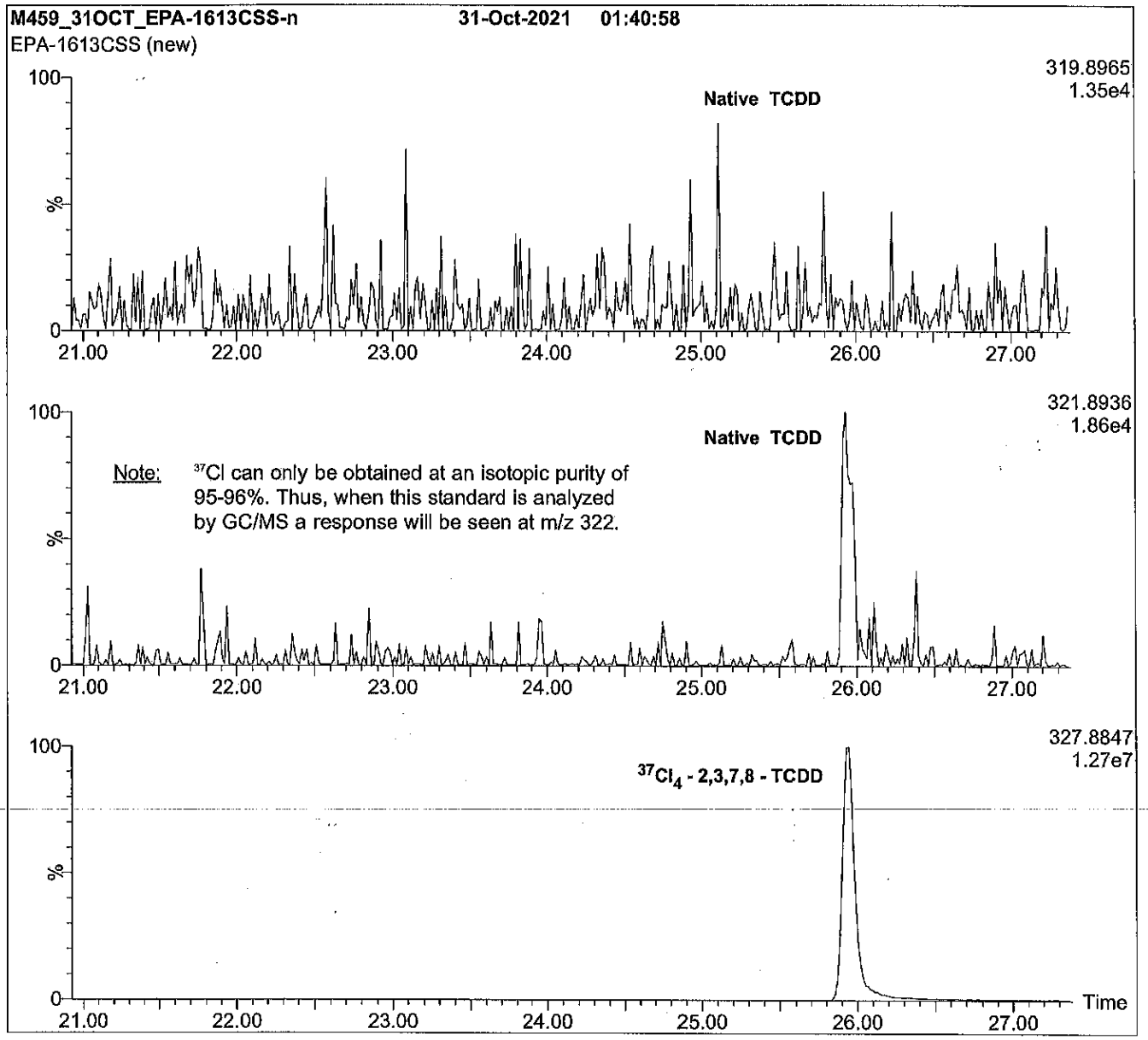
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **EPA-1613CSS; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Standard Record

Standard ID: L013640

Printed: 1/10/2024 1:53:03PM

Description:	Dioxin ISC Mix	Expires:	27-Nov-2024
Standard Type:	Other	Prepared:	27-Nov-2023
Solvent:	Nonane	Prepared By:	Peter Kepler
Final Volume (mls):	1	Department:	HRGCMS
Vials:	1	Last Edit:	27-Nov-2023 10:51 by PK
Vendor:	NA	Lot #:	1234
Vendor Catalog #:			

Comments

Stock: H9902: 2378-TCDF, 3467-TCDF, 2348-TCDF, 1278-TCDD, 2378-TCDD. each @ 1000 ng/mL

10 ul to 1 mL FV in Nonane. Final Conc = 10 ng/mL. Analytes and units not available in Element.

Analyte	CAS Number	Concentration	Units
2,3,7,8-TCDF	51207-31-9	10	ug/mL
2,3,7,8-TCDD	1746-01-6	10	ug/mL

Analytical Resources, LLC
Analytical Chemists and Consultants

PREPARATION BATCH SUMMARY

ASTM D2216

Laboratory:	Analytical Resources, LLC			SDG:	23L0564
Client:	Floyd - Snider			Project:	Smith-Kem
Batch:	BLL0737	Batch Matrix:	Solid	Preparation:	No Prep-Organics

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
H4H-01-0.5-1.0	23L0564-01		12/28/23 12:38	
H4H-02-0.5-1.0	23L0564-02		12/28/23 12:38	
H4H-03-0.5-1.0	23L0564-03		12/28/23 12:38	
H4H-04-0.5-1.0	23L0564-04		12/28/23 12:38	

Analytical Resources, LLC
Analytical Chemists and Consultants

HOLDING TIME SUMMARY

Analysis: ASTM D2216

Laboratory: Analytical Resources, LLC
SDG: 23L0564
Client: Floyd - Snider
Project: Smith-Kem

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
H4H-01-0.5-1.0 23L0564-01	09/07/23 09:40	09/08/23 11:58	12/28/23 12:38	112	365	12/29/23 05:05	113	365	
H4H-02-0.5-1.0 23L0564-02	09/07/23 10:00	09/08/23 11:58	12/28/23 12:38	112	365	12/29/23 05:05	113	365	
H4H-03-0.5-1.0 23L0564-03	09/07/23 10:10	09/08/23 11:58	12/28/23 12:38	112	365	12/29/23 05:05	113	365	
H4H-04-0.5-1.0 23L0564-04	09/07/23 10:20	09/08/23 11:58	12/28/23 12:38	112	365	12/29/23 05:05	113	365	

* Indicates hold time exceedance.

Analytical Resources, LLC
Analytical Chemists and Consultants

METHOD DETECTION AND REPORTING LIMITS

ASTM D2216

Laboratory: Analytical Resources, LLC
SDG: 23L0564
Client: Floyd - Snider
Project: Smith-Kem
Matrix: Solid
Instrument:

Analyte	MDL	RL	Units
Total Solids		0.01	%

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Avenue South
Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

March 25, 2024

Pamela Osterhout, Project Manager
Floyd-Snider
Two Union Square
601 Union St, Suite 600
Seattle, WA 98101

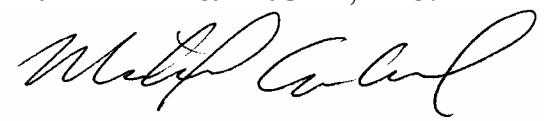
Dear Ms Osterhout:

Included are the additional results from the testing of material submitted on December 15, 2023 from the Smith Kem, F&BI 312274 project. There are 4 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Floyd Snider Lab Data
FDS0325R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on December 15, 2023 by Friedman & Bruya, Inc. from the Floyd-Snider Smith Kem, F&BI 312274 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Floyd-Snider
312274 -01	AOC4-09-5.5-6.0
312274 -02	AOC4-09-7.0
312274 -03	AOC4-09-8.5
312274 -04	AOC2-11-6.0-6.5
312274 -05	AOC2-11-7.5
312274 -06	AOC2-12-6.5
312274 -07	AOC2-12-8.5-9.5
312274 -08	AOC2-12-10.0
312274 -09	AOC2-13-6.5
312274 -10	AOC2-13-7.5
312274 -11	AOC2-13-10.0
312274 -12	AOC2-14-6.0-6.5
312274 -13	AOC2-14-8.5
312274 -14	AOC2-14-9.0
312274 -15	AOC2-15-6.0-6.5
312274 -16	AOC2-16-6.5
312274 -17	AOC2-16-8.5
312274 -18	AOC2-17-6.5
312274 -19	AOC2-17-8.5
312274 -20	AOC2-15-7.5

The NWTPH-Dx analysis of sample AOC2-16-6.5 was requested outside of the holding time. The data were flagged accordingly.

All other quality control requirements were acceptable.

Date of Report: 03/25/24
Date Received: 12/15/23
Project: Smith Kem, F&BI 312274
Date Extracted: 03/21/24
Date Analyzed: 03/21/24

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
AOC2-16-6.5 ht 312274-16	<50	<250	103
Method Blank 04-659 MB2	<50	<250	100

Date of Report: 03/25/24
Date Received: 12/15/23
Project: Smith Kem, F&BI 312274

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 403279-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	92	92	64-136	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	94	78-121

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

k – The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

312274

SAMPLE CHAIN OF CUSTODY

12/15/23 G3

Page # 1 of 2

Report To Pamela Osterhout
Company Floyd Snider
Address 600 Union St, Suite 600
City, State, ZIP Seattle, WA
Phone 206 805-2188 Email

SAMPLERS (signature) Pam Osterhout

PROJECT NAME: Smith Kem

PO #:

REMARKS:

Project specific RLs? - Yes / No

INVOICE TO:

TURNAROUND TIME
☐ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Archive	Dx w SG			Notes
ADC4-09-5.5-6.0	01	12/14/23	08:30	Soil	1	✓											*hot
ADC4-09-7.0	02	"	08:35	"	1	✓											
ADC4-09-8.5	03	"	08:40	"	1								✓				
ADC2-11-6.0-6.5	04	"	09:55	"	1	✓											
ADC2-11-7.5	05	"	10:00	"	1	✓											
ADC2-12-6.5	06	"	14:25	"	1	✓											
ADC2-12-8.5-9.5	07	"	14:30	"	1	✓											
ADC2-12-10.0	08	"	14:35	"	1	✓											
ADC2-13-6.5	09	"	10:30	"	1	✓								A			*hot
ADC2-13-7.5	10	"	10:35	"	1	✓											

ANALYSES REQUESTED

A-per PO
12/19/23 ME

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Pam Osterhout	Pamela Osterhout	Floyd Snider	12/15/23	8:17
Received by:		ANH PHAN	FSI	12/15/23	08:17
Relinquished by:			Samples received at 2 °C		
Received by:					

Friedman & Bruya, Inc.
Ph. (206) 285-8282

312274

SAMPLE CHAIN OF CUSTODY

12/15/23 G3

Page # 2 of 2

Report To Pamela Osterhout

Company Floyd Snider

Address

City, State, ZIP

Phone Email

SAMPLERS (signature)

PROJECT NAME: Smith Kem

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
- ☑ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

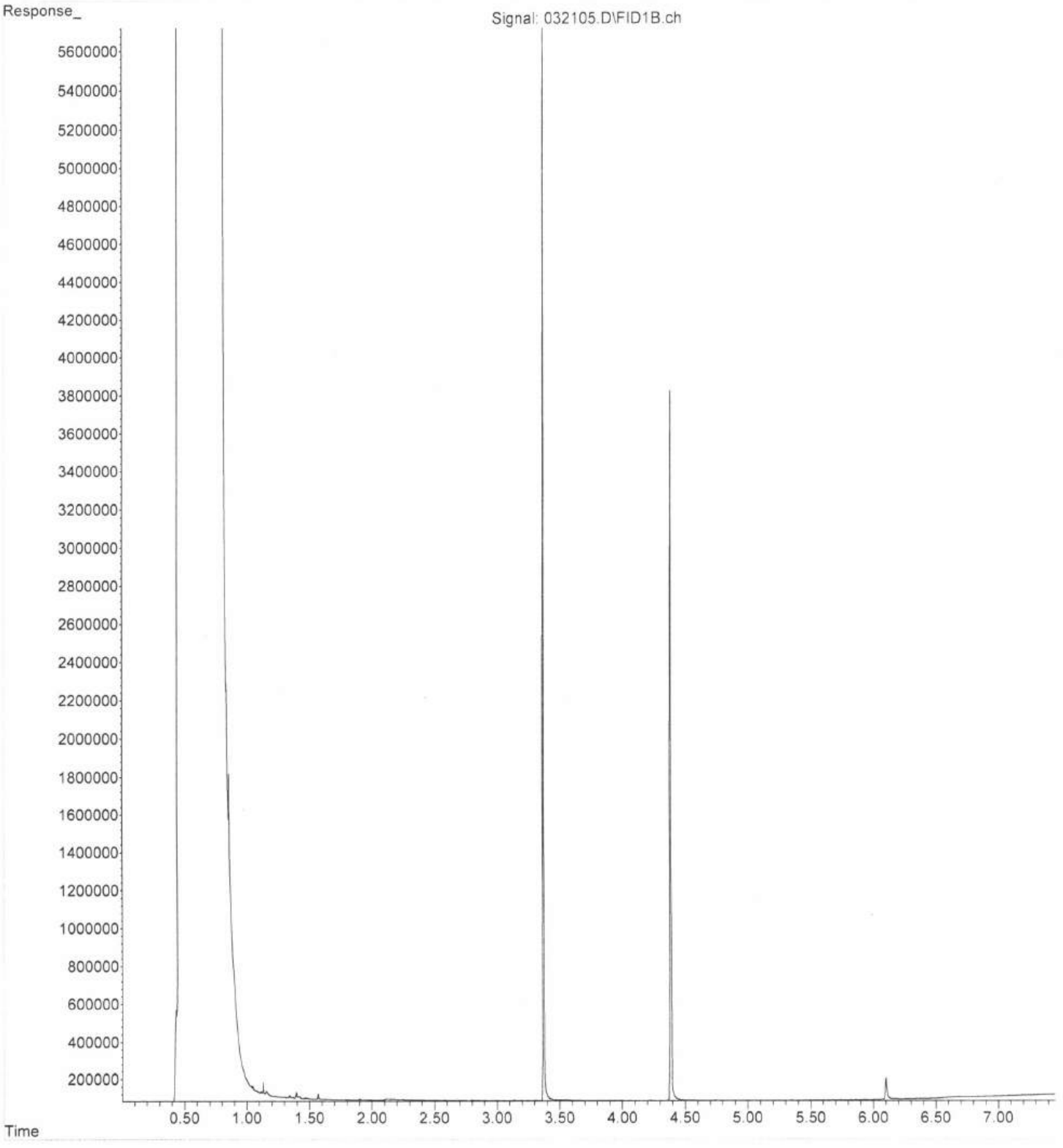
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Archive				Notes
ADC2-13-10.0	11	12/14/23	10:40	S	1								✓				
ADC2-14-6.0-6.5	12		11:50		1	✓											A-per PO 01/02/24 EY/ME
ADC2-14-8.5	13		11:55		1	✓											
ADC2-14-9.0	14		12:00		1	✓											
ADC2-15-6.0-6.5	15		11:15		1	✓											
ADC2-16-6.5	16		~~11:20~~ 13:45 PO		1	●	PO						✓				● analyze per PO 03/20/24 ME
ADC2-16-8.5	17		13:50		1								✓				
ADC2-17-6.5	18		14:40		1	A							✓				
ADC2-17-8.5	19		14:45		1								✓				
ADC2-15-7.5	20		11:20		1	✓											

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	P Osterhout	F/S	12/15	0917
Received by:	ANTHPHAN	FSS	12/15/23	08:17
Relinquished by:		Samples received at 2 °C		
Received by:				

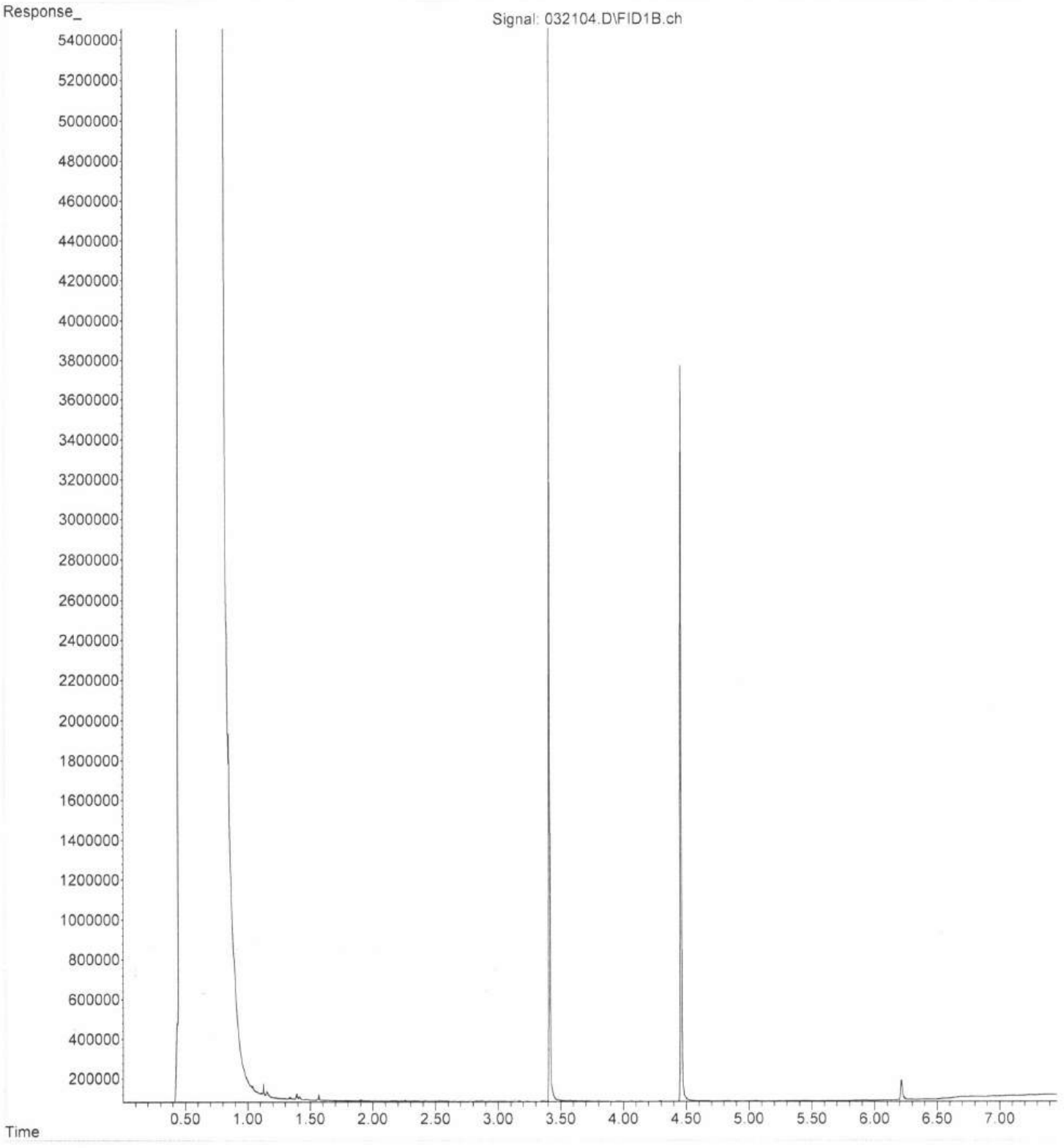
Friedman & Bruya, Inc.
Ph. (206) 285-8282

File :P:\Proc_GC10\03-21-24\032105.D
Operator : IJL
Acquired : 21 Mar 2024 08:42 am using AcqMethod DX.M
Instrument : GC10
Sample Name: ~~402~~274-16
Misc Info : 312
Vial Number: 7

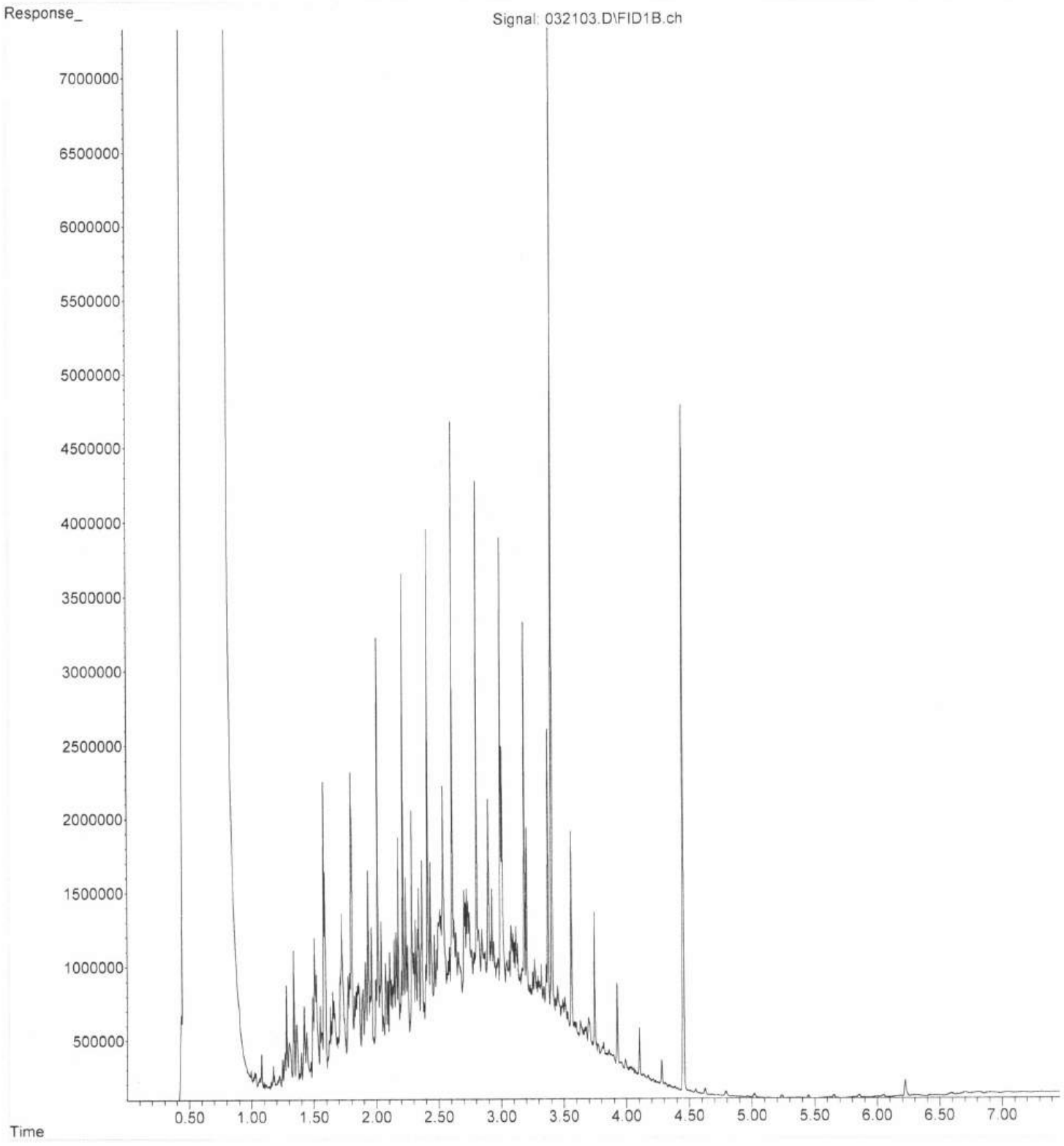
MC 3/22/24



File :P:\Proc_GC10\03-21-24\032104.D
Operator : IJL
Acquired : 21 Mar 2024 08:30 am using AcqMethod DX.M
Instrument : GC10
Sample Name: 04-659 mb2
Misc Info :
Vial Number: 6



File :P:\Proc_GC10\03-21-24\032103.D
Operator : IJL
Acquired : 21 Mar 2024 08:17 am using AcqMethod DX.M
Instrument : GC10
Sample Name: 500 DX 71-40G
Misc Info :
Vial Number: 3



Analytical Resources, LLC
Analytical Chemists and Consultants

09 October 2023

Pamela Osterhout
Floyd - Snider
601 Union Street Two Union Square, Suite 600
Seattle, WA 98101-2341

RE: Smith-Kem ([none])

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
23H0523	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclosed Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Kelly Bottem, Client Services Manager

Cert# 100006-012

ALS Environmental Chain of Custody

1317 South 13th Avenue • Kelso, WA 98626 • 1-360-577-7222 • FAX 1-360-636-1068

ALS Contact: Mark Harris

Project Number: K2309259
Project Manager: Mark Harris
QAP: LAB QAP

23H0523

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	Relinquish None
K2309259-001	MW-1-081523	1	Water	8/15/23	1250	ARI	X
K2309259-002	MW-6-081623	1	Water	8/15/23	0820	ARI	X

Special Instructions/Comments
Please provide the electronic (PDF and EDD) report to the following e-mail address: ALKLS.Data@alsglobal.com.

H - Test is On Hold P - Test is Authorized for Prep Only

Turnaround Requirements
____ **RUSH** (Surcharges Apply)
PLEASE CIRCLE WORK DAYS
1 2 3 4 5
____ **STANDARD**
Requested FAX Date: _____
Requested Report Date: 09/06/23

Report Requirements
____ I. Results Only
____ II. Results + QC Summaries
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
PQL/MDL/J N
EDD N

Invoice Information
PO# 51K2309259
Bill to

Relinquished By: 8/21 Received By: 082223 Airbill Number:

Analytical Resources, LLC
Analytical Chemists and Consultants

Printed: 8/22/2023 10:12:46AM

WORK ORDER

23H0523

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: ALS Environmental (CAS)
Project Manager: Shelly Fishel

Project: Pesticides 2023
Project Number: K2309259

Report To:
ALS Environmental (CAS)
Karen Melerine
1317 S. 13th Avenue
Kelso, WA 98626
Phone: (360) 577-7222
Fax: -

Invoice To:
ALS Environmental (CAS)
Karen Melerine
1317 S. 13th Avenue
Kelso, WA 98626
Phone :(360) 577-7222
Fax: -

Date Due: 05-Sep-2023 18:00 (10 day TAT)

Received By: Kevin Cruz
Date Received: 22-Aug-2023 09:45

Logged In By: Kevin Cruz
Date Logged In: 22-Aug-2023 10:00

Samples Received at: **1.5°C**

Intact, properly signed and dated custody seals attached to outside of cooler(s)	Yes	Custody papers included with the cooler	Yes
Custody papers properly filled out(in, signed, analyses requested, etc)	Yes	Was a temperature blank included in the cooler	Yes
Was sufficient ice used (if appropriate)	Yes	All bottles sealed in individual plastic bags	Yes
All bottles arrived in good condition(unbroken)	Yes	All bottle labels complete and legible	Yes
Number of containers listed on COC match number received	Yes	Bottle labels and tags agree with COC	Yes
Correct bottles used for the requested analyses	Yes	All VOC vials free of air bubbles	No
Analyses/bottles require preservation (attach preservation sheet excluding VOC)	Yes	Sufficient amount of sample sent in each bottle	Yes
Sample split at ARI	No		

Analysis	Due	TAT	Expires	Comments
23H0523-01 MW-1-081523 [Water] Sampled 15-Aug-2023 12:50 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass NM, Amber, 1000 mL				
8081B Pest (Low Level H2O)	05-Sep-2023 15:00	10	22-Aug-2023 23:59	
23H0523-02 MW-6-081623 [Water] Sampled 15-Aug-2023 08:20 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass NM, Amber, 1000 mL				
8081B Pest (Low Level H2O)	05-Sep-2023 15:00	10	22-Aug-2023 23:59	

Reviewed By

Date

Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: AIS environmental Project Name: Pesticides 2023

COC No(s): _____ (NA) Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: _____ Tracking No: 6195 1662 4160 (NA) KFC 082

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	(YES)	NO
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry): 1.5

Time 0945

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: 90097708

Cooler Accepted by: KFC Date: 082223 Time: 0945

Complete custody forms and attach all shipping documents

Log-In Phase:

KFC 082223

Was a temperature blank included in the cooler?		(YES)	NO
What kind of packing material was used? ...	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
How were bottles sealed in plastic bags?	(Individually)	Grouped	Not
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ...	NA	YES	(NO)
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		

Were the sample(s) split by ARI? (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: KFC Date: 082223 Time: 1606 Labels checked by: KFC

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

Analytical Resources, LLC
Analytical Chemists and Consultants

Floyd - Snider	Project:	Smith-Kem	
601 Union Street Two Union Square, Suite 600	Project Number:	[none]	**Reported:**
Seattle, WA 98101-2341	Project Manager:	Pamela Osterhout	10/09/2023 18:05

ANALYTICAL REPORT FOR SAMPLES

Laboratory ID	Sample ID	Matrix	Date Sampled	Date Received
23H0523-01	MW-1-081523	Water	08/15/23 12:50	08/22/23 09:45
23H0523-02	MW-6-081623	Water	08/15/23 08:20	08/22/23 09:45

Floyd - Snider	Project: Smith-Kem	
601 Union Street Two Union Square, Suite 600	Project Number: [none]	**Reported:**
Seattle WA, 98101-2341	Project Manager: Pamela Osterhout	09-Oct-2023 18:05

Case Narrative

Pesticides - EPA Method SW8081B

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits with the exception of surrogates flagged on the associated forms.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits with the exception of analytes flagged on the associated forms.

QUALIFIERS AND NOTES

Qualifier	Definition
Y1	Raised reporting limit due to interference
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
J	Estimated concentration value detected below the reporting limit.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
D	The reported value is from a dilution
*	Flagged value is not within established control limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Analytical Resources, LLC
Analytical Chemists and Consultants

Dual Column

MW-1-081523

ORGANIC ANALYSIS DATA SHEET
EPA 8081B

Laboratory:	Analytical Resources, LLC			SDG:	23H0523
Client:	Floyd - Snider				
Project:	Smith-Kem				
Matrix:	Water	Laboratory ID:	23H0523-01 A	File ID:	23092718.D
Sampled:	08/15/23 12:50	Prepared:	08/22/23 14:40	Analyzed:	09/27/23 15:55
% Solids:		Preparation:	EPA 3510C SepF	Initial/Final:	1000 mL / 0.5 mL
Batch:	BLH0527	Sequence:	SLI0477	Calibration:	GI00073
Instrument:	ECD6	Column 1:	STX-CLP	Column 2:	STX-CLPII

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/L)	MDL	MRL	Q
309-00-2	Aldrin	1	1	0.0006	0.0002	0.0006	U
5103-74-2	trans-Chlordane (beta-Chlordane)	1	1	0.0410	0.0002	0.0006	E
5103-71-9	cis-Chlordane (alpha-chlordane)	1	1	0.0832	0.0001	0.0006	P1, E
60-57-1	Dieldrin	2	1	0.137	0.0004	0.0013	E
27304-13-8	Oxychlordane	1	1	0.0013	0.0013	0.0013	U
5103-73-1	cis-Nonachlor	1	1	0.0013	0.0013	0.0013	U
39765-80-5	trans-Nonachlor	1	1	0.0013	0.0013	0.0013	U
8001-35-2	Toxaphene	2	1	1.15	0.0625	0.0625	P1

SURROGATES	Col #	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*0.020000*	*0.0114*	*57.0*	*30 - 160*	
Decachlorobiphenyl	*2*	*0.020000*	*0.0123*	*61.5*	*30 - 160*	
Tetrachlorometaxylene	*1*	*0.020000*	*0.0101*	*50.5*	*30 - 160*	
Tetrachlorometaxylene	*2*	*0.020000*	*0.00965*	*48.3*	*30 - 160*	

Analytical Resources, LLC
Analytical Chemists and Consultants

Dual Column

MW-1-081523

ORGANIC ANALYSIS DATA SHEET
EPA 8081B

Laboratory:	Analytical Resources, LLC			SDG:	23H0523
Client:	Floyd - Snider				
Project:	Smith-Kem				
Matrix:	Water	Laboratory ID:	23H0523-01RE1 A	File ID:	23100112.D
Sampled:	08/15/23 12:50	Prepared:	08/22/23 14:40	Analyzed:	10/01/23 17:34
% Solids:		Preparation:	EPA 3510C SepF	Initial/Final:	1000 mL / 0.5 mL
Batch:	BLH0527	Sequence:	SLJ0027	Calibration:	GI00073
Instrument:	ECD6	Column 1:	STX-CLP	Column 2:	STX-CLPII

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/L)	MDL	MRL	Q
309-00-2	Aldrin	1	5	0.0031	0.0008	0.0031	U
5103-74-2	trans-Chlordane (beta-Chlordane)	1	5	0.0755	0.0012	0.0031	P1, D
5103-71-9	cis-Chlordane (alpha-chlordane)	1	5	0.115	0.0007	0.0031	P1, D
60-57-1	Dieldrin	1	5	0.141	0.0018	0.0063	D
27304-13-8	Oxychlordane	1	5	0.0063	0.0063	0.0063	U
5103-73-1	cis-Nonachlor	1	5	0.0063	0.0063	0.0063	U
39765-80-5	trans-Nonachlor	1	5	1.00	1.00	1.00	P1, Y1, U
8001-35-2	Toxaphene	1	5	1.19	0.313	0.313	P1, D

SURROGATES	Col #	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*0.020000*	*0.0145*	*72.6*	*30 - 160*	
Tetrachlorometaxylene	*1*	*0.020000*	*0.0137*	*68.4*	*30 - 160*	

Analytical Resources, LLC
Analytical Chemists and Consultants

Dual Column

MW-6-081623

ORGANIC ANALYSIS DATA SHEET
EPA 8081B

Laboratory:	Analytical Resources, LLC			SDG:	23H0523
Client:	Floyd - Snider				
Project:	Smith-Kem				
Matrix:	Water	Laboratory ID:	23H0523-02 A	File ID:	23092719.D
Sampled:	08/15/23 08:20	Prepared:	08/22/23 14:40	Analyzed:	09/27/23 16:14
% Solids:		Preparation:	EPA 3510C SepF	Initial/Final:	1000 mL / 0.5 mL
Batch:	BLH0527	Sequence:	SLI0477	Calibration:	GI00073
Instrument:	ECD6	Column 1:	STX-CLP	Column 2:	STX-CLPII

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/L)	MDL	MRL	Q
309-00-2	Aldrin	1	1	0.0006	0.0002	0.0006	U
5103-74-2	trans-Chlordane (beta-Chlordane)	1	1	0.0683	0.0002	0.0006	E
5103-71-9	cis-Chlordane (alpha-chlordane)	1	1	0.157	0.0001	0.0006	P1, E
60-57-1	Dieldrin	2	1	0.308	0.0004	0.0013	E
27304-13-8	Oxychlordane	1	1	0.0013	0.0013	0.0013	U
5103-73-1	cis-Nonachlor	1	1	0.0013	0.0013	0.0013	U
39765-80-5	trans-Nonachlor	1	1	0.0013	0.0013	0.0013	U
8001-35-2	Toxaphene	2	1	5.68	0.0625	0.0625	P1, E

SURROGATES	Col #	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*0.020000*	*0.00874*	*43.7*	*30 - 160*	
Decachlorobiphenyl	*2*	*0.020000*	*0.00853*	*42.7*	*30 - 160*	
Tetrachlorometaxylene	*1*	*0.020000*	*0.00532*	*26.6*	*30 - 160*	*
Tetrachlorometaxylene	*2*	*0.020000*	*0.00590*	*29.5*	*30 - 160*	*

Analytical Resources, LLC
Analytical Chemists and Consultants

Dual Column

MW-6-081623

ORGANIC ANALYSIS DATA SHEET
EPA 8081B

Laboratory:	Analytical Resources, LLC			SDG:	23H0523
Client:	Floyd - Snider				
Project:	Smith-Kem				
Matrix:	Water	Laboratory ID:	23H0523-02RE1 A	File ID:	23100113.D
Sampled:	08/15/23 08:20	Prepared:	08/22/23 14:40	Analyzed:	10/01/23 17:53
% Solids:		Preparation:	EPA 3510C SepF	Initial/Final:	1000 mL / 0.5 mL
Batch:	BLH0527	Sequence:	SLJ0027	Calibration:	GI00073
Instrument:	ECD6	Column 1:	STX-CLP	Column 2:	STX-CLPII

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/L)	MDL	MRL	Q
309-00-2	Aldrin	1	5	0.0031	0.0008	0.0031	U
5103-74-2	trans-Chlordane (beta-Chlordane)	1	5	0.0898	0.0012	0.0031	D
5103-71-9	cis-Chlordane (alpha-chlordane)	1	5	0.188	0.0007	0.0031	P1, D
60-57-1	Dieldrin	1	5	0.298	0.0018	0.0063	D
27304-13-8	Oxychlordane	1	5	0.0063	0.0063	0.0063	U
5103-73-1	cis-Nonachlor	1	5	0.0063	0.0063	0.0063	U
39765-80-5	trans-Nonachlor	1	5	1.00	1.00	1.00	Y1, U
8001-35-2	Toxaphene	1	5	4.00	0.313	0.313	P1, D

SURROGATES	Col #	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*0.020000*	*0.0115*	*74.2*	*30 - 160*	
Tetrachlorometaxylene	*1*	*0.020000*	*0.00464*	*38.5*	*30 - 160*	

Analytical Resources, LLC
Analytical Chemists and Consultants

PREPARATION BATCH SUMMARY

EPA 8081B

Laboratory: Analytical Resources, LLC SDG: 23H0523

Client: Floyd - Snider Project: Smith-Kem

Batch: BLH0527 Batch Matrix: Water Preparation: EPA 3510C SepF

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
MW-1-081523	23H0523-01	23092718.D	08/22/23 14:40	
MW-1-081523	23H0523-01RE1	23100112.D	08/22/23 14:40	Added 10/3/2023 by VTS
MW-6-081623	23H0523-02	23092719.D	08/22/23 14:40	
MW-6-081623	23H0523-02RE1	23100113.D	08/22/23 14:40	Added 10/3/2023 by VTS
Blank	BLH0527-BLK1	23092707.D	08/22/23 14:40	
LCS	BLH0527-BS1	23092708.D	08/22/23 13:41	
LCS Dup	BLH0527-BSD1	23092709.D	08/22/23 13:41	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Cleanup Batch:	CLI0172	Cleanup Type:	Sulfur
Cleanup Method:	EPA 3660B Sulfur Cleanup - uL	Analysis:	EPA 8081B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
MW-1-081523	23H0523-01	23092718.D	09/27/2023	
MW-6-081623	23H0523-02	23092719.D	09/27/2023	
Blank	BLH0527-BLK1	23092707.D	09/27/2023	
LCS	BLH0527-BS1	23092708.D	09/27/2023	
LCS Dup	BLH0527-BSD1	23092709.D	09/27/2023	

Analytical Resources, LLC
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Form I

METHOD BLANK DATA SHEET

EPA 8081B

Blank

Laboratory:	Analytical Resources, LLC			SDG:	23H0523
Client:	Floyd - Snider			Project:	Smith-Kem
Matrix:	Water	Laboratory ID:	BLH0527-BLK1	File ID:	23092707.D
Sampled:	N/A	Prepared:	08/22/23 14:40	Analyzed:	09/27/23 12:27
Solids:		Preparation:	EPA 3510C SepF	Initial/Final:	1000 mL / 0.5 mL
Batch:	BLH0527	Sequence:	SLI0477	Calibration:	GI00073
Instrument:	ECD6	Column:	STX-CLP	Cleanups:	Sulfur

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	RL
309-00-2	Aldrin	1	0.0006	U	0.0002	0.0006
5103-74-2	trans-Chlordane (beta-Chlordane)	1	0.0006	U	0.0002	0.0006
5103-71-9	cis-Chlordane (alpha-chlordane)	1	0.0006	U	0.0001	0.0006
60-57-1	Dieldrin	1	0.0013	U	0.0004	0.0013
27304-13-8	Oxychlordane	1	0.0013	U	0.0013	0.0013
5103-73-1	cis-Nonachlor	1	0.0013	U	0.0013	0.0013
39765-80-5	trans-Nonachlor	1	0.0013	U	0.0013	0.0013
8001-35-2	Toxaphene	1	0.0625	U	0.0625	0.0625

SURROGATES	ADDED (ug/L)	CONC. (ug/L)	% REC	QC LIMITS	Q
Decachlorobiphenyl	0.020000	0.0136	68.0	30 - 160	
Decachlorobiphenyl [2C]	0.020000	0.0136	68.0	30 - 160	
Tetrachlorometaxylene	0.020000	0.0141	70.5	30 - 160	
Tetrachlorometaxylene [2C]	0.020000	0.0210	105	30 - 160	

[2C] indicates second-column analyte, present if quantification on any batch samples used second column data.

Analytical Resources, LLC
Analytical Chemists and Consultants

LCS / LCS DUPLICATE RECOVERY

EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Matrix:	Water	Analyzed:	09/27/23 12:46
Batch:	BLH0527	Laboratory ID:	BLH0527-BS1
Preparation:	EPA 3510C SepF	Sequence Name:	LCS
Initial/Final:	1000 mL / 0.5 mL		

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	Q	LCS % REC. #		QC LIMITS REC.
Aldrin [2C]	0.0100	0.0039		39.1	*	45 - 134
trans-Chlordane (beta-Chlordane) [2C]	0.0100	0.0058		58.0	*	62 - 140
cis-Chlordane (alpha-chlordane) [2C]	0.0100	0.0062		62.4		60 - 129
Dieldrin [2C]	0.0200	0.0138		69.0		60 - 136

* Indicates values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

LCS / LCS DUPLICATE RECOVERY

EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Matrix:	Water	Analyzed:	09/27/23 13:04
Batch:	BLH0527	Laboratory ID:	BLH0527-BSD1
Preparation:	EPA 3510C SepF	Sequence Name:	LCS Dup
Initial/Final:	1000 mL / 0.5 mL		

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	Q	LCSD % REC. #		% RPD #		QC LIMITS RPD	QC LIMITS REC.
Aldrin [2C]	0.0100	0.0021	*	21.2	*	59.2	*	30	30 - 160
trans-Chlordane (beta-Chlordane)	0.0100	0.0043		43.3		28.0		30	30 - 160
cis-Chlordane (alpha-chlordane)	0.0100	0.0046		45.7		24.6		30	30 - 160
Dieldrin	0.0200	0.0112		56.0		20.3		30	30 - 160

* Indicates values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA

EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GI00073	Instrument:	ECD6
Calibration Date:	09/23/2023	Column (1):	STX-CLP

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
alpha-BHC	1.25	1.612351	2.5	1.670016	5	1.718388	10	1.761895	20	1.770925	40	1.72365
beta-BHC	1.25	0.7386212	2.5	0.7198783	5	0.7086369	10	0.7155564	20	0.6990843	40	0.6768
gamma-BHC (Lindane)	1.25	1.388469	2.5	1.416635	5	1.446348	10	1.473423	20	1.492354	40	1.482989
delta-BHC	1.25	1.266496	2.5	1.291887	5	1.354312	10	1.42625	20	1.476522	40	1.505221
Heptachlor	1.25	1.409833	2.5	1.419427	5	1.421285	10	1.425481	20	1.397876	40	1.335405
Aldrin	1.25	1.432447	2.5	1.445618	5	1.453693	10	1.445179	20	1.427464	40	1.370164
Heptachlor Epoxide	1.25	1.309175	2.5	1.294376	5	1.300932	10	1.254141	20	1.213144	40	1.13118
trans-Chlordane (beta-Chlordane)	1.25	1.247202	2.5	1.24718	5	1.268163	10	1.252954	20	1.256573	40	1.230149
cis-Chlordane (alpha-chlordane)	1.25	1.264668	2.5	1.259554	5	1.273056	10	1.249278	20	1.239639	40	1.195458
Endosulfan I	1.25	1.345839	2.5	1.349272	5	1.332899	10	1.280242	20	1.22651	40	1.135755
4,4'-DDE	2.5	1.06559	5	1.091704	10	1.119861	20	1.104628	40	1.089361	80	1.041015
Dieldrin	2.5	1.27624	5	1.263613	10	1.276367	20	1.239761	40	1.197748	80	1.111937
Endrin	2.5	1.559388	5	1.584861	10	1.530584	20	1.509215	40	1.427189	80	1.342093
Endosulfan II	2.5	1.398825	5	1.416522	10	1.359302	20	1.337335	40	1.274656	80	1.206941
4,4'-DDD	2.5	1.276948	5	1.319295	10	1.29676	20	1.306194	40	1.227523	80	1.224153
Endrin Aldehyde	2.5	1.102975	5	1.101667	10	1.049333	20	1.027798	40	0.9825602	80	0.9413667
4,4'-DDT	2.5	1.359593	5	1.402916	10	1.37645	20	1.385851	40	1.343776	80	1.295821
Endosulfan Sulfate	2.5	0.1923348	5	0.2683794	10	0.354716	20	0.5151646	40	0.5931011	80	0.7382557
Endrin Ketone	2.5	1.460021	5	1.409735	10	1.322681	20	1.291812	40	1.225761	80	1.185892
Methoxychlor	12.5	0.6588393	25	0.6360998	50	0.5921063	100	0.5638137	200	0.5212497	400	0.5039298
Hexachlorobutadiene	1.25	1.869384	2.5	1.824724	5	1.775801	10	1.739828	20	1.697856	40	1.638338
Hexachlorobenzene	1.25	1.710554	2.5	1.658735	5	1.633787	10	1.588292	20	1.549339	40	1.496535
Decachlorobiphenyl	2.5	1.077699	5	1.080464	10	0.9577475	20	0.8896082	40	0.83212	80	0.8099046
Tetrachlorometaxylene	2.5	1.264331	5	1.280198	10	1.272011	20	1.233926	40	1.177229	80	1.107571

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GI00073	Instrument:	ECD6
Calibration Date:	09/23/2023	Column (1):	STX-CLP

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
alpha-BHC	80	1.671175										
beta-BHC	80	0.6457174										
gamma-BHC (Lindane)	80	1.426716										
delta-BHC	80	1.473455										
Heptachlor	80	1.227042										
Aldrin	80	1.269902										
Heptachlor Epoxide	80	1.052839										
trans-Chlordane (beta-Chlordane)	80	1.153743										
cis-Chlordane (alpha-chlordane)	80	1.130197										
Endosulfan I	80	1.017807										
4,4'-DDE	160	0.9692704										
Dieldrin	160	1.022365										
Endrin	160	1.238946										
Endosulfan II	160	1.131296										
4,4'-DDD	160	1.131085										
Endrin Aldehyde	160	0.8919041										
4,4'-DDT	160	1.22827										
Endosulfan Sulfate	160	0.817635										
Endrin Ketone	160	1.134461										
Methoxychlor	800	0.5001084										
Hexachlorobutadiene	80	1.579823										
Hexachlorobenzene	80	1.420504										
2,4'-DDE			2.5	0.9856384	5	1.0461	10	1.026366	20	0.9774349	40	0.9489724
2,4'-DDD			2.5	0.9858787	5	1.034219	10	0.9953062	20	0.9521291	40	0.9362622
2,4'-DDT			2.5	1.166404	5	1.162652	10	1.134105	20	1.082873	40	1.065188
Oxychlordane			2.5	1.446458	5	1.481394	10	1.433099	20	1.359627	40	1.327591
cis-Nonachlor			2.5	1.732638	5	1.746933	10	1.71979	20	1.662976	40	1.656694

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA

EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GI00073	Instrument:	ECD6
Calibration Date:	09/23/2023	Column (1):	STX-CLP

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
trans-Nonachlor			2.5	1.71579	5	1.744615	10	1.707747	20	1.639675	40	1.62533
Mirex			2.5	1.12562	5	1.199032	10	1.049248	20	0.9879433	40	0.9451405
Decachlorobiphenyl	160	0.7791913										
Tetrachlorometaxylene	160	1.028013										

Analytical Resources, LLC
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INITIAL CALIBRATION DATA

EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GI00073	Instrument:	ECD6
Calibration Date:	09/23/2023	Column (1):	STX-CLP

Compound	Level 13		Level 14		Level 15		Level 16		Level 17		Level 18	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
2,4'-DDE	80	0.877787	160	0.8011212								
2,4'-DDD	80	0.889346	160	0.7831522								
2,4'-DDT	80	1.006127	160	0.9449645								
Oxychlordane	80	1.233244	160	1.15398								
cis-Nonachlor	80	1.596148	160	1.536141								
trans-Nonachlor	80	1.551111	160	1.476169								
Mirex	80	0.916163	160	0.8913895								
Toxaphene												

Analytical Resources, LLC
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INITIAL CALIBRATION DATA

EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GI00073	Instrument:	ECD6
Calibration Date:	09/23/2023	Column (1):	STX-CLP

Compound	Level 19		Level 20		Level 21		Level 22		Level 23		Level 24	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Toxaphene							125	4.235928E-02	250	4.741916E-02	500	4.694569E-02

Analytical Resources, LLC
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INITIAL CALIBRATION DATA

EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GI00073	Instrument:	ECD6
Calibration Date:	09/23/2023	Column (1):	STX-CLP

Compound	Level 25		Level 26		Level 27		Level 28		Level 29		Level 30	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Toxaphene	1000	4.625606E-02	2500	4.170751E-02	5000	3.619948E-02	10000	2.900951E-02				

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA

EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GI00073	Instrument:	ECD6
Calibration Date:	09/23/2023	Column (1):	STX-CLP

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
alpha-BHC	1.704057	3.3			RSD (20)	
beta-BHC	0.7006135	4.4			RSD (20)	
gamma-BHC (Lindane)	1.446705	2.6			RSD (20)	
delta-BHC	1.399163	6.8			RSD (20)	
Heptachlor	1.376621	5.3			RSD (20)	
Aldrin	1.406352	4.7			RSD (20)	
Heptachlor Epoxide	1.222255	8.0			RSD (20)	
trans-Chlordane (beta-Chlordane)	1.236566	3.1			RSD (20)	
cis-Chlordane (alpha-chlordane)	1.230264	4.1			RSD (20)	
Endosulfan I	1.241189	10.1			RSD (20)	
4,4'-DDE	1.068776	4.8			RSD (20)	
Dieldrin	1.19829	8.1			RSD (20)	
Endrin	1.456039	8.7			RSD (20)	
Endosulfan II	1.303554	8.0			RSD (20)	
4,4'-DDD	1.254565	5.3			RSD (20)	
Endrin Aldehyde	1.013943	7.9			RSD (20)	
4,4'-DDT	1.341811	4.5			RSD (20)	
Endosulfan Sulfate	0.4970838	47.6		0.9961	QCOD (0.99)	
Endrin Ketone	1.290052	9.1			RSD (20)	
Methoxychlor	0.568021	11.2			RSD (20)	
Hexachlorobutadiene	1.732251	5.9			RSD (20)	
Hexachlorobenzene	1.579678	6.3			RSD (20)	
2,4'-DDE	0.9519171	9.0			RSD (20)	
2,4'-DDD	0.9394705	8.8			RSD (20)	
2,4'-DDT	1.080331	7.7			RSD (20)	
Oxychlordane	1.347913	8.9			RSD (20)	
cis-Nonachlor	1.664474	4.6			RSD (20)	
trans-Nonachlor	1.637205	5.9			RSD (20)	
Mirex	1.016362	11.2			RSD (20)	
Toxaphene	4.141381E-02	16.3			RSD (20)	
Toxaphene	4.141381E-02	16.3			RSD (20)	

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA

EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GI00073	Instrument:	ECD6
Calibration Date:	09/23/2023	Column (1):	STX-CLP

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Decachlorobiphenyl	0.9181049	13.5			RSD (20)	
Tetrachlorometaxylene	1.194754	8.0			RSD (20)	

Analytical Resources, LLC
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INITIAL CALIBRATION DATA
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GI00073	Instrument:	ECD6
Calibration Date:	09/23/2023	Column (2):	STX-CLPII

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RRF	Conc	**RRF**	Conc	RRF	Conc	RRF	Conc	**RRF**	Conc	**RRF**
alpha-BHC [2C]	1.25	1.5206	2.5	1.543546	5	1.568553	10	1.607909	20	1.680224	40	1.692591
beta-BHC [2C]	1.25	0.644698	2.5	0.6372674	5	0.654166	10	0.6429337	20	0.6629929	40	0.634508
gamma-BHC (Lindane) [2C]	1.25	1.124844	2.5	1.177316	5	1.233788	10	1.282128	20	1.358709	40	1.384635
delta-BHC [2C]	1.25	0.6665259	2.5	0.7342763	5	0.8342242	10	0.9613318	20	1.09702	40	1.213262
Heptachlor [2C]	1.25	1.478835	2.5	1.481797	5	1.497872	10	1.472862	20	1.49138	40	1.411063
Aldrin [2C]	1.25	1.241134	2.5	1.29379	5	1.317499	10	1.331786	20	1.37334	40	1.338845
Heptachlor Epoxide [2C]	1.25	1.084351	2.5	1.086807	5	1.084465	10	1.076729	20	1.097685	40	1.082679
trans-Chlordane (beta-Chlordane) [2C]	1.25	1.114325	2.5	1.100768	5	1.102564	10	1.09552	20	1.120956	40	1.112652
cis-Chlordane (alpha-chlordane) [2C]	1.25	1.020173	2.5	1.02691	5	1.034653	10	1.028434	20	1.054898	40	1.060512
Endosulfan I [2C]	1.25	0.9407675	2.5	0.9472171	5	0.9532143	10	0.9453606	20	0.9590672	40	0.9466913
4,4'-DDE [2C]	2.5	0.9434143	5	0.9693464	10	0.9875411	20	0.9878401	40	1.004962	80	0.9797961
Dieldrin [2C]	2.5	1.046779	5	1.061716	10	1.071824	20	1.06108	40	1.061423	80	1.032769
Endrin [2C]	2.5	1.859011	5	1.857159	10	1.828592	20	1.842972	40	1.787596	80	1.718556
Endosulfan II [2C]	2.5	1.667593	5	1.64825	10	1.610354	20	1.620248	40	1.587561	80	1.546309
4,4'-DDD [2C]	2.5	1.401443	5	1.41556	10	1.430144	20	1.484349	40	1.491633	80	1.496171
Endrin Aldehyde [2C]	2.5	1.204053	5	1.163133	10	1.120831	20	1.124411	40	1.102173	80	1.0596
4,4'-DDT [2C]	2.5	1.485628	5	1.496674	10	1.505538	20	1.561873	40	1.564745	80	1.567931
Endosulfan Sulfate [2C]	2.5	0.1350251	5	0.1901205	10	0.2832339	20	0.461795	40	0.5769889	80	0.789479
Endrin Ketone [2C]	2.5	1.575715	5	1.487411	10	1.45151	20	1.430892	40	1.40188	80	1.398076
Methoxychlor [2C]	12.5	0.6818575	25	0.65756	50	0.6500655	100	0.654074	200	0.636182	400	0.6416724
Hexachlorobutadiene [2C]	1.25	1.60774	2.5	1.623204	5	1.619414	10	1.603665	20	1.621381	40	1.597887
Hexachlorobenzene [2C]	1.25	1.385783	2.5	1.377607	5	1.370728	10	1.364342	20	1.394769	40	1.38483
Decachlorobiphenyl [2C]	2.5	1.118604	5	1.065761	10	0.998827	20	0.9615539	40	0.9196675	80	0.9027772
Tetrachlorometaxylene [2C]	2.5	1.126958	5	1.11375	10	1.095769	20	1.081515	40	1.094526	80	1.056666

Analytical Resources, LLC
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INITIAL CALIBRATION DATA
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GI00073	Instrument:	ECD6
Calibration Date:	09/23/2023	Column (2):	STX-CLPII

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
alpha-BHC [2C]	80	1.663056										
beta-BHC [2C]	80	0.6203362										
gamma-BHC (Lindane) [2C]	80	1.368257										
delta-BHC [2C]	80	1.269007										
Heptachlor [2C]	80	1.295284										
Aldrin [2C]	80	1.257131										
Heptachlor Epoxide [2C]	80	1.005001										
trans-Chlordane (beta-Chlordane) [2C]	80	1.076304										
cis-Chlordane (alpha-chlordane) [2C]	80	1.025675										
Endosulfan I [2C]	80	0.9020095										
4,4'-DDE [2C]	160	0.9267001										
Dieldrin [2C]	160	0.9884896										
Endrin [2C]	160	1.649684										
Endosulfan II [2C]	160	1.499336										
4,4'-DDD [2C]	160	1.482284										
Endrin Aldehyde [2C]	160	1.053086										
4,4'-DDT [2C]	160	1.574198										
Endosulfan Sulfate [2C]	160	0.9558442										
Endrin Ketone [2C]	160	1.396048										
Methoxychlor [2C]	800	0.6581565										
Hexachlorobutadiene [2C]	80	1.555249										
Hexachlorobenzene [2C]	80	1.333414										
2,4'-DDE [2C]			2.5	0.5888269	5	0.6009694	10	0.5987734	20	0.5901139	40	0.5755186
2,4'-DDD [2C]			2.5	1.157668	5	1.149962	10	1.1375	20	1.112458	40	1.107935
2,4'-DDT [2C]			2.5	1.190728	5	1.226564	10	1.228211	20	1.223257	40	1.227239
Oxychlordane [2C]			2.5	0.9187063	5	0.9251738	10	0.9219183	20	0.8988613	40	0.8702354
cis-Nonachlor [2C]			2.5	2.108809	5	2.102432	10	2.097834	20	2.065151	40	2.045014

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA

EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GI00073	Instrument:	ECD6
Calibration Date:	09/23/2023	Column (2):	STX-CLPII

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
trans-Nonachlor [2C]			2.5	2.203456	5	2.222797	10	2.2029	20	2.153409	40	2.113426
Mirex [2C]			2.5	1.21905	5	1.268894	10	1.135629	20	1.079593	40	1.025469
Decachlorobiphenyl [2C]	160	0.8941874										
Tetrachlorometaxylene [2C]	160	0.9904493										

Analytical Resources, LLC
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INITIAL CALIBRATION DATA
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GI00073	Instrument:	ECD6
Calibration Date:	09/23/2023	Column (2):	STX-CLPII

Compound	Level 13		Level 14		Level 15		Level 16		Level 17		Level 18	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
2,4'-DDE [2C]	80	0.5532785	160	0.5128663								
2,4'-DDD [2C]	80	1.085075	160	1.036701								
2,4'-DDT [2C]	80	1.213679	160	1.174439								
Oxychlordane [2C]	80	0.8390676	160	0.796774								
cis-Nonachlor [2C]	80	1.995667	160	1.928102								
trans-Nonachlor [2C]	80	2.033559	160	1.940623								
Mirex [2C]	80	1.007623	160	0.992485								
Toxaphene [2C]												

Analytical Resources, LLC
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INITIAL CALIBRATION DATA

EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GI00073	Instrument:	ECD6
Calibration Date:	09/23/2023	Column (2):	STX-CLPII

Compound	Level 19		Level 20		Level 21		Level 22		Level 23		Level 24	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Toxaphene [2C]							125	4.403892E-02	250	4.814326E-02	500	4.731087E-02

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INITIAL CALIBRATION DATA
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GI00073	Instrument:	ECD6
Calibration Date:	09/23/2023	Column (2):	STX-CLPII

Compound	Level 25		Level 26		Level 27		Level 28		Level 29		Level 30	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Toxaphene [2C]	1000	4.571589E-02	2500	4.467666E-02	5000	4.175231E-02	10000	4.113404E-02				

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INITIAL CALIBRATION DATA

EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GI00073	Instrument:	ECD6
Calibration Date:	09/23/2023	Column (2):	STX-CLPII

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
alpha-BHC [2C]	1.610926	4.3			RSD (20)	
beta-BHC [2C]	0.6424146	2.1			RSD (20)	
gamma-BHC (Lindane) [2C]	1.275668	7.9			RSD (20)	
delta-BHC [2C]	0.9679496	24.3	0.9963		LCOD (0.99)	
Heptachlor [2C]	1.447013	5.0			RSD (20)	
Aldrin [2C]	1.307646	3.6			RSD (20)	
Heptachlor Epoxide [2C]	1.07396	2.9			RSD (20)	
trans-Chlordane (beta-Chlordane) [2C]	1.103298	1.3			RSD (20)	
cis-Chlordane (alpha-chlordane) [2C]	1.035894	1.5			RSD (20)	
Endosulfan I [2C]	0.9420468	2.0			RSD (20)	
4,4'-DDE [2C]	0.9713714	2.8			RSD (20)	
Dieldrin [2C]	1.046297	2.7			RSD (20)	
Endrin [2C]	1.791939	4.5			RSD (20)	
Endosulfan II [2C]	1.597093	3.7			RSD (20)	
4,4'-DDD [2C]	1.457369	2.8			RSD (20)	
Endrin Aldehyde [2C]	1.118184	4.8			RSD (20)	
4,4'-DDT [2C]	1.536655	2.5			RSD (20)	
Endosulfan Sulfate [2C]	0.484641	63.8		0.9928	QCOD (0.99)	
Endrin Ketone [2C]	1.44879	4.5			RSD (20)	
Methoxychlor [2C]	0.654224	2.2			RSD (20)	
Hexachlorobutadiene [2C]	1.604077	1.5			RSD (20)	
Hexachlorobenzene [2C]	1.373068	1.5			RSD (20)	
2,4'-DDE [2C]	0.5743353	5.5			RSD (20)	
2,4'-DDD [2C]	1.112471	3.8			RSD (20)	
2,4'-DDT [2C]	1.212017	1.8			RSD (20)	
Oxychlordane [2C]	0.8815338	5.5			RSD (20)	
cis-Nonachlor [2C]	2.049001	3.2			RSD (20)	
trans-Nonachlor [2C]	2.12431	4.9			RSD (20)	
Mirex [2C]	1.104106	9.8			RSD (20)	
Toxaphene [2C]	4.468171E-02	5.9			RSD (20)	
Toxaphene [2C]	4.468171E-02	5.9			RSD (20)	

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA

EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GI00073	Instrument:	ECD6
Calibration Date:	09/23/2023	Column (2):	STX-CLPII

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Decachlorobiphenyl [2C]	0.9801968	8.8			RSD (20)	
Tetrachlorometaxylene [2C]	1.079948	4.2			RSD (20)	

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8081B

Laboratory: Analytical Resources, LLC
SDG: 23H0523
Client: Floyd - Snider
Project: Smith-Kem
Calibration: GI00073
Laboratory ID: SLI0378-SCV1
Sequence: SLI0378
Sequence Name: INDAESCV
Standard ID: L011008

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
Aldrin	50.000	46.8	-6.3	20.00
Aldrin [2C]	50.000	50.5	1.0	20.00
trans-Chlordane (beta-Chlordane)	50.000	52.6	5.1	20.00
trans-Chlordane (beta-Chlordane) [2C]	50.000	53.7	7.4	20.00
cis-Chlordane (alpha-chlordane)	50.000	50.2	0.4	20.00
cis-Chlordane (alpha-chlordane) [2C]	50.000	52.8	5.6	20.00
Dieldrin	50.000	51.3	2.5	20.00
Dieldrin [2C]	50.000	53.6	7.3	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

Analytical Resources, LLC
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SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8081B

Laboratory: Analytical Resources, LLC
Client: Floyd - Snider
Calibration: GI00073
Sequence: SLI0378

SDG: 23H0523
Project: Smith-Kem
Laboratory ID: SLI0378-SCV2
Sequence Name: WNDSCV
Standard ID: L011007

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
Oxychlordane	40.000	40.6	1.6	20.00
Oxychlordane [2C]	40.000	41.2	2.9	20.00
trans-Nonachlor	40.000	38.9	-2.9	20.00
trans-Nonachlor [2C]	40.000	39.4	-1.6	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

Analytical Resources, LLC
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INITIAL CALIBRATION CHECK
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	ECD6	Calibration:	GI00073
Lab File ID:	23092703.D	Calibration Date:	09/23/2023
Sequence:	SLI0477	Injection Date:	09/27/23
Lab Sample ID:	SLI0477-ICV1	Injection Time:	08:59
Sequence Name:	Initial Cal Check		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Aldrin	A	20.000	21.6	1.4063520	1.5219910		8.0	+/-20
Aldrin [2C]	A	20.000	20.6	1.3076460	1.3465450		3.0	+/-20
trans-Chlordane (beta-Chlordane)	A	20.000	21.4	1.2365660	1.3231490		7.0	+/-20
trans-Chlordane (beta-Chlordane) [2C]	A	20.000	19.4	1.1032980	1.0698030		-3.0	+/-20
cis-Chlordane (alpha-chlordane)	A	20.000	21.1	1.2302640	1.2980580		5.5	+/-20
cis-Chlordane (alpha-chlordane) [2C]	A	20.000	17.4	1.0358940	0.9024658		-13.0	+/-20
Dieldrin	A	40.000	40.0	1.1982900	1.1980990		0.0	+/-20
Dieldrin [2C]	A	40.000	39.2	1.0462970	1.0248660		-2.0	+/-20
Decachlorobiphenyl	A	40.000	37.8	0.9181049	0.8666777		-5.5	+/-20
Decachlorobiphenyl [2C]	A	40.000	37.8	0.9801968	0.9271055		-5.5	+/-20
Tetrachlorometaxylene	A	40.000	42.4	1.1947540	1.2681510		6.0	+/-20
Tetrachlorometaxylene [2C]	A	40.000	42.2	1.0799480	1.1407210		5.5	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	ECD6	Calibration:	GI00073
Lab File ID:	23092704.D	Calibration Date:	09/23/2023
Sequence:	SLI0477	Injection Date:	09/27/23
Lab Sample ID:	SLI0477-ICV2	Injection Time:	09:17
Sequence Name:	Initial Cal Check		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Oxychlordane	A	40.000	36.0	1.3479130	1.2145510		-10.0	+/-20
Oxychlordane [2C]	A	40.000	37.0	0.8815338	0.8155733		-7.5	+/-20
cis-Nonachlor	A	40.000	37.1	1.6644740	1.5454710		-7.3	+/-20
cis-Nonachlor [2C]	A	40.000	35.6	2.0490010	1.8214230		-11.0	+/-20
trans-Nonachlor	A	40.000	37.6	1.6372050	1.5393800		-6.0	+/-20
trans-Nonachlor [2C]	A	40.000	36.2	2.1243100	1.9238820		-9.5	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	ECD6	Calibration:	GI00073
Lab File ID:	23092706.D	Calibration Date:	09/23/2023
Sequence:	SLI0477	Injection Date:	09/27/23
Lab Sample ID:	SLI0477-ICV4	Injection Time:	09:54
Sequence Name:	TOX		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Toxaphene	A	2500.0	2410	0.0414138	0.0398657		-3.5	+/-20
Toxaphene [2C]	A	2500.0	2410	0.0446817	0.0435802		-3.5	+/-20
Decachlorobiphenyl	A	40.000	41.4	0.9181049	0.9512907		3.5	+/-20
Decachlorobiphenyl [2C]	A	40.000	44.0	0.9801968	1.0785950		10.0	+/-20
Tetrachlorometaxylene	A	20.000	18.7	1.1947540	1.1175220		-6.5	+/-20
Tetrachlorometaxylene [2C]	A	20.000	20.1	1.0799480	1.0834480		0.5	+/-20

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	ECD6	Calibration:	GI00073
Lab File ID:	23100104.D	Calibration Date:	09/23/2023
Sequence:	SLJ0027	Injection Date:	10/01/23
Lab Sample ID:	SLJ0027-ICV1	Injection Time:	15:06
Sequence Name:	Initial Cal Check		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF		
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT	
alpha-BHC	A	20.000	20.6	1.7040570	1.7561790		3.0	+/-20	
alpha-BHC [2C]	A	20.000	23.9	1.6109260	1.9240300		19.5	+/-20	
beta-BHC	A	20.000	14.9	0.7006135	0.5231902		-25.5	+/-20	*
beta-BHC [2C]	A	20.000	19.2	0.6424146	0.6161840		-4.0	+/-20	
gamma-BHC (Lindane)	A	20.000	21.0	1.4467050	1.5196400		5.0	+/-20	
gamma-BHC (Lindane) [2C]	A	20.000	24.1	1.2756680	1.5378630		20.5	+/-20	*
delta-BHC	A	20.000	22.2	1.3991630	1.5571830		11.0	+/-20	
delta-BHC [2C]	A	20.000	16.8	0.9679496	1.0464520		-16.0	+/-20	
Heptachlor	A	20.000	21.0	1.3766210	1.4451640		5.0	+/-20	
Heptachlor [2C]	A	20.000	23.5	1.4470130	1.7034970		17.5	+/-20	
Aldrin	A	20.000	21.0	1.4063520	1.4780160		5.0	+/-20	
Aldrin [2C]	A	20.000	23.5	1.3076460	1.5396650		17.5	+/-20	
Heptachlor Epoxide	A	20.000	20.4	1.2222550	1.2495330		2.0	+/-20	
Heptachlor Epoxide [2C]	A	20.000	23.0	1.0739600	1.2337790		15.0	+/-20	
trans-Chlordane (beta-Chlordane)	A	20.000	20.8	1.2365660	1.2876650		4.0	+/-20	
trans-Chlordane (beta-Chlordane) [2C]	A	20.000	22.3	1.1032980	1.2292910		11.5	+/-20	
cis-Chlordane (alpha-chlordane)	A	20.000	20.5	1.2302640	1.2590970		2.5	+/-20	
cis-Chlordane (alpha-chlordane) [2C]	A	20.000	17.6	1.0358940	0.9117948		-12.0	+/-20	
Endosulfan I	A	20.000	19.6	1.2411890	1.2158680		-2.0	+/-20	
Endosulfan I [2C]	A	20.000	23.2	0.9420468	1.0905950		16.0	+/-20	
4,4'-DDE	A	40.000	43.5	1.0687760	1.1614070		8.8	+/-20	
4,4'-DDE [2C]	A	40.000	46.5	0.9713714	1.1285200		16.3	+/-20	
Dieldrin	A	40.000	34.6	1.1982900	1.0364840		-13.5	+/-20	
Dieldrin [2C]	A	40.000	45.8	1.0462970	1.1987360		14.5	+/-20	
Endrin	A	40.000	42.7	1.4560390	1.5542380		6.8	+/-20	
Endrin [2C]	A	40.000	37.9	1.7919390	1.6992050		-5.3	+/-20	
Endosulfan II	A	40.000	42.6	1.3035540	1.3900260		6.5	+/-20	
Endosulfan II [2C]	A	40.000	38.6	1.5970930	1.5424330		-3.5	+/-20	
4,4'-DDD	A	40.000	44.1	1.2545650	1.3829800		10.3	+/-20	
4,4'-DDD [2C]	A	40.000	40.4	1.4573690	1.4726700		1.0	+/-20	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	ECD6	Calibration:	GI00073
Lab File ID:	23100104.D	Calibration Date:	09/23/2023
Sequence:	SLJ0027	Injection Date:	10/01/23
Lab Sample ID:	SLJ0027-ICV1	Injection Time:	15:06
Sequence Name:	Initial Cal Check		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF		
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT	
Endrin Aldehyde	A	40.000	41.5	1.0139430	1.0526130		3.8	+/-20	
Endrin Aldehyde [2C]	A	40.000	37.0	1.1181840	1.0353920		-7.5	+/-20	
4,4'-DDT	A	40.000	43.5	1.3418110	1.4598940		8.8	+/-20	
4,4'-DDT [2C]	A	40.000	39.9	1.5366550	1.5338530		-0.3	+/-20	
Endosulfan Sulfate	A	40.000	62.1	0.4970838	1.0547360		55.3	+/-20	*
Endosulfan Sulfate [2C]	A	40.000	73.8	0.4846410	1.3386890		84.5	+/-20	*
Endrin Ketone	A	40.000	41.5	1.2900520	1.3373780		3.8	+/-20	
Endrin Ketone [2C]	A	40.000	38.4	1.4487900	1.3909170		-4.0	+/-20	
Methoxychlor	A	200.00	207	0.5680210	0.5875630		3.5	+/-20	
Methoxychlor [2C]	A	200.00	213	0.6542240	0.6970654		6.5	+/-20	
Hexachlorobutadiene	A	20.000	19.6	1.7322510	1.6959440		-2.0	+/-20	
Hexachlorobutadiene [2C]	A	20.000	15.1	1.6040770	1.2118630		-24.5	+/-20	*
Hexachlorobenzene	A	20.000	18.7	1.5796780	1.4758600		-6.5	+/-20	
Hexachlorobenzene [2C]	A	20.000	23.4	1.3730680	1.6049080		17.0	+/-20	
Decachlorobiphenyl	A	40.000	39.3	0.9181049	0.9014131		-1.8	+/-20	
Decachlorobiphenyl [2C]	A	40.000	37.6	0.9801968	0.9228289		-6.0	+/-20	
Tetrachlorometaxylene	A	40.000	37.3	1.1947540	1.1151070		-6.8	+/-20	
Tetrachlorometaxylene [2C]	A	40.000	48.6	1.0799480	1.3136450		21.5	+/-20	*

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	ECD6	Calibration:	GI00073
Lab File ID:	23100105.D	Calibration Date:	09/23/2023
Sequence:	SLJ0027	Injection Date:	10/01/23
Lab Sample ID:	SLJ0027-ICV2	Injection Time:	15:25
Sequence Name:	Initial Cal Check		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
2,4'-DDE	A	40.000	38.4	0.9519171	0.9148259		-4.0	+/-20
2,4'-DDE [2C]	A	40.000	39.7	0.5743353	0.5700271		-0.8	+/-20
2,4'-DDD	A	40.000	38.7	0.9394705	0.9080164		-3.3	+/-20
2,4'-DDD [2C]	A	40.000	36.5	1.1124710	1.0161930		-8.8	+/-20
2,4'-DDT	A	40.000	38.0	1.0803310	1.0251930		-5.0	+/-20
2,4'-DDT [2C]	A	40.000	38.1	1.2120170	1.1551950		-4.8	+/-20
Oxychlordane	A	40.000	32.7	1.3479130	1.1014960		-18.3	+/-20
Oxychlordane [2C]	A	40.000	39.2	0.8815338	0.8642928		-2.0	+/-20
cis-Nonachlor	A	40.000	38.3	1.6644740	1.5929310		-4.3	+/-20
cis-Nonachlor [2C]	A	40.000	35.6	2.0490010	1.8228630		-11.0	+/-20
trans-Nonachlor	A	40.000	37.8	1.6372050	1.5455420		-5.5	+/-20
trans-Nonachlor [2C]	A	40.000	36.5	2.1243100	1.9398430		-8.8	+/-20
Mirex	A	40.000	33.8	1.0163620	0.8578328		-15.5	+/-20
Mirex [2C]	A	40.000	33.2	1.1041060	0.9169785		-17.0	+/-20

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	ECD6	Calibration:	GI00073
Lab File ID:	23092330.D	Calibration Date:	09/23/2023
Sequence:	SLI0378	Injection Date:	09/24/23
Lab Sample ID:	SLI0378-SCV1	Injection Time:	02:19
Sequence Name:	INDAESCV		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aldrin	A	50.000	46.8	1.4063520	1.3172990		-6.3	+/-20
Aldrin [2C]	A	50.000	50.5	1.3076460	1.3212270		1.0	+/-20
trans-Chlordane (beta-Chlordane)	A	50.000	52.6	1.2365660	1.3001620		5.1	+/-20
trans-Chlordane (beta-Chlordane) [2C]	A	50.000	53.7	1.1032980	1.1845380		7.4	+/-20
cis-Chlordane (alpha-chlordane)	A	50.000	50.2	1.2302640	1.2348040		0.4	+/-20
cis-Chlordane (alpha-chlordane) [2C]	A	50.000	52.8	1.0358940	1.0937580		5.6	+/-20
Dieldrin	A	50.000	51.3	1.1982900	1.2284650		2.5	+/-20
Dieldrin [2C]	A	50.000	53.6	1.0462970	1.1225610		7.3	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	ECD6	Calibration:	GI00073
Lab File ID:	23092331.D	Calibration Date:	09/23/2023
Sequence:	SLI0378	Injection Date:	09/24/23
Lab Sample ID:	SLI0378-SCV2	Injection Time:	02:38
Sequence Name:	WNDSCV		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Oxychlordane	A	40.000	40.6	1.3479130	1.3697800		1.6	+/-20
Oxychlordane [2C]	A	40.000	41.2	0.8815338	0.9072258		2.9	+/-20
trans-Nonachlor	A	40.000	38.9	1.6372050	1.5903520		-2.9	+/-20
trans-Nonachlor [2C]	A	40.000	39.4	2.1243100	2.0909070		-1.6	+/-20

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	ECD6	Calibration:	GI00073
Lab File ID:	23092725.D	Calibration Date:	09/23/2023
Sequence:	SLI0477	Injection Date:	09/27/23
Lab Sample ID:	SLI0477-CCV1	Injection Time:	18:08
Sequence Name:	INDA		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aldrin	A	20.000	19.8	1.4063520	1.3951740		-1.0	+/-20
Aldrin [2C]	A	20.000	20.7	1.3076460	1.3516890		3.5	+/-20
trans-Chlordane (beta-Chlordane)	A	20.000	19.4	1.2365660	1.1983280		-3.0	+/-20
trans-Chlordane (beta-Chlordane) [2C]	A	20.000	19.4	1.1032980	1.0707940		-3.0	+/-20
cis-Chlordane (alpha-chlordane)	A	20.000	19.1	1.2302640	1.1745970		-4.5	+/-20
cis-Chlordane (alpha-chlordane) [2C]	A	20.000	17.1	1.0358940	0.8849408		-14.5	+/-20
Dieldrin	A	40.000	36.2	1.1982900	1.0836880		-9.5	+/-20
Dieldrin [2C]	A	40.000	38.9	1.0462970	1.0178800		-2.8	+/-20
Decachlorobiphenyl	A	40.000	37.9	0.9181049	0.8691054		-5.3	+/-20
Decachlorobiphenyl [2C]	A	40.000	39.2	0.9801968	0.9602996		-2.0	+/-20
Tetrachlorometaxylene	A	40.000	39.2	1.1947540	1.1708530		-2.0	+/-20
Tetrachlorometaxylene [2C]	A	40.000	42.5	1.0799480	1.1466060		6.3	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	ECD6	Calibration:	GI00073
Lab File ID:	23092726.D	Calibration Date:	09/23/2023
Sequence:	SLI0477	Injection Date:	09/27/23
Lab Sample ID:	SLI0477-CCV2	Injection Time:	18:27
Sequence Name:	WND		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Oxychlordane	A	40.000	35.8	1.3479130	1.2053330		-10.5	+/-20
Oxychlordane [2C]	A	40.000	39.3	0.8815338	0.8658212		-1.8	+/-20
cis-Nonachlor	A	40.000	38.1	1.6644740	1.5863300		-4.8	+/-20
cis-Nonachlor [2C]	A	40.000	38.0	2.0490010	1.9461990		-5.0	+/-20
trans-Nonachlor	A	40.000	38.6	1.6372050	1.5788580		-3.5	+/-20
trans-Nonachlor [2C]	A	40.000	38.6	2.1243100	2.0525170		-3.5	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	ECD6	Calibration:	GI00073
Lab File ID:	23092728.D	Calibration Date:	09/23/2023
Sequence:	SLI0477	Injection Date:	09/27/23
Lab Sample ID:	SLI0477-CCV4	Injection Time:	19:04
Sequence Name:	TOX		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Toxaphene	A	2500.0	2410	0.0414138	0.0398017		-3.7	+/-20
Toxaphene [2C]	A	2500.0	2370	0.0446817	0.0433311		-5.0	+/-20
Decachlorobiphenyl	A	40.000	41.9	0.9181049	0.9623673		4.8	+/-20
Decachlorobiphenyl [2C]	A	40.000	45.6	0.9801968	1.1168040		14.0	+/-20
Tetrachlorometaxylene	A	20.000	18.2	1.1947540	1.0851860		-9.0	+/-20
Tetrachlorometaxylene [2C]	A	20.000	20.0	1.0799480	1.0780400		0.0	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	ECD6	Calibration:	GI00073
Lab File ID:	23092746.D	Calibration Date:	09/23/2023
Sequence:	SLI0477	Injection Date:	09/28/23
Lab Sample ID:	SLI0477-CCV5	Injection Time:	00:43
Sequence Name:	IND		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aldrin	A	20.000	18.9	1.4063520	1.3261270		-5.7	+/-20
Aldrin [2C]	A	20.000	19.6	1.3076460	1.2822720		-1.9	+/-20
trans-Chlordane (beta-Chlordane)	A	20.000	18.5	1.2365660	1.1417990		-7.7	+/-20
trans-Chlordane (beta-Chlordane) [2C]	A	20.000	18.4	1.1032980	1.0148390		-8.0	+/-20
cis-Chlordane (alpha-chlordane)	A	20.000	18.3	1.2302640	1.1232860		-8.7	+/-20
cis-Chlordane (alpha-chlordane) [2C]	A	20.000	16.4	1.0358940	0.8518783		-17.8	+/-20
Dieldrin	A	40.000	34.8	1.1982900	1.0425650		-13.0	+/-20
Dieldrin [2C]	A	40.000	37.3	1.0462970	0.9761038		-6.7	+/-20
Decachlorobiphenyl	A	40.000	37.5	0.9181049	0.8605070		-6.3	+/-20
Decachlorobiphenyl [2C]	A	40.000	37.7	0.9801968	0.9238112		-5.8	+/-20
Tetrachlorometaxylene	A	40.000	37.6	1.1947540	1.1235180		-6.0	+/-20
Tetrachlorometaxylene [2C]	A	40.000	40.9	1.0799480	1.1034350		2.2	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	ECD6	Calibration:	GI00073
Lab File ID:	23092747.D	Calibration Date:	09/23/2023
Sequence:	SLI0477	Injection Date:	09/28/23
Lab Sample ID:	SLI0477-CCV6	Injection Time:	01:01
Sequence Name:	WND		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Oxychlordane	A	40.000	33.8	1.3479130	1.1392360		-15.5	+/-20
Oxychlordane [2C]	A	40.000	36.2	0.8815338	0.7973560		-9.5	+/-20
cis-Nonachlor	A	40.000	35.8	1.6644740	1.4899500		-10.5	+/-20
cis-Nonachlor [2C]	A	40.000	35.0	2.0490010	1.7939720		-12.4	+/-20
trans-Nonachlor	A	40.000	36.2	1.6372050	1.4811760		-9.5	+/-20
trans-Nonachlor [2C]	A	40.000	35.6	2.1243100	1.8926760		-10.9	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	ECD6	Calibration:	GI00073
Lab File ID:	23092749.D	Calibration Date:	09/23/2023
Sequence:	SLI0477	Injection Date:	09/28/23
Lab Sample ID:	SLI0477-CCV8	Injection Time:	01:39
Sequence Name:	TOX		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Toxaphene	A	2500.0	2370	0.0414138	0.0393524		-5.1	+/-20
Toxaphene [2C]	A	2500.0	2320	0.0446817	0.0423471		-7.0	+/-20
Decachlorobiphenyl	A	40.000	41.9	0.9181049	0.9623481		4.8	+/-20
Decachlorobiphenyl [2C]	A	40.000	44.7	0.9801968	1.0945400		11.7	+/-20
Tetrachlorometaxylene	A	20.000	18.2	1.1947540	1.0856210		-9.1	+/-20
Tetrachlorometaxylene [2C]	A	20.000	20.1	1.0799480	1.0875170		0.7	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	ECD6	Calibration:	GI00073
Lab File ID:	23092760.D	Calibration Date:	09/23/2023
Sequence:	SLI0477	Injection Date:	09/28/23
Lab Sample ID:	SLI0477-CCV9	Injection Time:	05:06
Sequence Name:	INDA		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aldrin	A	20.000	20.5	1.4063520	1.4426900		2.6	+/-20
Aldrin [2C]	A	20.000	21.3	1.3076460	1.3898500		6.3	+/-20
trans-Chlordane (beta-Chlordane)	A	20.000	20.2	1.2365660	1.2489360		1.0	+/-20
trans-Chlordane (beta-Chlordane) [2C]	A	20.000	20.0	1.1032980	1.1045440		0.1	+/-20
cis-Chlordane (alpha-chlordane)	A	20.000	19.9	1.2302640	1.2248130		-0.4	+/-20
cis-Chlordane (alpha-chlordane) [2C]	A	20.000	17.6	1.0358940	0.9105205		-12.1	+/-20
Dieldrin	A	40.000	37.2	1.1982900	1.1135980		-7.1	+/-20
Dieldrin [2C]	A	40.000	40.0	1.0462970	1.0460390		-0.02	+/-20
Decachlorobiphenyl	A	40.000	37.8	0.9181049	0.8675214		-5.5	+/-20
Decachlorobiphenyl [2C]	A	40.000	37.7	0.9801968	0.9239768		-5.7	+/-20
Tetrachlorometaxylene	A	40.000	39.5	1.1947540	1.1799420		-1.2	+/-20
Tetrachlorometaxylene [2C]	A	40.000	42.7	1.0799480	1.1515540		6.6	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	ECD6	Calibration:	GI00073
Lab File ID:	23092761.D	Calibration Date:	09/23/2023
Sequence:	SLI0477	Injection Date:	09/28/23
Lab Sample ID:	SLI0477-CCVA	Injection Time:	05:25
Sequence Name:	WNDE4		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Oxychlordane	A	40.000	34.6	1.3479130	1.1655000		-13.5	+/-20
Oxychlordane [2C]	A	40.000	37.2	0.8815338	0.8198709		-7.0	+/-20
cis-Nonachlor	A	40.000	36.6	1.6644740	1.5249050		-8.4	+/-20
cis-Nonachlor [2C]	A	40.000	35.8	2.0490010	1.8341270		-10.5	+/-20
trans-Nonachlor	A	40.000	37.0	1.6372050	1.5135780		-7.6	+/-20
trans-Nonachlor [2C]	A	40.000	36.5	2.1243100	1.9400420		-8.7	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	ECD6	Calibration:	GI00073
Lab File ID:	23092763.D	Calibration Date:	09/23/2023
Sequence:	SLI0477	Injection Date:	09/28/23
Lab Sample ID:	SLI0477-CCVC	Injection Time:	06:02
Sequence Name:	TOX		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Toxaphene	A	2500.0	2430	0.0414138	0.0401749		-2.9	+/-20
Toxaphene [2C]	A	2500.0	2350	0.0446817	0.0429672		-5.8	+/-20
Decachlorobiphenyl	A	40.000	42.1	0.9181049	0.9655423		5.2	+/-20
Decachlorobiphenyl [2C]	A	40.000	44.5	0.9801968	1.0913430		11.3	+/-20
Tetrachlorometaxylene	A	20.000	18.8	1.1947540	1.1213600		-6.1	+/-20
Tetrachlorometaxylene [2C]	A	20.000	20.5	1.0799480	1.1042770		2.3	+/-20

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	ECD6	Calibration:	GI00073
Lab File ID:	23100116.D	Calibration Date:	09/23/2023
Sequence:	SLJ0027	Injection Date:	10/01/23
Lab Sample ID:	SLJ0027-CCV1	Injection Time:	18:49
Sequence Name:	INDA		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF		
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT	
alpha-BHC	A	20.000	22.1	1.7040570	1.8834280		10.5	+/-20	
alpha-BHC [2C]	A	20.000	21.5	1.6109260	1.7349610		7.7	+/-20	
beta-BHC	A	20.000	15.9	0.7006135	0.5584504		-20.3	+/-20	*
beta-BHC [2C]	A	20.000	17.4	0.6424146	0.5602245		-12.8	+/-20	
gamma-BHC (Lindane)	A	20.000	22.4	1.4467050	1.6173540		11.8	+/-20	
gamma-BHC (Lindane) [2C]	A	20.000	22.6	1.2756680	1.4411760		13.0	+/-20	
delta-BHC	A	20.000	23.7	1.3991630	1.6567340		18.4	+/-20	
delta-BHC [2C]	A	20.000	16.1	0.9679496	1.0040590		-19.5	+/-20	
Heptachlor	A	20.000	22.4	1.3766210	1.5419870		12.0	+/-20	
Heptachlor [2C]	A	20.000	21.1	1.4470130	1.5261170		5.5	+/-20	
Aldrin	A	20.000	22.0	1.4063520	1.5493150		10.2	+/-20	
Aldrin [2C]	A	20.000	21.6	1.3076460	1.4090100		7.8	+/-20	
Heptachlor Epoxide	A	20.000	21.2	1.2222550	1.2945700		5.9	+/-20	
Heptachlor Epoxide [2C]	A	20.000	20.4	1.0739600	1.0980520		2.2	+/-20	
trans-Chlordane (beta-Chlordane)	A	20.000	21.2	1.2365660	1.3136130		6.2	+/-20	
trans-Chlordane (beta-Chlordane) [2C]	A	20.000	19.5	1.1032980	1.0784200		-2.3	+/-20	
cis-Chlordane (alpha-chlordane)	A	20.000	20.8	1.2302640	1.2800250		4.0	+/-20	
cis-Chlordane (alpha-chlordane) [2C]	A	20.000	16.0	1.0358940	0.8266148		-20.2	+/-20	*
Endosulfan I	A	20.000	19.9	1.2411890	1.2363690		-0.4	+/-20	
Endosulfan I [2C]	A	20.000	20.6	0.9420468	0.9685469		2.8	+/-20	
4,4'-DDE	A	40.000	44.4	1.0687760	1.1859630		11.0	+/-20	
4,4'-DDE [2C]	A	40.000	40.9	0.9713714	0.9936029		2.3	+/-20	
Dieldrin	A	40.000	35.8	1.1982900	1.0710810		-10.6	+/-20	
Dieldrin [2C]	A	40.000	40.4	1.0462970	1.0562460		1.0	+/-20	
Endrin	A	40.000	44.6	1.4560390	1.6249600		11.6	+/-20	
Endrin [2C]	A	40.000	39.3	1.7919390	1.7610390		-1.7	+/-20	
Endosulfan II	A	40.000	43.8	1.3035540	1.4267940		9.5	+/-20	
Endosulfan II [2C]	A	40.000	39.0	1.5970930	1.5571580		-2.5	+/-20	
4,4'-DDD	A	40.000	44.8	1.2545650	1.4060830		12.1	+/-20	
4,4'-DDD [2C]	A	40.000	41.3	1.4573690	1.5045230		3.2	+/-20	
Endrin Aldehyde	A	40.000	42.4	1.0139430	1.0749030		6.0	+/-20	
Endrin Aldehyde [2C]	A	40.000	38.0	1.1181840	1.0630490		-4.9	+/-20	
4,4'-DDT	A	40.000	43.8	1.3418110	1.4679070		9.4	+/-20	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	ECD6	Calibration:	GI00073
Lab File ID:	23100116.D	Calibration Date:	09/23/2023
Sequence:	SLJ0027	Injection Date:	10/01/23
Lab Sample ID:	SLJ0027-CCV1	Injection Time:	18:49
Sequence Name:	INDA		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF		
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT	
4,4'-DDT [2C]	A	40.000	40.9	1.5366550	1.5707110		2.2	+/-20	
Endosulfan Sulfate	A	40.000	64.8	0.4970838	1.1045500		61.9	+/-20	*
Endosulfan Sulfate [2C]	A	40.000	76.4	0.4846410	1.3933880		91.0	+/-20	*
Endrin Ketone	A	40.000	42.2	1.2900520	1.3615560		5.5	+/-20	
Endrin Ketone [2C]	A	40.000	40.8	1.4487900	1.4768980		1.9	+/-20	
Methoxychlor	A	200.00	218	0.5680210	0.6181163		8.8	+/-20	
Methoxychlor [2C]	A	200.00	219	0.6542240	0.7151359		9.3	+/-20	
Hexachlorobutadiene	A	20.000	21.3	1.7322510	1.8491240		6.7	+/-20	
Hexachlorobutadiene [2C]	A	20.000	14.2	1.6040770	1.1350790		-29.2	+/-20	*
Hexachlorobenzene	A	20.000	20.4	1.5796780	1.6087670		1.8	+/-20	
Hexachlorobenzene [2C]	A	20.000	21.8	1.3730680	1.4984840		9.1	+/-20	
Decachlorobiphenyl	A	40.000	40.3	0.9181049	0.9260518		0.9	+/-20	
Decachlorobiphenyl [2C]	A	40.000	38.4	0.9801968	0.9400743		-4.1	+/-20	
Tetrachlorometaxylene	A	40.000	40.8	1.1947540	1.2190480		2.0	+/-20	
Tetrachlorometaxylene [2C]	A	40.000	44.2	1.0799480	1.1943270		10.6	+/-20	

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	ECD6	Calibration:	GI00073
Lab File ID:	23100117.D	Calibration Date:	09/23/2023
Sequence:	SLJ0027	Injection Date:	10/01/23
Lab Sample ID:	SLJ0027-CCV2	Injection Time:	19:07
Sequence Name:	WND		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
2,4'-DDE	A	40.000	37.5	0.9519171	0.8916686		-6.3	+/-20
2,4'-DDE [2C]	A	40.000	38.8	0.5743353	0.5575787		-2.9	+/-20
2,4'-DDD	A	40.000	34.8	0.9394705	0.8179471		-12.9	+/-20
2,4'-DDD [2C]	A	40.000	35.4	1.1124710	0.9858738		-11.4	+/-20
2,4'-DDT	A	40.000	36.5	1.0803310	0.9864988		-8.7	+/-20
2,4'-DDT [2C]	A	40.000	37.1	1.2120170	1.1250930		-7.2	+/-20
Oxychlordane	A	40.000	32.0	1.3479130	1.0796330		-19.9	+/-20
Oxychlordane [2C]	A	40.000	38.3	0.8815338	0.8444928		-4.2	+/-20
cis-Nonachlor	A	40.000	36.4	1.6644740	1.5140990		-9.0	+/-20
cis-Nonachlor [2C]	A	40.000	34.1	2.0490010	1.7478650		-14.7	+/-20
trans-Nonachlor	A	40.000	36.4	1.6372050	1.4896480		-9.0	+/-20
trans-Nonachlor [2C]	A	40.000	35.3	2.1243100	1.8759310		-11.7	+/-20
Mirex	A	40.000	32.1	1.0163620	0.8154812		-19.8	+/-20
Mirex [2C]	A	40.000	32.2	1.1041060	0.8890140		-19.5	+/-20

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

PERFORMANCE EVAUATION DATA SHEET

DS2

EPA 8081B

Laboratory:	Analytical Resources, LLC	Laboratory ID:	SLJ0027-PEM2	File ID:	23100115.D
Client:	Floyd - Snider	Matrix:	Solid	Instrument:	ECD6
Project:	Smith-Kem	Analyzed:	10/01/2023	Sequence:	SLJ0027
SDG:	23H0523	Calibration:	GI00073	Column:	1

PEM COMPOUND	RT	Response
4,4'-DDE	6.28	17933
Endrin	6.86	1464598
4,4'-DDD	6.94	11199
Endrin Aldehyde	7.53	18891
4,4'-DDT	7.23	1295583
Endrin Ketone	8.24	20737

4,4'-DDT %Breakdown (1): 2.2

Endrin %Breakdown (1): 2.6

Analytical Resources, LLC
Analytical Chemists and Consultants

PERFORMANCE EVAUATION DATA SHEET

DS2

EPA 8081B

Laboratory:	Analytical Resources, LLC	Laboratory ID:	SLJ0027-PEM2	File ID:	23100115.D
Client:	Floyd - Snider	Matrix:	Solid	Instrument:	ECD6
Project:	Smith-Kem	Analyzed:	10/01/2023	Sequence:	SLJ0027
SDG:	23H0523	Calibration:	GI00073	Column:	2

PEM COMPOUND	RT	Response
4,4'-DDE	6.91	23589
Endrin	7.42	1144244
4,4'-DDD	7.53	2226
Endrin Aldehyde	7.98	10976
4,4'-DDT	7.84	1225869
Endrin Ketone	8.76	8575

4,4'-DDT %Breakdown (1): 2.1

Endrin %Breakdown (1): 1.7

7E

8081 DDT/ENDRIN BREAKDOWN VERIFICATION SUMMARY

Lab ID: SLJ0027-PEM2 InstID,Data File: ecd6.i, 23100115.D

Analysis Date: 01-OCT-2023 18:30 Init. Calib. Date: 23-SEP-2023

GC Column: STX-CLP1 ID: 0.53(mm)

COMPOUND	RT	AREA
1Bromo-2nitrobenzene	3.009	1318425
4,4'-DDE	6.284	17933
Endrin	6.857	1464598
4,4'-DDD	6.936	11199
4,4'-DDT	7.228	1295583
Endrin ketone	8.239	20737
Endrin aldehyde	7.529	18891
Hexabromobiphenyl	9.314	805780
Tetrachloro-m-xylene	3.672	660678
Decachlorobiphenyl	9.168	356830

DDT Percent Breakdown = 2.2 %
((17933+11199) * 100)/(17933+11199+1295583)

Endrin Percent Breakdown = 2.6 %
((18891+20737) * 100)/(18891+20737+1464598)

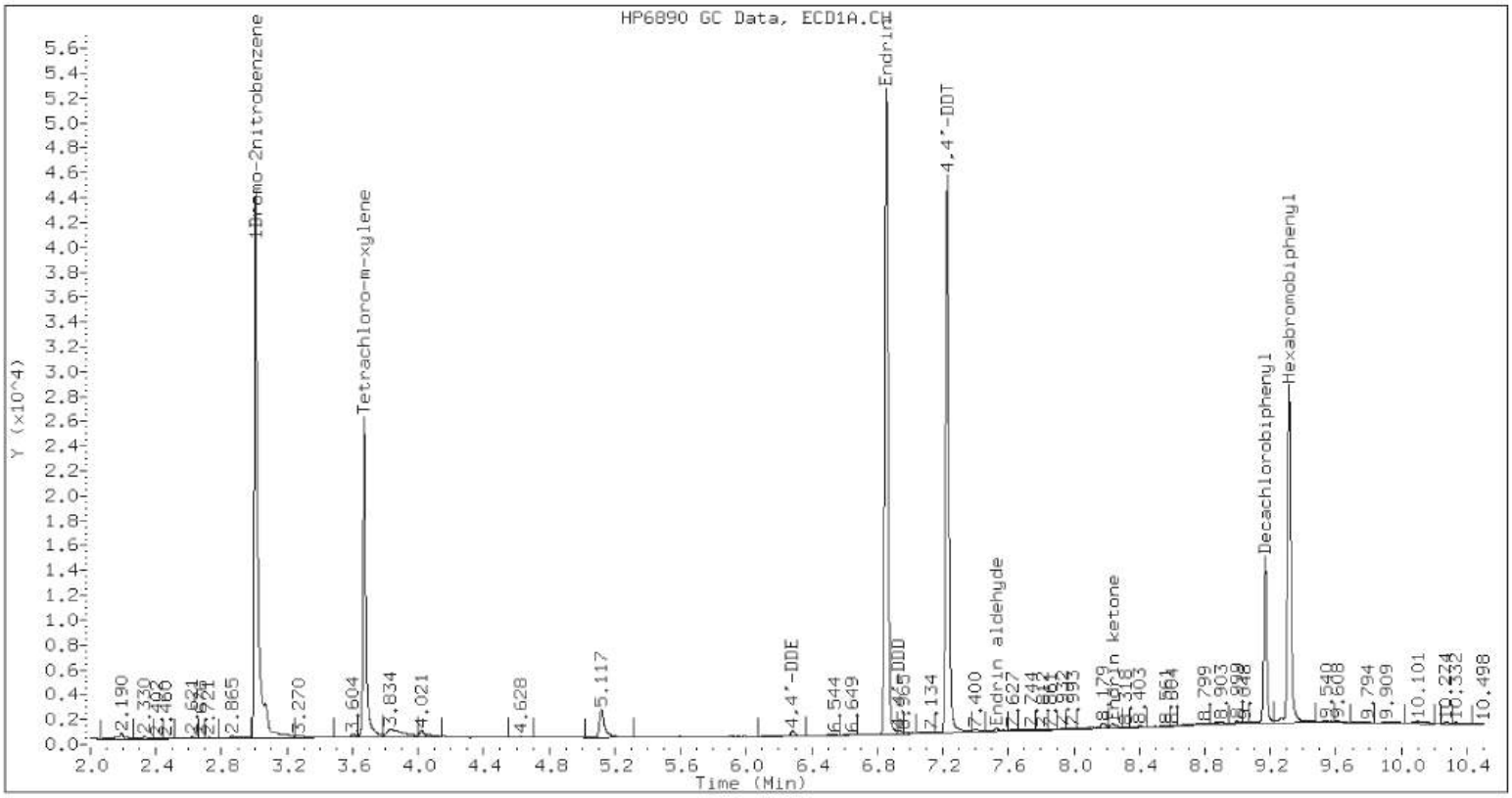
GC Column: STX-CLP2 ID: 0.53(mm)

COMPOUND	RT	AREA
1Bromo-2nitrobenzene [C]	3.069	1442816
4,4'-DDE [C]	6.912	23589
Endrin [C]	7.421	1144244
4,4'-DDD [C]	7.527	2226
4,4'-DDT [C]	7.837	1225869
Endrin ketone [C]	8.764	8575
Endrin aldehyde [C]	7.977	10976
Hexabromobiphenyl[C]	10.393	672588
Tetrachloro-m-xylene [C]	3.867	812718
Decachlorobiphenyl [C]	9.885	334155

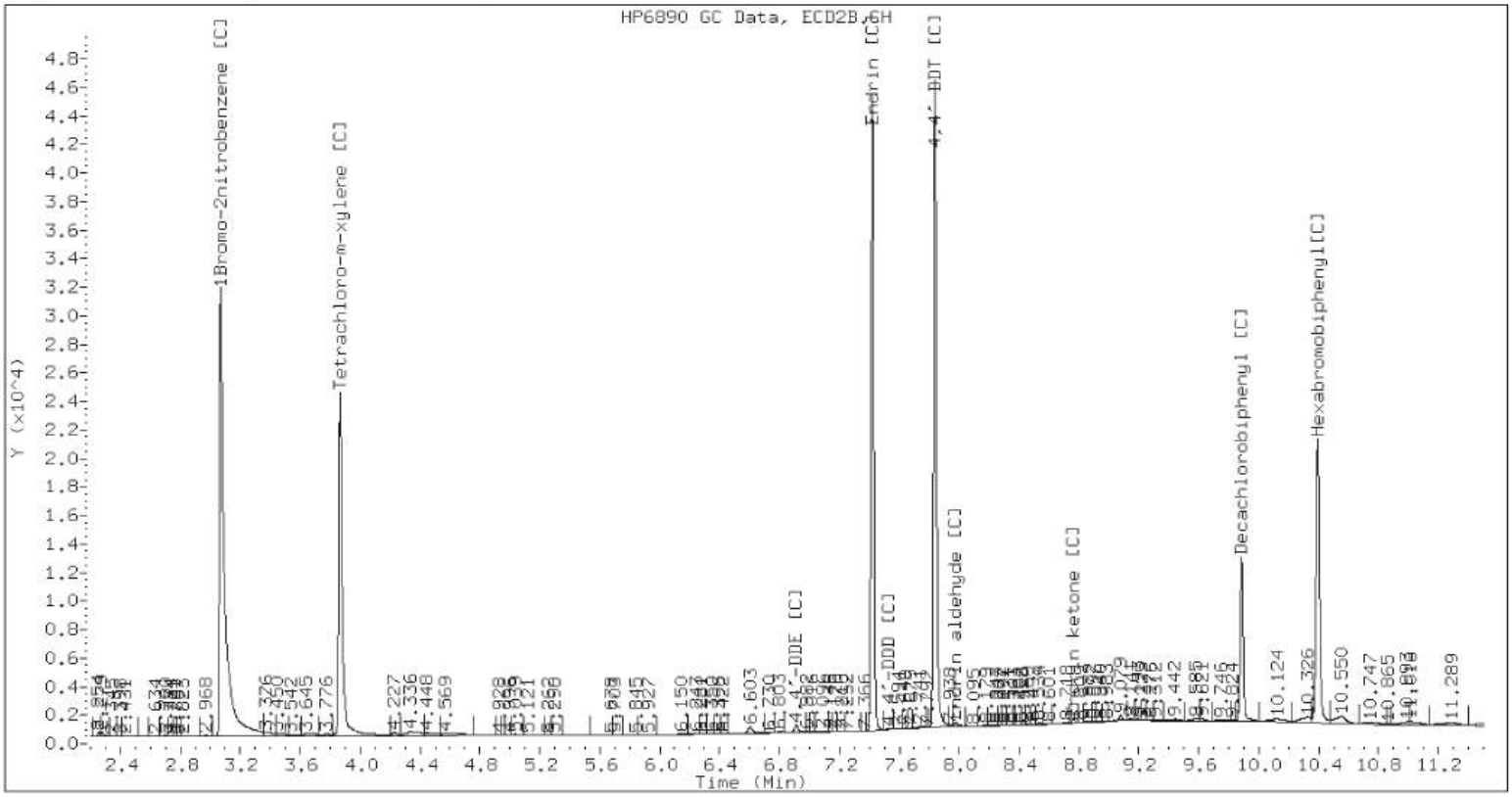
DDT Percent Breakdown = 2.1 %
((23589+2226) * 100)/(23589+2226+1225869)

Endrin Percent Breakdown = 1.7 %
((10976+8575) * 100)/(10976+8575+1144244)

/20231001.b/23100115.D SLJ0027-PEM2 STX-CLP 01-OCT-2023 18:30 1ul

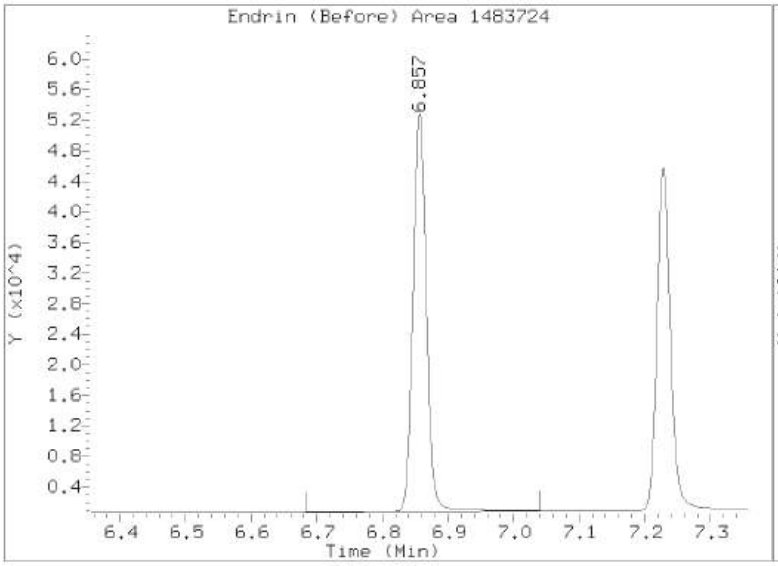


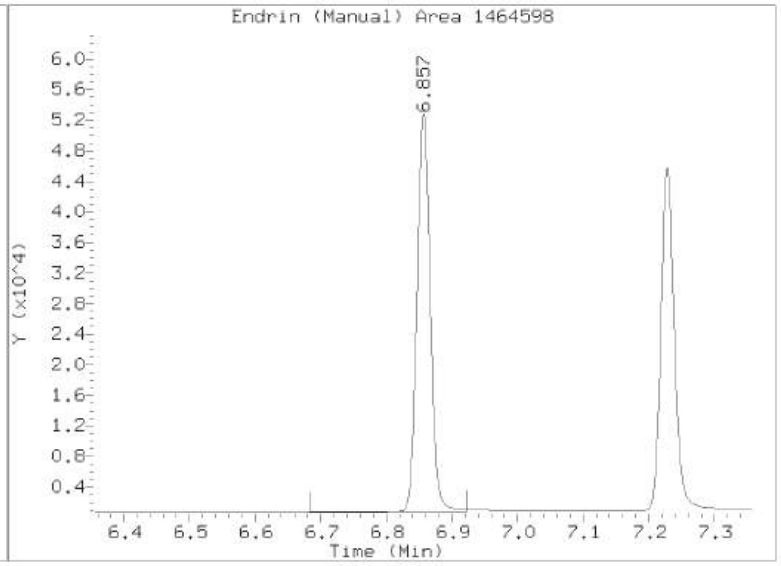
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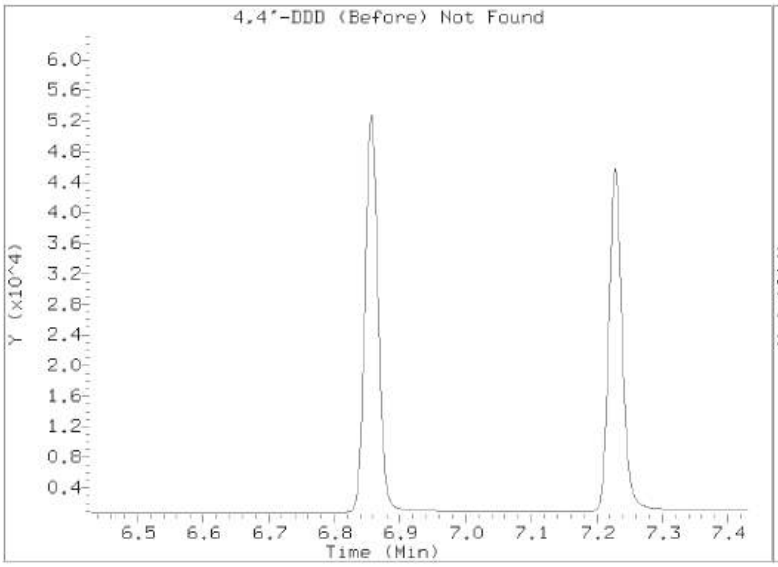


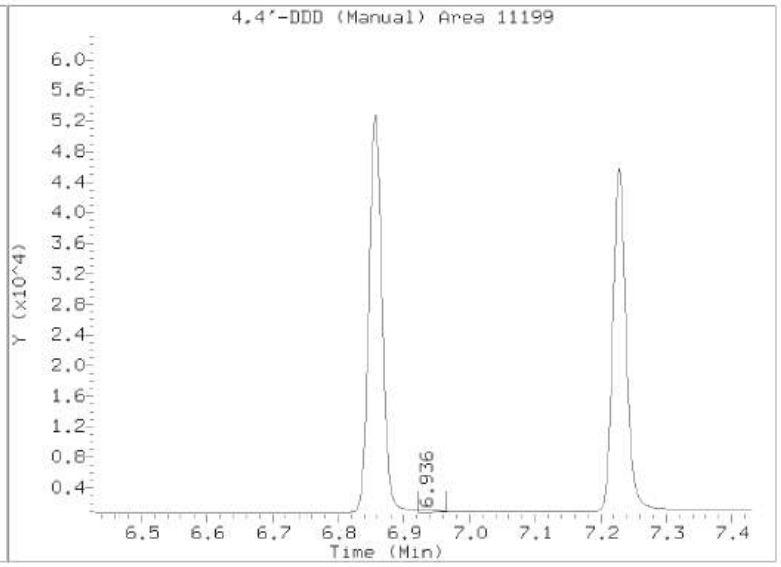
Manual Peak Adjustment Report, STX-CLP

Datafile: /20231001.b/23100115.D
Injection Date: 01-OCT-2023 18:30
Lab ID:SLJ0027-PEM2 Client ID:
Report Date: 10/06/2023 11:17









Analytical Resources, LLC
Analytical Chemists and Consultants

PERFORMANCE EVAUATION DATA SHEET

Performance Mix

EPA 8081B

Laboratory:	Analytical Resources, LLC	Laboratory ID:	SLJ0027-PEM1	File ID:	23100103.D
Client:	Floyd - Snider	Matrix:	Solid	Instrument:	ECD6
Project:	Smith-Kem	Analyzed:	10/01/2023	Sequence:	SLJ0027
SDG:	23H0523	Calibration:	GI00073	Column:	1

PEM COMPOUND	RT	Response
4,4'-DDE	6.29	19614
Endrin	6.86	1435713
4,4'-DDD	6.94	11336
Endrin Aldehyde	7.53	11143
4,4'-DDT	7.23	1360985
Endrin Ketone	8.24	13763

4,4'-DDT %Breakdown (1): 2.2

Endrin %Breakdown (1): 1.7

Analytical Resources, LLC
Analytical Chemists and Consultants

PERFORMANCE EVAUATION DATA SHEET

Performance Mix

EPA 8081B

Laboratory:	Analytical Resources, LLC	Laboratory ID:	SLJ0027-PEM1	File ID:	23100103.D
Client:	Floyd - Snider	Matrix:	Solid	Instrument:	ECD6
Project:	Smith-Kem	Analyzed:	10/01/2023	Sequence:	SLJ0027
SDG:	23H0523	Calibration:	GI00073	Column:	2

PEM COMPOUND	RT	Response
4,4'-DDE	6.92	27019
Endrin	7.42	1478987
4,4'-DDD	7.53	17864
Endrin Aldehyde	7.98	17789
4,4'-DDT	7.84	1325999
Endrin Ketone	8.77	10388

4,4'-DDT %Breakdown (1): 3.3

Endrin %Breakdown (1): 1.9

7E

8081 DDT/ENDRIN BREAKDOWN VERIFICATION SUMMARY

Lab ID: SLJ0027-PEM1 InstID,Data File: ecd6.i, 23100103.D

Analysis Date: 01-OCT-2023 14:47 Init. Calib. Date: 23-SEP-2023

GC Column: STX-CLP1 ID: 0.53(mm)

COMPOUND	RT	AREA
1Bromo-2nitrobenzene	3.010	1212846
4,4'-DDE	6.287	19614
Endrin	6.859	1435713
4,4'-DDD	6.939	11336
4,4'-DDT	7.231	1360985
Endrin ketone	8.241	13763
Endrin aldehyde	7.531	11143
Hexabromobiphenyl	9.316	860821
Tetrachloro-m-xylene	3.673	626575
Decachlorobiphenyl	9.169	380142

DDT Percent Breakdown = 2.2 %
((19614+11336) * 100)/(19614+11336+1360985)

Endrin Percent Breakdown = 1.7 %
((11143+13763) * 100)/(11143+13763+1435713)

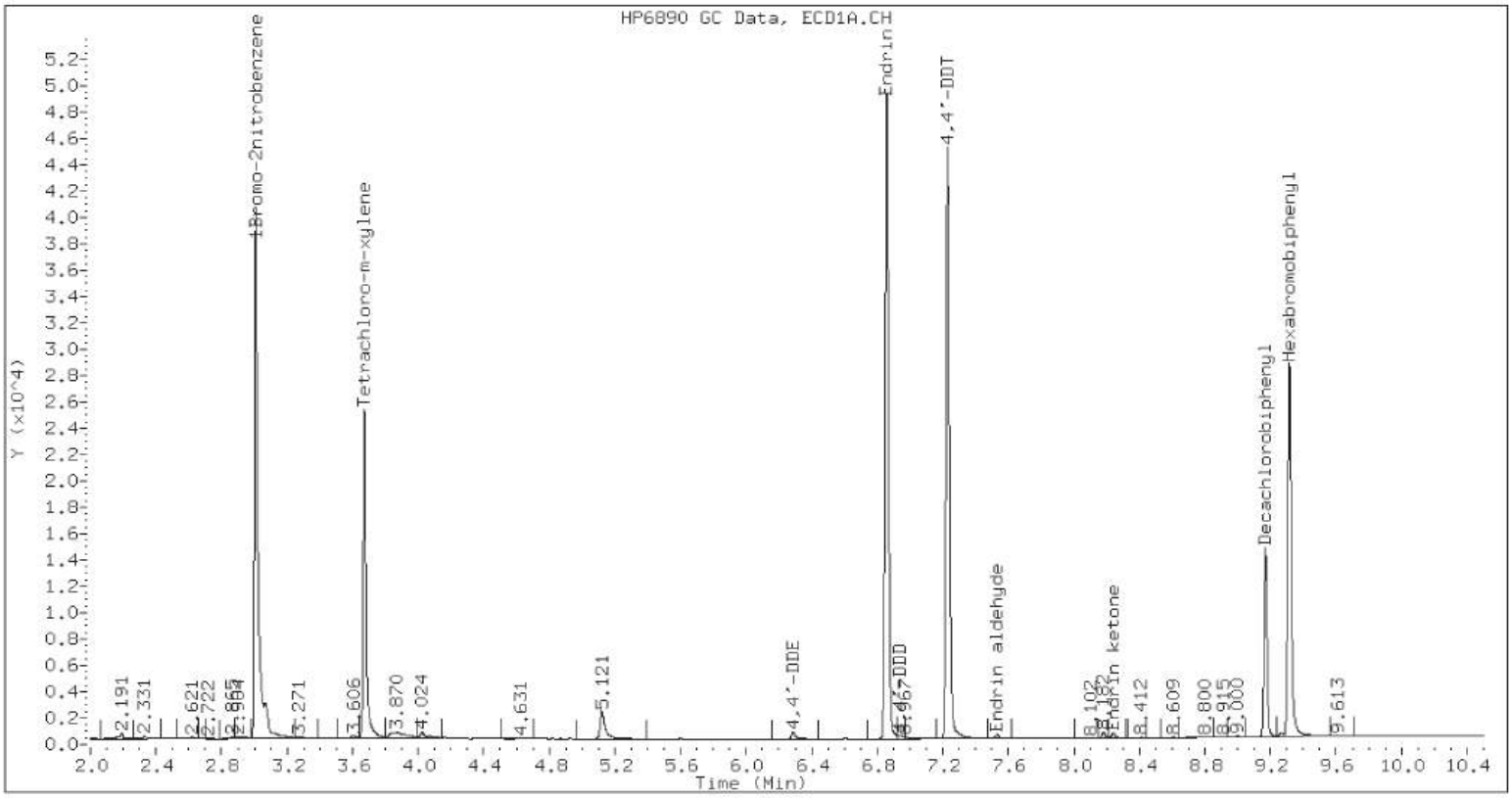
GC Column: STX-CLP2 ID: 0.53(mm)

COMPOUND	RT	AREA
1Bromo-2nitrobenzene [C]	3.072	1435076
4,4'-DDE [C]	6.916	27019
Endrin [C]	7.423	1478987
4,4'-DDD [C]	7.528	17864
4,4'-DDT [C]	7.839	1325999
Endrin ketone [C]	8.765	10388
Endrin aldehyde [C]	7.978	17789
Hexabromobiphenyl[C]	10.395	756732
Tetrachloro-m-xylene [C]	3.869	813823
Decachlorobiphenyl [C]	9.885	347293

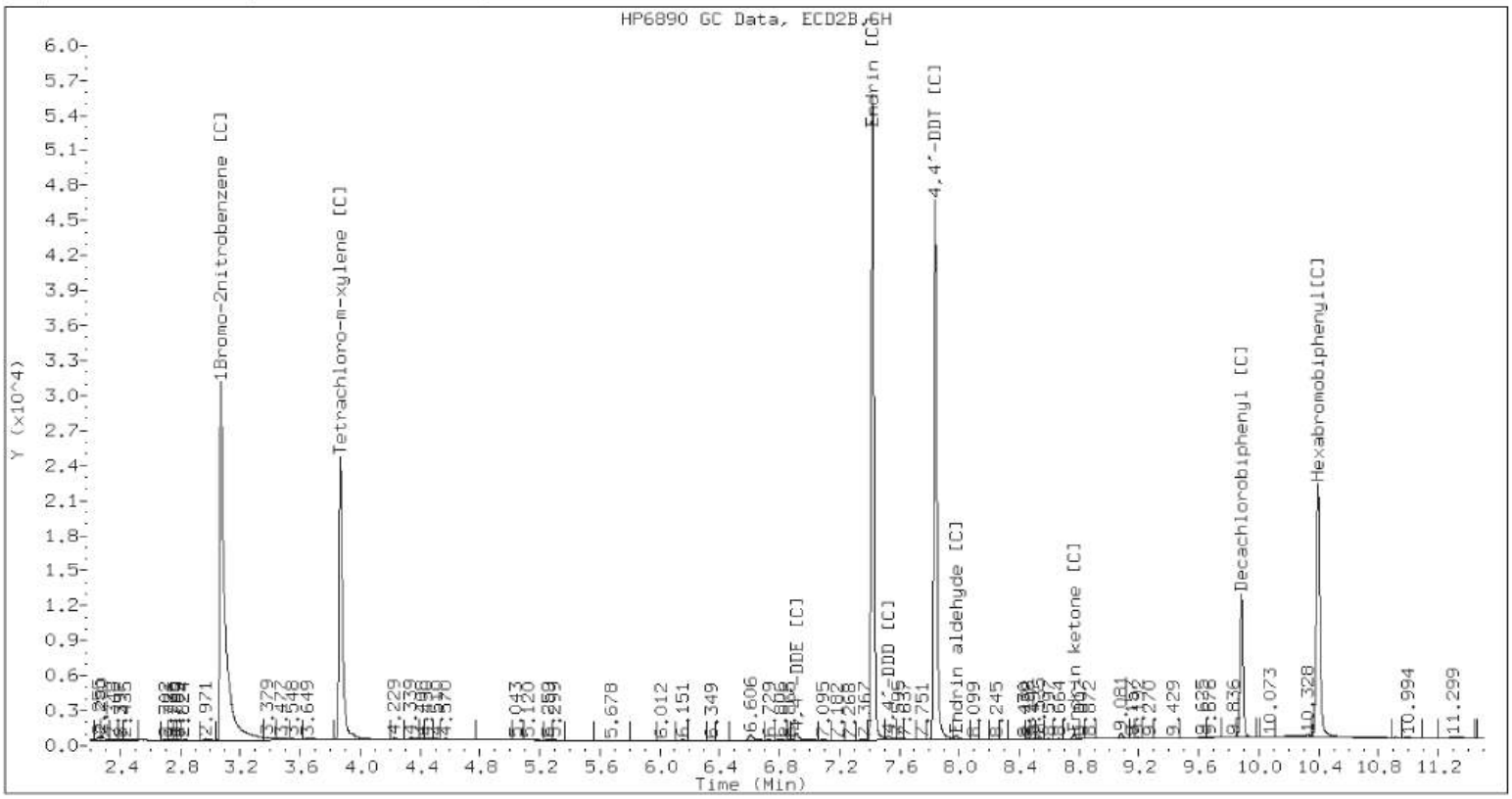
DDT Percent Breakdown = 3.3 %
((27019+17864) * 100)/(27019+17864+1325999)

Endrin Percent Breakdown = 1.9 %
((17789+10388) * 100)/(17789+10388+1478987)

/20231001.b/23100103.D SLJ0027-PEM1 STX-CLP 01-OCT-2023 14:47 1ul

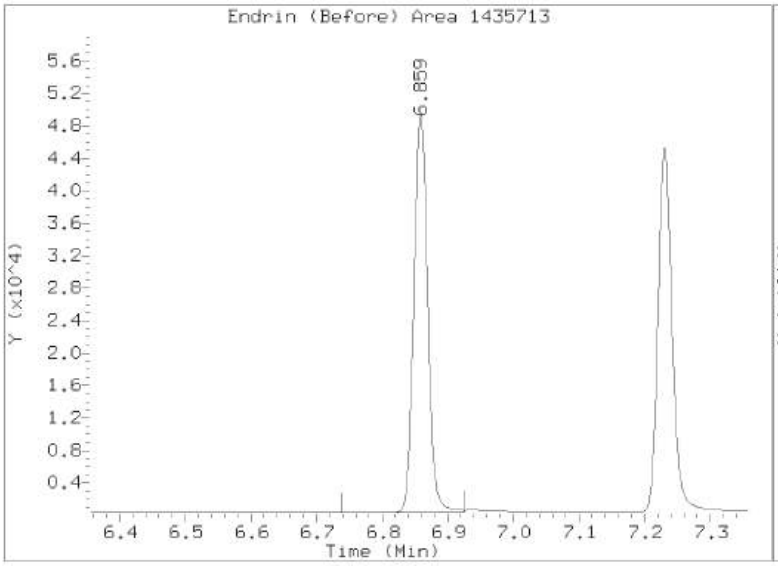


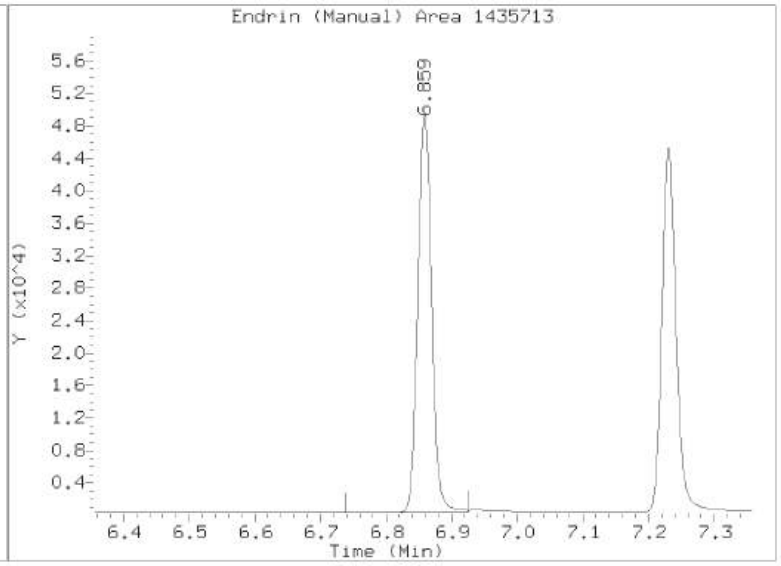
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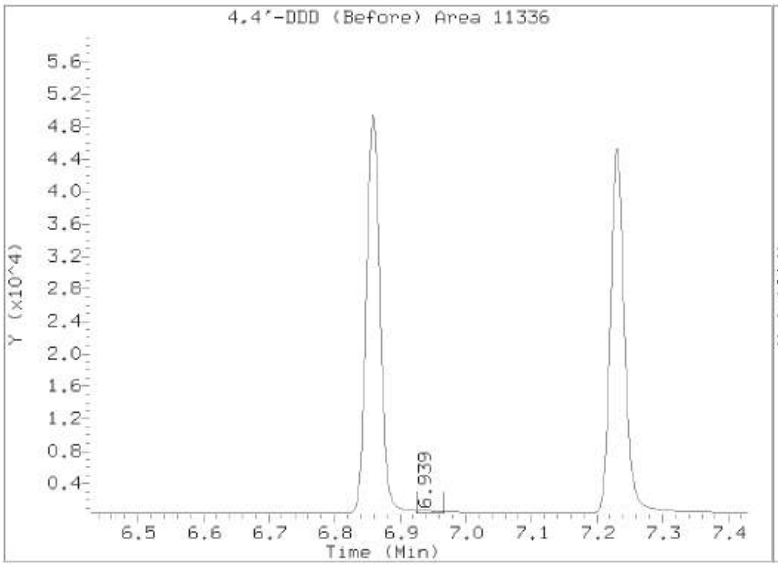


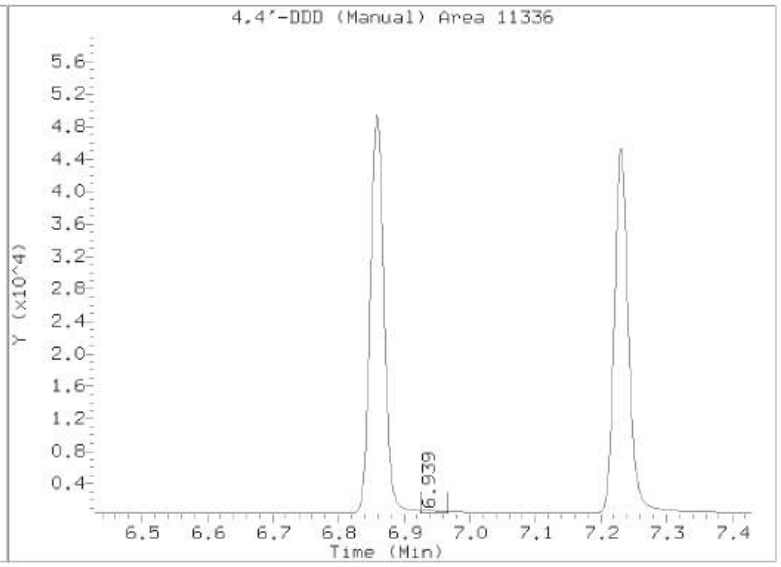
Manual Peak Adjustment Report, STX-CLP

Datafile: /20231001.b/23100103.D
Injection Date: 01-OCT-2023 14:47
Lab ID:SLJ0027-PEM1 Client ID:
Report Date: 10/06/2023 11:17









Analytical Resources, LLC
Analytical Chemists and Consultants

Dual Column

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8081B

Laboratory: Analytical Resources, LLC
SDG: 23H0523
Client: Floyd - Snider
Project: Smith-Kem
Sequence: SLI0378
Instrument: ECD6
Calibration: GI00073

Sample Name	Lab Sample ID	Column 1 File ID	Column 2 File ID	Matrix	Analysis Date/Time
Cal Standard	SLI0378-CAL1	23092302.D	23092302.D	NA	09/23/23 17:45
Cal Standard	SLI0378-CAL2	23092303.D	23092303.D	NA	09/23/23 18:03
Cal Standard	SLI0378-CAL3	23092304.D	23092304.D	NA	09/23/23 18:22
Cal Standard	SLI0378-CAL4	23092305.D	23092305.D	NA	09/23/23 18:40
Cal Standard	SLI0378-CAL5	23092306.D	23092306.D	NA	09/23/23 18:58
Cal Standard	SLI0378-CAL6	23092307.D	23092307.D	NA	09/23/23 19:17
Cal Standard	SLI0378-CAL7	23092308.D	23092308.D	NA	09/23/23 19:35
Cal Standard	SLI0378-CAL8	23092309.D	23092309.D	NA	09/23/23 19:53
Cal Standard	SLI0378-CAL9	23092310.D	23092310.D	NA	09/23/23 20:12
Cal Standard	SLI0378-CALA	23092311.D	23092311.D	NA	09/23/23 20:30
Cal Standard	SLI0378-CALB	23092312.D	23092312.D	NA	09/23/23 20:48
Cal Standard	SLI0378-CALC	23092313.D	23092313.D	NA	09/23/23 21:07
Cal Standard	SLI0378-CALD	23092314.D	23092314.D	NA	09/23/23 21:25
Cal Standard	SLI0378-CALE	23092315.D	23092315.D	NA	09/23/23 21:43
Cal Standard	SLI0378-CALM	23092323.D	23092323.D	NA	09/24/23 00:11
Cal Standard	SLI0378-CALN	23092324.D	23092324.D	NA	09/24/23 00:29
Cal Standard	SLI0378-CALO	23092325.D	23092325.D	NA	09/24/23 00:47
Cal Standard	SLI0378-CALP	23092326.D	23092326.D	NA	09/24/23 01:06
Cal Standard	SLI0378-CALQ	23092327.D	23092327.D	NA	09/24/23 01:24
Cal Standard	SLI0378-CALR	23092328.D	23092328.D	NA	09/24/23 01:42
Cal Standard	SLI0378-CALS	23092329.D	23092329.D	NA	09/24/23 02:01
Secondary Cal Check	SLI0378-SCV1	23092330.D	23092330.D	NA	09/24/23 02:19
Secondary Cal Check	SLI0378-SCV2	23092331.D	23092331.D	NA	09/24/23 02:38

Analytical Resources, LLC
Analytical Chemists and Consultants

Dual Column

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SLI0477	Instrument:	ECD6
		Calibration:	GI00073

Sample Name	Lab Sample ID	Column 1 File ID	Column 2 File ID	Matrix	Analysis Date/Time
Initial Cal Check	SLI0477-ICV1	23092703.D	23092703.D	NA	09/27/23 08:59
Initial Cal Check	SLI0477-ICV2	23092704.D	23092704.D	NA	09/27/23 09:17
Initial Cal Check	SLI0477-ICV4	23092706.D	23092706.D	NA	09/27/23 09:54
Blank	BLH0527-BLK1	23092707.D	23092707.D	Water	09/27/23 12:27
LCS	BLH0527-BS1	23092708.D	23092708.D	Water	09/27/23 12:46
LCS Dup	BLH0527-BSD1	23092709.D	23092709.D	Water	09/27/23 13:04
MW-1-081523	23H0523-01	23092718.D	23092718.D	Water	09/27/23 15:55
MW-6-081623	23H0523-02	23092719.D	23092719.D	Water	09/27/23 16:14
Calibration Check	SLI0477-CCV1	23092725.D	23092725.D	NA	09/27/23 18:08
Calibration Check	SLI0477-CCV2	23092726.D	23092726.D	NA	09/27/23 18:27
Calibration Check	SLI0477-CCV4	23092728.D	23092728.D	NA	09/27/23 19:04
Calibration Check	SLI0477-CCV5	23092746.D	23092746.D	NA	09/28/23 00:43
Calibration Check	SLI0477-CCV6	23092747.D	23092747.D	NA	09/28/23 01:01
Calibration Check	SLI0477-CCV8	23092749.D	23092749.D	NA	09/28/23 01:39
Calibration Check	SLI0477-CCV9	23092760.D	23092760.D	NA	09/28/23 05:06
Calibration Check	SLI0477-CCVA	23092761.D	23092761.D	NA	09/28/23 05:25
Calibration Check	SLI0477-CCVC	23092763.D	23092763.D	NA	09/28/23 06:02

Analytical Resources, LLC
Analytical Chemists and Consultants

Dual Column

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8081B

Laboratory: Analytical Resources, LLC
SDG: 23H0523
Client: Floyd - Snider
Project: Smith-Kem
Sequence: SLJ0027
Instrument: ECD6
Calibration: GI00073

Sample Name	Lab Sample ID	Column 1 File ID	Column 2 File ID	Matrix	Analysis Date/Time
Performance Mix	SLJ0027-PEM1	23100103.D	23100103.D	NA	10/01/23 14:47
Initial Cal Check	SLJ0027-ICV1	23100104.D	23100104.D	NA	10/01/23 15:06
Initial Cal Check	SLJ0027-ICV2	23100105.D	23100105.D	NA	10/01/23 15:25
MW-1-081523	23H0523-01RE1	23100112.D	23100112.D	Water	10/01/23 17:34
MW-6-081623	23H0523-02RE1	23100113.D	23100113.D	Water	10/01/23 17:53
Performance Mix	SLJ0027-PEM2	23100115.D	23100115.D	NA	10/01/23 18:30
Calibration Check	SLJ0027-CCV1	23100116.D	23100116.D	NA	10/01/23 18:49
Calibration Check	SLJ0027-CCV2	23100117.D	23100117.D	NA	10/01/23 19:07

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG/WO:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SLI0477	Instrument:	ECD6
Calibration:	GI00073	Calibration Date:	09/23/2023

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SLI0477-ICV1 (Water)				Lab File ID: 23092703.D			Analyzed: 09/27/23 08:59	
Decachlorobiphenyl	40.000	94.5	80 - 120	9.176	9.186714	-0.0107	+/-0.1	
Decachlorobiphenyl [2C]	40.000	94.5	80 - 120	9.901	9.917286	-0.0163	+/-0.1	
Tetrachlorometaxylene	40.000	106	80 - 120	3.675	3.689429	-0.0144	+/-0.1	
Tetrachlorometaxylene [2C]	40.000	106	80 - 120	3.872	3.896429	-0.0244	+/-0.1	
SLI0477-ICV4 (Water)				Lab File ID: 23092706.D			Analyzed: 09/27/23 09:54	
Decachlorobiphenyl	40.000	104	80 - 120	9.175	9.186714	-0.0117	+/-0.1	
Decachlorobiphenyl [2C]	40.000	110	80 - 120	9.9	9.917286	-0.0173	+/-0.1	
Tetrachlorometaxylene	20.000	93.5	80 - 120	3.679	3.689429	-0.0104	+/-0.1	
Tetrachlorometaxylene [2C]	20.000	101	80 - 120	3.879	3.896429	-0.0174	+/-0.1	
BLH0527-BLK1 (Water)				Lab File ID: 23092707.D			Analyzed: 09/27/23 12:27	
Decachlorobiphenyl	0.020000	68.0	30 - 160	9.187	9.186714	0.0003	+/-0.1	
Decachlorobiphenyl [2C]	0.020000	68.0	30 - 160	9.904	9.917286	-0.0133	+/-0.1	
Tetrachlorometaxylene	0.020000	70.5	30 - 160	3.689	3.689429	-0.0004	+/-0.1	
Tetrachlorometaxylene [2C]	0.020000	105	30 - 160	3.878	3.896429	-0.0184	+/-0.1	
BLH0527-BS1 (Water)				Lab File ID: 23092708.D			Analyzed: 09/27/23 12:46	
Decachlorobiphenyl	0.020000	66.2	30 - 160	9.141	9.186714	-0.0457	+/-0.1	
Decachlorobiphenyl [2C]	0.020000	77.4	30 - 160	9.839	9.917286	-0.0783	+/-0.1	
Tetrachlorometaxylene	0.020000	51.4	44 - 124	3.663	3.689429	-0.0264	+/-0.1	
Tetrachlorometaxylene [2C]	0.020000	52.0	44 - 124	3.842	3.896429	-0.0544	+/-0.1	
BLH0527-BSD1 (Water)				Lab File ID: 23092709.D			Analyzed: 09/27/23 13:04	
Decachlorobiphenyl	0.020000	45.3	30 - 160	9.145	9.186714	-0.0417	+/-0.1	
Decachlorobiphenyl [2C]	0.020000	56.2	30 - 160	9.852	9.917286	-0.0653	+/-0.1	
Tetrachlorometaxylene	0.020000	41.1	30 - 160	3.662	3.689429	-0.0274	+/-0.1	
Tetrachlorometaxylene [2C]	0.020000	40.1	30 - 160	3.848	3.896429	-0.0484	+/-0.1	
23H0523-01 (Water)				Lab File ID: 23092718.D			Analyzed: 09/27/23 15:55	
Decachlorobiphenyl	0.020000	57.0	30 - 160	9.144	9.186714	-0.0427	+/-0.1	
Decachlorobiphenyl [2C]	0.020000	61.5	30 - 160	9.853	9.917286	-0.0643	+/-0.1	
Tetrachlorometaxylene	0.020000	50.5	30 - 160	3.66	3.689429	-0.0294	+/-0.1	
Tetrachlorometaxylene [2C]	0.020000	48.3	30 - 160	3.846	3.896429	-0.0504	+/-0.1	

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY
EPA 8081B

Laboratory: Analytical Resources, LLC
SDG/WO: 23H0523
Client: Floyd - Snider
Project: Smith-Kem
Sequence: SLI0477
Instrument: ECD6
Calibration: GI00073
Calibration Date: 09/24/2023

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
23H0523-02 (Water)				Lab File ID: 23092719.D			Analyzed: 09/27/23 16:14	
Decachlorobiphenyl	0.020000	43.7	30 - 160	9.144	9.186714	-0.0427	+/-0.1	
Decachlorobiphenyl [2C]	0.020000	42.7	30 - 160	9.852	9.917286	-0.0653	+/-0.1	
Tetrachlorometaxylene	0.020000	26.6	30 - 160	3.66	3.689429	-0.0294	+/-0.1	*
Tetrachlorometaxylene [2C]	0.020000	29.5	30 - 160	3.846	3.896429	-0.0504	+/-0.1	*
SLI0477-CCV1 (Water)				Lab File ID: 23092725.D			Analyzed: 09/27/23 18:08	
Decachlorobiphenyl	40.000	94.8	80 - 120	9.146	9.186714	-0.0407	+/-0.1	
Decachlorobiphenyl [2C]	40.000	98.0	80 - 120	9.854	9.917286	-0.0633	+/-0.1	
Tetrachlorometaxylene	40.000	98.0	80 - 120	3.666	3.689429	-0.0234	+/-0.1	
Tetrachlorometaxylene [2C]	40.000	106	80 - 120	3.856	3.896429	-0.0404	+/-0.1	
SLI0477-CCV4 (Water)				Lab File ID: 23092728.D			Analyzed: 09/27/23 19:04	
Decachlorobiphenyl	40.000	105	80 - 120	9.147	9.186714	-0.0397	+/-0.1	
Decachlorobiphenyl [2C]	40.000	114	80 - 120	9.855	9.917286	-0.0623	+/-0.1	
Tetrachlorometaxylene	20.000	91.0	80 - 120	3.673	3.689429	-0.0164	+/-0.1	
Tetrachlorometaxylene [2C]	20.000	100	80 - 120	3.868	3.896429	-0.0284	+/-0.1	
SLI0477-CCV5 (Water)				Lab File ID: 23092746.D			Analyzed: 09/28/23 00:43	
Decachlorobiphenyl	40.000	93.7	80 - 120	9.146	9.186714	-0.0407	+/-0.1	
Decachlorobiphenyl [2C]	40.000	94.2	80 - 120	9.854	9.917286	-0.0633	+/-0.1	
Tetrachlorometaxylene	40.000	94.0	80 - 120	3.665	3.689429	-0.0244	+/-0.1	
Tetrachlorometaxylene [2C]	40.000	102	80 - 120	3.856	3.896429	-0.0404	+/-0.1	
SLI0477-CCV8 (Water)				Lab File ID: 23092749.D			Analyzed: 09/28/23 01:39	
Decachlorobiphenyl	40.000	105	80 - 120	9.147	9.186714	-0.0397	+/-0.1	
Decachlorobiphenyl [2C]	40.000	112	80 - 120	9.855	9.917286	-0.0623	+/-0.1	
Tetrachlorometaxylene	20.000	90.9	80 - 120	3.672	3.689429	-0.0174	+/-0.1	
Tetrachlorometaxylene [2C]	20.000	101	80 - 120	3.867	3.896429	-0.0294	+/-0.1	
SLI0477-CCV9 (Water)				Lab File ID: 23092760.D			Analyzed: 09/28/23 05:06	
Decachlorobiphenyl	40.000	94.5	80 - 120	9.146	9.186714	-0.0407	+/-0.1	
Decachlorobiphenyl [2C]	40.000	94.3	80 - 120	9.855	9.917286	-0.0623	+/-0.1	
Tetrachlorometaxylene	40.000	98.8	80 - 120	3.665	3.689429	-0.0244	+/-0.1	
Tetrachlorometaxylene [2C]	40.000	107	80 - 120	3.855	3.896429	-0.0414	+/-0.1	

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG/WO:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SLI0477	Instrument:	ECD6
Calibration:	GI00073	Calibration Date:	09/24/2023

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SLI0477-CCVC (Water)				Lab File ID: 23092763.D			Analyzed: 09/28/23 06:02	
Decachlorobiphenyl	40.000	105	80 - 120	9.148	9.186714	-0.0387	+/-0.1	
Decachlorobiphenyl [2C]	40.000	111	80 - 120	9.855	9.917286	-0.0623	+/-0.1	
Tetrachlorometaxylene	20.000	93.9	80 - 120	3.673	3.689429	-0.0164	+/-0.1	
Tetrachlorometaxylene [2C]	20.000	102	80 - 120	3.868	3.896429	-0.0284	+/-0.1	

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY
EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG/WO:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SLJ0027	Instrument:	ECD6
Calibration:	GI00073	Calibration Date:	09/24/2023

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SLJ0027-PEM1 (Solid)				Lab File ID: 23100103.D			Analyzed: 10/01/23 14:47	
Decachlorobiphenyl	40.000	95.5	0 - 200	9.169	9.186714	-0.0177	+/-0.1	
Decachlorobiphenyl [2C]	40.000	93.0	0 - 200	9.884	9.917286	-0.0333	+/-0.1	
Tetrachlorometaxylene	40.000	85.9	0 - 200	3.672	3.689429	-0.0174	+/-0.1	
Tetrachlorometaxylene [2C]	40.000	104	0 - 200	3.869	3.896429	-0.0274	+/-0.1	
SLJ0027-ICV1 (Solid)				Lab File ID: 23100104.D			Analyzed: 10/01/23 15:06	
Decachlorobiphenyl	40.000	98.3	80 - 120	9.167	9.186714	-0.0197	+/-0.1	
Decachlorobiphenyl [2C]	40.000	94.0	80 - 120	9.884	9.917286	-0.0333	+/-0.1	
Tetrachlorometaxylene	40.000	93.3	80 - 120	3.669	3.689429	-0.0204	+/-0.1	
Tetrachlorometaxylene [2C]	40.000	122	80 - 120	3.864	3.896429	-0.0324	+/-0.1	*
23H0523-01RE1 (Water)				Lab File ID: 23100112.D			Analyzed: 10/01/23 17:34	
Decachlorobiphenyl	0.020000	72.6	30 - 160	9.166	9.186714	-0.0207	+/-0.1	
Decachlorobiphenyl [2C]	0.020000	59.3	30 - 160	9.883	9.917286	-0.0343	+/-0.1	
Tetrachlorometaxylene	0.020000	68.4	30 - 160	3.667	3.689429	-0.0224	+/-0.1	
Tetrachlorometaxylene [2C]	0.020000	57.8	30 - 160	3.86	3.896429	-0.0364	+/-0.1	
23H0523-02RE1 (Water)				Lab File ID: 23100113.D			Analyzed: 10/01/23 17:53	
Decachlorobiphenyl	0.020000	57.2	30 - 160	9.166	9.186714	-0.0207	+/-0.1	
Decachlorobiphenyl [2C]	0.020000	39.1	30 - 160	9.882	9.917286	-0.0353	+/-0.1	
Tetrachlorometaxylene	0.020000	38.4	30 - 160	3.666	3.689429	-0.0234	+/-0.1	
Tetrachlorometaxylene [2C]	0.020000	34.5	30 - 160	3.858	3.896429	-0.0384	+/-0.1	
SLJ0027-PEM2 (Solid)				Lab File ID: 23100115.D			Analyzed: 10/01/23 18:30	
Decachlorobiphenyl	40.000	95.8	0 - 200	9.167	9.186714	-0.0197	+/-0.1	
Decachlorobiphenyl [2C]	40.000	101	0 - 200	9.884	9.917286	-0.0333	+/-0.1	
Tetrachlorometaxylene	40.000	83.3	0 - 200	3.671	3.689429	-0.0184	+/-0.1	
Tetrachlorometaxylene [2C]	40.000	104	0 - 200	3.866	3.896429	-0.0304	+/-0.1	
SLJ0027-CCV1 (Solid)				Lab File ID: 23100116.D			Analyzed: 10/01/23 18:49	
Decachlorobiphenyl	40.000	101	80 - 120	9.167	9.186714	-0.0197	+/-0.1	
Decachlorobiphenyl [2C]	40.000	95.9	80 - 120	9.883	9.917286	-0.0343	+/-0.1	
Tetrachlorometaxylene	40.000	102	80 - 120	3.669	3.689429	-0.0204	+/-0.1	
Tetrachlorometaxylene [2C]	40.000	111	80 - 120	3.863	3.896429	-0.0334	+/-0.1	

Analytical Resources, LLC
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SLI0378	Instrument:	ECD6
		Calibration:	GI00073

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Secondary Cal Check (SLI0378-SCV1)		(Water)		Lab File ID: 23092330.D				Analyzed: 09/24/23 02:19	
1-Bromo-2-Nitrobenzene	1405587	3.024	1439280	3.021	98	50 - 200	0.003	+/-0.50	
Hexabromobiphenyl	1038875	9.335	1068322	9.331	97	50 - 200	0.004	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1725611	3.106	1755066	3.094	98	50 - 200	0.012	+/-0.50	
Hexabromobiphenyl [2C]	911812	10.435	898500	10.431	101	50 - 200	0.004	+/-0.50	
Secondary Cal Check (SLI0378-SCV2)		(Water)		Lab File ID: 23092331.D				Analyzed: 09/24/23 02:38	
1-Bromo-2-Nitrobenzene	1441979	3.024	1439280	3.021	100	50 - 200	0.003	+/-0.50	
Hexabromobiphenyl	1014915	9.334	1068322	9.331	95	50 - 200	0.003	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1844648	3.106	1755066	3.094	105	50 - 200	0.012	+/-0.50	
Hexabromobiphenyl [2C]	909477	10.434	898500	10.431	101	50 - 200	0.003	+/-0.50	

Analytical Resources, LLC
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8081B

Laboratory: Analytical Resources, LLC
SDG: 23H0523
Client: Floyd - Snider
Project: Smith-Kem
Sequence: SLI0477
Instrument: ECD6
Calibration: GI00073

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (SLI0477-ICV1)		(Water)		Lab File ID: 23092703.D				Analyzed: 09/27/23 08:59	
1-Bromo-2-Nitrobenzene	1247092	3.012	1247092	3.012	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	909704	9.319	909704	9.319	100	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1681856	3.075	1681856	3.075	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	817240	10.41	817240	10.41	100	50 - 200	0.000	+/-0.50	
Initial Cal Check (SLI0477-ICV2)		(Water)		Lab File ID: 23092704.D				Analyzed: 09/27/23 09:17	
1-Bromo-2-Nitrobenzene	1495803	3.015	1495803	3.015	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	961756	9.322	961756	9.322	100	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1749460	3.082	1749460	3.082	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	837034	10.412	837034	10.412	100	50 - 200	0.000	+/-0.50	
Initial Cal Check (SLI0477-ICV4)		(Water)		Lab File ID: 23092706.D				Analyzed: 09/27/23 09:54	
1-Bromo-2-Nitrobenzene	1512613	3.016	1512613	3.016	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	1029011	9.322	1029011	9.322	100	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1716941	3.083	1716941	3.083	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	817044	10.411	817044	10.411	100	50 - 200	0.000	+/-0.50	
Blank (BLH0527-BLK1)		(Water)		Lab File ID: 23092707.D				Analyzed: 09/27/23 12:27	
1-Bromo-2-Nitrobenzene	729313	3.019	1512613	3.016	48	50 - 200	0.003	+/-0.50	*
Hexabromobiphenyl	765424	9.329	1029011	9.322	74	50 - 200	0.007	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	826513	3.071	1716941	3.083	48	50 - 200	-0.012	+/-0.50	*
Hexabromobiphenyl [2C]	184198	10.413	817044	10.411	23	50 - 200	0.002	+/-0.50	*
LCS (BLH0527-BS1)		(Water)		Lab File ID: 23092708.D				Analyzed: 09/27/23 12:46	
1-Bromo-2-Nitrobenzene	1200538	3	1512613	3.016	79	50 - 200	-0.016	+/-0.50	
Hexabromobiphenyl	860814	9.284	1029011	9.322	84	50 - 200	-0.038	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1648501	3.045	1716941	3.083	96	50 - 200	-0.038	+/-0.50	
Hexabromobiphenyl [2C]	523850	10.341	817044	10.411	64	50 - 200	-0.070	+/-0.50	
LCS Dup (BLH0527-BSD1)		(Water)		Lab File ID: 23092709.D				Analyzed: 09/27/23 13:04	
1-Bromo-2-Nitrobenzene	1313059	3	1512613	3.016	87	50 - 200	-0.016	+/-0.50	
Hexabromobiphenyl	939089	9.287	1029011	9.322	91	50 - 200	-0.035	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1715978	3.051	1716941	3.083	100	50 - 200	-0.032	+/-0.50	
Hexabromobiphenyl [2C]	628657	10.354	817044	10.411	77	50 - 200	-0.057	+/-0.50	

Analytical Resources, LLC
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SLI0477	Instrument:	ECD6
		Calibration:	GI00073

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-1-081523 (23H0523-01)		(Water)		Lab File ID: 23092718.D				Analyzed: 09/27/23 15:55	
1-Bromo-2-Nitrobenzene	1440620	3	1512613	3.016	95	50 - 200	-0.016	+/-0.50	
Hexabromobiphenyl	1083647	9.286	1029011	9.322	105	50 - 200	-0.036	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1662023	3.05	1716941	3.083	97	50 - 200	-0.033	+/-0.50	
Hexabromobiphenyl [2C]	649265	10.355	817044	10.411	79	50 - 200	-0.056	+/-0.50	
MW-6-081623 (23H0523-02)		(Water)		Lab File ID: 23092719.D				Analyzed: 09/27/23 16:14	
1-Bromo-2-Nitrobenzene	1451222	2.999	1512613	3.016	96	50 - 200	-0.017	+/-0.50	
Hexabromobiphenyl	1099171	9.286	1029011	9.322	107	50 - 200	-0.036	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1644059	3.049	1716941	3.083	96	50 - 200	-0.034	+/-0.50	
Hexabromobiphenyl [2C]	636450	10.355	817044	10.411	78	50 - 200	-0.056	+/-0.50	

Analytical Resources, LLC
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8081B

Laboratory:	Analytical Resources, LLC	SDG:	23H0523
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SLJ0027	Instrument:	ECD6
		Calibration:	GI00073

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Performance Mix (SLJ0027-PEM1)		(Solid)		Lab File ID: 23100103.D				Analyzed: 10/01/23 14:47	
1-Bromo-2-Nitrobenzene	1212846	3.009	1153147	3.008	105	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl	860821	9.316	818456	9.312	105	50 - 200	0.004	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1435076	3.071	1196549	3.068	120	50 - 200	0.003	+/-0.50	
Hexabromobiphenyl [2C]	756732	10.394	710255	10.391	107	50 - 200	0.003	+/-0.50	
Initial Cal Check (SLJ0027-ICV1)		(Solid)		Lab File ID: 23100104.D				Analyzed: 10/01/23 15:06	
1-Bromo-2-Nitrobenzene	1153147	3.008	1153147	3.008	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	818456	9.312	818456	9.312	100	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1196549	3.068	1196549	3.068	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	710255	10.391	710255	10.391	100	50 - 200	0.000	+/-0.50	
Initial Cal Check (SLJ0027-ICV2)		(Solid)		Lab File ID: 23100105.D				Analyzed: 10/01/23 15:25	
1-Bromo-2-Nitrobenzene	1334756	3.012	1334756	3.012	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	944227	9.315	944227	9.315	100	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1501703	3.079	1501703	3.079	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	757139	10.394	757139	10.394	100	50 - 200	0.000	+/-0.50	
MW-1-081523 (23H0523-01RE1)		(Water)		Lab File ID: 23100112.D				Analyzed: 10/01/23 17:34	
1-Bromo-2-Nitrobenzene	1496290	3.003	1344719	3.012	111	50 - 200	-0.009	+/-0.50	
Hexabromobiphenyl	1114704	9.31	972712	9.315	115	50 - 200	-0.005	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1766320	3.061	1479826	3.081	119	50 - 200	-0.020	+/-0.50	
Hexabromobiphenyl [2C]	840121	10.389	741056	10.395	113	50 - 200	-0.006	+/-0.50	
MW-6-081623 (23H0523-02RE1)		(Water)		Lab File ID: 23100113.D				Analyzed: 10/01/23 17:53	
1-Bromo-2-Nitrobenzene	1410594	3.003	1344719	3.012	105	50 - 200	-0.009	+/-0.50	
Hexabromobiphenyl	1176687	9.31	972712	9.315	121	50 - 200	-0.005	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1821809	3.058	1479826	3.081	123	50 - 200	-0.023	+/-0.50	
Hexabromobiphenyl [2C]	884723	10.389	741056	10.395	119	50 - 200	-0.006	+/-0.50	
Performance Mix (SLJ0027-PEM2)		(Solid)		Lab File ID: 23100115.D				Analyzed: 10/01/23 18:30	
1-Bromo-2-Nitrobenzene	1318425	3.008	1334756	3.012	99	50 - 200	-0.004	+/-0.50	
Hexabromobiphenyl	805780	9.314	944227	9.315	85	50 - 200	-0.001	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1442816	3.069	1501703	3.079	96	50 - 200	-0.010	+/-0.50	
Hexabromobiphenyl [2C]	672588	10.393	757139	10.394	89	50 - 200	-0.001	+/-0.50	

Analytical Resources, LLC
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, LLC			SDG:	23H0523
Client:	Floyd - Snider			Project:	Smith-Kem
Matrix:	Water	Laboratory ID:	23H0523-01	File ID:	23092718.D
Sampled:	08/15/23 12:50	Prepared:	08/22/23 14:40	Analyzed:	09/27/23 15:55
Solids:		Preparation:	EPA 3510C SepF	Instrument:	ECD6
Batch:	BLH0527	Sequence:	SLI0477		
GC Column(1):	STX-CLP			GC Column(2):	STX-CLPII

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
cis-Chlordane (alpha-chlordane)	* 1	6.167	6.214429	0.0474	3712363	0.0832	58.8
	2	6.704	6.759429	0.0554	1969192	0.0454	
Dieldrin	1	6.589	6.630143	0.0411	5454640	0.125	9.2
	* 2	7.074	7.128428	0.0544	5980721	0.137	
Toxaphene	1	6.688	6.728857	0.0409	806708.4	0.731	44.6
	* 2	7.074	7.105	0.031	2211610	1.15	
trans-Chlordane (beta-Chlordane)	* 1	6.024	6.067143	0.0431	1839383	0.0410	15.8
	2	6.542	6.598286	0.0563	1614920	0.0350	

* Column used for quantitation

Analytical Resources, LLC
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, LLC			SDG:	23H0523
Client:	Floyd - Snider			Project:	Smith-Kem
Matrix:	Water	Laboratory ID:	23H0523-02	File ID:	23092719.D
Sampled:	08/15/23 08:20	Prepared:	08/22/23 14:40	Analyzed:	09/27/23 16:14
Solids:		Preparation:	EPA 3510C SepF	Instrument:	ECD6
Batch:	BLH0527	Sequence:	SLI0477		
GC Column(1):	STX-CLP			GC Column(2):	STX-CLPII

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
cis-Chlordane (alpha-chlordane)	* 1	6.168	6.214429	0.0464	7048580	0.157	65.9
	2	6.705	6.759429	0.0544	3396482	0.0792	
Dieldrin	1	6.591	6.630143	0.0391	13282000	0.303	1.6
	* 2	7.075	7.128428	0.0534	13354540	0.308	
Toxaphene	1	6.689	6.728857	0.0399	3397420	2.96	63.
	* 2	7.075	7.105	0.03	6750837	5.68	
trans-Chlordane (beta-Chlordane)	* 1	6.025	6.067143	0.0421	3084734	0.0683	11.
	2	6.543	6.598286	0.0553	2797253	0.0612	

* Column used for quantitation

Analytical Resources, LLC
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, LLC			SDG:	23H0523
Client:	Floyd - Snider			Project:	Smith-Kem
Matrix:	Water	Laboratory ID:	23H0523-01RE1	File ID:	23100112.D
Sampled:	08/15/23 12:50	Prepared:	08/22/23 14:40	Analyzed:	10/01/23 17:34
Solids:		Preparation:	EPA 3510C SepF	Instrument:	ECD6
Batch:	BLH0527	Sequence:	SLJ0027		
GC Column(1):	STX-CLP			GC Column(2):	STX-CLPII

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
cis-Chlordane (alpha-chlordane)	* 1	6.18	6.214429	0.0344	1068681	0.115	66.8
	2	6.723	6.759429	0.0364	528972	0.0574	
Dieldrin	* 1	6.603	6.630143	0.0271	1273981	0.141	19.2
	2	7.093	7.128428	0.0354	1595660	0.171	
Toxaphene	* 1	6.701	6.728857	0.0279	251803	1.19	25.6
	2	7.093	7.105	0.012	571779.8	1.54	
trans-Chlordane (beta-Chlordane)	* 1	6.037	6.067143	0.0301	703254	0.0755	47.5
	2	6.561	6.598286	0.0373	456714	0.0465	

* Column used for quantitation

Analytical Resources, LLC
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, LLC			SDG:	23H0523
Client:	Floyd - Snider			Project:	Smith-Kem
Matrix:	Water	Laboratory ID:	23H0523-02RE1	File ID:	23100113.D
Sampled:	08/15/23 08:20	Prepared:	08/22/23 14:40	Analyzed:	10/01/23 17:53
Solids:		Preparation:	EPA 3510C SepF	Instrument:	ECD6
Batch:	BLH0527	Sequence:	SLJ0027		
GC Column(1):	STX-CLP			GC Column(2):	STX-CLPII

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
cis-Chlordane (alpha-chlordane)	* 1	6.184	6.214429	0.0304	1646829	0.188	70.3
	2	6.724	6.759429	0.0354	857378	0.0902	
Dieldrin	* 1	6.603	6.630143	0.0271	2540127	0.298	16.9
	2	7.093	7.128428	0.0354	3390489	0.353	
Toxaphene	* 1	6.704	6.728857	0.0249	950695	4.00	46.4
	2	7.093	7.105	0.012	1702583	6.42	
trans-Chlordane (beta-Chlordane)	* 1	6.037	6.067143	0.0301	789148	0.0898	12.2
	2	6.561	6.598286	0.0373	804550	0.0795	

* Column used for quantitation

Analytical Resources, LLC
Analytical Chemists and Consultants

HOLDING TIME SUMMARY

Analysis: EPA 8081B

Laboratory: Analytical Resources, LLC
SDG: 23H0523
Client: Floyd - Snider
Project: Smith-Kem

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
MW-1-081523 23H0523-01	08/15/23 12:50	08/22/23 09:45	08/22/23 14:40	7	7	09/27/23 15:55	36	40	
MW-1-081523 23H0523-01RE1	08/15/23 12:50	08/22/23 09:45	08/22/23 14:40	7	7	10/01/23 17:34	40	40	
MW-6-081623 23H0523-02	08/15/23 08:20	08/22/23 09:45	08/22/23 14:40	7	7	09/27/23 16:14	36	40	
MW-6-081623 23H0523-02RE1	08/15/23 08:20	08/22/23 09:45	08/22/23 14:40	7	7	10/01/23 17:53	40	40	

* Indicates hold time exceedance.

Analytical Resources, LLC
Analytical Chemists and Consultants

METHOD DETECTION AND REPORTING LIMITS

EPA 8081B

Laboratory: Analytical Resources, LLC
SDG: 23H0523
Client: Floyd - Snider
Project: Smith-Kem
Matrix: Water
Instrument: ECD6

Analyte	MDL	RL	Units
Aldrin	0.0002	0.0006	ug/L
Aldrin [2C]	0.0002	0.0006	ug/L
trans-Chlordane (beta-Chlordane)	0.0002	0.0006	ug/L
trans-Chlordane (beta-Chlordane) [2C]	0.0002	0.0006	ug/L
cis-Chlordane (alpha-chlordane)	0.0001	0.0006	ug/L
cis-Chlordane (alpha-chlordane) [2C]	0.0001	0.0006	ug/L
Dieldrin	0.0004	0.0013	ug/L
Dieldrin [2C]	0.0004	0.0013	ug/L
Oxychlordane	0.0013	0.0013	ug/L
Oxychlordane [2C]	0.0013	0.0013	ug/L
cis-Nonachlor	0.0013	0.0013	ug/L
cis-Nonachlor [2C]	0.0013	0.0013	ug/L
trans-Nonachlor	0.0013	0.0013	ug/L
trans-Nonachlor [2C]	0.0013	0.0013	ug/L
Toxaphene	0.0625	0.0625	ug/L
Toxaphene [2C]	0.0625	0.0625	ug/L

125 Market Street
New Haven, CT 06513
USA

AccuStandard® Inc.

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

Catalog No: S-279N
Description: Tetrachloro-m-xylene
Lot: 0052481B-1
Solvent: N/A
Hazards: *Refer to SDS for complete safety information*

Signal Word: Warning

Date Certified: Jul 28, 2005
Expiration: Jul 28, 2015
Sample Size: 100 mg
Components: 1
Storage Condition: Ambient (>5 °C)

Certified Reference Material

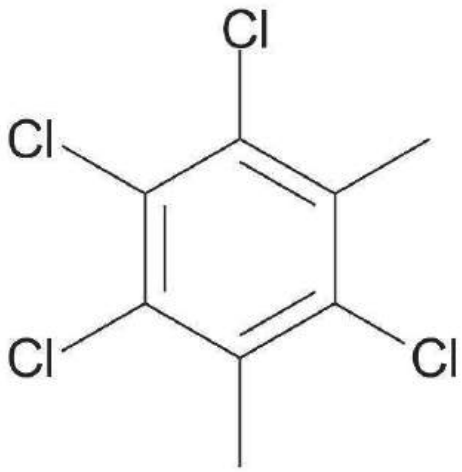
ANAB ACCREDITED REFERENCE MATERIAL PRODUCER AR-1463

ilac-MRA

Component	CAS #	Purity % (GC/FID)	Prepared Concentration	Certified Analyte Concentration[1]
Tetrachloro-meta-xylene	877-09-8	96.0	N/A	N/A

Identification:

Molecular formula: C8H6Cl4
Molecular weight: 243.94



C000147
tetrachlormetaxylene
Expires 1/15/2020
Prepared By Joshua Rains 1/15/2014

This Certified Reference Material was verified in accordance with ISO/IEC 17025

A product with a suffix (-1A, -2B, etc. or -01, -02, etc.) on its lot number has had its expiration date extended and is identical to the same lot number without the suffix.

[1] The Uncertainty calculated for this product is ±2.4%. These values are the expanded uncertainty and represent an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

Labels and certificates follow U.S. Conventions in reporting numerical values: A comma (,) is used to separate units of one-thousand or greater. A period (.) is used as a decimal place marker.

Metrological traceability is established through in-house validated methods.

Purity, if stated, is equal to 100% minus found impurity components. Impurity components have not been identified.

The information on this certificate may not be reproduced without the express permission of the manufacturer. See reverse side for additional information

Hazard Information: Please refer to the SDS for information regarding the hazards associated with using this material.

This product was prepared according to in-house procedures and is guaranteed to be homogeneous.

Certified By: Larry Decker, Organic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

AccuStandard
125 Market Street
New Haven, CT 06513
(203) 786-5290

CERTIFICATE OF PRODUCT DATA

PRODUCT: C-209N
DESCRIPTION: 2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl
LOT #: 990521LB-AC
SOLVENT: N/A

EXPIRATION: Jul 28, 2015

This product is guaranteed accurate to ±0.5% of the Certified Analyte concentration through the Expiration Date on the Label.

Component	CAS #	Purity % (GC/MS)	Prepared Concentration[1]	Certified Analyte Concentration[2]
2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl	2051-24-3	100	N/A	N/A

C000148
decachlorbiphenyl
Expires 1/15/2020
Prepared By Joshua Rains 1/15/2014

* I1768A

Certified by: R. Cooper

1. All weights are traceable through National Institute of Standards & Technology, Test No. 822/264480
2. Certified Analyte Concentration = Purity x Prepared Concentration. The Uncertainty calculated for this product is ±4% which is the Combined Uncertainty uc(y). It represents an estimated standard deviation equal to the positive square root of the total variance of the uncertainty of components. The Expanded Uncertainty is U which is Uc(y) *K where K is the coverage factor at the 95% confidence level (K=2).
3. A product with a suffix (-1A, -2B, etc.) on its lot# has had its expiration date extended and is identical to the same lot# without the suffix.

Please note: AccuStandard follows the U.S. conventions in reporting numerical values, on both certificates and labels.

A comma (,) is used to separate units of one-thousand or greater.
A period (.) is used as a decimal place marker.

This product was manufactured in accordance to quality system requirements of ISO 9001:2000 and ISO 17025

* Recertified 2 4-6-09 (JS)

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Standard Record

Standard ID: C000148 **Printed: 4/23/2015 11:54:44AM**

Description:	decachlorbiphenyl	Expires:	15-Jan-2020
Standard Type:	Other	Prepared:	15-Jan-2014
Solvent:	na/a	Prepared By:	Joshua Rains
Final Volume (mls):	1	Department:	Organics
Vials:	1	Last Edit:	27-Feb-2015 13:03 by JGR
Vendor:	Accustandard	Lot #:	990521lb-ac
Vendor Catalog #:			

Comments

see i1768a
SOM calibrations added 06/12/14 sdrd

Analyte	CAS Number	Concentration	Units
Decachlorobiphenyl [2C]	2051-24-3	1000000	ug/mL
Decachlorobiphenyl	2051-24-3	1000000	ug/mL
DCB 1660 [2C]	2051-24-3	1000000	ug/mL
DCB 1660	2051-24-3	1000000	ug/mL
DCB [2C]	2051-24-3	1000000	ug/mL
DCB (A) [2C]	2051-24-3	1000000	ug/mL
DCB (A)	2051-24-3	1000000	ug/mL
DCB	2051-24-3	1000000	ug/mL

Reviewed By Date

125 Market Street
New Haven, CT 06513
USA

AccuStandard® Inc.

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

Catalog No: APP-9-112-D-20X
Description: Hexachlorobenzene in Dichloromethane
Lot: 219051389
Solvent: Dichloromethane
Hazards: *Refer to SDS for complete safety information*



Signal Word: Warning

Date Certified: May 13, 2019
Expiration: May 13, 2029
Sample Size: 1 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Certified Reference Material

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER AR-1463
ANAB ACCREDITED TESTING LABORATORY AT-1339
ilac-MRA

Component	CAS #	Purity % (GC/MS)	Prepared Concentration² (µg/mL)	Certified Analyte Concentration¹ (µg/mL)
Hexachlorobenzene	118-74-1	99.0	2002	1982

J006504
Hexachlorobenzene
Solvent / Lot: Dichloromethane
Prep: 6/21/2021 by YZ
Exp: 5/13/2029
Location:

A product with a suffix (-1A, -2B, etc. or -01, -02, etc.) on its lot number has had its expiration date extended and is identical to the same lot number without the suffix.

² All weights are traceable through NIST, Test No. 684/289871-17

¹ Certified Analyte Concentration = Purity x Prepared Concentration.

The Uncertainty associated with the certified concentration reported on this certificate is ±2.4%. This value is the combined expanded uncertainty and represents an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

Labels and certificates follow U.S. Conventions in reporting numerical values: A comma (,) is used to separate units of one-thousand or greater. A period (.) is used as a decimal place marker.

The information on this certificate may not be reproduced without the express permission of the manufacturer. See reverse side for additional information

Certified By: Larry Decker, Organic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 34, ISO/IEC 17025 and certified to ISO 9001:2015

1. Quality Standards:

ISO 17034 – General Requirements for the Competence of Reference Material Producers ANAB Certificate Number AR-1463

ISO/IEC 17025 – General Requirements for the Competence of Testing And Calibration Laboratories ANAB Certificate Number AT-1339

ISO 9001:2015 – Quality Management System – Requirements Eagle Registrations Certificate Number 3774

Intended Use: The product covered by this certificate is designed for calibration or for use in quality control procedures for the specified chemical compounds listed on the reverse side. This product can be used for quantification and/or identification. This product can also be used as a reference material to validate analytical procedures, subject to the conditions under Section

Manufacturing: All balances are calibrated daily using an in-house procedure with weights that are compared annually to master weights and traceable to NIST. The balances are also calibrated annually by an ISO/IEC 17025 accredited calibration laboratory. Please refer to the NIST test number listed on the front of this certificate. Class A glassware is used in the manufacture and quality control of all standards and calibrated using an in-house procedure. Good Laboratory Practices have been used throughout the preparation of this .

Homogeneity: This product is sufficiently homogeneous and any sample size would be within the uncertainty budget.

Stability: The manufacturer guarantees the stability of this solution through the expiration date stated on the label, when handled and stored according to the conditions stated on the label

Uncertainty: The uncertainty values as stated on the face of this certificate have been determined using the EURACHEM/CITAC Guide. We report a combined expanded uncertainty equal to the positive square root of the total variance of the uncertainty of the components using the following formula: $u_a = \sqrt{(u(\mathrm{V}))^2 + (u(\mathrm{m}))^2 + (u(\mathrm{IV}))^2 + (u(\mathrm{RO}))^2}$ This formula represents uncertainty components from the mass, volume, short-term stability, long-term stability and homogeneity factors associated with the production of this product. The expanded uncertainty, assumes a normal distribution and a coverage factor of k=2 is chosen using approximately a 95% confidence level.

Legal Notice and Limit of Liability: This product is for routine laboratory analysis and research purposes only. The company's liability will be limited to replacement of product or refund of purchase price. Notice of claims must be made within thirty (30) days from date of delivery.

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 32292 **Lot No.:** A0185477

Description : Organochlorine Pesticide Mix AB # 2

Organochlorine Pesticide Mix AB # 2 8-80 µg/mL, Hexane/Toluene(1:1), 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : May 31, 2026 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	alpha-BHC	8.1 µg/mL	+/- 0.0660 µg/mL	Gravimetric
	CAS # 319-84-6 (Lot 12307600)		+/- 0.3703 µg/mL	Unstressed
	Purity 99%		+/- 0.5325 µg/mL	Stressed
2	gamma-BHC (Lindane)	8.0 µg/mL	+/- 0.0654 µg/mL	Gravimetric
	CAS # 58-89-9 (Lot 13087200)		+/- 0.3672 µg/mL	Unstressed
	Purity 99%		+/- 0.5281 µg/mL	Stressed
3	beta-BHC	8.1 µg/mL	+/- 0.0660 µg/mL	Gravimetric
	CAS # 319-85-7 (Lot 0588007-4)		+/- 0.3703 µg/mL	Unstressed
	Purity 99%		+/- 0.5325 µg/mL	Stressed
4	delta-BHC	8.1 µg/mL	+/- 0.0660 µg/mL	Gravimetric
	CAS # 319-86-8 (Lot 13112400)		+/- 0.3703 µg/mL	Unstressed
	Purity 99%		+/- 0.5325 µg/mL	Stressed
5	Heptachlor	8.0 µg/mL	+/- 0.0654 µg/mL	Gravimetric
	CAS # 76-44-8 (Lot 803759)		+/- 0.3672 µg/mL	Unstressed
	Purity 99%		+/- 0.5281 µg/mL	Stressed
6	Aldrin	8.1 µg/mL	+/- 0.0660 µg/mL	Gravimetric
	CAS # 309-00-2 (Lot 12983100)		+/- 0.3702 µg/mL	Unstressed
	Purity 96%		+/- 0.5323 µg/mL	Stressed
7	Heptachlor epoxide (isomer B)	8.1 µg/mL	+/- 0.0660 µg/mL	Gravimetric
	CAS # 1024-57-3 (Lot 13168200)		+/- 0.3703 µg/mL	Unstressed
	Purity 99%		+/- 0.5325 µg/mL	Stressed

8	trans-Chlordane		8.0	µg/mL	+/-	0.0657	µg/mL	Gravimetric
	CAS # 5103-74-2	(Lot 32943)			+/-	0.3689	µg/mL	Unstressed
	Purity 98%				+/-	0.5305	µg/mL	Stressed
9	cis-Chlordane		8.0	µg/mL	+/-	0.0657	µg/mL	Gravimetric
	CAS # 5103-71-9	(Lot 31766)			+/-	0.3689	µg/mL	Unstressed
	Purity 98%				+/-	0.5305	µg/mL	Stressed
10	Endosulfan I		8.0	µg/mL	+/-	0.0654	µg/mL	Gravimetric
	CAS # 959-98-8	(Lot BCCF4060)			+/-	0.3672	µg/mL	Unstressed
	Purity 99%				+/-	0.5281	µg/mL	Stressed
11	4,4'-DDE		16.1	µg/mL	+/-	0.1314	µg/mL	Gravimetric
	CAS # 72-55-9	(Lot GHYQG)			+/-	0.7375	µg/mL	Unstressed
	Purity 99%				+/-	1.0606	µg/mL	Stressed
12	Dieldrin		16.1	µg/mL	+/-	0.1320	µg/mL	Gravimetric
	CAS # 60-57-1	(Lot 11129900)			+/-	0.7408	µg/mL	Unstressed
	Purity 98%				+/-	1.0653	µg/mL	Stressed
13	Endrin		16.1	µg/mL	+/-	0.1320	µg/mL	Gravimetric
	CAS # 72-20-8	(Lot 13157400)			+/-	0.7406	µg/mL	Unstressed
	Purity 99%				+/-	1.0650	µg/mL	Stressed
14	4,4'-DDD		16.1	µg/mL	+/-	0.1320	µg/mL	Gravimetric
	CAS # 72-54-8	(Lot HAN02)			+/-	0.7406	µg/mL	Unstressed
	Purity 99%				+/-	1.0650	µg/mL	Stressed
15	Endosulfan II		16.0	µg/mL	+/-	0.1309	µg/mL	Gravimetric
	CAS # 33213-65-9	(Lot 12448900)			+/-	0.7345	µg/mL	Unstressed
	Purity 99%				+/-	1.0562	µg/mL	Stressed
16	4,4'-DDT		16.1	µg/mL	+/-	0.1315	µg/mL	Gravimetric
	CAS # 50-29-3	(Lot 220428JLM)			+/-	0.7378	µg/mL	Unstressed
	Purity 98%				+/-	1.0610	µg/mL	Stressed
17	Endrin aldehyde		16.1	µg/mL	+/-	0.1314	µg/mL	Gravimetric
	CAS # 7421-93-4	(Lot 30720)			+/-	0.7375	µg/mL	Unstressed
	Purity 99%				+/-	1.0606	µg/mL	Stressed
18	Endosulfan sulfate		16.1	µg/mL	+/-	0.1320	µg/mL	Gravimetric
	CAS # 1031-07-8	(Lot BCCB0424)			+/-	0.7406	µg/mL	Unstressed
	Purity 99%				+/-	1.0650	µg/mL	Stressed
19	Methoxychlor		80.2	µg/mL	+/-	0.5781	µg/mL	Gravimetric
	CAS # 72-43-5	(Lot 13027000)			+/-	3.6697	µg/mL	Unstressed
	Purity 98%				+/-	5.2871	µg/mL	Stressed
20	Endrin ketone		16.1	µg/mL	+/-	0.1314	µg/mL	Gravimetric
	CAS # 53494-70-5	(Lot 13026800)			+/-	0.7375	µg/mL	Unstressed
	Purity 99%				+/-	1.0606	µg/mL	Stressed

Solvent: Hexane/Toluene (50:50)
CAS # 110-54-3/108-88-3
Purity 99%

Column:
30m x .25mm x .2um
Rtx-CLP II (cat.# 11323)

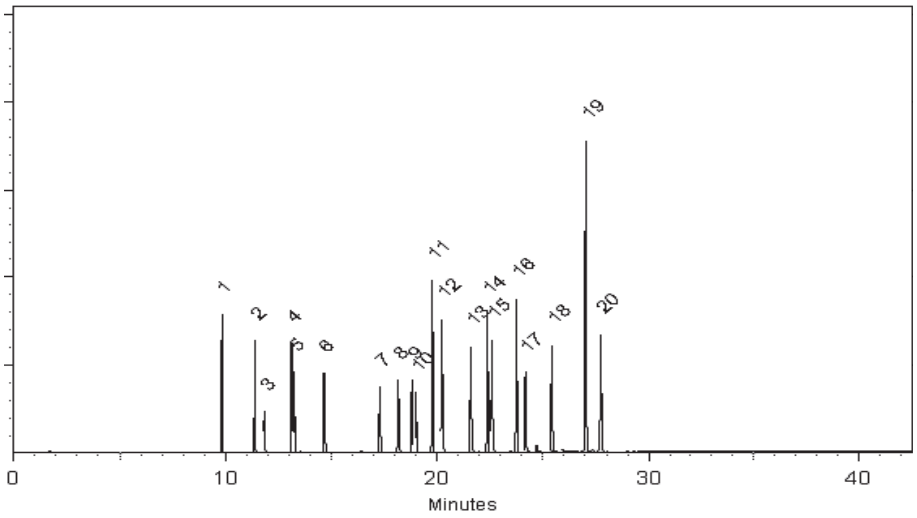
Carrier Gas:
helium-constant pressure 20 psi.

Temp. Program:
150°C to 300°C
@ 4°C/min. (hold 5 min.)

Inj. Temp:
200°C

Det. Temp:
300°C

Det. Type:
ECD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Morgan Craighead - Mix Technician

Date Mixed: 19-May-2022 **Balance:** B442140311

Feng-Yue Lo - QC Analyst

Date Passed: 26-May-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

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Tel: (800)356-1688
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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 32005 **Lot No.:** A0177326

Description : Toxaphene Standard

Toxaphene Standard 1000 µg/mL, Hexane, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : January 31, 2026 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	Toxaphene	1,004.7 µg/mL	+/- 5.9674 µg/mL	Gravimetric
	CAS # 8001-35-2 (Lot 1051817)		+/- 31.8552 µg/mL	Unstressed
	Purity ----%		+/- 41.6063 µg/mL	Stressed

Solvent: Hexane
CAS # 110-54-3
Purity 99%

Column:
30m x .25mm x .2um
Rtx-CLP II (cat.# 11323)

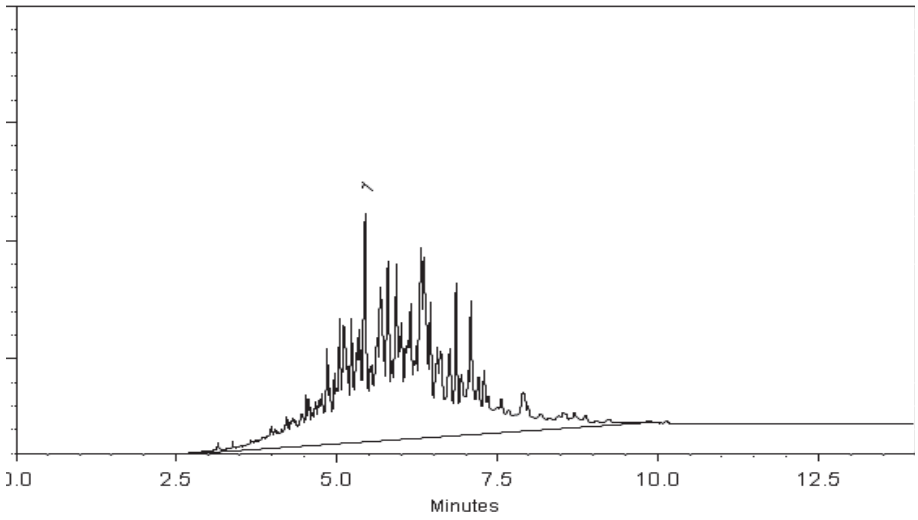
Carrier Gas:
helium-constant pressure 20 psi.

Temp. Program:
200°C to 300°C
@ 25°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
300°C

Det. Type:
ECD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Sam Moodler - Operations Tech I

Date Mixed: 11-Oct-2021 **Balance:** B442140311

Marlina Cowan - Operations Tech I

Date Passed: 14-Oct-2021

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

125 Market Street
New Haven, CT 06513
USA

AccuStandard® Inc.

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

Catalog No: M-502-36-10X
Description: Hexachlorobutadiene
Lot: 222031188
Solvent: Methanol
Hazards: *Refer to SDS for complete safety information*



Signal Word: Danger

Date Certified: Mar 11, 2022
Expiration: Apr 11, 2024
Sample Size: 1 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Certified Reference Material

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER AR-1463

ilac-MRA

Component	CAS #	Purity % (GC/MS)	Prepared Concentration² (µg/mL)	Certified Analyte Concentration¹ (µg/mL)
Hexachlorobutadiene	87-68-3	98.0	2002	1962

This Certified Reference Material was verified in accordance with ISO/IEC 17025

A product with a suffix (-1A, -2B, etc. or -01, -02, etc.) on its lot number has had its expiration date extended and is identical to the same lot number without the suffix.

² All weights are traceable through NIST, Test No. 684/289871-17

¹ Certified Analyte Concentration = Purity x Prepared Concentration.

The Uncertainty associated with the certified concentration reported on this certificate is ±2.4%. This value is the combined expanded uncertainty and represents an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

Labels and certificates follow U.S. Conventions in reporting numerical values: A comma (,) is used to separate units of one-thousand or greater. A period (.) is used as a decimal place marker.

The information on this certificate may not be reproduced without the express permission of the manufacturer. See reverse side for additional information

Hazard Information: Please refer to the SDS for information regarding the hazards associated with using this material.

This product was prepared according to in-house procedures and is guaranteed to be homogeneous.

Certified By: _____
Larry Decker, Organic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

1. **Quality Standards:**

   ISO 17034:2016 – General Requirements for the Competence of Reference Material Producers

   ISO/IEC 17025:2017 – General Requirements for the Competence of Testing And Calibration Laboratories

   ISO 9001:2015 – Quality Management System – Requirements Eagle Registrations

2. **Intended Use:** The product covered by this certificate is designed for calibration or for use in quality control procedures for the specified chemical compounds listed on the reverse side. This product can be used for quantification and/or identification. This product can also be used as a reference material to validate analytical procedures, subject to the conditions under Section 7.

3. **Manufacturing:** All balances are calibrated daily using an in-house procedure with weights that are compared annually to master weights and traceable to NIST. The balances are also calibrated annually by an ISO/IEC 17025 accredited calibration laboratory. Please refer to the NIST test number listed on the front of this certificate. Class A glassware is used in the manufacture and quality control of all standards. Good Laboratory Practices have been used throughout the preparation of this Standard.

4. **Homogeneity:** This product is sufficiently homogeneous and any sample size would be within the uncertainty budget.

5. **Stability:** The manufacturer guarantees the stability of this solution through the expiration date stated on the label, when handled and stored according to the conditions stated on the label

6. **Uncertainty:** The uncertainty values as stated on the face of this certificate have been determined using the EURACHEM/CITAC Guide. We report a combined expanded uncertainty equal to the positive square root of the total variance of the uncertainty of the components using the following formula: $u_a = \sqrt{(u(\mathrm{V}))^2 + (u(\mathrm{m}))^2 + (u(\mathrm{IV}))^2 + (u(\mathrm{RO}))^2}$ This formula represents uncertainty components from the mass, volume, short-term stability, long-term stability and homogeneity factors associated with the production of this product. The expanded uncertainty, assumes a normal distribution and a coverage factor of k=2 is chosen using approximately a 95% confidence level.

7. **Legal Notice and Limit of Liability:** This product is for routine laboratory analysis and research purposes only. The company's liability will be limited to replacement of product or refund of purchase price. Notice of claims must be made within thirty (30) days from date of delivery.

125 Market Street
New Haven, CT 06513
USA

AccuStandard®

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www.AccuStandard.com

CERTIFICATE OF ANALYSIS

Catalog No: M-502-36-10X
Description: Hexachlorobutadiene
Lot: 222031188
Solvent: Methanol
Hazards: *Refer to SDS for complete safety information*



Signal Word: Danger

Date Certified: Mar 11, 2022
Expiration: Apr 11, 2024
Sample Size: 1 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Certified Reference Material

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER AR-1463

ilac-MRA

Component	CAS #	Purity % (GC/MS)	Prepared Concentration[2] (µg/mL)	Certified Analyte Concentration[1] (µg/mL)
Hexachlorobutadiene	87-68-3	98.0	2002	1962

K 011468

This Certified Reference Material was verified in accordance with ISO/IEC 17025

A product with a suffix (-1A, -2B, etc. or -01, -02, etc.) on its lot number has had its expiration date extended and is identical to the same lot number without the suffix.

[2] All weights are traceable through NIST, Test No. 684/289871-17

[1] Certified Analyte Concentration = Purity x Prepared Concentration.

The Uncertainty associated with the certified concentration reported on this certificate is ±2.4%. This value is the combined expanded uncertainty and represents an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

Labels and certificates follow U.S. Conventions in reporting numerical values: A comma (,) is used to separate units of one-thousand or greater. A period (.) is used as a decimal place marker.

The information on this certificate may not be reproduced without the express permission of the manufacturer. See reverse side for additional information

Hazard Information: Please refer to the SDS for information regarding the hazards associated with using this material.

This product was prepared according to in-house procedures and is guaranteed to be homogeneous.

Certified By: Larry Decker, Organic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

QR-ORG/INO-001
Rev. 7/20

125 Market Street
New Haven, CT 06513
USA

AccuStandard®

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

Catalog No: P-066S
Description: Mirex
Lot: 221121451
Solvent: Methanol
Hazards: *Refer to SDS for complete safety information*



Signal Word: Danger

Date Certified: Dec 27, 2021
Expiration: Dec 27, 2025
Sample Size: 1 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Certified Reference Material

ANAB ACCREDITED AR-1463

ilac-MRA

Component	CAS #	Purity % (GC/MS)	Prepared Concentration² (µg/mL)	Certified Analyte Concentration¹ (µg/mL)
Mirex	2385-85-5	98.2	100.0	98.2

L000343

This Certified Reference Material was verified in accordance with ISO/IEC 17025

A product with a suffix (-1A, -2B, etc. or -01, -02, etc.) on its lot number has had its expiration date extended and is identical to the same lot number without the suffix.

² All weights are traceable through NIST, Test No. 684/289871-17

¹ Certified Analyte Concentration = Purity x Prepared Concentration.

The Uncertainty associated with the certified concentration reported on this certificate is ±2.4%. This value is the combined expanded uncertainty and represents an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

Labels and certificates follow U.S. Conventions in reporting numerical values: A comma (,) is used to separate units of one-thousand or greater. A period (.) is used as a decimal place marker.

The information on this certificate may not be reproduced without the express permission of the manufacturer. See reverse side for additional information

Hazard Information: Please refer to the SDS for information regarding the hazards associated with using this material.

This product was prepared according to in-house procedures and is guaranteed to be homogeneous.

Certified By: _____
Larry Decker, Organic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

QR-ORG/INO-001
Rev. 7/20

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CERTIFICATE OF ANALYSIS

Catalog No: P-184S
Description: trans-Nonachlor
Lot: 222031383
Solvent: Methanol
Hazards: *Refer to SDS for complete safety information*



Signal Word: Danger

Date Certified: Mar 29, 2022
Expiration: Mar 29, 2032
Sample Size: 1 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Certified Reference Material

ANAB ACCREDITED AR-1463

ILAC-MRA

Component	CAS #	Purity % (GC/MS)	Prepared Concentration[2] (µg/mL)	Certified Analyte Concentration[1] (µg/mL)
trans-Nonachlor	39765-80-5	100.0	100.3	100.3

L000344

This Certified Reference Material was verified in accordance with ISO/IEC 17025

A product with a suffix (-1A, -2B, etc. or -01, -02, etc.) on its lot number has had its expiration date extended and is identical to the same lot number without the suffix.

[2] All weights are traceable through NIST, Test No. 684/289871-17

[1] Certified Analyte Concentration = Purity x Prepared Concentration.

The Uncertainty associated with the certified concentration reported on this certificate is ±2.4%. This value is the combined expanded uncertainty and represents an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

Labels and certificates follow U.S. Conventions in reporting numerical values: A comma (,) is used to separate units of one-thousand or greater. A period (.) is used as a decimal place marker.

The information on this certificate may not be reproduced without the express permission of the manufacturer. See reverse side for additional information

Hazard Information: Please refer to the SDS for information regarding the hazards associated with using this material.

This product was prepared according to in-house procedures and is guaranteed to be homogeneous.

Certified By: Larry Decker, Organic QC Manager

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CERTIFICATE OF ANALYSIS

Catalog No: P-331S
Description: Oxychlordane Isomer
Lot: 221051706-01
Solvent: Methanol
Hazards: *Refer to SDS for complete safety information*



Signal Word: Danger

Date Certified: Jun 29, 2022
Expiration: Jul 29, 2024
Sample Size: 1 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Certified Reference Material

ANAB AR-1463

ILAC-MRA

Component	CAS #	Purity % (GC/MS)	Prepared Concentration[2] (µg/mL)	Certified Analyte Concentration[1] (µg/mL)
Oxychlordane Isomer	27304-13-8	99.2	100.1	99.3

L000 345

This Certified Reference Material was verified in accordance with ISO/IEC 17025

A product with a suffix (-1A, -2B, etc. or -01, -02, etc.) on its lot number has had its expiration date extended and is identical to the same lot number without the suffix.

[2] All weights are traceable through NIST, Test No. 684/289871-17

[1] Certified Analyte Concentration = Purity x Prepared Concentration.

The Uncertainty associated with the certified concentration reported on this certificate is ±2.4%. This value is the combined expanded uncertainty and represents an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

Labels and certificates follow U.S. Conventions in reporting numerical values: A comma (,) is used to separate units of one-thousand or greater. A period (.) is used as a decimal place marker.

The Information on this certificate may not be reproduced without the express permission of the manufacturer. See reverse side for additional information

Hazard Information: Please refer to the SDS for information regarding the hazards associated with using this material.

This product was prepared according to in-house procedures and is guaranteed to be homogeneous.

Certified By: Larry Decker, Organic QC Manager

For use in routine laboratory analysis.

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CERTIFICATE OF ANALYSIS

Catalog No: P-297S
Description: cis-Nonachlor
Lot: 222061106
Solvent: Methanol
Hazards: *Refer to SDS for complete safety information*



Signal Word: Danger

Date Certified: Jun 8, 2022
Expiration: Jun 8, 2025
Sample Size: 1 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Certified Reference Material

ANAB AR-1463 ilac-MRA

Component	CAS #	Purity[3] %	Prepared Concentration[2] (µg/mL)	Certified Analyte Concentration[1] (µg/mL)
cis-Nonachlor	5103-73-1	98.6	100.6	99.2

L 000346

This Certified Reference Material was verified in accordance with ISO/IEC 17025 (AT-1339) and ISO 17034 (AR-1463)

A product with a suffix (-1A, -2B, etc. or -01, -02, etc.) on its lot number has had its expiration date extended and is identical to the same lot number without the suffix.

[1] Certified Analyte Concentration = Purity x Prepared Concentration.

The Uncertainty associated with the certified concentration reported on this certificate is ±2.4%. This value is the combined expanded uncertainty and represents an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

[2] All weights are traceable through NIST, Test No. 684/289871-17

[3] Purity/Identity determined by one or more of the following methods: GC/MS, LC/MS, NMR, FTIR, Melting Point.

Labels and certificates follow U.S. Conventions in reporting numerical values: A comma (,) is used to separate units of one-thousand or greater. A period (.) is used as a decimal place marker.

The information on this certificate may not be reproduced without the express permission of the manufacturer. See reverse side for additional information

Hazard Information: Please refer to the SDS for information regarding the hazards associated with using this material.

This product was prepared according to in-house procedures and is guaranteed to be homogeneous.

Certified By: Larry Decker, Organic QC Manager

For use in routine laboratory analysis.

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CERTIFICATE OF ANALYSIS

Catalog No: P-024S
Description: o,p'-DDD
Lot: 220051307-02
Solvent: Methanol
Hazards: *Refer to SDS for complete safety information*



Signal Word: Danger

Date Certified: Aug 10, 2022
Expiration: Sep 10, 2024
Sample Size: 1 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Certified Reference Material

ANAB ACCREDITED AR-1463

ilac-MRA

Component	CAS #	Purity % (GC/MS)	Prepared Concentration[2] (µg/mL)	Certified Analyte Concentration[1] (µg/mL)
o,p'-DDD	53-19-0	100.0	100.2	100.2

L000747

This Certified Reference Material was verified in accordance with ISO/IEC 17025

A product with a suffix (-1A, -2B, etc. or -01, -02, etc.) on its lot number has had its expiration date extended and is identical to the same lot number without the suffix.

[2] All weights are traceable through NIST, Test No. 684/289871-17

[1] Certified Analyte Concentration = Purity x Prepared Concentration.

The Uncertainty associated with the certified concentration reported on this certificate is ±2.4%. This value is the combined expanded uncertainty and represents an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

Labels and certificates follow U.S. Conventions in reporting numerical values: A comma (,) is used to separate units of one-thousand or greater. A period (.) is used as a decimal place marker.

The information on this certificate may not be reproduced without the express permission of the manufacturer. See reverse side for additional information

Hazard Information: Please refer to the SDS for information regarding the hazards associated with using this material.

This product was prepared according to in-house procedures and is guaranteed to be homogeneous.

Certified By: Larry Decker, Organic QC Manager

For use in routine laboratory analysis.

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CERTIFICATE OF ANALYSIS

Catalog No: P-026S
Description: o,p'-DDE
Lot: 221081298
Solvent: Methanol
Hazards: *Refer to SDS for complete safety information*



Signal Word: Danger

Date Certified: Aug 19, 2021
Expiration: Aug 19, 2024
Sample Size: 1 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Certified Reference Material

ANAB AR-1463

ilac-MRA

Component	CAS #	Purity % (GC/MS)	Prepared Concentration[2] (µg/mL)	Certified Analyte Concentration[1] (µg/mL)
o,p'-DDE	3424-82-6	98.9	100.2	99.1

L 000 348

This Certified Reference Material was verified in accordance with ISO/IEC 17025

A product with a suffix (-1A, -2B, etc. or -01, -02, etc.) on its lot number has had its expiration date extended and is identical to the same lot number without the suffix.

[2] All weights are traceable through NIST, Test No. 684/289871-17

[1] Certified Analyte Concentration = Purity x Prepared Concentration.

The Uncertainty associated with the certified concentration reported on this certificate is ±2.4%. This value is the combined expanded uncertainty and represents an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

Labels and certificates follow U.S. Conventions in reporting numerical values: A comma (,) is used to separate units of one-thousand or greater. A period (.) is used as a decimal place marker.

The information on this certificate may not be reproduced without the express permission of the manufacturer. See reverse side for additional information

Hazard Information: Please refer to the SDS for information regarding the hazards associated with using this material.

This product was prepared according to in-house procedures and is guaranteed to be homogeneous.

Certified By: Larry Decker, Organic QC Manager

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CERTIFICATE OF ANALYSIS

Catalog No: P-028S
Description: o,p'-DDT
Lot: 221071322-01
Solvent: Methanol
Hazards: *Refer to SDS for complete safety information*



Signal Word: Danger

Date Certified: Sep 26, 2022
Expiration: Oct 26, 2024
Sample Size: 1 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Certified Reference Material

ANAB ACCREDITED PROFICIENCY TESTING PROVIDER AR-1463

ilac-MRA

Component	CAS #	Purity % (GC/MS)	Prepared Concentration[2] (µg/mL)	Certified Analyte Concentration[1] (µg/mL)
o,p'-DDT	789-02-6	99.9	100.1	100.0

L000349

This Certified Reference Material was verified in accordance with ISO/IEC 17025 (AT-1339) and ISO 17034 (AR-1463)

A product with a suffix (-1A, -2B, etc. or -01, -02, etc.) on its lot number has had its expiration date extended and is identical to the same lot number without the suffix.

[1] Certified Analyte Concentration = Purity x Prepared Concentration.

The Uncertainty associated with the certified concentration reported on this certificate is ±2.4%. This value is the combined expanded uncertainty and represents an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

[2] All weights are traceable through NIST, Test No. 684/289871-17

[3] Purity/Identity determined by one or more of the following methods: GC/MS, LC/MS, NMR, FTIR, Melting Point.

Labels and certificates follow U.S. Conventions in reporting numerical values: A comma (,) is used to separate units of one-thousand or greater. A period (.) is used as a decimal place marker.

The information on this certificate may not be reproduced without the express permission of the manufacturer. See reverse side for additional information

Hazard Information: Please refer to the SDS for information regarding the hazards associated with using this material.

This product was prepared according to in-house procedures and is guaranteed to be homogeneous.

Certified By: Larry Decker, Organic QC Manager

For use in routine laboratory analysis.

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

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Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 32200 **Lot No.:** A0190445

Description : 2,4'-DDT Standard

2,4'-DDT Standard 1000µg/mL, Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : February 28, 2027 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	2,4'-DDT	1,002.8 µg/mL	+/- 10.1019 µg/mL	Gravimetric
	CAS # 789-02-6 (Lot 13202200)		+/- 46.4089 µg/mL	Unstressed
	Purity 99%		+/- 66.4602 µg/mL	Stressed

Solvent: Methanol
CAS # 67-56-1
Purity 99%

Column:
30m x 0.25mm x 0.25µm
Rtx-5 (cat.#10223)

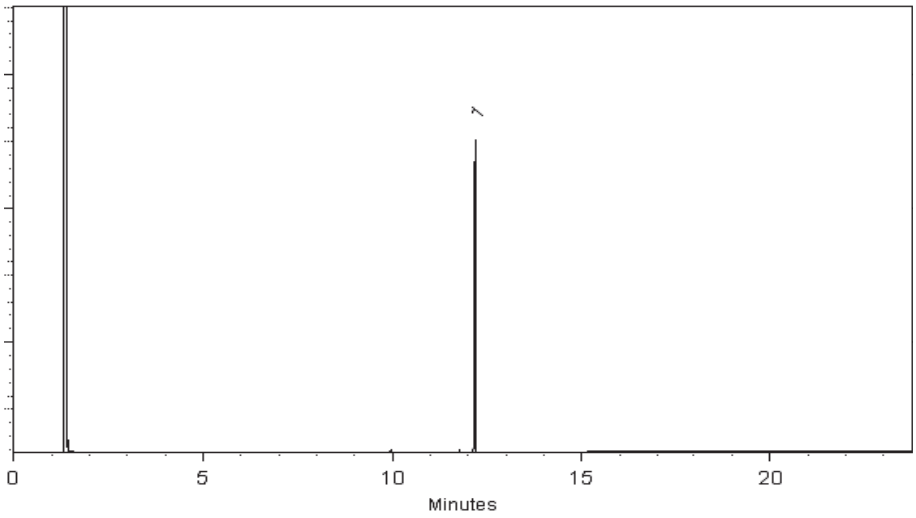
Carrier Gas:
hydrogen-constant pressure 10 psi.

Temp. Program:
75°C (hold 1 min.) to 330°C
@ 20°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Penelope Riglin - Operations Tech I

Date Mixed: 11-Oct-2022 **Balance:** 1128360905

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 14-Oct-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

Agilent

Trusted Answers

ISO 17034

Reference Material Certificate

Product Information Sheet

Product Name: Organochlorine Pesticides Standard

Product Number: PPM-808C-1

Storage Conditions: Store at Room Temperature (15° to 30°C).

L 10983

Lot Number: 0006705499

Lot Issue Date: 27-Dec-2022

Expiration Date: 31-Jan-2025

Component Name	CERTIFIED VALUES Concentration		Expanded Uncertainty	CAS#	Analyte Lot
aldrin	1004	±	5 µg/mL	000309-00-2	RM00635
alpha-BHC	1001	±	5 µg/mL	000319-84-6	RM19970
beta-BHC	1004	±	5 µg/mL	000319-85-7	RM20392
delta-BHC	1003	±	5 µg/mL	000319-86-8	RM19322
gamma-BHC	1004	±	5 µg/mL	000058-89-9	RM02694
cis-chlordane	1003	±	5 µg/mL	005103-71-9	RM07243
trans-chlordane	1002	±	5 µg/mL	005103-74-2	RM02726
4,4'-DDD	1002	±	5 µg/mL	000072-54-8	RM00615
4,4'-DDE	1003	±	5 µg/mL	000072-55-9	RM02892
4,4'-DDT	1004	±	5 µg/mL	000050-29-3	RM00618
dieldrin	1004	±	5 µg/mL	000060-57-1	RM20491
endosulfan I	1003	±	5 µg/mL	000959-98-8	RM18398
endosulfan II	1004	±	5 µg/mL	033213-65-9	RM18940
endosulfan sulfate	1004	±	5 µg/mL	001031-07-8	RM15389
endrin	1004	±	5 µg/mL	000072-20-8	RM14459
endrin aldehyde	1003	±	5 µg/mL	007421-93-4	RM20742
endrin ketone	1004	±	5 µg/mL	053494-70-5	NT00720
heptachlor	1003	±	5 µg/mL	000076-44-8	RM03111
heptachlor epoxide - isomer B	1002	±	5 µg/mL	001024-57-3	RM20115
methoxychlor	1002	±	5 µg/mL	000072-43-5	RM14186

Matrix: hexane/toluene (1:1)

Description:

This document is prepared in accordance with ISO 17034 and Guide 31. This analytical reference material standard was manufactured and verified in accordance with an ISO 9001 registered quality system and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed above.

Traceability:

The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

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Homogeneity:
This analytical reference standard was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Safety:
Refer to the Safety Data Sheet on www.agilent.com for information regarding this analytical reference material.

Intended Use:
This analytical reference standard is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

Expiration of Certification:
The certification of this analytical reference standard is valid until the expiration date specified above, provided the material is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the material is damaged, contaminated, or otherwise modified.

Maintenance of Certification:
If substantive changes are noted that affect the certification before the expiration of this certificate, Agilent will notify the purchaser.

Sample lot approver:

Monica Bourgeois
QMS Representative

ANAB
ACCREDITED
REFERENCE MATERIAL PRODUCER

ISO 17034 Cert
No. AR-1936

RM was produced in accordance with the TUV/SUD registered ISO 9001:2015 Quality Management System. Cert# 951215321

www.agilent.com/quality/
CSD-QA-015.1

ISO 17025

ISO 17034

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Trusted Answers

Reference Material Certificate

Product Name:	trans-Nonachlor Standard	**Lot Number:**	0006678079
Product Number:	PP-500-1	**Lot Issue Date:**	26-Apr-2022
Storage Conditions:	Store at Room Temperature (15° to 30°C).	**Expiration Date:**	31-May-2026

Component Name	CERTIFIED VALUES Concentration	Expanded Uncertainty	CAS#	Analyte Lot
trans-nonachlor	100.0 ±	0.5 µg/mL	039765-80-5	RM03191

Matrix: methanol (methyl alcohol) L11003

Description:
This document is prepared in accordance with ISO 17034 and Guide 31. This analytical reference material standard was manufactured and verified in accordance with an ISO 9001 registered quality system and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed above.

Traceability:
The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

Homogeneity:
This analytical reference standard was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Safety:
Refer to the Safety Data Sheet on www.agilent.com for information regarding this analytical reference material.

Intended Use:
This analytical reference standard is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

Expiration of Certification:
The certification of this analytical reference standard is valid until the expiration date specified above, provided the material is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the material is damaged, contaminated, or otherwise modified.

Maintenance of Certification:
If substantive changes are noted that affect the certification before the expiration of this certificate, Agilent will notify the purchaser.

Sample lot approver:

Monica Bourgeois
QMS Representative

ISO 17034

Agilent
Trusted Answers

Reference Material Certificate

Product Name:	Oxychlordane Standard	**Lot Number:**	0006649359
Product Number:	PP-540-1	**Lot Issue Date:**	24-Nov-2021
Storage Conditions:	Store at Room Temperature (15° to 30°C).	**Expiration Date:**	31-Dec-2025

	CERTIFIED VALUES				
Component Name	Concentration		Expanded Uncertainty	CAS#	Analyte Lot
oxychlordane	100.1	±	0.5 µg/mL	027304-13-8	RM18368

Matrix: methanol (methyl alcohol)

L 11004

Description:
This document is prepared in accordance with ISO 17034 and Guide 31. This analytical reference material standard was manufactured and verified in accordance with an ISO 9001 registered quality system and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed above.

Traceability:
The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

Homogeneity:
This analytical reference standard was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Safety:
Refer to the Safety Data Sheet on www.agilent.com for information regarding this analytical reference material.

Intended Use:
This analytical reference standard is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

Expiration of Certification:
The certification of this analytical reference standard is valid until the expiration date specified above, provided the material is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the material is damaged, contaminated, or otherwise modified.

Maintenance of Certification:
If substantive changes are noted that affect the certification before the expiration of this certificate, Agilent will notify the purchaser.

Sample lot approver:

Monica Bourgeois
QMS Representative

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ilac-MRA

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 32098 **Lot No.:** A0190447

Description : 2,4'-DDD Standard

2, 4'-DDD 1000µg/mL, Methanol, 1mL/ampul

L 11005

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : February 28, 2027 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	2,4'-DDD	1,002.0 µg/mL	+/- 10.0939	µg/mL	Gravimetric
	CAS # 53-19-0 (Lot BCCF3012)		+/- 46.3718	µg/mL	Unstressed
	Purity 99%		+/- 66.4072	µg/mL	Stressed

Solvent: Methanol
CAS # 67-56-1
Purity 99%

Column:
30m x 0.25mm x 0.25µm
Rtx-5 (cat.#10223)

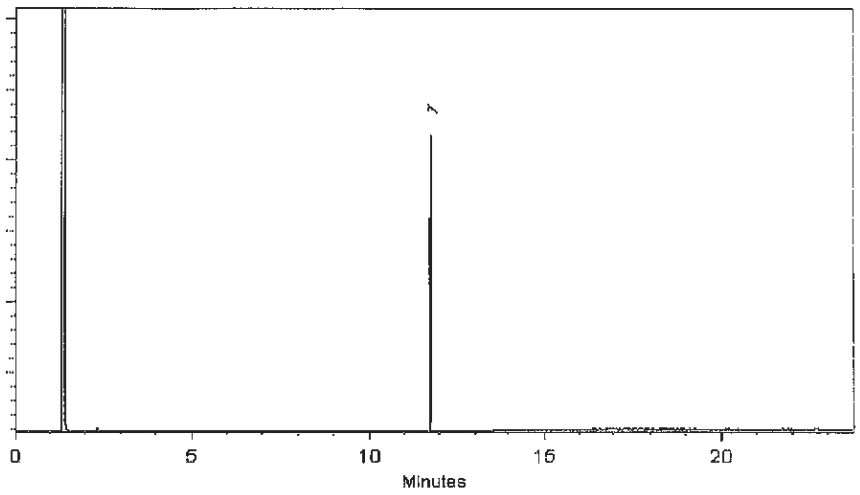
Carrier Gas:
hydrogen-constant pressure 10 psi.

Temp. Program:
75°C (hold 1 min.) to 330°C
@ 20°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Penelope Riglin - Operations Tech I

Date Mixed: 11-Oct-2022 **Balance:** 1128360905

Marlina Cowan – Operations Tech II ARM QC

Date Passed: 17-Oct-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

RESTEK®

110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 32099 **Lot No.:** A0190873

Description : 2,4'-DDE Standard

2, 4'-DDE Standard 1000 µg/mL, Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : February 28, 2027 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	2,4'-DDE	1,000.0 µg/mL	+/- 10.0737	µg/mL	Gravimetric
	CAS # 3424-82-6 (Lot 13484900)		+/- 46.2793	µg/mL	Unstressed
	Purity 99%		+/- 66.2746	µg/mL	Stressed

Solvent: Methanol
CAS # 67-56-1
Purity 99%

L11006

Column:
30m x 0.25mm x 0.25µm
Rtx-5 (cat.#10223)

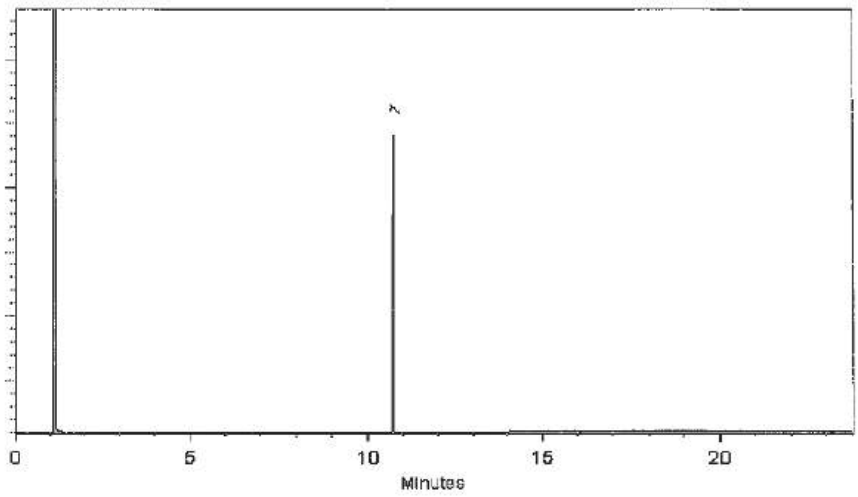
Carrier Gas:
hydrogen-constant pressure 10 psi.

Temp. Program:
75°C (hold 1 min.) to 330°C
@ 20°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Morgan Craighead - Mix Technician

Date Mixed: 24-Oct-2022 **Balance:** B442140311

Marlina Cowan – Operations Tech II ARM QC

Date Passed: 26-Oct-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

Analytical Resources, LLC
Analytical Chemists and Consultants

18 December 2023

Pamela Osterhout
Floyd - Snider
601 Union Street Two Union Square, Suite 600
Seattle, WA 98101-2341

RE: Smith-Kem ([none])

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
23I0156	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclosed Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Kelly Bottem, Client Services Manager

Cert# 100006-012

AR, LLC

23I0156

SAMPLE CHAIN OF CUSTODY

Report To Pamela Osterhout

Company Floyd Snider

Address 601 Union St Ste 6600

City, State, ZIP Seattle, WA 98101

Phone _____ Email _____

SAMPLERS (*signature*)	
PROJECT NAME: Smith Kem	PO #
REMARKS: Level 4 DV Package Project specific RLs? - Yes / No	INVOICE TO

TURNAROUND TIME
- [x] Standard turnaround
- [ ] RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
- [x] Archive samples
- [ ] Other
Default: Dispose after 30 days

	Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Dioxins/furans isopa 1613b			Archive	Notes
9	ADC3-01-0.5-1.0		9/7/23	08:05	Soil	1											✓	
2	ADC3-01-2.0			08:10		1											✓	
4	ADC3-02-0.5-1.0			08:25		1											✓	
1	ADC3-02-2.0			08:30		1											✓	
8	ADC3-03-0.5-1.0			08:45		1											✓	
10	ADC3-103-0.5-1.0			08:47		1											✓	
5	ADC3-03-2.0			08:50		1											✓	
6	ADC3-04-0.5-1.0			09:00		1											✓	
3	ADC3-04-2.0			09:05		1											✓	
7	ADC3-05-0.5-1.0			09:15		1											✓	

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		P. Osterhout	Floyd Snider	9/8/23	11:58
Received by:		Jacob Leathe	AR, LLC	09/08/23	1158
Relinquished by:					
Received by:					

~~Friedman & Bruya, Inc.~~
~~Ph. (206) 285-8282~~

AR1

23I0156

SAMPLE CHAIN OF CUSTODY

Report To Pamela Osterhout
Company Floyd Snider
Address
City, State, ZIP see page 1
Phone Email

SAMPLERS (*signature*)
PROJECT NAME: Smith Kem
PO #
REMARKS
Project specific RLs? - Yes / No
INVOICE TO

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Dioxins/Furans 1613			Archive	Notes
ADC3-05-2.0		9/7/23	09:20	Soil	1											✓	
H4H-01-0.5-2.0			09:40		1											✓	
H4H-01-2.5			09:45		1											✓	
H4H-02-0.5-1.0			10:00		1											✓	
H4H-02-2.0			10:05		1											✓	
H4H-03-0.5-1.0			10:10		1											✓	
H4H-03-2.0			10:15		1											✓	
H4H-04-0.5-1.0			10:20		1											✓	
H4H-04-2.0			10:25		1											✓	
H4H-05-0.5-1.0			10:35		1											✓	

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	P Osterhout	FIS	9/8/23	11:58
Received by:	Jacob Leather	ARLL	09/08/23	1158
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

23I0156

SAMPLE CHAIN OF CUSTODY

Report To Pamela Osterhout
Company Floyd Snider
Address
City, State, ZIP (see page 1)
Phone Email

SAMPLERS (*signature*)
PROJECT NAME: Smith Kem
PO #
REMARKS
Project specific RLs? - Yes / No
INVOICE TO

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Dioxins/furans 1613B			Archive	Notes
H4H-05-2.0		9/7/23	10:40	Soil	1											✓	
H4H-06-0.5-1.0			10:50		1											✓	
H4H-06-2.0			10:55		1											✓	
H4H-07-0.5-1.0			11:05		1											✓	
H4H-07-2.0			11:10		1											✓	

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	P. Osterhout	F/S	9/8/23	1159
Received by:	Jacee Shaffer	ARI, LLC	9/8/23	11:58
Relinquished by:				
Received by:				

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~~Ph. (206) 285-8282~~
ARI

AR, LLC

23I0156

SAMPLE CHAIN OF CUSTODY

Report To Pamela Osterhout
Company Floyd Snider
Address 601 Union St Ste 6000
City, State, ZIP Seattle, WA 98101
Phone _____ Email _____

SAMPLERS (*signature*) Pam Osterhout
PROJECT NAME: Smith Kem
PO #:
REMARKS: Level 4 DV Package
Project specific RLs? - Yes / No
INVOICE TO:

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Archive samples
☐ Other
Default: Dispose after 30 days

Four analyses requested by P. Osterhout on 10/20/2023

	Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Dioxins/Furans isopa 1613b			Archive	Notes
1	ADC3-01-0.5-1.0		9/7/23	08:05	Soil	1											✓	
2	ADC3-01-2.0			08:10		1											✓	
3	ADC3-02-0.5-1.0			08:25		1											✓	
4	ADC3-02-2.0			08:30		1											✓	
5	ADC3-03-0.5-1.0			08:45		1								X			✓	
6	ADC3-103-0.5-1.0			08:47		1								X			✓	
7	ADC3-03-2.0			08:50		1											✓	
8	ADC3-04-0.5-1.0			09:00		1								X			✓	
9	ADC3-04-2.0			09:05		1											✓	
10	ADC3-05-0.5-1.0			09:15		1								X			✓	

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Pam Osterhout	P. Osterhout	Floyd Snider	9/8/23	11:58
Received by:		Jacob Leathe	AR, LLC	09/08/23	1158
Relinquished by:					
Received by:					

Friedman & Bruya, Inc.
Ph. (206) 285-8282

AR1

23I0156

SAMPLE CHAIN OF CUSTODY

Report To Pamela Osterhout
Company Floyd Snider
Address
City, State, ZIP see page 1
Phone Email

SAMPLERS (*signature*)
PROJECT NAME: Smith Kem
PO #
REMARKS
Project specific RLs? - Yes / No
INVOICE TO

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Dioxins/Furans 1613B			Archive	Notes
ADC3-05-2.0		9/7/23	09:20	Soil	1											✓	
H4H-01-0.5-2.0			09:40		1											✓	
H4H-01-2.5			09:45		1											✓	
H4H-02-0.5-1.0			10:00		1											✓	
H4H-02-2.0			10:05		1											✓	
H4H-03-0.5-1.0			10:10		1											✓	
H4H-03-2.0			10:15		1											✓	
H4H-04-0.5-1.0			10:20		1											✓	
H4H-04-2.0			10:25		1											✓	
H4H-05-0.5-1.0			10:35		1											✓	

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	P Osterhout	FIS	9/8/23	11:58
Received by:	Jacob Leathe	ARLL	09/08/23	1158
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

23I0156

SAMPLE CHAIN OF CUSTODY

Report To Pamela Osterhout
Company Floyd Snider
Address
City, State, ZIP (see page 1)
Phone Email

SAMPLERS (*signature*)
PROJECT NAME: Smith Kem
PO #
REMARKS
Project specific RLs? - Yes / No
INVOICE TO

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Dioxin/furan 1613B			Archive	Notes
H4H-05-2.0		9/7/23	10:40	Soil	1											✓	
H4H-06-0.5-1.0			10:50		1											✓	
H4H-06-2.0			10:55		1											✓	
H4H-07-0.5-1.0			11:05		1											✓	
H4H-07-2.0			11:10		1											✓	

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	P. Osterhout	F/S	9/8/23	1159
Received by:	Jacob Shafer	ARI LLC	09/08/23	1158
Relinquished by:				
Received by:				

~~Friedman & Bruya, Inc.~~
~~Ph. (206) 285-8282~~
ARI

Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Floyd - Snide Project Name: Smith Ken

COC No(s): ____ (NA) Delivered by: Fed-Ex UPS Courier Hand Delivered Other: ____

Assigned ARI Job No: 23I0196 Tracking No: ____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1158 5.7

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: IR00708

Cooler Accepted by: JR Date: 09/08/23 Time: 1158

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
How were bottles sealed in plastic bags?	Individually	Grouped	(Not) PZB 09/11/23
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		YES	(NO)
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	(NA)	YES	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		

Were the sample(s) split by ARI? (NA) YES Date/Time: ____ Equipment: ____ Split by: ____

Samples Logged by: PZB Date: 09/11/23 Time: 9:21 Labels checked by: PZB

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC
H44-01-0.5-1.0	H44-01-0.5-2.0		

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Analytical Resources, LLC
Analytical Chemists and Consultants

Floyd - Snider	Project: Smith-Kem	
601 Union Street Two Union Square, Suite 600	Project Number: [none]	**Reported:**
Seattle, WA 98101-2341	Project Manager: Pamela Osterhout	12/18/2023 16:23

ANALYTICAL REPORT FOR SAMPLES

Laboratory ID	Sample ID	Matrix	Date Sampled	Date Received
23I0156-01	AOC3-01-0.5-1.0	Solid	09/07/23 08:05	09/08/23 11:58
23I0156-02	AOC3-01-2.0	Solid	09/07/23 08:10	09/08/23 11:58
23I0156-03	AOC3-02-0.5-1.0	Solid	09/07/23 08:25	09/08/23 11:58
23I0156-04	AOC3-02-2.0	Solid	09/07/23 08:30	09/08/23 11:58
23I0156-05	AOC3-03-0.5-1.0	Solid	09/07/23 08:45	09/08/23 11:58
23I0156-06	AOC3-103-0.5-1.0	Solid	09/07/23 08:47	09/08/23 11:58
23I0156-07	AOC3-03-2.0	Solid	09/07/23 08:50	09/08/23 11:58
23I0156-08	AOC3-04-0.5-1.0	Solid	09/07/23 09:00	09/08/23 11:58
23I0156-09	AOC3-04-2.0	Solid	09/07/23 09:05	09/08/23 11:58
23I0156-10	AOC3-05-0.5-1.0	Solid	09/07/23 09:15	09/08/23 11:58
23I0156-11	AOC3-05-2.0	Solid	09/07/23 09:20	09/08/23 11:58
23I0156-12	H4H-01-0.5-2.0	Solid	09/07/23 09:40	09/08/23 11:58
23I0156-13	H4H-01-2.5	Solid	09/07/23 09:45	09/08/23 11:58
23I0156-14	H4H-02-0.5-1.0	Solid	09/07/23 10:00	09/08/23 11:58
23I0156-15	H4H-02-2.0	Solid	09/07/23 10:05	09/08/23 11:58
23I0156-16	H4H-03-0.5-1.0	Solid	09/07/23 10:10	09/08/23 11:58
23I0156-17	H4H-03-2.0	Solid	09/07/23 10:15	09/08/23 11:58
23I0156-18	H4H-04-0.5-1.0	Solid	09/07/23 10:20	09/08/23 11:58
23I0156-19	H4H-04-2.0	Solid	09/07/23 10:25	09/08/23 11:58
23I0156-20	H4H-05-0.5-1.0	Solid	09/07/23 10:35	09/08/23 11:58
23I0156-21	H4H-05-2.0	Solid	09/07/23 10:40	09/08/23 11:58
23I0156-22	H4H-06-0.5-1.0	Solid	09/07/23 10:50	09/08/23 11:58
23I0156-23	H4H-06-2.0	Solid	09/07/23 10:55	09/08/23 11:58
23I0156-24	H4H-07-0.5-1.0	Solid	09/07/23 11:05	09/08/23 11:58
23I0156-25	H4H-07-2.0	Solid	09/07/23 11:10	09/08/23 11:58

Floyd - Snider	Project: Smith-Kem	
601 Union Street Two Union Square, Suite 600	Project Number: [none]	**Reported:**
Seattle WA, 98101-2341	Project Manager: Pamela Osterhout	18-Dec-2023 16:23

Case Narrative

Dioxin/Furans - EPA Method 1613

The sample(s) were extracted and analyzed within the recommended holding times for frozen samples. Analysis was performed using an application specific column developed by Restek. The RTX-Dioxin2 column has unique isomer separation for the 2378-TCDF, eliminating the need for confirmation analysis.

Initial and continuing calibrations were within method requirements.

Labeled internal standard areas were within limits.

The cleanup surrogate percent recoveries were within control limits.

The method blank(s) contained positive results. Samples that contain analyte have been flagged with a "B" qualifer.

The OPR (Ongoing Precision and Recovery) standard percent recoveries were within control limits.

QUALIFIERS AND NOTES

Qualifier	Definition
X	Indicates possible CDPE interference.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
J	Estimated concentration value detected below the reporting limit.
EMPC	Estimated Maximum Possible Concentration qualifier for HRGCMS Dioxin
B	This analyte was detected in the method blank.
*	Flagged value is not within established control limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Analytical Resources, LLC
Analytical Chemists and Consultants

AOC3-03-0.5-1.0

Form 1
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23I0156
Client:	Floyd - Snider				
Project:	Smith-Kem				
Matrix:	Soil	Laboratory ID:	23I0156-05 A	File ID:	23121426
Sampled:	09/07/23 08:45	Prepared:	11/14/23 13:25	Analyzed:	12/15/23 06:24
% Solids:	91.98	Preparation:	EPA 1613	Initial/Final:	11 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SLL0222	Calibration:	GH00041
Batch:	BLK0112	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.971	0.655-0.886	1.25	0.988	19.9	ng/kg	EMPC, X
1746-01-6	2,3,7,8-TCDD	1	0.787	0.655-0.886	0.215	0.988	57.0	ng/kg	
57117-41-6	1,2,3,7,8-PeCDF	1		1.318-1.783	0.940	0.988	ND	ng/kg	U
57117-31-4	2,3,4,7,8-PeCDF	1	1.529	1.318-1.783	0.978	0.988	7.66	ng/kg	
40321-76-4	1,2,3,7,8-PeCDD	1	1.830	1.318-1.783	0.328	0.988	2.12	ng/kg	EMPC
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.150	1.054-1.426	0.266	0.988	3.73	ng/kg	
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.207	1.054-1.426	0.283	0.988	8.08	ng/kg	
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.301	1.054-1.426	0.295	0.988	22.4	ng/kg	
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.576	1.054-1.426	0.375	0.988	3.49	ng/kg	EMPC
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.187	1.054-1.426	0.259	0.988	0.667	ng/kg	J
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.155	1.054-1.426	0.283	0.988	3.58	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.386	1.054-1.426	0.310	0.988	1.82	ng/kg	
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.067	0.893-1.208	0.368	0.988	53.4	ng/kg	B
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	0.949	0.893-1.208	0.562	0.988	2.91	ng/kg	
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.048	0.893-1.208	0.507	2.47	55.8	ng/kg	B
39001-02-0	OCDF	1	0.878	0.757-1.024	0.874	2.47	162	ng/kg	B
3268-87-9	OCDD	1	0.878	0.757-1.024	1.04	9.88	522	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			0.988	300	ng/kg	
41903-57-5	Total TCDD	1	0.000			0.988	61.9	ng/kg	
30402-15-4	Total PeCDF	1	0.000			0.988	601	ng/kg	
36088-22-9	Total PeCDD	1	0.000			0.988	17.3	ng/kg	
55684-94-1	Total HxCDF	1	0.000			0.988	295	ng/kg	
34465-46-8	Total HxCDD	1	0.000			0.988	40.5	ng/kg	
38998-75-3	Total HpCDF	1	0.000			0.988	172	ng/kg	
37871-00-4	Total HpCDD	1	0.000			0.988	129	ng/kg	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 69.11

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 69.13

Analytical Resources, Incorporated
Analytical Chemists and Consultants

AOC3-03-0.5-1.0

Form 2

ORGANIC ANALYSIS DATA SHEET

EPA 1613B

Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23I0156
Client:	Floyd - Snider			Project:	Smith-Kem
Matrix:	Soil	Laboratory ID:	23I0156-05	File ID:	23121426
Sampled:	09/07/23 08:45	Prepared:	11/14/23 13:25	Analyzed:	12/15/23 06:24
Solids Wt%:	91.98	Preparation:	EPA 1613	Initial/Final:	11 g / 20 uL
Result Basis:	Dry	Sequence:	SLL0222	Calibration:	GH00041
Batch:	BLK0112	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.767	0.655-0.886	0.139	47.4	24 - 169 %	
13C12-2,3,7,8-TCDD		0.780	0.655-0.886	0.182	62.9	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.521	1.318-1.783	0.172	53.1	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.488	1.318-1.783	0.182	51.6	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.665	1.318-1.783	0.185	68.0	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.520	0.434-0.587	0.151	52.1	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.514	0.434-0.587	0.123	43.7	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.503	0.434-0.587	0.150	47.0	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.513	0.434-0.587	0.173	49.4	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.239	1.054-1.426	0.178	63.9	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.208	1.054-1.426	0.147	52.2	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.440	0.374-0.506	0.174	39.3	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.446	0.374-0.506	0.227	39.6	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.095	0.893-1.208	0.312	54.2	23 - 140 %	
13C12-OCDD		0.894	0.757-1.024	0.353	40.8	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.428	88.9	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
Printed: Friday, December 15, 2023 13:57:34 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin231215.mdb 15 Dec 2023 13:28:43
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: 23I0156-05, Name: 23121426, Date: 15-Dec-2023, Time: 06:24:41, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.407	1.002	1.324e4	1.363e4	0.903	0.971	0.770	3545	5054	1.69e5	1.83e5	47.7	36.3	YES	dd	bd	10.090
12378-PeCDF					0.923		1.550	2646	3000								
23478-PeCDF	30.875	1.001	5.283e3	3.455e3	0.991	1.529	1.550	2646	3000	7.24e4	5.10e4	27.3	17.0	NO	db	db	3.875
123478-HxCDF	34.507	1.001	2.180e3	1.896e3	1.128	1.150	1.240	710	794	3.78e4	2.88e4	53.2	36.3	NO	bd	bd	1.885
234678-HxCDF	35.487	0.999	1.201e4	9.235e3	1.081	1.301	1.240	710	794	1.38e5	1.04e5	194.5	131.2	NO	bb	bb	11.319
123678-HxCDF	34.652	1.001	4.565e3	3.781e3	1.032	1.207	1.240	710	794	7.17e4	6.04e4	101.1	76.1	NO	db	db	4.087
123789-HxCDF	36.535	1.000	1.694e3	1.075e3	0.988	1.576	1.240	710	794	3.04e4	1.97e4	42.9	24.8	YES	bb	bb	1.765
1234678-HpCDF	38.407	1.000	2.120e4	1.987e4	1.164	1.067	1.050	701	868	3.57e5	3.40e5	509.0	391.3	NO	bb	bb	27.021
1234789-HpCDF	40.601	1.001	7.977e2	8.407e2	1.104	0.949	1.050	701	868	1.17e4	1.10e4	16.6	12.7	NO	bb	bb	1.470
OCDF	44.701	1.006	3.799e4	4.327e4	1.130	0.878	0.890	1254	652	4.65e5	5.20e5	370.4	797.6	NO	bb	bb	82.160
2378-TCDD	26.014	1.001	3.731e4	4.743e4	1.243	0.787	0.770	956	714	5.60e5	7.19e5	586.1	1007.1	NO	bd	bd	28.824
12378-PeCDD	31.120	1.001	1.386e3	7.575e2	1.150	1.830	1.550	846	859	1.92e4	1.16e4	22.7	13.5	YES	bb	bb	1.073
123478-HxCDD	35.644	1.001	3.638e2	3.065e2	0.960	1.187	1.240	756	646	6.58e3	5.24e3	8.7	8.1	NO	bd	bd	0.337
123678-HxCDD	35.766	1.001	1.748e3	1.513e3	0.883	1.155	1.240	756	646	2.56e4	2.43e4	33.9	37.6	NO	dd	db	1.809
123789-HxCDD	36.145	1.011	8.830e2	6.373e2	0.804	1.386	1.240	756	646	1.43e4	1.12e4	18.9	17.3	NO	bb	bb	0.920
1234678-HpCDD	39.877	1.000	1.994e4	1.903e4	1.200	1.048	1.050	957	912	3.23e5	3.04e5	337.6	333.5	NO	bb	bb	28.210
OCDD	44.472	1.000	1.145e5	1.304e5	1.059	0.878	0.890	997	1124	1.46e6	1.64e6	1459.7	1459.2	NO	bb	bb	264.278
13C-2378-TCDF	25.365	1.007	1.280e5	1.669e5	1.835	0.767	0.770	1178	1181	1.96e6	2.57e6	1661.2	2171.9	NO	bb	bb	47.434
13C-12378-PeCDF	29.505	1.171	1.493e5	9.812e4	1.377	1.521	1.550	1281	904	2.33e6	1.52e6	1817.0	1684.4	NO	bd	bd	53.053
13C-23478-PeCDF	30.853	1.225	1.361e5	9.149e4	1.301	1.488	1.550	1281	904	2.07e6	1.38e6	1613.5	1528.5	NO	bb	bb	51.640
13C-123478-HxCDF	34.485	0.954	6.553e4	1.261e5	1.091	0.520	0.510	607	945	1.02e6	2.01e6	1676.8	2127.8	NO	bd	bd	52.076
13C-123678-HxCDF	34.630	0.958	6.715e4	1.307e5	1.340	0.514	0.510	607	945	1.04e6	2.00e6	1708.3	2118.1	NO	db	db	43.741
13C-234678-HxCDF	35.510	0.983	5.811e4	1.154e5	1.093	0.503	0.510	607	945	9.34e5	1.84e6	1540.4	1946.3	NO	bb	bb	47.035
13C-123789-HxCDF	36.546	1.011	5.385e4	1.049e5	0.952	0.513	0.510	607	945	8.16e5	1.64e6	1345.8	1733.9	NO	bb	bd	49.440
13C-1234678-HpCDF	38.395	1.063	3.991e4	9.070e4	0.985	0.440	0.440	698	919	6.63e5	1.51e6	950.3	1643.9	NO	bb	bd	39.297
13C-1234789-HpCDF	40.579	1.123	3.116e4	6.982e4	0.756	0.446	0.440	698	919	4.63e5	1.04e6	663.0	1135.4	NO	bd	bd	39.595
13C-1234-TCDD	25.195	0.000	1.487e5	1.901e5	1.000	0.782	0.770	1129	736	2.41e6	3.09e6	2131.0	4192.4	NO	bb	bb	100.000
13C-2378-TCDD	26.000	1.032	1.037e5	1.328e5	1.110	0.780	0.770	1129	736	1.62e6	2.07e6	1435.1	2814.4	NO	bb	bb	62.928
13C-12378-PeCDD	31.098	1.234	1.085e5	6.516e4	0.754	1.665	1.550	600	690	1.67e6	1.03e6	2790.1	1489.5	NO	bb	bb	68.017
13C-123478-HxCDD	35.621	0.986	1.146e5	9.248e4	0.960	1.239	1.240	949	662	1.85e6	1.49e6	1951.0	2255.7	NO	bd	bd	63.914
13C-123678-HxCDD	35.744	0.989	1.117e5	9.245e4	1.159	1.208	1.240	949	662	1.82e6	1.48e6	1921.1	2234.0	NO	db	db	52.190
13C-1234678-HpCDD	39.866	1.103	6.018e4	5.497e4	0.629	1.095	1.050	890	960	9.53e5	8.73e5	1069.9	908.9	NO	bb	bb	54.226
13C-OCDD	44.454	1.230	8.260e4	9.243e4	0.635	0.894	0.890	1002	1111	1.08e6	1.23e6	1077.9	1111.(	NO	bb	bb	81.663
13C-123789-HxCDD	36.134	0.000	1.842e5	1.533e5	1.000	1.202	1.240	949	662	3.05e6	2.51e6	3217.6	3785.3	NO	bb	bb	100.000
37CL-2378-TCDD	26.014	1.033	1.394e5		1.157			4576		2.14e6		468.0			bb		35.550

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
Printed: Friday, December 15, 2023 13:57:34 Pacific Standard Time

ID: 23I0156-05, Name: 23121426, Date: 15-Dec-2023, Time: 06:24:41, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.170		0.770	3545	5054								
1289-TCDF	26.890	1.060	4.814e3	5.383e3	0.847	0.894	0.770	3545	5054	5.95e4	6.55e4	16.8	13.0	YES	dd	bd	4.084
13468-PECDF	26.806	0.909	2.285e5	1.487e5	1.241	1.536	1.550	1804	2484	3.59e6	2.35e6	1991.8	944.5	NO	bb	bb	122.861
12389-PECDF	31.833	1.079	1.692e4	1.084e4	0.880	1.561	1.550	2646	3000	2.25e5	1.52e5	85.2	50.8	NO	bb	bb	12.758
123468-HXCDF	32.825	0.952	1.399e4	1.088e4	1.206	1.286	1.240	710	794	2.21e5	1.63e5	311.2	205.1	NO	db	db	10.762
1368-TCDD	23.161	0.891	7.953e2	9.336e2	1.181	0.852	0.770	956	714	1.53e4	1.67e4	16.0	23.4	NO	bb	bb	0.619
1289-TCDD					0.963		0.770	956	714								
12479-PECDD	28.446	0.915	5.132e3	3.669e3	2.166	1.399	1.550	846	859	6.45e4	5.09e4	76.2	59.2	NO	bb	bb	2.339
12389-PECDD	31.521	1.014	2.559e2	1.834e2	1.326	1.395	1.550	846	859	4.18e3	3.47e3	4.9	4.0	NO	bb	bb	0.191
124679-HXCDD	33.605	0.943	1.170e4	1.017e4	1.127	1.151	1.240	756	646	1.85e5	1.55e5	245.1	239.8	NO	bb	bb	9.378
1234679-HPCDD	38.852	0.975	2.780e4	2.786e4	1.303	0.998	1.050	957	912	4.63e5	4.60e5	484.2	504.5	NO	bb	bb	37.106
Total-tetrafurans			1.933e5		0.973			3545		2.80e6							151.672
Total-penta1			2.351e5					1804		3.71e6							127.582
Total-pentafurans			2.377e5		0.931			2646		3.24e6							176.710
Total-hexafurans			1.654e5		1.087			710		2.58e6							149.027
Total-heptafurans			6.176e4		1.134			701		1.03e6							87.189
Total-Furans			9.312e5		1.053			3545		1.38e7							774.341
Total-tetradioxins			4.029e4		1.129			956		6.12e5							31.339
Total-pentadioxins			1.537e4		1.548			846		2.20e5							8.777
Total-hexadioxins			2.303e4		0.943			756		3.35e5							20.503
Total-heptadioxins			4.774e4		1.251			957		7.86e5							65.315
Total-Dioxins			2.409e5		1.182			956		3.41e6							390.212
Total-TEQ			1.172e6					956		1.72e7							1164.554
FUNCTION1 PFK			9.433e5					194093		1.05e7							
FUNCTION2 PFK			0.000e0					97394		0.00e0							
FUNCTION3 PFK			8.299e5					123459		1.39e7							0.000
FUNCTION4 PFK			5.256e5					113394		4.10e6							
FUNCTION5 PFK			1.127e5					98171		3.36e6							
FUNCTION1 HXCD...			2.495e5					3361		3.77e6							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			4.608e4					1461		7.41e5							0.000
FUNCTION3 OCDPE			5.398e3					627		8.59e4							0.000
FUNCTION4 NCDPE			3.438e2					603		6.55e3							0.000
FUNCTION5 DCDPE			0.000e0					430		0.00e0							

Method: T:\Autospec\Methods\Dioxin231215.mdb 15 Dec 2023 13:28:43
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.87	3.461e3	4.405e3	0.973	0.79	0.77	13.9	YES	NO	db	db	2.740
2	Total-tetrafurans	23.80	2.082e3	2.472e3	0.973	0.84	0.77	9.8	YES	NO	dd	dd	1.586
3	Total-tetrafurans	23.13	8.785e3	1.100e4	0.973	0.80	0.77	32.0	YES	NO	db	db	6.893
4	Total-tetrafurans	22.91	3.897e3	4.704e3	0.973	0.83	0.77	11.9	YES	NO	dd	dd	2.996
5	Total-tetrafurans	22.74	3.432e4	4.298e4	0.973	0.80	0.77	153.8	YES	NO	bd	bd	26.928
6	Total-tetrafurans	22.54	2.918e3	3.381e3	0.973	0.86	0.77	13.4	YES	NO	db	db	2.194
7	Total-tetrafurans	25.77	2.324e4	3.103e4	0.973	0.75	0.77	87.3	YES	NO	db	db	18.906
8	Total-tetrafurans	25.68	1.313e4	1.832e4	0.973	0.72	0.77	63.5	YES	NO	dd	dd	10.956
9	Total-tetrafurans	25.20	3.841e4	4.459e4	0.973	0.86	0.77	172.4	YES	NO	dd	db	28.911
10	Total-tetrafurans	25.05	7.701e3	8.950e3	0.973	0.86	0.77	32.1	YES	NO	dd	bd	5.800
11	Total-tetrafurans	24.29	2.122e4	2.612e4	0.973	0.81	0.77	94.2	YES	NO	bb	bb	16.491
12	Total-tetrafurans	27.29	2.761e4	3.588e4	0.973	0.77	0.77	83.1	YES	NO	db	db	22.115
13	Total-tetrafurans	27.14	6.477e3	8.324e3	0.973	0.78	0.77	22.3	YES	NO	dd	bd	5.156

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.55	6.591e3	4.121e3		1.60	1.55	65.5	YES	NO	bb	bb	4.722
2	13468-PECDF	26.81	2.285e5	1.487e5	1.241	1.54	1.55	1991.8	YES	NO	bb	bb	122.861

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PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	29.37	1.526e3	9.967e2	0.931	1.53	1.55	9.3	YES	NO	bb	bd	1.141
2	Total-pentafurans	29.17	2.225e4	1.383e4	0.931	1.61	1.55	131.0	YES	NO	db	db	16.316
3	Total-pentafurans	29.06	4.819e3	3.352e3	0.931	1.44	1.55	30.1	YES	NO	bd	bd	3.694
4	Total-pentafurans	28.59	2.777e4	1.767e4	0.931	1.57	1.55	173.3	YES	NO	db	db	20.549
5	Total-pentafurans	28.46	8.620e4	5.520e4	0.931	1.56	1.55	381.8	YES	NO	dd	dd	63.937
6	Total-pentafurans	28.28	4.405e3	2.757e3	0.931	1.60	1.55	25.1	YES	NO	dd	dd	3.238
7	Total-pentafurans	28.10	4.753e3	3.533e3	0.931	1.35	1.55	22.4	YES	NO	bd	bd	3.746
8	12389-PECDF	31.83	1.692e4	1.084e4	0.880	1.56	1.55	85.2	YES	NO	bb	bb	12.758
9	Total-pentafurans	31.60	1.926e3	1.277e3	0.931	1.51	1.55	11.9	YES	NO	bb	bd	1.448
10	Total-pentafurans	31.10	2.599e3	1.634e3	0.931	1.59	1.55	14.1	YES	NO	bb	bb	1.914
11	23478-PeCDF	30.88	5.283e3	3.455e3	0.991	1.53	1.55	27.3	YES	NO	db	db	3.875
12	Total-pentafurans	30.72	2.998e4	1.852e4	0.931	1.62	1.55	153.5	YES	NO	bd	bd	21.929
13	Total-pentafurans	30.49	4.916e3	3.429e3	0.931	1.43	1.55	31.5	YES	NO	bb	bb	3.773
14	Total-pentafurans	30.27	1.284e4	8.561e3	0.931	1.50	1.55	63.3	YES	NO	bb	bb	9.677
15	Total-pentafurans	29.98	2.910e3	2.121e3	0.931	1.37	1.55	16.9	YES	NO	bb	bb	2.275
16	Total-pentafurans	29.74	8.621e3	5.619e3	0.931	1.53	1.55	48.8	YES	NO	bb	bb	6.439

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	234678-HxCDF	35.49	1.201e4	9.235e3	1.081	1.30	1.24	194.5	YES	NO	bb	bb	11.319
2	123678-HxCDF	34.65	4.565e3	3.781e3	1.032	1.21	1.24	101.1	YES	NO	db	db	4.087
3	123478-HxCDF	34.51	2.180e3	1.896e3	1.128	1.15	1.24	53.2	YES	NO	bd	bd	1.885
4	Total-hexafurans	34.34	2.902e2	2.638e2	1.087	1.10	1.24	7.7	YES	NO	bb	bb	0.282
5	Total-hexafurans	33.88	6.616e4	5.216e4	1.087	1.27	1.24	1520.2	YES	NO	bb	bb	60.321
6	Total-hexafurans	33.34	9.461e2	7.363e2	1.087	1.28	1.24	18.7	YES	NO	bb	bb	0.858
7	Total-hexafurans	33.04	6.528e4	5.146e4	1.087	1.27	1.24	1423.6	YES	NO	bb	bb	59.513
8	123468-HXCDF	32.82	1.399e4	1.088e4	1.206	1.29	1.24	311.2	YES	NO	db	db	10.762

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.60	7.977e2	8.407e2	1.104	0.95	1.05	16.6	YES	NO	bb	bb	1.470
2	Total-heptafurans	39.06	3.976e4	3.729e4	1.134	1.07	1.05	941.9	YES	NO	bb	bb	58.699
3	1234678-HpCDF	38.41	2.120e4	1.987e4	1.164	1.07	1.05	509.0	YES	NO	bb	bb	27.021

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
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ID: 23I0156-05, Name: 23121426, Date: 15-Dec-2023, Time: 06:24:41, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.87	3.461e3	4.405e3	0.973	0.79	0.77	13.9	YES	NO	db	db	2.740
2	Total-tetrafurans	23.80	2.082e3	2.472e3	0.973	0.84	0.77	9.8	YES	NO	dd	dd	1.586
3	Total-tetrafurans	23.13	8.785e3	1.100e4	0.973	0.80	0.77	32.0	YES	NO	db	db	6.893
4	Total-tetrafurans	22.91	3.897e3	4.704e3	0.973	0.83	0.77	11.9	YES	NO	dd	dd	2.996
5	Total-tetrafurans	22.74	3.432e4	4.298e4	0.973	0.80	0.77	153.8	YES	NO	bd	bd	26.928
6	Total-tetrafurans	22.54	2.918e3	3.381e3	0.973	0.86	0.77	13.4	YES	NO	db	db	2.194
7	Total-tetrafurans	25.77	2.324e4	3.103e4	0.973	0.75	0.77	87.3	YES	NO	db	db	18.906
8	Total-tetrafurans	25.68	1.313e4	1.832e4	0.973	0.72	0.77	63.5	YES	NO	dd	dd	10.956
9	Total-tetrafurans	25.20	3.841e4	4.459e4	0.973	0.86	0.77	172.4	YES	NO	dd	db	28.911
10	Total-tetrafurans	25.05	7.701e3	8.950e3	0.973	0.86	0.77	32.1	YES	NO	dd	bd	5.800
11	Total-tetrafurans	24.29	2.122e4	2.612e4	0.973	0.81	0.77	94.2	YES	NO	bb	bb	16.491
12	Total-tetrafurans	27.29	2.761e4	3.588e4	0.973	0.77	0.77	83.1	YES	NO	db	db	22.115
13	Total-tetrafurans	27.14	6.477e3	8.324e3	0.973	0.78	0.77	22.3	YES	NO	dd	bd	5.156
14	Total-pentafurans	29.37	1.526e3	9.967e2	0.931	1.53	1.55	9.3	YES	NO	bb	bd	1.141
15	Total-pentafurans	29.17	2.225e4	1.383e4	0.931	1.61	1.55	131.0	YES	NO	db	db	16.316
16	Total-pentafurans	29.06	4.819e3	3.352e3	0.931	1.44	1.55	30.1	YES	NO	bd	bd	3.694
17	Total-pentafurans	28.59	2.777e4	1.767e4	0.931	1.57	1.55	173.3	YES	NO	db	db	20.549
18	Total-pentafurans	28.46	8.620e4	5.520e4	0.931	1.56	1.55	381.8	YES	NO	dd	dd	63.937
19	Total-pentafurans	28.28	4.405e3	2.757e3	0.931	1.60	1.55	25.1	YES	NO	dd	dd	3.238
20	Total-pentafurans	28.10	4.753e3	3.533e3	0.931	1.35	1.55	22.4	YES	NO	bd	bd	3.746
21	12389-PECDF	31.83	1.692e4	1.084e4	0.880	1.56	1.55	85.2	YES	NO	bb	bb	12.758
22	Total-pentafurans	31.60	1.926e3	1.277e3	0.931	1.51	1.55	11.9	YES	NO	bb	bd	1.448
23	Total-pentafurans	31.10	2.599e3	1.634e3	0.931	1.59	1.55	14.1	YES	NO	bb	bb	1.914
24	23478-PeCDF	30.88	5.283e3	3.455e3	0.991	1.53	1.55	27.3	YES	NO	db	db	3.875
25	Total-pentafurans	30.72	2.998e4	1.852e4	0.931	1.62	1.55	153.5	YES	NO	bd	bd	21.929
26	Total-pentafurans	30.49	4.916e3	3.429e3	0.931	1.43	1.55	31.5	YES	NO	bb	bb	3.773
27	Total-pentafurans	30.27	1.284e4	8.561e3	0.931	1.50	1.55	63.3	YES	NO	bb	bb	9.677
28	Total-pentafurans	29.98	2.910e3	2.121e3	0.931	1.37	1.55	16.9	YES	NO	bb	bb	2.275
29	Total-pentafurans	29.74	8.621e3	5.619e3	0.931	1.53	1.55	48.8	YES	NO	bb	bb	6.439
30	234678-HxCDF	35.49	1.201e4	9.235e3	1.081	1.30	1.24	194.5	YES	NO	bb	bb	11.319
31	123678-HxCDF	34.65	4.565e3	3.781e3	1.032	1.21	1.24	101.1	YES	NO	db	db	4.087
32	123478-HxCDF	34.51	2.180e3	1.896e3	1.128	1.15	1.24	53.2	YES	NO	bd	bd	1.885
33	Total-hexafurans	34.34	2.902e2	2.638e2	1.087	1.10	1.24	7.7	YES	NO	bb	bb	0.282
34	Total-hexafurans	33.88	6.616e4	5.216e4	1.087	1.27	1.24	1520.2	YES	NO	bb	bb	60.321
35	Total-hexafurans	33.34	9.461e2	7.363e2	1.087	1.28	1.24	18.7	YES	NO	bb	bb	0.858
36	Total-hexafurans	33.04	6.528e4	5.146e4	1.087	1.27	1.24	1423.6	YES	NO	bb	bb	59.513
37	123468-HXCDF	32.82	1.399e4	1.088e4	1.206	1.29	1.24	311.2	YES	NO	db	db	10.762

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	1234789-HpCDF	40.60	7.977e2	8.407e2	1.104	0.95	1.05	16.6	YES	NO	bb	bb	1.470
39	Total-heptafurans	39.06	3.976e4	3.729e4	1.134	1.07	1.05	941.9	YES	NO	bb	bb	58.699
40	1234678-HpCDF	38.41	2.120e4	1.987e4	1.164	1.07	1.05	509.0	YES	NO	bb	bb	27.021
41	OCDF	44.70	3.799e4	4.327e4	1.130	0.88	0.89	370.4	YES	NO	bb	bb	82.160
42	Total-penta1	27.55	6.591e3	4.121e3		1.60	1.55	65.5	YES	NO	bb	bb	4.722
43	13468-PECDF	26.81	2.285e5	1.487e5	1.241	1.54	1.55	1991.8	YES	NO	bb	bb	122.861

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.64	1.663e3	2.282e3	1.129	0.73	0.77	28.6	YES	NO	bb	bb	1.478
2	Total-tetradioxins	24.47	5.159e2	6.017e2	1.129	0.86	0.77	8.9	YES	NO	db	db	0.419
3	1368-TCDD	23.16	7.953e2	9.336e2	1.181	0.85	0.77	16.0	YES	NO	bb	bb	0.619
4	2378-TCDD	26.01	3.731e4	4.743e4	1.243	0.79	0.77	586.1	YES	NO	bd	bd	28.824

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.52	2.559e2	1.834e2	1.326	1.39	1.55	4.9	YES	NO	bb	bb	0.191
2	Total-pentadioxins	30.05	7.651e2	5.267e2	1.548	1.45	1.55	11.8	YES	NO	db	db	0.481
3	Total-pentadioxins	29.87	1.593e3	1.096e3	1.548	1.45	1.55	31.9	YES	NO	dd	dd	1.001
4	Total-pentadioxins	29.74	5.836e3	3.874e3	1.548	1.51	1.55	100.6	YES	NO	bd	bd	3.613
5	Total-pentadioxins	29.53	1.478e3	1.096e3	1.548	1.35	1.55	27.7	YES	NO	bb	bb	0.958
6	Total-pentadioxins	28.93	3.055e2	2.168e2	1.548	1.41	1.55	6.4	YES	NO	bb	bb	0.194
7	12479-PECDD	28.45	5.132e3	3.669e3	2.166	1.40	1.55	76.2	YES	NO	bb	bb	2.339

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDD	35.77	1.748e3	1.513e3	0.883	1.16	1.24	33.9	YES	NO	dd	db	1.809
2	123478-HxCDD	35.64	3.638e2	3.065e2	0.960	1.19	1.24	8.7	YES	NO	bd	bd	0.337
3	Total-hexadioxins	34.75	7.220e3	6.289e3	0.943	1.15	1.24	113.1	YES	NO	bb	bb	6.966
4	Total-hexadioxins	34.38	1.116e3	1.004e3	0.943	1.11	1.24	22.7	YES	NO	bb	bb	1.093
5	124679-HXCDD	33.60	1.170e4	1.017e4	1.127	1.15	1.24	245.1	YES	NO	bb	bb	9.378
6	123789-HxCDD	36.14	8.830e2	6.373e2	0.804	1.39	1.24	18.9	YES	NO	bb	bb	0.920

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HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.88	1.994e4	1.903e4	1.200	1.05	1.05	337.6	YES	NO	bb	bb	28.210
2	1234679-HPCDD	38.85	2.780e4	2.786e4	1.303	1.00	1.05	484.2	YES	NO	bb	bb	37.106

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.64	1.663e3	2.282e3	1.129	0.73	0.77	28.6	YES	NO	bb	bb	1.478
2	Total-tetradioxins	24.47	5.159e2	6.017e2	1.129	0.86	0.77	8.9	YES	NO	db	db	0.419
3	1368-TCDD	23.16	7.953e2	9.336e2	1.181	0.85	0.77	16.0	YES	NO	bb	bb	0.619
4	2378-TCDD	26.01	3.731e4	4.743e4	1.243	0.79	0.77	586.1	YES	NO	bd	bd	28.824
5	12389-PECDD	31.52	2.559e2	1.834e2	1.326	1.39	1.55	4.9	YES	NO	bb	bb	0.191
6	Total-pentadioxins	30.05	7.651e2	5.267e2	1.548	1.45	1.55	11.8	YES	NO	db	db	0.481
7	Total-pentadioxins	29.87	1.593e3	1.096e3	1.548	1.45	1.55	31.9	YES	NO	dd	dd	1.001
8	Total-pentadioxins	29.74	5.836e3	3.874e3	1.548	1.51	1.55	100.6	YES	NO	bd	bd	3.613
9	Total-pentadioxins	29.53	1.478e3	1.096e3	1.548	1.35	1.55	27.7	YES	NO	bb	bb	0.958
10	Total-pentadioxins	28.93	3.055e2	2.168e2	1.548	1.41	1.55	6.4	YES	NO	bb	bb	0.194
11	12479-PECDD	28.45	5.132e3	3.669e3	2.166	1.40	1.55	76.2	YES	NO	bb	bb	2.339
12	123678-HxCDD	35.77	1.748e3	1.513e3	0.883	1.16	1.24	33.9	YES	NO	dd	db	1.809
13	123478-HxCDD	35.64	3.638e2	3.065e2	0.960	1.19	1.24	8.7	YES	NO	bd	bd	0.337
14	Total-hexadioxins	34.75	7.220e3	6.289e3	0.943	1.15	1.24	113.1	YES	NO	bb	bb	6.966
15	Total-hexadioxins	34.38	1.116e3	1.004e3	0.943	1.11	1.24	22.7	YES	NO	bb	bb	1.093
16	124679-HXCDD	33.60	1.170e4	1.017e4	1.127	1.15	1.24	245.1	YES	NO	bb	bb	9.378
17	123789-HxCDD	36.14	8.830e2	6.373e2	0.804	1.39	1.24	18.9	YES	NO	bb	bb	0.920
18	OCDD	44.47	1.145e5	1.304e5	1.059	0.88	0.89	1459.7	YES	NO	bb	bb	264.278
19	1234678-HpCDD	39.88	1.994e4	1.903e4	1.200	1.05	1.05	337.6	YES	NO	bb	bb	28.210
20	1234679-HPCDD	38.85	2.780e4	2.786e4	1.303	1.00	1.05	484.2	YES	NO	bb	bb	37.106

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ID: 23I0156-05, Name: 23121426, Date: 15-Dec-2023, Time: 06:24:41, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.87	3.461e3	4.405e3	0.973	0.79	0.77	13.9	YES	NO	db	db	2.740
2	Total-tetrafurans	23.80	2.082e3	2.472e3	0.973	0.84	0.77	9.8	YES	NO	dd	dd	1.586
3	Total-tetrafurans	23.13	8.785e3	1.100e4	0.973	0.80	0.77	32.0	YES	NO	db	db	6.893
4	Total-tetrafurans	22.91	3.897e3	4.704e3	0.973	0.83	0.77	11.9	YES	NO	dd	dd	2.996
5	Total-tetrafurans	22.74	3.432e4	4.298e4	0.973	0.80	0.77	153.8	YES	NO	bd	bd	26.928
6	Total-tetrafurans	22.54	2.918e3	3.381e3	0.973	0.86	0.77	13.4	YES	NO	db	db	2.194
7	Total-tetrafurans	25.77	2.324e4	3.103e4	0.973	0.75	0.77	87.3	YES	NO	db	db	18.906
8	Total-tetrafurans	25.68	1.313e4	1.832e4	0.973	0.72	0.77	63.5	YES	NO	dd	dd	10.956
9	Total-tetrafurans	25.20	3.841e4	4.459e4	0.973	0.86	0.77	172.4	YES	NO	dd	db	28.911
10	Total-tetrafurans	25.05	7.701e3	8.950e3	0.973	0.86	0.77	32.1	YES	NO	dd	bd	5.800
11	Total-tetrafurans	24.29	2.122e4	2.612e4	0.973	0.81	0.77	94.2	YES	NO	bb	bb	16.491
12	Total-tetrafurans	27.29	2.761e4	3.588e4	0.973	0.77	0.77	83.1	YES	NO	db	db	22.115
13	Total-tetrafurans	27.14	6.477e3	8.324e3	0.973	0.78	0.77	22.3	YES	NO	dd	bd	5.156
14	Total-pentafurans	29.37	1.526e3	9.967e2	0.931	1.53	1.55	9.3	YES	NO	bb	bd	1.141
15	Total-pentafurans	29.17	2.225e4	1.383e4	0.931	1.61	1.55	131.0	YES	NO	db	db	16.316
16	Total-pentafurans	29.06	4.819e3	3.352e3	0.931	1.44	1.55	30.1	YES	NO	bd	bd	3.694
17	Total-pentafurans	28.59	2.777e4	1.767e4	0.931	1.57	1.55	173.3	YES	NO	db	db	20.549
18	Total-pentafurans	28.46	8.620e4	5.520e4	0.931	1.56	1.55	381.8	YES	NO	dd	dd	63.937
19	Total-pentafurans	28.28	4.405e3	2.757e3	0.931	1.60	1.55	25.1	YES	NO	dd	dd	3.238
20	Total-pentafurans	28.10	4.753e3	3.533e3	0.931	1.35	1.55	22.4	YES	NO	bd	bd	3.746
21	12389-PECDF	31.83	1.692e4	1.084e4	0.880	1.56	1.55	85.2	YES	NO	bb	bb	12.758
22	Total-pentafurans	31.60	1.926e3	1.277e3	0.931	1.51	1.55	11.9	YES	NO	bb	bd	1.448
23	Total-pentafurans	31.10	2.599e3	1.634e3	0.931	1.59	1.55	14.1	YES	NO	bb	bb	1.914
24	23478-PeCDF	30.88	5.283e3	3.455e3	0.991	1.53	1.55	27.3	YES	NO	db	db	3.875
25	Total-pentafurans	30.72	2.998e4	1.852e4	0.931	1.62	1.55	153.5	YES	NO	bd	bd	21.929
26	Total-pentafurans	30.49	4.916e3	3.429e3	0.931	1.43	1.55	31.5	YES	NO	bb	bb	3.773
27	Total-pentafurans	30.27	1.284e4	8.561e3	0.931	1.50	1.55	63.3	YES	NO	bb	bb	9.677
28	Total-pentafurans	29.98	2.910e3	2.121e3	0.931	1.37	1.55	16.9	YES	NO	bb	bb	2.275
29	Total-pentafurans	29.74	8.621e3	5.619e3	0.931	1.53	1.55	48.8	YES	NO	bb	bb	6.439
30	234678-HxCDF	35.49	1.201e4	9.235e3	1.081	1.30	1.24	194.5	YES	NO	bb	bb	11.319
31	123678-HxCDF	34.65	4.565e3	3.781e3	1.032	1.21	1.24	101.1	YES	NO	db	db	4.087
32	123478-HxCDF	34.51	2.180e3	1.896e3	1.128	1.15	1.24	53.2	YES	NO	bd	bd	1.885
33	Total-hexafurans	34.34	2.902e2	2.638e2	1.087	1.10	1.24	7.7	YES	NO	bb	bb	0.282
34	Total-hexafurans	33.88	6.616e4	5.216e4	1.087	1.27	1.24	1520.2	YES	NO	bb	bb	60.321
35	Total-hexafurans	33.34	9.461e2	7.363e2	1.087	1.28	1.24	18.7	YES	NO	bb	bb	0.858
36	Total-hexafurans	33.04	6.528e4	5.146e4	1.087	1.27	1.24	1423.6	YES	NO	bb	bb	59.513
37	123468-HXCDF	32.82	1.399e4	1.088e4	1.206	1.29	1.24	311.2	YES	NO	db	db	10.762

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	1234789-HpCDF	40.60	7.977e2	8.407e2	1.104	0.95	1.05	16.6	YES	NO	bb	bb	1.470
39	Total-heptafurans	39.06	3.976e4	3.729e4	1.134	1.07	1.05	941.9	YES	NO	bb	bb	58.699
40	1234678-HpCDF	38.41	2.120e4	1.987e4	1.164	1.07	1.05	509.0	YES	NO	bb	bb	27.021
41	OCDF	44.70	3.799e4	4.327e4	1.130	0.88	0.89	370.4	YES	NO	bb	bb	82.160
42	Total-penta1	27.55	6.591e3	4.121e3		1.60	1.55	65.5	YES	NO	bb	bb	4.722
43	13468-PECDF	26.81	2.285e5	1.487e5	1.241	1.54	1.55	1991.8	YES	NO	bb	bb	122.861
44	Total-tetradioxins	24.64	1.663e3	2.282e3	1.129	0.73	0.77	28.6	YES	NO	bb	bb	1.478
45	Total-tetradioxins	24.47	5.159e2	6.017e2	1.129	0.86	0.77	8.9	YES	NO	db	db	0.419
46	1368-TCDD	23.16	7.953e2	9.336e2	1.181	0.85	0.77	16.0	YES	NO	bb	bb	0.619
47	2378-TCDD	26.01	3.731e4	4.743e4	1.243	0.79	0.77	586.1	YES	NO	bd	bd	28.824
48	12389-PECDD	31.52	2.559e2	1.834e2	1.326	1.39	1.55	4.9	YES	NO	bb	bb	0.191
49	Total-pentadioxins	30.05	7.651e2	5.267e2	1.548	1.45	1.55	11.8	YES	NO	db	db	0.481
50	Total-pentadioxins	29.87	1.593e3	1.096e3	1.548	1.45	1.55	31.9	YES	NO	dd	dd	1.001
51	Total-pentadioxins	29.74	5.836e3	3.874e3	1.548	1.51	1.55	100.6	YES	NO	bd	bd	3.613
52	Total-pentadioxins	29.53	1.478e3	1.096e3	1.548	1.35	1.55	27.7	YES	NO	bb	bb	0.958
53	Total-pentadioxins	28.93	3.055e2	2.168e2	1.548	1.41	1.55	6.4	YES	NO	bb	bb	0.194
54	12479-PECDD	28.45	5.132e3	3.669e3	2.166	1.40	1.55	76.2	YES	NO	bb	bb	2.339
55	123678-HxCDD	35.77	1.748e3	1.513e3	0.883	1.16	1.24	33.9	YES	NO	dd	db	1.809
56	123478-HxCDD	35.64	3.638e2	3.065e2	0.960	1.19	1.24	8.7	YES	NO	bd	bd	0.337
57	Total-hexadioxins	34.75	7.220e3	6.289e3	0.943	1.15	1.24	113.1	YES	NO	bb	bb	6.966
58	Total-hexadioxins	34.38	1.116e3	1.004e3	0.943	1.11	1.24	22.7	YES	NO	bb	bb	1.093
59	124679-HXCDD	33.60	1.170e4	1.017e4	1.127	1.15	1.24	245.1	YES	NO	bb	bb	9.378
60	123789-HxCDD	36.14	8.830e2	6.373e2	0.804	1.39	1.24	18.9	YES	NO	bb	bb	0.920
61	OCDD	44.47	1.145e5	1.304e5	1.059	0.88	0.89	1459.7	YES	NO	bb	bb	264.278
62	1234678-HpCDD	39.88	1.994e4	1.903e4	1.200	1.05	1.05	337.6	YES	NO	bb	bb	28.210
63	1234679-HPCDD	38.85	2.780e4	2.786e4	1.303	1.00	1.05	484.2	YES	NO	bb	bb	37.106

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	22.20	4.998e3					1.1	NO		bb		
2	FUNCTION1 PFK	21.92	9.333e4					5.4	YES		db		
3	FUNCTION1 PFK	21.88	1.516e5					6.5	YES		dd		
4	FUNCTION1 PFK	21.75	7.930e4					6.8	YES		bd		
5	FUNCTION1 PFK	21.48	2.226e5					4.2	YES		bb		
6	FUNCTION1 PFK	21.31	6.872e3					1.3	NO		bb		
7	FUNCTION1 PFK	21.21	7.488e3					1.7	NO		bb		
8	FUNCTION1 PFK	21.11	7.150e3					1.6	NO		bb		
9	FUNCTION1 PFK	27.50	1.421e3					0.5	NO		bb		
10	FUNCTION1 PFK	26.28	2.214e4					2.2	NO		bb		
11	FUNCTION1 PFK	26.03	4.696e3					1.0	NO		bb		
12	FUNCTION1 PFK	25.77	7.142e4					4.5	YES		bb		
13	FUNCTION1 PFK	23.95	4.360e4					3.5	YES		bb		
14	FUNCTION1 PFK	23.84	4.083e4					3.7	YES		db		
15	FUNCTION1 PFK	23.73	9.064e4					5.1	YES		bd		
16	FUNCTION1 PFK	23.20	9.520e4					5.4	YES		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	33.08	2.886e4					3.9	YES		dd		0.000
2	FUNCTION3 PFK	33.01	1.806e4					3.7	YES		bd		0.000
3	FUNCTION3 PFK	32.86	5.455e4					3.7	YES		db		0.000
4	FUNCTION3 PFK	32.76	6.423e4					4.4	YES		dd		0.000
5	FUNCTION3 PFK	32.61	2.844e3					1.0	NO		bd		0.000
6	FUNCTION3 PFK	32.44	1.456e5					15.8	YES		bb		0.000
7	FUNCTION3 PFK	34.65	1.076e4					2.6	NO		dd		0.000
8	FUNCTION3 PFK	34.61	6.169e3					1.8	NO		dd		0.000
9	FUNCTION3 PFK	34.54	1.828e4					2.6	NO		dd		0.000
10	FUNCTION3 PFK	34.47	1.055e4					2.5	NO		dd		0.000
11	FUNCTION3 PFK	34.40	1.832e4					1.9	NO		dd		0.000
12	FUNCTION3 PFK	34.24	3.354e4					2.5	NO		dd		0.000
13	FUNCTION3 PFK	34.20	1.497e4					2.7	NO		dd		0.000
14	FUNCTION3 PFK	34.14	1.280e4					2.4	NO		dd		0.000
15	FUNCTION3 PFK	34.07	1.654e4					3.1	YES		bd		0.000
16	FUNCTION3 PFK	33.95	3.322e4					3.9	YES		bb		0.000
17	FUNCTION3 PFK	33.69	8.955e3					1.5	NO		db		0.000
18	FUNCTION3 PFK	33.65	1.010e4					2.3	NO		bd		0.000
19	FUNCTION3 PFK	33.50	4.477e4					3.3	YES		db		0.000
20	FUNCTION3 PFK	33.36	5.062e4					3.7	YES		dd		0.000
21	FUNCTION3 PFK	33.24	6.041e3					1.5	NO		bd		0.000
22	FUNCTION3 PFK	33.16	2.070e4					3.5	YES		db		0.000
23	FUNCTION3 PFK	35.98	1.093e4					1.3	NO		bd		0.000
24	FUNCTION3 PFK	35.80	4.347e3					1.2	NO		bb		0.000
25	FUNCTION3 PFK	35.75	6.297e2					0.5	NO		bb		0.000
26	FUNCTION3 PFK	35.69	9.034e3					2.0	NO		bb		0.000
27	FUNCTION3 PFK	35.62	2.549e3					1.0	NO		bb		0.000
28	FUNCTION3 PFK	35.50	7.596e3					2.0	NO		db		0.000
29	FUNCTION3 PFK	35.45	8.849e3					1.9	NO		bd		0.000
30	FUNCTION3 PFK	35.30	8.350e3					2.2	NO		db		0.000
31	FUNCTION3 PFK	35.26	3.279e4					4.1	YES		dd		0.000
32	FUNCTION3 PFK	35.18	3.342e3					1.1	NO		dd		0.000
33	FUNCTION3 PFK	35.11	8.028e3					1.6	NO		dd		0.000
34	FUNCTION3 PFK	35.06	2.378e3					0.7	NO		bd		0.000
35	FUNCTION3 PFK	34.94	6.841e3					1.1	NO		db		0.000
36	FUNCTION3 PFK	34.92	6.120e3					1.6	NO		bd		0.000
37	FUNCTION3 PFK	34.75	2.514e3					0.9	NO		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION3 PFK	34.70	9.210e3					2.0	NO		db		0.000
39	FUNCTION3 PFK	37.40	4.262e2					0.3	NO		bb		0.000
40	FUNCTION3 PFK	37.29	1.225e4					1.3	NO		bb		0.000
41	FUNCTION3 PFK	37.15	1.431e4					2.2	NO		bb		0.000
42	FUNCTION3 PFK	37.04	1.726e3					0.8	NO		bb		0.000
43	FUNCTION3 PFK	36.72	4.551e2					0.3	NO		bb		0.000
44	FUNCTION3 PFK	36.42	1.827e4					2.3	NO		db		0.000
45	FUNCTION3 PFK	36.30	5.302e3					1.0	NO		bd		0.000
46	FUNCTION3 PFK	36.19	1.339e4					2.0	NO		bb		0.000
47	FUNCTION3 PFK	36.04	3.731e3					1.4	NO		db		0.000
48	FUNCTION3 PFK	36.01	6.126e3					1.5	NO		dd		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	41.97	5.610e3					1.7	NO		bb		
2	FUNCTION4 PFK	41.14	3.609e4					1.4	NO		bb		
3	FUNCTION4 PFK	39.90	1.223e4					2.1	NO		bb		
4	FUNCTION4 PFK	39.39	2.564e5					10.2	YES		bb		
5	FUNCTION4 PFK	39.16	1.542e5					10.5	YES		bb		
6	FUNCTION4 PFK	42.87	2.644e4					3.0	YES		bb		
7	FUNCTION4 PFK	42.40	2.051e4					3.8	YES		db		
8	FUNCTION4 PFK	42.35	1.408e4					3.4	YES		bd		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.27	2.659e3					1.2	NO		bd		
2	FUNCTION5 PFK	44.22	5.823e3					1.6	NO		bb		
3	FUNCTION5 PFK	43.98	2.564e3					1.1	NO		bb		
4	FUNCTION5 PFK	43.89	1.508e3					0.6	NO		bb		
5	FUNCTION5 PFK	43.83	1.339e3					0.8	NO		bb		
6	FUNCTION5 PFK	43.73	1.075e3					0.6	NO		db		
7	FUNCTION5 PFK	43.70	2.256e3					0.8	NO		bd		
8	FUNCTION5 PFK	43.40	3.312e2					0.4	NO		db		
9	FUNCTION5 PFK	43.37	2.895e3					0.8	NO		dd		
10	FUNCTION5 PFK	43.32	1.239e4					1.5	NO		dd		
11	FUNCTION5 PFK	43.24	3.441e3					1.3	NO		bd		
12	FUNCTION5 PFK	43.10	4.475e3					1.3	NO		bb		
13	FUNCTION5 PFK	45.69	2.553e3					1.1	NO		dd		
14	FUNCTION5 PFK	45.64	2.869e3					1.3	NO		bd		
15	FUNCTION5 PFK	45.52	1.259e3					0.7	NO		bb		
16	FUNCTION5 PFK	45.45	4.548e3					1.4	NO		db		
17	FUNCTION5 PFK	45.42	5.171e3					1.7	NO		bd		
18	FUNCTION5 PFK	45.28	4.694e3					1.4	NO		db		
19	FUNCTION5 PFK	45.25	4.177e3					1.4	NO		bd		
20	FUNCTION5 PFK	45.17	1.293e4					2.4	NO		db		
21	FUNCTION5 PFK	45.09	5.129e3					1.3	NO		bd		
22	FUNCTION5 PFK	45.01	4.497e3					1.2	NO		db		
23	FUNCTION5 PFK	44.95	6.601e3					1.8	NO		bd		
24	FUNCTION5 PFK	44.81	3.408e3					1.3	NO		bb		
25	FUNCTION5 PFK	44.62	6.434e2					0.4	NO		bb		
26	FUNCTION5 PFK	44.58	1.175e3					0.8	NO		bb		
27	FUNCTION5 PFK	44.45	2.861e3					1.0	NO		bb		
28	FUNCTION5 PFK	44.33	5.134e3					1.7	NO		db		
29	FUNCTION5 PFK	45.90	1.389e3					0.6	NO		bb		
30	FUNCTION5 PFK	45.74	2.910e3					1.1	NO		db		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	23.23	2.255e2					1.3	NO		bb		0.000
2	FUNCTION1 HXCD...	23.08	8.222e2					4.1	YES		db		0.000
3	FUNCTION1 HXCD...	22.96	4.417e3					22.2	YES		dd		0.000
4	FUNCTION1 HXCD...	22.91	5.850e3					30.0	YES		dd		0.000
5	FUNCTION1 HXCD...	22.68	2.387e3					6.1	YES		dd		0.000
6	FUNCTION1 HXCD...	22.53	3.166e3					12.1	YES		dd		0.000
7	FUNCTION1 HXCD...	22.41	7.972e3					34.4	YES		bd		0.000
8	FUNCTION1 HXCD...	22.23	9.182e2					3.8	YES		db		0.000
9	FUNCTION1 HXCD...	22.05	2.074e3					6.1	YES		dd		0.000
10	FUNCTION1 HXCD...	21.95	2.913e4					149.9	YES		bd		0.000
11	FUNCTION1 HXCD...	21.64	5.029e3					18.6	YES		db		0.000
12	FUNCTION1 HXCD...	21.48	2.971e3					11.1	YES		bd		0.000
13	FUNCTION1 HXCD...	21.20	3.471e2					1.9	NO		bb		0.000
14	FUNCTION1 HXCD...	25.62	1.047e3					4.9	YES		dd		0.000
15	FUNCTION1 HXCD...	25.55	1.428e3					5.4	YES		dd		0.000
16	FUNCTION1 HXCD...	25.39	9.686e3					44.2	YES		dd		0.000
17	FUNCTION1 HXCD...	25.20	1.084e4					45.1	YES		bd		0.000
18	FUNCTION1 HXCD...	25.01	2.223e3					9.6	YES		db		0.000
19	FUNCTION1 HXCD...	24.84	4.145e3					15.6	YES		dd		0.000
20	FUNCTION1 HXCD...	24.74	4.644e3					23.7	YES		dd		0.000
21	FUNCTION1 HXCD...	24.64	3.039e4					140.3	YES		bd		0.000
22	FUNCTION1 HXCD...	24.45	1.161e4					53.8	YES		db		0.000
23	FUNCTION1 HXCD...	24.35	8.327e3					34.5	YES		bd		0.000
24	FUNCTION1 HXCD...	24.12	2.416e3					11.2	YES		db		0.000
25	FUNCTION1 HXCD...	23.98	1.947e3					8.0	YES		dd		0.000
26	FUNCTION1 HXCD...	23.83	1.257e3					4.7	YES		dd		0.000
27	FUNCTION1 HXCD...	23.68	3.435e3					16.8	YES		dd		0.000
28	FUNCTION1 HXCD...	23.61	2.311e3					11.2	YES		dd		0.000
29	FUNCTION1 HXCD...	23.40	2.676e4					118.4	YES		bd		0.000
30	FUNCTION1 HXCD...	27.53	2.497e3					12.0	YES		bb		0.000
31	FUNCTION1 HXCD...	27.27	5.998e3					21.8	YES		bb		0.000
32	FUNCTION1 HXCD...	26.96	1.370e3					5.5	YES		bb		0.000
33	FUNCTION1 HXCD...	26.64	1.416e3					5.2	YES		db		0.000
34	FUNCTION1 HXCD...	26.41	1.409e4					61.5	YES		dd		0.000
35	FUNCTION1 HXCD...	26.31	4.566e3					19.8	YES		bd		0.000
36	FUNCTION1 HXCD...	25.76	3.183e4					146.6	YES		db		0.000

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
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ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	28.81	8.833e2					9.4	YES		db		0.000
2	FUNCTION2 HPCD...	28.72	1.128e3					14.6	YES		dd		0.000
3	FUNCTION2 HPCD...	28.58	2.129e4					241.3	YES		dd		0.000
4	FUNCTION2 HPCD...	28.46	2.127e2					3.8	YES		bd		0.000
5	FUNCTION2 HPCD...	28.27	7.097e2					8.3	YES		db		0.000
6	FUNCTION2 HPCD...	28.23	6.682e2					9.0	YES		bd		0.000
7	FUNCTION2 HPCD...	28.05	7.476e2					8.1	YES		bb		0.000
8	FUNCTION2 HPCD...	27.78	3.487e2					4.9	YES		bb		0.000
9	FUNCTION2 HPCD...	31.58	4.036e2					5.1	YES		bb		0.000
10	FUNCTION2 HPCD...	31.35	1.496e2					2.3	NO		bb		0.000
11	FUNCTION2 HPCD...	31.11	1.139e3					9.8	YES		bb		0.000
12	FUNCTION2 HPCD...	30.93	6.540e2					4.9	YES		db		0.000
13	FUNCTION2 HPCD...	30.75	3.181e3					24.7	YES		bd		0.000
14	FUNCTION2 HPCD...	30.49	2.930e2					3.5	YES		bb		0.000
15	FUNCTION2 HPCD...	30.26	1.027e3					9.5	YES		bb		0.000
16	FUNCTION2 HPCD...	29.97	5.217e2					5.8	YES		bb		0.000
17	FUNCTION2 HPCD...	29.74	2.044e2					3.4	YES		db		0.000
18	FUNCTION2 HPCD...	29.71	9.088e1					2.7	NO		bd		0.000
19	FUNCTION2 HPCD...	29.60	2.018e2					2.7	NO		bb		0.000
20	FUNCTION2 HPCD...	29.36	5.421e2					9.0	YES		db		0.000
21	FUNCTION2 HPCD...	29.30	1.527e3					12.6	YES		bd		0.000
22	FUNCTION2 HPCD...	29.13	7.094e2					6.7	YES		db		0.000
23	FUNCTION2 HPCD...	29.04	5.647e2					4.9	YES		dd		0.000
24	FUNCTION2 HPCD...	28.95	2.300e2					4.3	YES		bd		0.000
25	FUNCTION2 HPCD...	31.82	8.649e3					96.0	YES		bb		0.000

ID: 23I0156-05, Name: 23121426, Date: 15-Dec-2023, Time: 06:24:41, Conditions: AUTOSPEC01, User: pk

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.50	1.644e2					4.3	YES		bb		0.000
2	FUNCTION3 OCDPE	33.84	7.384e2					19.2	YES		bb		0.000
3	FUNCTION3 OCDPE	33.33	5.971e2					12.8	YES		bb		0.000
4	FUNCTION3 OCDPE	32.91	2.982e2					6.7	YES		db		0.000
5	FUNCTION3 OCDPE	32.71	3.600e3					94.2	YES		bd		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	42.41	7.489e1					2.6	NO		bb		0.000
2	FUNCTION4 NCDPE	38.06	2.690e2					8.3	YES		bb		0.000

ETHERS6

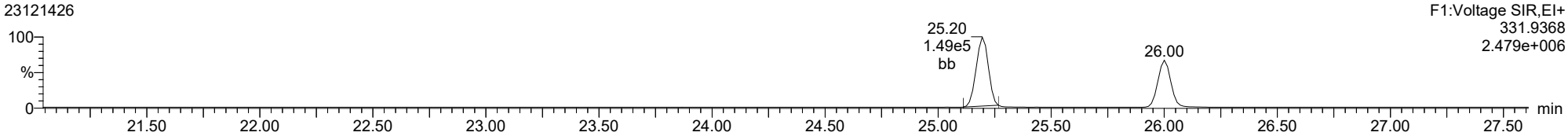
	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
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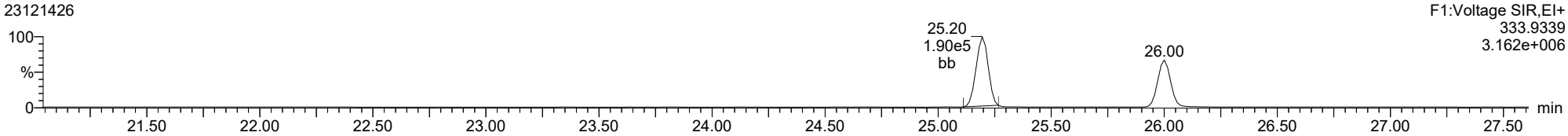
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ID: 23I0156-05, Name: 23121426, Date: 15-Dec-2023, Time: 06:24:41, Conditions: AUTOSPEC01, User: pk

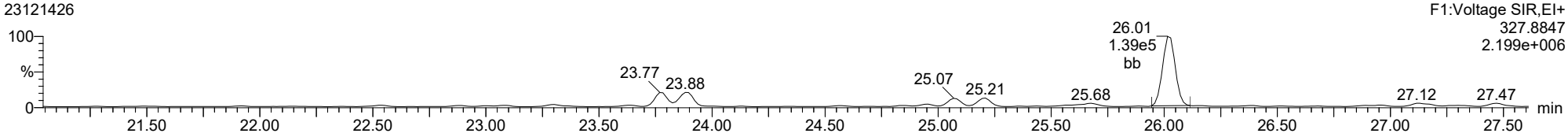
13C-1234-TCDD



13C-1234-TCDD

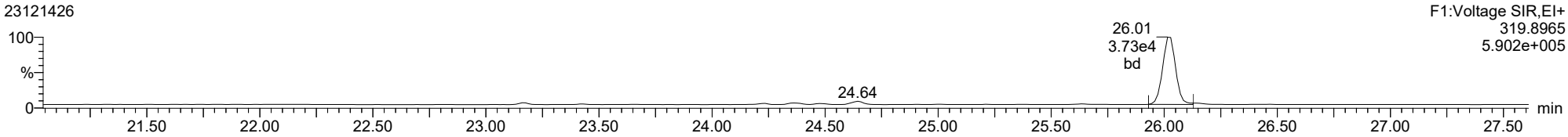


37CL-2378-TCDD

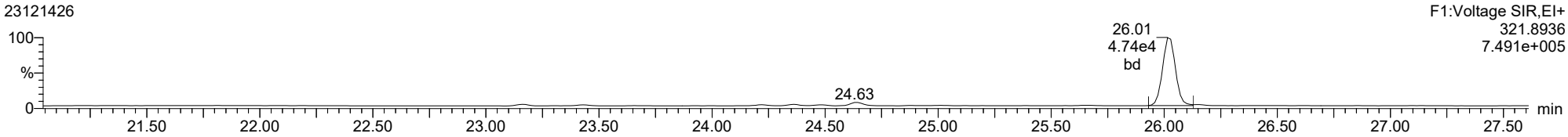


ID: 23l0156-05, Name: 23121426, Date: 15-Dec-2023, Time: 06:24:41, Conditions: AUTOSPEC01, User: pk

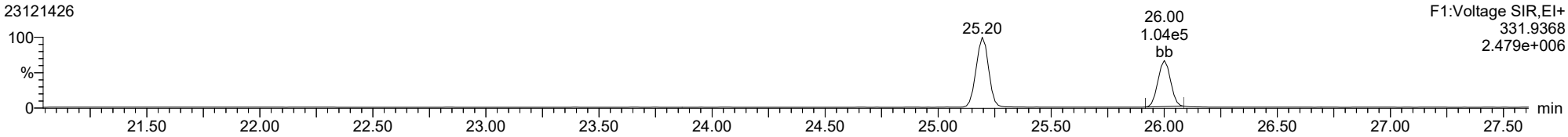
2378-TCDD



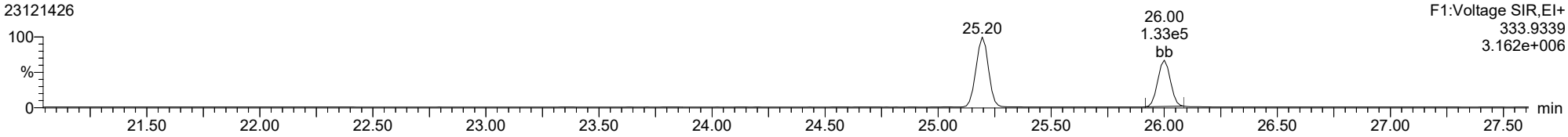
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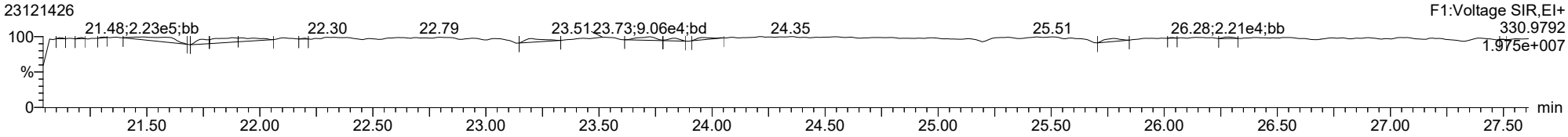
13C-2378-TCDD



13C-2378-TCDD



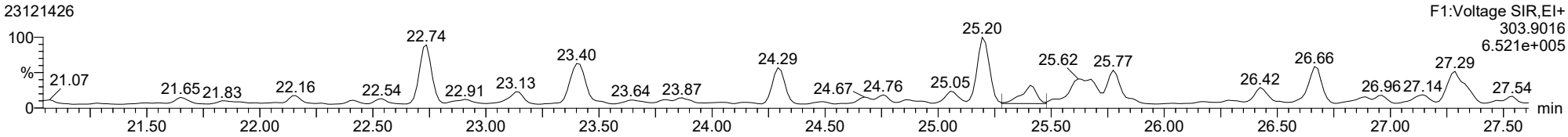
FUNCTION1 PFK



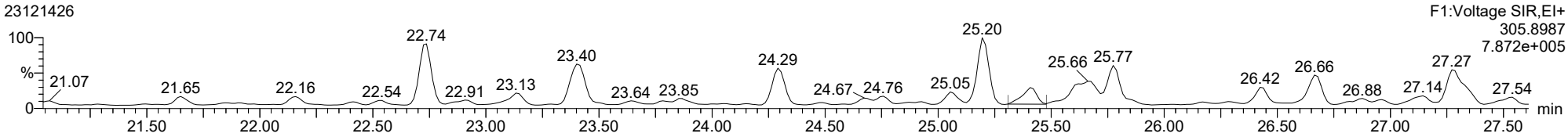
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ID: 23I0156-05, Name: 23121426, Date: 15-Dec-2023, Time: 06:24:41, Conditions: AUTOSPEC01, User: pk

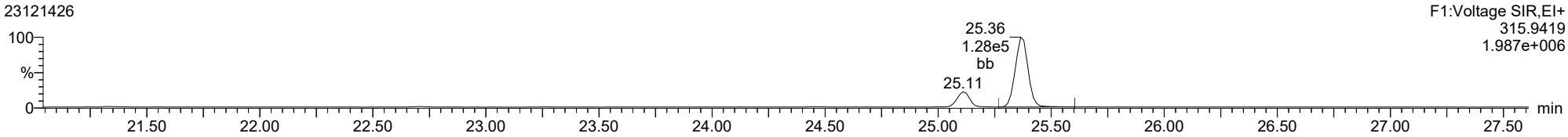
2378-TCDF



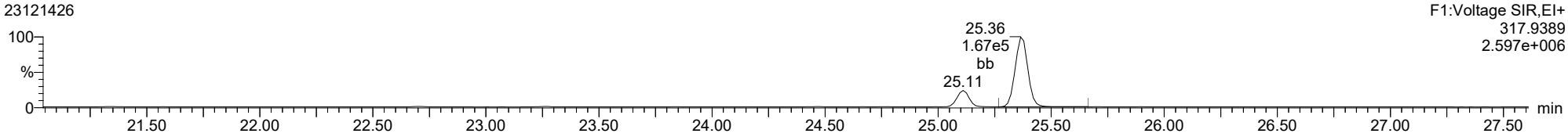
2378-TCDF



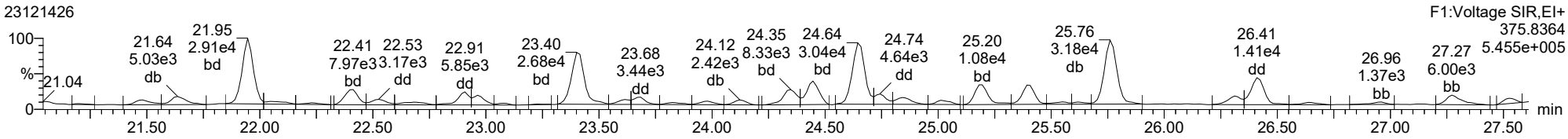
13C-2378-TCDF



13C-2378-TCDF

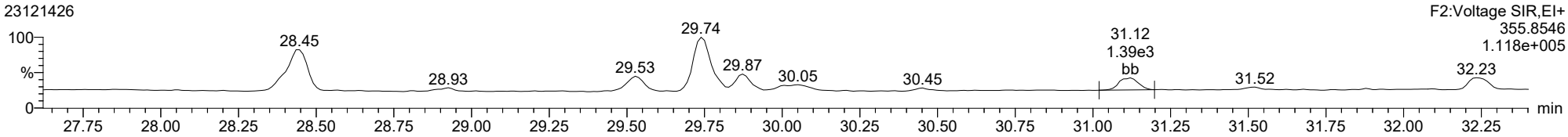


FUNCTION1 HXCDPE

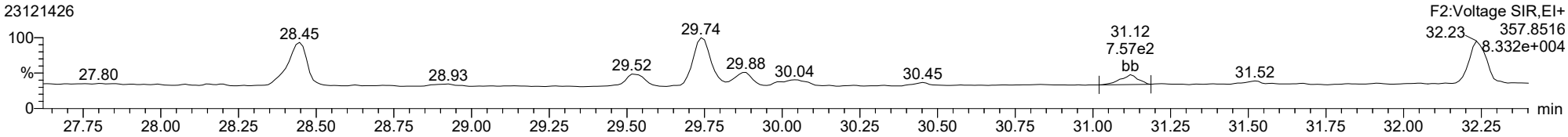


ID: 23I0156-05, Name: 23121426, Date: 15-Dec-2023, Time: 06:24:41, Conditions: AUTOSPEC01, User: pk

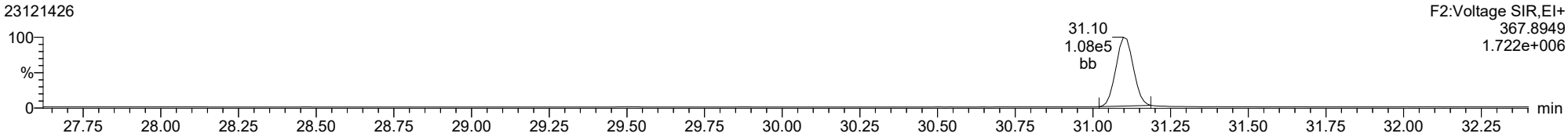
12378-PeCDD



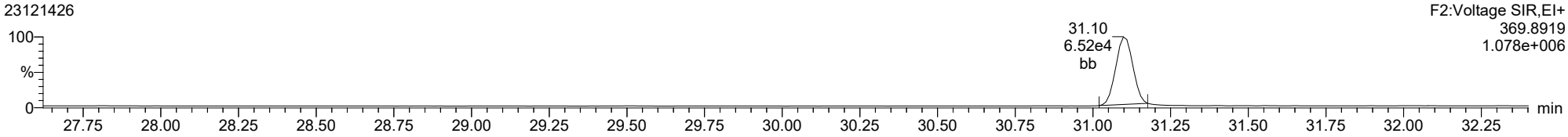
12378-PeCDD



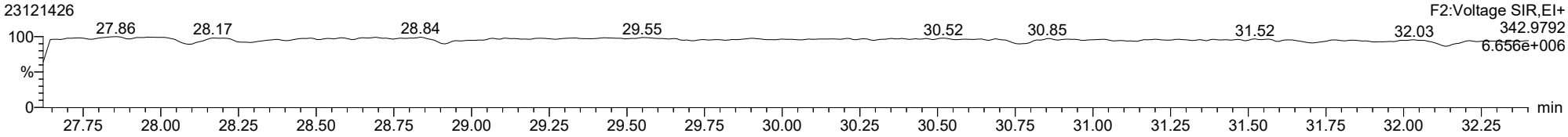
13C-12378-PeCDD



13C-12378-PeCDD



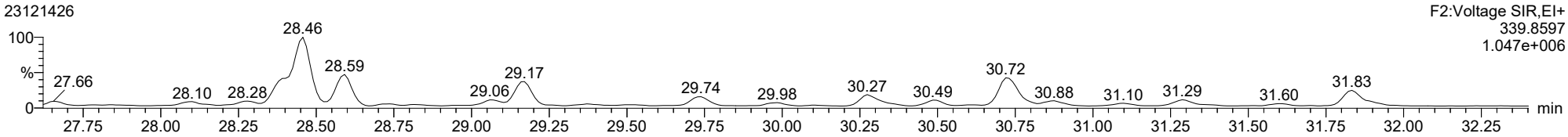
FUNCTION2 PFK



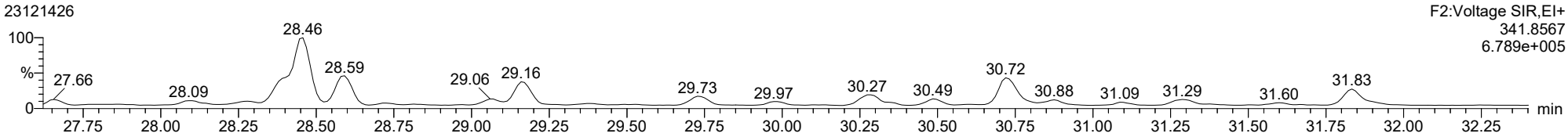
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ID: 23l0156-05, Name: 23121426, Date: 15-Dec-2023, Time: 06:24:41, Conditions: AUTOSPEC01, User: pk

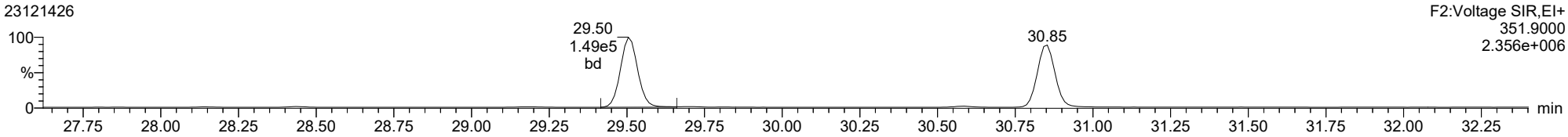
12378-PeCDF



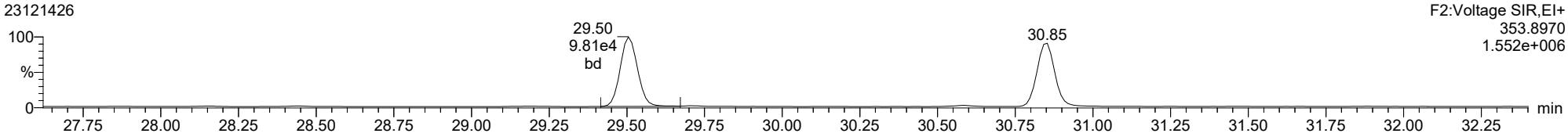
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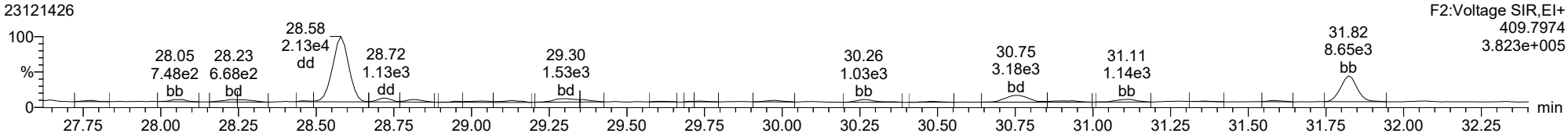
13C-12378-PeCDF



13C-12378-PeCDF

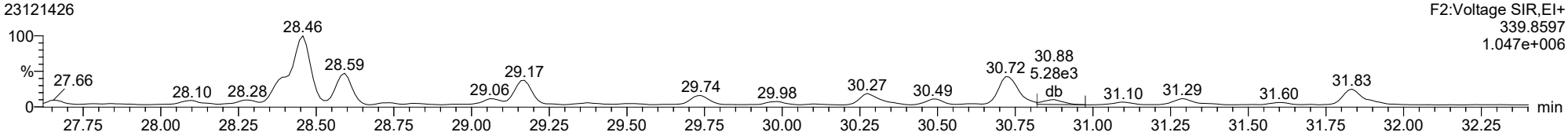


FUNCTION2 HPCDPE

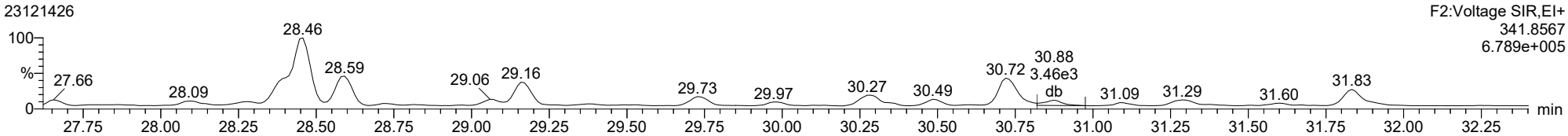


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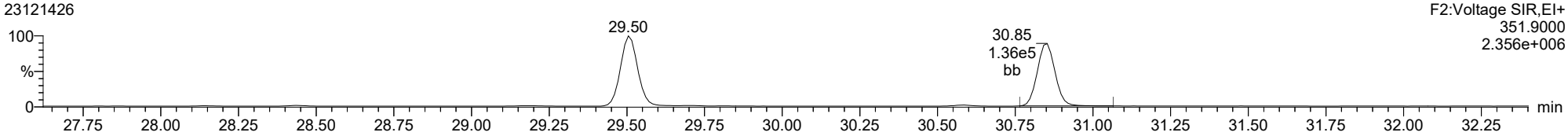
23478-PeCDF



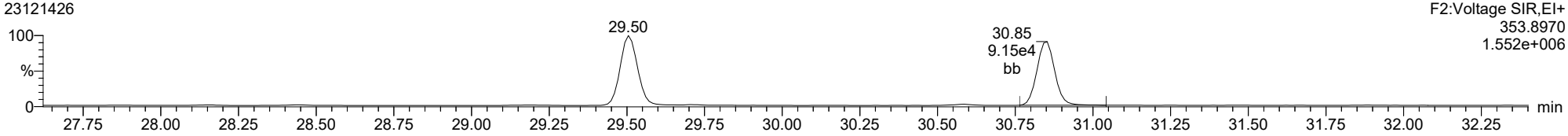
23478-PeCDF



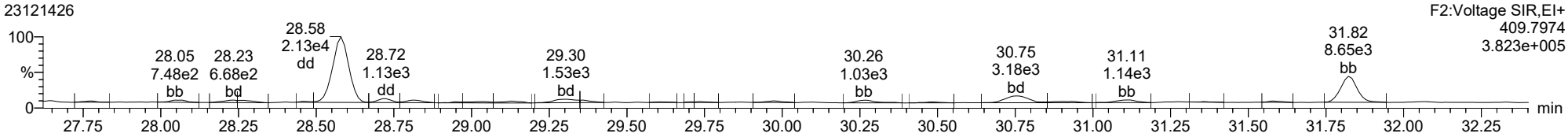
13C-23478-PeCDF



13C-23478-PeCDF

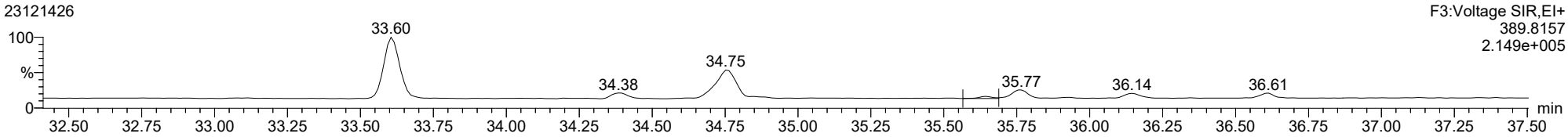


FUNCTION2 HPCDPE

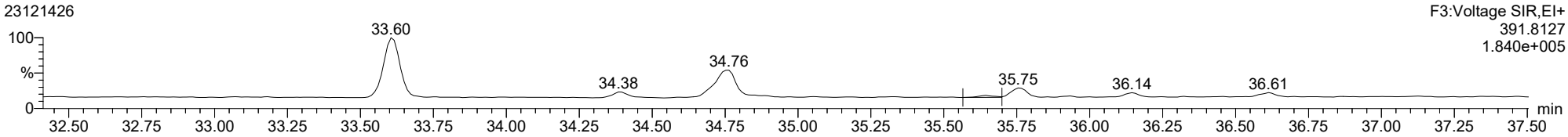


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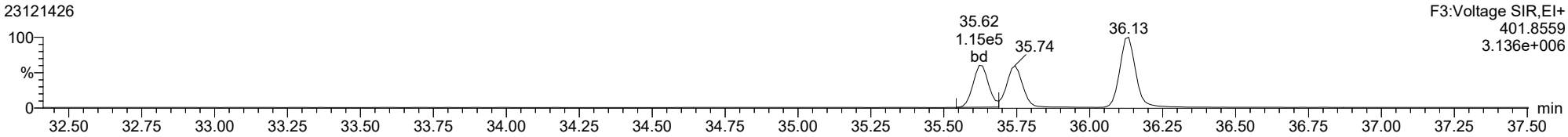
123478-HxCDD



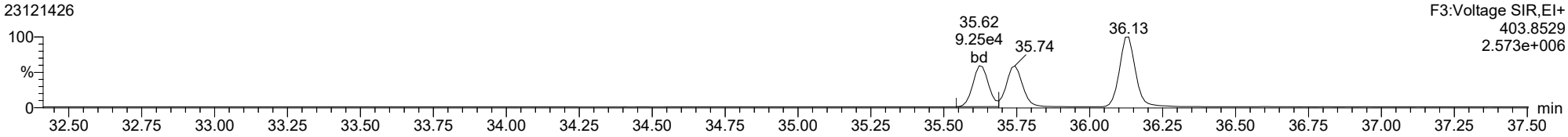
123478-HxCDD



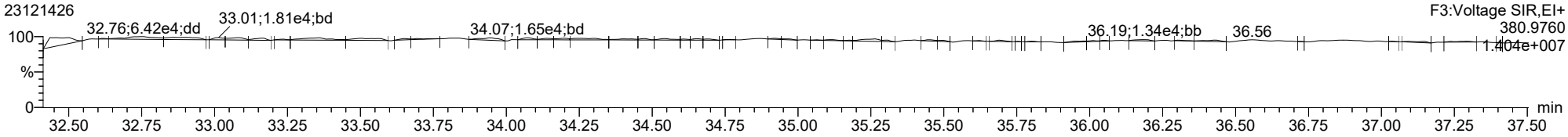
13C-123478-HxCDD



13C-123478-HxCDD

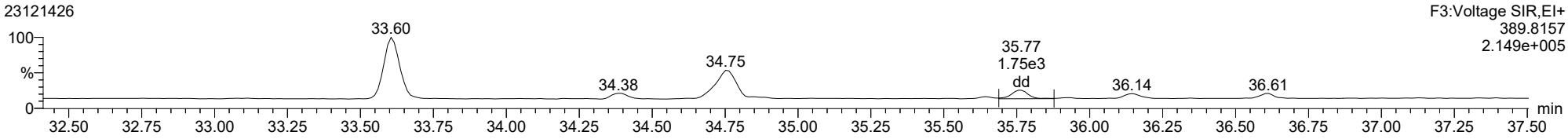


FUNCTION3 PFK

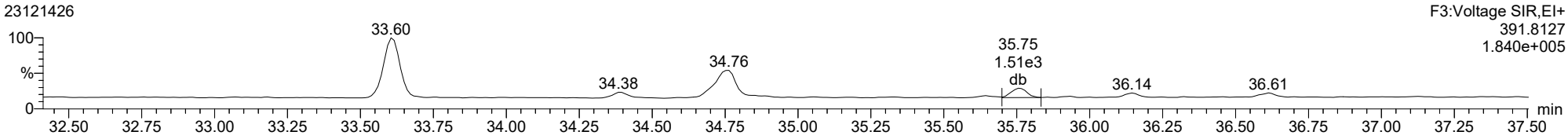


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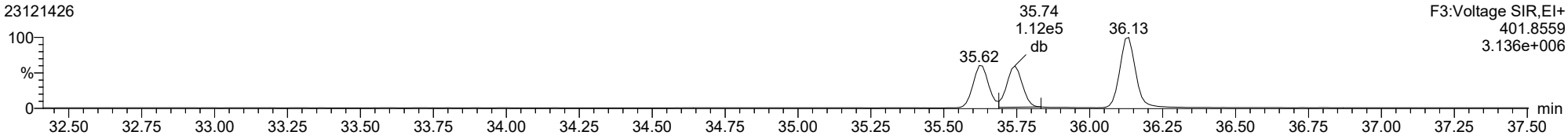
123678-HxCDD



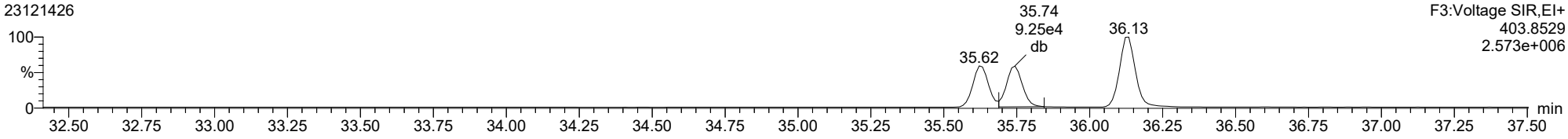
123678-HxCDD



13C-123678-HxCDD

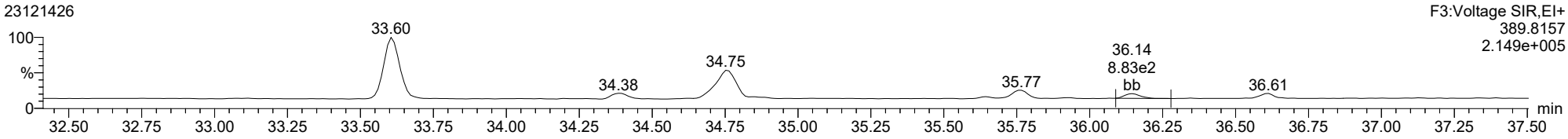


13C-123678-HxCDD

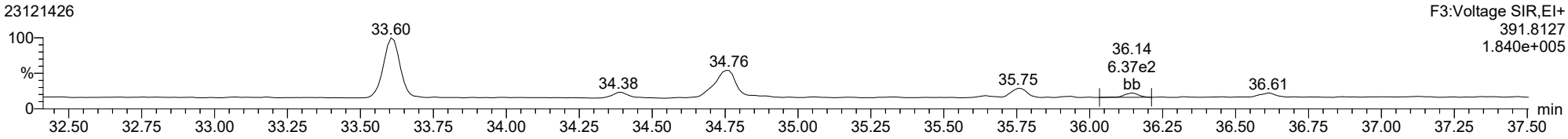


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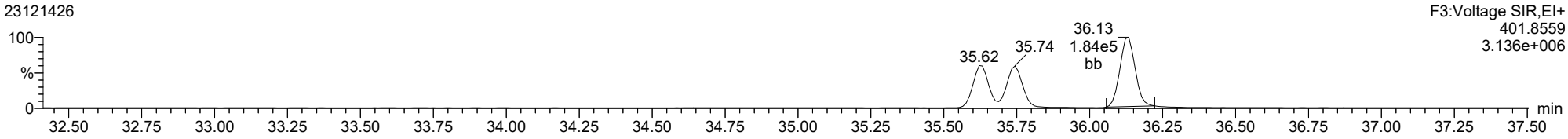
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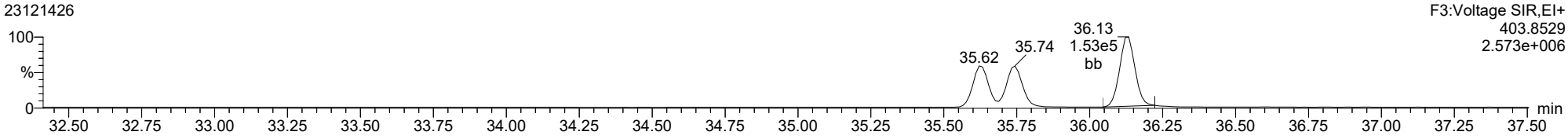
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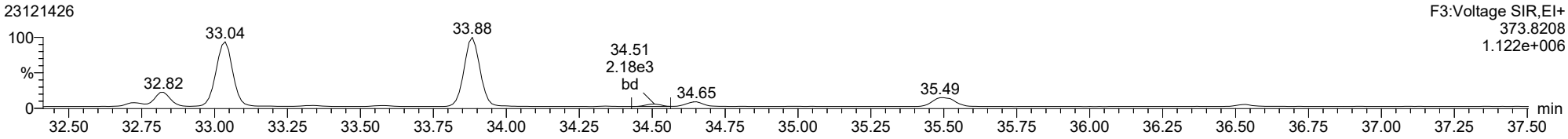


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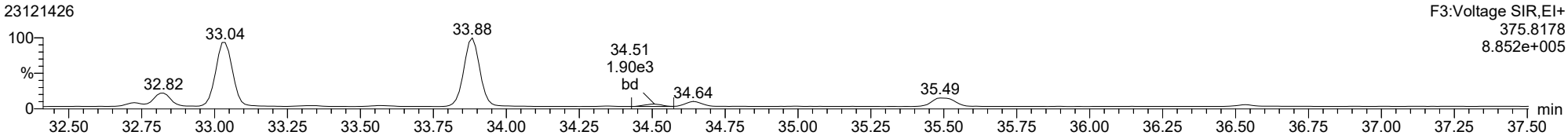


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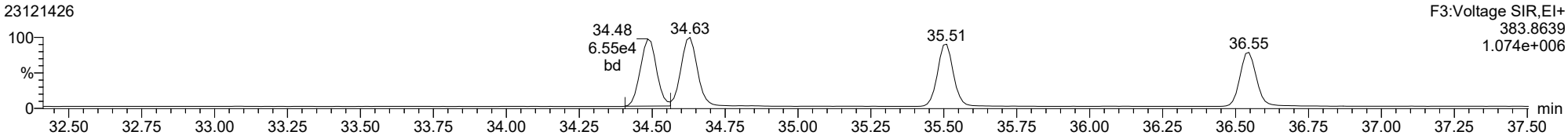
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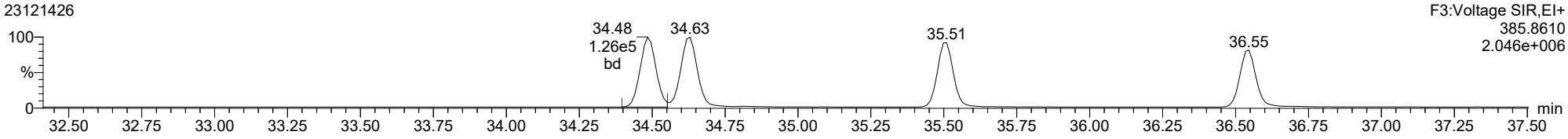
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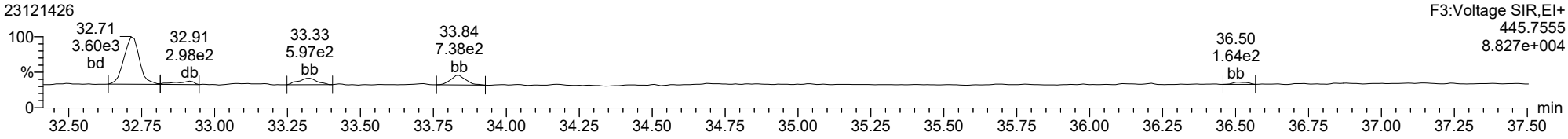
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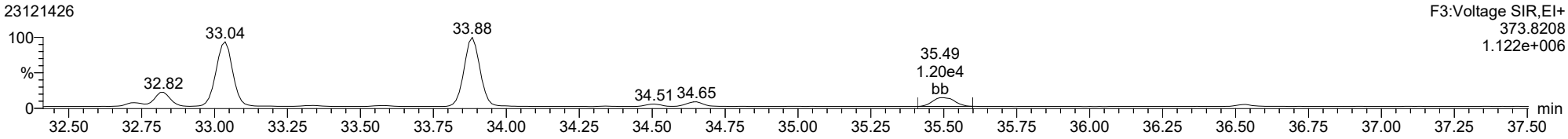


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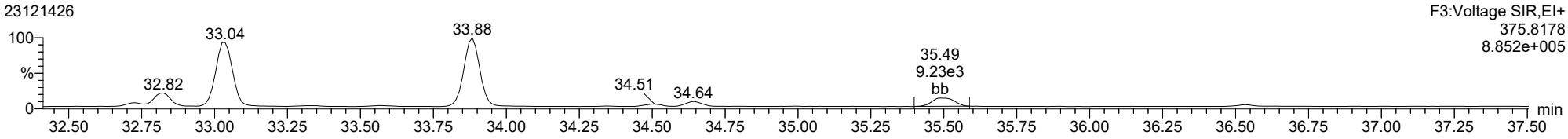


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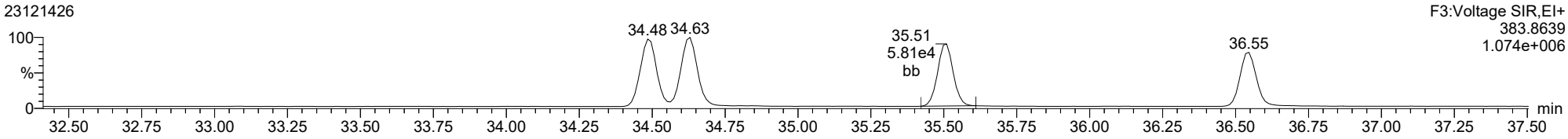
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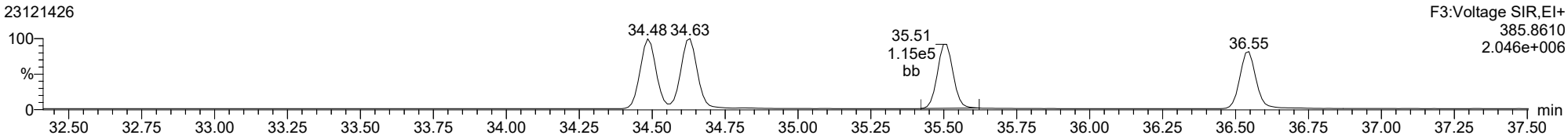
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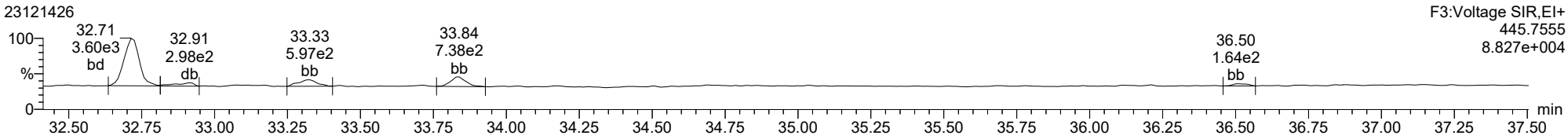
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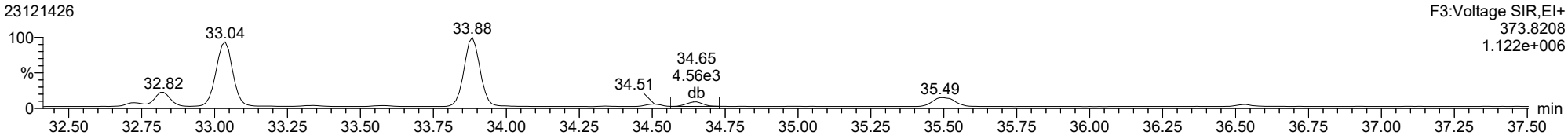


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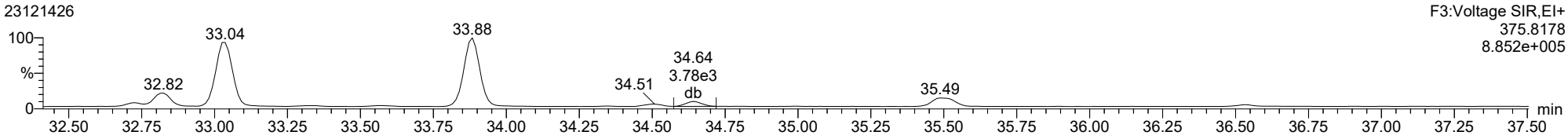


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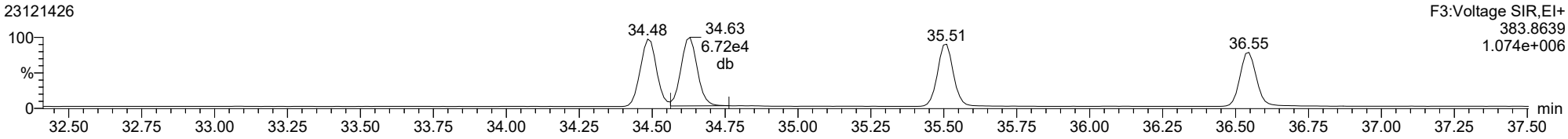
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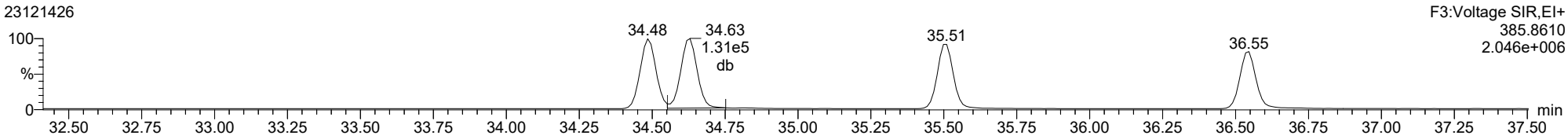
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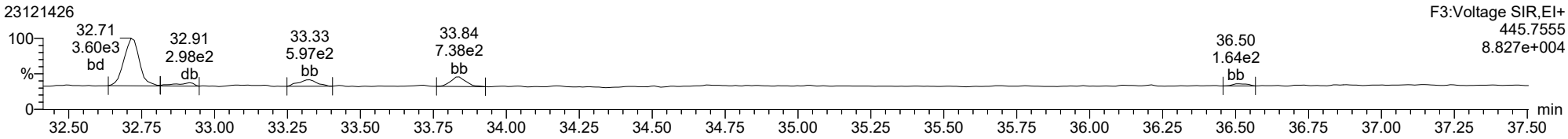
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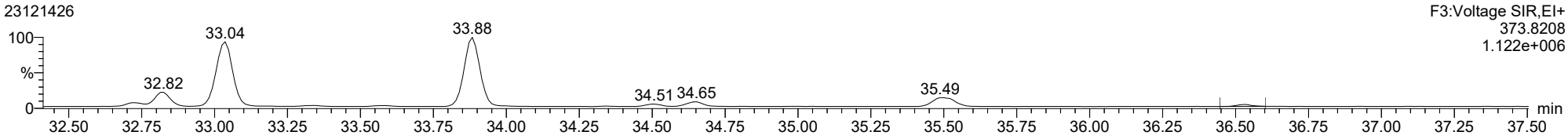


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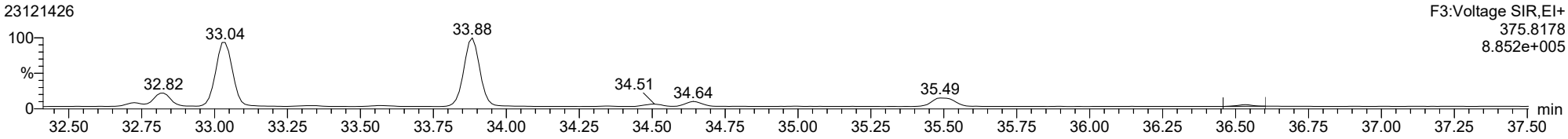


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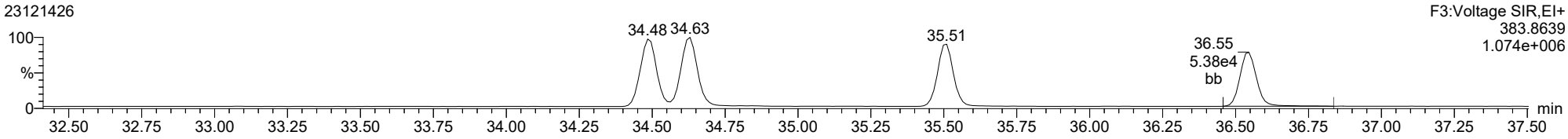
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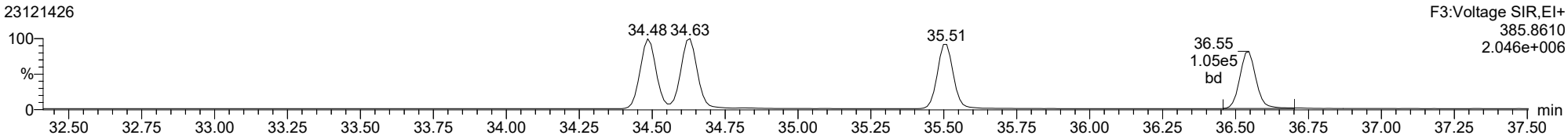
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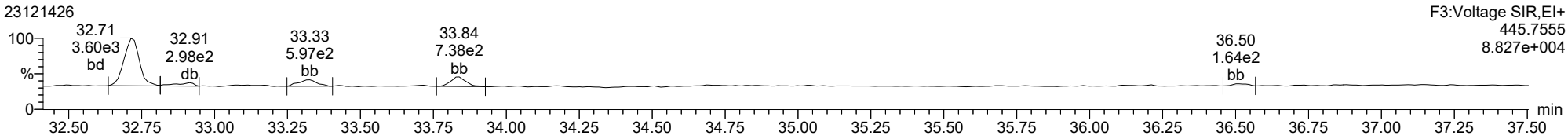
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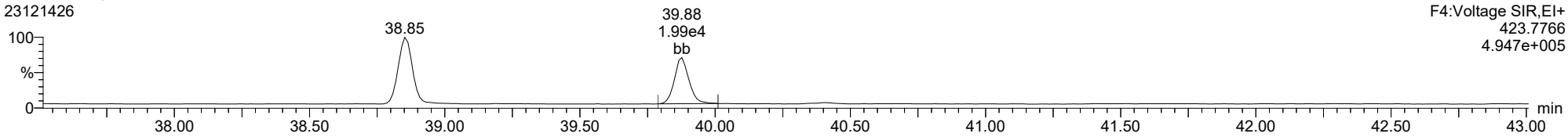


FUNCTION3 OCDPE

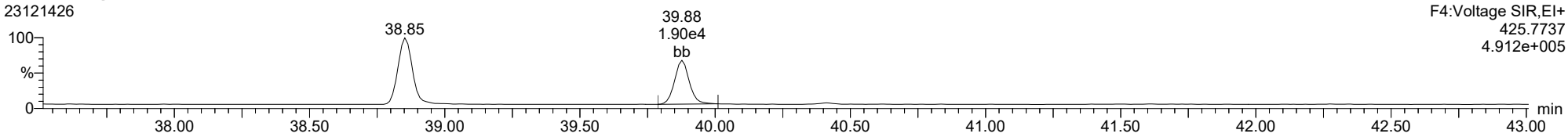


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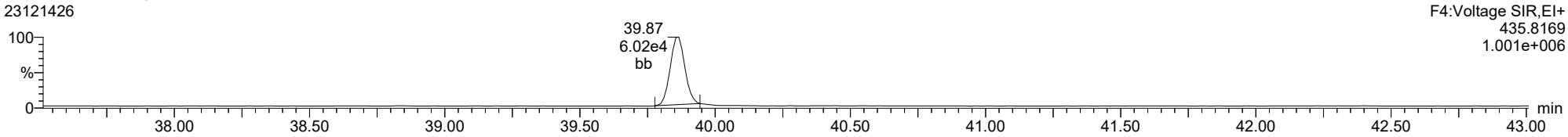
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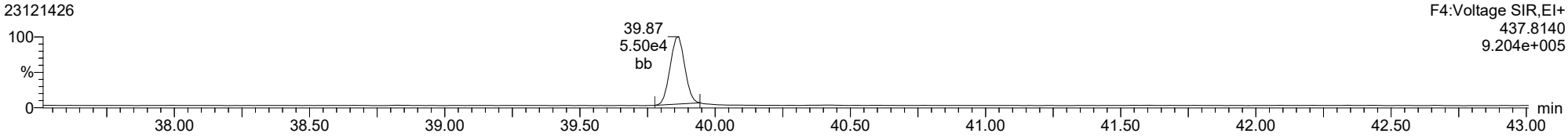
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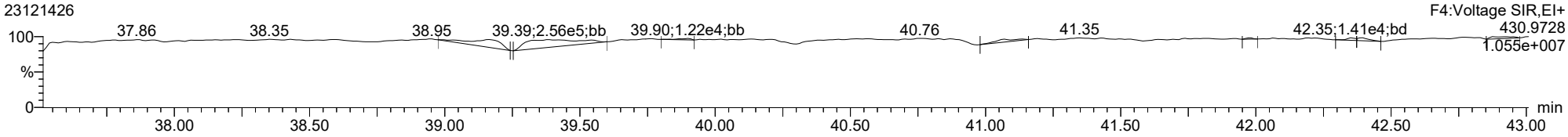
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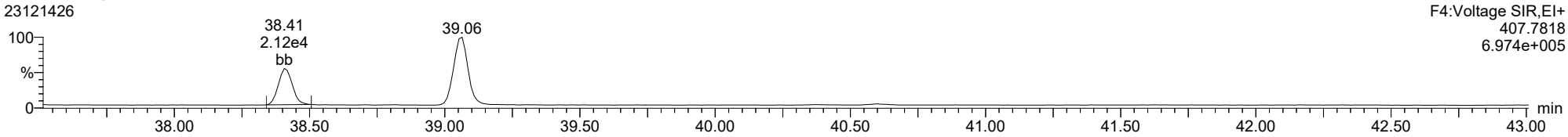


FUNCTION4 PFK

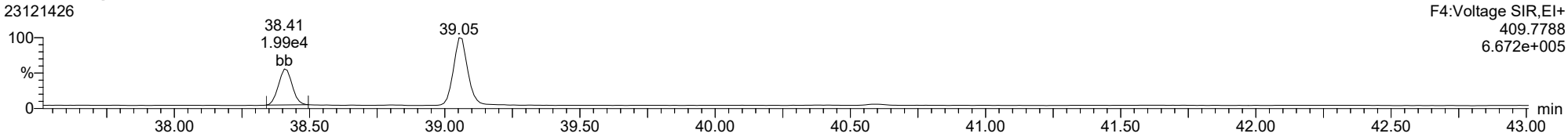


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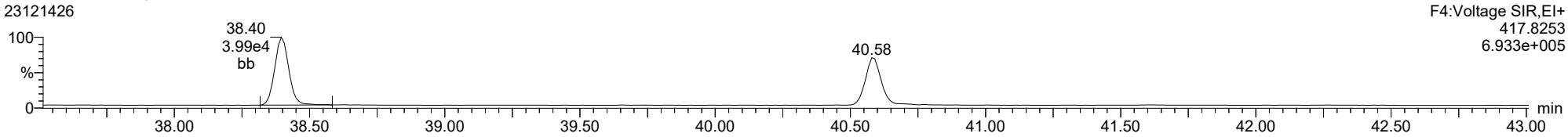
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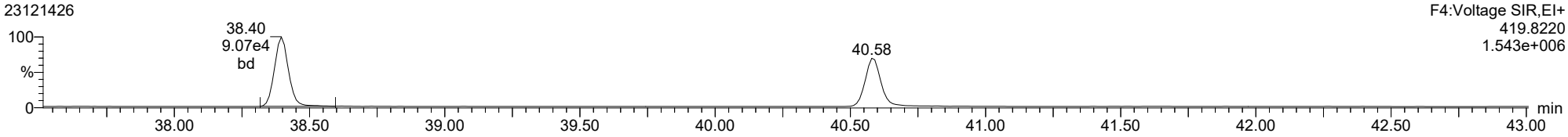
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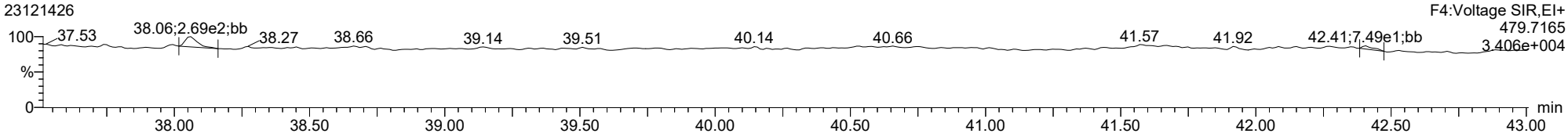
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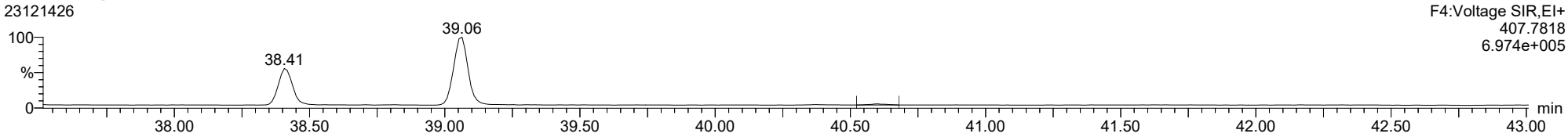


FUNCTION4 NCDPE

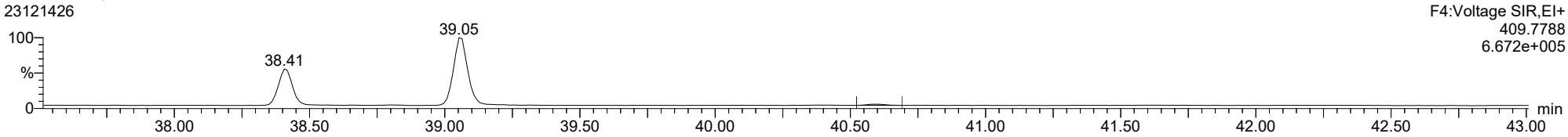


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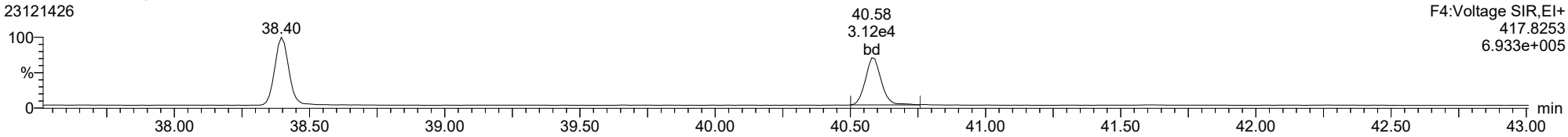
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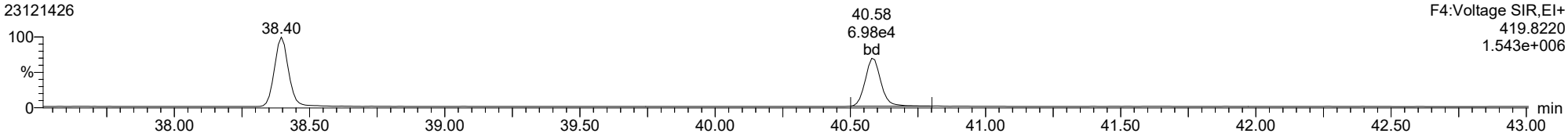
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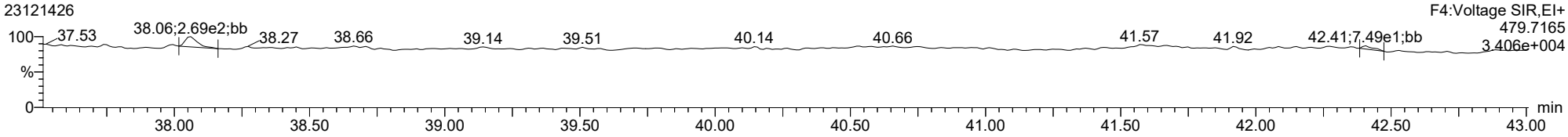
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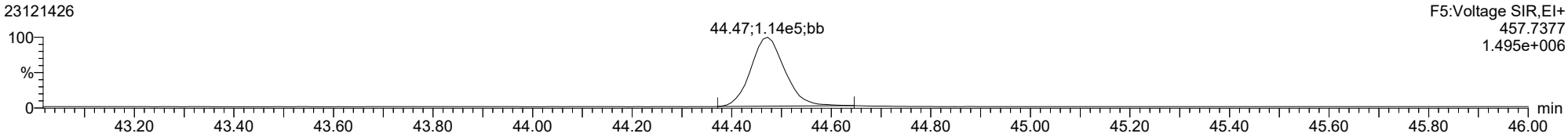
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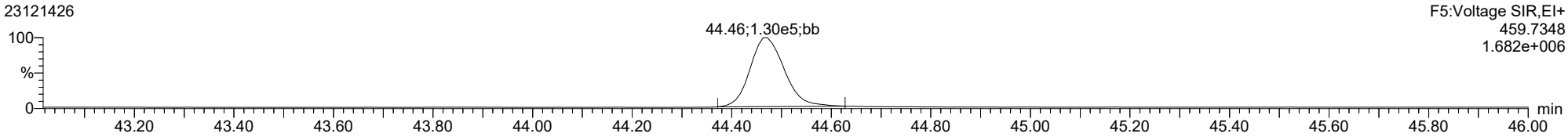
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ID: 23l0156-05, Name: 23121426, Date: 15-Dec-2023, Time: 06:24:41, Conditions: AUTOSPEC01, User: pk

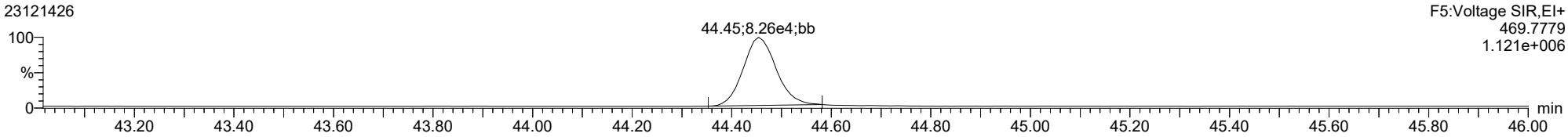
OCDD



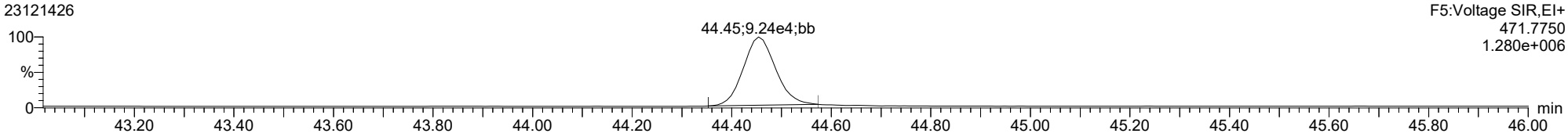
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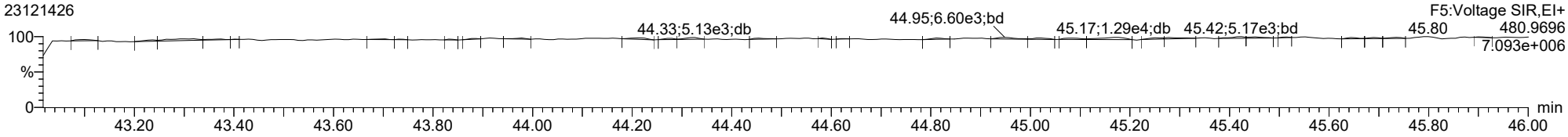
13C-OCDD



13C-OCDD

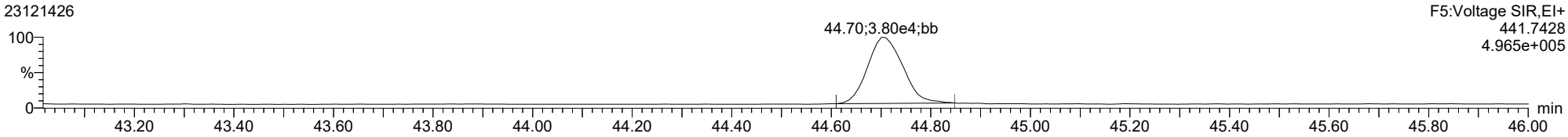


FUNCTION5 PFK

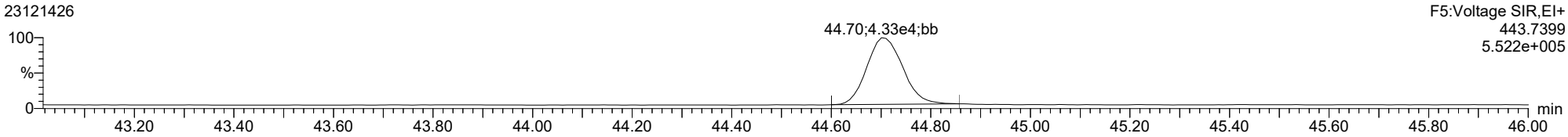


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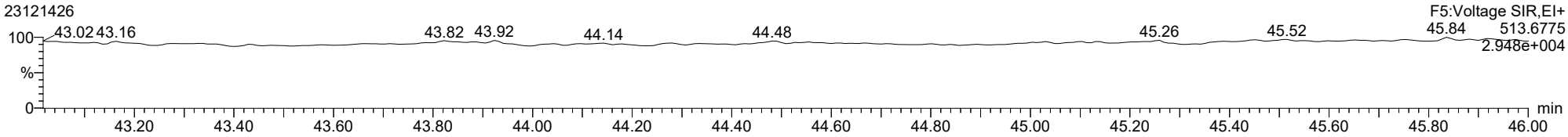
OCDF



OCDF

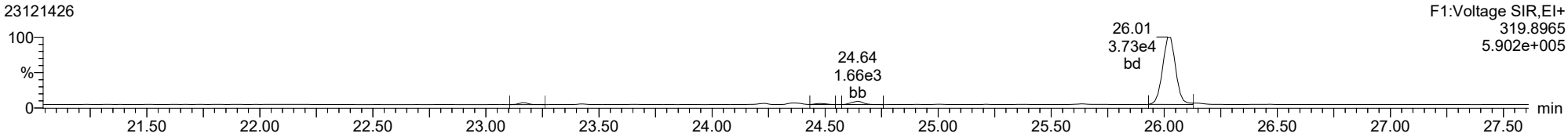


FUNCTION5 DCDPE

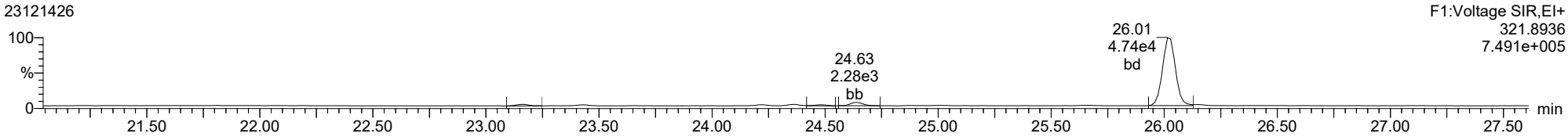


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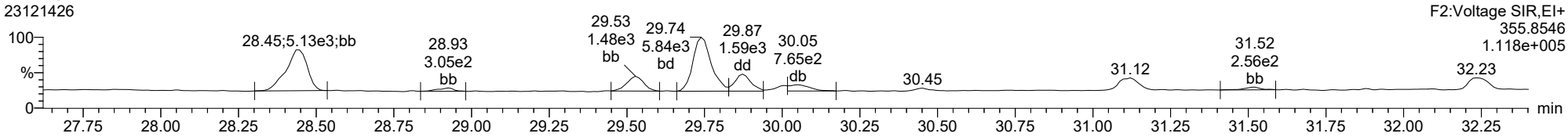
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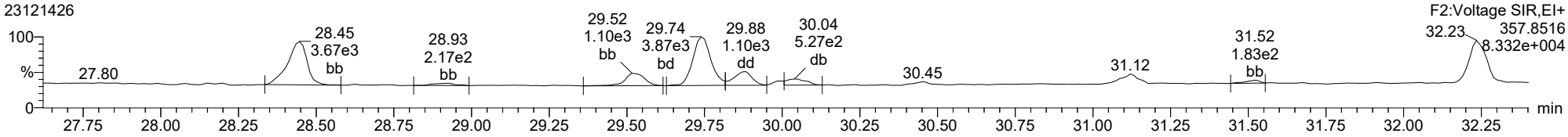
Total-tetradioxins



Total-pentadioxins

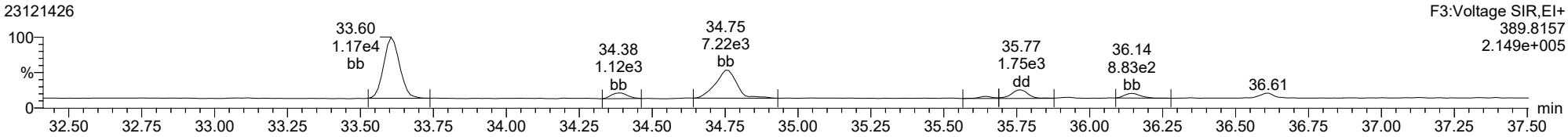


Total-pentadioxins

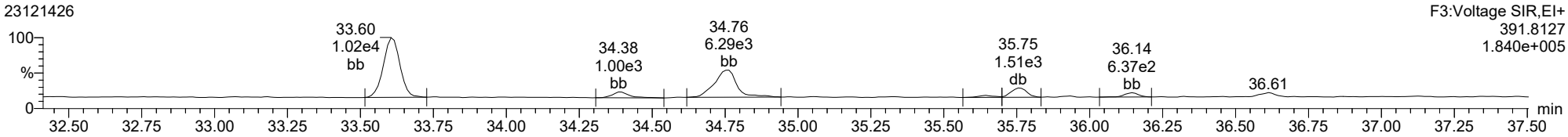


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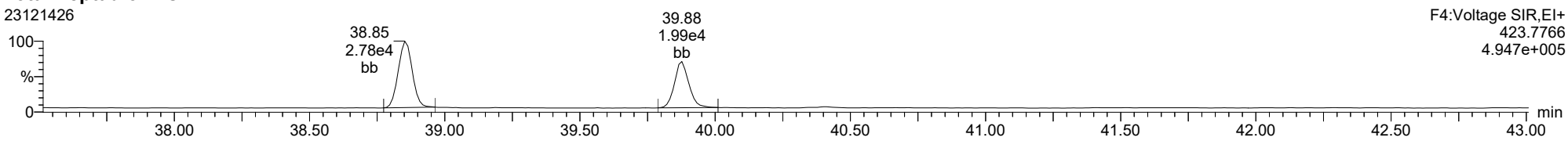
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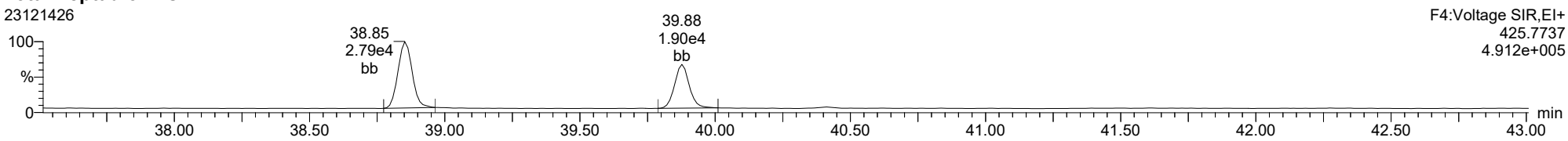
Total-hexadioxins



Total-heptadioxins



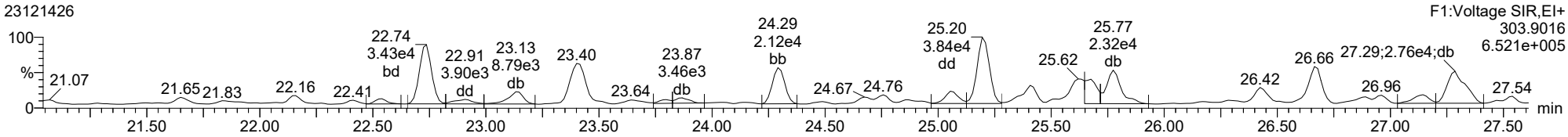
Total-heptadioxins



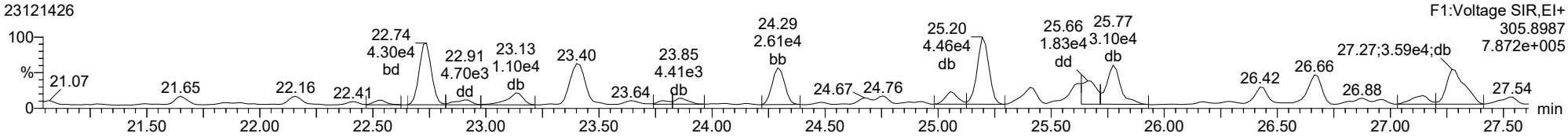
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Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
Printed: Friday, December 15, 2023 13:57:34 Pacific Standard Time

ID: 23l0156-05, Name: 23121426, Date: 15-Dec-2023, Time: 06:24:41, Conditions: AUTOSPEC01, User: pk

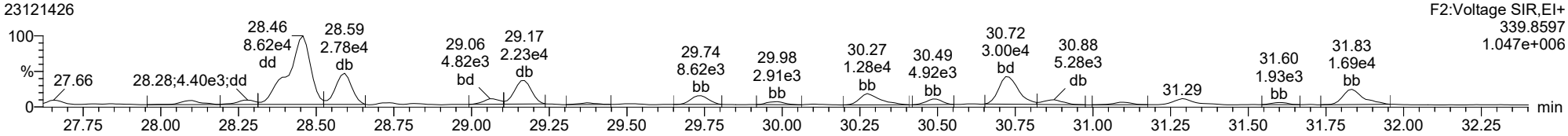
Total-tetrafurans



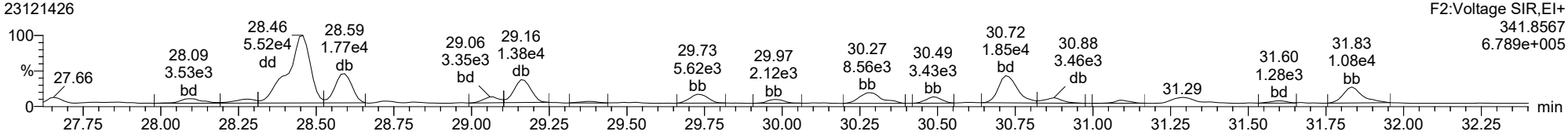
Total-tetrafurans



Total-pentafurans



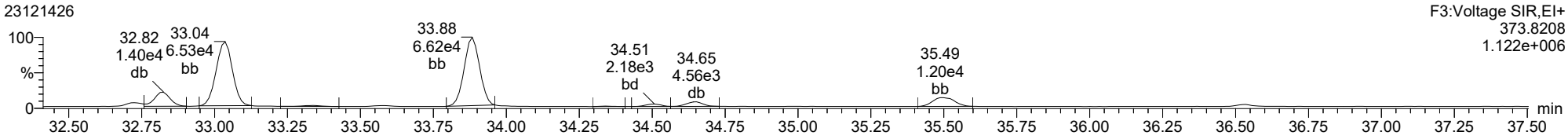
Total-pentafurans



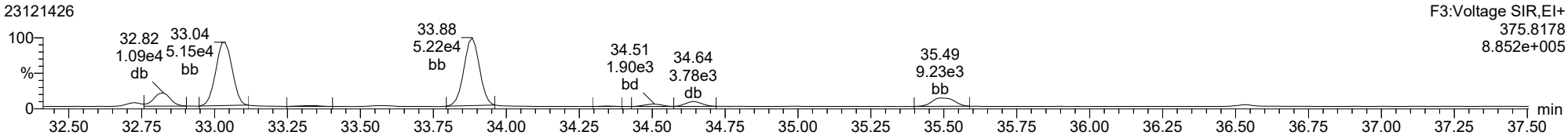
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Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
Printed: Friday, December 15, 2023 13:57:34 Pacific Standard Time

ID: 23l0156-05, Name: 23121426, Date: 15-Dec-2023, Time: 06:24:41, Conditions: AUTOSPEC01, User: pk

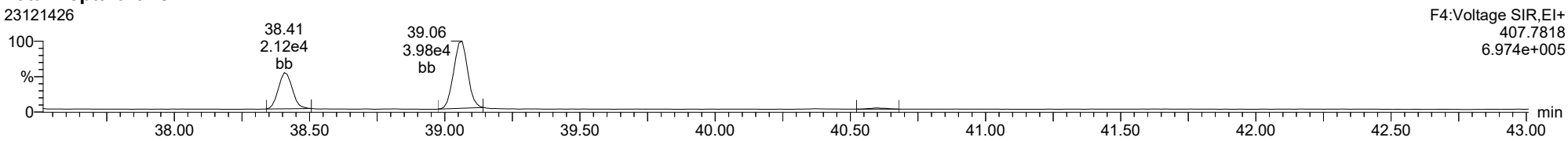
Total-hexafurans



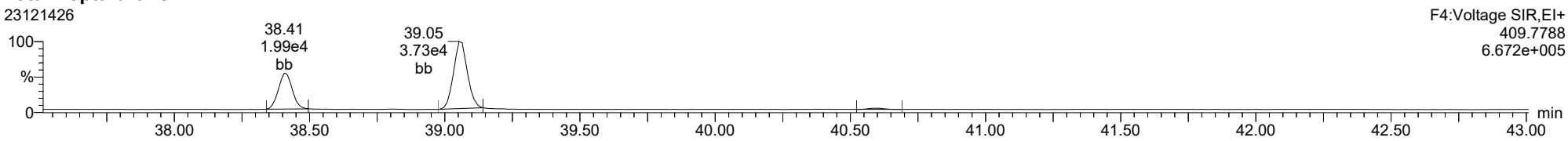
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

AOC3-103-0.5-1.0

Form 1
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23I0156
Client:	Floyd - Snider				
Project:	Smith-Kem				
Matrix:	Soil	Laboratory ID:	23I0156-06 A	File ID:	23121427
Sampled:	09/07/23 08:47	Prepared:	11/14/23 13:25	Analyzed:	12/15/23 07:13
% Solids:	91.17	Preparation:	EPA 1613	Initial/Final:	10.98 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SLL0222	Calibration:	GH00041
Batch:	BLK0112	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.757	0.655-0.886	1.23	0.999	29.4	ng/kg	X
1746-01-6	2,3,7,8-TCDD	1	0.705	0.655-0.886	0.258	0.999	25.7	ng/kg	
57117-41-6	1,2,3,7,8-PeCDF	1		1.318-1.783	1.61	0.999	ND	ng/kg	U
57117-31-4	2,3,4,7,8-PeCDF	1	1.502	1.318-1.783	1.58	0.999	6.98	ng/kg	
40321-76-4	1,2,3,7,8-PeCDD	1	1.547	1.318-1.783	0.305	0.999	3.52	ng/kg	
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.227	1.054-1.426	0.345	0.999	3.66	ng/kg	
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.283	1.054-1.426	0.364	0.999	7.41	ng/kg	
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.179	1.054-1.426	0.387	0.999	21.7	ng/kg	
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.079	1.054-1.426	0.478	0.999	4.08	ng/kg	
39227-28-6	1,2,3,4,7,8-HxCDD	1	0.901	1.054-1.426	0.328	0.999	0.816	ng/kg	EMPC, J
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.194	1.054-1.426	0.343	0.999	2.86	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.218	1.054-1.426	0.384	0.999	2.26	ng/kg	
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.143	0.893-1.208	0.467	0.999	21.4	ng/kg	B
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	0.959	0.893-1.208	0.694	0.999	1.85	ng/kg	
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.081	0.893-1.208	0.503	2.50	34.3	ng/kg	B
39001-02-0	OCDF	1	0.885	0.757-1.024	0.923	2.50	47.3	ng/kg	B
3268-87-9	OCDD	1	0.841	0.757-1.024	0.963	9.99	273	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			0.999	319	ng/kg	
41903-57-5	Total TCDD	1	0.000			0.999	39.8	ng/kg	
30402-15-4	Total PeCDF	1	0.000			0.999	596	ng/kg	
36088-22-9	Total PeCDD	1	0.000			0.999	44.7	ng/kg	
55684-94-1	Total HxCDF	1	0.000			0.999	276	ng/kg	
34465-46-8	Total HxCDD	1	0.000			0.999	107	ng/kg	
38998-75-3	Total HpCDF	1	0.000			0.999	57.9	ng/kg	
37871-00-4	Total HpCDD	1	0.000			0.999	62.3	ng/kg	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 39.20

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 39.23

Analytical Resources, Incorporated
Analytical Chemists and Consultants

AOC3-103-0.5-1.0

Form 2

ORGANIC ANALYSIS DATA SHEET

EPA 1613B

Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23I0156
Client:	Floyd - Snider			Project:	Smith-Kem
Matrix:	Soil	Laboratory ID:	23I0156-06	File ID:	23121427
Sampled:	09/07/23 08:47	Prepared:	11/14/23 13:25	Analyzed:	12/15/23 07:13
Solids Wt%:	91.17	Preparation:	EPA 1613	Initial/Final:	10.98 g / 20 uL
Result Basis:	Dry	Sequence:	SLL0222	Calibration:	GH00041
Batch:	BLK0112	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.759	0.655-0.886	0.157	47.5	24 - 169 %	
13C12-2,3,7,8-TCDD		0.777	0.655-0.886	0.255	62.9	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.512	1.318-1.783	0.199	49.8	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.529	1.318-1.783	0.211	48.8	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.643	1.318-1.783	0.258	65.7	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.517	0.434-0.587	0.269	53.4	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.499	0.434-0.587	0.219	45.1	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.510	0.434-0.587	0.269	47.9	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.505	0.434-0.587	0.309	50.3	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.226	1.054-1.426	0.224	63.1	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.204	1.054-1.426	0.186	54.5	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.453	0.374-0.506	0.219	38.2	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.421	0.374-0.506	0.285	40.0	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.076	0.893-1.208	0.336	55.6	23 - 140 %	
13C12-OCDD		0.899	0.757-1.024	0.432	43.2	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.148	78.8	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
Printed: Friday, December 15, 2023 13:57:52 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin231215.mdb 15 Dec 2023 13:28:43
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: 23I0156-06, Name: 23121427, Date: 15-Dec-2023, Time: 07:13:47, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.407	1.002	1.451e4	1.915e4	0.903	0.757	0.770	2536	4588	2.10e5	2.79e5	82.7	60.7	NO	bd	dd	14.717
12378-PeCDF					0.923		1.550	6333	1145								
23478-PeCDF	30.875	1.001	3.834e3	2.552e3	0.991	1.502	1.550	6333	1145	5.81e4	3.71e4	9.2	32.4	NO	db	db	3.492
123478-HxCDF	34.507	1.000	1.791e3	1.460e3	1.128	1.227	1.240	834	756	2.78e4	2.42e4	33.3	32.0	NO	bd	bd	1.832
234678-HxCDF	35.498	1.000	8.993e3	7.625e3	1.081	1.179	1.240	834	756	1.05e5	8.71e4	126.4	115.2	NO	bb	bb	10.867
123678-HxCDF	34.652	1.001	3.511e3	2.736e3	1.032	1.283	1.240	834	756	5.77e4	4.33e4	69.2	57.2	NO	db	db	3.708
123789-HxCDF	36.534	1.000	1.353e3	1.254e3	0.988	1.079	1.240	834	756	2.35e4	1.95e4	28.1	25.8	NO	bb	bb	2.043
1234678-HpCDF	38.406	1.000	6.735e3	5.892e3	1.164	1.143	1.050	704	817	1.13e5	9.88e4	161.2	120.8	NO	bb	bb	10.699
1234789-HpCDF	40.601	1.000	4.090e2	4.267e2	1.104	0.959	1.050	704	817	7.22e3	6.01e3	10.3	7.3	NO	db	bb	0.928
OCDF	44.701	1.006	9.304e3	1.051e4	1.130	0.885	0.890	677	949	1.12e5	1.19e5	165.3	125.7	NO	bb	bb	23.676
2378-TCDD	26.014	1.001	1.343e4	1.904e4	1.243	0.705	0.770	812	925	2.03e5	2.78e5	249.7	300.5	NO	bd	bb	12.877
12378-PeCDD	31.131	1.001	1.768e3	1.142e3	1.150	1.547	1.550	656	690	2.73e4	1.59e4	41.6	23.0	NO	bb	bb	1.759
123478-HxCDD	35.632	1.000	3.036e2	3.370e2	0.960	0.901	1.240	701	699	4.45e3	5.52e3	6.3	7.9	YES	bd	bd	0.408
123678-HxCDD	35.755	1.000	1.174e3	9.833e2	0.883	1.194	1.240	701	699	2.00e4	1.83e4	28.5	26.2	NO	db	db	1.434
123789-HxCDD	36.156	1.012	8.341e2	6.848e2	0.804	1.218	1.240	701	699	1.41e4	1.02e4	20.2	14.7	NO	bb	bb	1.132
1234678-HpCDD	39.888	1.001	1.009e4	9.334e3	1.200	1.081	1.050	813	732	1.59e5	1.46e5	195.6	199.9	NO	bb	bb	17.149
OCDD	44.472	1.000	4.894e4	5.820e4	1.059	0.841	0.890	788	801	6.09e5	7.21e5	773.2	900.4	NO	bb	bd	136.685
13C-2378-TCDF	25.365	1.007	1.092e5	1.440e5	1.835	0.759	0.770	1138	1121	1.65e6	2.21e6	1451.9	1971.2	NO	bb	bb	47.483
13C-12378-PeCDF	29.516	1.171	1.198e5	7.926e4	1.377	1.512	1.550	1141	1005	1.82e6	1.22e6	1593.9	1217.3	NO	bd	bd	49.769
13C-23478-PeCDF	30.853	1.225	1.116e5	7.301e4	1.301	1.529	1.550	1141	1005	1.73e6	1.15e6	1515.7	1145.8	NO	bd	bb	48.832
13C-123478-HxCDF	34.496	0.955	5.359e4	1.037e5	1.091	0.517	0.510	707	1482	8.36e5	1.62e6	1182.6	1093.7	NO	bd	bd	53.448
13C-123678-HxCDF	34.630	0.958	5.433e4	1.089e5	1.340	0.499	0.510	707	1482	8.44e5	1.67e6	1195.0	1128.0	NO	db	dd	45.127
13C-234678-HxCDF	35.509	0.983	4.776e4	9.364e4	1.093	0.510	0.510	707	1482	7.70e5	1.50e6	1089.9	1011.9	NO	bb	bb	47.920
13C-123789-HxCDF	36.546	1.011	4.336e4	8.589e4	0.952	0.505	0.510	707	1482	6.78e5	1.32e6	959.7	887.7	NO	bb	bd	50.332
13C-1234678-HpCDF	38.406	1.063	3.161e4	6.980e4	0.985	0.453	0.440	655	950	5.23e5	1.18e6	797.6	1247.1	NO	bd	bb	38.156
13C-1234789-HpCDF	40.590	1.123	2.418e4	5.744e4	0.756	0.421	0.440	655	950	3.53e5	8.38e5	537.8	881.7	NO	bd	bb	40.019
13C-1234-TCDD	25.195	0.000	1.297e5	1.609e5	1.000	0.806	0.770	1478	736	2.09e6	2.60e6	1416.2	3531.4	NO	bb	bb	100.000
13C-2378-TCDD	26.000	1.032	8.872e4	1.142e5	1.110	0.777	0.770	1478	736	1.42e6	1.82e6	960.8	2479.4	NO	bb	bb	62.933
13C-12378-PeCDD	31.109	1.235	8.940e4	5.440e4	0.754	1.643	1.550	689	831	1.43e6	8.51e5	2075.2	1023.8	NO	bb	bb	65.662
13C-123478-HxCDD	35.632	0.986	9.000e4	7.342e4	0.960	1.226	1.240	914	690	1.47e6	1.16e6	1606.9	1676.9	NO	bd	bd	63.089
13C-123678-HxCDD	35.743	0.989	9.312e4	7.735e4	1.159	1.204	1.240	914	690	1.51e6	1.23e6	1657.8	1783.6	NO	db	db	54.494
13C-1234678-HpCDD	39.866	1.103	4.893e4	4.547e4	0.629	1.076	1.050	748	830	7.95e5	7.39e5	1062.8	890.0	NO	bb	bb	55.595
13C-OCDD	44.453	1.230	7.009e4	7.799e4	0.635	0.899	0.890	1016	1028	8.85e5	9.75e5	871.0	948.2	NO	bb	bb	86.398
13C-123789-HxCDD	36.133	0.000	1.471e5	1.228e5	1.000	1.198	1.240	914	690	2.43e6	2.02e6	2664.5	2930.0	NO	bb	bb	100.000
37CL-2378-TCDD	26.014	1.033	1.060e5		1.157			1342		1.67e6		1241.3			bb		31.516

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
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ID: 23I0156-06, Name: 23121427, Date: 15-Dec-2023, Time: 07:13:47, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.170		0.770	2536	4588								
1289-TCDF	26.961	1.063	1.909e3	1.250e3	0.847	1.527	0.770	2536	4588	3.39e4	2.13e4	13.4	4.6	YES	db	dd	1.473
13468-PECDF	26.805	0.908	1.874e5	1.198e5	1.241	1.564	1.550	1041	1969	2.99e6	1.91e6	2870.2	967.7	NO	bb	bb	124.331
12389-PECDF	31.833	1.079	1.976e4	1.224e4	0.880	1.615	1.550	6333	1145	3.07e5	1.95e5	48.5	170.2	NO	bb	bb	18.275
123468-HXCDF	32.825	0.952	1.034e4	8.098e3	1.206	1.276	1.240	834	756	1.59e5	1.21e5	190.0	160.1	NO	db	db	9.721
1368-TCDD	23.161	0.891	1.438e3	1.824e3	1.181	0.789	0.770	812	925	2.40e4	2.82e4	29.6	30.4	NO	bb	bb	1.361
1289-TCDD					0.963		0.770	812	925								
12479-PECDD	28.446	0.914	1.347e4	9.029e3	2.166	1.492	1.550	656	690	1.77e5	1.17e5	269.2	169.8	NO	bb	bb	7.222
12389-PECDD	31.499	1.013	2.524e2	3.386e2	1.326	0.745	1.550	656	690	5.29e3	4.04e3	8.1	5.9	YES	bb	bb	0.310
124679-HXCDD	33.616	0.943	4.106e4	3.283e4	1.127	1.251	1.240	701	699	6.18e5	5.01e5	881.4	715.9	NO	bb	bb	40.132
1234679-HPCDD	38.863	0.975	8.697e3	8.537e3	1.303	1.019	1.050	813	732	1.44e5	1.38e5	177.0	188.4	NO	bb	bb	14.014
Total-tetrafurans			1.734e5		0.973			2536		2.58e6							159.771
Total-penta1			1.970e5					1041		3.16e6							132.955
Total-pentafurans			1.783e5		0.931			6333		2.62e6							165.417
Total-hexafurans			1.243e5		1.087			834		1.92e6							138.384
Total-heptafurans			1.615e4		1.134			704		2.72e5							28.976
Total-Furans			7.013e5		1.053			2536		1.07e7							651.686
Total-tetradioxins			2.043e4		1.129			812		3.17e5							19.899
Total-pentadioxins			3.310e4		1.548			656		4.67e5							22.396
Total-hexadioxins			5.239e4		0.943			701		7.78e5							53.710
Total-heptadioxins			1.878e4		1.251			813		3.03e5							31.163
Total-Dioxins			1.736e5		1.182			812		2.47e6							263.853
Total-TEQ			8.749e5					812		1.32e7							915.539
FUNCTION1 PFK			2.955e6					350941		3.35e7							
FUNCTION2 PFK			7.663e5					145293		6.56e6							0.000
FUNCTION3 PFK			0.000e0					248562		0.00e0							
FUNCTION4 PFK			5.593e5					222333		4.88e6							
FUNCTION5 PFK			2.499e5					212361		7.76e6							
FUNCTION1 HXCD...			1.910e5					2266		3.04e6							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			5.863e4					1364		9.49e5							0.000
FUNCTION3 OCDPE			7.075e3					491		1.18e5							0.000
FUNCTION4 NCDPE			2.198e2					554		3.86e3							0.000
FUNCTION5 DCDPE			0.000e0					602		0.00e0							

Method: T:\Autospec\Methods\Dioxin231215.mdb 15 Dec 2023 13:28:43
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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.42	3.151e4	3.765e4	0.973	0.84	0.77	176.8	YES	NO	bb	bb	28.057
2	Total-tetrafurans	23.15	5.728e3	6.815e3	0.973	0.84	0.77	31.7	YES	NO	db	bb	5.088
3	Total-tetrafurans	22.74	2.791e4	3.525e4	0.973	0.79	0.77	170.9	YES	NO	bd	bd	25.623
4	Total-tetrafurans	22.41	2.635e3	3.033e3	0.973	0.87	0.77	18.4	YES	NO	bd	bd	2.299
5	Total-tetrafurans	25.77	2.880e4	3.864e4	0.973	0.75	0.77	180.6	YES	NO	db	db	27.358
6	Total-tetrafurans	25.62	5.875e3	6.688e3	0.973	0.88	0.77	30.4	YES	NO	dd	dd	5.096
7	2378-TCDF	25.41	1.451e4	1.915e4	0.903	0.76	0.77	82.7	YES	NO	bd	dd	14.717
8	Total-tetrafurans	25.20	1.284e4	1.577e4	0.973	0.81	0.77	81.9	YES	NO	db	dd	11.606
9	Total-tetrafurans	25.05	2.864e3	3.776e3	0.973	0.76	0.77	16.1	YES	NO	bd	dd	2.694
10	Total-tetrafurans	24.29	1.541e4	1.927e4	0.973	0.80	0.77	92.3	YES	NO	bb	bb	14.066
11	Total-tetrafurans	27.29	1.084e4	1.377e4	0.973	0.79	0.77	48.3	YES	NO	dd	db	9.984
12	Total-tetrafurans	27.14	1.984e3	2.723e3	0.973	0.73	0.77	9.4	YES	NO	bd	dd	1.909
13	Total-tetrafurans	26.42	1.249e4	1.529e4	0.973	0.82	0.77	77.6	YES	NO	db	bb	11.272

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.55	9.656e3	6.087e3		1.59	1.55	166.4	YES	NO	bb	bb	8.624
2	13468-PECDF	26.81	1.874e5	1.198e5	1.241	1.56	1.55	2870.2	YES	NO	bb	bb	124.331

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PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	30.49	1.862e3	1.366e3	0.931	1.36	1.55	4.4	YES	NO	bb	bd	1.807
2	Total-pentafurans	30.28	6.131e3	4.616e3	0.931	1.33	1.55	12.2	YES	NO	bb	bb	6.015
3	Total-pentafurans	29.73	5.838e3	3.650e3	0.931	1.60	1.55	13.7	YES	NO	bb	bd	5.311
4	Total-pentafurans	29.17	1.659e4	1.107e4	0.931	1.50	1.55	41.0	YES	NO	db	db	15.481
5	Total-pentafurans	29.07	3.582e3	2.253e3	0.931	1.59	1.55	10.0	YES	NO	bd	bd	3.266
6	Total-pentafurans	28.81	1.439e3	8.672e2	0.931	1.66	1.55	3.9	YES	NO	db	db	1.291
7	Total-pentafurans	28.74	2.279e3	1.516e3	0.931	1.50	1.55	6.2	YES	NO	bd	bd	2.124
8	Total-pentafurans	28.59	3.513e4	2.313e4	0.931	1.52	1.55	98.6	YES	NO	bb	bb	32.610
9	12389-PECDF	31.83	1.976e4	1.224e4	0.880	1.61	1.55	48.5	YES	NO	bb	bb	18.275
10	Total-pentafurans	31.28	1.650e3	1.085e3	0.931	1.52	1.55	4.3	YES	NO	bb	bb	1.531
11	23478-PeCDF	30.88	3.834e3	2.552e3	0.991	1.50	1.55	9.2	YES	NO	db	db	3.492
12	Total-pentafurans	30.73	2.433e4	1.661e4	0.931	1.46	1.55	52.3	YES	NO	bd	dd	22.915
13	Total-pentafurans	28.46	5.585e4	3.580e4	0.931	1.56	1.55	109.1	YES	NO	MM	MM	51.301

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDF	34.51	1.791e3	1.460e3	1.128	1.23	1.24	33.3	YES	NO	bd	bd	1.832
2	Total-hexafurans	33.88	4.767e4	3.845e4	1.087	1.24	1.24	894.1	YES	NO	bb	bb	53.606
3	Total-hexafurans	33.34	1.249e3	1.041e3	1.087	1.20	1.24	24.3	YES	NO	bb	bb	1.425
4	Total-hexafurans	33.04	4.943e4	3.922e4	1.087	1.26	1.24	939.9	YES	NO	bb	bb	55.181
5	123468-HXCDF	32.82	1.034e4	8.098e3	1.206	1.28	1.24	190.0	YES	NO	db	db	9.721
6	123789-HxCDF	36.53	1.353e3	1.254e3	0.988	1.08	1.24	28.1	YES	NO	bb	bb	2.043
7	234678-HxCDF	35.50	8.993e3	7.625e3	1.081	1.18	1.24	126.4	YES	NO	bb	bb	10.867
8	123678-HxCDF	34.65	3.511e3	2.736e3	1.032	1.28	1.24	69.2	YES	NO	db	db	3.708

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.60	4.090e2	4.267e2	1.104	0.96	1.05	10.3	YES	NO	db	bb	0.928
2	Total-heptafurans	39.06	9.005e3	8.994e3	1.134	1.00	1.05	215.3	YES	NO	bb	bb	17.349
3	1234678-HpCDF	38.41	6.735e3	5.892e3	1.164	1.14	1.05	161.2	YES	NO	bb	bb	10.699

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Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
Printed: Friday, December 15, 2023 13:57:52 Pacific Standard Time

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.42	3.151e4	3.765e4	0.973	0.84	0.77	176.8	YES	NO	bb	bb	28.057
2	Total-tetrafurans	23.15	5.728e3	6.815e3	0.973	0.84	0.77	31.7	YES	NO	db	bb	5.088
3	Total-tetrafurans	22.74	2.791e4	3.525e4	0.973	0.79	0.77	170.9	YES	NO	bd	bd	25.623
4	Total-tetrafurans	22.41	2.635e3	3.033e3	0.973	0.87	0.77	18.4	YES	NO	bd	bd	2.299
5	Total-Furans	21.64	1.504e3	2.017e3	1.053	0.75	0.77	9.2	YES	NO	bb	bb	1.321
6	Total-tetrafurans	25.77	2.880e4	3.864e4	0.973	0.75	0.77	180.6	YES	NO	db	db	27.358
7	Total-tetrafurans	25.62	5.875e3	6.688e3	0.973	0.88	0.77	30.4	YES	NO	dd	dd	5.096
8	2378-TCDF	25.41	1.451e4	1.915e4	0.903	0.76	0.77	82.7	YES	NO	bd	dd	14.717
9	Total-tetrafurans	25.20	1.284e4	1.577e4	0.973	0.81	0.77	81.9	YES	NO	db	dd	11.606
10	Total-tetrafurans	25.05	2.864e3	3.776e3	0.973	0.76	0.77	16.1	YES	NO	bd	dd	2.694
11	Total-tetrafurans	24.29	1.541e4	1.927e4	0.973	0.80	0.77	92.3	YES	NO	bb	bb	14.066
12	Total-Furans	27.54	1.290e3	1.874e3	1.053	0.69	0.77	8.6	YES	NO	db	bb	1.187
13	Total-tetrafurans	27.29	1.084e4	1.377e4	0.973	0.79	0.77	48.3	YES	NO	dd	db	9.984
14	Total-tetrafurans	27.14	1.984e3	2.723e3	0.973	0.73	0.77	9.4	YES	NO	bd	dd	1.909
15	Total-tetrafurans	26.42	1.249e4	1.529e4	0.973	0.82	0.77	77.6	YES	NO	db	bb	11.272
16	Total-pentafurans	30.49	1.862e3	1.366e3	0.931	1.36	1.55	4.4	YES	NO	bb	bd	1.807
17	Total-pentafurans	30.28	6.131e3	4.616e3	0.931	1.33	1.55	12.2	YES	NO	bb	bb	6.015
18	Total-pentafurans	29.73	5.838e3	3.650e3	0.931	1.60	1.55	13.7	YES	NO	bb	bd	5.311
19	Total-pentafurans	29.17	1.659e4	1.107e4	0.931	1.50	1.55	41.0	YES	NO	db	db	15.481
20	Total-pentafurans	29.07	3.582e3	2.253e3	0.931	1.59	1.55	10.0	YES	NO	bd	bd	3.266
21	Total-pentafurans	28.81	1.439e3	8.672e2	0.931	1.66	1.55	3.9	YES	NO	db	db	1.291
22	Total-pentafurans	28.74	2.279e3	1.516e3	0.931	1.50	1.55	6.2	YES	NO	bd	bd	2.124
23	Total-pentafurans	28.59	3.513e4	2.313e4	0.931	1.52	1.55	98.6	YES	NO	bb	bb	32.610
24	12389-PECDF	31.83	1.976e4	1.224e4	0.880	1.61	1.55	48.5	YES	NO	bb	bb	18.275
25	Total-pentafurans	31.28	1.650e3	1.085e3	0.931	1.52	1.55	4.3	YES	NO	bb	bb	1.531
26	23478-PeCDF	30.88	3.834e3	2.552e3	0.991	1.50	1.55	9.2	YES	NO	db	db	3.492
27	Total-pentafurans	30.73	2.433e4	1.661e4	0.931	1.46	1.55	52.3	YES	NO	bd	dd	22.915
28	123478-HxCDF	34.51	1.791e3	1.460e3	1.128	1.23	1.24	33.3	YES	NO	bd	bd	1.832
29	Total-hexafurans	33.88	4.767e4	3.845e4	1.087	1.24	1.24	894.1	YES	NO	bb	bb	53.606
30	Total-hexafurans	33.34	1.249e3	1.041e3	1.087	1.20	1.24	24.3	YES	NO	bb	bb	1.425
31	Total-hexafurans	33.04	4.943e4	3.922e4	1.087	1.26	1.24	939.9	YES	NO	bb	bb	55.181
32	123468-HXCDF	32.82	1.034e4	8.098e3	1.206	1.28	1.24	190.0	YES	NO	db	db	9.721
33	123789-HxCDF	36.53	1.353e3	1.254e3	0.988	1.08	1.24	28.1	YES	NO	bb	bb	2.043
34	234678-HxCDF	35.50	8.993e3	7.625e3	1.081	1.18	1.24	126.4	YES	NO	bb	bb	10.867
35	123678-HxCDF	34.65	3.511e3	2.736e3	1.032	1.28	1.24	69.2	YES	NO	db	db	3.708
36	1234789-HpCDF	40.60	4.090e2	4.267e2	1.104	0.96	1.05	10.3	YES	NO	db	bb	0.928
37	Total-heptafurans	39.06	9.005e3	8.994e3	1.134	1.00	1.05	215.3	YES	NO	bb	bb	17.349

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	1234678-HpCDF	38.41	6.735e3	5.892e3	1.164	1.14	1.05	161.2	YES	NO	bb	bb	10.699
39	OCDF	44.70	9.304e3	1.051e4	1.130	0.89	0.89	165.3	YES	NO	bb	bb	23.676
40	Total-penta1	27.55	9.656e3	6.087e3		1.59	1.55	166.4	YES	NO	bb	bb	8.624
41	13468-PECDF	26.81	1.874e5	1.198e5	1.241	1.56	1.55	2870.2	YES	NO	bb	bb	124.331
42	Total-pentafurans	28.46	5.585e4	3.580e4	0.931	1.56	1.55	109.1	YES	NO	MM	MM	51.301

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.47	4.047e2	4.848e2	1.129	0.83	0.77	9.1	YES	NO	dd	dd	0.388
2	Total-tetradioxins	24.36	1.676e3	2.483e3	1.129	0.68	0.77	30.5	YES	NO	dd	dd	1.816
3	Total-tetradioxins	24.22	7.136e2	9.645e2	1.129	0.74	0.77	16.5	YES	NO	bd	bd	0.733
4	Total-tetradioxins	23.44	5.899e2	7.926e2	1.129	0.74	0.77	10.3	YES	NO	bb	bb	0.604
5	1368-TCDD	23.16	1.438e3	1.824e3	1.181	0.79	0.77	29.6	YES	NO	bb	bb	1.361
6	2378-TCDD	26.01	1.343e4	1.904e4	1.243	0.71	0.77	249.7	YES	NO	bd	bb	12.877
7	Total-tetradioxins	25.65	3.042e2	4.521e2	1.129	0.67	0.77	5.2	YES	NO	bb	bd	0.330
8	Total-tetradioxins	25.00	5.460e2	7.024e2	1.129	0.78	0.77	11.2	YES	NO	bb	db	0.545
9	Total-tetradioxins	24.64	1.322e3	1.529e3	1.129	0.86	0.77	28.4	YES	NO	db	db	1.245

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	29.87	5.904e2	4.335e2	1.548	1.36	1.55	15.4	YES	NO	dd	dd	0.460
2	Total-pentadioxins	29.74	1.312e4	8.914e3	1.548	1.47	1.55	307.1	YES	NO	bd	bd	9.902
3	Total-pentadioxins	29.54	1.483e3	9.169e2	1.548	1.62	1.55	36.5	YES	NO	bb	bb	1.078
4	12479-PECDD	28.45	1.347e4	9.029e3	2.166	1.49	1.55	269.2	YES	NO	bb	bb	7.222
5	12378-PeCDD	31.13	1.768e3	1.142e3	1.150	1.55	1.55	41.6	YES	NO	bb	bb	1.759
6	Total-pentadioxins	30.01	2.665e3	1.727e3	1.548	1.54	1.55	42.7	YES	NO	db	db	1.974

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.16	8.341e2	6.848e2	0.804	1.22	1.24	20.2	YES	NO	bb	bb	1.132
2	123678-HxCDD	35.75	1.174e3	9.833e2	0.883	1.19	1.24	28.5	YES	NO	db	db	1.434
3	Total-hexadioxins	34.76	7.572e3	6.604e3	0.943	1.15	1.24	143.2	YES	NO	bd	bb	9.002
4	Total-hexadioxins	34.40	1.753e3	1.414e3	0.943	1.24	1.24	36.0	YES	NO	bb	bb	2.011
5	124679-HXCDD	33.62	4.106e4	3.283e4	1.127	1.25	1.24	881.4	YES	NO	bb	bb	40.132

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HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.89	1.009e4	9.334e3	1.200	1.08	1.05	195.6	YES	NO	bb	bb	17.149
2	1234679-HPCDD	38.86	8.697e3	8.537e3	1.303	1.02	1.05	177.0	YES	NO	bb	bb	14.014

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.47	4.047e2	4.848e2	1.129	0.83	0.77	9.1	YES	NO	dd	dd	0.388
2	Total-tetradioxins	24.36	1.676e3	2.483e3	1.129	0.68	0.77	30.5	YES	NO	dd	dd	1.816
3	Total-tetradioxins	24.22	7.136e2	9.645e2	1.129	0.74	0.77	16.5	YES	NO	bd	bd	0.733
4	Total-tetradioxins	23.44	5.899e2	7.926e2	1.129	0.74	0.77	10.3	YES	NO	bb	bb	0.604
5	1368-TCDD	23.16	1.438e3	1.824e3	1.181	0.79	0.77	29.6	YES	NO	bb	bb	1.361
6	2378-TCDD	26.01	1.343e4	1.904e4	1.243	0.71	0.77	249.7	YES	NO	bd	bb	12.877
7	Total-tetradioxins	25.65	3.042e2	4.521e2	1.129	0.67	0.77	5.2	YES	NO	bb	bd	0.330
8	Total-tetradioxins	25.00	5.460e2	7.024e2	1.129	0.78	0.77	11.2	YES	NO	bb	db	0.545
9	Total-tetradioxins	24.64	1.322e3	1.529e3	1.129	0.86	0.77	28.4	YES	NO	db	db	1.245
10	Total-pentadioxins	29.87	5.904e2	4.335e2	1.548	1.36	1.55	15.4	YES	NO	dd	dd	0.460
11	Total-pentadioxins	29.74	1.312e4	8.914e3	1.548	1.47	1.55	307.1	YES	NO	bd	bd	9.902
12	Total-pentadioxins	29.54	1.483e3	9.169e2	1.548	1.62	1.55	36.5	YES	NO	bb	bb	1.078
13	12479-PECDD	28.45	1.347e4	9.029e3	2.166	1.49	1.55	269.2	YES	NO	bb	bb	7.222
14	12378-PeCDD	31.13	1.768e3	1.142e3	1.150	1.55	1.55	41.6	YES	NO	bb	bb	1.759
15	Total-pentadioxins	30.01	2.665e3	1.727e3	1.548	1.54	1.55	42.7	YES	NO	db	db	1.974
16	123789-HxCDD	36.16	8.341e2	6.848e2	0.804	1.22	1.24	20.2	YES	NO	bb	bb	1.132
17	123678-HxCDD	35.75	1.174e3	9.833e2	0.883	1.19	1.24	28.5	YES	NO	db	db	1.434
18	Total-hexadioxins	34.76	7.572e3	6.604e3	0.943	1.15	1.24	143.2	YES	NO	bd	bb	9.002
19	Total-hexadioxins	34.40	1.753e3	1.414e3	0.943	1.24	1.24	36.0	YES	NO	bb	bb	2.011
20	124679-HXCDD	33.62	4.106e4	3.283e4	1.127	1.25	1.24	881.4	YES	NO	bb	bb	40.132
21	OCDD	44.47	4.894e4	5.820e4	1.059	0.84	0.89	773.2	YES	NO	bb	bd	136.685
22	1234678-HpCDD	39.89	1.009e4	9.334e3	1.200	1.08	1.05	195.6	YES	NO	bb	bb	17.149
23	1234679-HPCDD	38.86	8.697e3	8.537e3	1.303	1.02	1.05	177.0	YES	NO	bb	bb	14.014

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
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ID: 23I0156-06, Name: 23121427, Date: 15-Dec-2023, Time: 07:13:47, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.42	3.151e4	3.765e4	0.973	0.84	0.77	176.8	YES	NO	bb	bb	28.057
2	Total-tetrafurans	23.15	5.728e3	6.815e3	0.973	0.84	0.77	31.7	YES	NO	db	bb	5.088
3	Total-tetrafurans	22.74	2.791e4	3.525e4	0.973	0.79	0.77	170.9	YES	NO	bd	bd	25.623
4	Total-tetrafurans	22.41	2.635e3	3.033e3	0.973	0.87	0.77	18.4	YES	NO	bd	bd	2.299
5	Total-Furans	21.64	1.504e3	2.017e3	1.053	0.75	0.77	9.2	YES	NO	bb	bb	1.321
6	Total-tetrafurans	25.77	2.880e4	3.864e4	0.973	0.75	0.77	180.6	YES	NO	db	db	27.358
7	Total-tetrafurans	25.62	5.875e3	6.688e3	0.973	0.88	0.77	30.4	YES	NO	dd	dd	5.096
8	2378-TCDF	25.41	1.451e4	1.915e4	0.903	0.76	0.77	82.7	YES	NO	bd	dd	14.717
9	Total-tetrafurans	25.20	1.284e4	1.577e4	0.973	0.81	0.77	81.9	YES	NO	db	dd	11.606
10	Total-tetrafurans	25.05	2.864e3	3.776e3	0.973	0.76	0.77	16.1	YES	NO	bd	dd	2.694
11	Total-tetrafurans	24.29	1.541e4	1.927e4	0.973	0.80	0.77	92.3	YES	NO	bb	bb	14.066
12	Total-Furans	27.54	1.290e3	1.874e3	1.053	0.69	0.77	8.6	YES	NO	db	bb	1.187
13	Total-tetrafurans	27.29	1.084e4	1.377e4	0.973	0.79	0.77	48.3	YES	NO	dd	db	9.984
14	Total-tetrafurans	27.14	1.984e3	2.723e3	0.973	0.73	0.77	9.4	YES	NO	bd	dd	1.909
15	Total-tetrafurans	26.42	1.249e4	1.529e4	0.973	0.82	0.77	77.6	YES	NO	db	bb	11.272
16	Total-pentafurans	30.49	1.862e3	1.366e3	0.931	1.36	1.55	4.4	YES	NO	bb	bd	1.807
17	Total-pentafurans	30.28	6.131e3	4.616e3	0.931	1.33	1.55	12.2	YES	NO	bb	bb	6.015
18	Total-pentafurans	29.73	5.838e3	3.650e3	0.931	1.60	1.55	13.7	YES	NO	bb	bd	5.311
19	Total-pentafurans	29.17	1.659e4	1.107e4	0.931	1.50	1.55	41.0	YES	NO	db	db	15.481
20	Total-pentafurans	29.07	3.582e3	2.253e3	0.931	1.59	1.55	10.0	YES	NO	bd	bd	3.266
21	Total-pentafurans	28.81	1.439e3	8.672e2	0.931	1.66	1.55	3.9	YES	NO	db	db	1.291
22	Total-pentafurans	28.74	2.279e3	1.516e3	0.931	1.50	1.55	6.2	YES	NO	bd	bd	2.124
23	Total-pentafurans	28.59	3.513e4	2.313e4	0.931	1.52	1.55	98.6	YES	NO	bb	bb	32.610
24	12389-PECDF	31.83	1.976e4	1.224e4	0.880	1.61	1.55	48.5	YES	NO	bb	bb	18.275
25	Total-pentafurans	31.28	1.650e3	1.085e3	0.931	1.52	1.55	4.3	YES	NO	bb	bb	1.531
26	23478-PeCDF	30.88	3.834e3	2.552e3	0.991	1.50	1.55	9.2	YES	NO	db	db	3.492
27	Total-pentafurans	30.73	2.433e4	1.661e4	0.931	1.46	1.55	52.3	YES	NO	bd	dd	22.915
28	123478-HxCDF	34.51	1.791e3	1.460e3	1.128	1.23	1.24	33.3	YES	NO	bd	bd	1.832
29	Total-hexafurans	33.88	4.767e4	3.845e4	1.087	1.24	1.24	894.1	YES	NO	bb	bb	53.606
30	Total-hexafurans	33.34	1.249e3	1.041e3	1.087	1.20	1.24	24.3	YES	NO	bb	bb	1.425
31	Total-hexafurans	33.04	4.943e4	3.922e4	1.087	1.26	1.24	939.9	YES	NO	bb	bb	55.181
32	123468-HXCDF	32.82	1.034e4	8.098e3	1.206	1.28	1.24	190.0	YES	NO	db	db	9.721
33	123789-HxCDF	36.53	1.353e3	1.254e3	0.988	1.08	1.24	28.1	YES	NO	bb	bb	2.043
34	234678-HxCDF	35.50	8.993e3	7.625e3	1.081	1.18	1.24	126.4	YES	NO	bb	bb	10.867
35	123678-HxCDF	34.65	3.511e3	2.736e3	1.032	1.28	1.24	69.2	YES	NO	db	db	3.708
36	1234789-HpCDF	40.60	4.090e2	4.267e2	1.104	0.96	1.05	10.3	YES	NO	db	bb	0.928
37	Total-heptafurans	39.06	9.005e3	8.994e3	1.134	1.00	1.05	215.3	YES	NO	bb	bb	17.349

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	1234678-HpCDF	38.41	6.735e3	5.892e3	1.164	1.14	1.05	161.2	YES	NO	bb	bb	10.699
39	OCDF	44.70	9.304e3	1.051e4	1.130	0.89	0.89	165.3	YES	NO	bb	bb	23.676
40	Total-penta1	27.55	9.656e3	6.087e3		1.59	1.55	166.4	YES	NO	bb	bb	8.624
41	13468-PECDF	26.81	1.874e5	1.198e5	1.241	1.56	1.55	2870.2	YES	NO	bb	bb	124.331
42	Total-pentafurans	28.46	5.585e4	3.580e4	0.931	1.56	1.55	109.1	YES	NO	MM	MM	51.301
43	Total-tetradioxins	24.47	4.047e2	4.848e2	1.129	0.83	0.77	9.1	YES	NO	dd	dd	0.388
44	Total-tetradioxins	24.36	1.676e3	2.483e3	1.129	0.68	0.77	30.5	YES	NO	dd	dd	1.816
45	Total-tetradioxins	24.22	7.136e2	9.645e2	1.129	0.74	0.77	16.5	YES	NO	bd	bd	0.733
46	Total-tetradioxins	23.44	5.899e2	7.926e2	1.129	0.74	0.77	10.3	YES	NO	bb	bb	0.604
47	1368-TCDD	23.16	1.438e3	1.824e3	1.181	0.79	0.77	29.6	YES	NO	bb	bb	1.361
48	2378-TCDD	26.01	1.343e4	1.904e4	1.243	0.71	0.77	249.7	YES	NO	bd	bb	12.877
49	Total-tetradioxins	25.65	3.042e2	4.521e2	1.129	0.67	0.77	5.2	YES	NO	bb	bd	0.330
50	Total-tetradioxins	25.00	5.460e2	7.024e2	1.129	0.78	0.77	11.2	YES	NO	bb	db	0.545
51	Total-tetradioxins	24.64	1.322e3	1.529e3	1.129	0.86	0.77	28.4	YES	NO	db	db	1.245
52	Total-pentadioxins	29.87	5.904e2	4.335e2	1.548	1.36	1.55	15.4	YES	NO	dd	dd	0.460
53	Total-pentadioxins	29.74	1.312e4	8.914e3	1.548	1.47	1.55	307.1	YES	NO	bd	bd	9.902
54	Total-pentadioxins	29.54	1.483e3	9.169e2	1.548	1.62	1.55	36.5	YES	NO	bb	bb	1.078
55	12479-PECDD	28.45	1.347e4	9.029e3	2.166	1.49	1.55	269.2	YES	NO	bb	bb	7.222
56	12378-PeCDD	31.13	1.768e3	1.142e3	1.150	1.55	1.55	41.6	YES	NO	bb	bb	1.759
57	Total-pentadioxins	30.01	2.665e3	1.727e3	1.548	1.54	1.55	42.7	YES	NO	db	db	1.974
58	123789-HxCDD	36.16	8.341e2	6.848e2	0.804	1.22	1.24	20.2	YES	NO	bb	bb	1.132
59	123678-HxCDD	35.75	1.174e3	9.833e2	0.883	1.19	1.24	28.5	YES	NO	db	db	1.434
60	Total-hexadioxins	34.76	7.572e3	6.604e3	0.943	1.15	1.24	143.2	YES	NO	bd	bb	9.002
61	Total-hexadioxins	34.40	1.753e3	1.414e3	0.943	1.24	1.24	36.0	YES	NO	bb	bb	2.011
62	124679-HXCDD	33.62	4.106e4	3.283e4	1.127	1.25	1.24	881.4	YES	NO	bb	bb	40.132
63	OCDD	44.47	4.894e4	5.820e4	1.059	0.84	0.89	773.2	YES	NO	bb	bd	136.685
64	1234678-HpCDD	39.89	1.009e4	9.334e3	1.200	1.08	1.05	195.6	YES	NO	bb	bb	17.149
65	1234679-HPCDD	38.86	8.697e3	8.537e3	1.303	1.02	1.05	177.0	YES	NO	bb	bb	14.014

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	23.97	8.996e4					3.3	YES		dd		
2	FUNCTION1 PFK	23.84	5.672e4					3.0	YES		dd		
3	FUNCTION1 PFK	23.71	2.591e5					6.7	YES		dd		
4	FUNCTION1 PFK	23.51	5.917e5					7.5	YES		bd		
5	FUNCTION1 PFK	23.26	8.933e4					5.4	YES		db		
6	FUNCTION1 PFK	23.22	1.803e5					7.5	YES		bd		
7	FUNCTION1 PFK	23.03	1.408e5					3.6	YES		bb		
8	FUNCTION1 PFK	22.31	4.072e4					1.5	NO		bb		
9	FUNCTION1 PFK	21.96	4.897e4					2.1	NO		db		
10	FUNCTION1 PFK	21.90	6.387e4					2.8	NO		dd		
11	FUNCTION1 PFK	21.82	2.707e4					2.0	NO		bd		
12	FUNCTION1 PFK	21.66	2.686e3					0.5	NO		bb		
13	FUNCTION1 PFK	21.61	5.569e4					3.5	YES		bb		
14	FUNCTION1 PFK	21.23	2.351e4					1.4	NO		bb		
15	FUNCTION1 PFK	21.11	1.316e4					1.7	NO		bb		
16	FUNCTION1 PFK	27.44	9.700e4					2.4	NO		bb		
17	FUNCTION1 PFK	26.62	7.960e3					0.9	NO		bb		
18	FUNCTION1 PFK	26.55	2.020e4					1.3	NO		bb		
19	FUNCTION1 PFK	26.04	5.640e5					6.5	YES		db		
20	FUNCTION1 PFK	25.90	1.055e5					8.2	YES		bd		
21	FUNCTION1 PFK	25.76	2.323e5					8.3	YES		bb		
22	FUNCTION1 PFK	25.56	4.450e4					2.0	NO		bb		
23	FUNCTION1 PFK	25.32	3.605e4					2.7	NO		db		
24	FUNCTION1 PFK	25.28	8.288e4					3.5	YES		bd		
25	FUNCTION1 PFK	24.91	8.579e3					1.0	NO		bb		
26	FUNCTION1 PFK	24.62	2.530e4					2.0	NO		bb		
27	FUNCTION1 PFK	24.55	1.429e4					1.4	NO		db		
28	FUNCTION1 PFK	24.50	1.566e4					1.2	NO		bd		
29	FUNCTION1 PFK	24.07	1.698e4					1.4	NO		db		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	27.74	1.775e4					1.3	NO		bb		0.000
2	FUNCTION2 PFK	30.91	2.871e5					10.3	YES		bb		0.000
3	FUNCTION2 PFK	30.67	1.782e5					12.2	YES		bb		0.000
4	FUNCTION2 PFK	30.22	1.619e4					2.6	NO		bb		0.000
5	FUNCTION2 PFK	28.46	1.531e4					3.5	YES		db		0.000
6	FUNCTION2 PFK	28.40	7.382e4					5.4	YES		bd		0.000
7	FUNCTION2 PFK	28.20	1.780e5					9.9	YES		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	41.47	4.707e4					1.7	NO		bb		
2	FUNCTION4 PFK	40.82	5.031e3					1.2	NO		bb		
3	FUNCTION4 PFK	39.43	3.065e5					6.9	YES		bb		
4	FUNCTION4 PFK	39.19	1.306e5					8.6	YES		bb		
5	FUNCTION4 PFK	37.73	7.004e4					3.4	YES		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.15	3.262e3					0.9	NO		db		
2	FUNCTION5 PFK	43.13	1.542e3					0.5	NO		bd		
3	FUNCTION5 PFK	44.26	2.086e4					2.0	NO		dd		
4	FUNCTION5 PFK	44.19	7.594e3					1.5	NO		dd		
5	FUNCTION5 PFK	44.15	7.436e3					1.4	NO		dd		
6	FUNCTION5 PFK	44.11	1.016e4					1.4	NO		bd		
7	FUNCTION5 PFK	44.00	3.551e3					0.6	NO		bb		
8	FUNCTION5 PFK	43.91	1.074e3					0.4	NO		bb		
9	FUNCTION5 PFK	43.69	2.172e4					1.6	NO		bb		
10	FUNCTION5 PFK	43.64	1.185e4					1.5	NO		db		
11	FUNCTION5 PFK	43.58	1.019e4					1.7	NO		dd		
12	FUNCTION5 PFK	43.56	5.639e3					1.2	NO		bd		
13	FUNCTION5 PFK	43.51	7.557e3					1.4	NO		db		
14	FUNCTION5 PFK	43.47	7.085e3					1.2	NO		dd		
15	FUNCTION5 PFK	43.43	1.064e4					1.3	NO		dd		
16	FUNCTION5 PFK	43.37	9.503e3					1.1	NO		dd		
17	FUNCTION5 PFK	43.30	9.724e2					0.4	NO		bd		
18	FUNCTION5 PFK	43.22	2.711e3					0.5	NO		bb		
19	FUNCTION5 PFK	45.92	6.984e3					1.2	NO		bb		
20	FUNCTION5 PFK	45.73	2.189e3					0.5	NO		bb		
21	FUNCTION5 PFK	45.62	4.192e3					0.9	NO		bb		
22	FUNCTION5 PFK	45.53	8.082e3					1.4	NO		db		
23	FUNCTION5 PFK	45.50	5.497e3					0.9	NO		bd		
24	FUNCTION5 PFK	45.41	6.936e3					1.1	NO		bb		
25	FUNCTION5 PFK	45.37	2.221e3					0.6	NO		bb		
26	FUNCTION5 PFK	45.12	3.911e3					0.9	NO		db		
27	FUNCTION5 PFK	45.08	6.834e3					0.8	NO		bd		
28	FUNCTION5 PFK	44.87	2.767e3					0.7	NO		db		
29	FUNCTION5 PFK	44.79	2.509e4					1.9	NO		bd		
30	FUNCTION5 PFK	44.64	1.066e3					0.4	NO		bb		
31	FUNCTION5 PFK	44.58	4.178e3					0.7	NO		bb		
32	FUNCTION5 PFK	44.54	3.948e3					0.8	NO		bb		
33	FUNCTION5 PFK	44.33	1.500e4					1.8	NO		db		
34	FUNCTION5 PFK	44.30	7.683e3					1.4	NO		dd		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	24.45	4.039e3					29.7	YES		db		0.000
2	FUNCTION1 HXCD...	24.35	3.915e3					25.1	YES		bd		0.000
3	FUNCTION1 HXCD...	24.12	6.498e2					5.0	YES		db		0.000
4	FUNCTION1 HXCD...	23.97	7.187e2					5.6	YES		bd		0.000
5	FUNCTION1 HXCD...	23.67	9.413e2					7.1	YES		db		0.000
6	FUNCTION1 HXCD...	23.61	1.098e3					10.2	YES		bd		0.000
7	FUNCTION1 HXCD...	23.40	3.552e4					252.0	YES		bb		0.000
8	FUNCTION1 HXCD...	22.96	1.470e3					10.7	YES		db		0.000
9	FUNCTION1 HXCD...	22.89	2.043e3					15.2	YES		bd		0.000
10	FUNCTION1 HXCD...	22.69	5.031e2					3.3	YES		bb		0.000
11	FUNCTION1 HXCD...	22.53	1.075e3					6.8	YES		db		0.000
12	FUNCTION1 HXCD...	22.40	8.735e3					62.7	YES		bd		0.000
13	FUNCTION1 HXCD...	21.95	1.042e4					81.9	YES		bb		0.000
14	FUNCTION1 HXCD...	21.64	2.627e3					16.3	YES		db		0.000
15	FUNCTION1 HXCD...	21.47	1.094e3					7.6	YES		bd		0.000
16	FUNCTION1 HXCD...	27.53	9.185e2					7.0	YES		bb		0.000
17	FUNCTION1 HXCD...	27.27	4.936e3					28.0	YES		bb		0.000
18	FUNCTION1 HXCD...	26.96	2.380e2					3.0	YES		bb		0.000
19	FUNCTION1 HXCD...	26.41	2.181e4					146.3	YES		db		0.000
20	FUNCTION1 HXCD...	26.31	3.569e3					23.3	YES		bd		0.000
21	FUNCTION1 HXCD...	25.76	4.463e4					323.5	YES		bb		0.000
22	FUNCTION1 HXCD...	25.39	1.575e4					108.4	YES		db		0.000
23	FUNCTION1 HXCD...	25.18	3.850e3					23.4	YES		bd		0.000
24	FUNCTION1 HXCD...	25.01	8.786e2					5.3	YES		bb		0.000
25	FUNCTION1 HXCD...	24.86	1.216e3					8.1	YES		db		0.000
26	FUNCTION1 HXCD...	24.74	7.852e3					54.8	YES		dd		0.000
27	FUNCTION1 HXCD...	24.64	1.056e4					70.1	YES		bd		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	28.58	3.341e4					416.3	YES		bd		0.000
2	FUNCTION2 HPCD...	28.25	7.469e2					5.6	YES		db		0.000
3	FUNCTION2 HPCD...	28.05	3.908e2					5.4	YES		bd		0.000
4	FUNCTION2 HPCD...	31.83	1.348e4					156.0	YES		bb		0.000
5	FUNCTION2 HPCD...	31.60	2.536e2					3.4	YES		bb		0.000
6	FUNCTION2 HPCD...	31.12	3.409e2					4.1	YES		bb		0.000
7	FUNCTION2 HPCD...	30.93	1.400e2					2.4	NO		db		0.000
8	FUNCTION2 HPCD...	30.75	4.440e3					36.9	YES		bd		0.000
9	FUNCTION2 HPCD...	30.27	3.778e2					4.5	YES		bb		0.000
10	FUNCTION2 HPCD...	30.11	3.272e2					4.1	YES		bb		0.000
11	FUNCTION2 HPCD...	29.97	2.354e2					3.7	YES		bb		0.000
12	FUNCTION2 HPCD...	29.37	2.546e2					4.6	YES		db		0.000
13	FUNCTION2 HPCD...	29.30	5.824e2					6.3	YES		bd		0.000
14	FUNCTION2 HPCD...	29.16	3.774e2					3.3	YES		bb		0.000
15	FUNCTION2 HPCD...	28.81	1.278e3					14.0	YES		db		0.000
16	FUNCTION2 HPCD...	28.71	1.994e3					25.4	YES		dd		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	33.33	8.067e2					29.1	YES		bb		0.000
2	FUNCTION3 OCDPE	32.71	4.953e3					164.3	YES		bb		0.000
3	FUNCTION3 OCDPE	37.39	8.247e1					3.7	YES		bb		0.000
4	FUNCTION3 OCDPE	36.53	2.534e2					11.1	YES		bb		0.000
5	FUNCTION3 OCDPE	33.84	9.800e2					31.6	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	38.06	2.198e2					7.0	YES		bb		0.000

ETHERS6

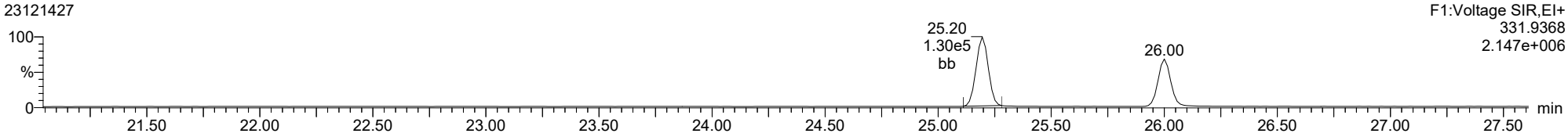
	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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Printed: Friday, December 15, 2023 13:57:52 Pacific Standard Time

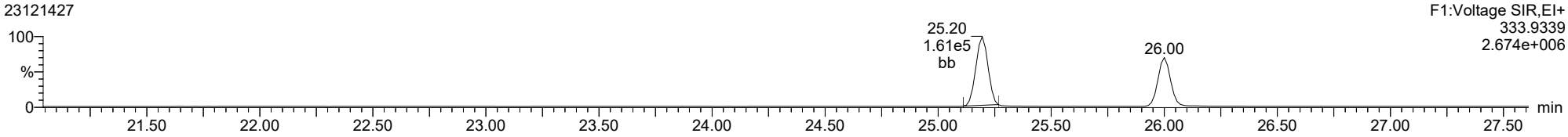
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ID: 23I0156-06, Name: 23121427, Date: 15-Dec-2023, Time: 07:13:47, Conditions: AUTOSPEC01, User: pk

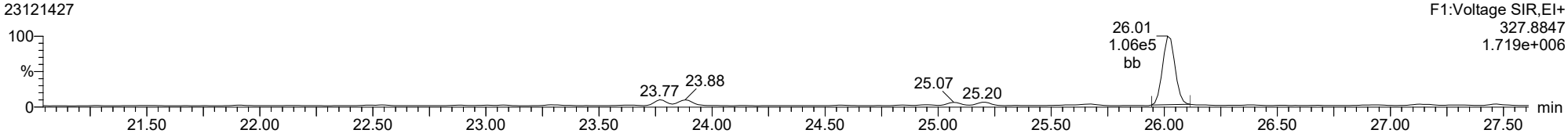
13C-1234-TCDD



13C-1234-TCDD

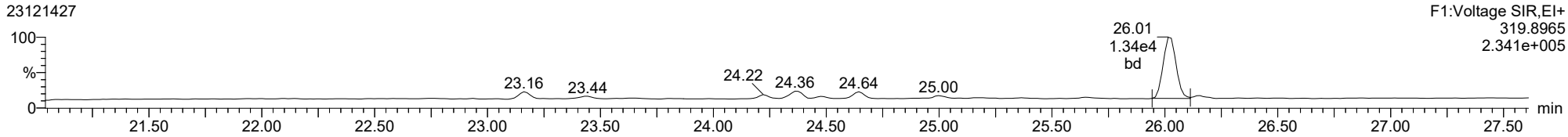


37CL-2378-TCDD

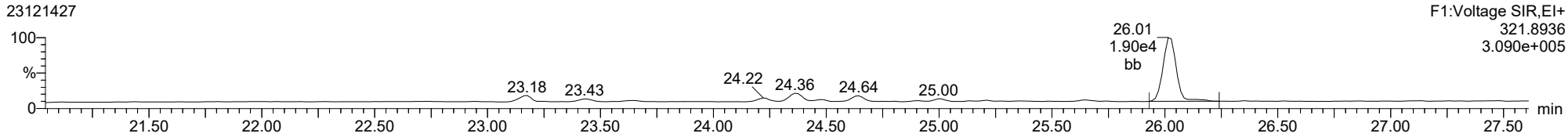


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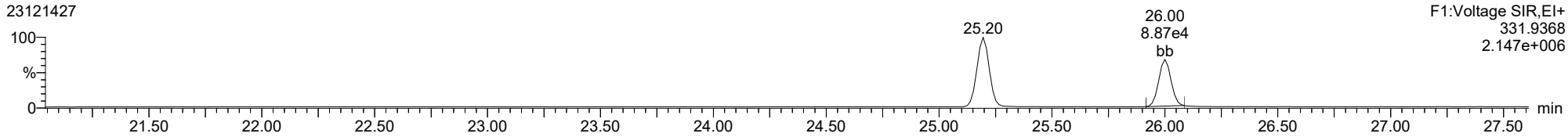
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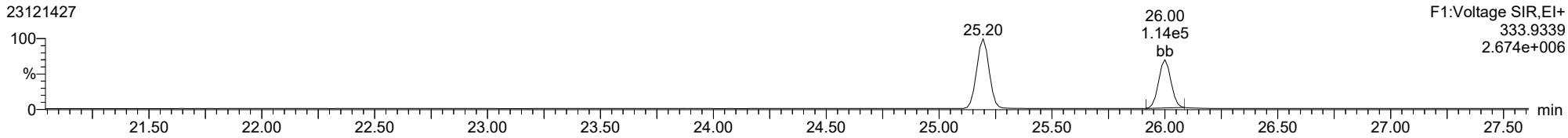
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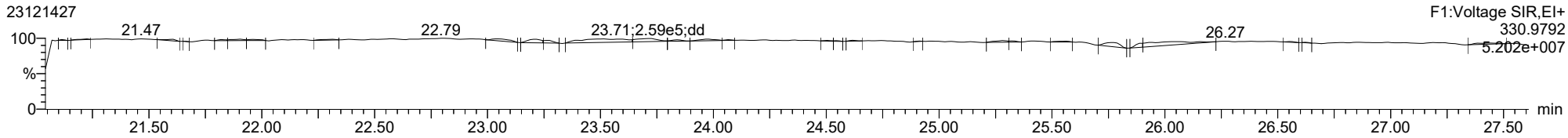
13C-2378-TCDD



13C-2378-TCDD



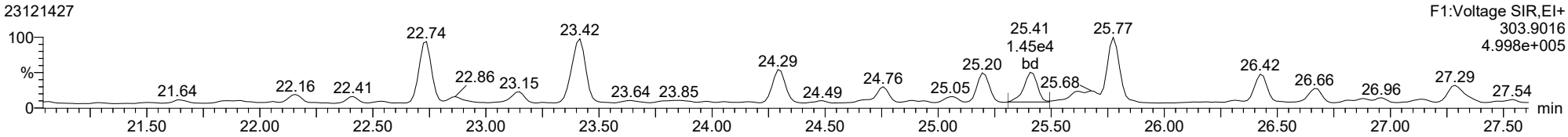
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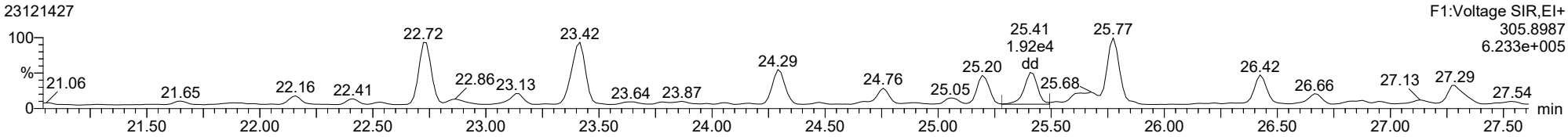
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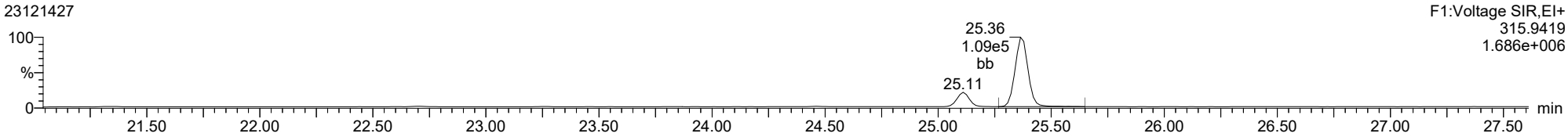
2378-TCDF



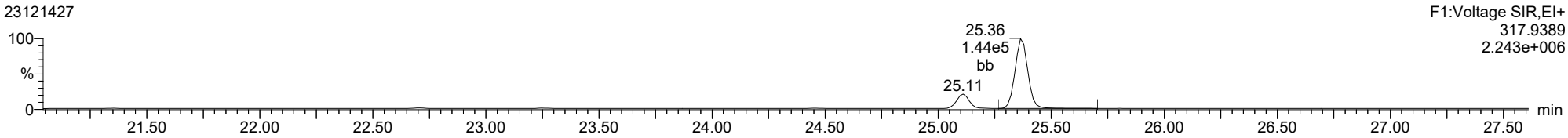
2378-TCDF



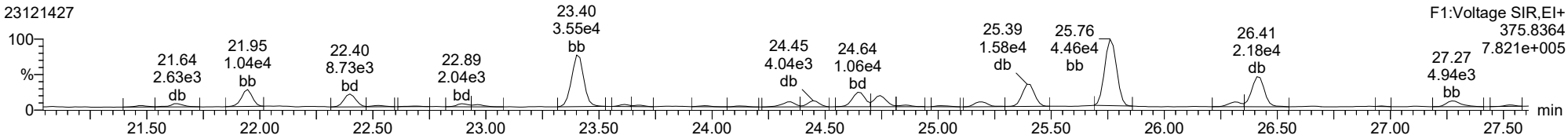
13C-2378-TCDF



13C-2378-TCDF

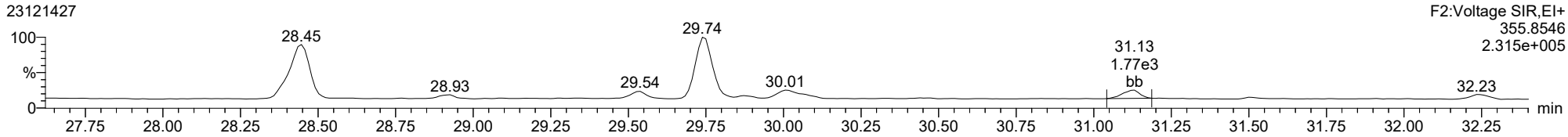


FUNCTION1 HXCDPE

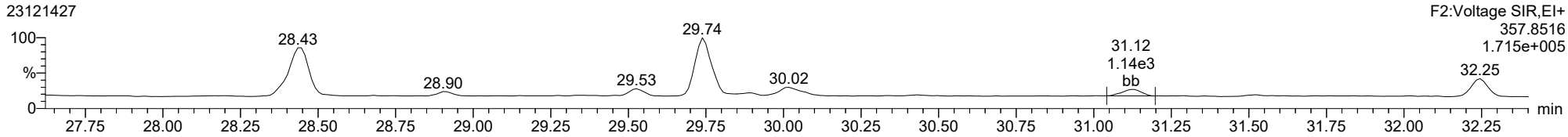


ID: 23I0156-06, Name: 23121427, Date: 15-Dec-2023, Time: 07:13:47, Conditions: AUTOSPEC01, User: pk

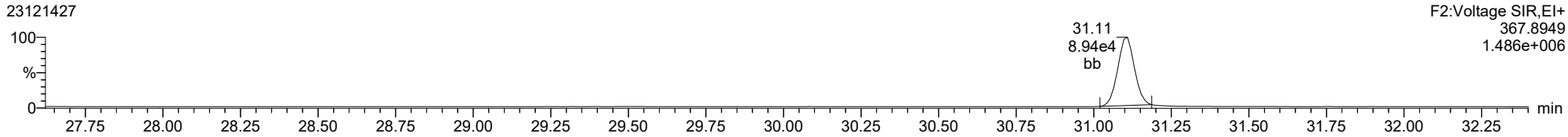
12378-PeCDD



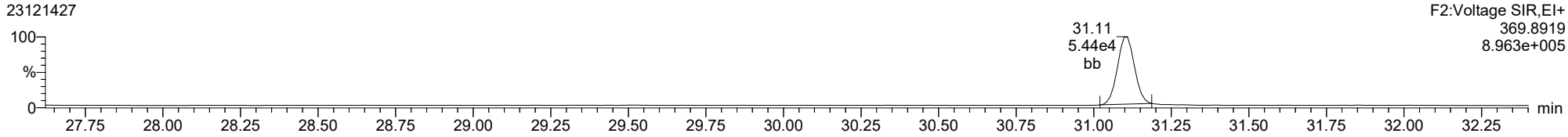
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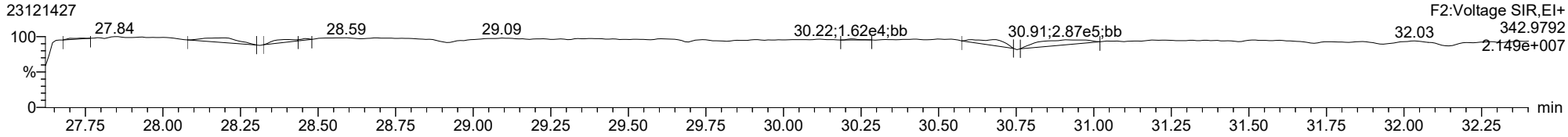
13C-12378-PeCDD



13C-12378-PeCDD

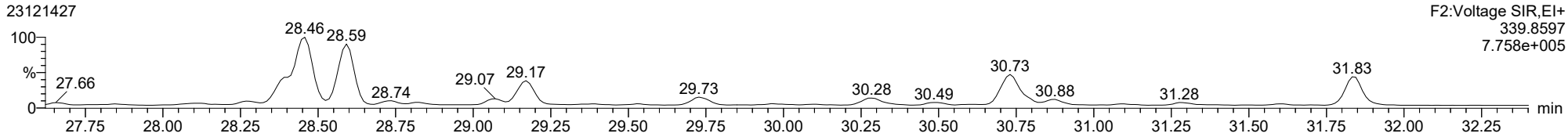


FUNCTION2 PFK

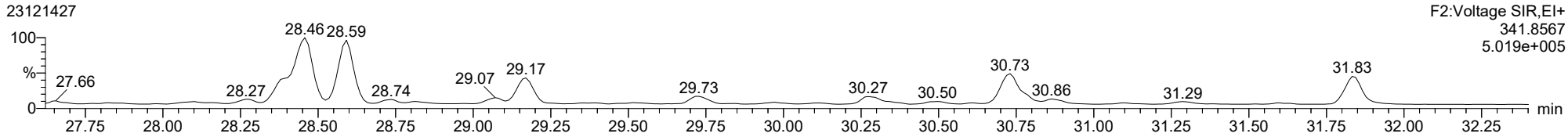


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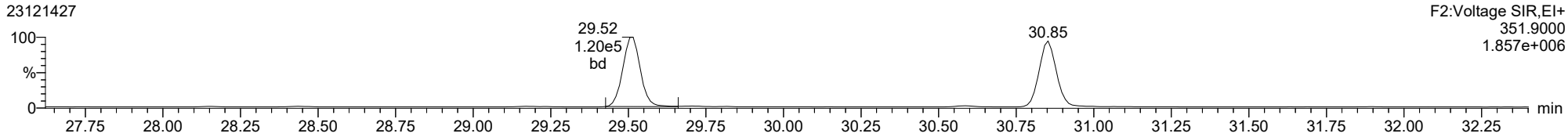
12378-PeCDF



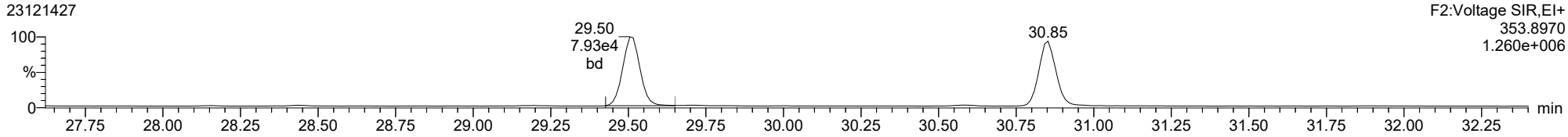
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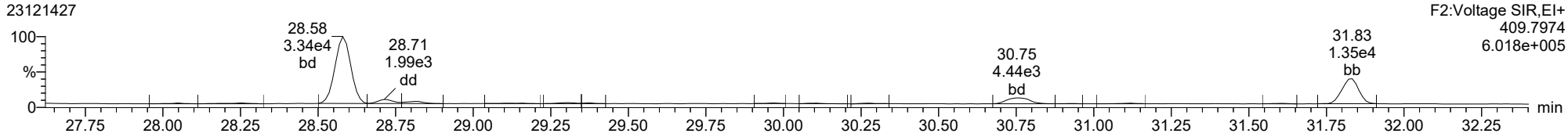
13C-12378-PeCDF



13C-12378-PeCDF

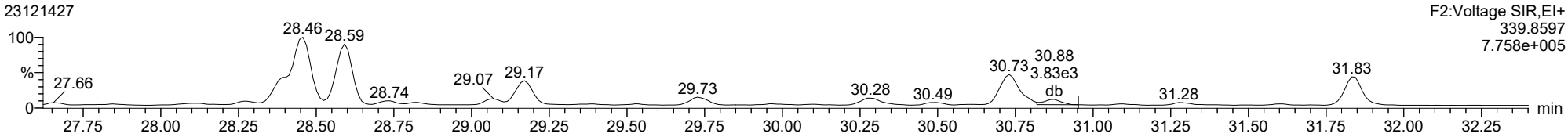


FUNCTION2 HPCDPE

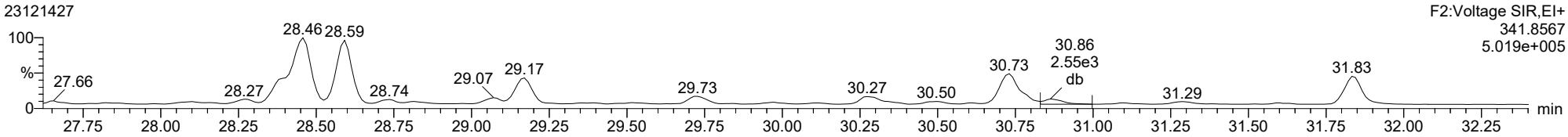


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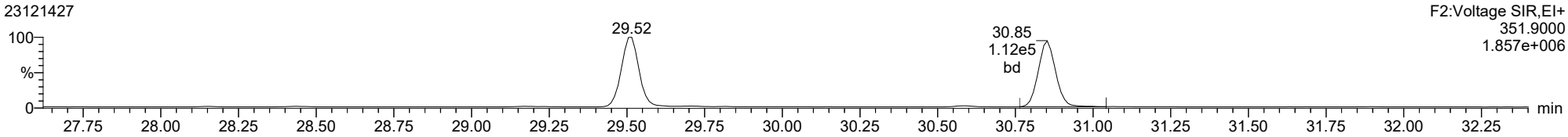
23478-PeCDF



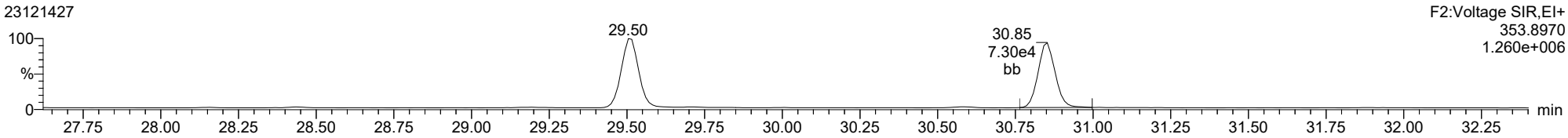
23478-PeCDF



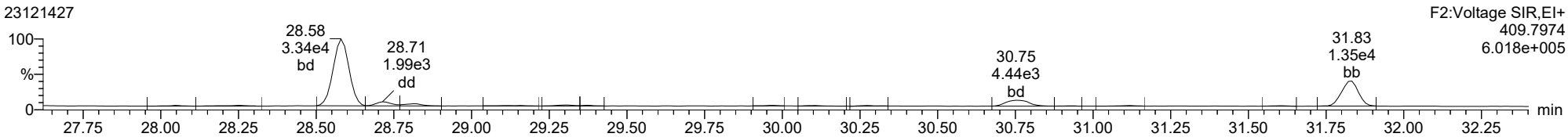
13C-23478-PeCDF



13C-23478-PeCDF

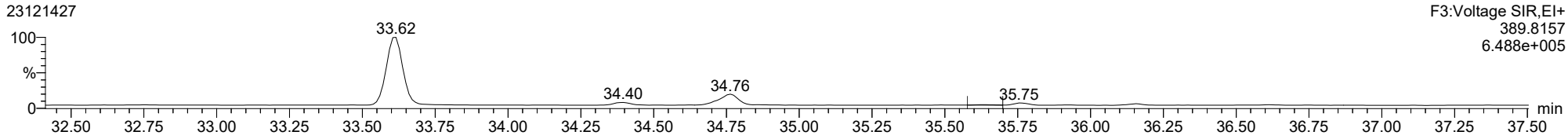


FUNCTION2 HPCDPE

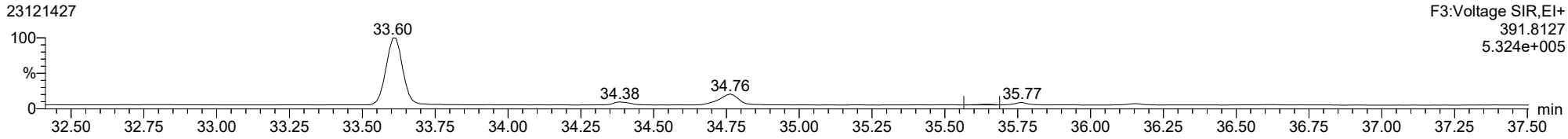


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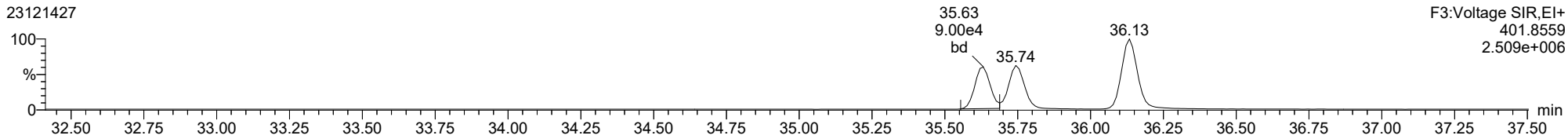
123478-HxCDD



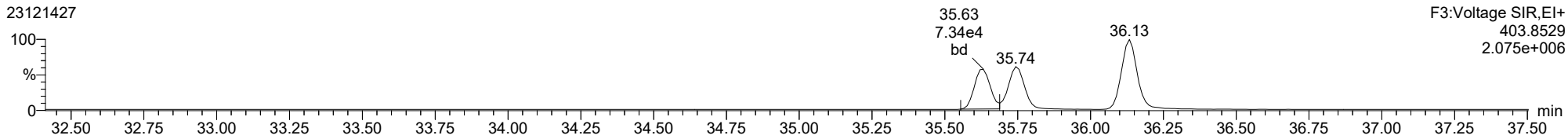
123478-HxCDD



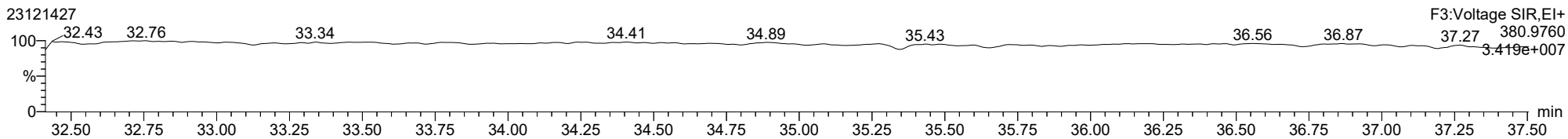
13C-123478-HxCDD



13C-123478-HxCDD



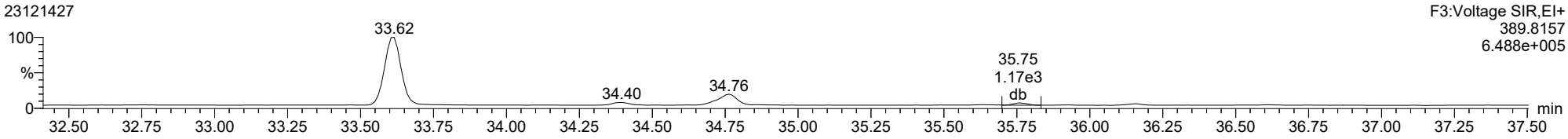
FUNCTION3 PFK



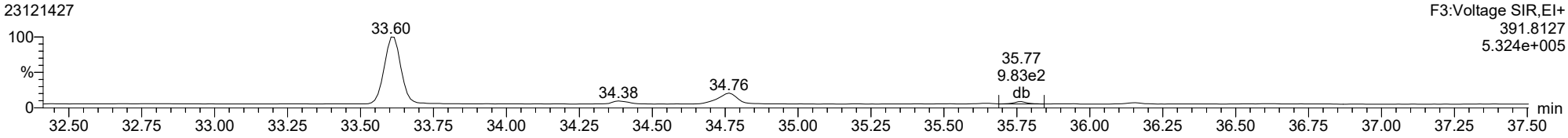
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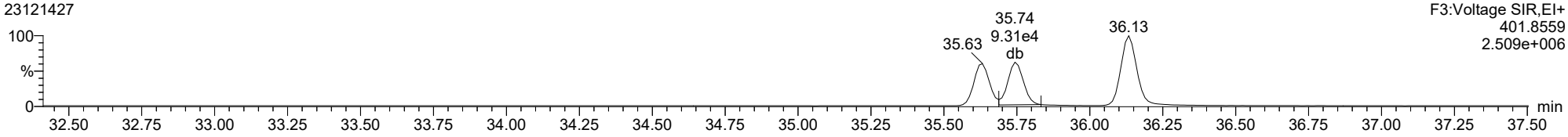
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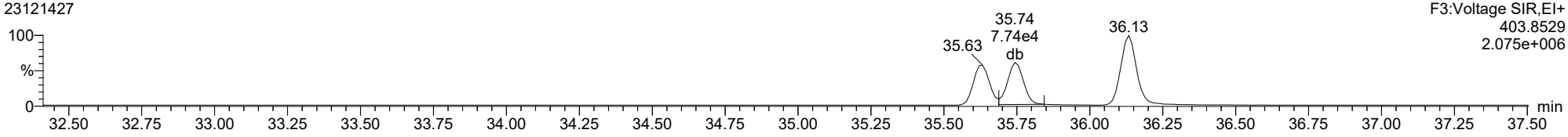
123678-HxCDD



13C-123678-HxCDD



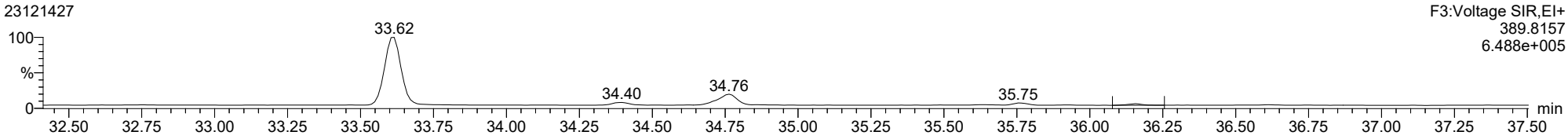
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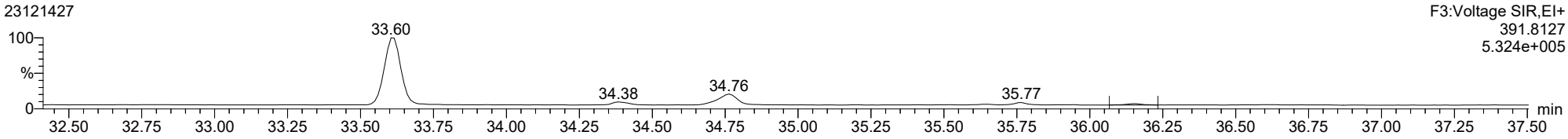
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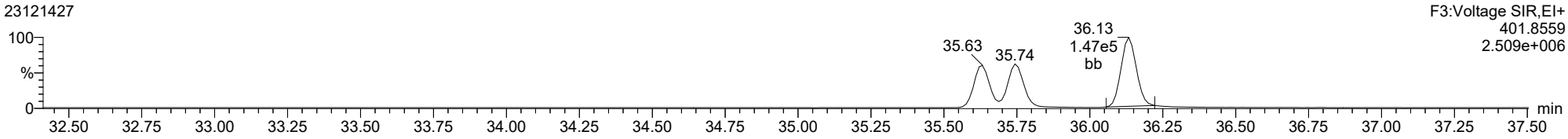
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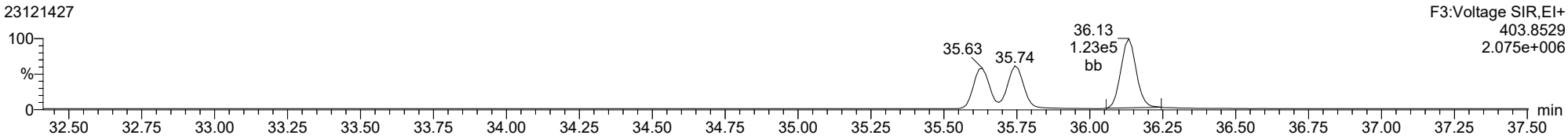
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13C-123789-HxCDD



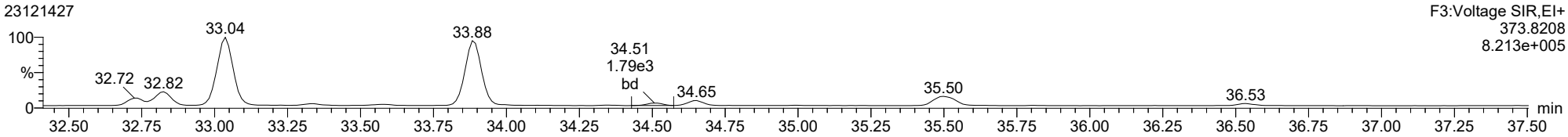
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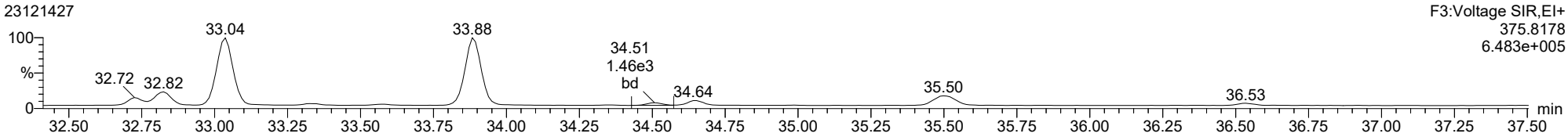
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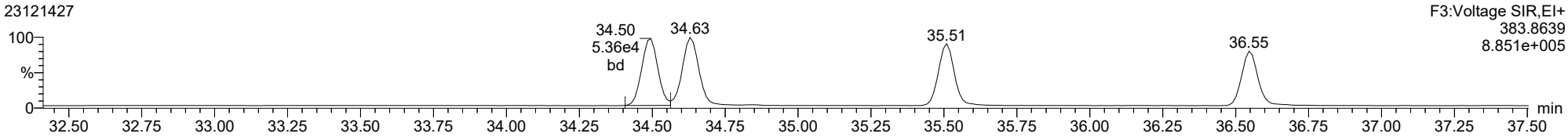
123478-HxCDF



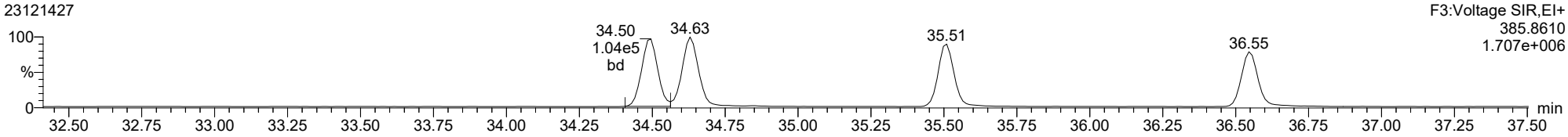
123478-HxCDF



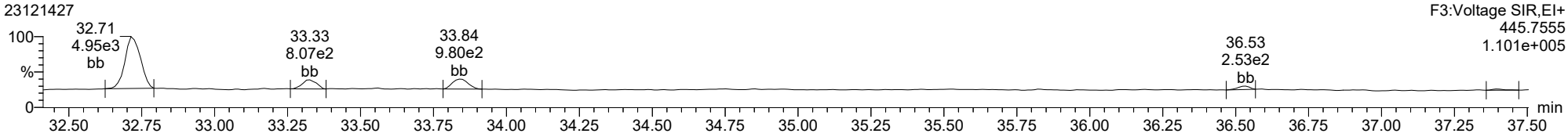
13C-123478-HxCDF



13C-123478-HxCDF

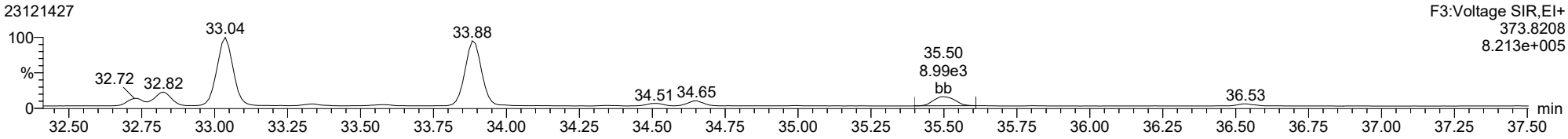


FUNCTION3 OCDPE

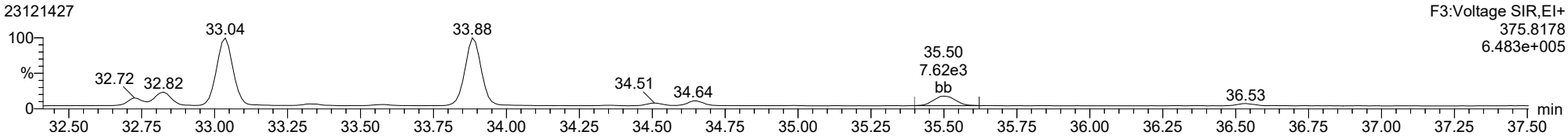


ID: 23I0156-06, Name: 23121427, Date: 15-Dec-2023, Time: 07:13:47, Conditions: AUTOSPEC01, User: pk

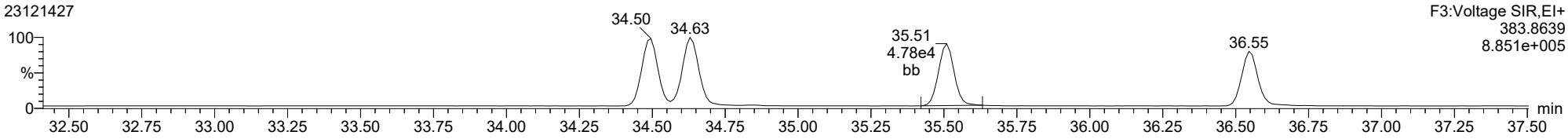
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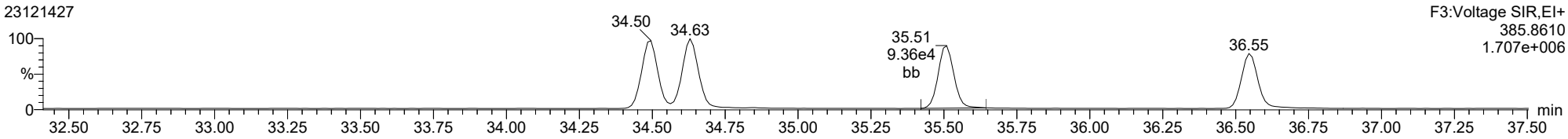
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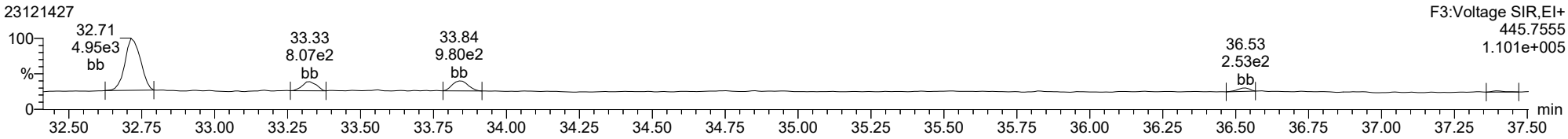
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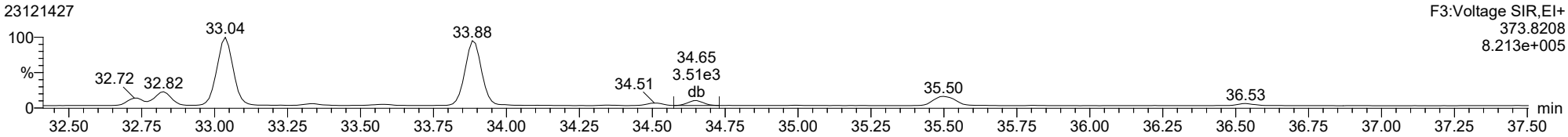


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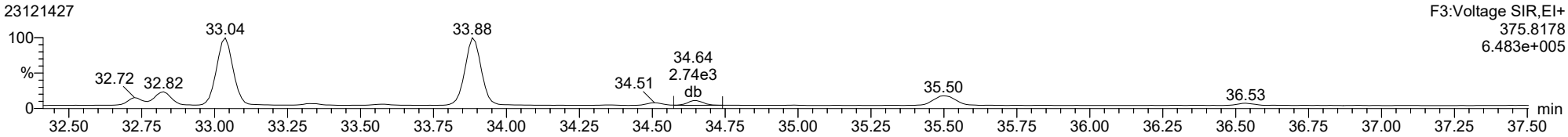


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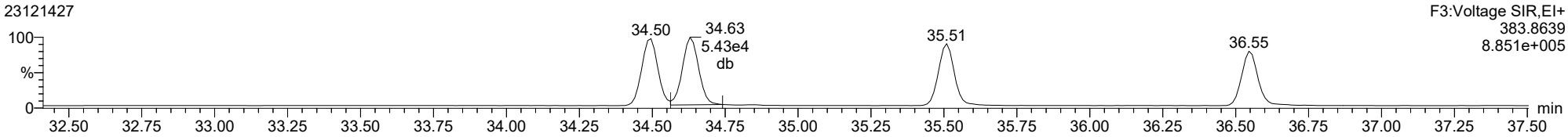
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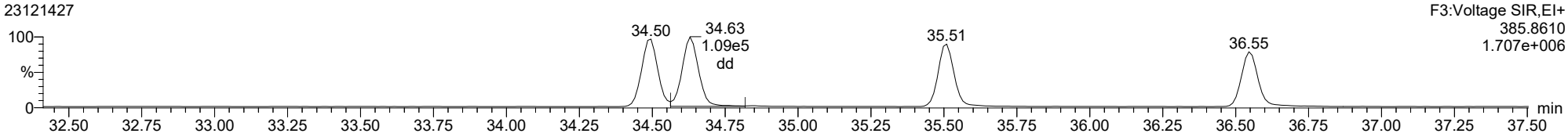
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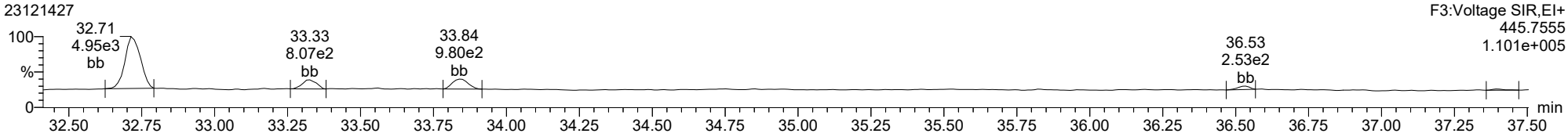
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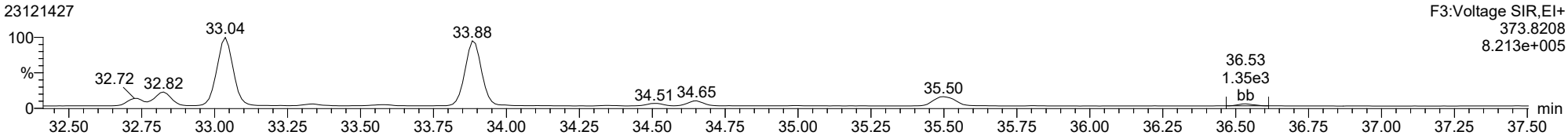


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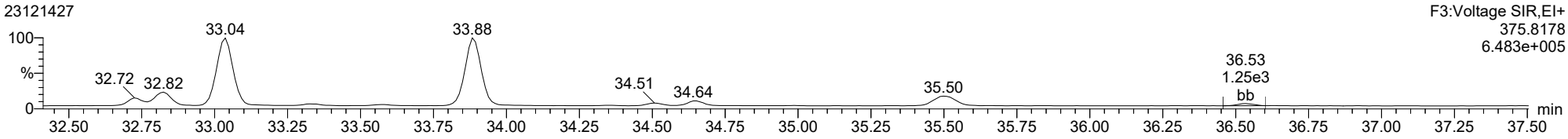


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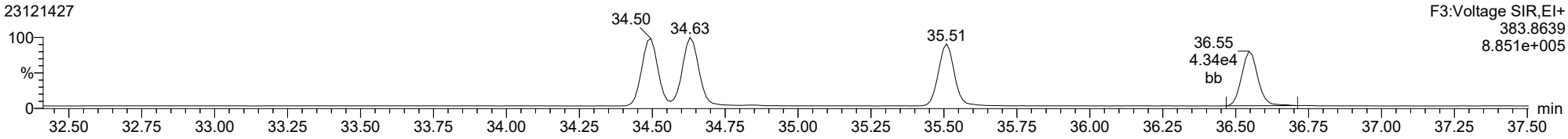
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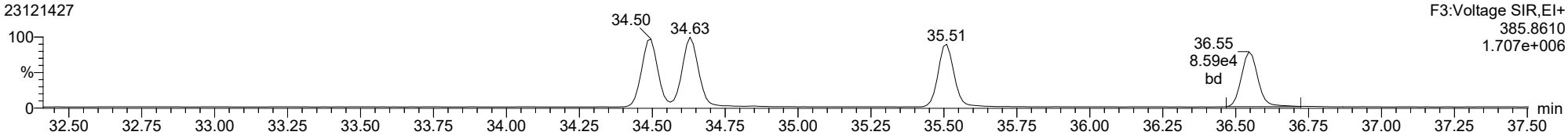
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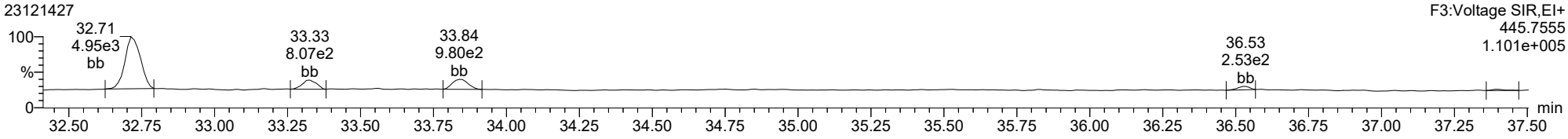
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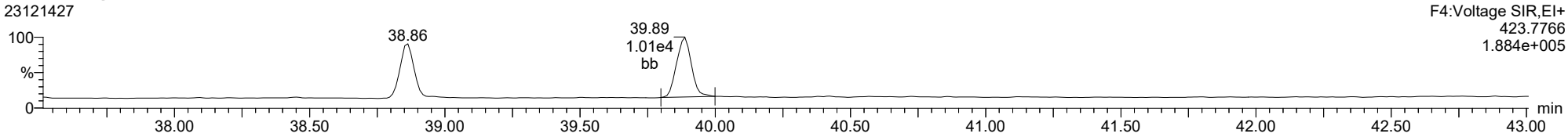


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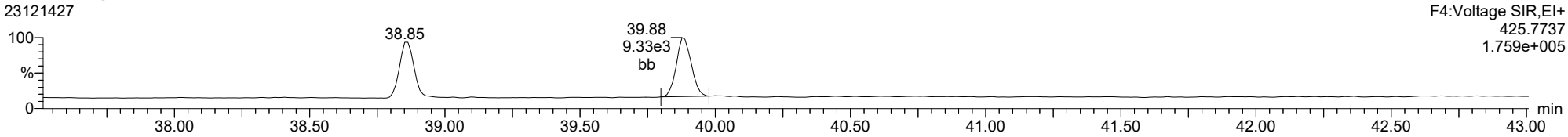


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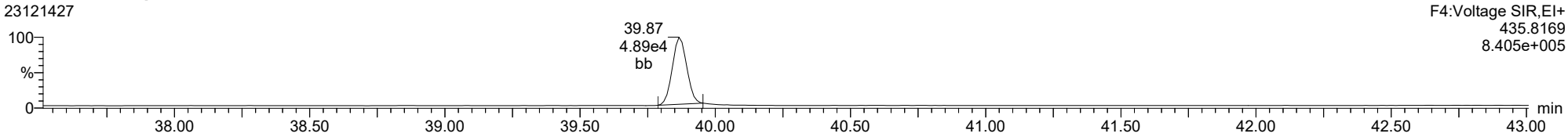
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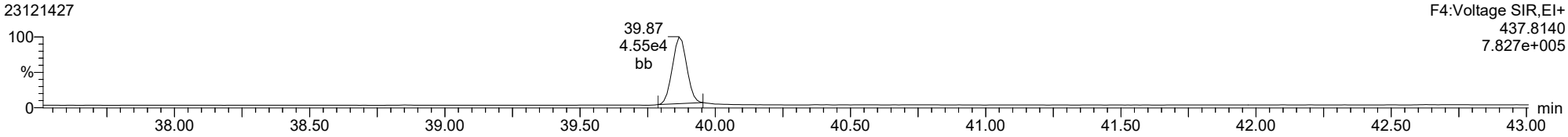
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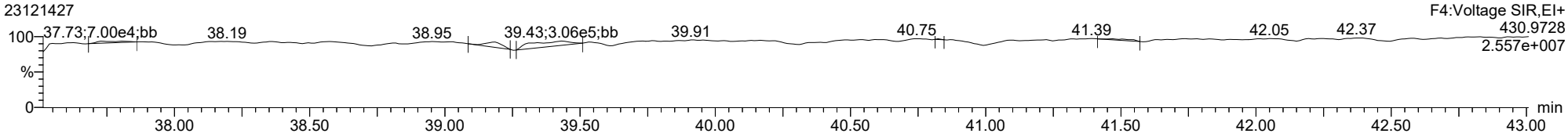
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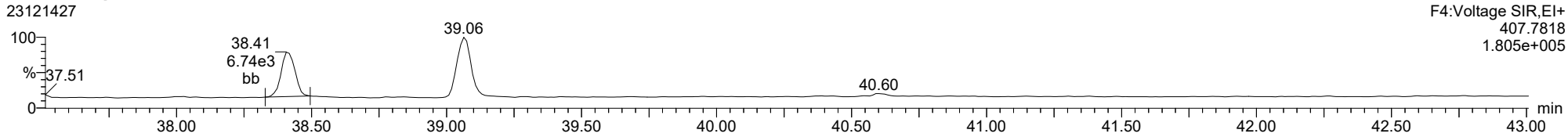


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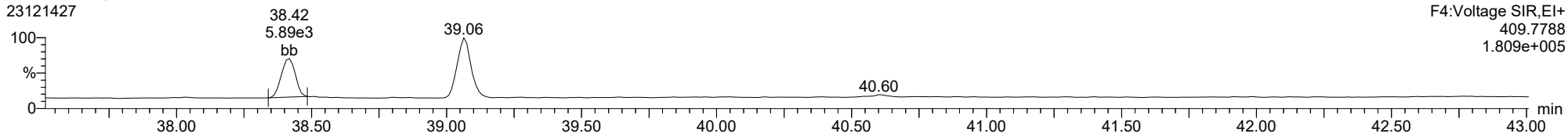


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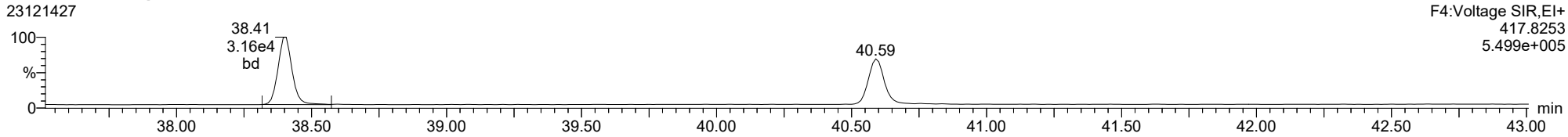
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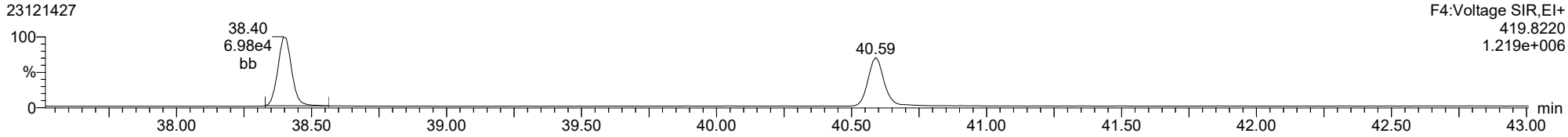
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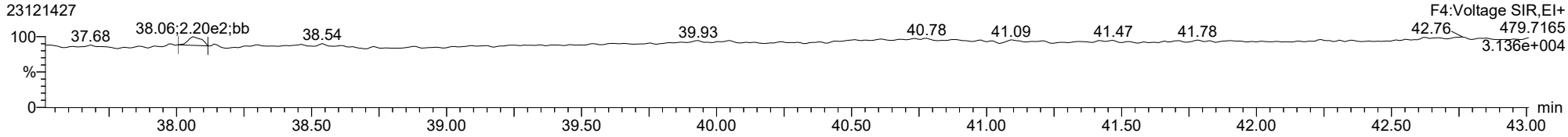
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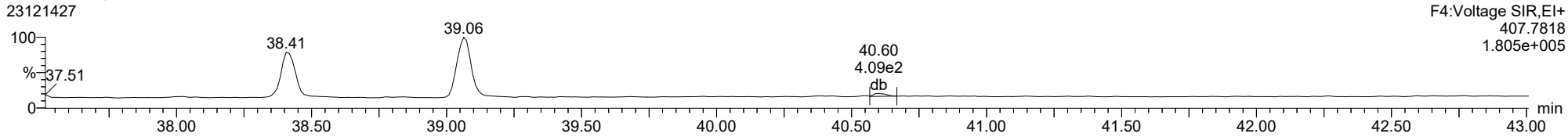


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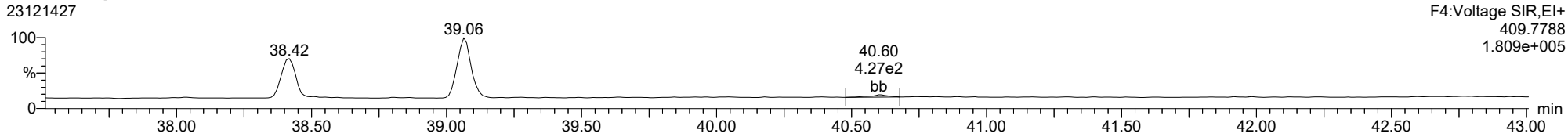


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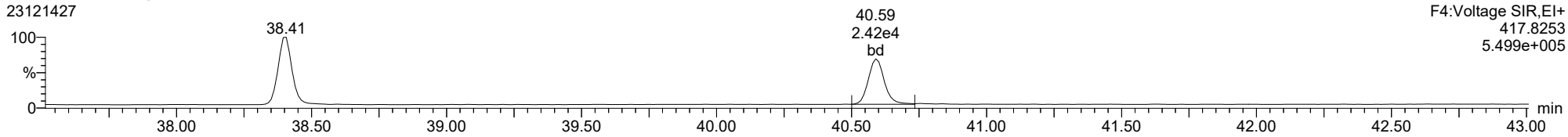
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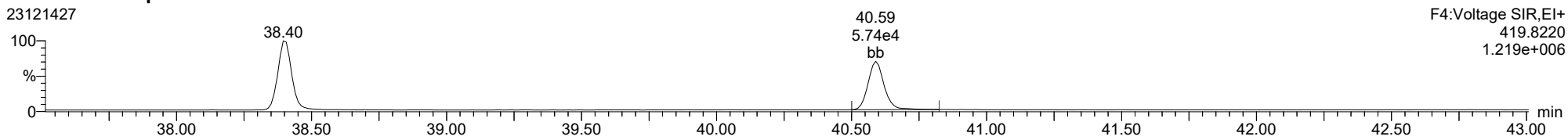
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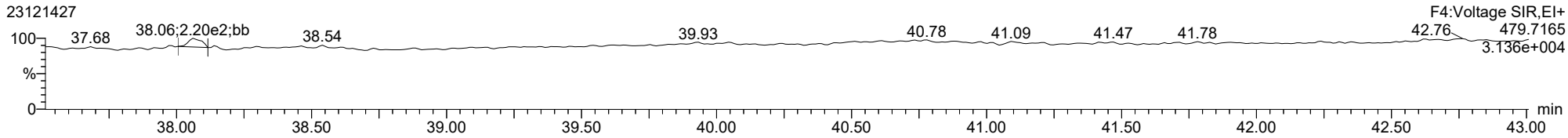
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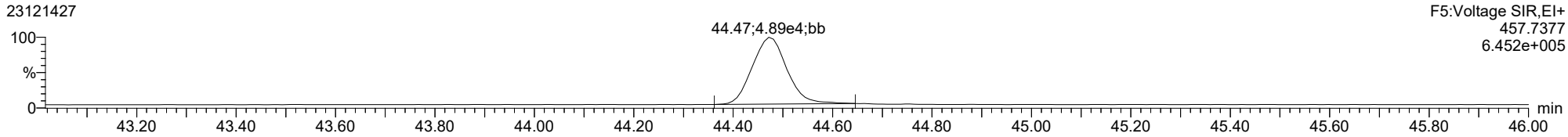
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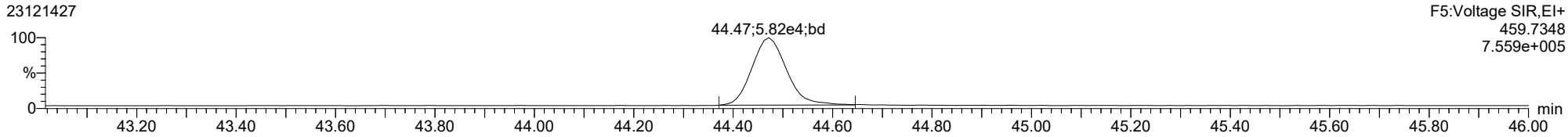
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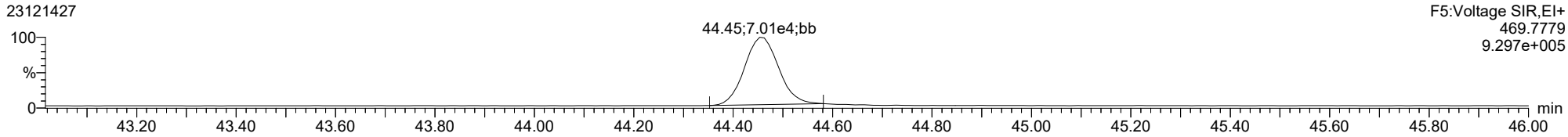
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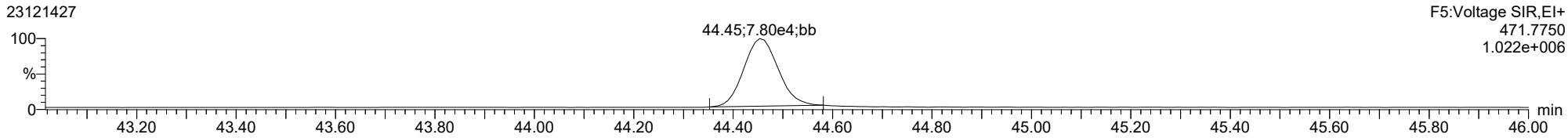
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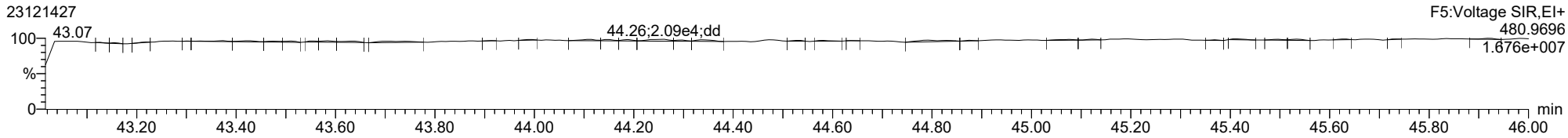
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13C-OCDD



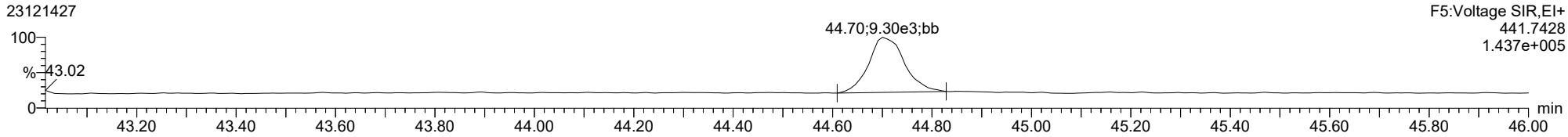
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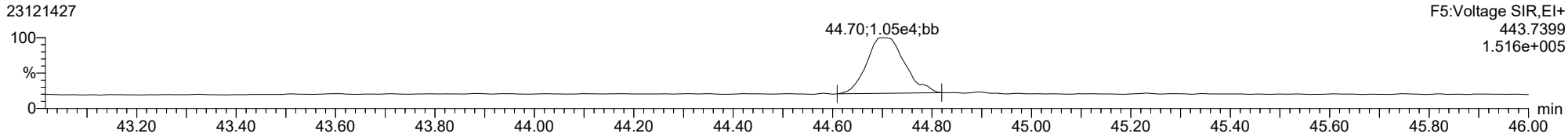
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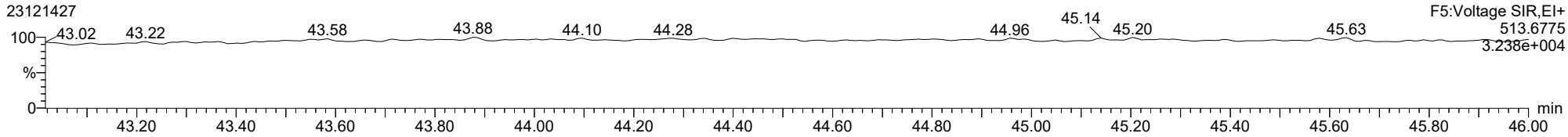
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OCDF

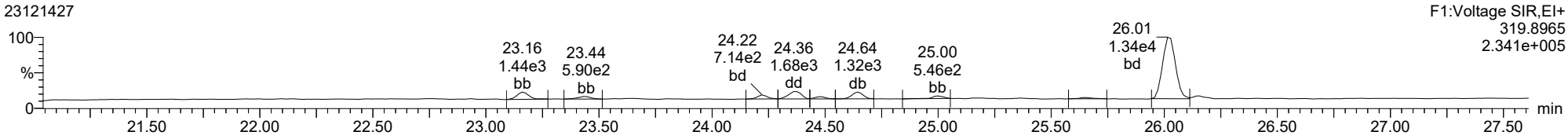


FUNCTION5 DCDPE

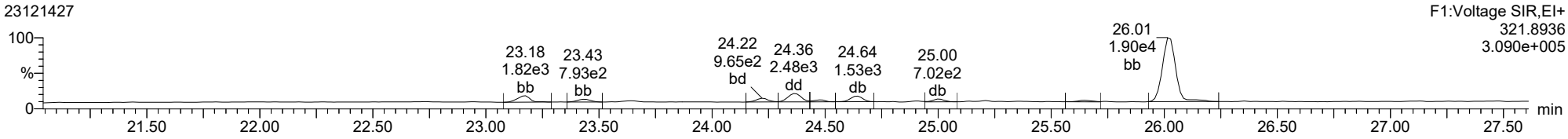


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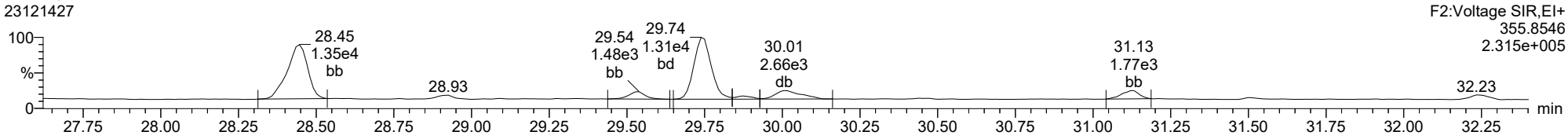
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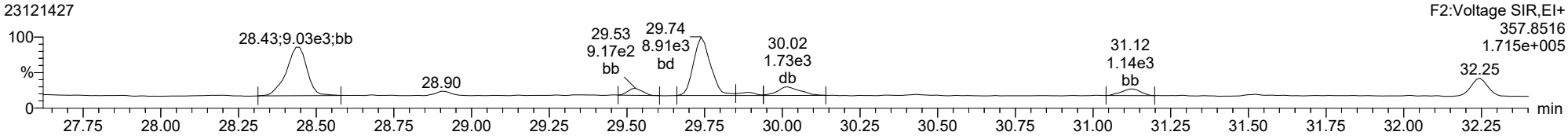
Total-tetradioxins



Total-pentadioxins



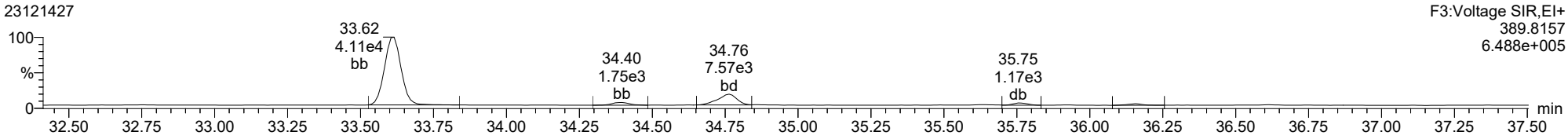
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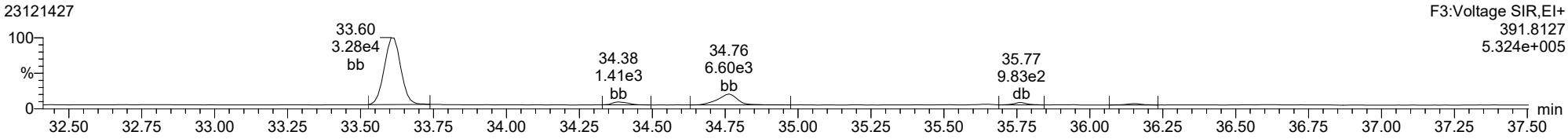
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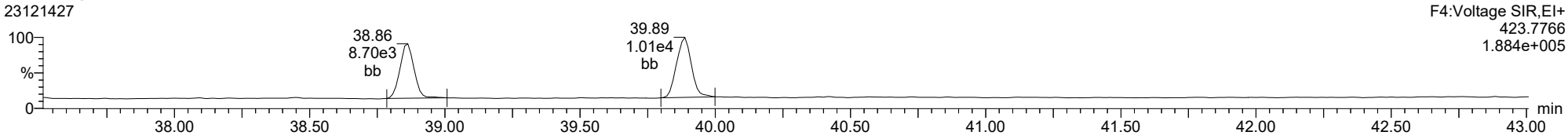
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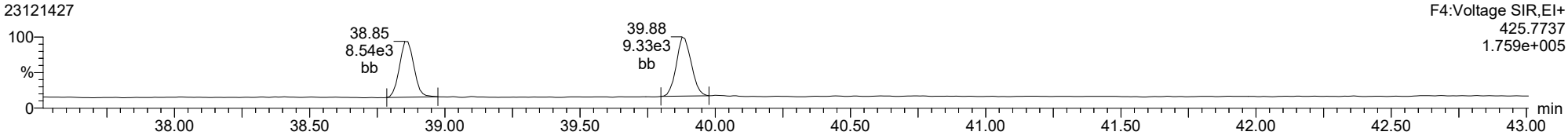
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Total-heptadioxins



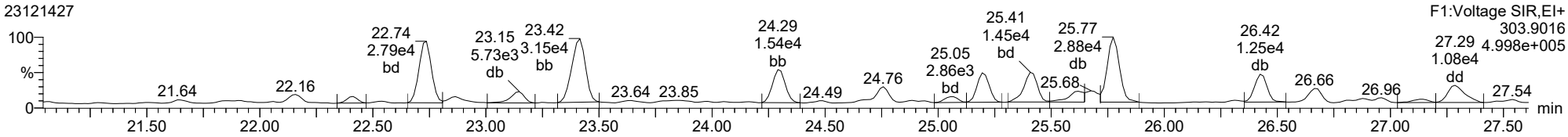
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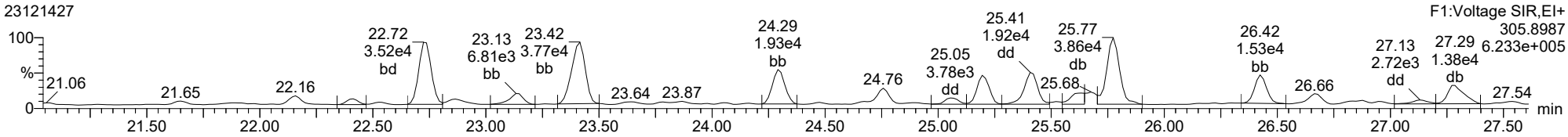
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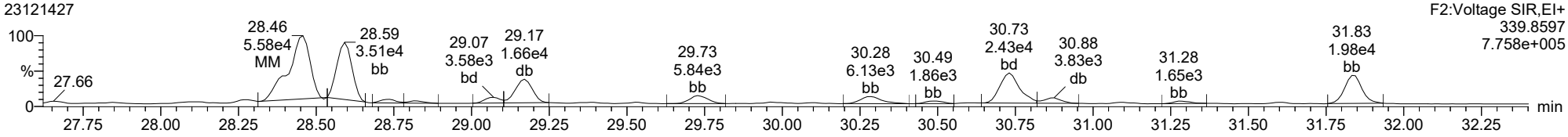
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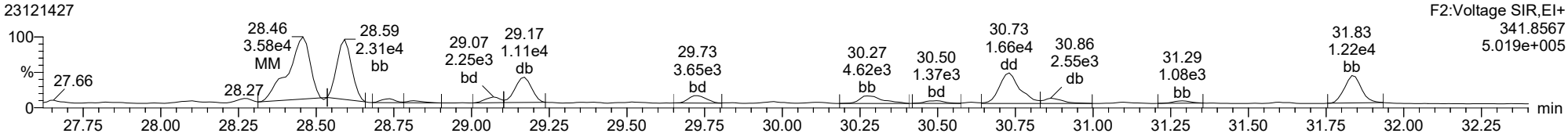
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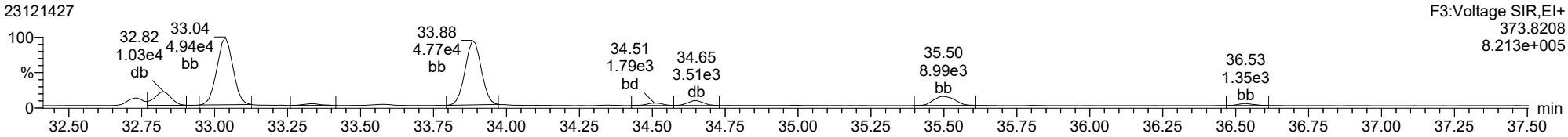


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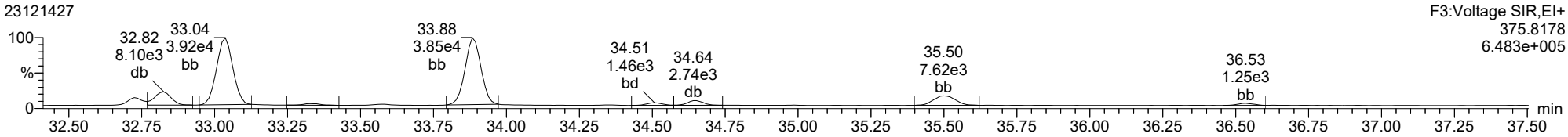


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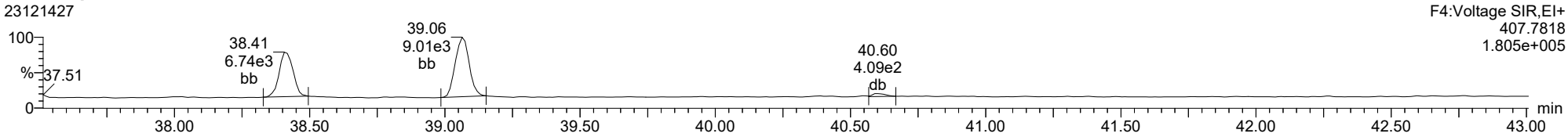
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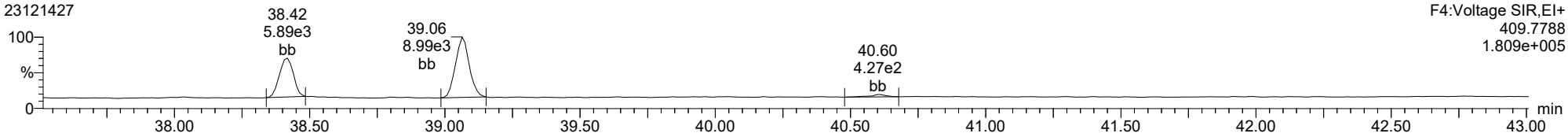
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Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

AOC3-04-0.5-1.0

Form 1
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23I0156
Client:	Floyd - Snider				
Project:	Smith-Kem				
Matrix:	Soil	Laboratory ID:	23I0156-08 A	File ID:	23121428
Sampled:	09/07/23 09:00	Prepared:	11/14/23 13:25	Analyzed:	12/15/23 13:03
% Solids:	83.54	Preparation:	EPA 1613	Initial/Final:	12.05 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SLL0222	Calibration:	GH00041
Batch:	BLK0112	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	1.358	0.655-0.886	64.6	0.993	77.1	ng/kg	EMPC, X
1746-01-6	2,3,7,8-TCDD	1	0.807	0.655-0.886	0.392	0.993	19.3	ng/kg	
57117-41-6	1,2,3,7,8-PeCDF	1		1.318-1.783	8.33	0.993	ND	ng/kg	U
57117-31-4	2,3,4,7,8-PeCDF	1		1.318-1.783	8.65	0.993	ND	ng/kg	U
40321-76-4	1,2,3,7,8-PeCDD	1	1.683	1.318-1.783	0.367	0.993	5.52	ng/kg	
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.213	1.054-1.426	0.612	0.993	3.25	ng/kg	
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.255	1.054-1.426	0.663	0.993	6.55	ng/kg	
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.284	1.054-1.426	0.675	0.993	20.3	ng/kg	
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.078	1.054-1.426	0.832	0.993	4.41	ng/kg	
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.371	1.054-1.426	0.288	0.993	1.85	ng/kg	
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.346	1.054-1.426	0.319	0.993	4.27	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.433	1.054-1.426	0.347	0.993	2.82	ng/kg	EMPC
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.235	0.893-1.208	0.388	0.993	41.2	ng/kg	EMPC, B
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	0.894	0.893-1.208	0.600	0.993	2.99	ng/kg	
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.041	0.893-1.208	0.686	2.48	94.9	ng/kg	B
39001-02-0	OCDF	1	0.870	0.757-1.024	0.683	2.48	93.9	ng/kg	B
3268-87-9	OCDD	1	0.892	0.757-1.024	1.47	9.93	959	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			0.993	1510	ng/kg	
41903-57-5	Total TCDD	1	0.000			0.993	41.2	ng/kg	
30402-15-4	Total PeCDF	1	0.000			0.993	1540	ng/kg	
36088-22-9	Total PeCDD	1	0.000			0.993	46.0	ng/kg	
55684-94-1	Total HxCDF	1	0.000			0.993	225	ng/kg	
34465-46-8	Total HxCDD	1	0.000			0.993	93.3	ng/kg	
38998-75-3	Total HpCDF	1	0.000			0.993	76.9	ng/kg	
37871-00-4	Total HpCDD	1	0.000			0.993	192	ng/kg	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 38.58

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 40.00

Analytical Resources, Incorporated
Analytical Chemists and Consultants

AOC3-04-0.5-1.0

Form 2

ORGANIC ANALYSIS DATA SHEET

EPA 1613B

Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23I0156
Client:	Floyd - Snider			Project:	Smith-Kem
Matrix:	Soil	Laboratory ID:	23I0156-08	File ID:	23121428
Sampled:	09/07/23 09:00	Prepared:	11/14/23 13:25	Analyzed:	12/15/23 13:03
Solids Wt%:	83.54	Preparation:	EPA 1613	Initial/Final:	12.05 g / 20 uL
Result Basis:	Dry	Sequence:	SLL0222	Calibration:	GH00041
Batch:	BLK0112	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.743	0.655-0.886	0.459	98.9	24 - 169 %	
13C12-2,3,7,8-TCDD		0.787	0.655-0.886	0.372	134	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.513	1.318-1.783	0.390	110	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.517	1.318-1.783	0.412	111	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.625	1.318-1.783	0.525	130	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.503	0.434-0.587	0.283	63.6	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.526	0.434-0.587	0.230	54.1	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.503	0.434-0.587	0.282	57.8	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.513	0.434-0.587	0.325	61.4	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.255	1.054-1.426	0.313	75.1	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.187	1.054-1.426	0.259	66.2	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.448	0.374-0.506	0.213	49.6	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.433	0.374-0.506	0.278	50.2	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.060	0.893-1.208	0.338	66.1	23 - 140 %	
13C12-OCDD		0.885	0.757-1.024	0.365	48.1	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.0002	190	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\231214IH2.qld
Last Altered: Saturday, December 16, 2023 10:26:00 Pacific Standard Time
Printed: Saturday, December 16, 2023 10:37:01 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin231215.mdb 15 Dec 2023 13:28:43
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: 23I0156-08, Name: 23121428, Date: 15-Dec-2023, Time: 13:03:00, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.421	0.999	7.549e4	5.559e4	0.903	1.358	0.770	308211	243972	1.02e6	7.47e5	3.3	3.1	YES	db	db	38.822
12378-PeCDF					0.923		1.550	29262	31563								
23478-PeCDF					0.991		1.550	29262	31563								
123478-HxCDF	34.518	1.000	2.483e3	2.047e3	1.128	1.213	1.240	1836	2592	3.83e4	3.43e4	20.9	13.2	NO	db	dd	1.637
234678-HxCDF	35.521	1.000	1.386e4	1.079e4	1.081	1.284	1.240	1836	2592	1.57e5	1.27e5	85.7	48.8	NO	bb	bb	10.200
123678-HxCDF	34.663	1.001	4.854e3	3.868e3	1.032	1.255	1.240	1836	2592	8.70e4	6.45e4	47.4	24.9	NO	bb	db	3.295
123789-HxCDF	36.546	1.000	2.349e3	2.180e3	0.988	1.078	1.240	1836	2592	3.10e4	2.79e4	16.9	10.8	NO	dd	dd	2.218
1234678-HpCDF	38.418	1.000	2.306e4	1.868e4	1.164	1.235	1.050	939	1176	3.56e5	3.16e5	379.0	269.0	YES	bb	bb	20.744
1234789-HpCDF	40.612	1.000	1.053e3	1.178e3	1.104	0.894	1.050	939	1176	1.43e4	1.45e4	15.2	12.4	NO	bb	bb	1.506
OCDF	44.710	1.006	2.688e4	3.090e4	1.130	0.870	0.890	870	914	3.43e5	3.79e5	394.5	414.5	NO	bb	bb	47.263
2378-TCDD	26.085	1.001	1.646e4	2.040e4	1.243	0.807	0.770	1976	1809	2.26e5	2.92e5	114.6	161.3	NO	bd	bd	9.722
12378-PeCDD	31.153	1.000	4.027e3	2.393e3	1.150	1.683	1.550	1075	1101	5.64e4	3.79e4	52.4	34.4	NO	bb	bb	2.776
123478-HxCDD	35.666	1.001	1.315e3	9.594e2	0.960	1.371	1.240	1022	936	2.25e4	1.62e4	22.0	17.3	NO	bd	bd	0.929
123678-HxCDD	35.777	1.001	2.956e3	2.195e3	0.883	1.346	1.240	1022	936	4.56e4	3.42e4	44.6	36.5	NO	dd	db	2.149
123789-HxCDD	36.156	1.011	1.770e3	1.235e3	0.804	1.433	1.240	1022	936	2.76e4	2.00e4	27.0	21.3	YES	MM	bb	1.420
1234678-HpCDD	39.888	1.001	4.299e4	4.129e4	1.200	1.041	1.050	1400	1854	6.36e5	6.25e5	454.4	336.8	NO	bb	bb	47.770
OCDD	44.472	1.000	2.605e5	2.921e5	1.059	0.892	0.890	1769	1821	3.18e6	3.64e6	1796.3	1997.7	NO	bb	bb	482.565
13C-2378-TCDF	25.449	1.006	1.594e5	2.144e5	1.835	0.743	0.770	2336	1933	2.41e6	3.22e6	1029.8	1664.9	NO	bb	db	98.941
13C-12378-PeCDF	29.549	1.168	1.878e5	1.241e5	1.377	1.513	1.550	1571	1145	2.84e6	1.87e6	1806.4	1631.1	NO	bd	bd	110.053
13C-23478-PeCDF	30.886	1.221	1.791e5	1.181e5	1.301	1.517	1.550	1571	1145	2.55e6	1.71e6	1622.4	1497.2	NO	bd	bb	110.954
13C-123478-HxCDF	34.507	0.955	8.211e4	1.632e5	1.091	0.503	0.510	1607	1380	1.28e6	2.56e6	796.7	1853.0	NO	bd	bd	63.603
13C-123678-HxCDF	34.641	0.958	8.838e4	1.680e5	1.340	0.526	0.510	1607	1380	1.33e6	2.56e6	827.1	1852.4	NO	db	db	54.078
13C-234678-HxCDF	35.521	0.983	7.483e4	1.486e5	1.093	0.503	0.510	1607	1380	1.21e6	2.34e6	754.0	1694.2	NO	bb	bb	57.773
13C-123789-HxCDF	36.557	1.011	7.011e4	1.366e5	0.952	0.513	0.510	1607	1380	1.09e6	2.11e6	677.9	1528.1	NO	bb	bb	61.428
13C-1234678-HpCDF	38.407	1.063	5.353e4	1.194e5	0.985	0.448	0.440	1034	996	8.64e5	1.92e6	835.2	1922.3	NO	bb	bb	49.634
13C-1234789-HpCDF	40.590	1.123	4.057e4	9.365e4	0.756	0.433	0.440	1034	996	5.75e5	1.32e6	556.1	1325.7	NO	bb	bd	50.205
13C-1234-TCDD	25.294	0.000	9.294e4	1.129e5	1.000	0.823	0.770	1190	900	1.36e6	1.69e6	1145.1	1881.9	NO	bb	bb	100.000
13C-2378-TCDD	26.057	1.030	1.343e5	1.707e5	1.110	0.787	0.770	1190	900	2.04e6	2.63e6	1711.8	2926.7	NO	bb	bb	133.524
13C-12378-PeCDD	31.142	1.231	1.245e5	7.661e4	0.754	1.625	1.550	982	1023	1.90e6	1.18e6	1937.2	1150.1	NO	bb	bb	129.594
13C-123478-HxCDD	35.644	0.986	1.419e5	1.130e5	0.960	1.255	1.240	1238	1663	2.35e6	1.85e6	1895.4	1112.9	NO	bd	bd	75.085
13C-123678-HxCDD	35.755	0.989	1.474e5	1.241e5	1.159	1.187	1.240	1238	1663	2.25e6	1.89e6	1819.9	1136.2	NO	db	db	66.225
13C-1234678-HpCDD	39.866	1.103	7.567e4	7.138e4	0.629	1.060	1.050	1136	920	1.21e6	1.13e6	1067.8	1230.2	NO	bb	bb	66.070
13C-OCDD	44.454	1.230	1.015e5	1.148e5	0.635	0.885	0.890	874	1367	1.29e6	1.43e6	1480.8	1045.0	NO	bb	bb	96.285
13C-123789-HxCDD	36.145	0.000	1.949e5	1.588e5	1.000	1.228	1.240	1238	1663	3.18e6	2.60e6	2565.7	1562.8	NO	bb	bb	100.000
37CL-2378-TCDD	26.085	1.031	1.807e5		1.157			1		2.78e6		2778724.0			bd		75.852

Dataset: T:\Autospec\Processed Data Batch\231214IH2.qld
Last Altered: Saturday, December 16, 2023 10:26:00 Pacific Standard Time
Printed: Saturday, December 16, 2023 10:37:01 Pacific Standard Time

ID: 23I0156-08, Name: 23121428, Date: 15-Dec-2023, Time: 13:03:00, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.170		0.770	308211	243972								
1289-TCDF	27.017	1.062	1.457e5	1.011e5	0.847	1.442	0.770	308211	243972	2.38e6	1.67e6	7.7	6.8	YES	db	db	77.975
13468-PECDF	26.735	0.905	1.897e4	2.600e4	1.241	0.729	1.550	11629	38987	3.42e5	2.79e5	29.4	7.2	YES	dd	bd	11.618
12389-PECDF	31.933	1.081	8.905e4	6.944e4	0.880	1.282	1.550	29262	31563	1.21e6	8.86e5	41.4	28.1	YES	db	db	57.774
123468-HXCDF	32.847	0.952	1.569e4	1.203e4	1.206	1.304	1.240	1836	2592	2.33e5	1.84e5	126.7	70.9	NO	db	db	9.371
1368-TCDD	23.246	0.892	1.089e4	1.235e4	1.181	0.882	0.770	1976	1809	1.58e5	1.87e5	79.8	103.5	NO	db	bb	6.452
1289-TCDD					0.963		0.770	1976	1809								
12479-PECDD	28.491	0.915	2.366e4	1.518e4	2.166	1.558	1.550	1075	1101	2.94e5	1.94e5	273.8	175.7	NO	db	bb	8.918
12389-PECDD	31.555	1.013	1.801e2	1.635e2	1.326	1.102	1.550	1075	1101	4.12e3	3.96e3	3.8	3.6	YES	bb	bb	0.129
124679-HXCDD	33.627	0.943	4.917e4	4.150e4	1.127	1.185	1.240	1022	936	7.64e5	6.35e5	746.8	678.6	NO	bd	bb	31.568
1234679-HPCDD	38.863	0.975	4.697e4	4.656e4	1.303	1.009	1.050	1400	1854	7.75e5	7.80e5	553.5	420.5	NO	bb	bb	48.823
Total-tetrafurans			1.255e6		0.973			308211		1.63e7							757.667
Total-penta1			2.060e5					11629		2.98e6							118.694
Total-pentafurans			1.094e6		0.931			29262		1.49e7							655.149
Total-hexafurans			1.605e5		1.087			1836		2.43e6							113.045
Total-heptafurans			3.474e4		1.134			939		5.79e5							38.731
Total-Furans			3.296e6		1.053			308211		4.58e7							2034.952
Total-tetradioxins			3.428e4		1.129			1976		4.83e5							20.718
Total-pentadioxins			4.893e4		1.548			1075		6.73e5							23.135
Total-hexadioxins			6.979e4		0.943			1022		1.04e6							46.961
Total-heptadioxins			8.995e4		1.251			1400		1.41e6							96.593
Total-Dioxins			5.034e5		1.182			1976		6.79e6							669.973
Total-TEQ			3.799e6					1976		5.26e7							2704.926
FUNCTION1 PFK			1.664e7					371893		1.34e8							
FUNCTION2 PFK			9.866e6					177350		7.23e7							0.000
FUNCTION3 PFK			2.756e5					226013		4.50e6							0.000
FUNCTION4 PFK			3.059e5					167547		5.66e6							
FUNCTION5 PFK			5.455e4					143646		2.09e6							
FUNCTION1 HXCD...			3.464e6					54918		4.67e7							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			3.760e5					14805		5.43e6							0.000
FUNCTION3 OCDPE			1.303e4					1484		2.22e5							0.000
FUNCTION4 NCDPE			3.483e3					593		6.32e4							0.000
FUNCTION5 DCDPE			0.000e0					553		0.00e0							

Method: T:\Autospec\Methods\Dioxin231215.mdb 15 Dec 2023 13:28:43
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: 23I0156-08, Name: 23121428, Date: 15-Dec-2023, Time: 13:03:00, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	25.93	7.053e4	9.993e4	0.973	0.71	0.77	3.4	YES	NO	db	db	46.840
2	Total-tetrafurans	25.77	2.243e5	2.592e5	0.973	0.87	0.77	11.2	YES	NO	dd	dd	132.876
3	Total-tetrafurans	25.29	5.592e5	6.730e5	0.973	0.83	0.77	21.7	YES	NO	dd	dd	338.608
4	Total-tetrafurans	25.14	1.647e5	1.882e5	0.973	0.87	0.77	7.2	YES	NO	bd	bd	96.969
5	Total-tetrafurans	24.74	8.754e4	1.006e5	0.973	0.87	0.77	4.2	YES	NO	bb	bb	51.691
6	Total-tetrafurans	27.22	1.483e5	1.817e5	0.973	0.82	0.77	5.3	YES	NO	bd	bd	90.684

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	26.88	2.060e5	1.334e5		1.54	1.55	255.9	YES	NO	db	db	118.694

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	31.88	5.423e4	3.192e4	0.931	1.70	1.55	28.2	YES	NO	bd	dd	30.379
2	Total-pentafurans	31.34	1.912e5	1.351e5	0.931	1.41	1.55	82.5	YES	NO	bb	bb	115.057
3	Total-pentafurans	31.13	6.142e4	4.445e4	0.931	1.38	1.55	29.5	YES	NO	bb	bb	37.331
4	Total-pentafurans	30.53	1.899e5	1.341e5	0.931	1.42	1.55	102.0	YES	NO	db	dd	114.249
5	Total-pentafurans	30.33	3.315e5	2.308e5	0.931	1.44	1.55	148.1	YES	NO	bd	bd	198.275
6	Total-pentafurans	30.03	7.296e4	5.438e4	0.931	1.34	1.55	38.6	YES	NO	bb	bb	44.902
7	Total-pentafurans	29.79	4.808e4	3.456e4	0.931	1.39	1.55	26.4	YES	NO	bb	db	29.140
8	Total-pentafurans	29.21	2.886e4	1.996e4	0.931	1.45	1.55	15.4	YES	NO	db	db	17.215
9	Total-pentafurans	29.11	1.886e4	1.397e4	0.931	1.35	1.55	10.4	YES	NO	bd	dd	11.574
10	Total-pentafurans	28.51	9.712e4	6.460e4	0.931	1.50	1.55	27.2	YES	NO	bb	db	57.026

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HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexafurans	33.91	5.606e4	4.521e4	1.087	1.24	1.24	480.7	YES	NO	bb	bb	39.984
2	Total-hexafurans	33.58	1.434e3	1.280e3	1.087	1.12	1.24	11.9	YES	NO	bb	bb	1.072
3	Total-hexafurans	33.06	6.321e4	5.040e4	1.087	1.25	1.24	530.1	YES	NO	bb	bb	44.861
4	123468-HXCDF	32.85	1.569e4	1.203e4	1.206	1.30	1.24	126.7	YES	NO	db	db	9.371
5	123789-HxCDF	36.55	2.349e3	2.180e3	0.988	1.08	1.24	16.9	YES	NO	dd	dd	2.218
6	234678-HxCDF	35.52	1.386e4	1.079e4	1.081	1.28	1.24	85.7	YES	NO	bb	bb	10.200
7	Total-hexafurans	34.82	5.866e2	4.444e2	1.087	1.32	1.24	5.2	YES	NO	bb	bb	0.407
8	123678-HxCDF	34.66	4.854e3	3.868e3	1.032	1.25	1.24	47.4	YES	NO	bb	db	3.295
9	123478-HxCDF	34.52	2.483e3	2.047e3	1.128	1.21	1.24	20.9	YES	NO	db	dd	1.637

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.61	1.053e3	1.178e3	1.104	0.89	1.05	15.2	YES	NO	bb	bb	1.506
2	Total-heptafurans	39.06	3.300e4	3.048e4	1.134	1.08	1.05	589.6	YES	NO	bb	bb	36.465
3	Total-heptafurans	38.83	6.841e2	6.396e2	1.134	1.07	1.05	11.1	YES	NO	bb	bb	0.760

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	25.93	7.053e4	9.993e4	0.973	0.71	0.77	3.4	YES	NO	db	db	46.840
2	Total-tetrafurans	25.77	2.243e5	2.592e5	0.973	0.87	0.77	11.2	YES	NO	dd	dd	132.876
3	Total-tetrafurans	25.29	5.592e5	6.730e5	0.973	0.83	0.77	21.7	YES	NO	dd	dd	338.608
4	Total-tetrafurans	25.14	1.647e5	1.882e5	0.973	0.87	0.77	7.2	YES	NO	bd	bd	96.969
5	Total-tetrafurans	24.74	8.754e4	1.006e5	0.973	0.87	0.77	4.2	YES	NO	bb	bb	51.691
6	Total-Furans	21.11	6.400e4	8.898e4	1.053	0.72	0.77	3.3	YES	NO	bb	bb	38.878
7	Total-Furans	27.41	1.633e5	1.907e5	1.053	0.86	0.77	11.1	YES	NO	db	db	89.975
8	Total-Furans	27.37	2.915e5	3.993e5	1.053	0.73	0.77	12.5	YES	NO	dd	dd	175.550
9	Total-tetrafurans	27.22	1.483e5	1.817e5	0.973	0.82	0.77	5.3	YES	NO	bd	bd	90.684
10	Total-pentafurans	31.88	5.423e4	3.192e4	0.931	1.70	1.55	28.2	YES	NO	bd	dd	30.379
11	Total-pentafurans	31.34	1.912e5	1.351e5	0.931	1.41	1.55	82.5	YES	NO	bb	bb	115.057
12	Total-pentafurans	31.13	6.142e4	4.445e4	0.931	1.38	1.55	29.5	YES	NO	bb	bb	37.331
13	Total-pentafurans	30.53	1.899e5	1.341e5	0.931	1.42	1.55	102.0	YES	NO	db	dd	114.249
14	Total-pentafurans	30.33	3.315e5	2.308e5	0.931	1.44	1.55	148.1	YES	NO	bd	bd	198.275
15	Total-pentafurans	30.03	7.296e4	5.438e4	0.931	1.34	1.55	38.6	YES	NO	bb	bb	44.902
16	Total-pentafurans	29.79	4.808e4	3.456e4	0.931	1.39	1.55	26.4	YES	NO	bb	db	29.140
17	Total-pentafurans	29.21	2.886e4	1.996e4	0.931	1.45	1.55	15.4	YES	NO	db	db	17.215
18	Total-pentafurans	29.11	1.886e4	1.397e4	0.931	1.35	1.55	10.4	YES	NO	bd	dd	11.574
19	Total-pentafurans	28.51	9.712e4	6.460e4	0.931	1.50	1.55	27.2	YES	NO	bb	db	57.026
20	Total-hexafurans	33.91	5.606e4	4.521e4	1.087	1.24	1.24	480.7	YES	NO	bb	bb	39.984
21	Total-hexafurans	33.58	1.434e3	1.280e3	1.087	1.12	1.24	11.9	YES	NO	bb	bb	1.072
22	Total-hexafurans	33.06	6.321e4	5.040e4	1.087	1.25	1.24	530.1	YES	NO	bb	bb	44.861
23	123468-HXCDF	32.85	1.569e4	1.203e4	1.206	1.30	1.24	126.7	YES	NO	db	db	9.371
24	123789-HxCDF	36.55	2.349e3	2.180e3	0.988	1.08	1.24	16.9	YES	NO	dd	dd	2.218
25	234678-HxCDF	35.52	1.386e4	1.079e4	1.081	1.28	1.24	85.7	YES	NO	bb	bb	10.200
26	Total-hexafurans	34.82	5.866e2	4.444e2	1.087	1.32	1.24	5.2	YES	NO	bb	bb	0.407
27	123678-HxCDF	34.66	4.854e3	3.868e3	1.032	1.25	1.24	47.4	YES	NO	bb	db	3.295
28	123478-HxCDF	34.52	2.483e3	2.047e3	1.128	1.21	1.24	20.9	YES	NO	db	dd	1.637
29	1234789-HpCDF	40.61	1.053e3	1.178e3	1.104	0.89	1.05	15.2	YES	NO	bb	bb	1.506
30	Total-heptafurans	39.06	3.300e4	3.048e4	1.134	1.08	1.05	589.6	YES	NO	bb	bb	36.465
31	Total-heptafurans	38.83	6.841e2	6.396e2	1.134	1.07	1.05	11.1	YES	NO	bb	bb	0.760
32	OCDF	44.71	2.688e4	3.090e4	1.130	0.87	0.89	394.5	YES	NO	bb	bb	47.263
33	Total-penta1	26.88	2.060e5	1.334e5		1.54	1.55	255.9	YES	NO	db	db	118.694

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TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.25	1.089e4	1.235e4	1.181	0.88	0.77	79.8	YES	NO	db	bb	6.452
2	2378-TCDD	26.08	1.646e4	2.040e4	1.243	0.81	0.77	114.6	YES	NO	bd	bd	9.722
3	Total-tetradioxins	24.70	2.778e3	3.587e3	1.129	0.77	0.77	20.5	YES	NO	bb	bb	1.849
4	Total-tetradioxins	24.42	4.153e3	5.130e3	1.129	0.81	0.77	29.3	YES	NO	dd	bd	2.696

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12479-PECDD	28.49	2.366e4	1.518e4	2.166	1.56	1.55	273.8	YES	NO	db	bb	8.918
2	12378-PeCDD	31.15	4.027e3	2.393e3	1.150	1.68	1.55	52.4	YES	NO	bb	bb	2.776
3	Total-pentadioxins	29.92	1.814e3	1.324e3	1.548	1.37	1.55	24.6	YES	NO	dd	dd	1.008
4	Total-pentadioxins	29.78	1.699e4	1.153e4	1.548	1.47	1.55	239.0	YES	NO	bd	bd	9.165
5	Total-pentadioxins	29.57	2.433e3	1.510e3	1.548	1.61	1.55	36.0	YES	NO	bb	bb	1.267

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDD	35.67	1.315e3	9.594e2	0.960	1.37	1.24	22.0	YES	NO	bd	bd	0.929
2	Total-hexadioxins	34.77	1.266e4	1.084e4	0.943	1.17	1.24	145.3	YES	NO	bd	bb	9.464
3	Total-hexadioxins	34.41	3.693e3	3.388e3	0.943	1.09	1.24	63.2	YES	NO	bb	bb	2.851
4	124679-HXCDD	33.63	4.917e4	4.150e4	1.127	1.18	1.24	746.8	YES	NO	bd	bb	31.568
5	123678-HxCDD	35.78	2.956e3	2.195e3	0.883	1.35	1.24	44.6	YES	NO	dd	db	2.149

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.89	4.299e4	4.129e4	1.200	1.04	1.05	454.4	YES	NO	bb	bb	47.770
2	1234679-HPCDD	38.86	4.697e4	4.656e4	1.303	1.01	1.05	553.5	YES	NO	bb	bb	48.823

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.25	1.089e4	1.235e4	1.181	0.88	0.77	79.8	YES	NO	db	bb	6.452
2	2378-TCDD	26.08	1.646e4	2.040e4	1.243	0.81	0.77	114.6	YES	NO	bd	bd	9.722
3	Total-tetradioxins	24.70	2.778e3	3.587e3	1.129	0.77	0.77	20.5	YES	NO	bb	bb	1.849
4	Total-tetradioxins	24.42	4.153e3	5.130e3	1.129	0.81	0.77	29.3	YES	NO	dd	bd	2.696
5	12479-PECDD	28.49	2.366e4	1.518e4	2.166	1.56	1.55	273.8	YES	NO	db	bb	8.918
6	12378-PeCDD	31.15	4.027e3	2.393e3	1.150	1.68	1.55	52.4	YES	NO	bb	bb	2.776
7	Total-pentadioxins	29.92	1.814e3	1.324e3	1.548	1.37	1.55	24.6	YES	NO	dd	dd	1.008
8	Total-pentadioxins	29.78	1.699e4	1.153e4	1.548	1.47	1.55	239.0	YES	NO	bd	bd	9.165
9	Total-pentadioxins	29.57	2.433e3	1.510e3	1.548	1.61	1.55	36.0	YES	NO	bb	bb	1.267
10	123478-HxCDD	35.67	1.315e3	9.594e2	0.960	1.37	1.24	22.0	YES	NO	bd	bd	0.929
11	Total-hexadioxins	34.77	1.266e4	1.084e4	0.943	1.17	1.24	145.3	YES	NO	bd	bb	9.464
12	Total-hexadioxins	34.41	3.693e3	3.388e3	0.943	1.09	1.24	63.2	YES	NO	bb	bb	2.851
13	124679-HXCDD	33.63	4.917e4	4.150e4	1.127	1.18	1.24	746.8	YES	NO	bd	bb	31.568
14	123678-HxCDD	35.78	2.956e3	2.195e3	0.883	1.35	1.24	44.6	YES	NO	dd	db	2.149
15	1234678-HpCDD	39.89	4.299e4	4.129e4	1.200	1.04	1.05	454.4	YES	NO	bb	bb	47.770
16	1234679-HPCDD	38.86	4.697e4	4.656e4	1.303	1.01	1.05	553.5	YES	NO	bb	bb	48.823
17	OCDD	44.47	2.605e5	2.921e5	1.059	0.89	0.89	1796.3	YES	NO	bb	bb	482.565

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	25.93	7.053e4	9.993e4	0.973	0.71	0.77	3.4	YES	NO	db	db	46.840
2	Total-tetrafurans	25.77	2.243e5	2.592e5	0.973	0.87	0.77	11.2	YES	NO	dd	dd	132.876
3	Total-tetrafurans	25.29	5.592e5	6.730e5	0.973	0.83	0.77	21.7	YES	NO	dd	dd	338.608
4	Total-tetrafurans	25.14	1.647e5	1.882e5	0.973	0.87	0.77	7.2	YES	NO	bd	bd	96.969
5	Total-tetrafurans	24.74	8.754e4	1.006e5	0.973	0.87	0.77	4.2	YES	NO	bb	bb	51.691
6	Total-Furans	21.11	6.400e4	8.898e4	1.053	0.72	0.77	3.3	YES	NO	bb	bb	38.878
7	Total-Furans	27.41	1.633e5	1.907e5	1.053	0.86	0.77	11.1	YES	NO	db	db	89.975
8	Total-Furans	27.37	2.915e5	3.993e5	1.053	0.73	0.77	12.5	YES	NO	dd	dd	175.550
9	Total-tetrafurans	27.22	1.483e5	1.817e5	0.973	0.82	0.77	5.3	YES	NO	bd	bd	90.684
10	Total-pentafurans	31.88	5.423e4	3.192e4	0.931	1.70	1.55	28.2	YES	NO	bd	dd	30.379
11	Total-pentafurans	31.34	1.912e5	1.351e5	0.931	1.41	1.55	82.5	YES	NO	bb	bb	115.057
12	Total-pentafurans	31.13	6.142e4	4.445e4	0.931	1.38	1.55	29.5	YES	NO	bb	bb	37.331
13	Total-pentafurans	30.53	1.899e5	1.341e5	0.931	1.42	1.55	102.0	YES	NO	db	dd	114.249
14	Total-pentafurans	30.33	3.315e5	2.308e5	0.931	1.44	1.55	148.1	YES	NO	bd	bd	198.275
15	Total-pentafurans	30.03	7.296e4	5.438e4	0.931	1.34	1.55	38.6	YES	NO	bb	bb	44.902
16	Total-pentafurans	29.79	4.808e4	3.456e4	0.931	1.39	1.55	26.4	YES	NO	bb	db	29.140
17	Total-pentafurans	29.21	2.886e4	1.996e4	0.931	1.45	1.55	15.4	YES	NO	db	db	17.215
18	Total-pentafurans	29.11	1.886e4	1.397e4	0.931	1.35	1.55	10.4	YES	NO	bd	dd	11.574
19	Total-pentafurans	28.51	9.712e4	6.460e4	0.931	1.50	1.55	27.2	YES	NO	bb	db	57.026
20	Total-hexafurans	33.91	5.606e4	4.521e4	1.087	1.24	1.24	480.7	YES	NO	bb	bb	39.984
21	Total-hexafurans	33.58	1.434e3	1.280e3	1.087	1.12	1.24	11.9	YES	NO	bb	bb	1.072
22	Total-hexafurans	33.06	6.321e4	5.040e4	1.087	1.25	1.24	530.1	YES	NO	bb	bb	44.861
23	123468-HXCDF	32.85	1.569e4	1.203e4	1.206	1.30	1.24	126.7	YES	NO	db	db	9.371
24	123789-HxCDF	36.55	2.349e3	2.180e3	0.988	1.08	1.24	16.9	YES	NO	dd	dd	2.218
25	234678-HxCDF	35.52	1.386e4	1.079e4	1.081	1.28	1.24	85.7	YES	NO	bb	bb	10.200
26	Total-hexafurans	34.82	5.866e2	4.444e2	1.087	1.32	1.24	5.2	YES	NO	bb	bb	0.407
27	123678-HxCDF	34.66	4.854e3	3.868e3	1.032	1.25	1.24	47.4	YES	NO	bb	db	3.295
28	123478-HxCDF	34.52	2.483e3	2.047e3	1.128	1.21	1.24	20.9	YES	NO	db	dd	1.637
29	1234789-HpCDF	40.61	1.053e3	1.178e3	1.104	0.89	1.05	15.2	YES	NO	bb	bb	1.506
30	Total-heptafurans	39.06	3.300e4	3.048e4	1.134	1.08	1.05	589.6	YES	NO	bb	bb	36.465
31	Total-heptafurans	38.83	6.841e2	6.396e2	1.134	1.07	1.05	11.1	YES	NO	bb	bb	0.760
32	OCDF	44.71	2.688e4	3.090e4	1.130	0.87	0.89	394.5	YES	NO	bb	bb	47.263
33	Total-penta1	26.88	2.060e5	1.334e5		1.54	1.55	255.9	YES	NO	db	db	118.694
34	1368-TCDD	23.25	1.089e4	1.235e4	1.181	0.88	0.77	79.8	YES	NO	db	bb	6.452
35	2378-TCDD	26.08	1.646e4	2.040e4	1.243	0.81	0.77	114.6	YES	NO	bd	bd	9.722
36	Total-tetradioxins	24.70	2.778e3	3.587e3	1.129	0.77	0.77	20.5	YES	NO	bb	bb	1.849
37	Total-tetradioxins	24.42	4.153e3	5.130e3	1.129	0.81	0.77	29.3	YES	NO	dd	bd	2.696

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	12479-PECDD	28.49	2.366e4	1.518e4	2.166	1.56	1.55	273.8	YES	NO	db	bb	8.918
39	12378-PeCDD	31.15	4.027e3	2.393e3	1.150	1.68	1.55	52.4	YES	NO	bb	bb	2.776
40	Total-pentadioxins	29.92	1.814e3	1.324e3	1.548	1.37	1.55	24.6	YES	NO	dd	dd	1.008
41	Total-pentadioxins	29.78	1.699e4	1.153e4	1.548	1.47	1.55	239.0	YES	NO	bd	bd	9.165
42	Total-pentadioxins	29.57	2.433e3	1.510e3	1.548	1.61	1.55	36.0	YES	NO	bb	bb	1.267
43	123478-HxCDD	35.67	1.315e3	9.594e2	0.960	1.37	1.24	22.0	YES	NO	bd	bd	0.929
44	Total-hexadioxins	34.77	1.266e4	1.084e4	0.943	1.17	1.24	145.3	YES	NO	bd	bb	9.464
45	Total-hexadioxins	34.41	3.693e3	3.388e3	0.943	1.09	1.24	63.2	YES	NO	bb	bb	2.851
46	124679-HXCDD	33.63	4.917e4	4.150e4	1.127	1.18	1.24	746.8	YES	NO	bd	bb	31.568
47	123678-HxCDD	35.78	2.956e3	2.195e3	0.883	1.35	1.24	44.6	YES	NO	dd	db	2.149
48	1234678-HpCDD	39.89	4.299e4	4.129e4	1.200	1.04	1.05	454.4	YES	NO	bb	bb	47.770
49	1234679-HPCDD	38.86	4.697e4	4.656e4	1.303	1.01	1.05	553.5	YES	NO	bb	bb	48.823
50	OCDD	44.47	2.605e5	2.921e5	1.059	0.89	0.89	1796.3	YES	NO	bb	bb	482.565

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	25.20	8.365e5					27.0	YES		db		
2	FUNCTION1 PFK	25.07	5.556e5					19.8	YES		bd		
3	FUNCTION1 PFK	24.67	1.149e5					6.9	YES		bb		
4	FUNCTION1 PFK	24.29	2.828e6					17.5	YES		bb		
5	FUNCTION1 PFK	23.92	4.759e5					20.1	YES		db		
6	FUNCTION1 PFK	23.78	1.551e6					38.0	YES		dd		
7	FUNCTION1 PFK	23.63	3.274e6					38.7	YES		dd		
8	FUNCTION1 PFK	23.26	1.740e6					34.1	YES		dd		
9	FUNCTION1 PFK	23.12	3.115e5					14.5	YES		bd		
10	FUNCTION1 PFK	23.01	1.131e5					6.3	YES		bb		
11	FUNCTION1 PFK	21.62	1.019e6					21.8	YES		bb		
12	FUNCTION1 PFK	27.47	7.522e5					24.9	YES		bb		
13	FUNCTION1 PFK	27.29	5.888e5					20.3	YES		bb		
14	FUNCTION1 PFK	26.86	1.073e6					19.5	YES		bb		
15	FUNCTION1 PFK	25.84	6.700e5					23.3	YES		bb		
16	FUNCTION1 PFK	25.36	7.323e5					28.0	YES		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	30.08	1.861e5					9.8	YES		bd		0.000
2	FUNCTION2 PFK	29.46	3.585e4					3.6	YES		bb		0.000
3	FUNCTION2 PFK	28.81	1.397e6					21.0	YES		db		0.000
4	FUNCTION2 PFK	28.55	2.518e5					23.3	YES		dd		0.000
5	FUNCTION2 PFK	28.43	2.845e5					20.2	YES		dd		0.000
6	FUNCTION2 PFK	28.28	7.749e5					37.2	YES		bd		0.000
7	FUNCTION2 PFK	28.07	1.350e6					48.6	YES		db		0.000
8	FUNCTION2 PFK	27.91	7.873e5					39.9	YES		dd		0.000
9	FUNCTION2 PFK	27.80	5.604e5					36.8	YES		dd		0.000
10	FUNCTION2 PFK	27.67	6.137e5					38.0	YES		bd		0.000
11	FUNCTION2 PFK	32.37	1.379e5					1.9	NO		bb		0.000
12	FUNCTION2 PFK	32.09	3.144e5					11.9	YES		bb		0.000
13	FUNCTION2 PFK	31.70	4.952e4					4.9	YES		bb		0.000
14	FUNCTION2 PFK	31.58	1.343e5					12.6	YES		db		0.000
15	FUNCTION2 PFK	31.50	4.136e5					13.8	YES		bd		0.000
16	FUNCTION2 PFK	31.23	3.958e5					17.5	YES		bb		0.000
17	FUNCTION2 PFK	31.01	8.595e5					17.4	YES		db		0.000
18	FUNCTION2 PFK	30.67	6.302e5					16.9	YES		dd		0.000
19	FUNCTION2 PFK	30.46	3.606e5					16.9	YES		bd		0.000
20	FUNCTION2 PFK	30.25	3.279e5					15.3	YES		db		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	33.60	6.358e3					0.7	NO		bb		0.000
2	FUNCTION3 PFK	33.21	1.310e4					1.7	NO		bb		0.000
3	FUNCTION3 PFK	32.65	2.843e4					2.3	NO		db		0.000
4	FUNCTION3 PFK	32.56	1.186e4					1.2	NO		bd		0.000
5	FUNCTION3 PFK	32.48	4.229e3					0.7	NO		bb		0.000
6	FUNCTION3 PFK	37.43	3.176e3					0.6	NO		bb		0.000
7	FUNCTION3 PFK	37.14	5.457e3					1.0	NO		bb		0.000
8	FUNCTION3 PFK	36.64	5.775e4					2.4	NO		bb		0.000
9	FUNCTION3 PFK	35.58	1.137e4					1.1	NO		bb		0.000
10	FUNCTION3 PFK	35.26	7.532e4					3.1	YES		bb		0.000
11	FUNCTION3 PFK	34.62	5.695e3					0.7	NO		bb		0.000
12	FUNCTION3 PFK	34.24	1.841e4					2.2	NO		bb		0.000
13	FUNCTION3 PFK	33.99	3.447e4					2.1	NO		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	39.43	1.306e4					2.4	NO		bb		
2	FUNCTION4 PFK	39.09	4.020e4					3.7	YES		bb		
3	FUNCTION4 PFK	38.91	9.512e2					0.5	NO		bb		
4	FUNCTION4 PFK	37.88	8.943e4					5.2	YES		db		
5	FUNCTION4 PFK	37.74	5.926e4					5.7	YES		dd		
6	FUNCTION4 PFK	37.69	5.563e4					4.7	YES		dd		
7	FUNCTION4 PFK	37.59	8.500e3					2.0	NO		bd		
8	FUNCTION4 PFK	42.70	3.131e3					0.9	NO		bb		
9	FUNCTION4 PFK	42.31	5.004e3					1.2	NO		bb		
10	FUNCTION4 PFK	41.65	7.753e3					1.6	NO		bb		
11	FUNCTION4 PFK	41.21	7.159e3					1.4	NO		bb		
12	FUNCTION4 PFK	40.88	8.996e2					0.5	NO		bb		
13	FUNCTION4 PFK	40.58	5.646e3					1.4	NO		bb		
14	FUNCTION4 PFK	40.53	9.048e2					0.5	NO		bb		
15	FUNCTION4 PFK	40.14	6.418e3					1.5	NO		bb		
16	FUNCTION4 PFK	39.99	1.935e3					0.7	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.88	1.693e3					0.8	NO		bb		
2	FUNCTION5 PFK	43.46	5.239e3					1.0	NO		bb		
3	FUNCTION5 PFK	43.39	2.287e3					1.0	NO		bb		
4	FUNCTION5 PFK	43.18	1.946e3					0.7	NO		bb		
5	FUNCTION5 PFK	43.13	7.020e3					1.8	NO		db		
6	FUNCTION5 PFK	43.09	1.575e4					2.5	NO		bd		
7	FUNCTION5 PFK	45.85	3.674e3					1.1	NO		bb		
8	FUNCTION5 PFK	45.70	2.153e3					0.9	NO		bb		
9	FUNCTION5 PFK	45.18	7.119e2					0.5	NO		bb		
10	FUNCTION5 PFK	44.73	5.240e3					1.4	NO		bb		
11	FUNCTION5 PFK	44.41	4.724e3					1.6	NO		bb		
12	FUNCTION5 PFK	44.18	4.106e3					1.3	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	22.58	8.027e4					22.2	YES		dd		0.000
2	FUNCTION1 HXCD...	22.47	6.079e4					16.8	YES		dd		0.000
3	FUNCTION1 HXCD...	22.29	2.173e4					4.9	YES		dd		0.000
4	FUNCTION1 HXCD...	22.10	4.105e4					8.6	YES		dd		0.000
5	FUNCTION1 HXCD...	22.00	4.984e5					135.8	YES		bd		0.000
6	FUNCTION1 HXCD...	21.72	1.521e5					36.2	YES		db		0.000
7	FUNCTION1 HXCD...	21.54	7.018e4					14.7	YES		bd		0.000
8	FUNCTION1 HXCD...	21.25	5.375e3					1.8	NO		bb		0.000
9	FUNCTION1 HXCD...	21.10	1.599e4					3.3	YES		bb		0.000
10	FUNCTION1 HXCD...	25.10	5.583e4					10.8	YES		dd		0.000
11	FUNCTION1 HXCD...	24.91	7.766e4					13.8	YES		dd		0.000
12	FUNCTION1 HXCD...	24.70	6.347e5					159.0	YES		bd		0.000
13	FUNCTION1 HXCD...	24.50	2.216e5					61.7	YES		db		0.000
14	FUNCTION1 HXCD...	24.40	2.239e5					61.8	YES		bd		0.000
15	FUNCTION1 HXCD...	24.19	6.482e4					17.6	YES		db		0.000
16	FUNCTION1 HXCD...	24.05	3.511e4					8.5	YES		dd		0.000
17	FUNCTION1 HXCD...	23.92	2.085e4					3.9	YES		dd		0.000
18	FUNCTION1 HXCD...	23.75	3.930e4					10.6	YES		dd		0.000
19	FUNCTION1 HXCD...	23.68	5.134e4					12.2	YES		dd		0.000
20	FUNCTION1 HXCD...	23.54	5.025e4					12.4	YES		dd		0.000
21	FUNCTION1 HXCD...	23.49	7.819e4					16.7	YES		bd		0.000
22	FUNCTION1 HXCD...	23.13	1.294e4					3.4	YES		db		0.000
23	FUNCTION1 HXCD...	22.98	2.110e5					37.5	YES		dd		0.000
24	FUNCTION1 HXCD...	22.88	1.303e4					4.1	YES		dd		0.000
25	FUNCTION1 HXCD...	22.74	3.808e4					6.1	YES		dd		0.000
26	FUNCTION1 HXCD...	27.40	5.214e4					16.7	YES		db		0.000
27	FUNCTION1 HXCD...	27.34	9.529e4					26.4	YES		dd		0.000
28	FUNCTION1 HXCD...	27.20	2.053e4					4.1	YES		dd		0.000
29	FUNCTION1 HXCD...	27.02	1.705e4					4.2	YES		dd		0.000
30	FUNCTION1 HXCD...	26.93	1.262e4					2.8	NO		bd		0.000
31	FUNCTION1 HXCD...	26.72	3.633e4					7.1	YES		db		0.000
32	FUNCTION1 HXCD...	26.57	1.297e4					3.7	YES		dd		0.000
33	FUNCTION1 HXCD...	26.42	4.446e4					16.2	YES		dd		0.000
34	FUNCTION1 HXCD...	26.37	8.151e4					20.0	YES		dd		0.000
35	FUNCTION1 HXCD...	26.20	7.397e3					2.4	NO		bd		0.000
36	FUNCTION1 HXCD...	25.83	2.850e4					5.6	YES		db		0.000
37	FUNCTION1 HXCD...	25.70	1.125e4					3.7	YES		dd		0.000

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION1 HXCD...	25.60	5.471e4					14.4	YES		bd		0.000
39	FUNCTION1 HXCD...	25.46	1.470e4					4.0	YES		db		0.000
40	FUNCTION1 HXCD...	25.28	1.998e5					35.3	YES		dd		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	29.78	1.438e4					10.3	YES		dd		0.000
2	FUNCTION2 HPCD...	29.65	1.540e4					13.3	YES		dd		0.000
3	FUNCTION2 HPCD...	29.50	4.822e3					5.0	YES		dd		0.000
4	FUNCTION2 HPCD...	29.40	2.421e4					24.3	YES		dd		0.000
5	FUNCTION2 HPCD...	29.34	2.592e4					26.6	YES		dd		0.000
6	FUNCTION2 HPCD...	29.18	2.515e4					22.1	YES		dd		0.000
7	FUNCTION2 HPCD...	29.00	7.084e3					7.4	YES		dd		0.000
8	FUNCTION2 HPCD...	28.89	4.041e3					4.7	YES		bd		0.000
9	FUNCTION2 HPCD...	28.61	8.498e3					9.4	YES		db		0.000
10	FUNCTION2 HPCD...	28.56	7.156e3					9.4	YES		dd		0.000
11	FUNCTION2 HPCD...	28.52	4.390e3					7.2	YES		dd		0.000
12	FUNCTION2 HPCD...	28.45	1.945e3					2.7	NO		dd		0.000
13	FUNCTION2 HPCD...	28.32	3.179e4					31.1	YES		dd		0.000
14	FUNCTION2 HPCD...	28.17	1.197e4					9.0	YES		bd		0.000
15	FUNCTION2 HPCD...	27.86	8.481e3					10.3	YES		bb		0.000
16	FUNCTION2 HPCD...	27.71	6.918e3					6.9	YES		bb		0.000
17	FUNCTION2 HPCD...	32.09	1.051e4					10.4	YES		db		0.000
18	FUNCTION2 HPCD...	31.93	1.200e4					13.1	YES		dd		0.000
19	FUNCTION2 HPCD...	31.87	1.955e4					19.6	YES		dd		0.000
20	FUNCTION2 HPCD...	31.78	2.040e3					2.9	NO		dd		0.000
21	FUNCTION2 HPCD...	31.63	1.112e4					9.6	YES		dd		0.000
22	FUNCTION2 HPCD...	31.52	8.062e2					1.5	NO		dd		0.000
23	FUNCTION2 HPCD...	31.40	8.661e3					8.3	YES		dd		0.000
24	FUNCTION2 HPCD...	31.33	1.211e4					13.6	YES		dd		0.000
25	FUNCTION2 HPCD...	31.15	1.885e4					18.2	YES		bd		0.000
26	FUNCTION2 HPCD...	30.95	1.222e4					11.4	YES		db		0.000
27	FUNCTION2 HPCD...	30.81	6.682e3					5.5	YES		bd		0.000
28	FUNCTION2 HPCD...	30.53	8.961e3					9.2	YES		db		0.000
29	FUNCTION2 HPCD...	30.32	1.606e4					11.5	YES		bd		0.000
30	FUNCTION2 HPCD...	30.12	2.299e3					2.6	NO		db		0.000
31	FUNCTION2 HPCD...	30.01	2.468e4					21.5	YES		dd		0.000
32	FUNCTION2 HPCD...	29.89	6.903e3					7.1	YES		dd		0.000
33	FUNCTION2 HPCD...	32.33	3.651e2					0.7	NO		bb		0.000

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ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	37.06	1.940e2					2.8	NO		bb		0.000
2	FUNCTION3 OCDPE	36.68	4.084e2					4.3	YES		bb		0.000
3	FUNCTION3 OCDPE	35.99	7.581e1					1.8	NO		bb		0.000
4	FUNCTION3 OCDPE	34.69	9.130e1					1.7	NO		bb		0.000
5	FUNCTION3 OCDPE	34.48	8.795e1					2.1	NO		bb		0.000
6	FUNCTION3 OCDPE	33.75	3.474e2					7.9	YES		db		0.000
7	FUNCTION3 OCDPE	33.72	6.905e2					11.1	YES		bd		0.000
8	FUNCTION3 OCDPE	33.50	9.480e2					10.3	YES		db		0.000
9	FUNCTION3 OCDPE	33.45	1.115e3					13.3	YES		bd		0.000
10	FUNCTION3 OCDPE	33.16	1.827e3					20.6	YES		bb		0.000
11	FUNCTION3 OCDPE	32.94	4.348e3					42.6	YES		db		0.000
12	FUNCTION3 OCDPE	32.79	8.493e2					9.6	YES		dd		0.000
13	FUNCTION3 OCDPE	32.75	1.280e3					14.4	YES		bd		0.000
14	FUNCTION3 OCDPE	32.53	7.637e2					7.2	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	38.08	3.483e3					106.6	YES		bb		0.000

ETHERS6

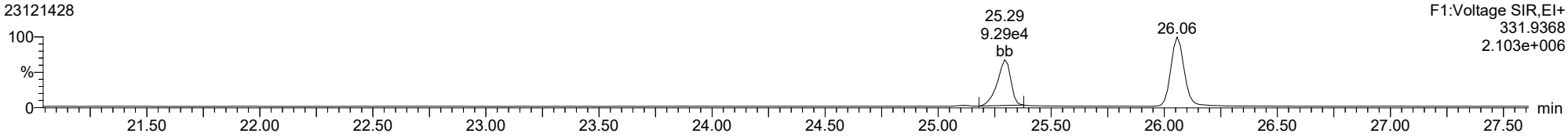
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1													

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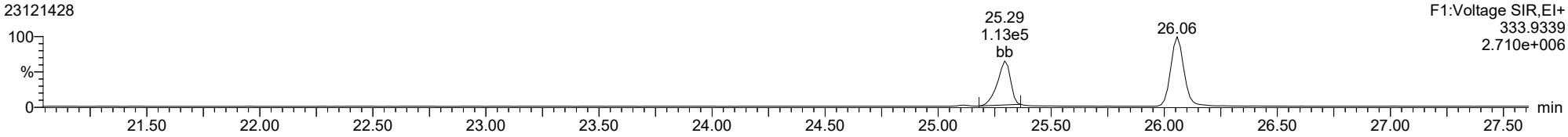
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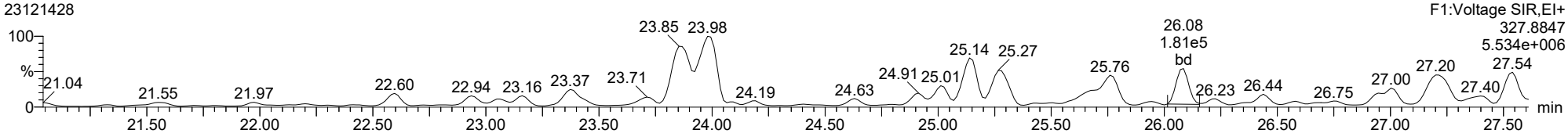
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13C-1234-TCDD

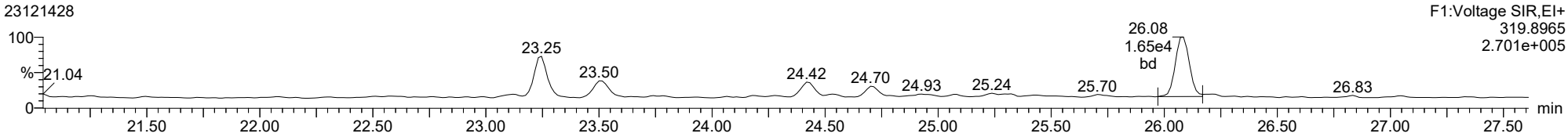


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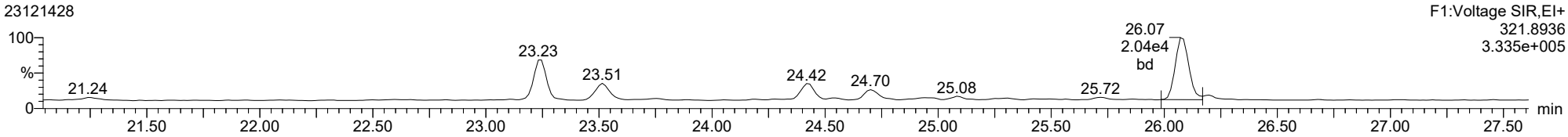


ID: 23l0156-08, Name: 23121428, Date: 15-Dec-2023, Time: 13:03:00, Conditions: AUTOSPEC01, User: pk

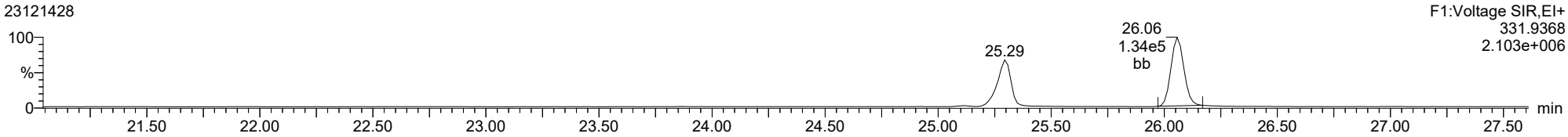
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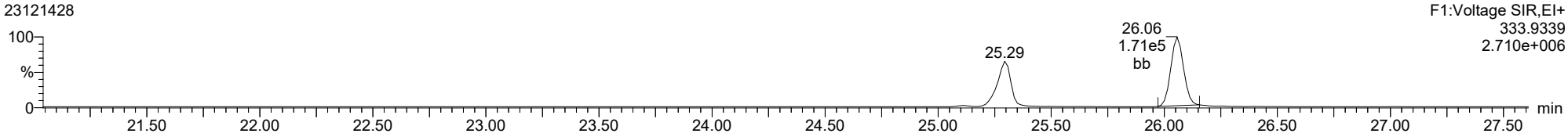
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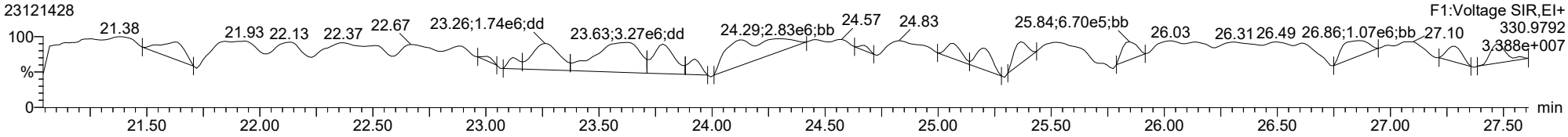
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13C-2378-TCDD

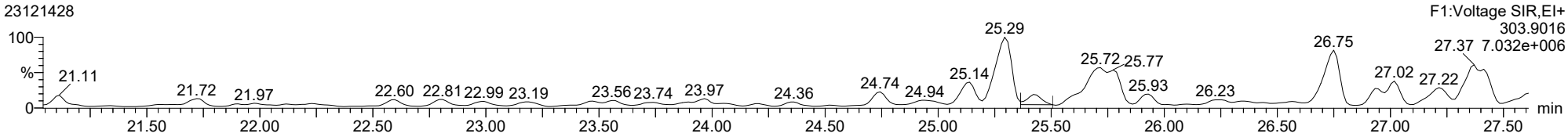


FUNCTION1 PFK

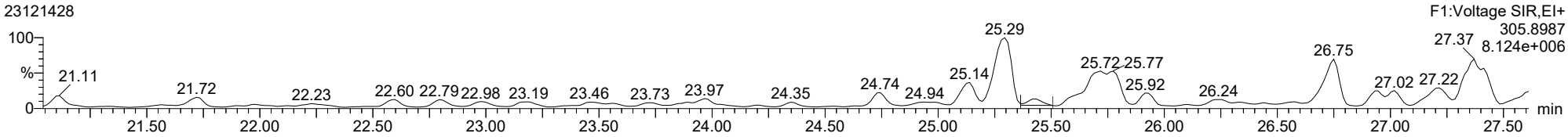


ID: 23I0156-08, Name: 23121428, Date: 15-Dec-2023, Time: 13:03:00, Conditions: AUTOSPEC01, User: pk

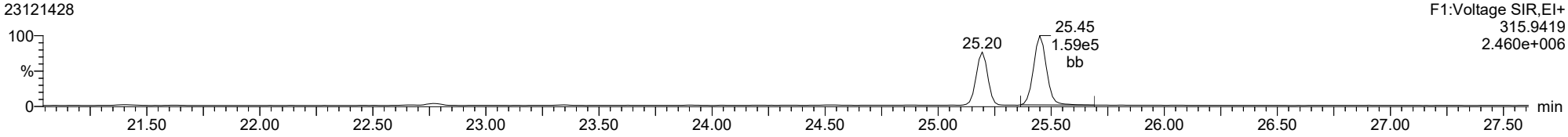
2378-TCDF



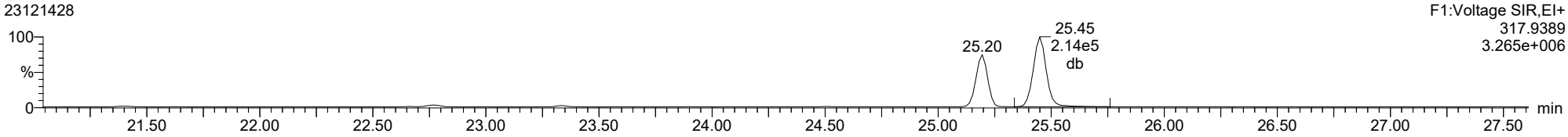
2378-TCDF



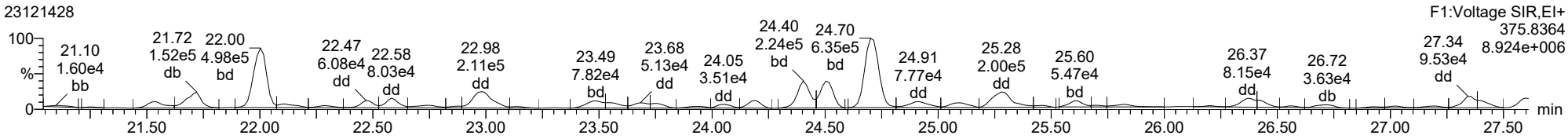
13C-2378-TCDF



13C-2378-TCDF

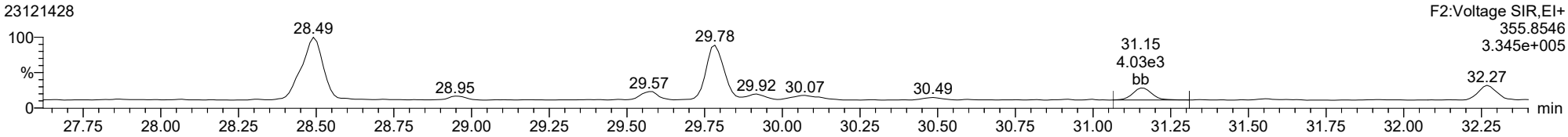


FUNCTION1 HXCDPE

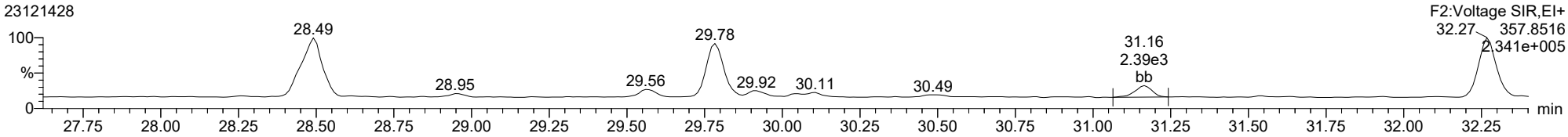


ID: 23l0156-08, Name: 23121428, Date: 15-Dec-2023, Time: 13:03:00, Conditions: AUTOSPEC01, User: pk

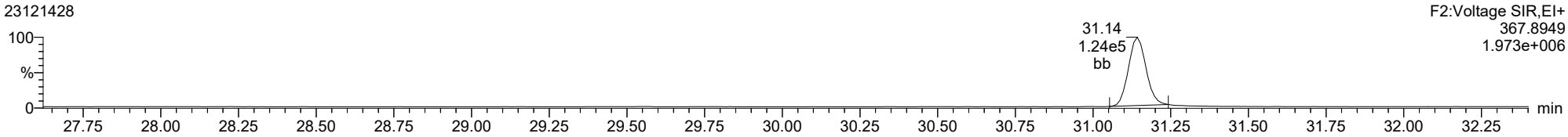
12378-PeCDD



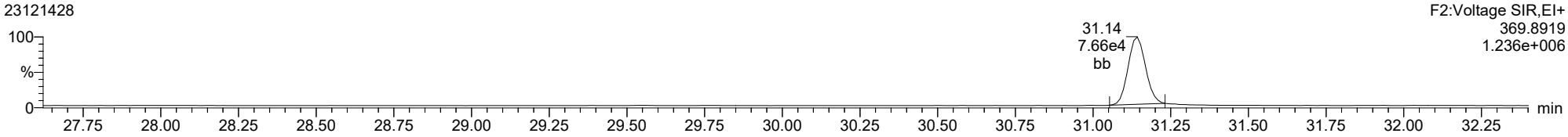
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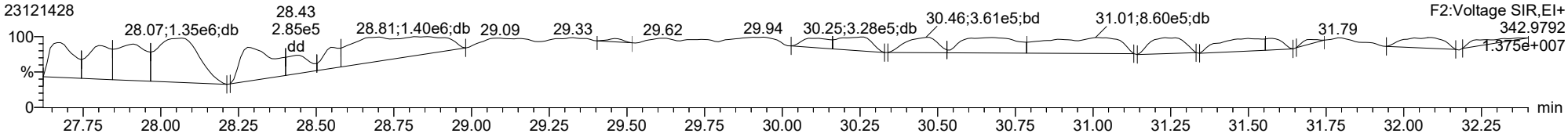
13C-12378-PeCDD



13C-12378-PeCDD

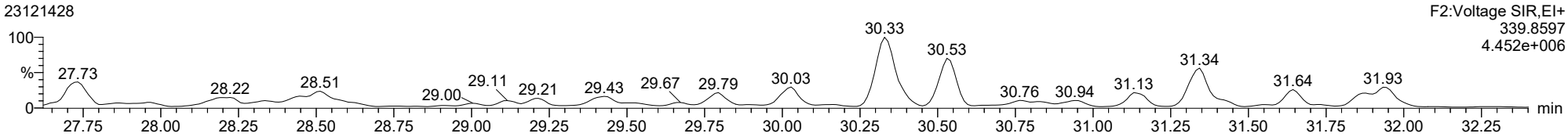


FUNCTION2 PFK

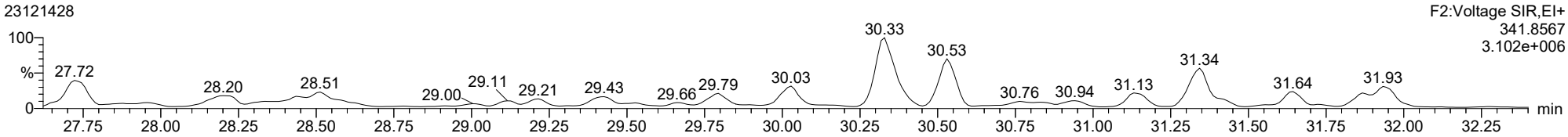


ID: 23l0156-08, Name: 23121428, Date: 15-Dec-2023, Time: 13:03:00, Conditions: AUTOSPEC01, User: pk

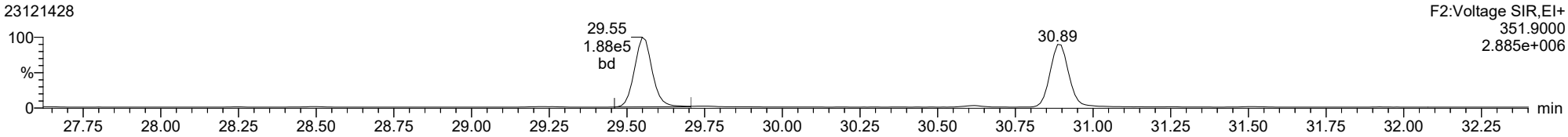
12378-PeCDF



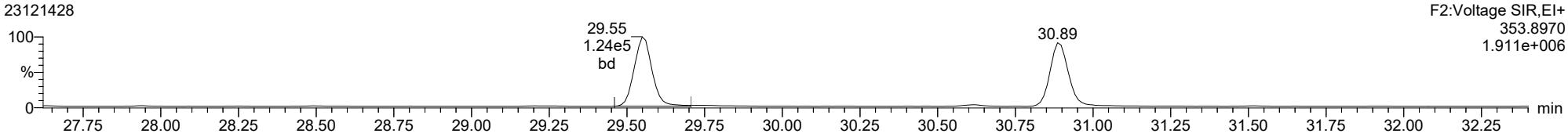
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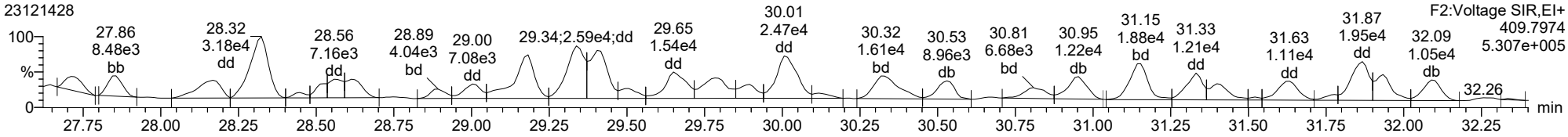
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13C-12378-PeCDF

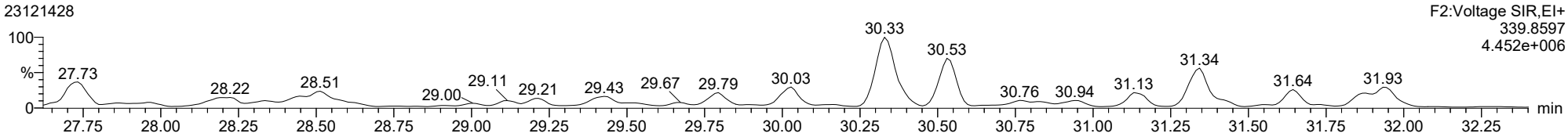


FUNCTION2 HPCDPE

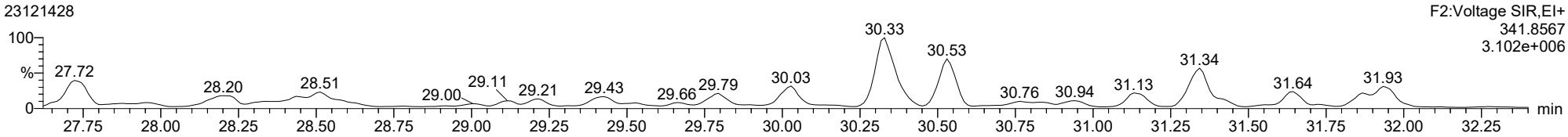


ID: 23l0156-08, Name: 23121428, Date: 15-Dec-2023, Time: 13:03:00, Conditions: AUTOSPEC01, User: pk

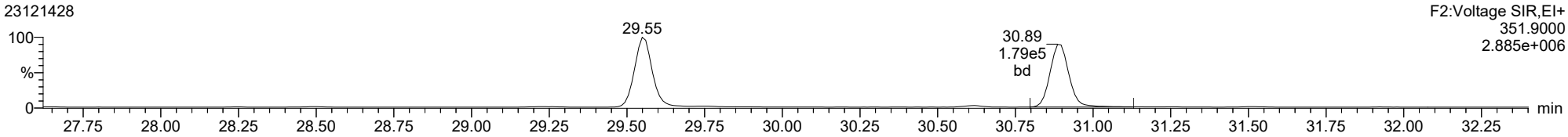
23478-PeCDF



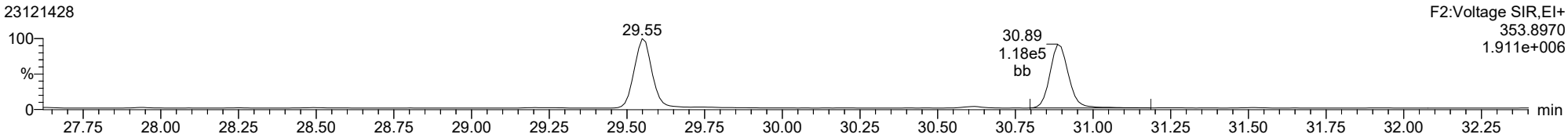
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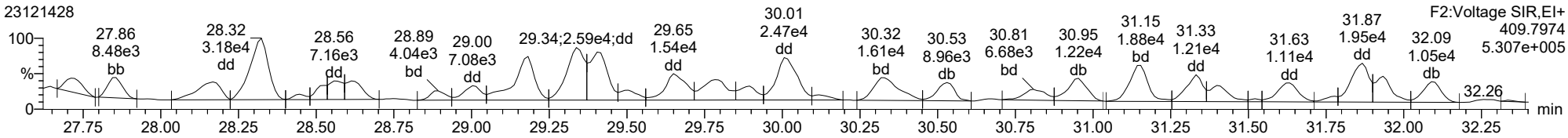
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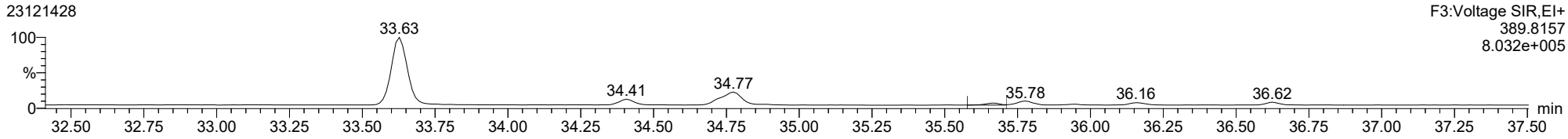


FUNCTION2 HPCDPE

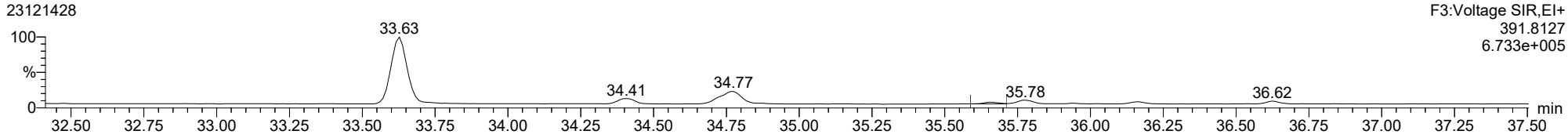


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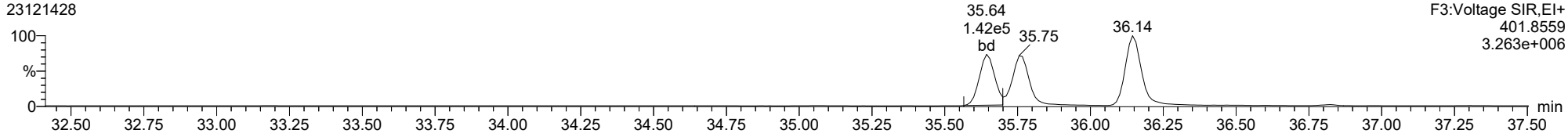
123478-HxCDD



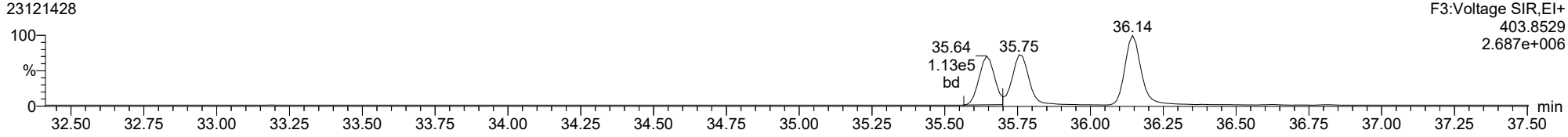
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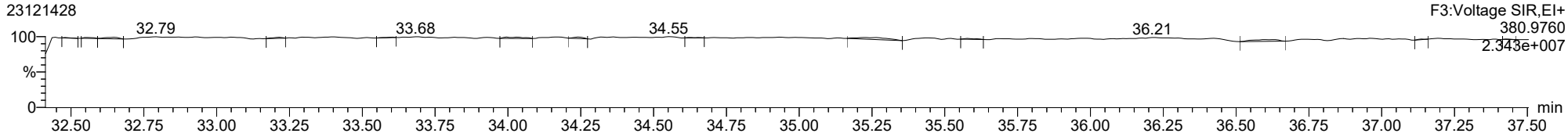
13C-123478-HxCDD



13C-123478-HxCDD



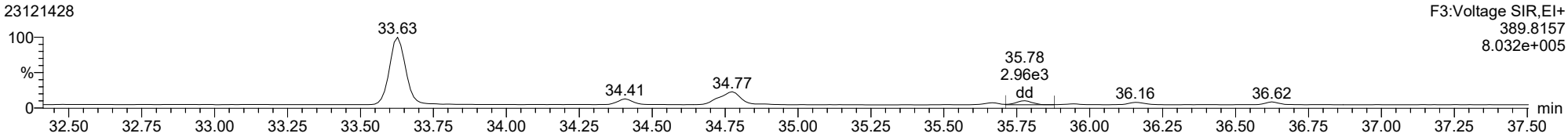
FUNCTION3 PFK



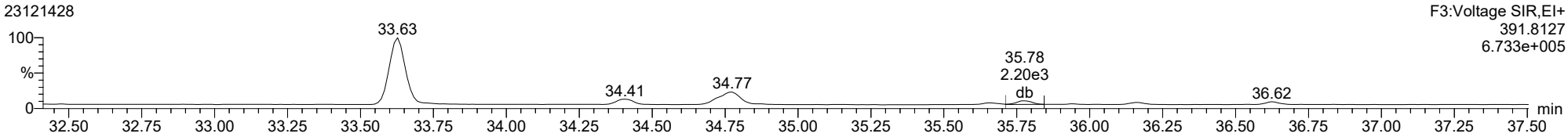
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Printed: Saturday, December 16, 2023 10:37:01 Pacific Standard Time

ID: 23I0156-08, Name: 23121428, Date: 15-Dec-2023, Time: 13:03:00, Conditions: AUTOSPEC01, User: pk

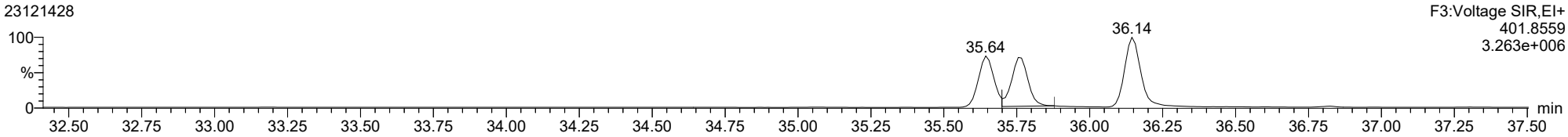
123678-HxCDD



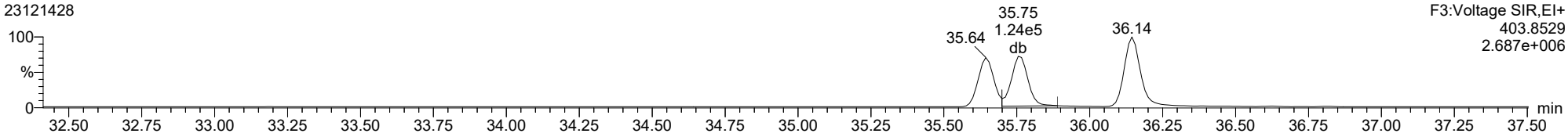
123678-HxCDD



13C-123678-HxCDD



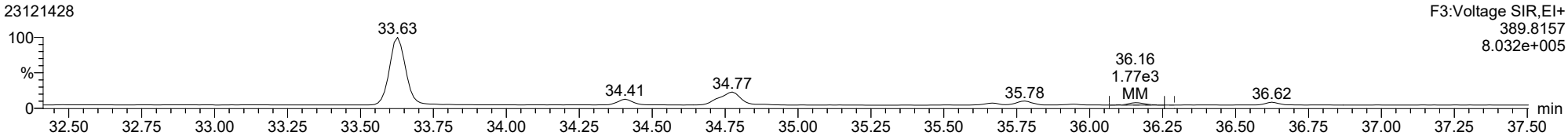
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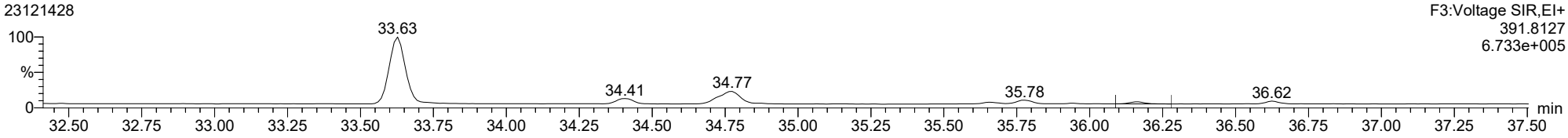
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ID: 23I0156-08, Name: 23121428, Date: 15-Dec-2023, Time: 13:03:00, Conditions: AUTOSPEC01, User: pk

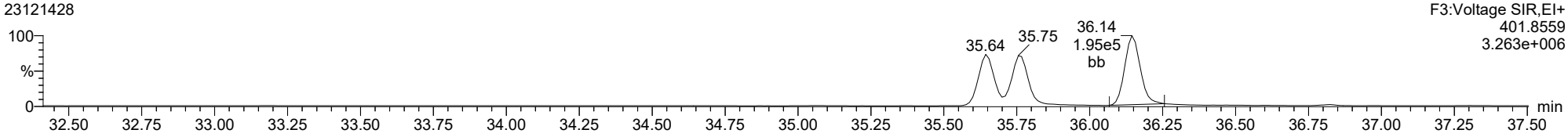
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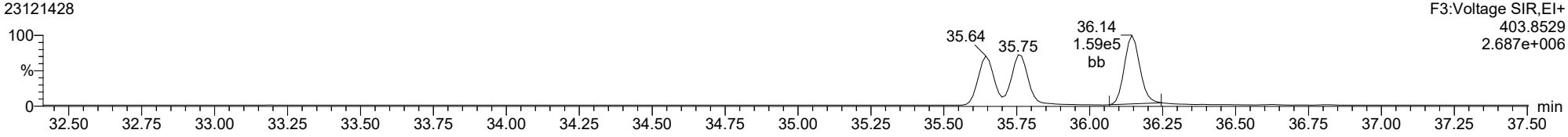
123789-HxCDD



13C-123789-HxCDD

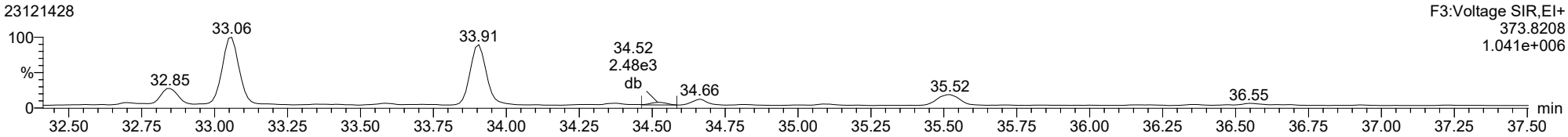


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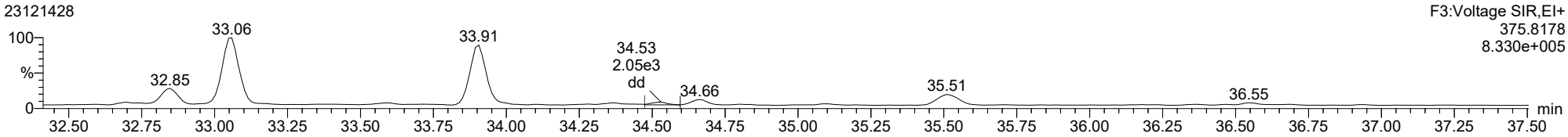


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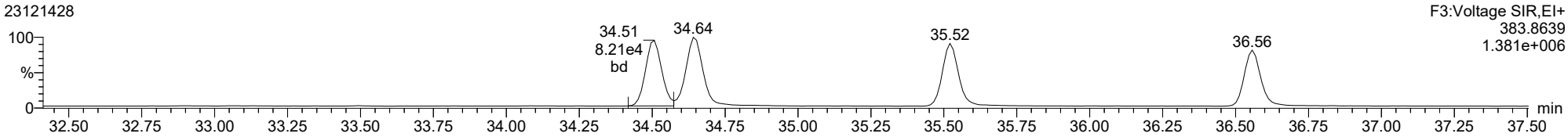
123478-HxCDF



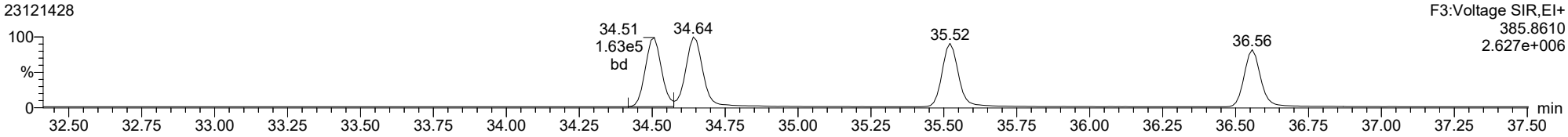
123478-HxCDF



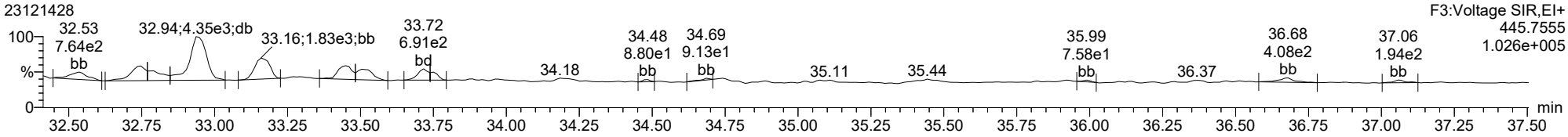
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13C-123478-HxCDF

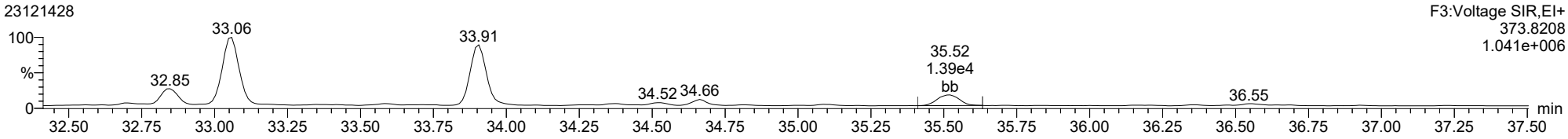


FUNCTION3 OCDPE

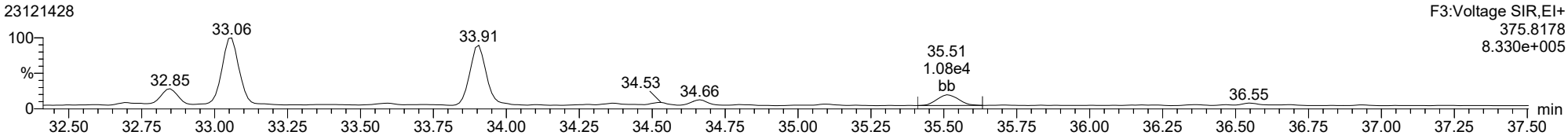


ID: 23I0156-08, Name: 23121428, Date: 15-Dec-2023, Time: 13:03:00, Conditions: AUTOSPEC01, User: pk

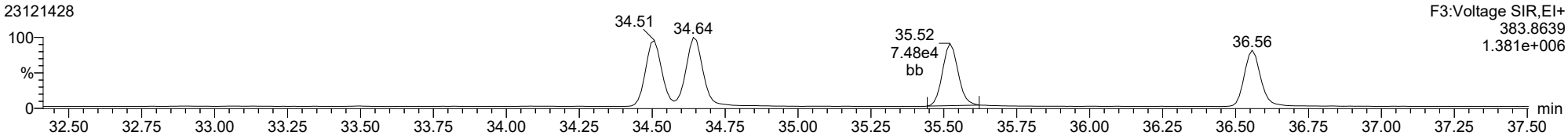
234678-HxCDF



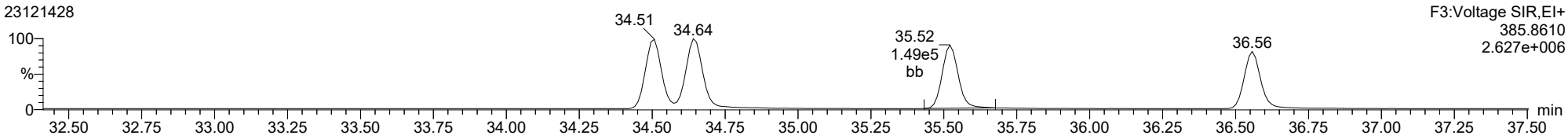
234678-HxCDF



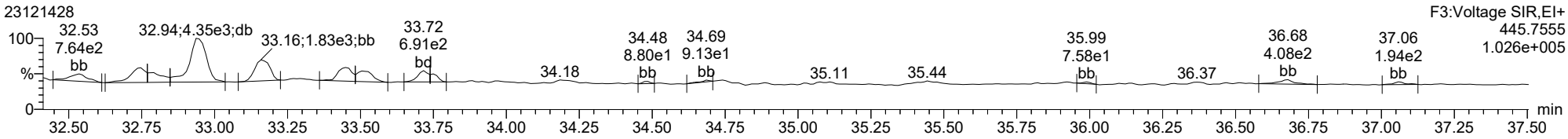
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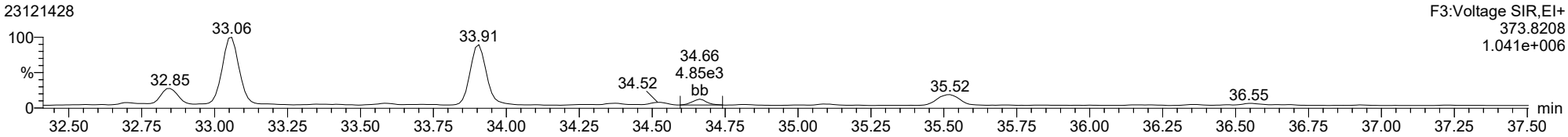


FUNCTION3 OCDPE

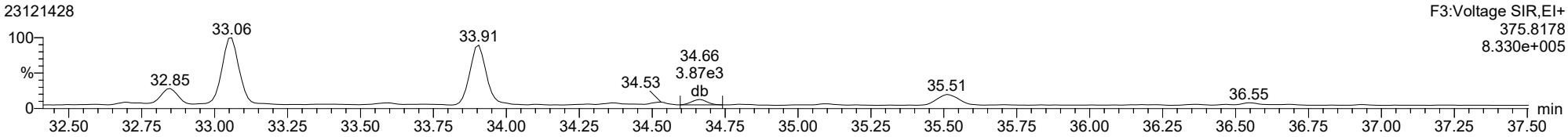


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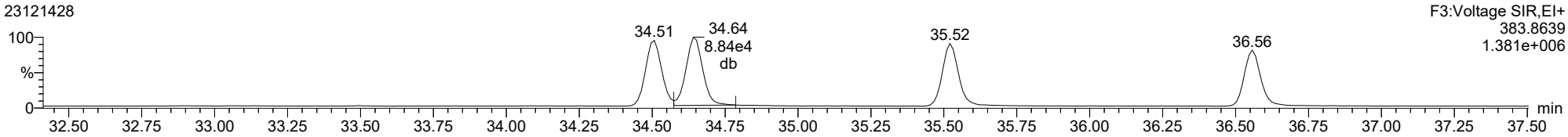
123678-HxCDF



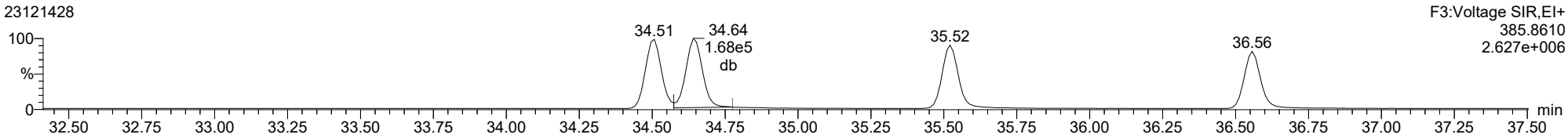
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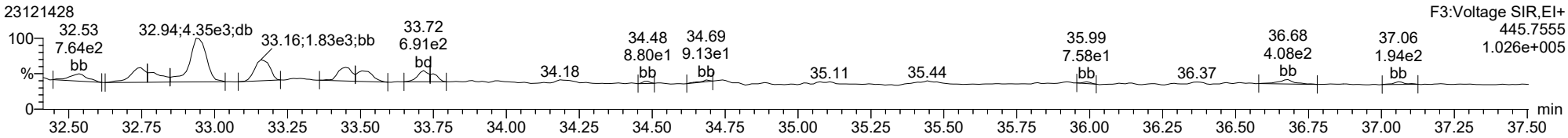
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13C-123678-HxCDF

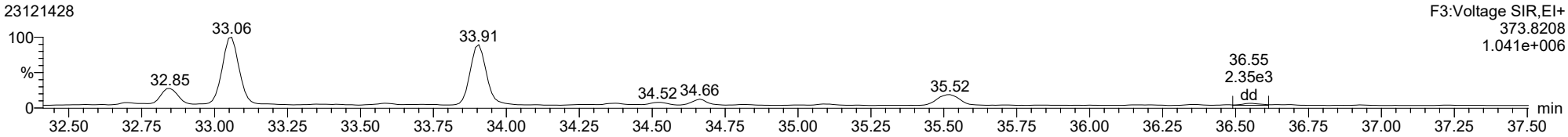


FUNCTION3 OCDPE

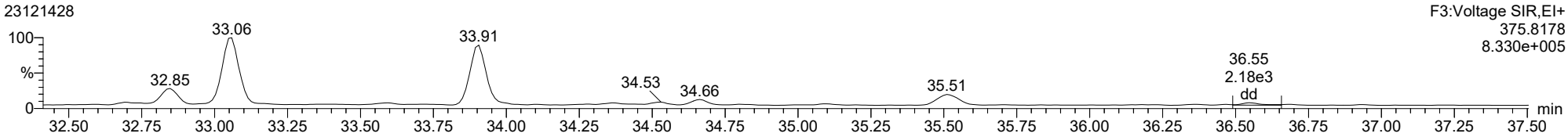


ID: 23l0156-08, Name: 23121428, Date: 15-Dec-2023, Time: 13:03:00, Conditions: AUTOSPEC01, User: pk

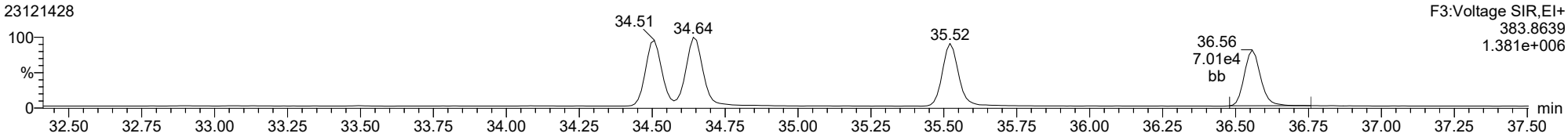
123789-HxCDF



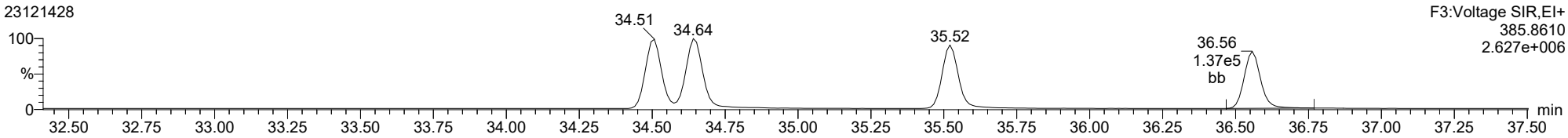
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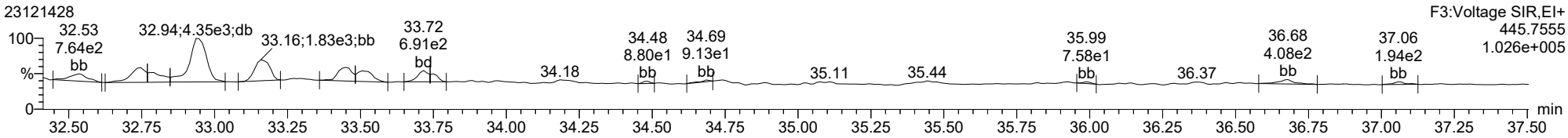
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13C-123789-HxCDF

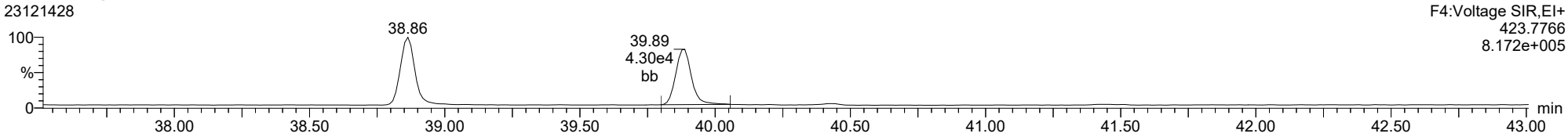


FUNCTION3 OCDPE

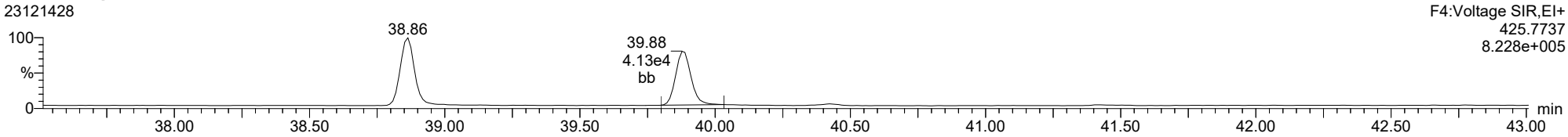


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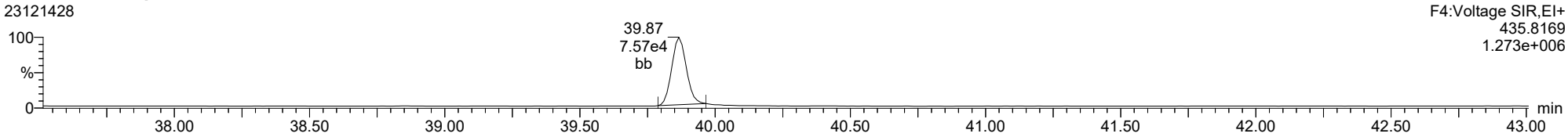
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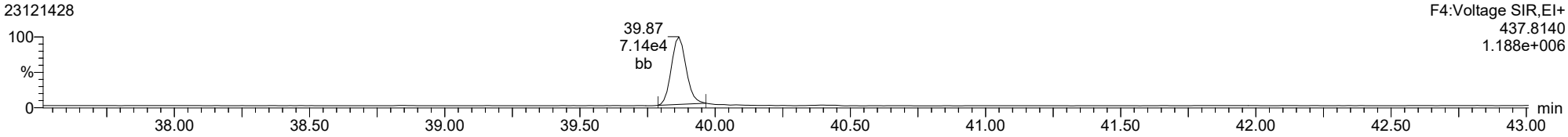
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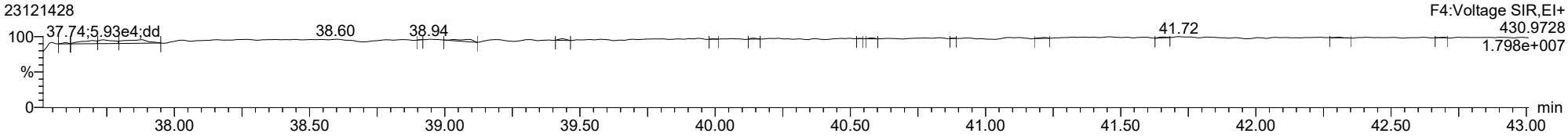
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13C-1234678-HpCDD

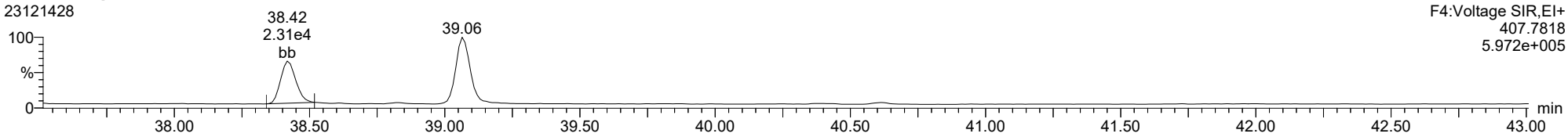


FUNCTION4 PFK

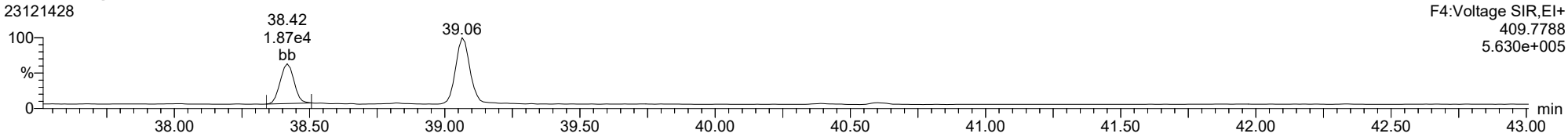


ID: 23I0156-08, Name: 23121428, Date: 15-Dec-2023, Time: 13:03:00, Conditions: AUTOSPEC01, User: pk

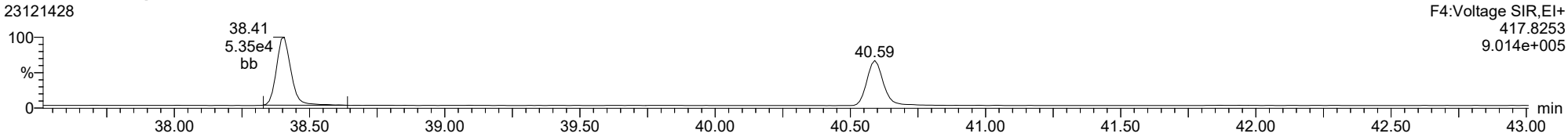
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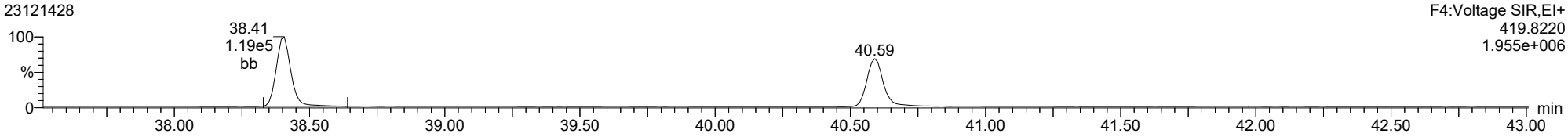
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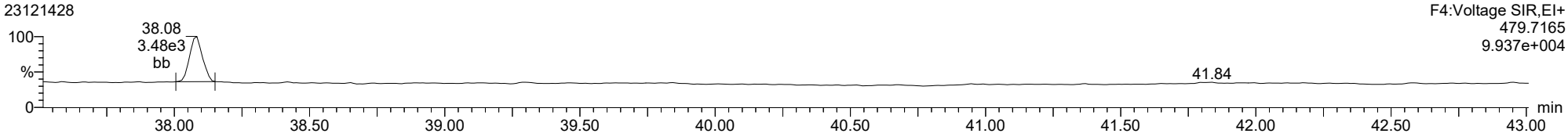
13C-1234678-HpCDF



13C-1234678-HpCDF

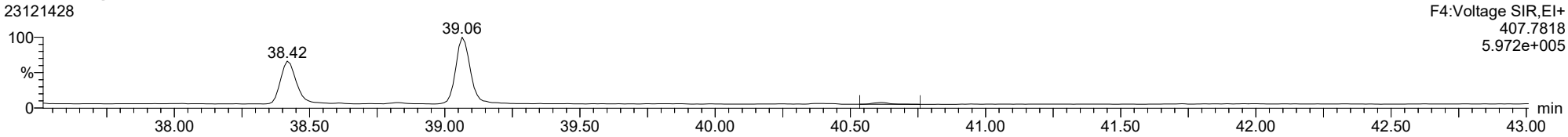


FUNCTION4 NCDPE

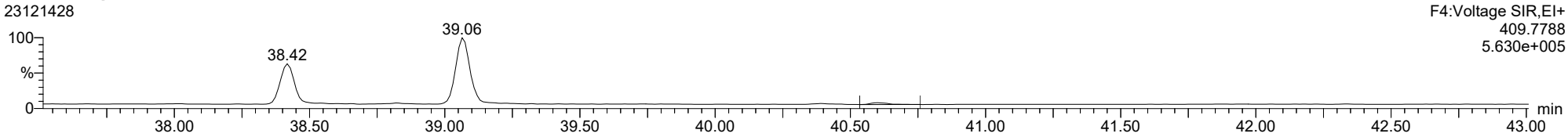


ID: 23I0156-08, Name: 23121428, Date: 15-Dec-2023, Time: 13:03:00, Conditions: AUTOSPEC01, User: pk

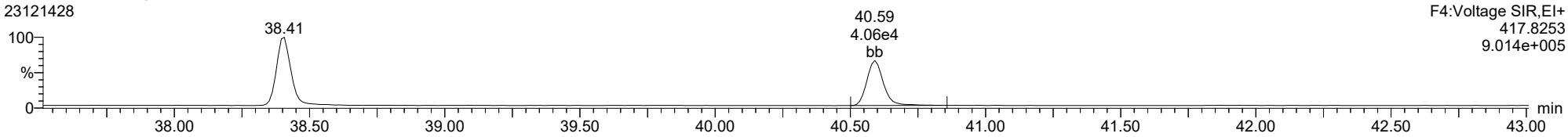
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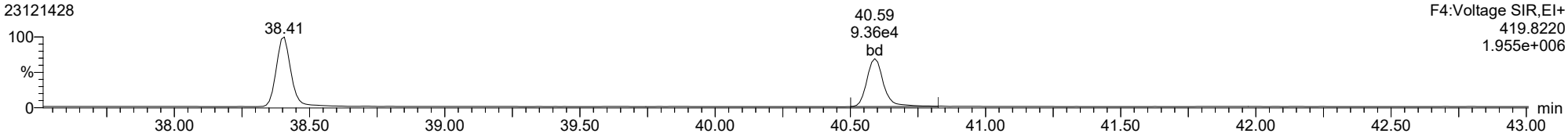
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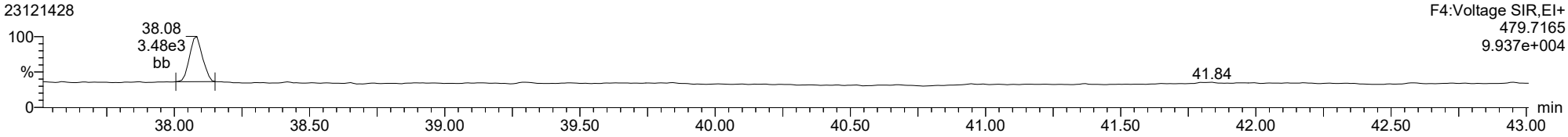
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13C-1234789-HpCDF



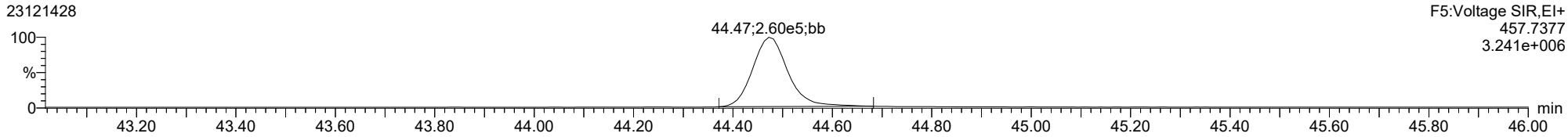
FUNCTION4 NCDPE



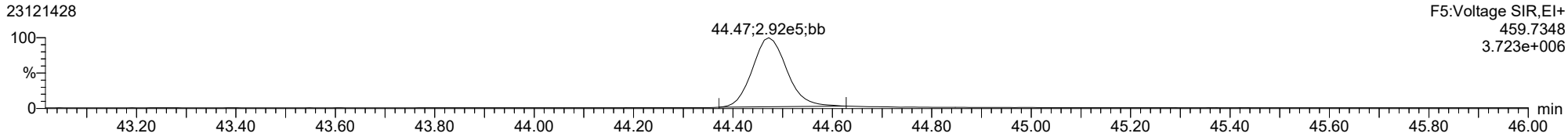
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Printed: Saturday, December 16, 2023 10:37:01 Pacific Standard Time

ID: 23I0156-08, Name: 23121428, Date: 15-Dec-2023, Time: 13:03:00, Conditions: AUTOSPEC01, User: pk

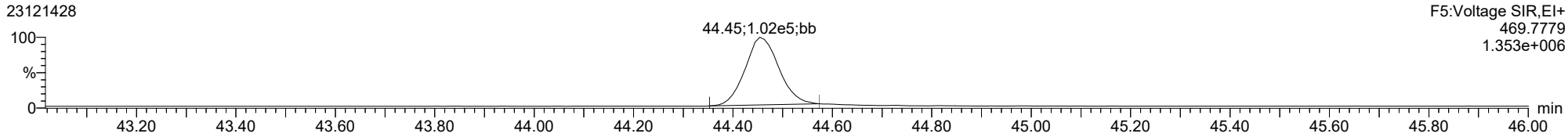
OCDD



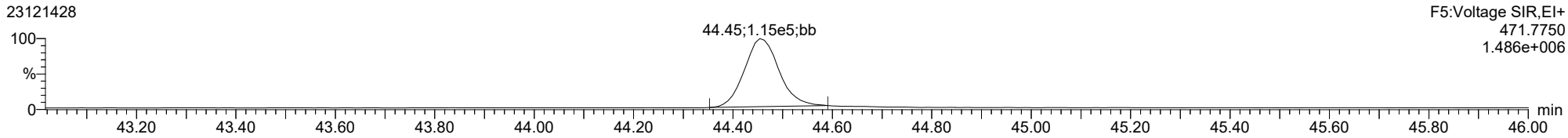
OCDD



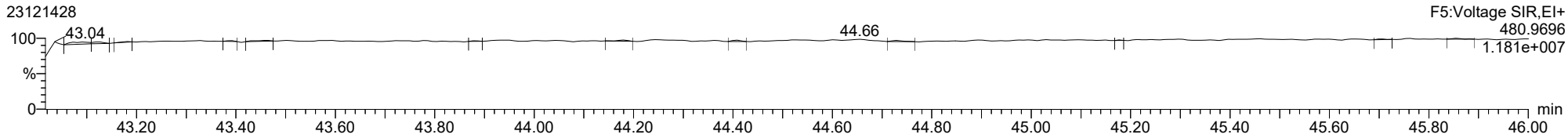
13C-OCDD



13C-OCDD



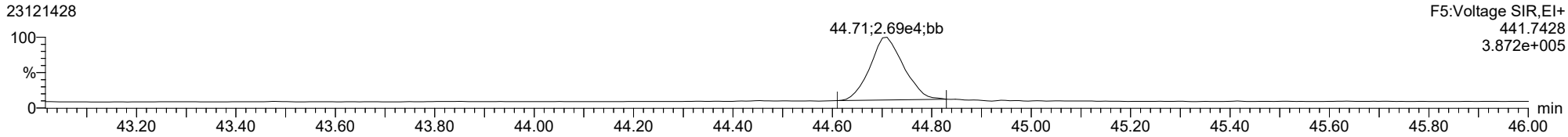
FUNCTION5 PFK



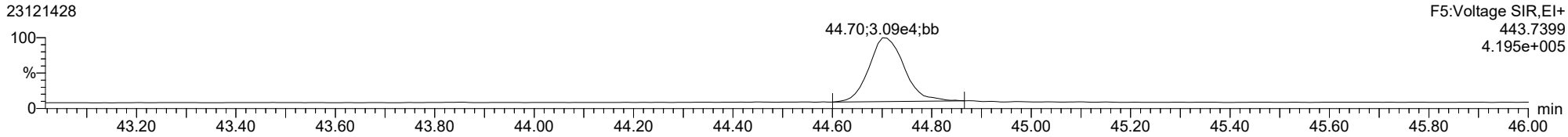
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Last Altered: Saturday, December 16, 2023 10:26:00 Pacific Standard Time
Printed: Saturday, December 16, 2023 10:37:01 Pacific Standard Time

ID: 23I0156-08, Name: 23121428, Date: 15-Dec-2023, Time: 13:03:00, Conditions: AUTOSPEC01, User: pk

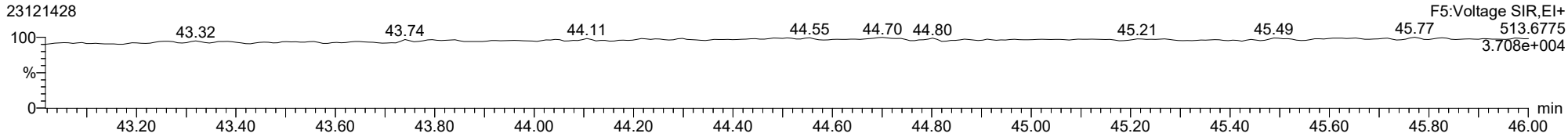
OCDF



OCDF

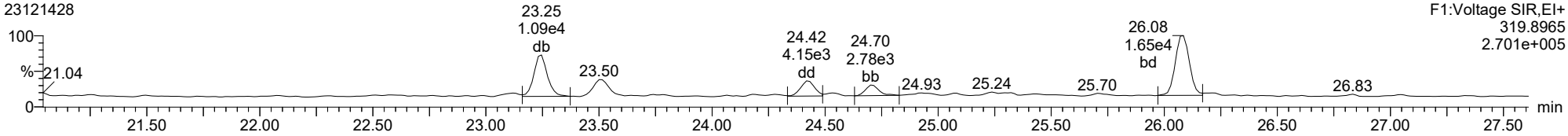


FUNCTION5 DCDPE

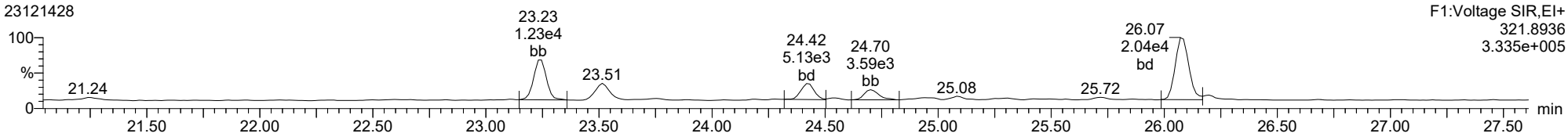


ID: 23l0156-08, Name: 23121428, Date: 15-Dec-2023, Time: 13:03:00, Conditions: AUTOSPEC01, User: pk

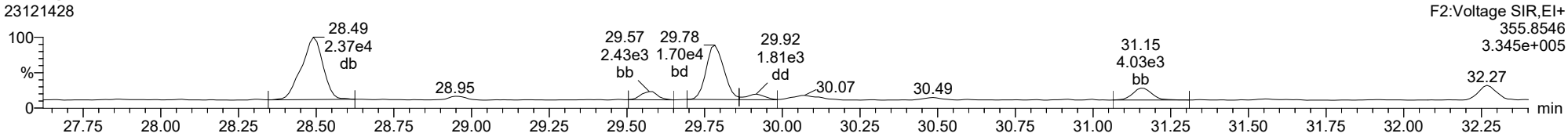
Total-tetradioxins



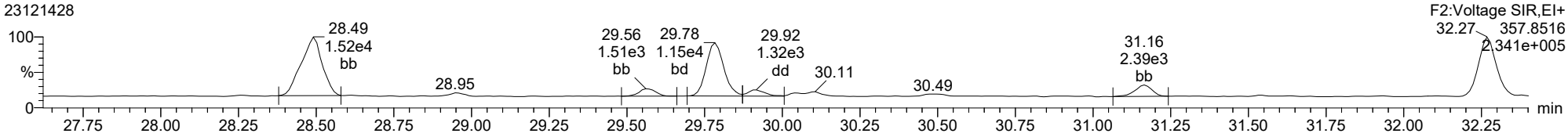
Total-tetradioxins



Total-pentadioxins

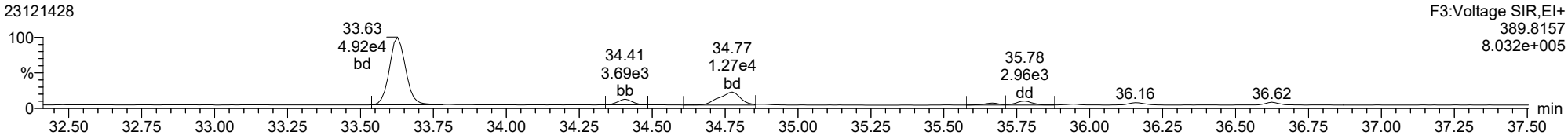


Total-pentadioxins

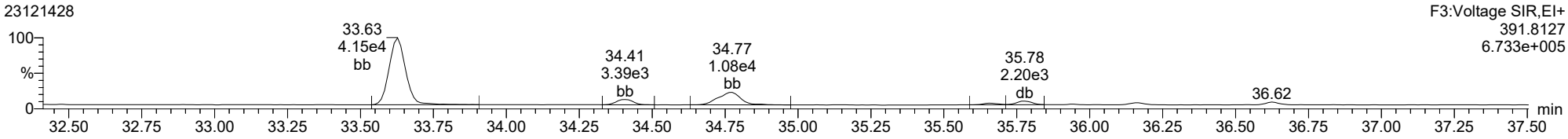


ID: 23l0156-08, Name: 23121428, Date: 15-Dec-2023, Time: 13:03:00, Conditions: AUTOSPEC01, User: pk

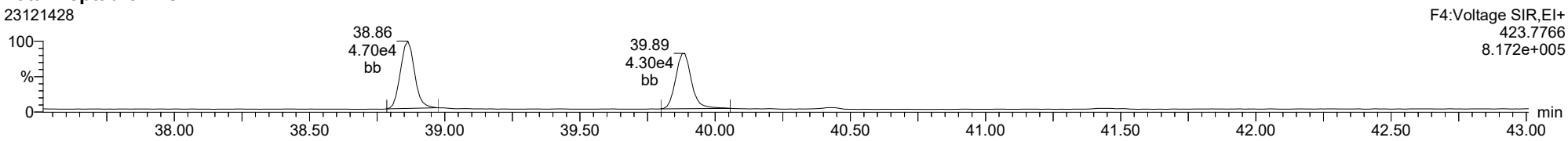
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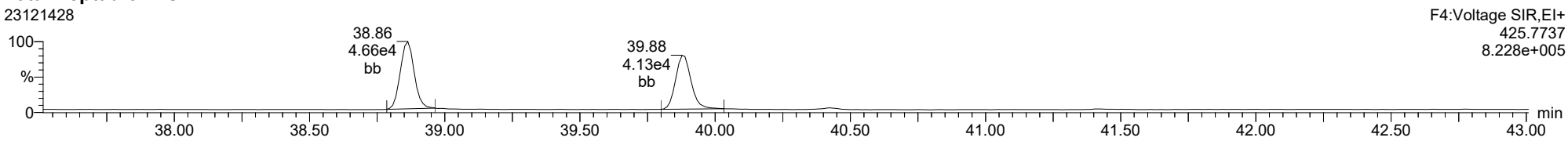
Total-hexadioxins



Total-heptadioxins

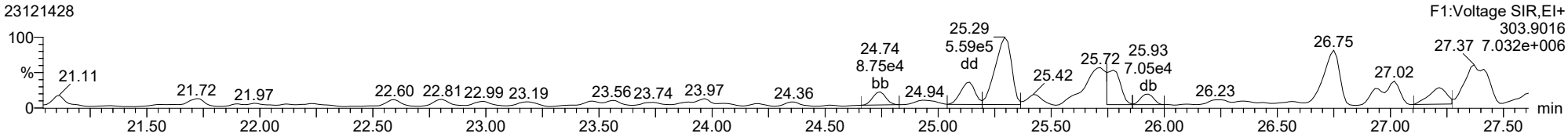


Total-heptadioxins

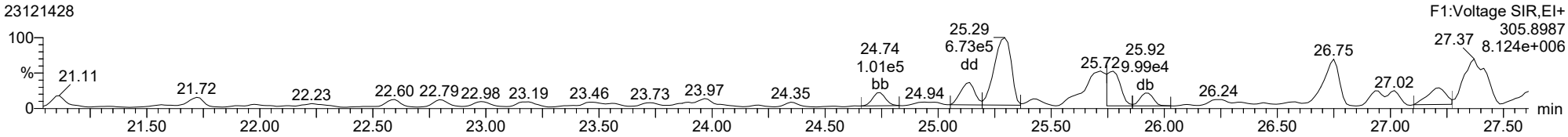


ID: 23I0156-08, Name: 23121428, Date: 15-Dec-2023, Time: 13:03:00, Conditions: AUTOSPEC01, User: pk

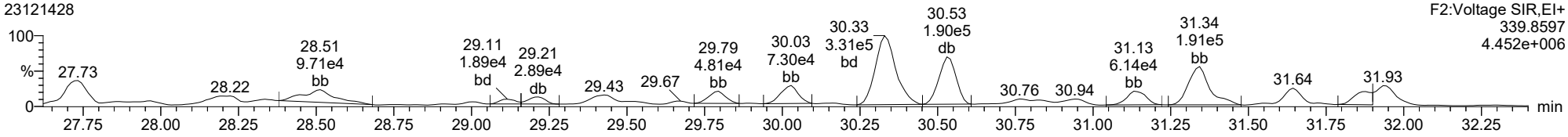
Total-tetrafurans



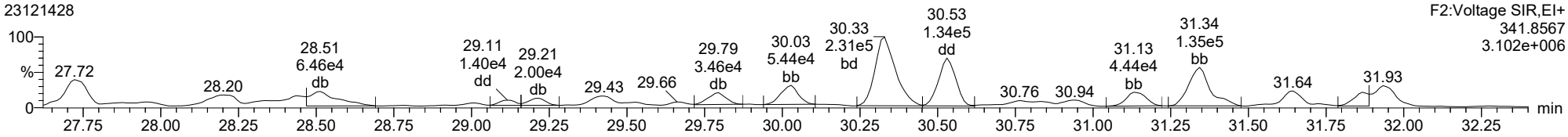
Total-tetrafurans



Total-pentafurans

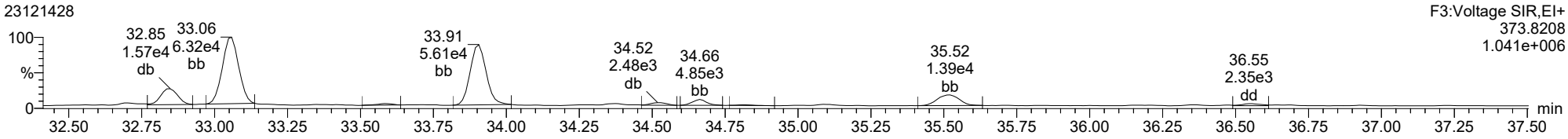


Total-pentafurans

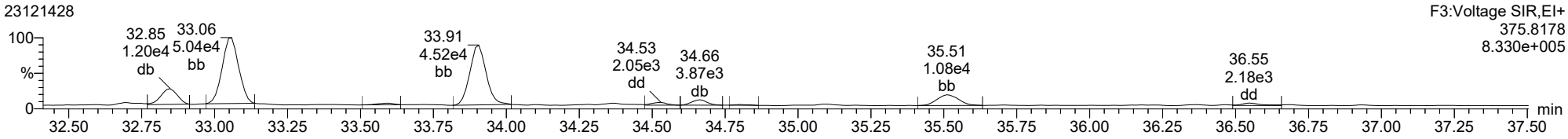


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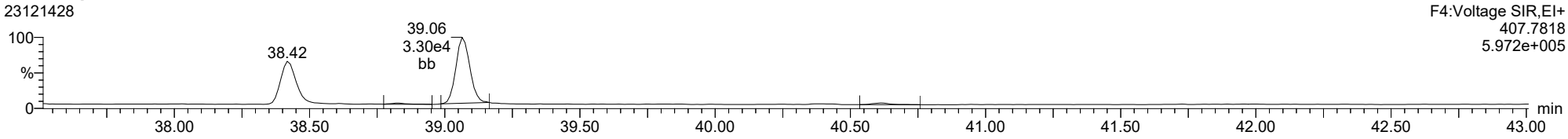
Total-hexafurans



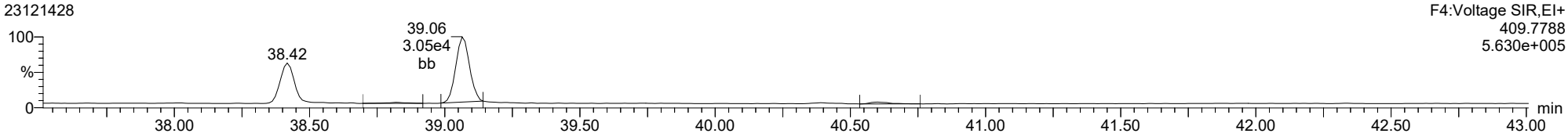
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

AOC3-05-0.5-1.0

Form 1
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23I0156
Client:	Floyd - Snider				
Project:	Smith-Kem				
Matrix:	Soil	Laboratory ID:	23I0156-10 A	File ID:	23121429
Sampled:	09/07/23 09:15	Prepared:	11/14/23 13:25	Analyzed:	12/15/23 13:50
% Solids:	80.75	Preparation:	EPA 1613	Initial/Final:	12.39 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SLL0222	Calibration:	GH00041
Batch:	BLK0112	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.948	0.655-0.886	7.06	1.00	64.6	ng/kg	EMPC, X
1746-01-6	2,3,7,8-TCDD	1	0.732	0.655-0.886	0.386	1.00	9.24	ng/kg	
57117-41-6	1,2,3,7,8-PeCDF	1	1.710	1.318-1.783	6.93	1.00	56.4	ng/kg	
57117-31-4	2,3,4,7,8-PeCDF	1	1.532	1.318-1.783	6.73	1.00	60.2	ng/kg	
40321-76-4	1,2,3,7,8-PeCDD	1	1.518	1.318-1.783	0.277	1.00	18.4	ng/kg	
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.267	1.054-1.426	0.368	1.00	74.3	ng/kg	
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.222	1.054-1.426	0.389	1.00	59.0	ng/kg	
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.260	1.054-1.426	0.425	1.00	66.3	ng/kg	
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.206	1.054-1.426	0.487	1.00	20.4	ng/kg	
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.237	1.054-1.426	0.267	1.00	8.89	ng/kg	
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.225	1.054-1.426	0.287	1.00	18.5	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.298	1.054-1.426	0.317	1.00	14.4	ng/kg	
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.066	0.893-1.208	0.446	1.00	266	ng/kg	B
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	1.143	0.893-1.208	0.642	1.00	34.8	ng/kg	
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.037	0.893-1.208	0.598	2.50	156	ng/kg	B
39001-02-0	OCDF	1	0.913	0.757-1.024	0.647	2.50	320	ng/kg	B
3268-87-9	OCDD	1	0.849	0.757-1.024	1.18	10.0	909	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			1.00	1890	ng/kg	
41903-57-5	Total TCDD	1	0.000			1.00	190	ng/kg	
30402-15-4	Total PeCDF	1	0.000			1.00	1470	ng/kg	
36088-22-9	Total PeCDD	1	0.000			1.00	150	ng/kg	
55684-94-1	Total HxCDF	1	0.000			1.00	667	ng/kg	
34465-46-8	Total HxCDD	1	0.000			1.00	207	ng/kg	
38998-75-3	Total HpCDF	1	0.000			1.00	430	ng/kg	
37871-00-4	Total HpCDD	1	0.000			1.00	273	ng/kg	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 84.97

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 84.97

Analytical Resources, Incorporated
Analytical Chemists and Consultants

AOC3-05-0.5-1.0

Form 2

ORGANIC ANALYSIS DATA SHEET

EPA 1613B

Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23I0156
Client:	Floyd - Snider			Project:	Smith-Kem
Matrix:	Soil	Laboratory ID:	23I0156-10	File ID:	23121429
Sampled:	09/07/23 09:15	Prepared:	11/14/23 13:25	Analyzed:	12/15/23 13:50
Solids Wt%:	80.75	Preparation:	EPA 1613	Initial/Final:	12.39 g / 20 uL
Result Basis:	Dry	Sequence:	SLL0222	Calibration:	GH00041
Batch:	BLK0112	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.750	0.655-0.886	0.520	66.6	24 - 169 %	
13C12-2,3,7,8-TCDD		0.780	0.655-0.886	0.277	90.4	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.545	1.318-1.783	0.405	79.7	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.509	1.318-1.783	0.428	82.1	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.618	1.318-1.783	0.326	107	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.529	0.434-0.587	0.208	59.1	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.514	0.434-0.587	0.169	49.6	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.520	0.434-0.587	0.207	53.5	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.511	0.434-0.587	0.238	57.9	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.246	1.054-1.426	0.230	71.9	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.253	1.054-1.426	0.191	61.3	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.440	0.374-0.506	0.212	47.6	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.439	0.374-0.506	0.276	49.6	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.083	0.893-1.208	0.313	66.3	23 - 140 %	
13C12-OCDD		0.887	0.757-1.024	0.381	52.3	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		1.14	122	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\231214IH2.qld
Last Altered: Saturday, December 16, 2023 10:26:00 Pacific Standard Time
Printed: Saturday, December 16, 2023 10:37:18 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin231215.mdb 15 Dec 2023 13:28:43
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: 23I0156-10, Name: 23121429, Date: 15-Dec-2023, Time: 13:50:33, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.407	1.000	4.647e4	4.901e4	0.903	0.948	0.770	16854	37403	5.44e5	6.12e5	32.3	16.4	YES	dd	MM	32.299
12378-PeCDF	29.549	1.001	4.824e4	2.820e4	0.923	1.710	1.550	33239	14663	6.31e5	4.02e5	19.0	27.4	NO	MM	db	28.189
23478-PeCDF	30.886	1.001	5.160e4	3.369e4	0.991	1.532	1.550	33239	14663	7.09e5	4.40e5	21.3	30.0	NO	dd	dd	30.099
123478-HxCDF	34.518	1.001	5.966e4	4.711e4	1.128	1.267	1.240	1251	1508	9.38e5	7.16e5	750.2	474.7	NO	dd	dd	37.156
234678-HxCDF	35.532	1.000	4.616e4	3.663e4	1.081	1.260	1.240	1251	1508	6.15e5	4.97e5	491.4	329.8	NO	bb	bb	33.143
123678-HxCDF	34.652	1.000	4.404e4	3.603e4	1.032	1.222	1.240	1251	1508	7.10e5	5.59e5	567.4	370.8	NO	db	db	29.528
123789-HxCDF	36.534	1.000	1.196e4	9.911e3	0.988	1.206	1.240	1251	1508	1.77e5	1.41e5	141.2	93.7	NO	bb	bd	10.183
1234678-HpCDF	38.417	1.001	1.480e5	1.388e5	1.164	1.066	1.050	1285	1269	2.50e6	2.37e6	1946.9	1863.8	NO	bb	bb	133.221
1234789-HpCDF	40.601	1.000	1.517e4	1.327e4	1.104	1.143	1.050	1285	1269	2.33e5	2.17e5	181.3	171.3	NO	bb	bb	17.396
OCDF	44.710	1.006	1.134e5	1.242e5	1.130	0.913	0.890	810	1294	1.40e6	1.52e6	1730.7	1171.1	NO	bb	bb	160.301
2378-TCDD	26.042	1.000	6.518e3	8.909e3	1.243	0.732	0.770	2213	1110	1.03e5	1.37e5	46.6	123.4	NO	bd	bd	4.621
12378-PeCDD	31.131	1.000	1.379e4	9.090e3	1.150	1.518	1.550	952	843	1.76e5	1.11e5	184.9	132.1	NO	bb	bb	9.195
123478-HxCDD	35.654	1.000	6.428e3	5.198e3	0.960	1.237	1.240	1097	781	1.10e5	8.35e4	99.9	106.9	NO	bd	bd	4.445
123678-HxCDD	35.777	1.001	1.261e4	1.030e4	0.883	1.225	1.240	1097	781	2.02e5	1.59e5	184.1	203.3	NO	dd	dd	9.249
123789-HxCDD	36.155	1.011	9.026e3	6.952e3	0.804	1.298	1.240	1097	781	1.52e5	1.11e5	138.3	142.1	NO	bb	bb	7.189
1234678-HpCDD	39.877	1.000	7.851e4	7.572e4	1.200	1.037	1.050	1307	1954	1.18e6	1.19e6	903.6	607.9	NO	bd	bb	78.001
OCDD	44.472	1.000	2.901e5	3.415e5	1.059	0.849	0.890	1530	2065	3.78e6	4.32e6	2471.7	2091.3	NO	bb	bd	454.916
13C-2378-TCDF	25.407	1.006	1.403e5	1.870e5	1.835	0.750	0.770	2589	3943	2.19e6	2.90e6	844.6	734.7	NO	bb	bb	66.642
13C-12378-PeCDF	29.527	1.169	1.783e5	1.154e5	1.377	1.545	1.550	2372	1441	2.73e6	1.76e6	1149.3	1220.5	NO	bd	bd	79.732
13C-23478-PeCDF	30.864	1.222	1.720e5	1.140e5	1.301	1.509	1.550	2372	1441	2.59e6	1.72e6	1092.0	1194.7	NO	bb	bb	82.143
13C-123478-HxCDF	34.495	0.954	8.808e4	1.666e5	1.091	0.529	0.510	1265	1217	1.38e6	2.65e6	1089.6	2175.1	NO	bd	bd	59.136
13C-123678-HxCDF	34.640	0.958	8.918e4	1.735e5	1.340	0.514	0.510	1265	1217	1.40e6	2.65e6	1106.7	2179.1	NO	db	db	49.630
13C-234678-HxCDF	35.520	0.983	7.903e4	1.519e5	1.093	0.520	0.510	1265	1217	1.23e6	2.36e6	973.5	1940.9	NO	bb	bb	53.488
13C-123789-HxCDF	36.546	1.011	7.354e4	1.439e5	0.952	0.511	0.510	1265	1217	1.16e6	2.26e6	920.1	1860.4	NO	bd	bb	57.858
13C-1234678-HpCDF	38.395	1.062	5.656e4	1.285e5	0.985	0.440	0.440	1303	982	9.02e5	2.11e6	692.1	2152.0	NO	bd	bb	47.570
13C-1234789-HpCDF	40.590	1.123	4.519e4	1.029e5	0.756	0.439	0.440	1303	982	6.59e5	1.52e6	506.0	1547.7	NO	bd	bb	49.626
13C-1234-TCDD	25.251	0.000	1.180e5	1.496e5	1.000	0.789	0.770	1203	903	1.81e6	2.28e6	1503.5	2527.9	NO	bb	bb	100.000
13C-2378-TCDD	26.028	1.031	1.176e5	1.509e5	1.110	0.780	0.770	1203	903	1.82e6	2.33e6	1512.6	2577.7	NO	bb	bb	90.449
13C-12378-PeCDD	31.120	1.232	1.337e5	8.267e4	0.754	1.618	1.550	787	895	2.09e6	1.29e6	2652.3	1437.3	NO	bb	bb	107.297
13C-123478-HxCDD	35.643	0.986	1.511e5	1.213e5	0.960	1.246	1.240	1175	1244	2.44e6	1.94e6	2077.3	1559.1	NO	bd	bd	71.860
13C-123678-HxCDD	35.754	0.989	1.561e5	1.245e5	1.159	1.253	1.240	1175	1244	2.47e6	2.03e6	2106.8	1631.4	NO	db	db	61.300
13C-1234678-HpCDD	39.866	1.103	8.569e4	7.914e4	0.629	1.083	1.050	1108	1050	1.42e6	1.31e6	1278.7	1245.6	NO	bb	bb	66.326
13C-OCDD	44.453	1.230	1.233e5	1.390e5	0.635	0.887	0.890	1692	953	1.62e6	1.86e6	958.0	1946.7	NO	bb	bb	104.569
13C-123789-HxCDD	36.144	0.000	2.170e5	1.779e5	1.000	1.220	1.240	1175	1244	3.61e6	2.97e6	3070.2	2385.0	NO	bb	bb	100.000
37CL-2378-TCDD	26.042	1.031	1.517e5		1.157			9053		2.31e6		255.4			dd		48.994

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Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.932	0.863	2.709e4	4.255e4	1.170	0.637	0.770	16854	37403	3.85e5	4.67e5	22.8	12.5	YES	db	bb	18.178
1289-TCDF	26.904	1.059	4.823e4	5.079e4	0.847	0.950	0.770	16854	37403	6.98e5	7.49e5	41.4	20.0	YES	bd	bd	35.726
13468-PECDF					1.241		1.550	9640	3898								
12389-PECDF	31.922	1.081	2.744e4	1.916e4	0.880	1.432	1.550	33239	14663	3.26e5	2.32e5	9.8	15.8	NO	db	db	18.038
123468-HXCDF	32.835	0.952	5.301e4	4.122e4	1.206	1.286	1.240	1251	1508	8.13e5	6.36e5	649.8	421.6	NO	db	db	30.687
1368-TCDD	23.204	0.891	3.600e4	4.833e4	1.181	0.745	0.770	2213	1110	5.59e5	7.66e5	252.7	689.9	NO	dd	bb	26.592
1289-TCDD	26.650	1.024	8.563e2	1.222e3	0.963	0.701	0.770	2213	1110	1.22e4	1.70e4	5.5	15.3	NO	bd	bb	0.804
12479-PECDD	28.468	0.915	4.099e4	2.700e4	2.166	1.518	1.550	952	843	4.23e5	2.76e5	444.5	327.3	NO	bb	bb	14.501
12389-PECDD	31.532	1.013	3.949e3	2.856e3	1.326	1.383	1.550	952	843	5.68e4	4.06e4	59.7	48.2	NO	bb	bb	2.371
124679-HXCDD	33.615	0.943	2.609e4	2.136e4	1.127	1.222	1.240	1097	781	3.97e5	3.32e5	362.2	425.0	NO	bb	bb	15.463
1234679-HPCDD	38.863	0.975	6.205e4	6.324e4	1.303	0.981	1.050	1307	1954	1.04e6	1.05e6	799.1	536.8	NO	bb	bb	58.354
Total-tetrafurans			1.346e6		0.973			16854		1.79e7							946.688
Total-penta1			2.442e5					9640		3.15e6							149.581
Total-pentafurans			9.660e5		0.931			33239		1.30e7							585.063
Total-hexafurans			4.965e5		1.087			1251		7.19e6							333.492
Total-heptafurans			2.268e5		1.134			1285		3.79e6							215.353
Total-Furans			3.663e6		1.053			16854		5.07e7							2572.234
Total-tetradioxins			1.254e5		1.129			2213		1.86e6							94.986
Total-pentadioxins			1.571e5		1.548			952		2.10e6							74.938
Total-hexadioxins			1.512e5		0.943			1097		2.20e6							103.788
Total-heptadioxins			1.406e5		1.251			1307		2.23e6							136.355
Total-Dioxins			8.644e5		1.182			2213		1.22e7							864.982
Total-TEQ			4.528e6					2213		6.29e7							3437.215
FUNCTION1 PFK			1.774e7					272144		1.33e8							
FUNCTION2 PFK			3.622e6					107494		2.43e7							0.000
FUNCTION3 PFK			9.742e5					221387		8.72e6							0.000
FUNCTION4 PFK			1.225e6					165157		7.24e6							
FUNCTION5 PFK			0.000e0					107703		0.00e0							
FUNCTION1 HXCD...			1.828e6					5400		2.55e7							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			1.568e5					6742		2.47e6							0.000
FUNCTION3 OCDPE			7.746e3					1269		1.30e5							0.000
FUNCTION4 NCDPE			1.029e3					631		2.19e4							0.000
FUNCTION5 DCDPE			0.000e0					470		0.00e0							

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ID: 23I0156-10, Name: 23121429, Date: 15-Dec-2023, Time: 13:50:33, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.68	3.382e4	4.061e4	0.973	0.83	0.77	21.0	YES	NO	bd	dd	23.358
2	Total-tetrafurans	23.43	4.494e4	5.495e4	0.973	0.82	0.77	35.5	YES	NO	dd	dd	31.350
3	Total-tetrafurans	23.18	1.772e4	2.556e4	0.973	0.69	0.77	22.1	YES	NO	dd	dd	13.584
4	Total-tetrafurans	23.09	4.226e4	6.140e4	0.973	0.69	0.77	28.0	YES	NO	dd	dd	32.534
5	Total-tetrafurans	22.95	7.121e4	8.732e4	0.973	0.82	0.77	35.8	YES	NO	dd	dd	49.753
6	Total-tetrafurans	22.77	6.604e4	8.409e4	0.973	0.79	0.77	45.9	YES	NO	bd	bd	47.118
7	Total-tetrafurans	22.55	1.778e4	2.386e4	0.973	0.75	0.77	16.8	YES	NO	bb	bb	13.070
8	Total-tetrafurans	22.19	2.193e4	2.801e4	0.973	0.78	0.77	21.3	YES	NO	bb	bb	15.675
9	Total-tetrafurans	25.89	3.736e4	4.252e4	0.973	0.88	0.77	31.1	YES	NO	db	db	25.070
10	Total-tetrafurans	25.70	1.151e5	1.368e5	0.973	0.84	0.77	91.1	YES	NO	dd	dd	79.048
11	Total-tetrafurans	25.66	1.223e5	1.411e5	0.973	0.87	0.77	102.8	YES	NO	dd	dd	82.663
12	Total-tetrafurans	25.56	4.246e4	5.069e4	0.973	0.84	0.77	40.1	YES	NO	dd	dd	29.238
13	Total-tetrafurans	25.25	3.319e5	3.972e5	0.973	0.84	0.77	255.6	YES	NO	dd	dd	228.809
14	Total-tetrafurans	25.10	7.745e4	9.326e4	0.973	0.83	0.77	67.6	YES	NO	dd	dd	53.575
15	Total-tetrafurans	24.91	4.640e4	5.635e4	0.973	0.82	0.77	38.1	YES	NO	bd	dd	32.247
16	Total-tetrafurans	24.73	5.449e4	7.382e4	0.973	0.74	0.77	42.2	YES	NO	bb	dd	40.271
17	Total-tetrafurans	24.50	2.788e4	4.235e4	0.973	0.66	0.77	27.1	YES	NO	bb	dd	22.039
18	Total-tetrafurans	24.32	5.122e4	6.748e4	0.973	0.76	0.77	44.5	YES	NO	db	dd	37.253
19	Total-tetrafurans	24.18	3.467e4	4.363e4	0.973	0.79	0.77	34.3	YES	NO	dd	dd	24.574
20	Total-tetrafurans	24.08	5.917e4	7.504e4	0.973	0.79	0.77	38.0	YES	NO	dd	dd	42.124
21	Total-tetrafurans	23.91	3.034e4	4.401e4	0.973	0.69	0.77	24.1	YES	NO	dd	dd	23.335

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	26.83	2.442e5	1.587e5		1.54	1.55	326.8	YES	NO	bb	bb	149.581

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PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	29.19	1.133e5	6.976e4	0.931	1.62	1.55	30.7	YES	NO	dd	dd	67.808
2	Total-pentafurans	29.09	1.590e4	9.010e3	0.931	1.77	1.55	8.3	YES	NO	dd	dd	9.230
3	Total-pentafurans	28.98	3.409e4	2.114e4	0.931	1.61	1.55	13.5	YES	NO	dd	dd	20.464
4	Total-pentafurans	28.61	1.378e4	9.590e3	0.931	1.44	1.55	6.8	YES	NO	db	db	8.658
5	Total-pentafurans	28.48	9.095e4	5.762e4	0.931	1.58	1.55	40.8	YES	NO	dd	dd	55.041
6	Total-pentafurans	28.41	9.534e4	6.492e4	0.931	1.47	1.55	47.7	YES	NO	dd	dd	59.370
7	Total-pentafurans	28.29	7.663e4	4.713e4	0.931	1.63	1.55	24.7	YES	NO	dd	dd	45.847
8	Total-pentafurans	27.92	7.812e3	5.902e3	0.931	1.32	1.55	3.4	YES	NO	db	db	5.081
9	Total-pentafurans	31.11	1.188e4	7.840e3	0.931	1.52	1.55	5.2	YES	NO	db	db	7.306
10	23478-PeCDF	30.89	5.160e4	3.369e4	0.991	1.53	1.55	21.3	YES	NO	dd	dd	30.099
11	Total-pentafurans	30.62	4.918e4	3.109e4	0.931	1.58	1.55	23.2	YES	NO	dd	dd	29.737
12	Total-pentafurans	30.51	8.049e4	4.935e4	0.931	1.63	1.55	36.0	YES	NO	dd	bd	48.101
13	Total-pentafurans	30.31	1.083e5	7.443e4	0.931	1.46	1.55	40.7	YES	NO	bd	bb	67.695
14	Total-pentafurans	30.01	3.087e4	1.732e4	0.931	1.78	1.55	12.4	YES	NO	dd	db	17.855
15	Total-pentafurans	29.85	2.557e4	1.461e4	0.931	1.75	1.55	11.9	YES	NO	dd	dd	14.883
16	Total-pentafurans	29.76	6.909e4	4.346e4	0.931	1.59	1.55	28.1	YES	NO	dd	bd	41.694
17	12378-PeCDF	29.55	4.824e4	2.820e4	0.923	1.71	1.55	19.0	YES	NO	MM	db	28.189
18	12389-PECDF	31.92	2.744e4	1.916e4	0.880	1.43	1.55	9.8	YES	NO	db	db	18.038
19	Total-pentafurans	31.84	1.553e4	1.138e4	0.931	1.37	1.55	7.8	YES	NO	bd	dd	9.968

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexafurans	35.00	6.195e3	5.215e3	1.087	1.19	1.24	80.9	YES	NO	bb	dd	4.347
2	123678-HxCDF	34.65	4.404e4	3.603e4	1.032	1.22	1.24	567.4	YES	NO	db	db	29.528
3	123478-HxCDF	34.52	5.966e4	4.711e4	1.128	1.27	1.24	750.2	YES	NO	dd	dd	37.156
4	Total-hexafurans	34.36	5.349e4	4.264e4	1.087	1.25	1.24	666.5	YES	NO	bd	bd	36.623
5	Total-hexafurans	33.89	5.271e4	4.197e4	1.087	1.26	1.24	669.9	YES	NO	bb	bb	36.071
6	Total-hexafurans	33.58	8.529e3	7.060e3	1.087	1.21	1.24	107.2	YES	NO	bb	bb	5.939
7	Total-hexafurans	33.31	5.452e3	4.054e3	1.087	1.34	1.24	61.9	YES	NO	bb	bb	3.622
8	Total-hexafurans	33.04	1.502e5	1.194e5	1.087	1.26	1.24	1496.1	YES	NO	bb	bb	102.707
9	123468-HXCDF	32.84	5.301e4	4.122e4	1.206	1.29	1.24	649.8	YES	NO	db	db	30.687
10	123789-HxCDF	36.53	1.196e4	9.911e3	0.988	1.21	1.24	141.2	YES	NO	bb	bd	10.183
11	234678-HxCDF	35.53	4.616e4	3.663e4	1.081	1.26	1.24	491.4	YES	NO	bb	bb	33.143
12	Total-hexafurans	35.19	5.064e3	4.085e3	1.087	1.24	1.24	67.8	YES	NO	bb	db	3.486

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HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	38.82	1.558e4	1.480e4	1.134	1.05	1.05	207.3	YES	NO	bb	bd	16.086
2	1234678-HpCDF	38.42	1.480e5	1.388e5	1.164	1.07	1.05	1946.9	YES	NO	bb	bb	133.221
3	1234789-HpCDF	40.60	1.517e4	1.327e4	1.104	1.14	1.05	181.3	YES	NO	bb	bb	17.396
4	Total-heptafurans	39.06	4.798e4	4.390e4	1.134	1.09	1.05	613.8	YES	NO	bb	bb	48.651

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.68	3.382e4	4.061e4	0.973	0.83	0.77	21.0	YES	NO	bd	dd	23.358
2	Total-tetrafurans	23.43	4.494e4	5.495e4	0.973	0.82	0.77	35.5	YES	NO	dd	dd	31.350
3	Total-tetrafurans	23.18	1.772e4	2.556e4	0.973	0.69	0.77	22.1	YES	NO	dd	dd	13.584
4	Total-tetrafurans	23.09	4.226e4	6.140e4	0.973	0.69	0.77	28.0	YES	NO	dd	dd	32.534
5	Total-tetrafurans	22.95	7.121e4	8.732e4	0.973	0.82	0.77	35.8	YES	NO	dd	dd	49.753
6	Total-tetrafurans	22.77	6.604e4	8.409e4	0.973	0.79	0.77	45.9	YES	NO	bd	bd	47.118
7	Total-tetrafurans	22.55	1.778e4	2.386e4	0.973	0.75	0.77	16.8	YES	NO	bb	bb	13.070
8	Total-tetrafurans	22.19	2.193e4	2.801e4	0.973	0.78	0.77	21.3	YES	NO	bb	bb	15.675
9	Total-Furans	21.69	3.289e4	4.850e4	1.053	0.68	0.77	29.9	YES	NO	bb	bb	23.622
10	Total-Furans	21.08	1.847e4	2.536e4	1.053	0.73	0.77	22.1	YES	NO	bb	bb	12.724
11	Total-tetrafurans	25.89	3.736e4	4.252e4	0.973	0.88	0.77	31.1	YES	NO	db	db	25.070
12	Total-tetrafurans	25.70	1.151e5	1.368e5	0.973	0.84	0.77	91.1	YES	NO	dd	dd	79.048
13	Total-tetrafurans	25.66	1.223e5	1.411e5	0.973	0.87	0.77	102.8	YES	NO	dd	dd	82.663
14	Total-tetrafurans	25.56	4.246e4	5.069e4	0.973	0.84	0.77	40.1	YES	NO	dd	dd	29.238
15	Total-tetrafurans	25.25	3.319e5	3.972e5	0.973	0.84	0.77	255.6	YES	NO	dd	dd	228.809
16	Total-tetrafurans	25.10	7.745e4	9.326e4	0.973	0.83	0.77	67.6	YES	NO	dd	dd	53.575
17	Total-tetrafurans	24.91	4.640e4	5.635e4	0.973	0.82	0.77	38.1	YES	NO	bd	dd	32.247
18	Total-tetrafurans	24.73	5.449e4	7.382e4	0.973	0.74	0.77	42.2	YES	NO	bb	dd	40.271
19	Total-tetrafurans	24.50	2.788e4	4.235e4	0.973	0.66	0.77	27.1	YES	NO	bb	dd	22.039
20	Total-tetrafurans	24.32	5.122e4	6.748e4	0.973	0.76	0.77	44.5	YES	NO	db	dd	37.253
21	Total-tetrafurans	24.18	3.467e4	4.363e4	0.973	0.79	0.77	34.3	YES	NO	dd	dd	24.574
22	Total-tetrafurans	24.08	5.917e4	7.504e4	0.973	0.79	0.77	38.0	YES	NO	dd	dd	42.124
23	Total-tetrafurans	23.91	3.034e4	4.401e4	0.973	0.69	0.77	24.1	YES	NO	dd	dd	23.335
24	Total-Furans	27.55	2.612e4	3.333e4	1.053	0.78	0.77	20.8	YES	NO	bb	bb	17.254
25	Total-Furans	27.37	9.319e4	1.124e5	1.053	0.83	0.77	88.1	YES	NO	db	db	59.665
26	Total-Furans	27.31	9.964e4	1.363e5	1.053	0.73	0.77	91.6	YES	NO	dd	dd	68.491
27	Total-pentafurans	29.19	1.133e5	6.976e4	0.931	1.62	1.55	30.7	YES	NO	dd	dd	67.808
28	Total-pentafurans	29.09	1.590e4	9.010e3	0.931	1.77	1.55	8.3	YES	NO	dd	dd	9.230
29	Total-pentafurans	28.98	3.409e4	2.114e4	0.931	1.61	1.55	13.5	YES	NO	dd	dd	20.464
30	Total-pentafurans	28.61	1.378e4	9.590e3	0.931	1.44	1.55	6.8	YES	NO	db	db	8.658
31	Total-pentafurans	28.48	9.095e4	5.762e4	0.931	1.58	1.55	40.8	YES	NO	dd	dd	55.041
32	Total-pentafurans	28.41	9.534e4	6.492e4	0.931	1.47	1.55	47.7	YES	NO	dd	dd	59.370
33	Total-pentafurans	28.29	7.663e4	4.713e4	0.931	1.63	1.55	24.7	YES	NO	dd	dd	45.847
34	Total-pentafurans	27.92	7.812e3	5.902e3	0.931	1.32	1.55	3.4	YES	NO	db	db	5.081
35	Total-pentafurans	31.11	1.188e4	7.840e3	0.931	1.52	1.55	5.2	YES	NO	db	db	7.306
36	23478-PeCDF	30.89	5.160e4	3.369e4	0.991	1.53	1.55	21.3	YES	NO	dd	dd	30.099
37	Total-pentafurans	30.62	4.918e4	3.109e4	0.931	1.58	1.55	23.2	YES	NO	dd	dd	29.737

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-pentafurans	30.51	8.049e4	4.935e4	0.931	1.63	1.55	36.0	YES	NO	dd	bd	48.101
39	Total-pentafurans	30.31	1.083e5	7.443e4	0.931	1.46	1.55	40.7	YES	NO	bd	bb	67.695
40	Total-pentafurans	30.01	3.087e4	1.732e4	0.931	1.78	1.55	12.4	YES	NO	dd	db	17.855
41	Total-pentafurans	29.85	2.557e4	1.461e4	0.931	1.75	1.55	11.9	YES	NO	dd	dd	14.883
42	Total-pentafurans	29.76	6.909e4	4.346e4	0.931	1.59	1.55	28.1	YES	NO	dd	bd	41.694
43	12378-PeCDF	29.55	4.824e4	2.820e4	0.923	1.71	1.55	19.0	YES	NO	MM	db	28.189
44	12389-PECDF	31.92	2.744e4	1.916e4	0.880	1.43	1.55	9.8	YES	NO	db	db	18.038
45	Total-pentafurans	31.84	1.553e4	1.138e4	0.931	1.37	1.55	7.8	YES	NO	bd	dd	9.968
46	Total-hexafurans	35.00	6.195e3	5.215e3	1.087	1.19	1.24	80.9	YES	NO	bb	dd	4.347
47	123678-HxCDF	34.65	4.404e4	3.603e4	1.032	1.22	1.24	567.4	YES	NO	db	db	29.528
48	123478-HxCDF	34.52	5.966e4	4.711e4	1.128	1.27	1.24	750.2	YES	NO	dd	dd	37.156
49	Total-hexafurans	34.36	5.349e4	4.264e4	1.087	1.25	1.24	666.5	YES	NO	bd	bd	36.623
50	Total-hexafurans	33.89	5.271e4	4.197e4	1.087	1.26	1.24	669.9	YES	NO	bb	bb	36.071
51	Total-hexafurans	33.58	8.529e3	7.060e3	1.087	1.21	1.24	107.2	YES	NO	bb	bb	5.939
52	Total-hexafurans	33.31	5.452e3	4.054e3	1.087	1.34	1.24	61.9	YES	NO	bb	bb	3.622
53	Total-hexafurans	33.04	1.502e5	1.194e5	1.087	1.26	1.24	1496.1	YES	NO	bb	bb	102.707
54	123468-HXCDF	32.84	5.301e4	4.122e4	1.206	1.29	1.24	649.8	YES	NO	db	db	30.687
55	123789-HxCDF	36.53	1.196e4	9.911e3	0.988	1.21	1.24	141.2	YES	NO	bb	bd	10.183
56	234678-HxCDF	35.53	4.616e4	3.663e4	1.081	1.26	1.24	491.4	YES	NO	bb	bb	33.143
57	Total-hexafurans	35.19	5.064e3	4.085e3	1.087	1.24	1.24	67.8	YES	NO	bb	db	3.486
58	Total-heptafurans	38.82	1.558e4	1.480e4	1.134	1.05	1.05	207.3	YES	NO	bb	bd	16.086
59	1234678-HpCDF	38.42	1.480e5	1.388e5	1.164	1.07	1.05	1946.9	YES	NO	bb	bb	133.221
60	1234789-HpCDF	40.60	1.517e4	1.327e4	1.104	1.14	1.05	181.3	YES	NO	bb	bb	17.396
61	Total-heptafurans	39.06	4.798e4	4.390e4	1.134	1.09	1.05	613.8	YES	NO	bb	bb	48.651
62	OCDF	44.71	1.134e5	1.242e5	1.130	0.91	0.89	1730.7	YES	NO	bb	bb	160.301
63	Total-penta1	26.83	2.442e5	1.587e5		1.54	1.55	326.8	YES	NO	bb	bb	149.581

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TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	23.47	2.778e4	3.767e4	1.129	0.74	0.77	184.3	YES	NO	bb	bd	21.588
2	1368-TCDD	23.20	3.600e4	4.833e4	1.181	0.74	0.77	252.7	YES	NO	dd	bb	26.592
3	1289-TCDD	26.65	8.563e2	1.222e3	0.963	0.70	0.77	5.5	YES	NO	bd	bb	0.804
4	Total-tetradioxins	26.18	3.834e3	5.190e3	1.129	0.74	0.77	25.3	YES	NO	dd	db	2.977
5	2378-TCDD	26.04	6.518e3	8.909e3	1.243	0.73	0.77	46.6	YES	NO	bd	bd	4.621
6	Total-tetradioxins	25.68	1.306e4	1.710e4	1.129	0.76	0.77	69.3	YES	NO	bd	bb	9.950
7	Total-tetradioxins	25.38	1.577e3	2.207e3	1.129	0.71	0.77	13.1	YES	NO	db	db	1.248
8	Total-tetradioxins	25.27	2.906e3	3.754e3	1.129	0.77	0.77	21.3	YES	NO	bd	bd	2.197
9	Total-tetradioxins	25.04	4.186e3	6.187e3	1.129	0.68	0.77	31.1	YES	NO	db	db	3.421
10	Total-tetradioxins	24.93	1.326e3	1.665e3	1.129	0.80	0.77	9.6	YES	NO	bd	bd	0.986
11	Total-tetradioxins	24.67	1.263e4	1.634e4	1.129	0.77	0.77	88.1	YES	NO	bb	bb	9.555
12	Total-tetradioxins	24.39	1.154e4	1.418e4	1.129	0.81	0.77	72.5	YES	NO	bb	bb	8.486
13	Total-tetradioxins	23.70	3.227e3	4.536e3	1.129	0.71	0.77	23.4	YES	NO	bb	db	2.561

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.53	3.949e3	2.856e3	1.326	1.38	1.55	59.7	YES	NO	bb	bb	2.371
2	12378-PeCDD	31.13	1.379e4	9.090e3	1.150	1.52	1.55	184.9	YES	NO	bb	bb	9.195
3	Total-pentadioxins	30.46	1.296e4	8.744e3	1.548	1.48	1.55	179.7	YES	NO	bb	bb	6.479
4	Total-pentadioxins	30.07	1.091e4	7.522e3	1.548	1.45	1.55	121.9	YES	NO	db	db	5.504
5	Total-pentadioxins	29.89	2.590e4	1.691e4	1.548	1.53	1.55	406.4	YES	NO	dd	dd	12.782
6	Total-pentadioxins	29.76	1.200e4	8.171e3	1.548	1.47	1.55	196.4	YES	NO	dd	dd	6.023
7	Total-pentadioxins	29.55	3.344e4	2.189e4	1.548	1.53	1.55	559.6	YES	NO	bd	bd	16.521
8	Total-pentadioxins	28.94	3.138e3	2.088e3	1.548	1.50	1.55	53.7	YES	NO	bb	bb	1.560
9	12479-PECDD	28.47	4.099e4	2.700e4	2.166	1.52	1.55	444.5	YES	NO	bb	bb	14.501

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDD	35.78	1.261e4	1.030e4	0.883	1.22	1.24	184.1	YES	NO	dd	dd	9.249
2	123478-HxCDD	35.65	6.428e3	5.198e3	0.960	1.24	1.24	99.9	YES	NO	bd	bd	4.445
3	Total-hexadioxins	34.76	3.659e4	2.969e4	0.943	1.23	1.24	347.5	YES	NO	bd	bd	25.412
4	Total-hexadioxins	34.40	5.415e4	4.391e4	0.943	1.23	1.24	779.2	YES	NO	bb	bb	37.594
5	124679-HXCDD	33.62	2.609e4	2.136e4	1.127	1.22	1.24	362.2	YES	NO	bb	bb	15.463
6	123789-HxCDD	36.16	9.026e3	6.952e3	0.804	1.30	1.24	138.3	YES	NO	bb	bb	7.189
7	Total-hexadioxins	35.93	6.317e3	5.252e3	0.943	1.20	1.24	89.8	YES	NO	db	db	4.435

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HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.88	7.851e4	7.572e4	1.200	1.04	1.05	903.6	YES	NO	bd	bb	78.001
2	1234679-HPCDD	38.86	6.205e4	6.324e4	1.303	0.98	1.05	799.1	YES	NO	bb	bb	58.354

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	23.47	2.778e4	3.767e4	1.129	0.74	0.77	184.3	YES	NO	bb	bd	21.588
2	1368-TCDD	23.20	3.600e4	4.833e4	1.181	0.74	0.77	252.7	YES	NO	dd	bb	26.592
3	1289-TCDD	26.65	8.563e2	1.222e3	0.963	0.70	0.77	5.5	YES	NO	bd	bb	0.804
4	Total-tetradioxins	26.18	3.834e3	5.190e3	1.129	0.74	0.77	25.3	YES	NO	dd	db	2.977
5	2378-TCDD	26.04	6.518e3	8.909e3	1.243	0.73	0.77	46.6	YES	NO	bd	bd	4.621
6	Total-tetradioxins	25.68	1.306e4	1.710e4	1.129	0.76	0.77	69.3	YES	NO	bd	bb	9.950
7	Total-tetradioxins	25.38	1.577e3	2.207e3	1.129	0.71	0.77	13.1	YES	NO	db	db	1.248
8	Total-tetradioxins	25.27	2.906e3	3.754e3	1.129	0.77	0.77	21.3	YES	NO	bd	bd	2.197
9	Total-tetradioxins	25.04	4.186e3	6.187e3	1.129	0.68	0.77	31.1	YES	NO	db	db	3.421
10	Total-tetradioxins	24.93	1.326e3	1.665e3	1.129	0.80	0.77	9.6	YES	NO	bd	bd	0.986
11	Total-tetradioxins	24.67	1.263e4	1.634e4	1.129	0.77	0.77	88.1	YES	NO	bb	bb	9.555
12	Total-tetradioxins	24.39	1.154e4	1.418e4	1.129	0.81	0.77	72.5	YES	NO	bb	bb	8.486
13	Total-tetradioxins	23.70	3.227e3	4.536e3	1.129	0.71	0.77	23.4	YES	NO	bb	db	2.561
14	12389-PECDD	31.53	3.949e3	2.856e3	1.326	1.38	1.55	59.7	YES	NO	bb	bb	2.371
15	12378-PeCDD	31.13	1.379e4	9.090e3	1.150	1.52	1.55	184.9	YES	NO	bb	bb	9.195
16	Total-pentadioxins	30.46	1.296e4	8.744e3	1.548	1.48	1.55	179.7	YES	NO	bb	bb	6.479
17	Total-pentadioxins	30.07	1.091e4	7.522e3	1.548	1.45	1.55	121.9	YES	NO	db	db	5.504
18	Total-pentadioxins	29.89	2.590e4	1.691e4	1.548	1.53	1.55	406.4	YES	NO	dd	dd	12.782
19	Total-pentadioxins	29.76	1.200e4	8.171e3	1.548	1.47	1.55	196.4	YES	NO	dd	dd	6.023
20	Total-pentadioxins	29.55	3.344e4	2.189e4	1.548	1.53	1.55	559.6	YES	NO	bd	bd	16.521
21	Total-pentadioxins	28.94	3.138e3	2.088e3	1.548	1.50	1.55	53.7	YES	NO	bb	bb	1.560
22	12479-PECDD	28.47	4.099e4	2.700e4	2.166	1.52	1.55	444.5	YES	NO	bb	bb	14.501
23	123678-HxCDD	35.78	1.261e4	1.030e4	0.883	1.22	1.24	184.1	YES	NO	dd	dd	9.249
24	123478-HxCDD	35.65	6.428e3	5.198e3	0.960	1.24	1.24	99.9	YES	NO	bd	bd	4.445
25	Total-hexadioxins	34.76	3.659e4	2.969e4	0.943	1.23	1.24	347.5	YES	NO	bd	bd	25.412
26	Total-hexadioxins	34.40	5.415e4	4.391e4	0.943	1.23	1.24	779.2	YES	NO	bb	bb	37.594
27	124679-HXCDD	33.62	2.609e4	2.136e4	1.127	1.22	1.24	362.2	YES	NO	bb	bb	15.463
28	123789-HxCDD	36.16	9.026e3	6.952e3	0.804	1.30	1.24	138.3	YES	NO	bb	bb	7.189
29	Total-hexadioxins	35.93	6.317e3	5.252e3	0.943	1.20	1.24	89.8	YES	NO	db	db	4.435
30	1234678-HpCDD	39.88	7.851e4	7.572e4	1.200	1.04	1.05	903.6	YES	NO	bd	bb	78.001
31	1234679-HPCDD	38.86	6.205e4	6.324e4	1.303	0.98	1.05	799.1	YES	NO	bb	bb	58.354
32	OCDD	44.47	2.901e5	3.415e5	1.059	0.85	0.89	2471.7	YES	NO	bb	bd	454.916

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.68	3.382e4	4.061e4	0.973	0.83	0.77	21.0	YES	NO	bd	dd	23.358
2	Total-tetrafurans	23.43	4.494e4	5.495e4	0.973	0.82	0.77	35.5	YES	NO	dd	dd	31.350
3	Total-tetrafurans	23.18	1.772e4	2.556e4	0.973	0.69	0.77	22.1	YES	NO	dd	dd	13.584
4	Total-tetrafurans	23.09	4.226e4	6.140e4	0.973	0.69	0.77	28.0	YES	NO	dd	dd	32.534
5	Total-tetrafurans	22.95	7.121e4	8.732e4	0.973	0.82	0.77	35.8	YES	NO	dd	dd	49.753
6	Total-tetrafurans	22.77	6.604e4	8.409e4	0.973	0.79	0.77	45.9	YES	NO	bd	bd	47.118
7	Total-tetrafurans	22.55	1.778e4	2.386e4	0.973	0.75	0.77	16.8	YES	NO	bb	bb	13.070
8	Total-tetrafurans	22.19	2.193e4	2.801e4	0.973	0.78	0.77	21.3	YES	NO	bb	bb	15.675
9	Total-Furans	21.69	3.289e4	4.850e4	1.053	0.68	0.77	29.9	YES	NO	bb	bb	23.622
10	Total-Furans	21.08	1.847e4	2.536e4	1.053	0.73	0.77	22.1	YES	NO	bb	bb	12.724
11	Total-tetrafurans	25.89	3.736e4	4.252e4	0.973	0.88	0.77	31.1	YES	NO	db	db	25.070
12	Total-tetrafurans	25.70	1.151e5	1.368e5	0.973	0.84	0.77	91.1	YES	NO	dd	dd	79.048
13	Total-tetrafurans	25.66	1.223e5	1.411e5	0.973	0.87	0.77	102.8	YES	NO	dd	dd	82.663
14	Total-tetrafurans	25.56	4.246e4	5.069e4	0.973	0.84	0.77	40.1	YES	NO	dd	dd	29.238
15	Total-tetrafurans	25.25	3.319e5	3.972e5	0.973	0.84	0.77	255.6	YES	NO	dd	dd	228.809
16	Total-tetrafurans	25.10	7.745e4	9.326e4	0.973	0.83	0.77	67.6	YES	NO	dd	dd	53.575
17	Total-tetrafurans	24.91	4.640e4	5.635e4	0.973	0.82	0.77	38.1	YES	NO	bd	dd	32.247
18	Total-tetrafurans	24.73	5.449e4	7.382e4	0.973	0.74	0.77	42.2	YES	NO	bb	dd	40.271
19	Total-tetrafurans	24.50	2.788e4	4.235e4	0.973	0.66	0.77	27.1	YES	NO	bb	dd	22.039
20	Total-tetrafurans	24.32	5.122e4	6.748e4	0.973	0.76	0.77	44.5	YES	NO	db	dd	37.253
21	Total-tetrafurans	24.18	3.467e4	4.363e4	0.973	0.79	0.77	34.3	YES	NO	dd	dd	24.574
22	Total-tetrafurans	24.08	5.917e4	7.504e4	0.973	0.79	0.77	38.0	YES	NO	dd	dd	42.124
23	Total-tetrafurans	23.91	3.034e4	4.401e4	0.973	0.69	0.77	24.1	YES	NO	dd	dd	23.335
24	Total-Furans	27.55	2.612e4	3.333e4	1.053	0.78	0.77	20.8	YES	NO	bb	bb	17.254
25	Total-Furans	27.37	9.319e4	1.124e5	1.053	0.83	0.77	88.1	YES	NO	db	db	59.665
26	Total-Furans	27.31	9.964e4	1.363e5	1.053	0.73	0.77	91.6	YES	NO	dd	dd	68.491
27	Total-pentafurans	29.19	1.133e5	6.976e4	0.931	1.62	1.55	30.7	YES	NO	dd	dd	67.808
28	Total-pentafurans	29.09	1.590e4	9.010e3	0.931	1.77	1.55	8.3	YES	NO	dd	dd	9.230
29	Total-pentafurans	28.98	3.409e4	2.114e4	0.931	1.61	1.55	13.5	YES	NO	dd	dd	20.464
30	Total-pentafurans	28.61	1.378e4	9.590e3	0.931	1.44	1.55	6.8	YES	NO	db	db	8.658
31	Total-pentafurans	28.48	9.095e4	5.762e4	0.931	1.58	1.55	40.8	YES	NO	dd	dd	55.041
32	Total-pentafurans	28.41	9.534e4	6.492e4	0.931	1.47	1.55	47.7	YES	NO	dd	dd	59.370
33	Total-pentafurans	28.29	7.663e4	4.713e4	0.931	1.63	1.55	24.7	YES	NO	dd	dd	45.847
34	Total-pentafurans	27.92	7.812e3	5.902e3	0.931	1.32	1.55	3.4	YES	NO	db	db	5.081
35	Total-pentafurans	31.11	1.188e4	7.840e3	0.931	1.52	1.55	5.2	YES	NO	db	db	7.306
36	23478-PeCDF	30.89	5.160e4	3.369e4	0.991	1.53	1.55	21.3	YES	NO	dd	dd	30.099
37	Total-pentafurans	30.62	4.918e4	3.109e4	0.931	1.58	1.55	23.2	YES	NO	dd	dd	29.737

Dataset: T:\Autospec\Processed Data Batch\231214IH2.qld
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ID: 23I0156-10, Name: 23121429, Date: 15-Dec-2023, Time: 13:50:33, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-pentafurans	30.51	8.049e4	4.935e4	0.931	1.63	1.55	36.0	YES	NO	dd	bd	48.101
39	Total-pentafurans	30.31	1.083e5	7.443e4	0.931	1.46	1.55	40.7	YES	NO	bd	bb	67.695
40	Total-pentafurans	30.01	3.087e4	1.732e4	0.931	1.78	1.55	12.4	YES	NO	dd	db	17.855
41	Total-pentafurans	29.85	2.557e4	1.461e4	0.931	1.75	1.55	11.9	YES	NO	dd	dd	14.883
42	Total-pentafurans	29.76	6.909e4	4.346e4	0.931	1.59	1.55	28.1	YES	NO	dd	bd	41.694
43	12378-PeCDF	29.55	4.824e4	2.820e4	0.923	1.71	1.55	19.0	YES	NO	MM	db	28.189
44	12389-PECDF	31.92	2.744e4	1.916e4	0.880	1.43	1.55	9.8	YES	NO	db	db	18.038
45	Total-pentafurans	31.84	1.553e4	1.138e4	0.931	1.37	1.55	7.8	YES	NO	bd	dd	9.968
46	Total-hexafurans	35.00	6.195e3	5.215e3	1.087	1.19	1.24	80.9	YES	NO	bb	dd	4.347
47	123678-HxCDF	34.65	4.404e4	3.603e4	1.032	1.22	1.24	567.4	YES	NO	db	db	29.528
48	123478-HxCDF	34.52	5.966e4	4.711e4	1.128	1.27	1.24	750.2	YES	NO	dd	dd	37.156
49	Total-hexafurans	34.36	5.349e4	4.264e4	1.087	1.25	1.24	666.5	YES	NO	bd	bd	36.623
50	Total-hexafurans	33.89	5.271e4	4.197e4	1.087	1.26	1.24	669.9	YES	NO	bb	bb	36.071
51	Total-hexafurans	33.58	8.529e3	7.060e3	1.087	1.21	1.24	107.2	YES	NO	bb	bb	5.939
52	Total-hexafurans	33.31	5.452e3	4.054e3	1.087	1.34	1.24	61.9	YES	NO	bb	bb	3.622
53	Total-hexafurans	33.04	1.502e5	1.194e5	1.087	1.26	1.24	1496.1	YES	NO	bb	bb	102.707
54	123468-HXCDF	32.84	5.301e4	4.122e4	1.206	1.29	1.24	649.8	YES	NO	db	db	30.687
55	123789-HxCDF	36.53	1.196e4	9.911e3	0.988	1.21	1.24	141.2	YES	NO	bb	bd	10.183
56	234678-HxCDF	35.53	4.616e4	3.663e4	1.081	1.26	1.24	491.4	YES	NO	bb	bb	33.143
57	Total-hexafurans	35.19	5.064e3	4.085e3	1.087	1.24	1.24	67.8	YES	NO	bb	db	3.486
58	Total-heptafurans	38.82	1.558e4	1.480e4	1.134	1.05	1.05	207.3	YES	NO	bb	bd	16.086
59	1234678-HpCDF	38.42	1.480e5	1.388e5	1.164	1.07	1.05	1946.9	YES	NO	bb	bb	133.221
60	1234789-HpCDF	40.60	1.517e4	1.327e4	1.104	1.14	1.05	181.3	YES	NO	bb	bb	17.396
61	Total-heptafurans	39.06	4.798e4	4.390e4	1.134	1.09	1.05	613.8	YES	NO	bb	bb	48.651
62	OCDF	44.71	1.134e5	1.242e5	1.130	0.91	0.89	1730.7	YES	NO	bb	bb	160.301
63	Total-penta1	26.83	2.442e5	1.587e5		1.54	1.55	326.8	YES	NO	bb	bb	149.581
64	Total-tetradioxins	23.47	2.778e4	3.767e4	1.129	0.74	0.77	184.3	YES	NO	bb	bd	21.588
65	1368-TCDD	23.20	3.600e4	4.833e4	1.181	0.74	0.77	252.7	YES	NO	dd	bb	26.592
66	1289-TCDD	26.65	8.563e2	1.222e3	0.963	0.70	0.77	5.5	YES	NO	bd	bb	0.804
67	Total-tetradioxins	26.18	3.834e3	5.190e3	1.129	0.74	0.77	25.3	YES	NO	dd	db	2.977
68	2378-TCDD	26.04	6.518e3	8.909e3	1.243	0.73	0.77	46.6	YES	NO	bd	bd	4.621
69	Total-tetradioxins	25.68	1.306e4	1.710e4	1.129	0.76	0.77	69.3	YES	NO	bd	bb	9.950
70	Total-tetradioxins	25.38	1.577e3	2.207e3	1.129	0.71	0.77	13.1	YES	NO	db	db	1.248
71	Total-tetradioxins	25.27	2.906e3	3.754e3	1.129	0.77	0.77	21.3	YES	NO	bd	bd	2.197
72	Total-tetradioxins	25.04	4.186e3	6.187e3	1.129	0.68	0.77	31.1	YES	NO	db	db	3.421
73	Total-tetradioxins	24.93	1.326e3	1.665e3	1.129	0.80	0.77	9.6	YES	NO	bd	bd	0.986
74	Total-tetradioxins	24.67	1.263e4	1.634e4	1.129	0.77	0.77	88.1	YES	NO	bb	bb	9.555

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ID: 23I0156-10, Name: 23121429, Date: 15-Dec-2023, Time: 13:50:33, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
75	Total-tetradioxins	24.39	1.154e4	1.418e4	1.129	0.81	0.77	72.5	YES	NO	bb	bb	8.486
76	Total-tetradioxins	23.70	3.227e3	4.536e3	1.129	0.71	0.77	23.4	YES	NO	bb	db	2.561
77	12389-PECDD	31.53	3.949e3	2.856e3	1.326	1.38	1.55	59.7	YES	NO	bb	bb	2.371
78	12378-PeCDD	31.13	1.379e4	9.090e3	1.150	1.52	1.55	184.9	YES	NO	bb	bb	9.195
79	Total-pentadioxins	30.46	1.296e4	8.744e3	1.548	1.48	1.55	179.7	YES	NO	bb	bb	6.479
80	Total-pentadioxins	30.07	1.091e4	7.522e3	1.548	1.45	1.55	121.9	YES	NO	db	db	5.504
81	Total-pentadioxins	29.89	2.590e4	1.691e4	1.548	1.53	1.55	406.4	YES	NO	dd	dd	12.782
82	Total-pentadioxins	29.76	1.200e4	8.171e3	1.548	1.47	1.55	196.4	YES	NO	dd	dd	6.023
83	Total-pentadioxins	29.55	3.344e4	2.189e4	1.548	1.53	1.55	559.6	YES	NO	bd	bd	16.521
84	Total-pentadioxins	28.94	3.138e3	2.088e3	1.548	1.50	1.55	53.7	YES	NO	bb	bb	1.560
85	12479-PECDD	28.47	4.099e4	2.700e4	2.166	1.52	1.55	444.5	YES	NO	bb	bb	14.501
86	123678-HxCDD	35.78	1.261e4	1.030e4	0.883	1.22	1.24	184.1	YES	NO	dd	dd	9.249
87	123478-HxCDD	35.65	6.428e3	5.198e3	0.960	1.24	1.24	99.9	YES	NO	bd	bd	4.445
88	Total-hexadioxins	34.76	3.659e4	2.969e4	0.943	1.23	1.24	347.5	YES	NO	bd	bd	25.412
89	Total-hexadioxins	34.40	5.415e4	4.391e4	0.943	1.23	1.24	779.2	YES	NO	bb	bb	37.594
90	124679-HXCDD	33.62	2.609e4	2.136e4	1.127	1.22	1.24	362.2	YES	NO	bb	bb	15.463
91	123789-HxCDD	36.16	9.026e3	6.952e3	0.804	1.30	1.24	138.3	YES	NO	bb	bb	7.189
92	Total-hexadioxins	35.93	6.317e3	5.252e3	0.943	1.20	1.24	89.8	YES	NO	db	db	4.435
93	1234678-HpCDD	39.88	7.851e4	7.572e4	1.200	1.04	1.05	903.6	YES	NO	bd	bb	78.001
94	1234679-HPCDD	38.86	6.205e4	6.324e4	1.303	0.98	1.05	799.1	YES	NO	bb	bb	58.354
95	OCDD	44.47	2.901e5	3.415e5	1.059	0.85	0.89	2471.7	YES	NO	bb	bd	454.916

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.82	7.816e5					25.2	YES		bd		
2	FUNCTION1 PFK	21.59	7.296e5					20.5	YES		bb		
3	FUNCTION1 PFK	24.94	7.862e4					6.5	YES		bd		
4	FUNCTION1 PFK	24.66	9.595e4					6.9	YES		db		
5	FUNCTION1 PFK	24.55	4.759e5					19.2	YES		dd		
6	FUNCTION1 PFK	24.32	4.300e6					30.5	YES		bd		
7	FUNCTION1 PFK	23.88	3.007e5					20.3	YES		bb		
8	FUNCTION1 PFK	23.74	4.552e5					19.2	YES		bb		
9	FUNCTION1 PFK	23.40	8.420e4					4.5	YES		bb		
10	FUNCTION1 PFK	23.23	8.335e5					28.2	YES		db		
11	FUNCTION1 PFK	23.09	2.572e5					17.9	YES		bd		
12	FUNCTION1 PFK	22.98	4.212e5					22.7	YES		db		
13	FUNCTION1 PFK	22.86	1.200e6					27.1	YES		dd		
14	FUNCTION1 PFK	22.64	7.094e5					17.1	YES		bd		
15	FUNCTION1 PFK	22.47	1.387e5					5.2	YES		bb		
16	FUNCTION1 PFK	22.29	3.296e4					0.0	NO		bb		
17	FUNCTION1 PFK	22.10	6.625e5					18.6	YES		db		
18	FUNCTION1 PFK	21.92	6.550e5					25.1	YES		dd		
19	FUNCTION1 PFK	27.53	6.508e4					4.6	YES		db		
20	FUNCTION1 PFK	27.43	2.965e5					16.3	YES		bd		
21	FUNCTION1 PFK	27.24	3.519e5					16.0	YES		bb		
22	FUNCTION1 PFK	26.85	4.818e5					9.0	YES		bb		
23	FUNCTION1 PFK	25.80	3.697e5					17.1	YES		bb		
24	FUNCTION1 PFK	25.51	1.899e6					28.9	YES		db		
25	FUNCTION1 PFK	25.34	1.107e6					37.8	YES		bd		
26	FUNCTION1 PFK	25.18	5.305e5					23.2	YES		db		
27	FUNCTION1 PFK	25.04	4.257e5					19.3	YES		dd		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.69	5.046e5					11.9	YES		db		0.000
2	FUNCTION2 PFK	28.39	1.816e5					24.3	YES		dd		0.000
3	FUNCTION2 PFK	28.22	6.913e5					47.5	YES		bd		0.000
4	FUNCTION2 PFK	28.03	9.288e5					53.4	YES		db		0.000
5	FUNCTION2 PFK	27.87	3.586e5					35.3	YES		dd		0.000
6	FUNCTION2 PFK	27.76	1.716e5					22.7	YES		bd		0.000
7	FUNCTION2 PFK	32.40	1.927e5					0.0	NO		bb		0.000
8	FUNCTION2 PFK	32.07	3.853e5					19.0	YES		bb		0.000
9	FUNCTION2 PFK	31.22	1.170e5					9.4	YES		bb		0.000
10	FUNCTION2 PFK	30.99	9.002e4					2.3	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.11	1.581e4					1.5	NO		bb		0.000
2	FUNCTION3 PFK	36.99	9.361e4					6.4	YES		db		0.000
3	FUNCTION3 PFK	36.92	1.322e5					6.6	YES		dd		0.000
4	FUNCTION3 PFK	36.61	4.338e5					8.4	YES		bd		0.000
5	FUNCTION3 PFK	36.41	1.265e5					5.4	YES		bb		0.000
6	FUNCTION3 PFK	35.98	9.299e3					1.5	NO		bb		0.000
7	FUNCTION3 PFK	35.65	4.006e4					2.0	NO		bb		0.000
8	FUNCTION3 PFK	35.25	9.970e4					4.6	YES		bb		0.000
9	FUNCTION3 PFK	34.17	1.694e4					1.9	NO		bb		0.000
10	FUNCTION3 PFK	32.56	6.203e3					1.2	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.97	2.597e5					16.8	YES		db		
2	FUNCTION4 PFK	38.92	2.514e5					16.9	YES		bd		
3	FUNCTION4 PFK	38.54	7.142e5					10.1	YES		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	22.71	1.726e4					39.3	YES		db		0.000
2	FUNCTION1 HXCD...	22.54	2.998e4					84.9	YES		dd		0.000
3	FUNCTION1 HXCD...	22.45	2.672e4					73.9	YES		bd		0.000
4	FUNCTION1 HXCD...	22.26	8.973e3					21.3	YES		db		0.000
5	FUNCTION1 HXCD...	22.13	1.060e4					27.7	YES		dd		0.000
6	FUNCTION1 HXCD...	21.97	3.131e5					910.3	YES		bd		0.000
7	FUNCTION1 HXCD...	21.82	2.375e3					10.7	YES		bb		0.000
8	FUNCTION1 HXCD...	21.68	7.890e4					203.7	YES		db		0.000
9	FUNCTION1 HXCD...	21.51	4.221e4					103.8	YES		bd		0.000
10	FUNCTION1 HXCD...	21.23	3.187e3					11.7	YES		bb		0.000
11	FUNCTION1 HXCD...	21.08	1.147e4					39.1	YES		bb		0.000
12	FUNCTION1 HXCD...	25.42	8.233e3					26.0	YES		dd		0.000
13	FUNCTION1 HXCD...	25.24	1.141e5					269.8	YES		bd		0.000
14	FUNCTION1 HXCD...	25.07	2.741e4					61.2	YES		bb		0.000
15	FUNCTION1 HXCD...	24.88	3.471e4					86.6	YES		bb		0.000
16	FUNCTION1 HXCD...	24.69	2.685e5					717.2	YES		bb		0.000
17	FUNCTION1 HXCD...	24.47	1.510e5					410.2	YES		db		0.000
18	FUNCTION1 HXCD...	24.38	7.063e4					188.8	YES		bd		0.000
19	FUNCTION1 HXCD...	24.16	2.795e4					79.7	YES		db		0.000
20	FUNCTION1 HXCD...	24.01	1.828e4					46.1	YES		dd		0.000
21	FUNCTION1 HXCD...	23.88	1.767e4					38.7	YES		dd		0.000
22	FUNCTION1 HXCD...	23.73	7.221e4					138.3	YES		dd		0.000
23	FUNCTION1 HXCD...	23.51	3.033e4					87.4	YES		dd		0.000
24	FUNCTION1 HXCD...	23.44	4.335e4					107.9	YES		bd		0.000
25	FUNCTION1 HXCD...	23.26	7.384e3					23.1	YES		bb		0.000
26	FUNCTION1 HXCD...	23.10	7.044e3					22.5	YES		db		0.000
27	FUNCTION1 HXCD...	22.94	1.206e5					257.5	YES		bd		0.000
28	FUNCTION1 HXCD...	27.55	2.889e4					98.2	YES		bb		0.000
29	FUNCTION1 HXCD...	27.38	1.659e4					59.8	YES		db		0.000
30	FUNCTION1 HXCD...	27.30	3.828e4					90.2	YES		bd		0.000
31	FUNCTION1 HXCD...	26.99	1.260e4					22.6	YES		bb		0.000
32	FUNCTION1 HXCD...	26.69	1.397e4					30.7	YES		bb		0.000
33	FUNCTION1 HXCD...	26.52	5.509e3					19.3	YES		db		0.000
34	FUNCTION1 HXCD...	26.34	8.493e4					167.6	YES		bd		0.000
35	FUNCTION1 HXCD...	25.87	1.014e4					30.2	YES		db		0.000
36	FUNCTION1 HXCD...	25.77	2.819e4					46.5	YES		dd		0.000
37	FUNCTION1 HXCD...	25.66	6.765e3					22.1	YES		dd		0.000

ID: 23I0156-10, Name: 23121429, Date: 15-Dec-2023, Time: 13:50:33, Conditions: AUTOSPEC01, User: pk

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION1 HXCD...	25.56	1.838e4					47.8	YES		dd		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ID: 23I0156-10, Name: 23121429, Date: 15-Dec-2023, Time: 13:50:33, Conditions: AUTOSPEC01, User: pk

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	28.10	8.643e3					18.5	YES		bb		0.000
2	FUNCTION2 HPCD...	27.90	4.853e2					1.4	NO		bb		0.000
3	FUNCTION2 HPCD...	27.80	1.415e3					4.6	YES		bb		0.000
4	FUNCTION2 HPCD...	27.69	3.645e3					10.2	YES		bb		0.000
5	FUNCTION2 HPCD...	30.11	7.488e2					1.9	NO		db		0.000
6	FUNCTION2 HPCD...	29.98	7.889e3					15.4	YES		dd		0.000
7	FUNCTION2 HPCD...	29.87	6.040e2					2.2	NO		dd		0.000
8	FUNCTION2 HPCD...	29.76	5.469e3					14.8	YES		bd		0.000
9	FUNCTION2 HPCD...	29.64	1.067e3					3.4	YES		bb		0.000
10	FUNCTION2 HPCD...	29.48	1.685e3					5.5	YES		db		0.000
11	FUNCTION2 HPCD...	29.38	9.434e3					24.7	YES		dd		0.000
12	FUNCTION2 HPCD...	29.31	1.060e4					21.8	YES		bd		0.000
13	FUNCTION2 HPCD...	29.15	7.460e3					19.7	YES		db		0.000
14	FUNCTION2 HPCD...	29.08	2.014e3					5.5	YES		dd		0.000
15	FUNCTION2 HPCD...	28.98	3.367e3					7.7	YES		dd		0.000
16	FUNCTION2 HPCD...	28.87	2.329e3					5.8	YES		bd		0.000
17	FUNCTION2 HPCD...	28.60	7.973e3					18.7	YES		db		0.000
18	FUNCTION2 HPCD...	28.48	1.004e4					22.2	YES		dd		0.000
19	FUNCTION2 HPCD...	28.40	6.894e2					2.8	NO		bd		0.000
20	FUNCTION2 HPCD...	28.28	9.406e3					17.7	YES		bb		0.000
21	FUNCTION2 HPCD...	32.26	1.021e3					1.8	NO		bb		0.000
22	FUNCTION2 HPCD...	32.08	3.049e3					6.6	YES		db		0.000
23	FUNCTION2 HPCD...	31.91	1.489e3					6.2	YES		dd		0.000
24	FUNCTION2 HPCD...	31.83	6.979e3					15.0	YES		bd		0.000
25	FUNCTION2 HPCD...	31.61	4.639e3					10.1	YES		bb		0.000
26	FUNCTION2 HPCD...	31.39	8.768e2					2.3	NO		db		0.000
27	FUNCTION2 HPCD...	31.30	5.207e3					11.9	YES		bd		0.000
28	FUNCTION2 HPCD...	31.12	8.007e3					19.0	YES		bb		0.000
29	FUNCTION2 HPCD...	30.93	5.316e3					11.4	YES		db		0.000
30	FUNCTION2 HPCD...	30.80	2.789e3					5.1	YES		bd		0.000
31	FUNCTION2 HPCD...	30.51	4.220e3					9.2	YES		db		0.000
32	FUNCTION2 HPCD...	30.36	1.520e3					5.1	YES		dd		0.000
33	FUNCTION2 HPCD...	30.28	1.674e4					37.9	YES		bd		0.000

ID: 23l0156-10, Name: 23121429, Date: 15-Dec-2023, Time: 13:50:33, Conditions: AUTOSPEC01, User: pk

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	32.74	1.471e3					15.6	YES		bd		0.000
2	FUNCTION3 OCDPE	32.52	2.159e2					3.1	YES		bb		0.000
3	FUNCTION3 OCDPE	37.04	1.166e2					1.2	NO		bb		0.000
4	FUNCTION3 OCDPE	36.67	1.392e2					2.1	NO		bb		0.000
5	FUNCTION3 OCDPE	36.36	1.014e2					1.2	NO		bb		0.000
6	FUNCTION3 OCDPE	35.97	1.593e2					2.3	NO		bb		0.000
7	FUNCTION3 OCDPE	34.74	5.694e2					6.8	YES		bb		0.000
8	FUNCTION3 OCDPE	34.47	7.007e1					1.3	NO		bb		0.000
9	FUNCTION3 OCDPE	34.18	9.574e1					1.5	NO		bb		0.000
10	FUNCTION3 OCDPE	33.85	2.947e2					6.1	YES		bb		0.000
11	FUNCTION3 OCDPE	33.70	7.838e2					11.0	YES		bb		0.000
12	FUNCTION3 OCDPE	33.50	1.412e2					2.7	NO		db		0.000
13	FUNCTION3 OCDPE	33.43	5.988e2					8.5	YES		dd		0.000
14	FUNCTION3 OCDPE	33.31	1.463e2					3.2	YES		bd		0.000
15	FUNCTION3 OCDPE	33.24	1.324e2					2.5	NO		db		0.000
16	FUNCTION3 OCDPE	33.16	7.142e2					9.0	YES		bd		0.000
17	FUNCTION3 OCDPE	32.94	1.188e3					12.9	YES		db		0.000
18	FUNCTION3 OCDPE	32.86	8.083e2					11.2	YES		dd		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	39.03	1.122e2					5.7	YES		bb		0.000
2	FUNCTION4 NCDPE	38.15	1.038e2					6.1	YES		db		0.000
3	FUNCTION4 NCDPE	38.08	8.127e2					23.0	YES		bd		0.000

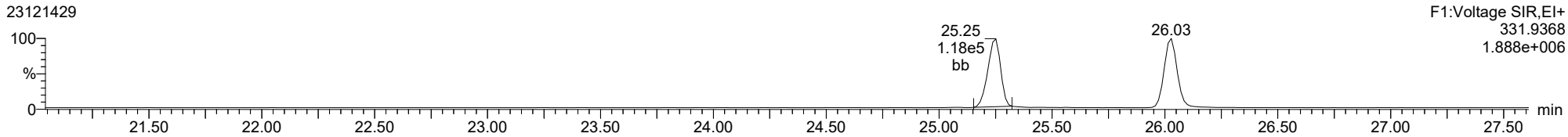
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

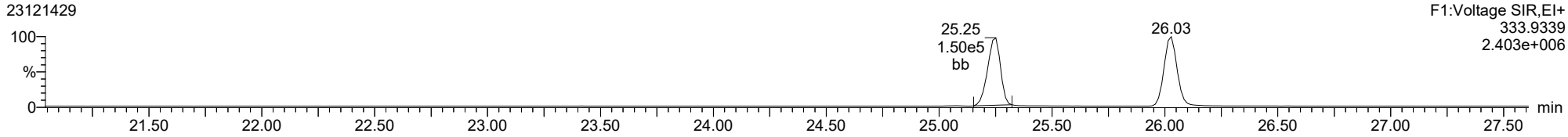
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ID: 23I0156-10, Name: 23121429, Date: 15-Dec-2023, Time: 13:50:33, Conditions: AUTOSPEC01, User: pk

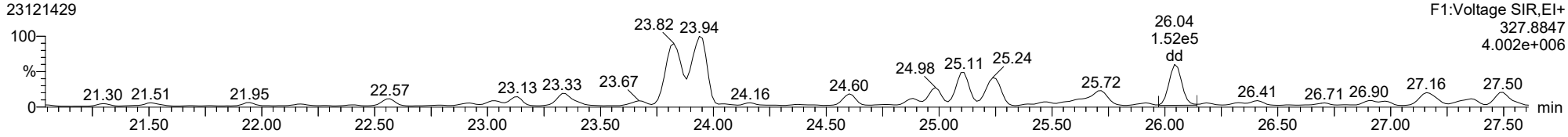
13C-1234-TCDD



13C-1234-TCDD

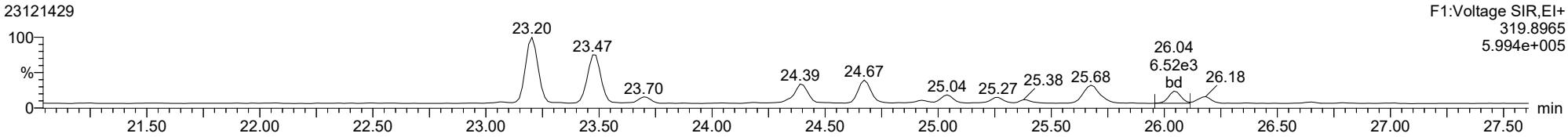


37CL-2378-TCDD

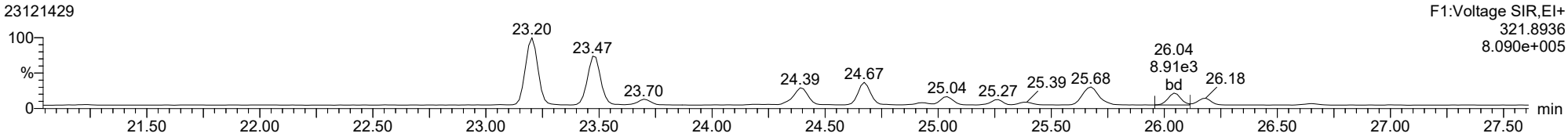


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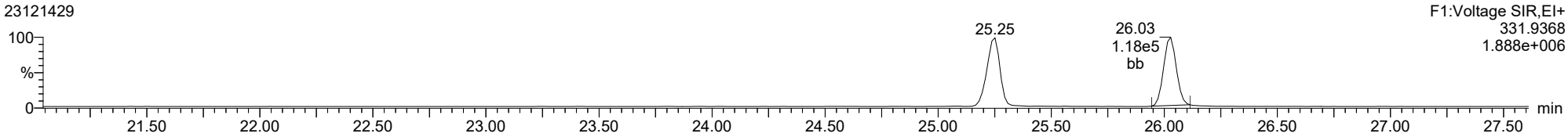
2378-TCDD



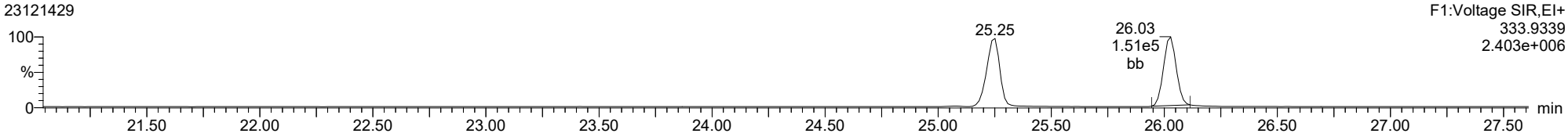
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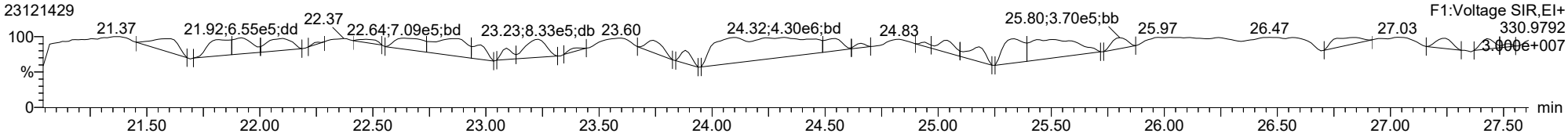
13C-2378-TCDD



13C-2378-TCDD

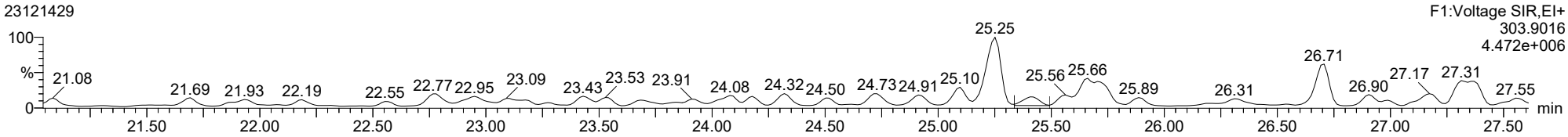


FUNCTION1 PFK

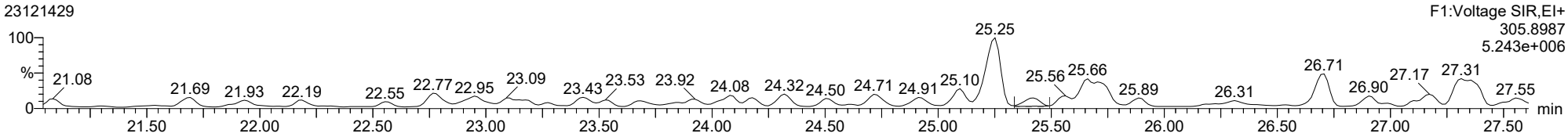


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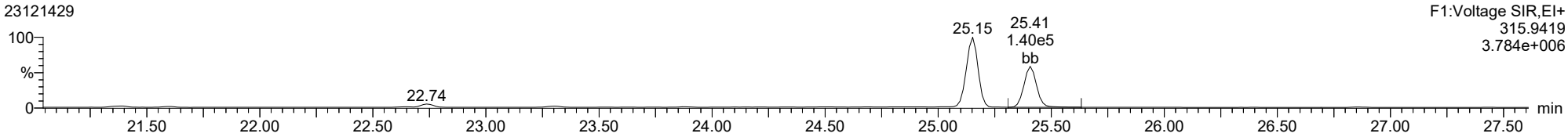
2378-TCDF



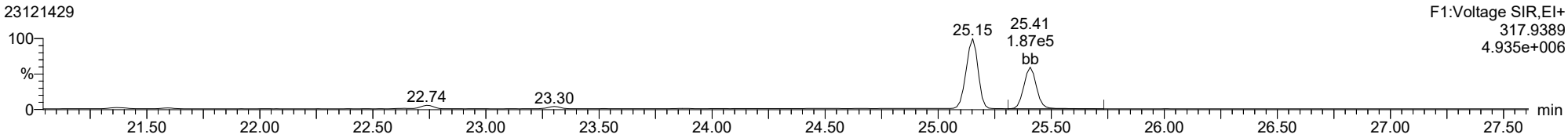
2378-TCDF



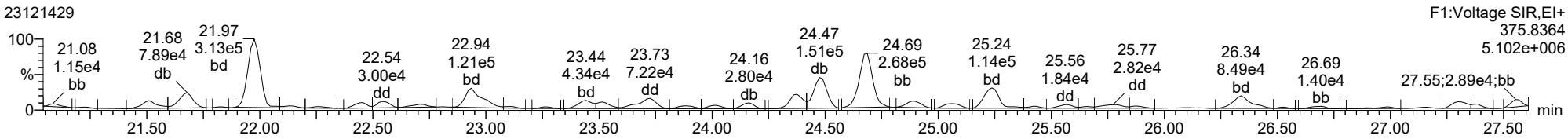
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13C-2378-TCDF

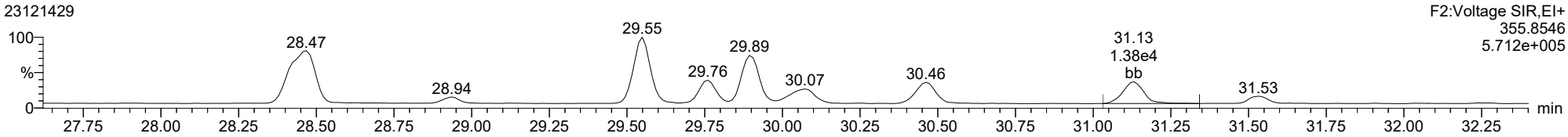


FUNCTION1 HXCDPE

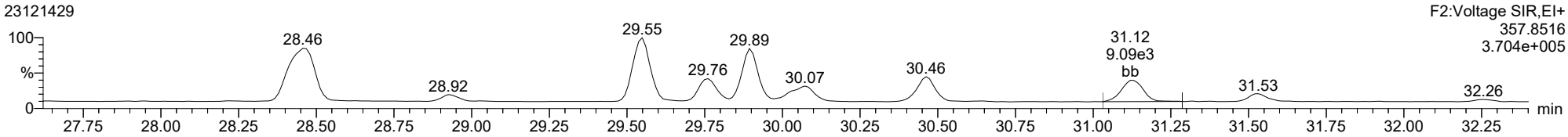


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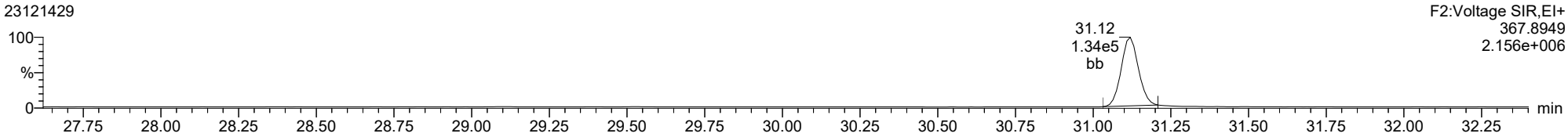
12378-PeCDD



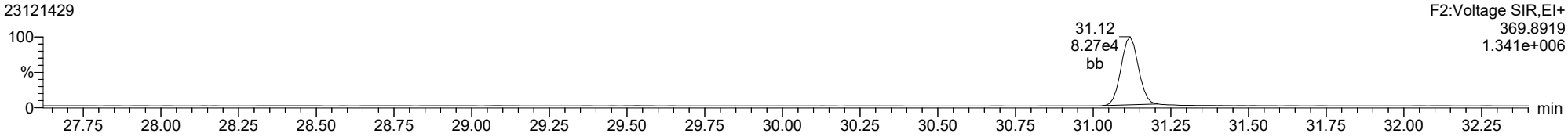
12378-PeCDD



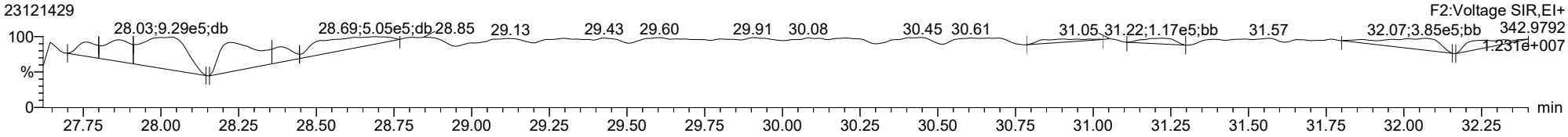
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13C-12378-PeCDD

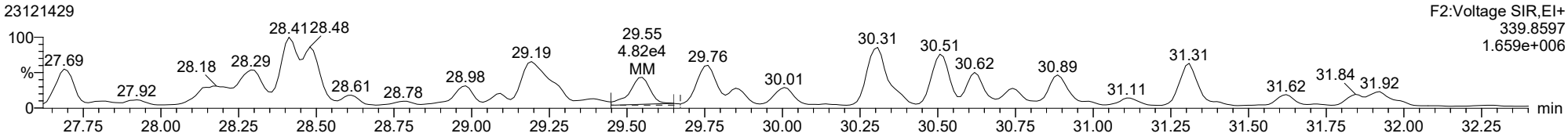


FUNCTION2 PFK

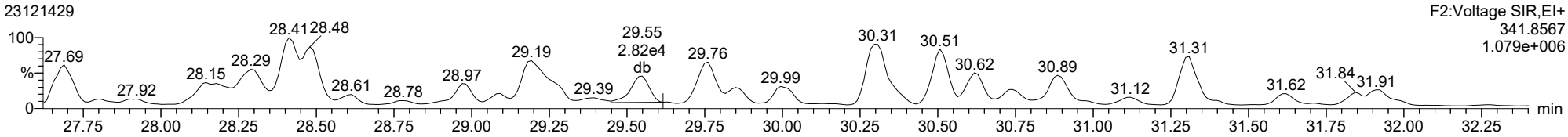


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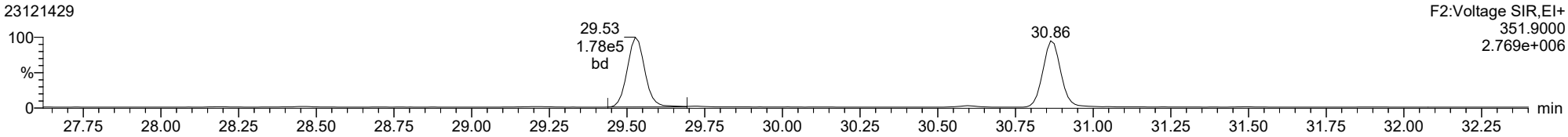
12378-PeCDF



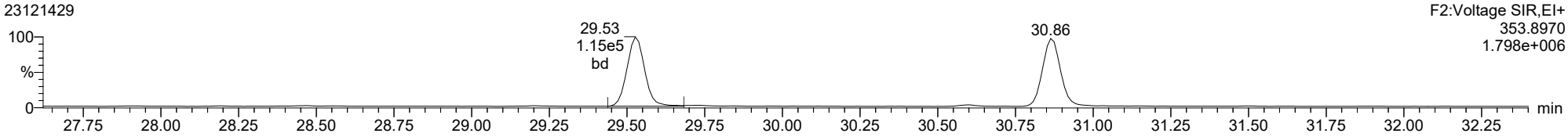
12378-PeCDF



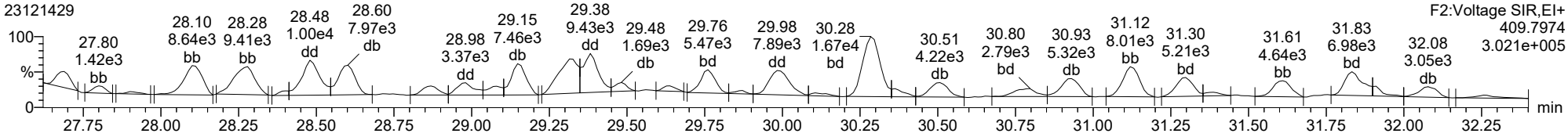
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13C-12378-PeCDF

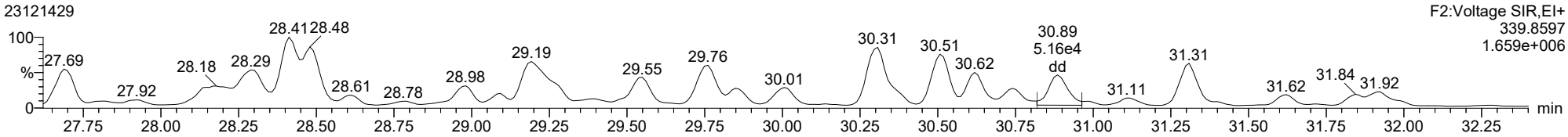


FUNCTION2 HPCDPE

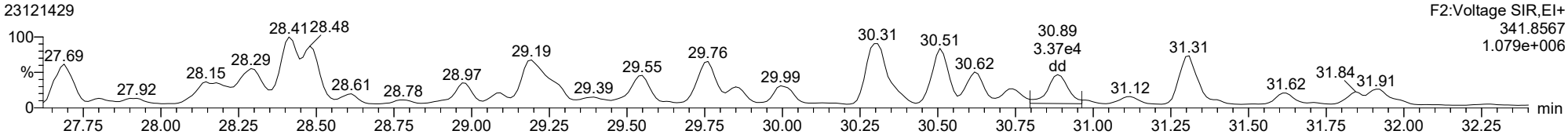


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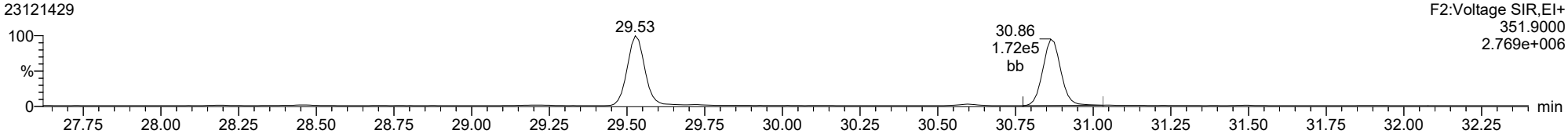
23478-PeCDF



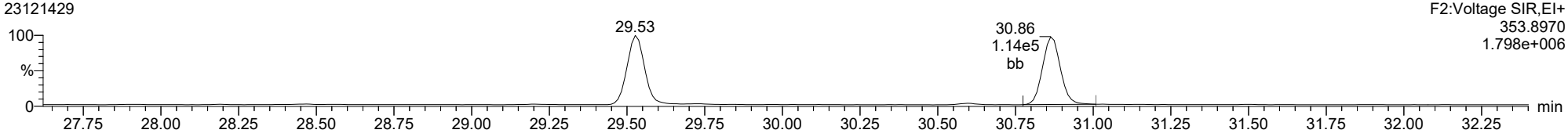
23478-PeCDF



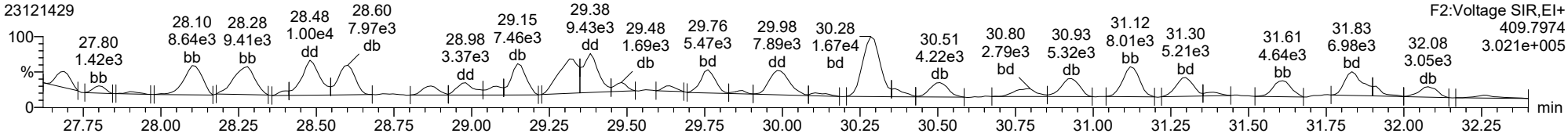
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13C-23478-PeCDF

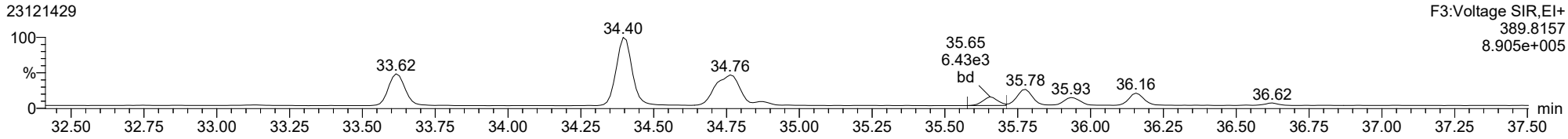


FUNCTION2 HPCDPE

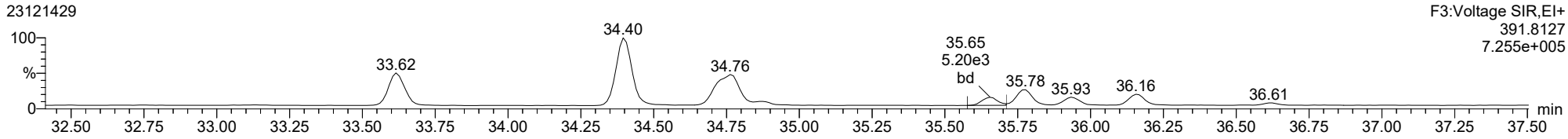


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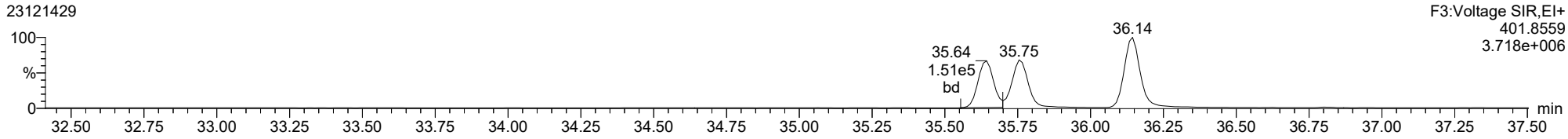
123478-HxCDD



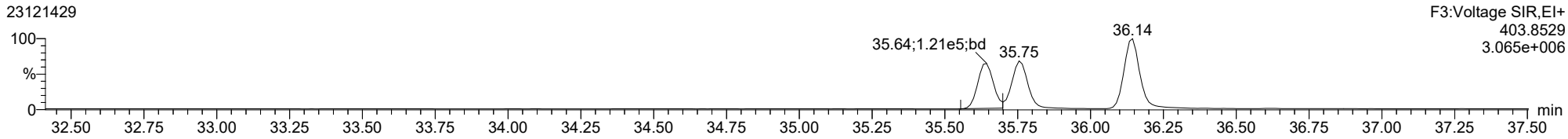
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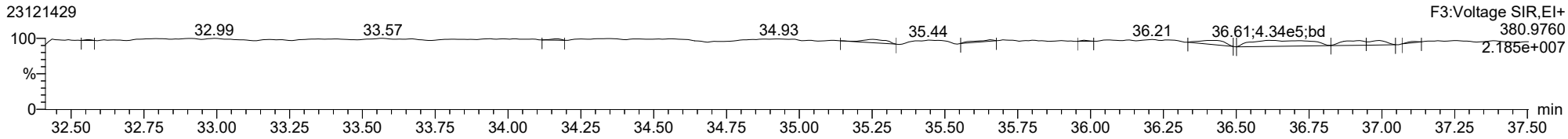
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13C-123478-HxCDD

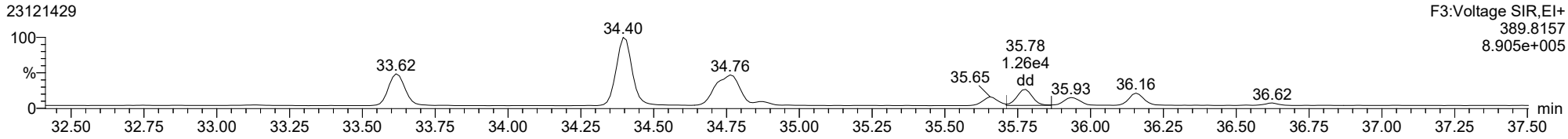


FUNCTION3 PFK

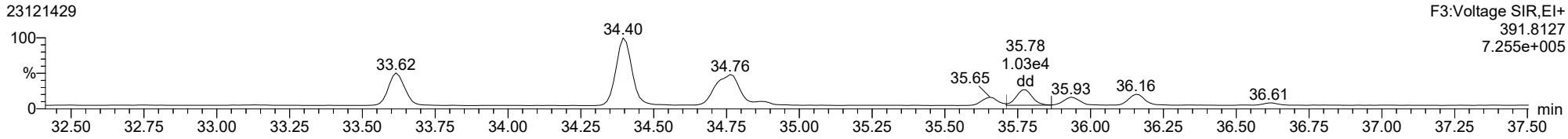


ID: 23I0156-10, Name: 23121429, Date: 15-Dec-2023, Time: 13:50:33, Conditions: AUTOSPEC01, User: pk

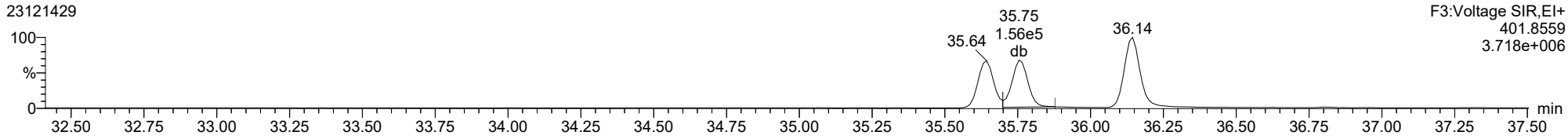
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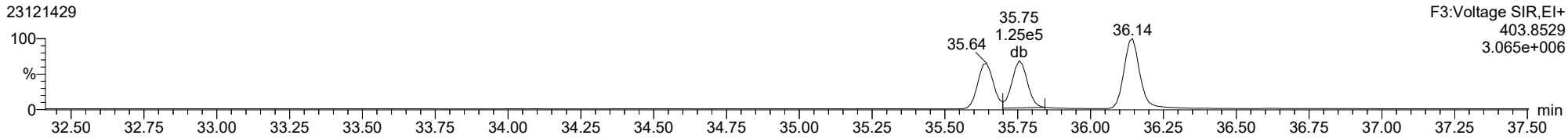
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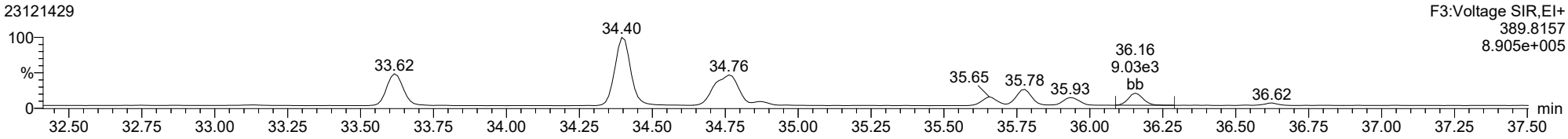
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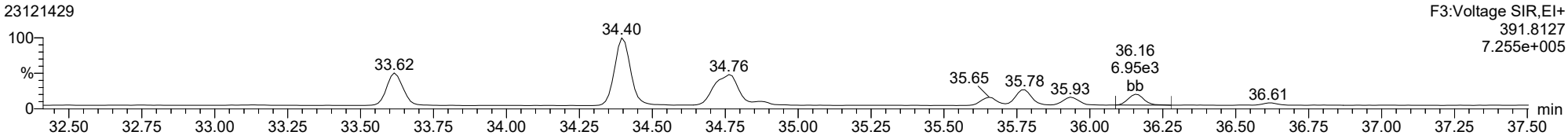
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ID: 23l0156-10, Name: 23121429, Date: 15-Dec-2023, Time: 13:50:33, Conditions: AUTOSPEC01, User: pk

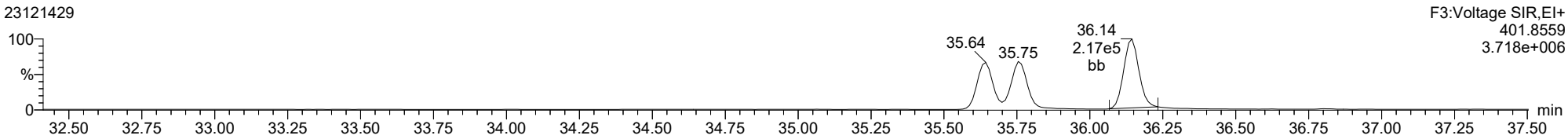
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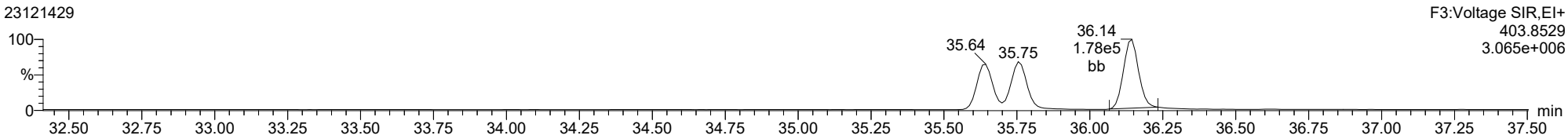
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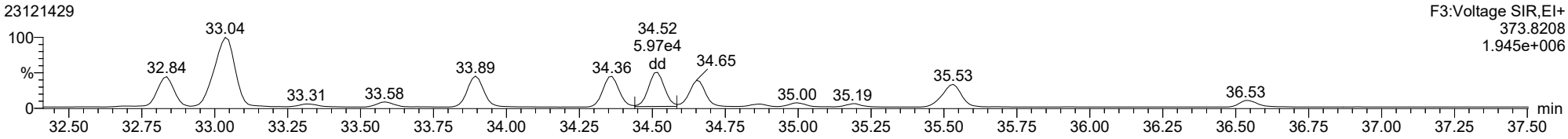


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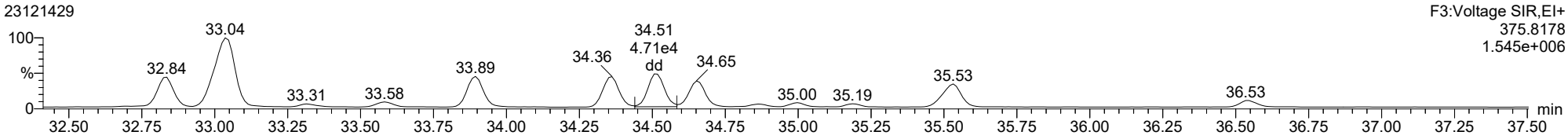


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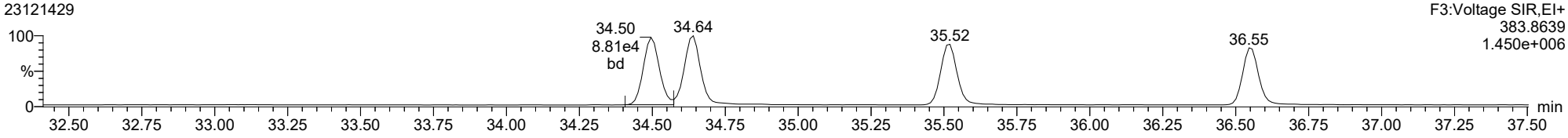
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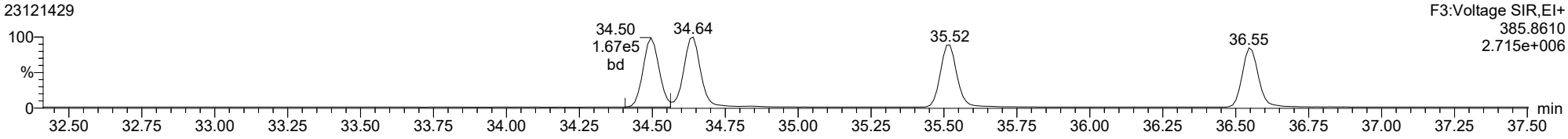
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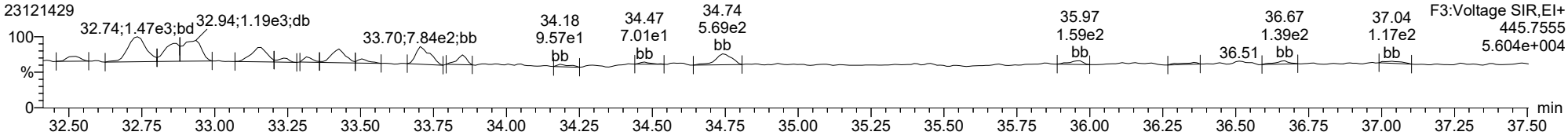
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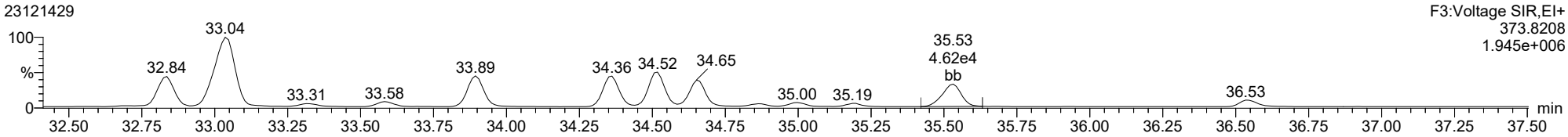


FUNCTION3 OCDPE

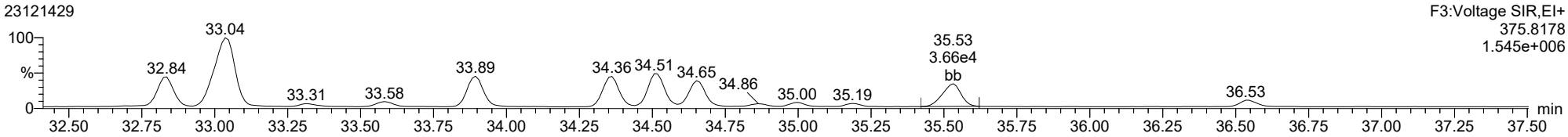


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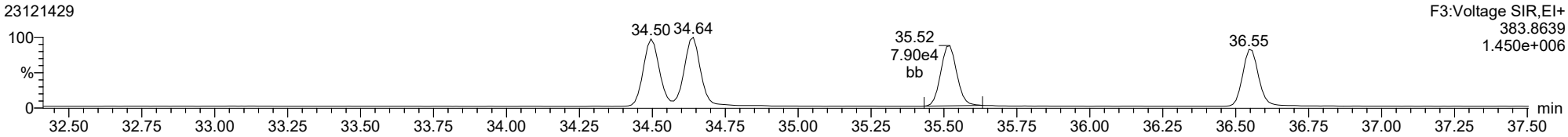
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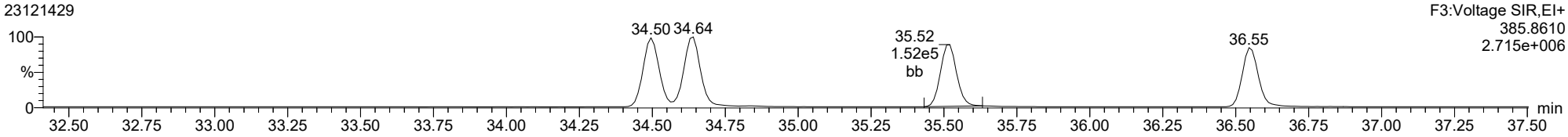
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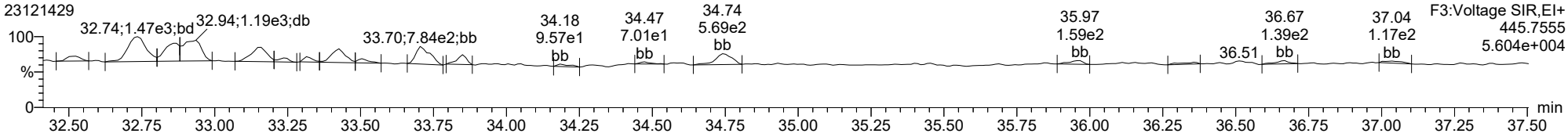
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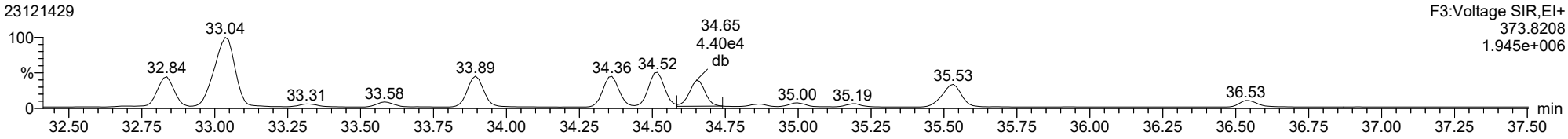


FUNCTION3 OCDPE

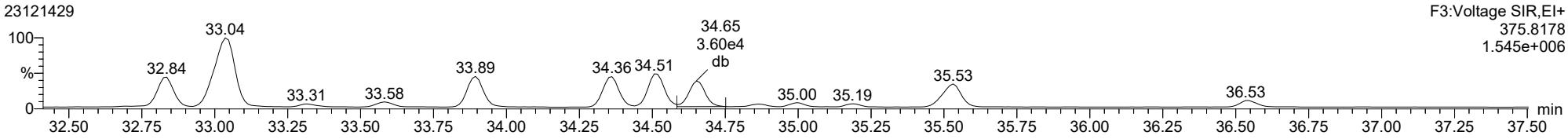


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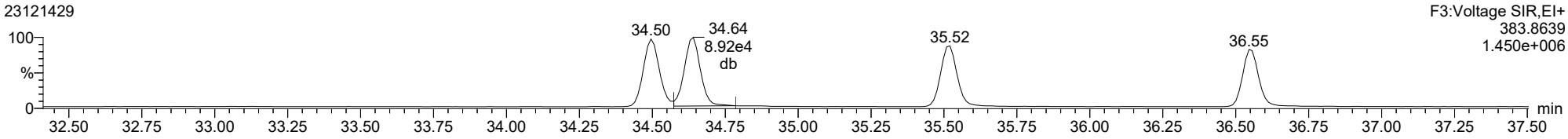
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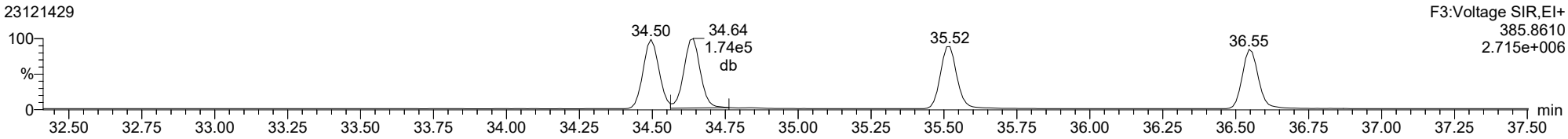
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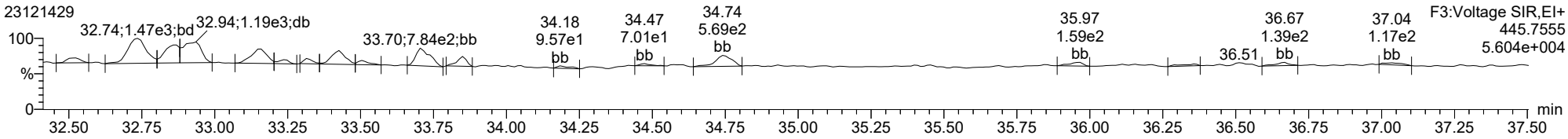
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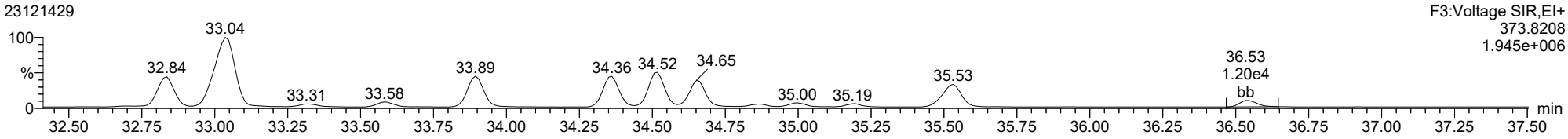


FUNCTION3 OCDPE

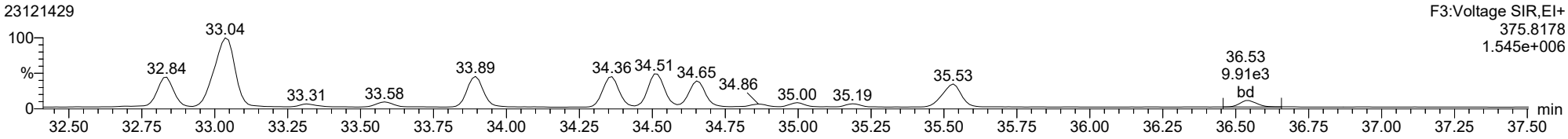


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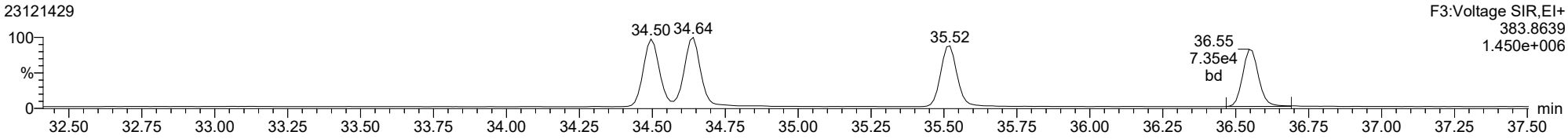
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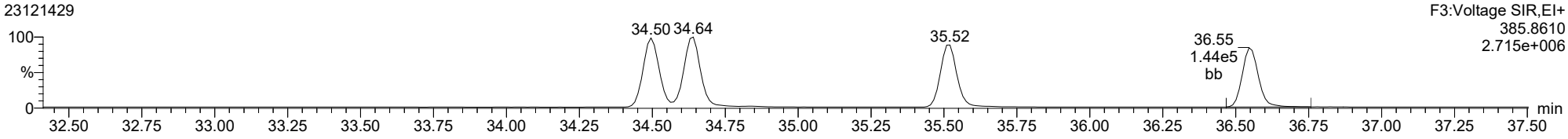
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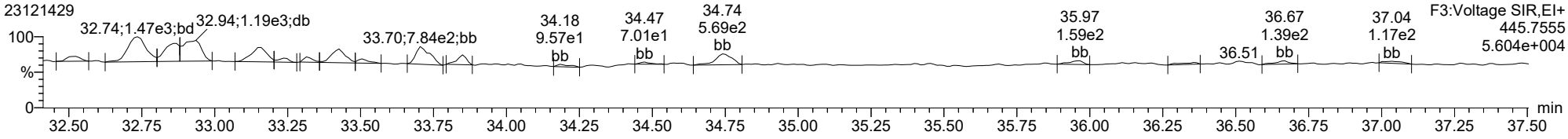
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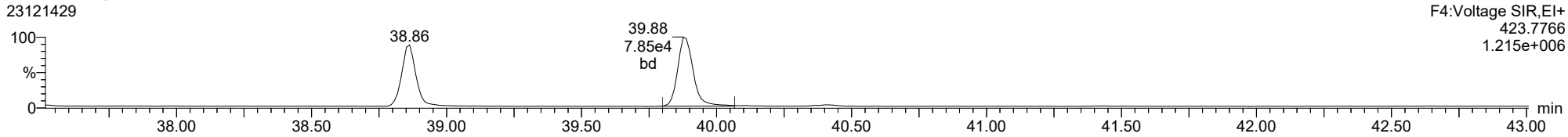


FUNCTION3 OCDPE

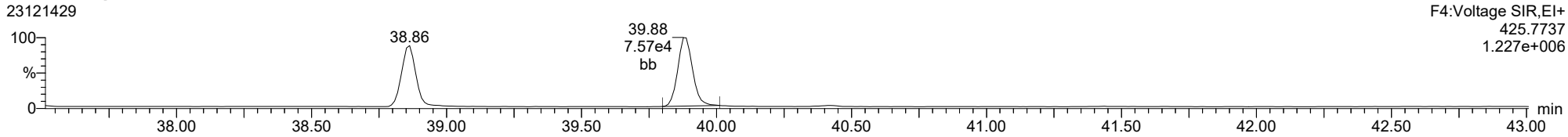


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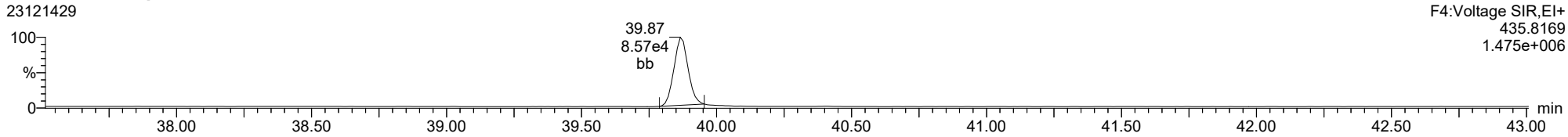
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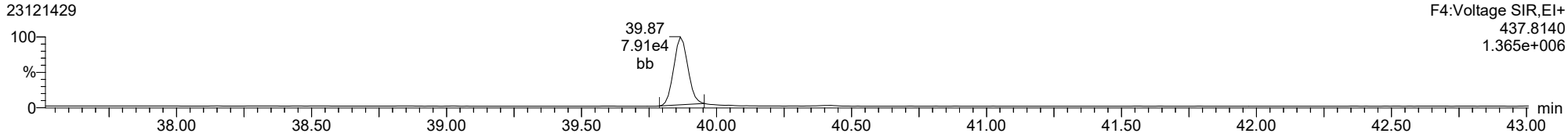
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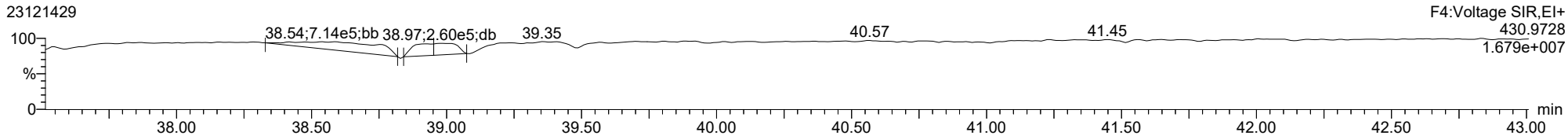
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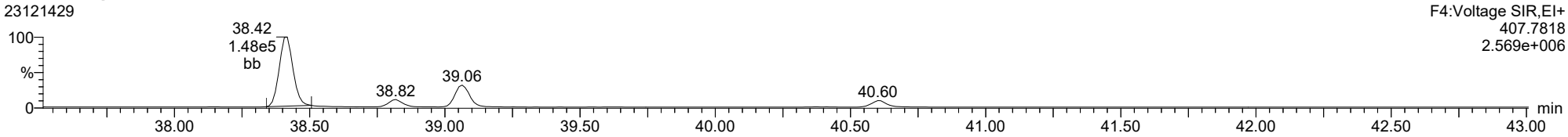


FUNCTION4 PFK

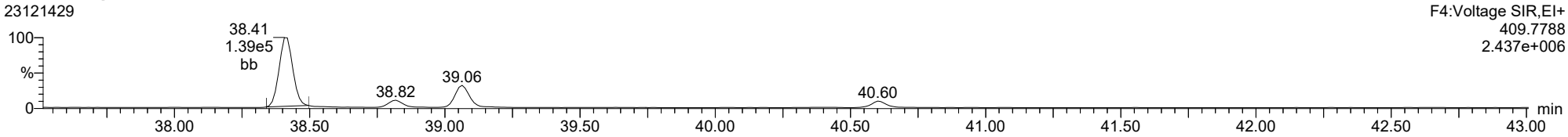


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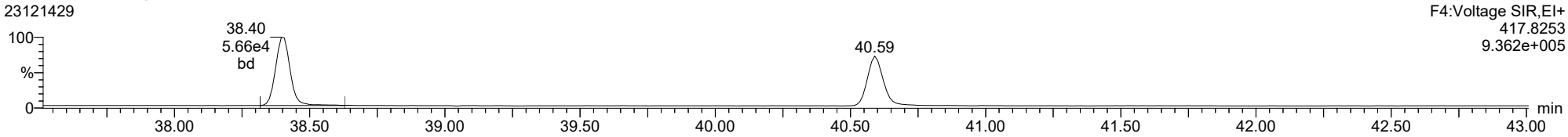
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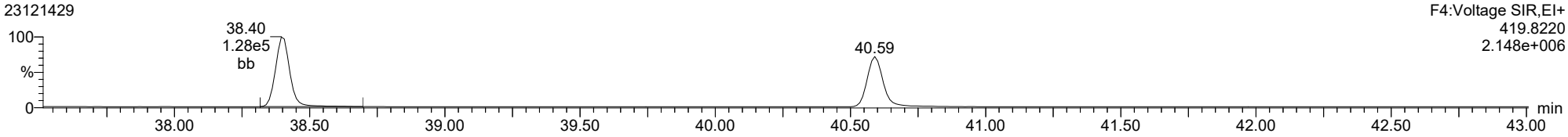
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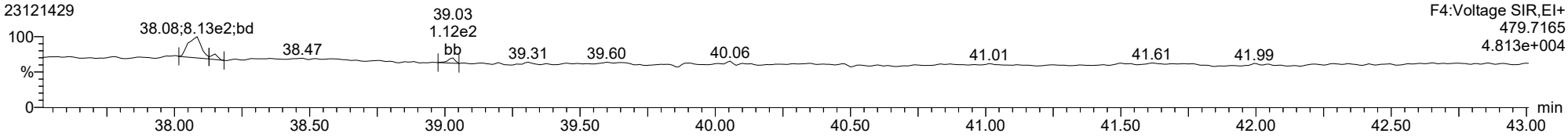
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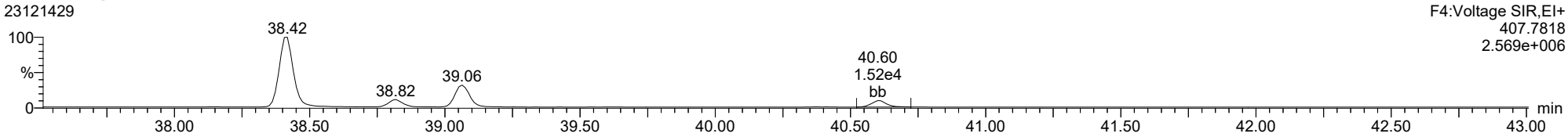


FUNCTION4 NCDPE

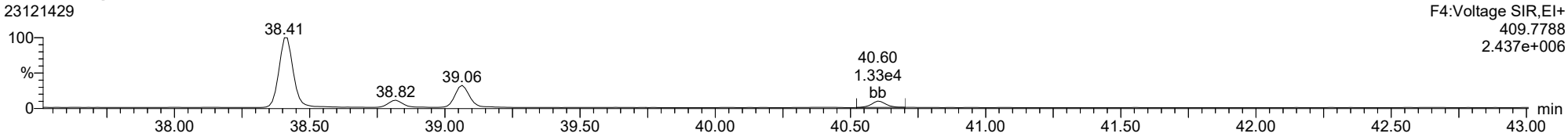


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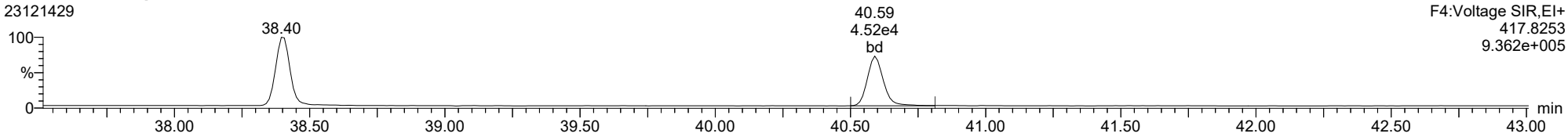
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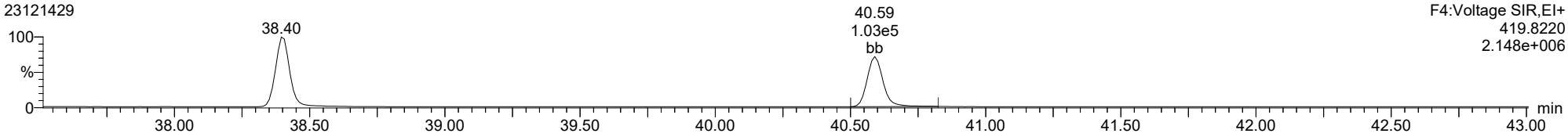
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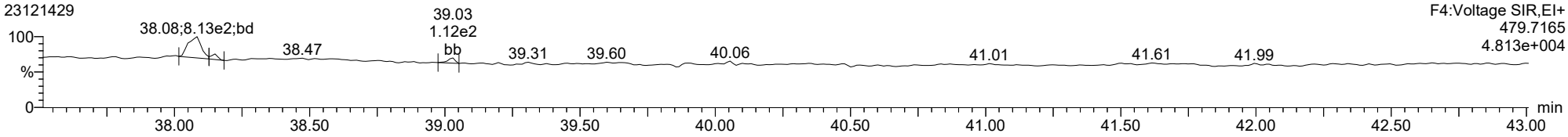
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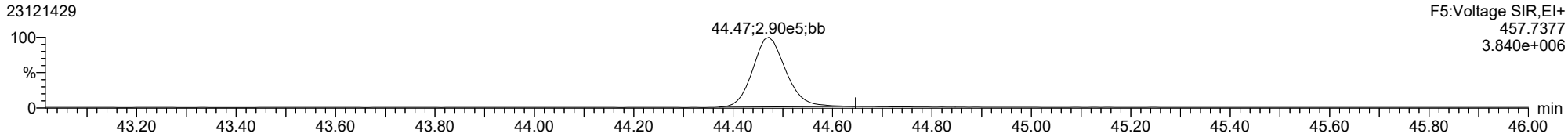


FUNCTION4 NCDPE

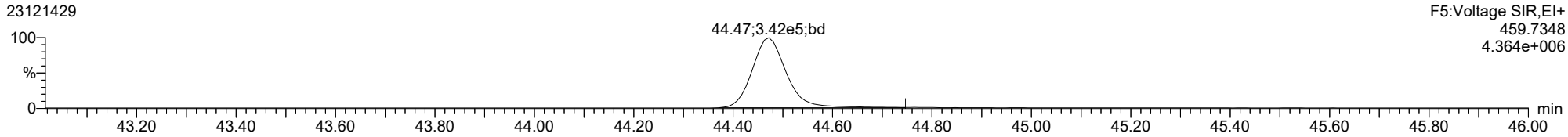


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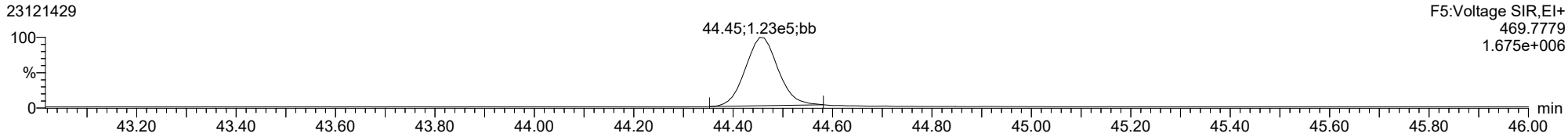
OCDD



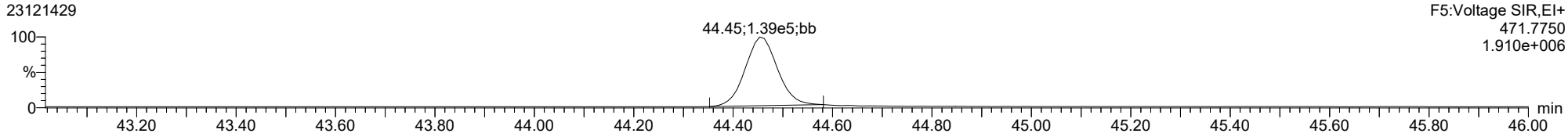
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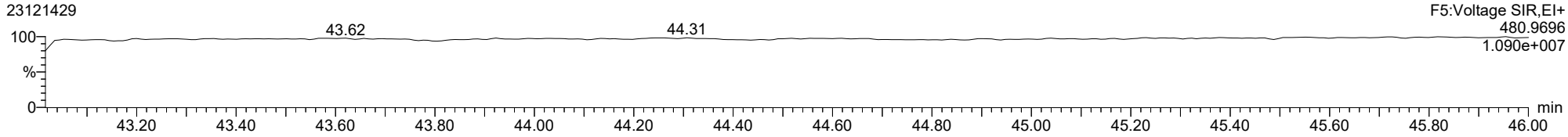
13C-OCDD



13C-OCDD



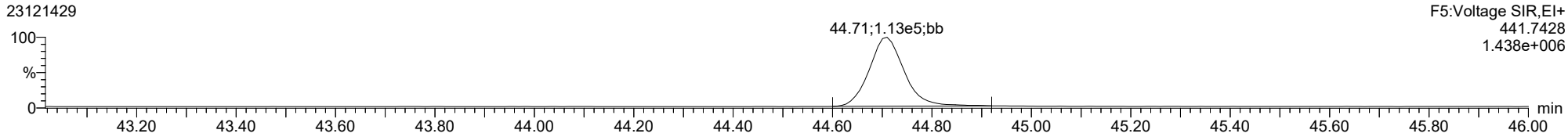
FUNCTION5 PFK



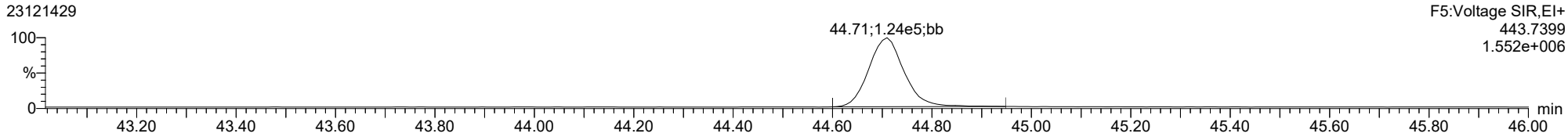
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Printed: Saturday, December 16, 2023 10:37:18 Pacific Standard Time

ID: 23I0156-10, Name: 23121429, Date: 15-Dec-2023, Time: 13:50:33, Conditions: AUTOSPEC01, User: pk

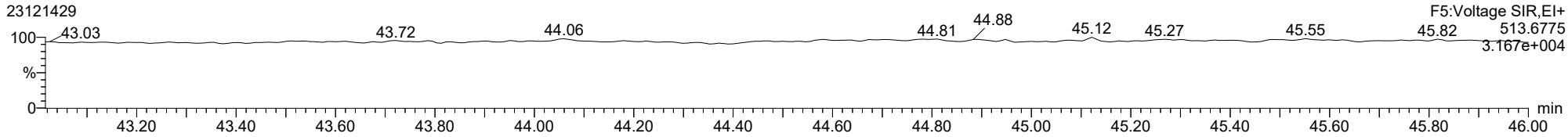
OCDF



OCDF

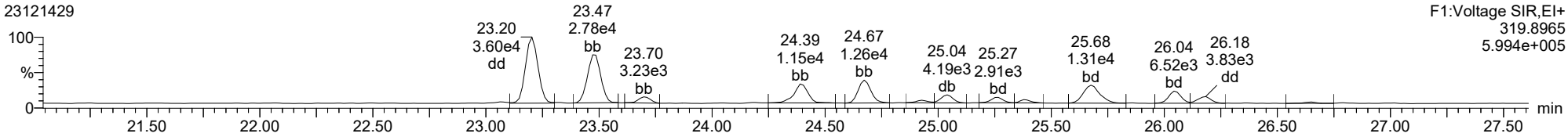


FUNCTION5 DCDPE

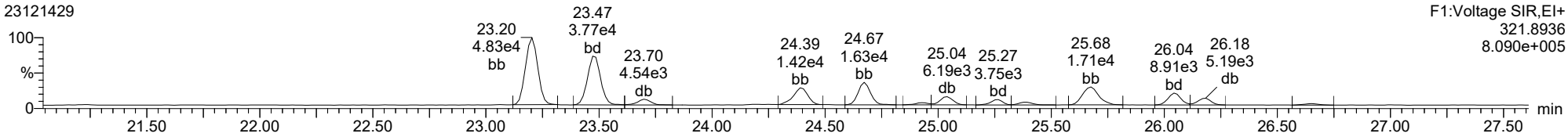


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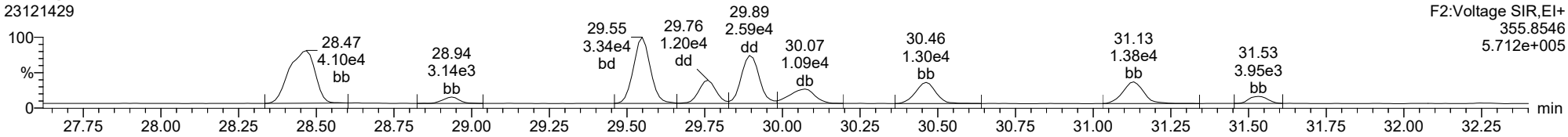
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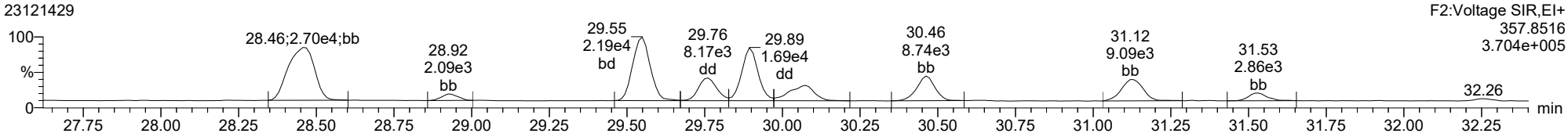
Total-tetradioxins



Total-pentadioxins

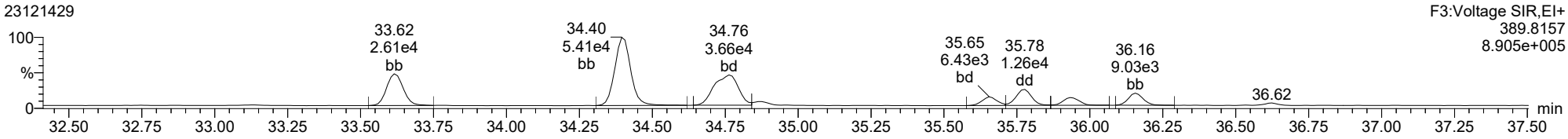


Total-pentadioxins

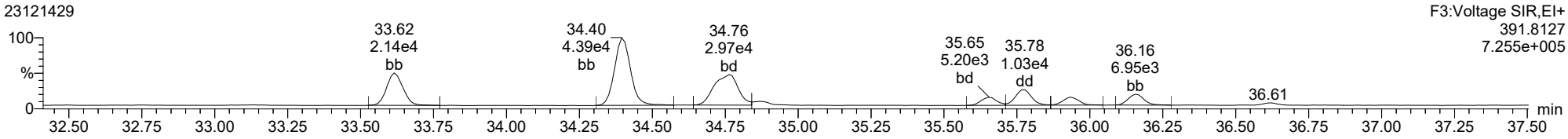


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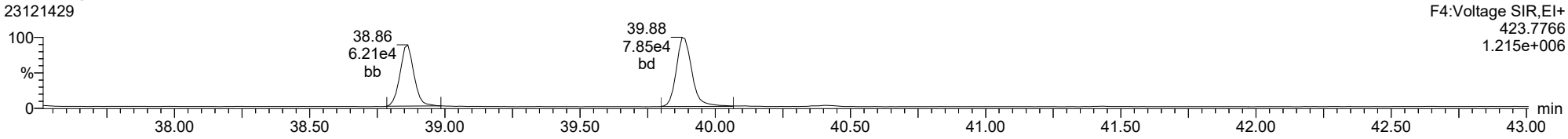
Total-hexadioxins



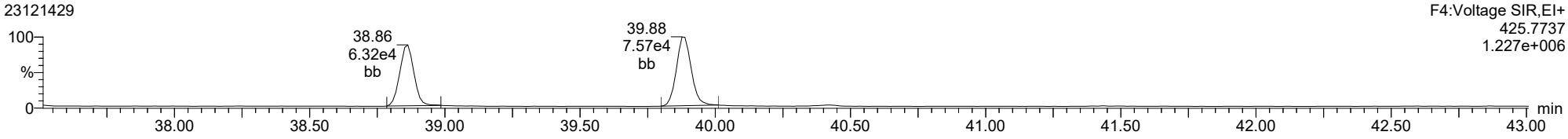
Total-hexadioxins



Total-heptadioxins

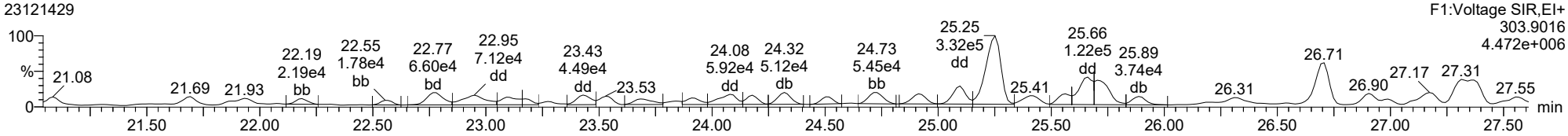


Total-heptadioxins

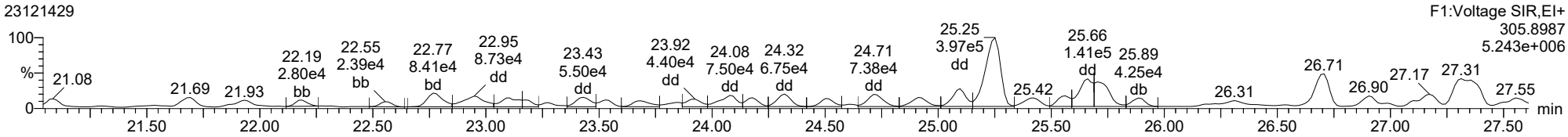


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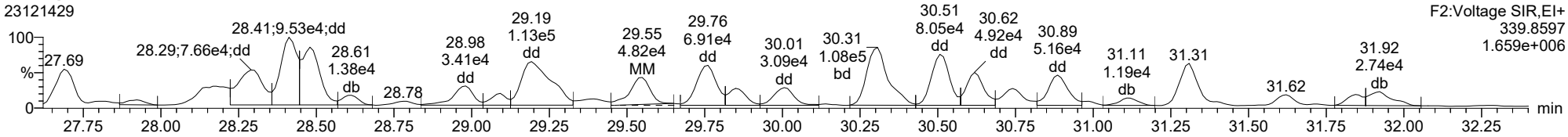
Total-tetrafurans



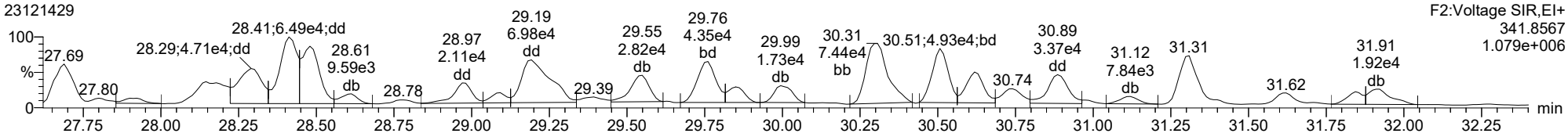
Total-tetrafurans



Total-pentafurans



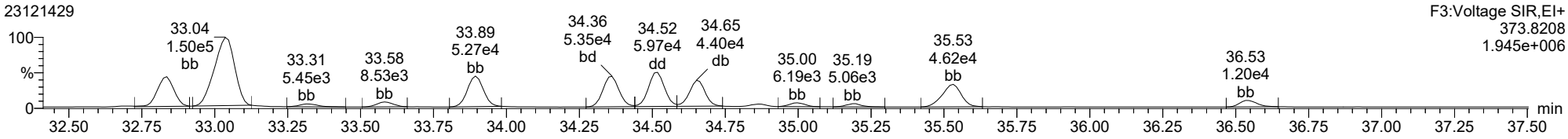
Total-pentafurans



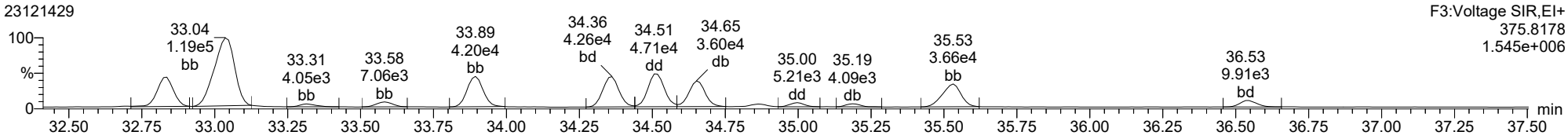
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Last Altered: Saturday, December 16, 2023 10:26:00 Pacific Standard Time
Printed: Saturday, December 16, 2023 10:37:18 Pacific Standard Time

ID: 23I0156-10, Name: 23121429, Date: 15-Dec-2023, Time: 13:50:33, Conditions: AUTOSPEC01, User: pk

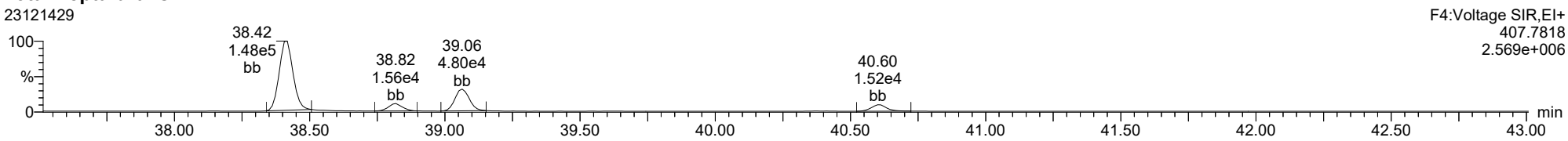
Total-hexafurans



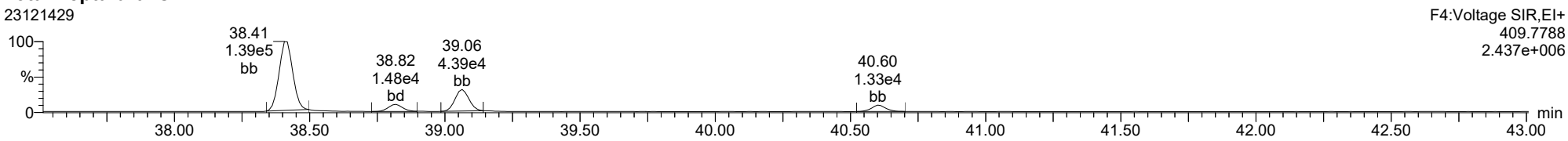
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

PREPARATION BATCH SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC			SDG:	23I0156
Client:	Floyd - Snider			Project:	Smith-Kem
Batch:	BLK0112	Batch Matrix:	Solid	Preparation:	EPA 1613

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
AOC3-03-0.5-1.0	23I0156-05	23121426	11/14/23 13:25	
AOC3-103-0.5-1.0	23I0156-06	23121427	11/14/23 13:25	
AOC3-04-0.5-1.0	23I0156-08	23121428	11/14/23 13:25	
AOC3-05-0.5-1.0	23I0156-10	23121429	11/14/23 13:25	
Blank	BLK0112-BLK1	23121421	11/14/23 13:25	
LCS	BLK0112-BS1	23121422	11/14/23 13:25	

Analytical Resources, LLC
Analytical Chemists and Consultants

HRGCMS Dioxin/Furan Preparation Bench Sheet EPA Methods 8290A or 1613B

Batch: BLK0112

Solid Samples

ARI Work Orders: 23J0156,23J0255,23J0453,23J0454,23J0690

Matrix (circle one)	(Soil)	Sediment	Oil Tissue
Extraction Method	Start Date/Time:	End Date/Time:	
(Soxhlet) SepF Shake out	11/14/23 13:25	11/15/23 0430	

Reagents/Equipment Used	NA	ID / Lot Number	Initials	Date
Glasswool		L009152	LN	11/16/23
Basic Silica		L011032	LN	11/16/23
Acid Silica		L011692	LN	11/16/23
Activated Florisil		L004480	LN	11/16/23
Balance		24650344	LN	11/14/23
Toluene		L011548	LN	11/14/23
Hexane		L012649	LN	11/15/23
CH2Cl2		L007507	LN	11/16/23
H2SO4		L010375	LN	11/15/23
Na2SO4		L013009	LN	11/14/23
~~Other ( )~~				
0% Silica		L009563	LN	11/16/23
Nonane		I006476	LN	11/16/23

Lab Number & Container	Sample Name	% Solids	Sample Weight Equal to dry (g) (Target Dry)	Actual	RotoVap 45 °C	Water Trap Vol (mL)	Final Vol. (uL)
23I0156-05 A	AOC3-03-0.5-1.0	91.98	(10.87)	11.00	(1)/2	0.5	20
23I0156-06 A	AOC3-103-0.5-1.0	91.17	(10.97)	10.98	1/(2)	0.9	20
23I0156-08 A	AOC3-04-0.5-1.0	83.54	(11.97)	12.05	(1)/2	1.5	20
23I0156-10 A	AOC3-05-0.5-1.0	80.75	(12.38)	12.39	(1)/2	2.3	20
23J0255-01 A	P103-SO-25-0-3-2310 01	90.21	(11.09)	11.11	1/(2)	1.0	20
23J0453-02 C	T117-LTM2-20231012	86.47	(11.57)	11.59	(1)/2	1.0	20
23J0453-04 C	T117-LTM4-20231012	50.82	(19.68)	19.72	1/(2)	8.2	20
23J0453-05 C	PERIM-1-LTM-20231 012	71.24	(14.04)	14.05	(1)/2	4.0	20
23J0453-09 C	PERIM-5-LTM-20231 012	45.18	(22.13)	22.46	1/(2)	10.8	20
23J0454-01 B	P103-SO-09-0-1.7-231 011	94.05	(10.63)	10.74	(1)/2	0.1	20
23J0454-04 B	P103-SO-12-0-2-23101 1	95.41	(10.48)	10.52	(1)/2	0.7	20
23J0690-01 A	SED-07C:0-1	80.4	(12.44)	12.57	1/(2)	2.0	20
23J0690-02 A	SED-08C:1-3	72.43	(13.81)	13.87	(1)/2	3.5	20
23J0690-04 A	SED-14C:0-1	69.49	(14.39)	14.50	(1)/2	4.0	20
23J0690-06 A	SED-27C:0-1	69.45	(14.40)	14.52	1/(2)	3.5	20
23J0690-07 A	SED-26C:1-3	74.64	(13.40)	13.42	(1)/2	2.5	20
BLK0112-BLK1	Blank	100	0		(1)/2		20
BLK0112-BS1	LCS	100	0		1/(2)		20
BLK0112-DUP1	Duplicate 23J0454-01B	94.05	(10.63)	10.69	(1)/2	0.4	20
Prep Analyst / Date:			LN 11/14/23		11/15/23	11/15/23	

Standards Used	Vol	ID / Lot Number	Concentration	Expiration Date	Analyst	Witness	Date
Recovery Standard	1.0 mL	L011382	2/4 ng/mL	10/03/24	LN		11/14/23
OPR	1.0 mL	L012262	0.2/1.0/2.0 ng/mL	10/23/24	LN		11/14/23
~~QLS Standard~~	~~1.0 mL~~		~~0.1/0.5/0.1ng/mL ng/L~~				
Cleanu-up Standard	1.0 mL	L011383	0.8 ng/mL	10/03/24	LN		11/16/23

Verify Client ID
Analyst / Date: LN 11/14/23

Acid Clean
(Y)/N
Analyst / Date: LN 11/15/23

Silica-Florisil Clean
(Y)/N
Analyst / Date: LN 11/16/23

Supervisor Review By 12/14/23 Date

Printed: 11/3/2023 8:05:02AM

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Dioxin Extraction Laboratory – Glassware

Batch ID: BLK 0112 Work Order: 23J0156, 23J0255, 23J0453, 23J0454, 23J0690 Extraction Parameter: Dioxin ARI Analyst: LN

ARI Sample ID	300 mL Flat Bottom	Small Soxhlet	Large Soxhlet	250 mL Beaker	Funnel	Column	Florisil Column	Turbo Tube	Sep Funnel	Erlenmeyer Flask	Centrifuge Bottle	Turbo-Vap	Vortex Mixer	Heating Mantle
BLK0112 - BLK 1	15	116		60	44	17	68	68				4	4	A1
BS1	49	5		34	36	2	72	84				4	4	A2
DUP1	79	70		30	40	64	29	70				4	4	A3
23J0156 - 05A	63	18		44	47	44	121	79				4	4	A5
06A	44	23		27	51	24	136	59				4	4	A6
08A	17	74		220	85	45	123	8				4	4	B1
10A	6	14		42	12	13	64	21				4	4	B2
23J0255 - 01A	31	16		LN ~~10~~ 245	19	43	15	36				4	4	B3
23J0453 - 02C	67	69		5	48	30	175	39				4	4	B4
-04C	25		45	~~LN 59 57~~	95	198	163	27				4	4	B5
05C	53	19		62	72	229	70	58				4	4	B6
09C	83		58	19	15	185	46	7				4	4	C1
23J0454 - 01B	39	28		88	38	41	77	16				4	4	C2
04B	24	13		52	45	14	49	55				4	4	C3
23J0690 - 01A	5	15		36	46	LN ~~182~~	39 LN ~~55~~	22				4	4	C4
02A	27	17		59	41	LN ~~191~~	55 LN ~~39~~	51				4	4	C5
04A	60	64		18	87	162	120	24				4	4	C6
06A	56	27		16	18	76	10	14				4	4	D1
07A	68	87		31	62	220	150	19				4	4	D2
												4	4	
												4	4	
												4	4	
												4	4	

TOTAL SOLIDS BENCHSHEET

Method: PSEP 1986

(dry at 103-105 C)

Batch:	BLK0010
Date:	
Analyst:	LN
Drying Oven:	018
Analytical Balance:	24650344

Instrumentation

Batch drying time

Record times as mm/dd/yy hh:mm

		Oven Temp, C
Date/time in oven:	11/01/23 15:01	110
Date/time out:	11/02/23 07:40	111
Elapsed hrs:	0.0	

TS (%) calculated as:

Final dry wt (g) = (Dry Wt - Tare Wt)

TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)

Oven Temps, °C	
Start Temp:	110
End Temp:	111

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23J0690-01 A	0.792	11.282	9.226			No
23J0690-02 A	0.813	11.070	8.242			No
23J0690-04 A	0.823	11.014	7.905			No
23J0690-06 A	0.823	11.087	7.951			No
23J0690-07 A	0.785	11.187	8.549			No
23J0768-11 F	0.781	11.190	9.157			No
23J0768-12 E	0.801	11.253	10.105			No
23J0768-21 F	0.810	11.356	8.706			No
23J0768-22 F	0.800	11.491	7.686			No
23J0768-23 F	0.800	11.186	9.914			No
23J0768-32 F	0.798	11.197	9.356			No

TOTAL SOLIDS BENCHSHEET

Method: PSEP 1986

(dry at 103-105 C)

Instrumentation

Batch:	BLK0010
Date:	11/2/2023 7:40
Analyst:	LN
Drying Oven:	18
Analytical Balance:	24650344

Batch drying time

Record times as mm/dd/yy hh:mm

Date/time in oven:	11/1/2023 15:01	110	**Oven Temp, C**
Date/time out:	11/2/2023 7:40	111	
Elapsed hrs:	16.6		

TS (%) calculated as:

Final dry wt (g) = (Dry Wt - Tare Wt)

TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)

Oven Temps, °C	
Start Temp:	110
End Temp:	111

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23J0690-01	0.7920	11.2820	9.2260	8.43	**80.40%**	No
23J0690-02	0.8130	11.0700	8.2420	7.43	**72.43%**	No
23J0690-04	0.8230	11.0140	7.9050	7.08	**69.49%**	No
23J0690-06	0.8230	11.0870	7.9510	7.13	**69.45%**	No
23J0690-07	0.7850	11.1870	8.5490	7.76	**74.64%**	No
23J0768-11	0.7810	11.1900	9.1570	8.38	**80.47%**	No
23J0768-12	0.8010	11.2530	10.1050	9.30	**89.02%**	No
23J0768-21	0.8100	11.3560	8.7060	7.90	**74.87%**	No
23J0768-22	0.8000	11.4910	7.6860	6.89	**64.41%**	No
23J0768-23	0.8000	11.1860	9.9140	9.11	**87.75%**	No
23J0768-32	0.7980	11.2970	9.3560	8.56	**81.51%**	No

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: DIOXIN Extraction Batch BLK011Z

Total Solids Batch: BLK0010 Work Order(s): 23J0690, 23J0768

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☑ No Anomalies (standard soil/wet sediment/sand/gravel)= 768-11,12,21,23,32 | 690-06	LN 11/01/23
☐ Standing Water Decanted (Not shared)=	
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☑ Rocks (%+size)? 690-01 | 0.25-0.5 inch seashell 60% | 690-02,04,07 : 0.25-0.5 inch sea shell 5%	LN 11/01/23
☑ Organics (Leaves/sticks/grass)= 768-22 : wood sticks	LN 11/01/23
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☐ Other (Details)=	
Aqueous:	
☑ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☑ Other Notes/Comments= (Note problems, concerns, corrective actions).	
690-01, 02: label swapped after transfer sample; correct lable when rinse	LN 11/16/23
690-06: had light blue color after turbo vap; ~~clear~~ LN	LN 11/16/23
☐ Share Samples Y / N	
☐ Multiple Jars Y / N	
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

TOTAL SOLIDS BENCHSHEET

Method: PSEP 1986

(dry at 103-105 C)

Batch:	BLJ0767
Date:	10/27/2023 0:00
Analyst:	TW
Drying Oven:	18
Analytical Balance:	24650344

Instrumentation

Batch drying time

Record times as mm/dd/yy hh:mm

Date/time in oven:	10/26/2023 13:30
Date/time out:	10/27/2023 5:09
Elapsed hrs:	15.7

Oven Temp, C 109

TS (%) calculated as:

Final dry wt (g) = (Dry Wt - Tare Wt)

TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)

Oven Temps, °C	
Start Temp:	109
End Temp:	110

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23I0156-05	0.8100	11.5300	10.6700	9.86	**91.98%**	No
23I0156-06	0.7900	11.5500	10.6000	9.81	**91.17%**	No
23I0156-08	0.7800	11.0500	9.3600	8.58	**83.54%**	No
23I0156-10	0.7800	11.1200	9.1300	8.35	**80.75%**	No

TOTAL SOLIDS BENCHSHEET						Batch:	BLJ0767
Method: PSEP 1986						Date:	
(dry at 103-105 C)						Analyst:	TW
Instrumentation						Drying Oven:	018
						Analytical Balance:	2465344

Batch drying time			Oven Temp, C	TS (%) calculated as:	Oven Temps, °C	
Record times as mm/dd/yy hh:mm					Start Temp:	109
Date/time in oven:	10/26/23	13:30	109	Final dry wt (g) = (Dry Wt - Tare Wt)	End Temp:	110
Date/time out:	10/27/23	0509	110	TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)		
Elapsed hrs:	0.0					

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23I0156-05 A	0.81	11.53	10.67			No
23I0156-06	0.79	11.55	10.60			No
23I0156-08	0.78	11.05	9.36			No
23I0156-10	0.78	11.12	9.13			No

Analytical Resources, ~~Incorporated~~ LLC
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: Dioxin Batch Number: BLK0112

Element Batch:T/S BLJ6767 Work Order(s): 23I0156

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☐ No Anomalies (standard soil/wet sediment/sand/gravel)=	
☐ Standing Water Decanted (Not shared)=	
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☑ Rocks (%+size)? 156-5,6,8,10 = ~10% 1/8-1/4" rocks	TW 10/26/23
☐ Organics (Leaves/sticks/grass)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Other (Details)=	
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☑ Other Notes/Comments= (Note problems, concerns, corrective actions).	
156-6: 2x acid silica gel @ silica gel clean up	LM 11/16/23
☐ Share Samples Y / N	
☐ Multiple Jars Y / N	
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

TOTAL SOLIDS BENCHSHEET

Method: PSEP 1986

(dry at 103-105 C)

Batch:	BLJ0610
Date:	10/27/2023 5:09
Analyst:	TW
Drying Oven:	18
Analytical Balance:	24650344

Instrumentation

Batch drying time

Record times as mm/dd/yy hh:mm

Date/time in oven:	10/26/2023 13:30
Date/time out:	10/27/2023 5:09
Elapsed hrs:	15.7

Oven Temp, C 109

110

TS (%) calculated as:

Final dry wt (g) = (Dry Wt - Tare Wt)

TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)

Oven Temps, °C	
Start Temp:	109
End Temp:	110

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23J0453-02	0.8200	11.9100	10.4100	9.59	**86.47%**	No
23J0453-04	0.8200	11.1500	6.0700	5.25	**50.82%**	Yes
23J0453-05	0.8200	11.4600	8.4000	7.58	**71.24%**	Yes
23J0453-09	0.8100	11.5000	5.6400	4.83	**45.18%**	Yes
23J0454-01	0.8100	11.3900	10.7600	9.95	**94.05%**	No
23J0454-04	0.8100	11.2600	10.7800	9.97	**95.41%**	No
23J0454-07	0.8100	11.2500	10.4900	9.68	**92.72%**	No

TOTAL SOLIDS BENCHSHEET							Batch:	BLJ0610
Method: PSEP 1986							Date:	
(dry at 103-105 C)							Analyst:	TW
Instrumentation							Drying Oven:	Ø18
							Analytical Balance:	2465234

Batch drying time			Oven Temp, C	TS (%) calculated as:	Oven Temps, °C	
Record times as mm/dd/yy hh:mm						
Date/time in oven:	10/26/23	13:30	109	Final dry wt (g) = (Dry Wt - Tare Wt)	Start Temp:	109
Date/time out:	10/27/23	Ø5Ø9	110	TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)	End Temp:	110
Elapsed hrs:	0.0					

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23J0453-02 C	Ø.82	11.91	1Ø.41			No
23J0453-04 C	Ø.82	11.15	6Ø~~7.44~~			~~No~~ YS
23J0453-05 C	Ø.82	11.46	8.4Ø			~~No~~ YS
23J0453-09 C	Ø.81	11.5Ø	5.64			~~No~~ YS
23J0454-01 B	Ø.81	11.39	1Ø.76			No
23J0454-04 B	Ø.81	11.76	1Ø.78			No
23J0454-07 B	Ø.81	11.25	1Ø.49			No

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Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: Dioxin Batch Number: BLK0112

Element Batch:T/S BLJ0610 Work Order(s): 23J0453

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☑ No Anomalies (standard soil/wet sediment/sand/gravel)= 453-02, 454,01,04,07	TW 10/26/23
☑ Standing Water Decanted (Not shared)= 453-4,5,9	TW 10/26/23
☐ Standing Water Homogenized (Shared samples)= ~~c~~	
☑ Clay/Clumps (Difficult to homogenize)= 453-4,5,9	TW 10/26/23
☐ Rocks (%+size)?	
☑ Organics (Leaves/sticks/grass)= 453-4,5,9	TW 10/26/23
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Other (Details)=	
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☐ Other Notes/Comments= (Note problems, concerns, corrective actions).	
☐ Share Samples Y / N	
☐ Multiple Jars Y / N	
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

TOTAL SOLIDS BENCHSHEET

Method: PSEP 1986

(dry at 103-105 C)

Instrumentation

Batch:	BLJ0439
Date:	10/19/2023 0:00
Analyst:	TW
Drying Oven:	18
Analytical Balance:	24650344

Batch drying time

Record times as mm/dd/yy hh:mm

Date/time in oven:	10/18/2023 12:49
Date/time out:	10/19/2023 5:10
Elapsed hrs:	16.4

Oven Temp, C: 110

TS (%) calculated as:

Final dry wt (g) = (Dry Wt - Tare Wt)

111 TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)

Oven Temps, °C	
Start Temp:	110
End Temp:	111

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23J0254-01	0.8200	11.2400	10.2900	9.47	**90.88%**	No
23J0254-04	0.8100	11.8300	11.1600	10.35	**93.92%**	No
23J0255-01	0.8100	11.3300	10.3000	9.49	**90.21%**	No
23J0255-04	0.8100	11.2100	10.0500	9.24	**88.85%**	No
23J0255-05	0.7900	11.2400	9.8800	9.09	**86.99%**	No
23J0255-09	0.7800	11.2600	10.3600	9.58	**91.41%**	No
23J0256-01	0.8000	11.5100	10.4500	9.65	**90.10%**	No
23J0256-04	0.8200	11.7400	10.9100	10.09	**92.40%**	No
23J0257-01	0.8100	11.0600	10.2400	9.43	**92.00%**	No
23J0257-04	0.8000	11.6800	10.8800	10.08	**92.65%**	No
23J0316-01	0.8100	11.8200	10.2400	9.43	**85.65%**	No
23J0316-04	0.8100	11.4600	9.7500	8.94	**83.94%**	No
23J0316-07	0.8100	11.4600	10.5700	9.76	**91.64%**	No
23J0316-10	0.7900	11.6400	10.6400	9.85	**90.78%**	No
23J0350-01	0.8000	11.4600	10.0100	9.21	**86.40%**	No
23J0350-04	0.8000	11.2400	10.6600	9.86	**94.44%**	No
23J0350-08	0.8000	11.4000	10.7700	9.97	**94.06%**	No
23J0350-11	0.8000	11.5100	10.7200	9.92	**92.62%**	No

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Cleanup Batch:	CLK0116	Cleanup Type:	Sulfuric Acid
Cleanup Method:	EPA 3665 Sulfuric Acid Cleanup - uL	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
AOC3-03-0.5-1.0	23I0156-05	23121426	11/16/2023	
AOC3-103-0.5-1.0	23I0156-06	23121427	11/16/2023	
AOC3-05-0.5-1.0	23I0156-10	23121429	11/16/2023	
Blank	BLK0112-BLK1	23121421	11/16/2023	
LCS	BLK0112-BS1	23121422	11/16/2023	
AOC3-04-0.5-1.0	23I0156-08	23121428	11/16/2023	

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CLEANUP BENCH SHEET

CLK0116

Matrix: Solid **Cleanup using: HRGCMS - EPA 3665 Sulfuric Acid Cleanup - uL** **Printed: 11/16/2023 4:59:33PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23I0156-05	A	AOC3-03-0.5-1.0	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23I0156-06	A	AOC3-103-0.5-1.0	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23I0156-08	A	AOC3-04-0.5-1.0	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23I0156-10	A	AOC3-05-0.5-1.0	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23J0255-01	A	P103-SO-25-0-3-231004	A 03	20	20	1613B Dioxin	11/16/2023	LN	
23J0453-02	C	T117-LTM2-20231012	C 01	20	20	1613B Dioxin	11/16/2023	LN	
23J0453-04	C	T117-LTM4-20231012	C 01	20	20	1613B Dioxin	11/16/2023	LN	
23J0453-05	C	PERIM-1-LTM-20231012	C 01	20	20	1613B Dioxin	11/16/2023	LN	
23J0453-09	C	PERIM-5-LTM-20231012	C 01	20	20	1613B Dioxin	11/16/2023	LN	
23J0454-01	B	P103-SO-09-0-1.7-231011	B 01	20	20	1613B Dioxin	11/16/2023	LN	
23J0454-04	B	P103-SO-12-0-2-231011	B 01	20	20	1613B Dioxin	11/16/2023	LN	
23J0690-01	A	SED-07C:0-1	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23J0690-02	A	SED-08C:1-3	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23J0690-04	A	SED-14C:0-1	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23J0690-06	A	SED-27C:0-1	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23J0690-07	A	SED-26C:1-3	A 01	20	20	1613B Dioxin	11/16/2023	LN	
BLK0112-BLK1	-	Blank	-	20	20	-	11/16/2023	LN	
BLK0112-BS1	-	LCS	-	20	20	-	11/16/2023	LN	
BLK0112-DUP1	-	Duplicate	-	20	20	-	11/16/2023	LN	

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CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Cleanup Batch:	CLK0117	Cleanup Type:	Silica Gel
Cleanup Method:	EPA 3630C Silica Gel Cleanup - uL	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
AOC3-05-0.5-1.0	23I0156-10	23121429	11/16/2023	
AOC3-04-0.5-1.0	23I0156-08	23121428	11/16/2023	
AOC3-03-0.5-1.0	23I0156-05	23121426	11/16/2023	
Blank	BLK0112-BLK1	23121421	11/16/2023	
LCS	BLK0112-BS1	23121422	11/16/2023	
AOC3-103-0.5-1.0	23I0156-06	23121427	11/16/2023	

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CLEANUP BENCH SHEET

CLK0117

Matrix: Solid **Cleanup using: HRGCMS - EPA 3630C Silica Gel Cleanup - uL** **Printed: 11/16/2023 5:01:28PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23I0156-05	A	AOC3-03-0.5-1.0	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23I0156-06	A	AOC3-103-0.5-1.0	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23I0156-08	A	AOC3-04-0.5-1.0	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23I0156-10	A	AOC3-05-0.5-1.0	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23J0255-01	A	P103-SO-25-0-3-231004	A 03	20	20	1613B Dioxin	11/16/2023	LN	
23J0453-02	C	T117-LTM2-20231012	C 01	20	20	1613B Dioxin	11/16/2023	LN	
23J0453-04	C	T117-LTM4-20231012	C 01	20	20	1613B Dioxin	11/16/2023	LN	
23J0453-05	C	PERIM-1-LTM-20231012	C 01	20	20	1613B Dioxin	11/16/2023	LN	
23J0453-09	C	PERIM-5-LTM-20231012	C 01	20	20	1613B Dioxin	11/16/2023	LN	
23J0454-01	B	P103-SO-09-0-1.7-231011	B 01	20	20	1613B Dioxin	11/16/2023	LN	
23J0454-04	B	P103-SO-12-0-2-231011	B 01	20	20	1613B Dioxin	11/16/2023	LN	
23J0690-01	A	SED-07C:0-1	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23J0690-02	A	SED-08C:1-3	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23J0690-04	A	SED-14C:0-1	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23J0690-06	A	SED-27C:0-1	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23J0690-07	A	SED-26C:1-3	A 01	20	20	1613B Dioxin	11/16/2023	LN	
BLK0112-BLK1	-	Blank	-	20	20	-	11/16/2023	LN	
BLK0112-BS1	-	LCS	-	20	20	-	11/16/2023	LN	
BLK0112-DUP1	-	Duplicate	-	20	20	-	11/16/2023	LN	

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CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Cleanup Batch:	CLK0118	Cleanup Type:	Florisil
Cleanup Method:	EPA 3620B Florisil Cleanup (uL)	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
AOC3-03-0.5-1.0	23I0156-05	23121426	11/16/2023	
Blank	BLK0112-BLK1	23121421	11/16/2023	
AOC3-103-0.5-1.0	23I0156-06	23121427	11/16/2023	
AOC3-05-0.5-1.0	23I0156-10	23121429	11/16/2023	
LCS	BLK0112-BS1	23121422	11/16/2023	
AOC3-04-0.5-1.0	23I0156-08	23121428	11/16/2023	

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CLEANUP BENCH SHEET

CLK0118

Matrix: Solid **Cleanup using: HRGCMS - EPA 3620B Florisil Cleanup (uL)** **Printed: 11/16/2023 5:02:59PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23I0156-05	A	AOC3-03-0.5-1.0	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23I0156-06	A	AOC3-103-0.5-1.0	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23I0156-08	A	AOC3-04-0.5-1.0	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23I0156-10	A	AOC3-05-0.5-1.0	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23J0255-01	A	P103-SO-25-0-3-231004	A 01	20	20	1613B Dioxin	11/16/2023	LN	
23J0453-02	C	T117-LTM2-20231012	C 01	20	20	1613B Dioxin	11/16/2023	LN	
23J0453-04	C	T117-LTM4-20231012	C 01	20	20	1613B Dioxin	11/16/2023	LN	
23J0453-05	C	PERIM-1-LTM-20231012	C 01	20	20	1613B Dioxin	11/16/2023	LN	
23J0453-09	C	PERIM-5-LTM-20231012	C 01	20	20	1613B Dioxin	11/16/2023	LN	
23J0454-01	B	P103-SO-09-0-1.7-231011	B 01	20	20	1613B Dioxin	11/16/2023	LN	
23J0454-04	B	P103-SO-12-0-2-231011	B 01	20	20	1613B Dioxin	11/16/2023	LN	
23J0690-01	A	SED-07C:0-1	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23J0690-02	A	SED-08C:1-3	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23J0690-04	A	SED-14C:0-1	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23J0690-06	A	SED-27C:0-1	A 02	20	20	1613B Dioxin	11/16/2023	LN	
23J0690-07	A	SED-26C:1-3	A 01	20	20	1613B Dioxin	11/16/2023	LN	
BLK0112-BLK1	-	Blank	-	20	20	-	11/16/2023	LN	
BLK0112-BS1	-	LCS	-	20	20	-	11/16/2023	LN	
BLK0112-DUP1	-	Duplicate	-	20	20	-	11/16/2023	LN	

Analytical Resources, LLC
Analytical Chemists and Consultants

Blank

Form 1
METHOD BLANK DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23I0156
Client:	Floyd - Snider			Project:	Smith-Kem
Matrix:	Solid	Laboratory ID:	BLK0112-BLK1	File ID:	23121421
Sampled:	N/A	Prepared:	11/14/23 13:25	Analyzed:	12/15/23 02:20
Solids Wt%:		Preparation:	EPA 1613	Initial/Final:	10 g / 20 uL
Result Basis:	Dry	Sequence:	SLL0222	Calibration:	GH00041
Batch:	BLK0112	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.000	0.655-0.886	0.235	1.00	ND	ng/kg	U
1746-01-6	2,3,7,8-TCDD	1	0.000	0.655-0.886	0.211	1.00	ND	ng/kg	U
57117-41-6	1,2,3,7,8-PeCDF	1	0.000	1.318-1.783	0.308	1.00	ND	ng/kg	U
57117-31-4	2,3,4,7,8-PeCDF	1	0.000	1.318-1.783	0.293	1.00	ND	ng/kg	U
40321-76-4	1,2,3,7,8-PeCDD	1	0.000	1.318-1.783	0.289	1.00	ND	ng/kg	U
70648-26-9	1,2,3,4,7,8-HxCDF	1	0.000	1.054-1.426	0.240	1.00	ND	ng/kg	U
57117-44-9	1,2,3,6,7,8-HxCDF	1	0.000	1.054-1.426	0.240	1.00	ND	ng/kg	U
60851-34-5	2,3,4,6,7,8-HxCDF	1	0.000	1.054-1.426	0.258	1.00	ND	ng/kg	U
72918-21-9	1,2,3,7,8,9-HxCDF	1	0.000	1.054-1.426	0.365	1.00	ND	ng/kg	U
39227-28-6	1,2,3,4,7,8-HxCDD	1	0.000	1.054-1.426	0.293	1.00	ND	ng/kg	U
57653-85-7	1,2,3,6,7,8-HxCDD	1	0.000	1.054-1.426	0.320	1.00	ND	ng/kg	U
19408-74-3	1,2,3,7,8,9-HxCDD	1	0.000	1.054-1.426	0.350	1.00	ND	ng/kg	U
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.133	0.893-1.208	0.389	1.00	1.08	ng/kg	
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	0.000	0.893-1.208	0.647	1.00	ND	ng/kg	U
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	0.998	0.893-1.208	0.485	2.50	3.13	ng/kg	
39001-02-0	OCDF	1	1.704	0.757-1.024	0.776	2.50	1.46	ng/kg	EMPC, J
3268-87-9	OCDD	1	0.825	0.757-1.024	0.910	10.0	17.1	ng/kg	

Homologue Groups

55722-27-5	Total TCDF	1	0.000			1.00	ND	ng/kg
41903-57-5	Total TCDD	1	0.000			1.00	ND	ng/kg
30402-15-4	Total PeCDF	1	0.000			1.00	ND	ng/kg
36088-22-9	Total PeCDD	1	0.000			1.00	ND	ng/kg
55684-94-1	Total HxCDF	1	0.000			1.00	ND	ng/kg
34465-46-8	Total HxCDD	1	0.000			1.00	ND	ng/kg
38998-75-3	Total HpCDF	1	0.000			1.00	1.08	ng/kg
37871-00-4	Total HpCDD	1	0.000			1.00	3.13	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.048
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.464

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Blank

Form 2
METHOD BLANK DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23I0156
Client:	Floyd - Snider			Project:	Smith-Kem
Matrix:	Solid	Laboratory ID:	BLK0112-BLK1	File ID:	23121421
Sampled:	N/A	Prepared:	11/14/23 13:25	Analyzed:	12/15/23 02:20
Solids Wt%:	0.00	Preparation:	EPA 1613	Initial/Final:	10 g / 20 uL
Result Basis:	Dry	Sequence:	SLL0222	Calibration:	GH00041
Batch:	BLK0112	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF	1	0.738	0.655-0.886	0.15	46.9	24 - 169 %	
13C12-2,3,7,8-TCDD	1	0.789	0.655-0.886	0.27	56.4	25 - 164 %	
13C12-1,2,3,7,8-PeCDF	1	1.522	1.318-1.783	0.28	46.1	24 - 185 %	
13C12-2,3,4,7,8-PeCDF	1	1.498	1.318-1.783	0.30	46.5	21 - 178 %	
13C12-1,2,3,7,8-PeCDD	1	1.669	1.318-1.783	0.26	55.4	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF	1	0.515	0.434-0.587	0.44	49.8	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF	1	0.502	0.434-0.587	0.36	50.1	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF	1	0.496	0.434-0.587	0.44	47.5	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF	1	0.507	0.434-0.587	0.50	48.0	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD	1	1.258	1.054-1.426	0.44	58.3	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD	1	1.321	1.054-1.426	0.36	56.1	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF	1	0.457	0.374-0.506	0.43	41.3	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF	1	0.442	0.374-0.506	0.57	40.0	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD	1	1.023	0.893-1.208	0.48	52.6	23 - 140 %	
13C12-OCDD	1	0.919	0.757-1.024	0.89	43.3	17 - 157 %	
37Cl4-2,3,7,8-TCDD	1	328.000		0.09	89.1	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
Printed: Friday, December 15, 2023 13:56:18 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin231215.mdb 15 Dec 2023 13:28:43
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: BLK0112-BLK1, Name: 23121421, Date: 15-Dec-2023, Time: 02:20:02, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF					0.903		0.770	498	719								
12378-PeCDF					0.923		1.550	467	685								
23478-PeCDF					0.991		1.550	467	685								
123478-HxCDF					1.128		1.240	428	451								
234678-HxCDF					1.081		1.240	428	451								
123678-HxCDF					1.032		1.240	428	451								
123789-HxCDF					0.988		1.240	428	451								
1234678-HpCDF	38.384	1.001	3.272e2	2.888e2	1.164	1.133	1.050	564	552	6.61e3	3.71e3	11.7	6.7	NO	bd	bd	0.540
1234789-HpCDF					1.104		1.050	564	552								
OCDF	44.646	1.005	3.457e2	2.029e2	1.130	1.704	0.890	572	484	6.62e3	4.16e3	11.6	8.6	YES	bb	bb	0.732
2378-TCDD					1.243		0.770	676	469								
12378-PeCDD					1.150		1.550	489	510								
123478-HxCDD					0.960		1.240	509	488								
123678-HxCDD					0.883		1.240	509	488								
123789-HxCDD					0.804		1.240	509	488								
1234678-HpCDD	39.855	1.001	7.481e2	7.497e2	1.200	0.998	1.050	544	589	8.78e3	8.74e3	16.1	14.8	NO	bb	bb	1.565
OCDD	44.426	1.000	2.708e3	3.285e3	1.059	0.825	0.890	617	543	3.32e4	3.82e4	53.8	70.3	NO	bb	bd	8.540
13C-2378-TCDF	25.350	1.007	1.043e5	1.412e5	1.835	0.738	0.770	1034	967	1.46e6	1.95e6	1414.0	2020.7	NO	bb	bb	46.896
13C-12378-PeCDF	29.482	1.171	1.093e5	7.177e4	1.377	1.522	1.550	1829	974	1.47e6	9.87e5	802.2	1013.0	NO	bb	bd	46.105
13C-23478-PeCDF	30.830	1.224	1.035e5	6.907e4	1.301	1.498	1.550	1829	974	1.43e6	9.34e5	782.0	958.3	NO	bb	bb	46.495
13C-123478-HxCDF	34.462	0.955	4.451e4	8.635e4	1.091	0.515	0.510	1041	1849	6.63e5	1.28e6	636.9	690.8	NO	bd	bd	49.767
13C-123678-HxCDF	34.596	0.958	5.410e4	1.077e5	1.340	0.502	0.510	1041	1849	7.13e5	1.39e6	685.1	753.9	NO	dd	db	50.092
13C-234678-HxCDF	35.476	0.983	4.150e4	8.375e4	1.093	0.496	0.510	1041	1849	6.27e5	1.24e6	602.1	669.7	NO	bb	bb	47.516
13C-123789-HxCDF	36.512	1.011	3.707e4	7.314e4	0.952	0.507	0.510	1041	1849	4.93e5	9.74e5	473.5	526.5	NO	bd	bb	48.042
13C-1234678-HpCDF	38.361	1.063	3.072e4	6.728e4	0.985	0.457	0.440	987	1598	4.63e5	1.02e6	469.6	635.2	NO	bb	bd	41.273
13C-1234789-HpCDF	40.556	1.123	2.235e4	5.056e4	0.756	0.442	0.440	987	1598	2.88e5	6.82e5	291.4	426.5	NO	bd	bb	40.014
13C-1234-TCDD	25.181	0.000	1.251e5	1.601e5	1.000	0.782	0.770	1221	929	1.92e6	2.43e6	1573.0	2618.8	NO	bb	bb	100.000
13C-2378-TCDD	25.986	1.032	7.867e4	9.975e4	1.110	0.789	0.770	1221	929	1.16e6	1.47e6	946.1	1579.7	NO	bb	bb	56.377
13C-12378-PeCDD	31.075	1.234	7.447e4	4.461e4	0.754	1.669	1.550	696	723	1.13e6	6.73e5	1620.1	931.2	NO	bb	bb	55.393
13C-123478-HxCDD	35.599	0.986	7.521e4	5.980e4	0.960	1.258	1.240	1461	1089	1.18e6	9.36e5	810.7	859.3	NO	bd	bd	58.339
13C-123678-HxCDD	35.710	0.989	8.927e4	6.760e4	1.159	1.321	1.240	1461	1089	1.21e6	9.66e5	826.0	886.5	NO	dd	db	56.132
13C-1234678-HpCDD	39.832	1.103	4.034e4	3.943e4	0.629	1.023	1.050	820	990	5.91e5	5.84e5	721.0	589.8	NO	bb	bb	52.582
13C-OCDD	44.408	1.230	6.348e4	6.910e4	0.635	0.919	0.890	2158	1255	6.92e5	7.69e5	320.6	612.3	NO	bd	bd	86.585
13C-123789-HxCDD	36.100	0.000	1.338e5	1.072e5	1.000	1.248	1.240	1461	1089	2.02e6	1.64e6	1379.3	1503.3	NO	bb	bb	100.000
37CL-2378-TCDD	26.000	1.033	1.177e5		1.157			768		1.73e6		2248.4			bb		35.656

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
Printed: Friday, December 15, 2023 13:56:18 Pacific Standard Time

ID: BLK0112-BLK1, Name: 23121421, Date: 15-Dec-2023, Time: 02:20:02, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.170		0.770	498	719								
1289-TCDF					0.847		0.770	498	719								
13468-PECDF					1.241		1.550	548	558								
12389-PECDF					0.880		1.550	467	685								
123468-HXCDF					1.206		1.240	428	451								
1368-TCDD					1.181		0.770	676	469								
1289-TCDD					0.963		0.770	676	469								
12479-PECDD					2.166		1.550	489	510								
12389-PECDD					1.326		1.550	489	510								
124679-HXCDD					1.127		1.240	509	488								
1234679-HPCDD	38.829	0.975	3.324e2	3.968e2	1.303	0.838	1.050	544	589	5.55e3	6.40e3	10.2	10.9	YES	bb	bb	0.702
Total-tetrafurans			0.000e0		0.973			498		0.00e0							
Total-penta1			0.000e0					548		0.00e0							
Total-pentafurans			0.000e0		0.931			467		0.00e0							
Total-hexafurans			0.000e0		1.087			428		0.00e0							
Total-heptafurans			3.272e2		1.134			564		6.61e3							0.540
Total-Furans			3.272e2		1.053			498		6.61e3							0.540
Total-tetradioxins			0.000e0		1.129			676		0.00e0							
Total-pentadioxins			0.000e0		1.548			489		0.00e0							
Total-hexadioxins			0.000e0		0.943			509		0.00e0							
Total-heptadioxins			7.481e2		1.251			544		8.78e3							1.565
Total-Dioxins			3.456e3		1.182			676		4.20e4							10.105
Total-TEQ			3.783e3					676		4.86e4							10.645
FUNCTION1 PFK			5.310e5					286373		1.14e7							
FUNCTION2 PFK			1.006e5					141268		3.01e6							0.000
FUNCTION3 PFK			1.274e5					210092		4.14e6							0.000
FUNCTION4 PFK			1.175e5					136345		3.37e6							
FUNCTION5 PFK			2.424e4					118074		8.98e5							
FUNCTION1 HXCD...			7.296e2					598		9.91e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			1.257e2					510		2.39e3							0.000
FUNCTION3 OCDPE			5.946e2					386		1.07e4							0.000
FUNCTION4 NCDPE			2.857e2					470		3.42e3							0.000
FUNCTION5 DCDPE			0.000e0					417		0.00e0							

Method: T:\Autospec\Methods\Dioxin231215.mdb 15 Dec 2023 13:28:43
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: BLK0112-BLK1, Name: 23121421, Date: 15-Dec-2023, Time: 02:20:02, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.38	3.272e2	2.888e2	1.164	1.13	1.05	11.7	YES	NO	bd	bd	0.540

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.38	3.272e2	2.888e2	1.164	1.13	1.05	11.7	YES	NO	bd	bd	0.540

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ID: BLK0112-BLK1, Name: 23121421, Date: 15-Dec-2023, Time: 02:20:02, Conditions: AUTOSPEC01, User: pk

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.85	7.481e2	7.497e2	1.200	1.00	1.05	16.1	YES	NO	bb	bb	1.565

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.85	7.481e2	7.497e2	1.200	1.00	1.05	16.1	YES	NO	bb	bb	1.565
2	OCDD	44.43	2.708e3	3.285e3	1.059	0.82	0.89	53.8	YES	NO	bb	bd	8.540

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.38	3.272e2	2.888e2	1.164	1.13	1.05	11.7	YES	NO	bd	bd	0.540
2	1234678-HpCDD	39.85	7.481e2	7.497e2	1.200	1.00	1.05	16.1	YES	NO	bb	bb	1.565
3	OCDD	44.43	2.708e3	3.285e3	1.059	0.82	0.89	53.8	YES	NO	bb	bd	8.540

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
Printed: Friday, December 15, 2023 13:56:18 Pacific Standard Time

ID: BLK0112-BLK1, Name: 23121421, Date: 15-Dec-2023, Time: 02:20:02, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.32	3.877e4					2.2	NO		bd		
2	FUNCTION1 PFK	21.16	3.678e3					0.9	NO		bb		
3	FUNCTION1 PFK	23.88	4.419e3					0.6	NO		bd		
4	FUNCTION1 PFK	23.74	2.498e4					2.4	NO		db		
5	FUNCTION1 PFK	23.73	6.572e4					2.4	NO		bd		
6	FUNCTION1 PFK	22.86	1.733e4					1.2	NO		bb		
7	FUNCTION1 PFK	22.54	1.388e3					0.3	NO		bb		
8	FUNCTION1 PFK	22.40	1.465e3					0.4	NO		bb		
9	FUNCTION1 PFK	22.30	1.139e4					1.4	NO		db		
10	FUNCTION1 PFK	22.26	3.079e4					1.8	NO		dd		
11	FUNCTION1 PFK	22.16	4.766e4					2.3	NO		dd		
12	FUNCTION1 PFK	22.07	1.911e4					2.0	NO		bd		
13	FUNCTION1 PFK	21.92	7.465e4					2.7	NO		db		
14	FUNCTION1 PFK	21.85	1.188e4					1.5	NO		bd		
15	FUNCTION1 PFK	21.68	5.970e3					0.6	NO		bb		
16	FUNCTION1 PFK	21.54	1.657e4					1.1	NO		bb		
17	FUNCTION1 PFK	21.47	1.305e4					1.2	NO		db		
18	FUNCTION1 PFK	21.40	2.941e4					2.1	NO		dd		
19	FUNCTION1 PFK	27.30	4.464e3					0.8	NO		bb		
20	FUNCTION1 PFK	27.24	1.851e3					0.5	NO		bb		
21	FUNCTION1 PFK	26.99	2.389e3					0.6	NO		bb		
22	FUNCTION1 PFK	26.93	2.402e3					0.6	NO		bb		
23	FUNCTION1 PFK	26.64	1.644e3					0.4	NO		bb		
24	FUNCTION1 PFK	26.49	6.761e3					0.6	NO		bb		
25	FUNCTION1 PFK	26.35	1.815e3					0.5	NO		bb		
26	FUNCTION1 PFK	26.07	1.772e4					1.4	NO		bb		
27	FUNCTION1 PFK	25.94	1.302e4					1.2	NO		bb		
28	FUNCTION1 PFK	25.63	1.512e3					0.4	NO		bb		
29	FUNCTION1 PFK	25.56	1.610e4					1.1	NO		bb		
30	FUNCTION1 PFK	25.34	1.692e3					0.4	NO		bb		
31	FUNCTION1 PFK	24.93	1.667e3					0.4	NO		bb		
32	FUNCTION1 PFK	24.25	2.398e3					0.6	NO		bb		
33	FUNCTION1 PFK	23.99	1.147e4					0.9	NO		db		
34	FUNCTION1 PFK	23.94	1.016e4					1.2	NO		dd		
35	FUNCTION1 PFK	27.50	1.570e4					0.9	NO		bb		

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
Printed: Friday, December 15, 2023 13:56:18 Pacific Standard Time

ID: BLK0112-BLK1, Name: 23121421, Date: 15-Dec-2023, Time: 02:20:02, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	31.54	5.831e3					1.1	NO		bd		0.000
2	FUNCTION2 PFK	31.05	1.999e3					0.8	NO		bb		0.000
3	FUNCTION2 PFK	30.50	1.243e3					0.5	NO		bb		0.000
4	FUNCTION2 PFK	30.43	4.965e3					1.3	NO		bb		0.000
5	FUNCTION2 PFK	30.37	9.103e3					1.4	NO		bb		0.000
6	FUNCTION2 PFK	30.27	6.707e2					0.4	NO		bb		0.000
7	FUNCTION2 PFK	29.26	2.237e3					0.8	NO		bb		0.000
8	FUNCTION2 PFK	28.95	4.913e3					1.2	NO		bb		0.000
9	FUNCTION2 PFK	28.79	1.489e3					0.6	NO		bb		0.000
10	FUNCTION2 PFK	28.69	4.475e3					1.3	NO		bb		0.000
11	FUNCTION2 PFK	28.23	1.238e4					1.9	NO		db		0.000
12	FUNCTION2 PFK	28.19	9.777e3					1.6	NO		bd		0.000
13	FUNCTION2 PFK	27.88	1.033e4					1.4	NO		bb		0.000
14	FUNCTION2 PFK	27.79	6.905e3					2.1	NO		bb		0.000
15	FUNCTION2 PFK	32.36	3.392e3					1.0	NO		bb		0.000
16	FUNCTION2 PFK	32.14	2.633e3					0.8	NO		bb		0.000
17	FUNCTION2 PFK	31.71	1.320e4					1.7	NO		bb		0.000
18	FUNCTION2 PFK	31.60	5.082e3					1.3	NO		db		0.000

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
Printed: Friday, December 15, 2023 13:56:18 Pacific Standard Time

ID: BLK0112-BLK1, Name: 23121421, Date: 15-Dec-2023, Time: 02:20:02, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	34.79	5.757e3					1.2	NO		bb		0.000
2	FUNCTION3 PFK	34.61	3.344e3					0.8	NO		bb		0.000
3	FUNCTION3 PFK	34.46	7.699e3					1.1	NO		bb		0.000
4	FUNCTION3 PFK	34.03	1.347e4					1.5	NO		bb		0.000
5	FUNCTION3 PFK	33.82	2.965e3					0.9	NO		bb		0.000
6	FUNCTION3 PFK	33.73	1.479e3					0.6	NO		bb		0.000
7	FUNCTION3 PFK	33.59	2.458e3					0.6	NO		bb		0.000
8	FUNCTION3 PFK	33.36	8.508e3					1.4	NO		bb		0.000
9	FUNCTION3 PFK	33.13	7.786e3					1.2	NO		bb		0.000
10	FUNCTION3 PFK	32.80	2.452e3					0.7	NO		bb		0.000
11	FUNCTION3 PFK	32.65	2.224e4					2.0	NO		bb		0.000
12	FUNCTION3 PFK	37.28	8.918e3					1.2	NO		bb		0.000
13	FUNCTION3 PFK	35.47	1.568e4					2.0	NO		bb		0.000
14	FUNCTION3 PFK	35.39	1.074e3					0.5	NO		bb		0.000
15	FUNCTION3 PFK	35.15	3.674e3					0.7	NO		bb		0.000
16	FUNCTION3 PFK	35.02	1.063e4					1.6	NO		db		0.000
17	FUNCTION3 PFK	34.99	9.267e3					1.7	NO		bd		0.000

ID: BLK0112-BLK1, Name: 23121421, Date: 15-Dec-2023, Time: 02:20:02, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	40.62	7.902e2					0.5	NO		bb		
2	FUNCTION4 PFK	39.35	1.740e3					0.8	NO		bb		
3	FUNCTION4 PFK	39.09	4.406e3					1.3	NO		bb		
4	FUNCTION4 PFK	38.71	1.172e3					0.8	NO		bb		
5	FUNCTION4 PFK	38.14	5.827e3					1.6	NO		bb		
6	FUNCTION4 PFK	37.83	5.994e3					1.7	NO		db		
7	FUNCTION4 PFK	37.74	2.909e4					3.2	YES		bd		
8	FUNCTION4 PFK	37.65	1.033e4					2.3	NO		bb		
9	FUNCTION4 PFK	37.57	2.046e3					0.9	NO		bb		
10	FUNCTION4 PFK	42.52	6.932e3					1.5	NO		bb		
11	FUNCTION4 PFK	42.42	7.936e2					0.5	NO		bb		
12	FUNCTION4 PFK	42.37	7.388e3					2.1	NO		bb		
13	FUNCTION4 PFK	42.31	5.132e3					1.4	NO		bb		
14	FUNCTION4 PFK	41.85	9.450e3					1.2	NO		bb		
15	FUNCTION4 PFK	41.39	4.241e3					1.3	NO		bb		
16	FUNCTION4 PFK	41.20	5.919e3					1.5	NO		bb		
17	FUNCTION4 PFK	40.79	1.529e4					1.2	NO		bb		
18	FUNCTION4 PFK	40.70	9.951e2					0.7	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.98	2.398e3					1.0	NO		bb		
2	FUNCTION5 PFK	44.44	6.922e3					1.4	NO		bb		
3	FUNCTION5 PFK	43.99	1.700e3					0.9	NO		bb		
4	FUNCTION5 PFK	43.74	2.867e3					1.2	NO		bb		
5	FUNCTION5 PFK	43.25	5.651e3					1.5	NO		bb		
6	FUNCTION5 PFK	43.12	4.124e3					1.0	NO		bb		
7	FUNCTION5 PFK	45.49	5.811e2					0.5	NO		bb		

ID: BLK0112-BLK1, Name: 23121421, Date: 15-Dec-2023, Time: 02:20:02, Conditions: AUTOSPEC01, User: pk

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.31	9.905e1					2.3	NO		bb		0.000
2	FUNCTION1 HXCD...	27.07	1.093e2					1.9	NO		bb		0.000
3	FUNCTION1 HXCD...	24.94	1.057e2					2.4	NO		db		0.000
4	FUNCTION1 HXCD...	24.90	7.534e1					2.0	NO		bd		0.000
5	FUNCTION1 HXCD...	24.35	7.568e1					2.4	NO		bb		0.000
6	FUNCTION1 HXCD...	23.87	1.074e2					2.4	NO		bb		0.000
7	FUNCTION1 HXCD...	23.56	7.397e1					1.8	NO		bb		0.000
8	FUNCTION1 HXCD...	21.75	8.313e1					1.5	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	28.55	1.257e2					4.7	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	33.83	2.662e2					10.1	YES		db		0.000
2	FUNCTION3 OCDPE	33.66	8.734e1					3.2	YES		bd		0.000
3	FUNCTION3 OCDPE	32.69	2.411e2					14.5	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	42.42	9.647e1					2.8	NO		bb		0.000
2	FUNCTION4 NCDPE	38.50	9.305e1					2.5	NO		bb		0.000
3	FUNCTION4 NCDPE	37.88	9.616e1					2.0	NO		bb		0.000

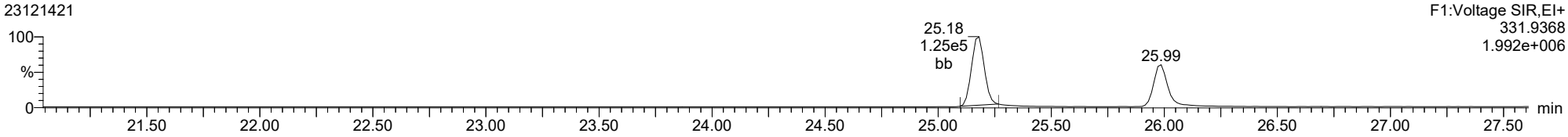
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

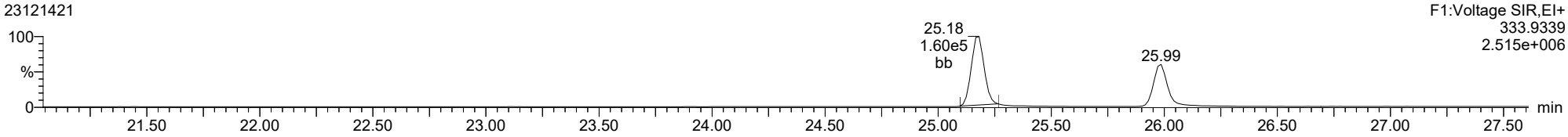
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ID: BLK0112-BLK1, Name: 23121421, Date: 15-Dec-2023, Time: 02:20:02, Conditions: AUTOSPEC01, User: pk

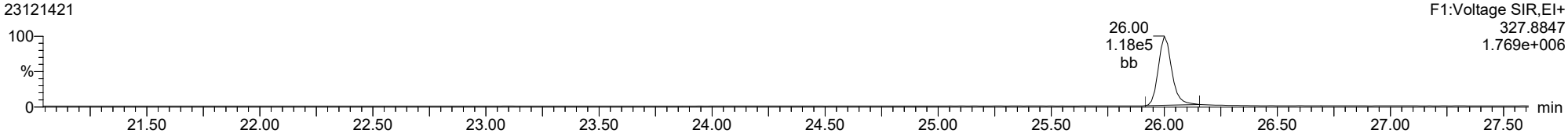
13C-1234-TCDD



13C-1234-TCDD

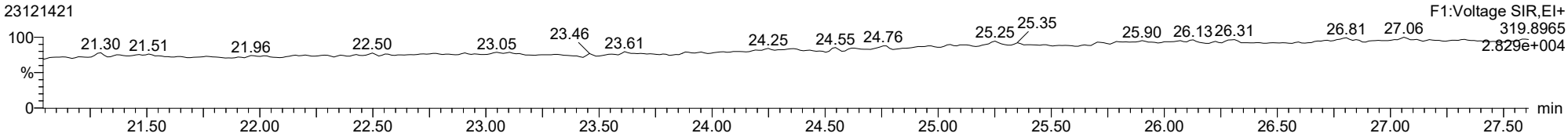


37CL-2378-TCDD

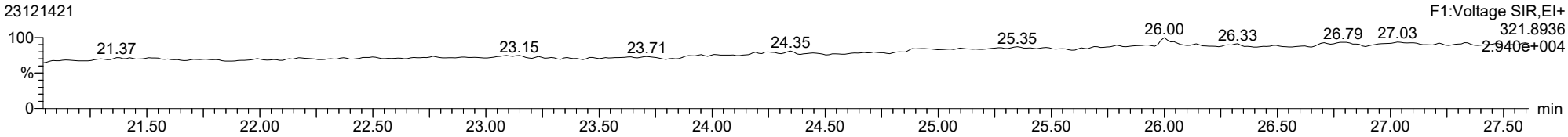


ID: BLK0112-BLK1, Name: 23121421, Date: 15-Dec-2023, Time: 02:20:02, Conditions: AUTOSPEC01, User: pk

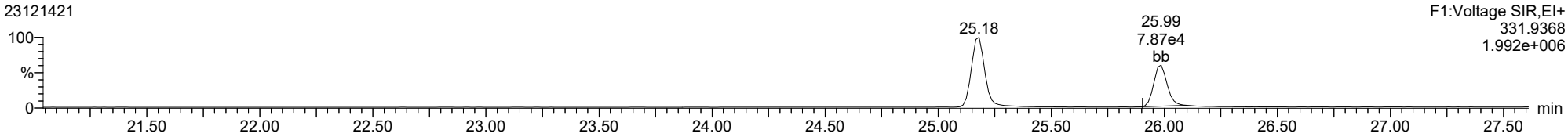
2378-TCDD



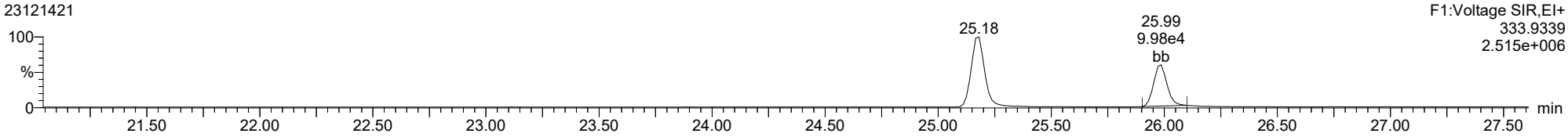
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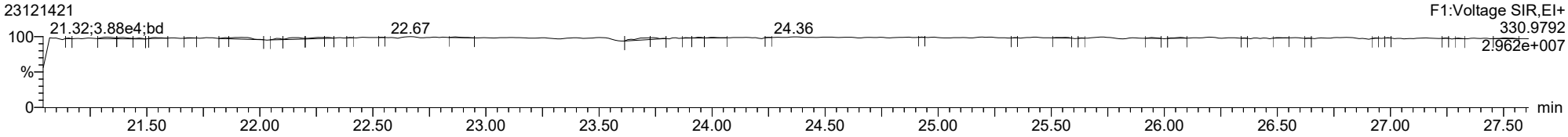
13C-2378-TCDD



13C-2378-TCDD

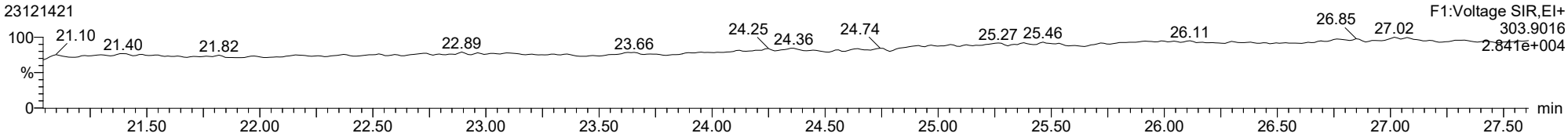


FUNCTION1 PFK

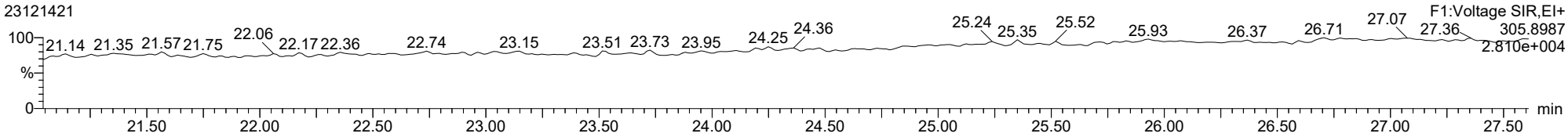


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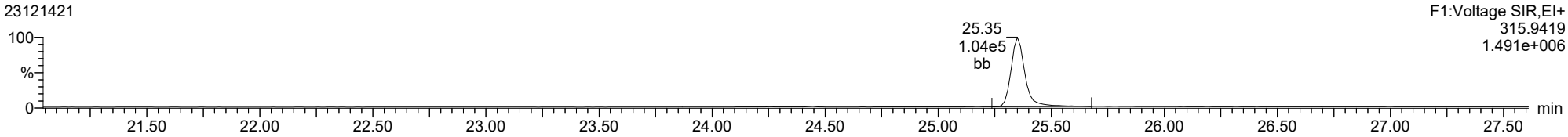
2378-TCDF



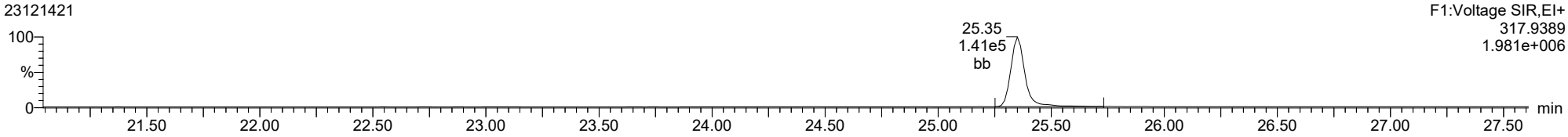
2378-TCDF



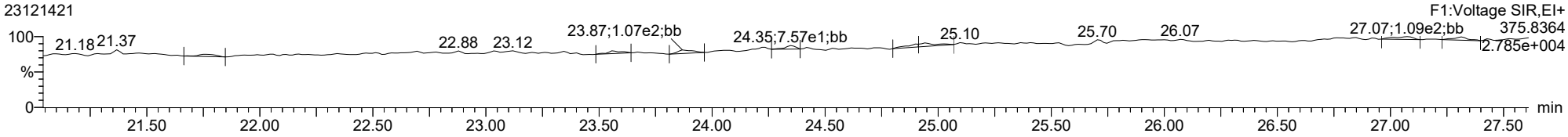
13C-2378-TCDF



13C-2378-TCDF

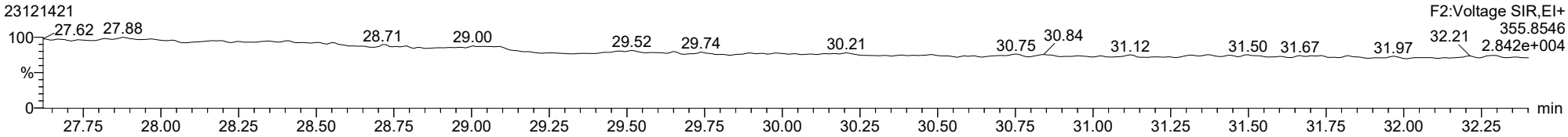


FUNCTION1 HXCDPE

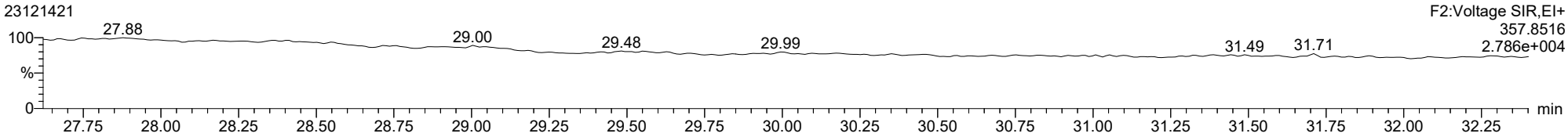


ID: BLK0112-BLK1, Name: 23121421, Date: 15-Dec-2023, Time: 02:20:02, Conditions: AUTOSPEC01, User: pk

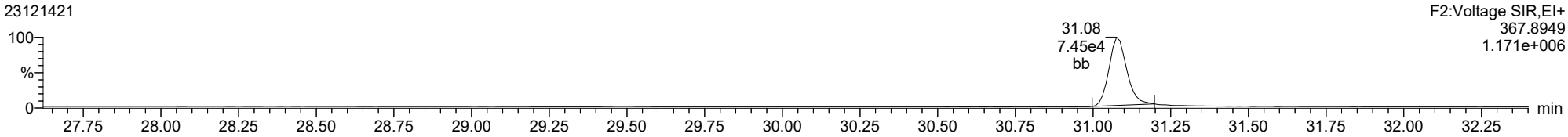
12378-PeCDD



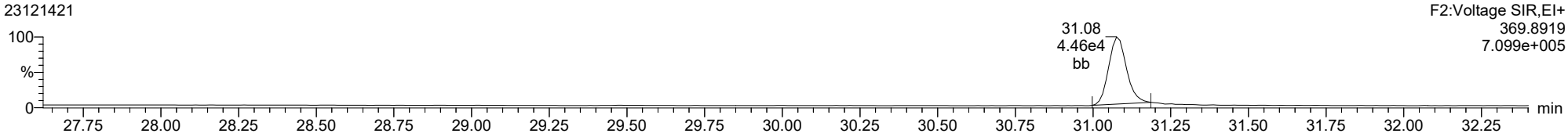
12378-PeCDD



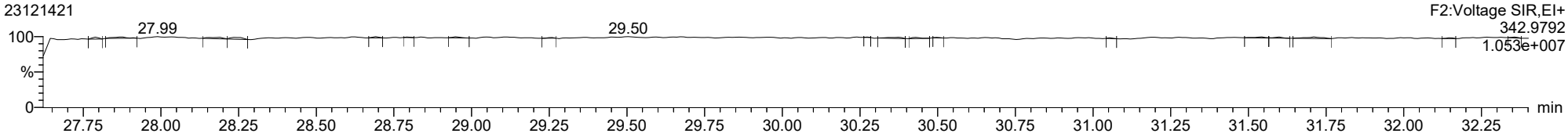
13C-12378-PeCDD



13C-12378-PeCDD

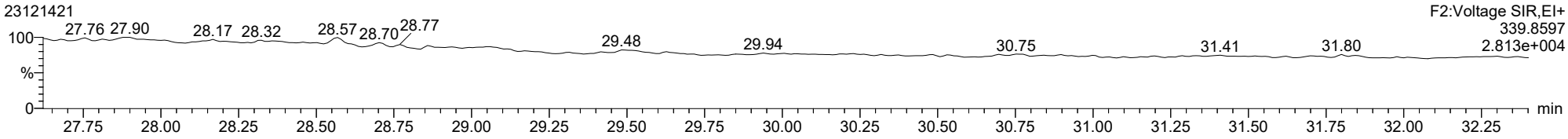


FUNCTION2 PFK

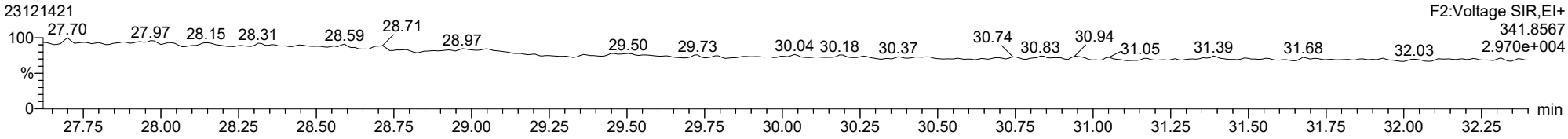


ID: BLK0112-BLK1, Name: 23121421, Date: 15-Dec-2023, Time: 02:20:02, Conditions: AUTOSPEC01, User: pk

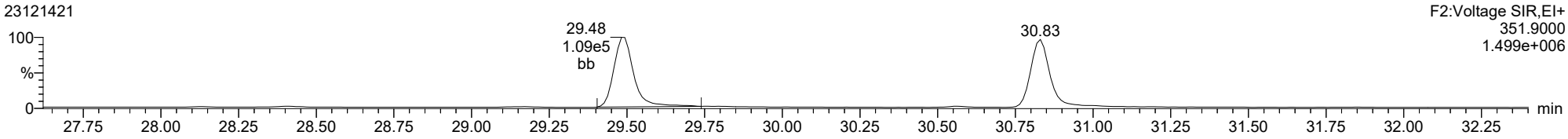
12378-PeCDF



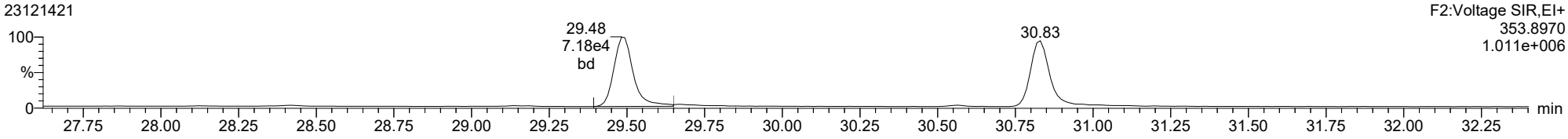
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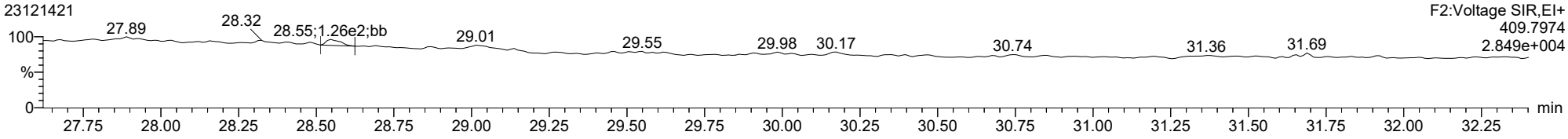
13C-12378-PeCDF



13C-12378-PeCDF

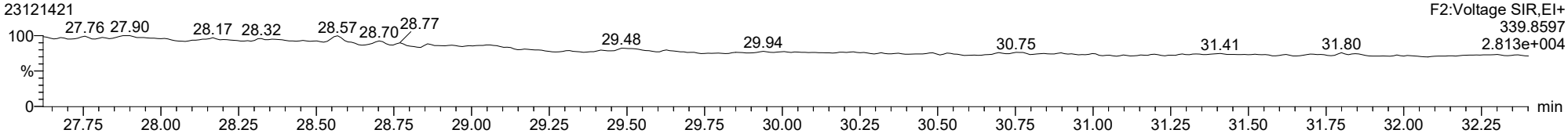


FUNCTION2 HPCDPE

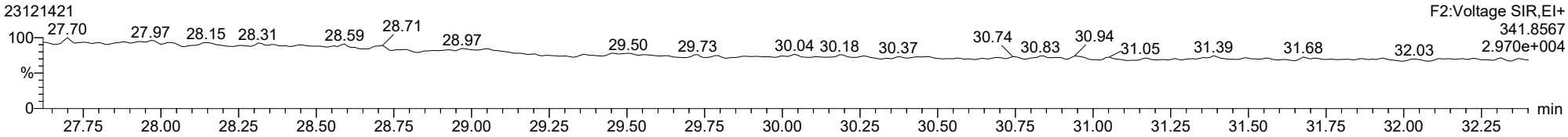


ID: BLK0112-BLK1, Name: 23121421, Date: 15-Dec-2023, Time: 02:20:02, Conditions: AUTOSPEC01, User: pk

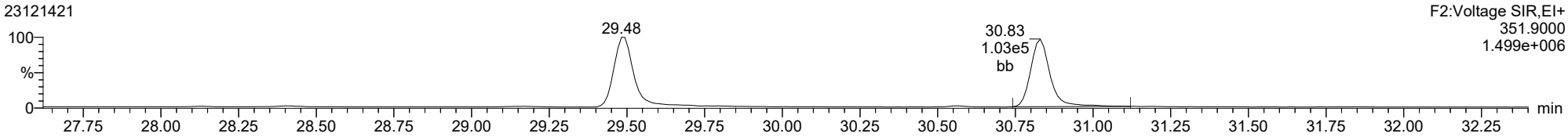
23478-PeCDF



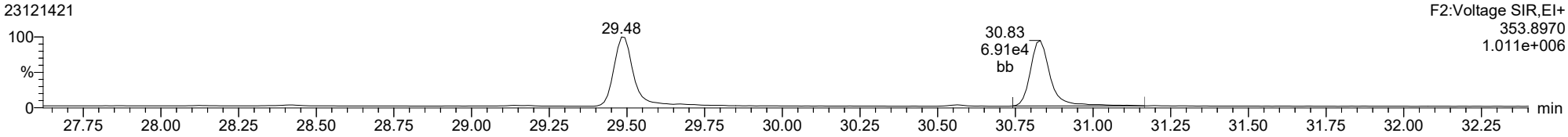
23478-PeCDF



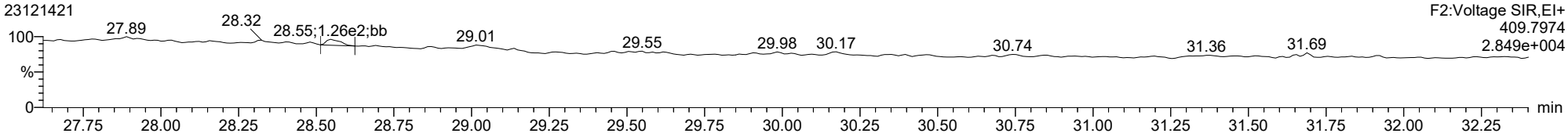
13C-23478-PeCDF



13C-23478-PeCDF



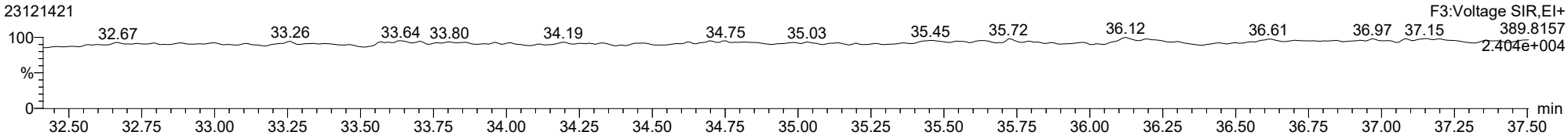
FUNCTION2 HPCDPE



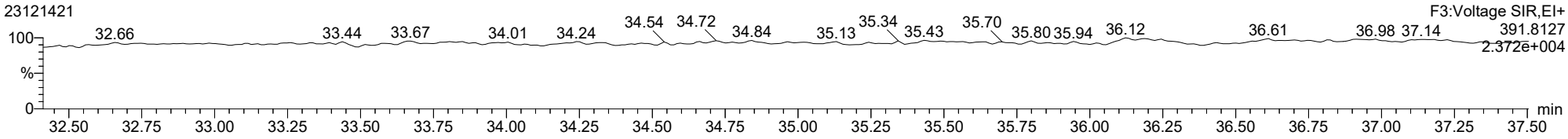
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Printed: Friday, December 15, 2023 13:56:18 Pacific Standard Time

ID: BLK0112-BLK1, Name: 23121421, Date: 15-Dec-2023, Time: 02:20:02, Conditions: AUTOSPEC01, User: pk

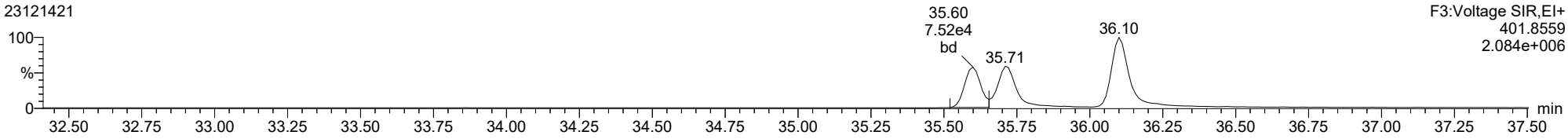
123478-HxCDD



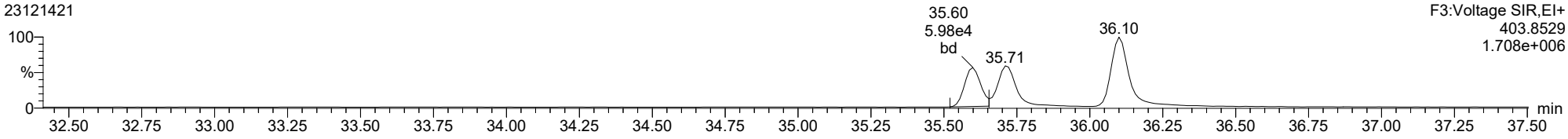
123478-HxCDD



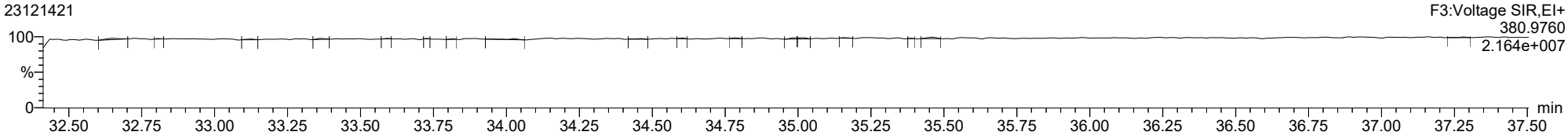
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13C-123478-HxCDD



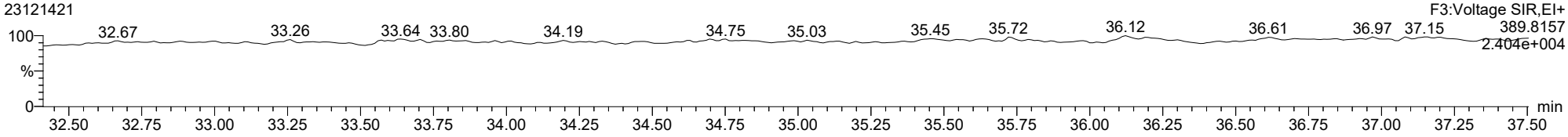
FUNCTION3 PFK



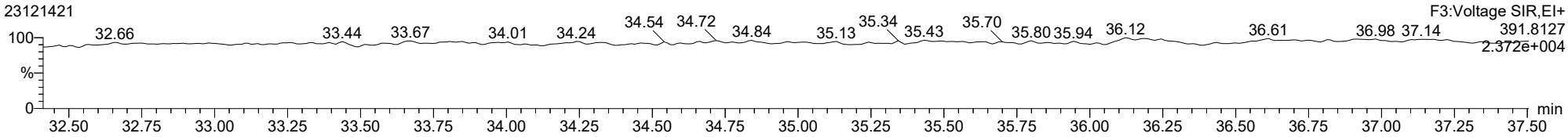
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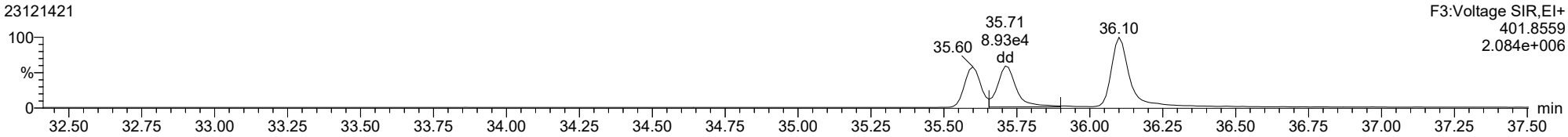
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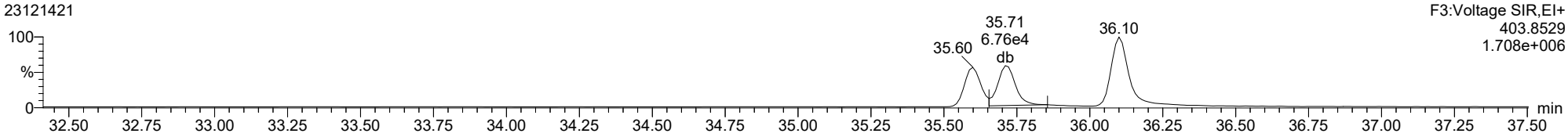
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13C-123678-HxCDD

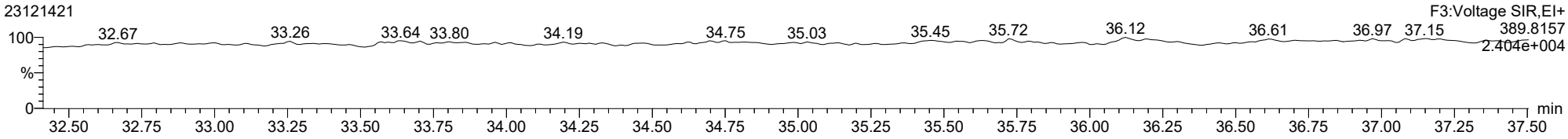


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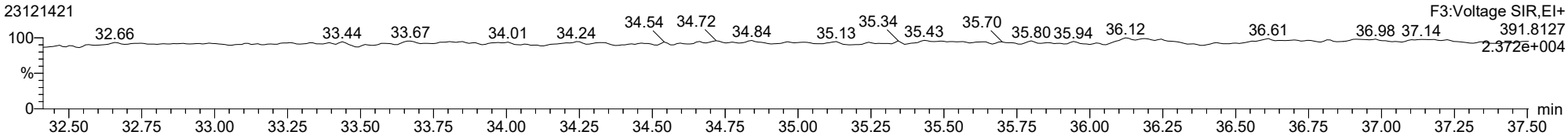


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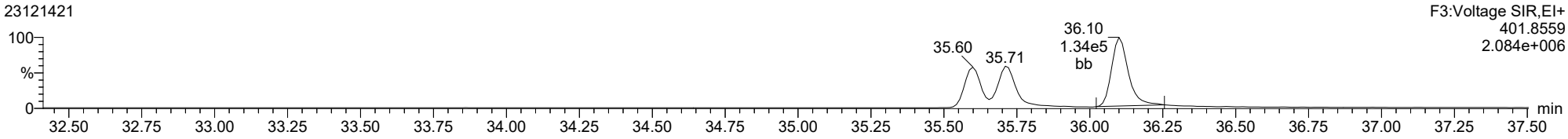
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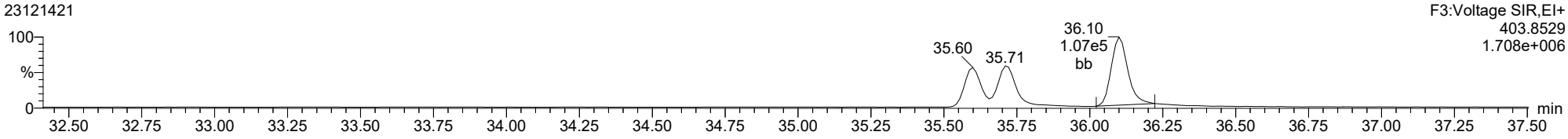
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13C-123789-HxCDD



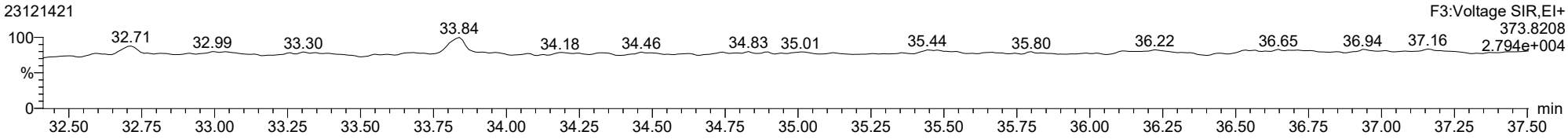
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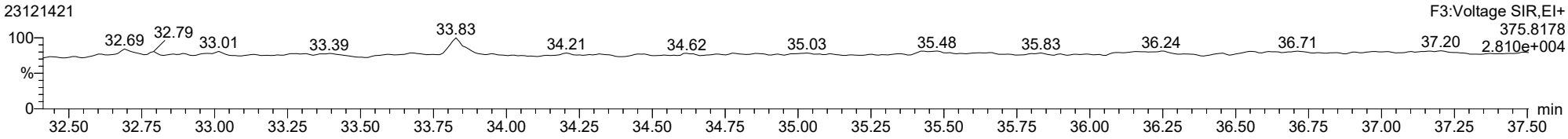
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ID: BLK0112-BLK1, Name: 23121421, Date: 15-Dec-2023, Time: 02:20:02, Conditions: AUTOSPEC01, User: pk

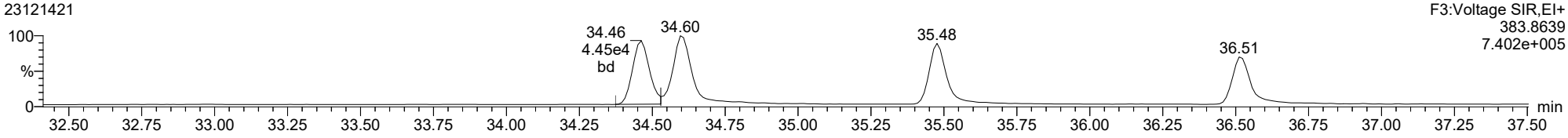
123478-HxCDF



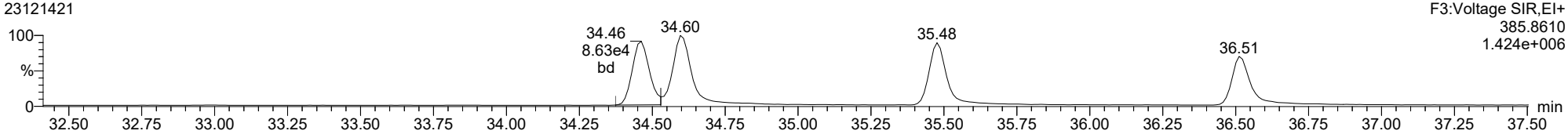
123478-HxCDF



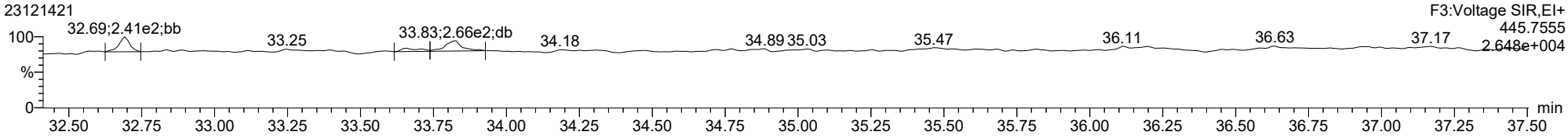
13C-123478-HxCDF



13C-123478-HxCDF



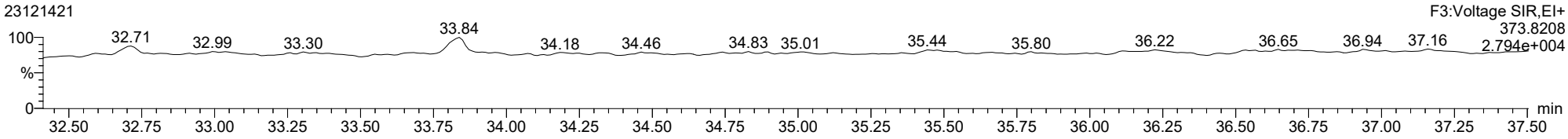
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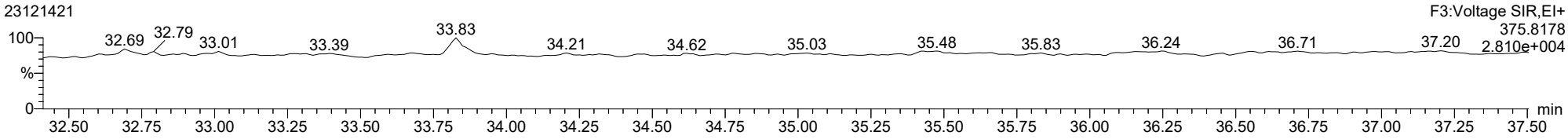
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Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
Printed: Friday, December 15, 2023 13:56:18 Pacific Standard Time

ID: BLK0112-BLK1, Name: 23121421, Date: 15-Dec-2023, Time: 02:20:02, Conditions: AUTOSPEC01, User: pk

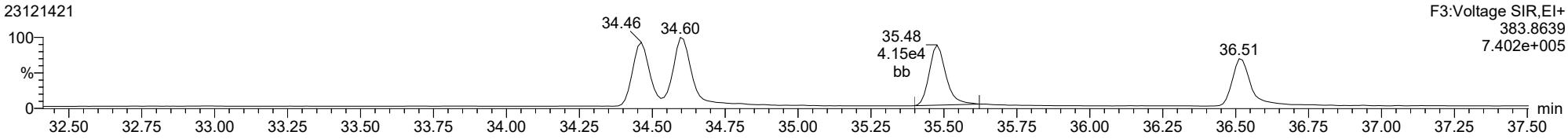
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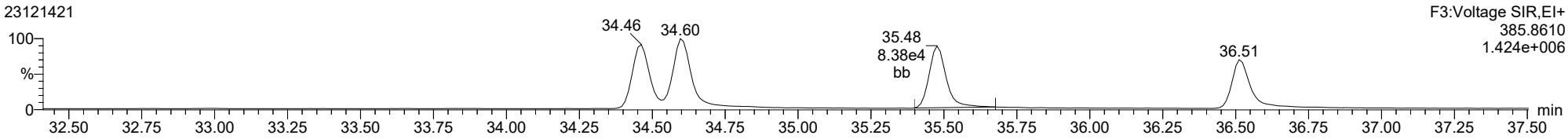
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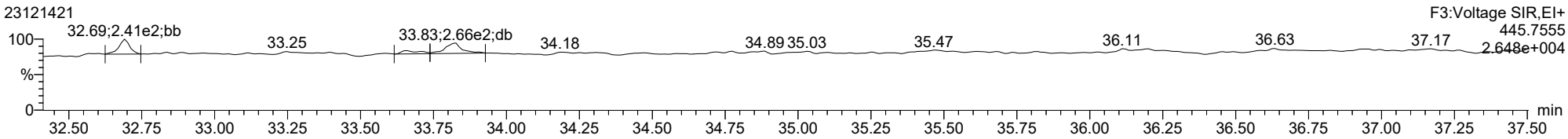
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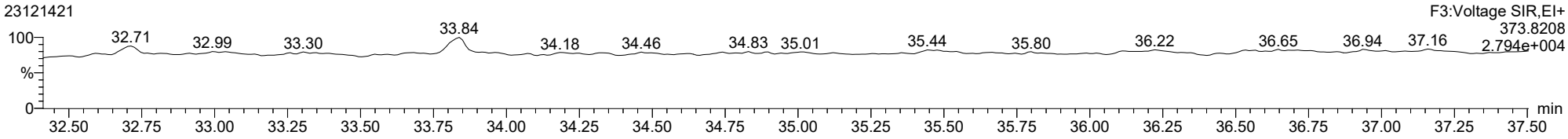
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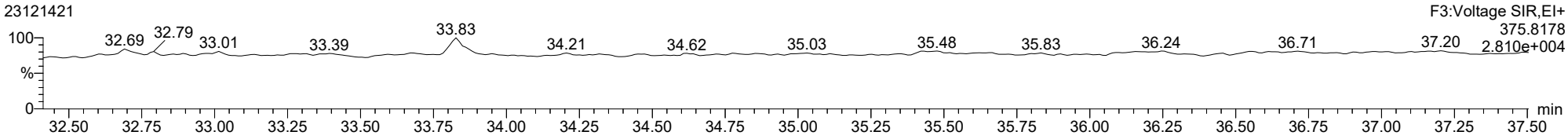
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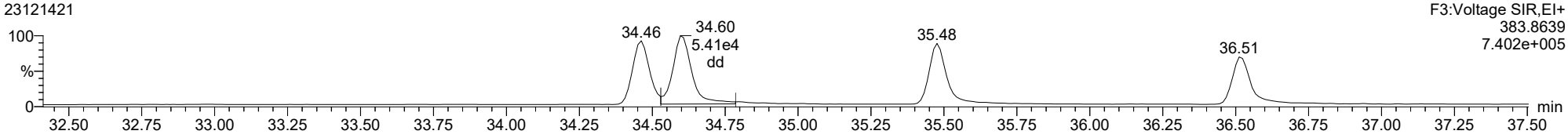
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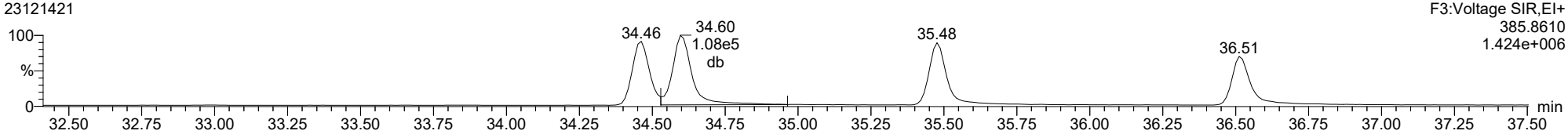
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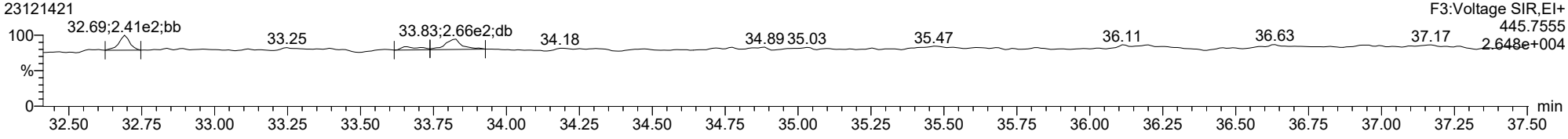
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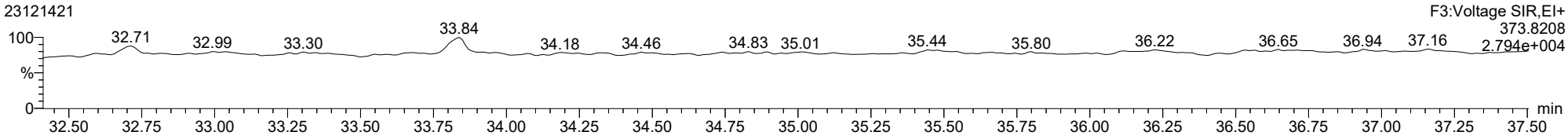
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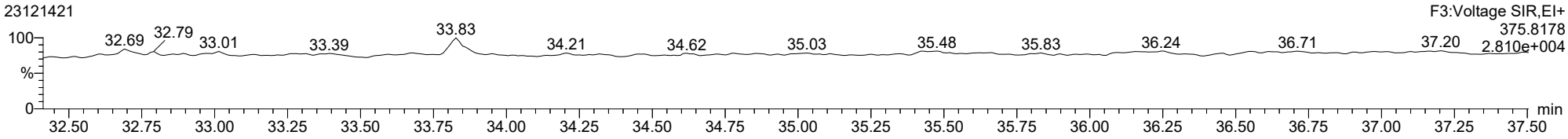
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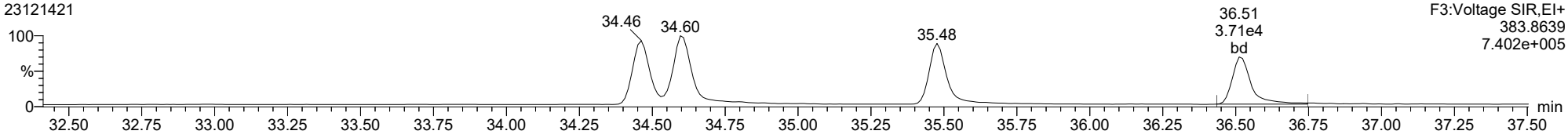
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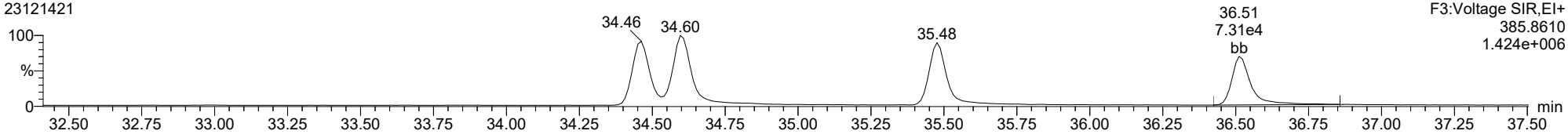
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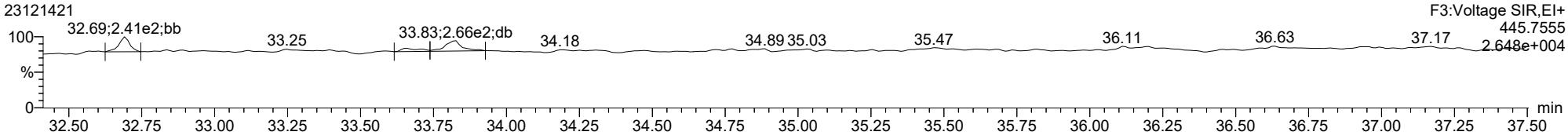
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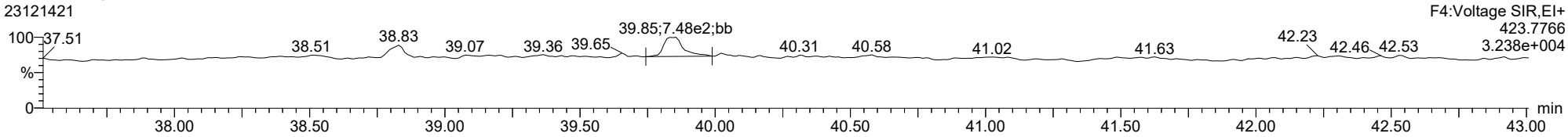


FUNCTION3 OCDPE

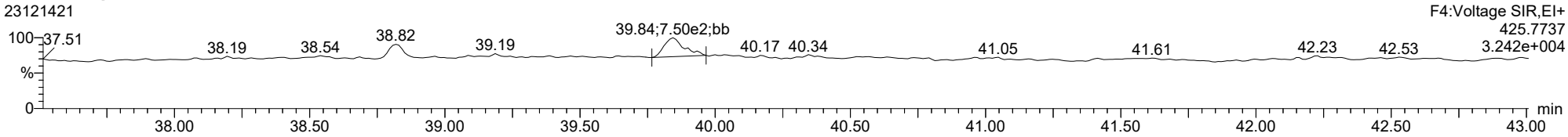


ID: BLK0112-BLK1, Name: 23121421, Date: 15-Dec-2023, Time: 02:20:02, Conditions: AUTOSPEC01, User: pk

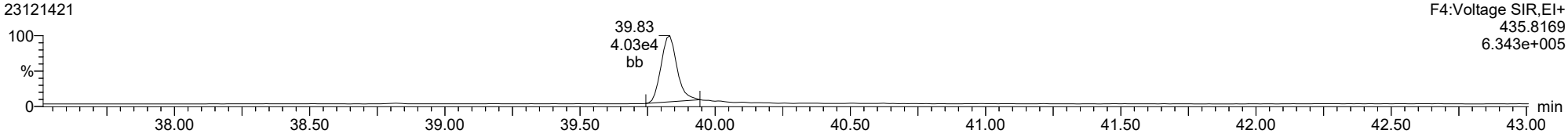
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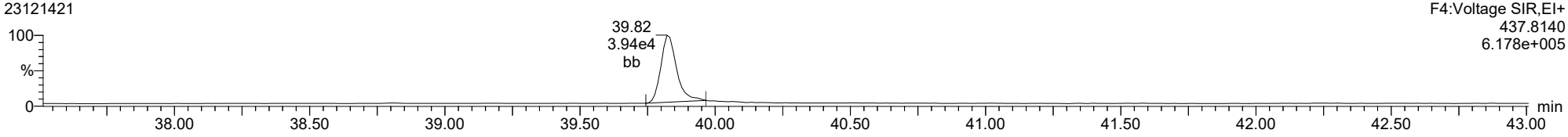
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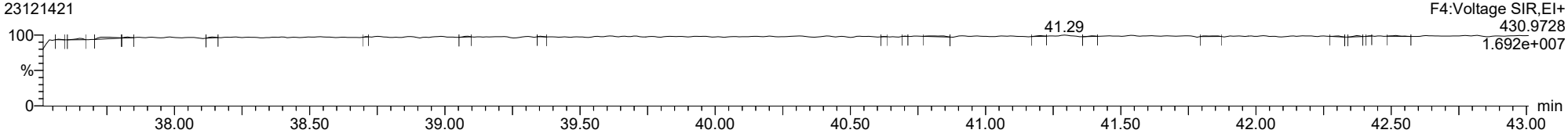
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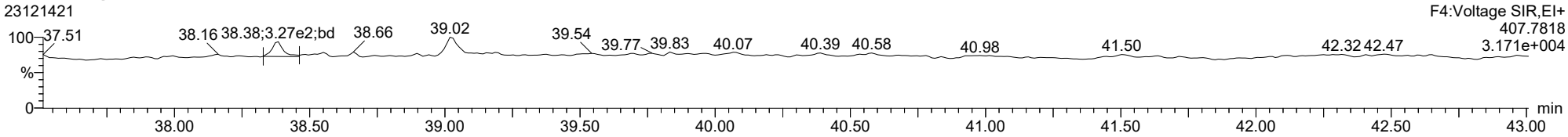


FUNCTION4 PFK

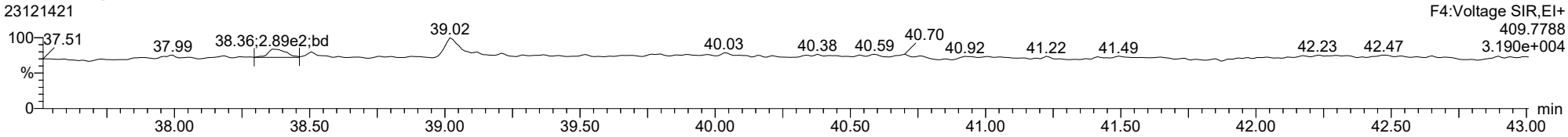


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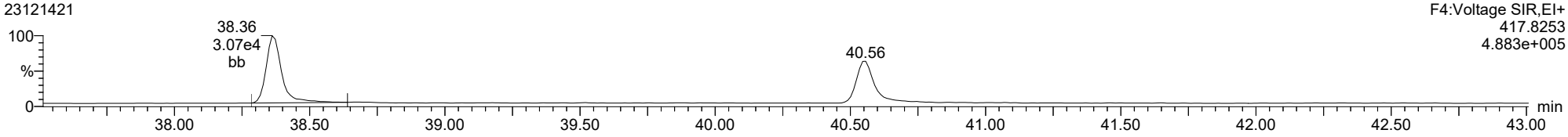
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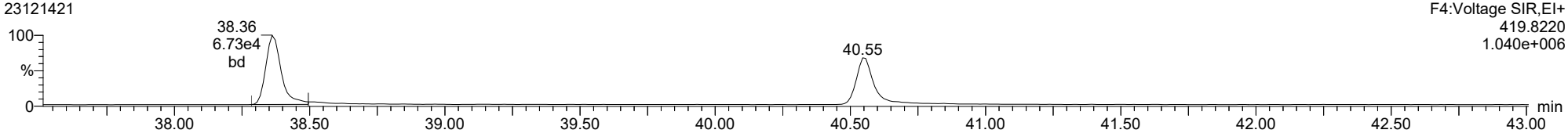
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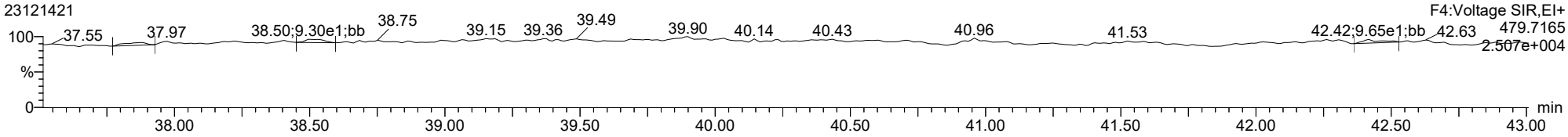
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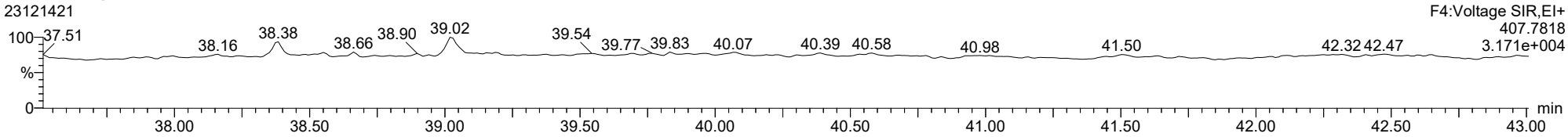


FUNCTION4 NCDPE

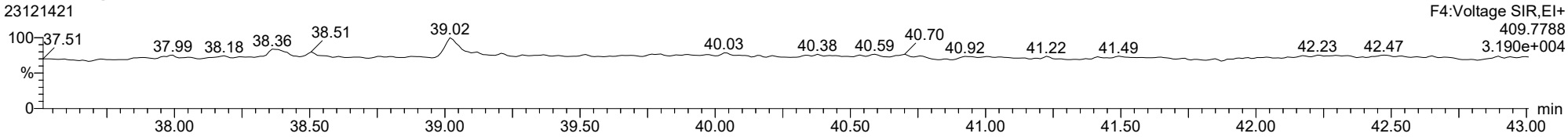


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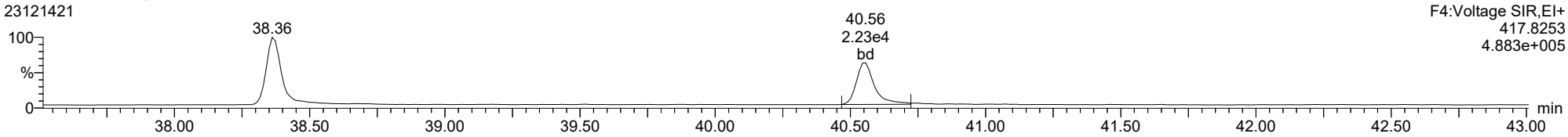
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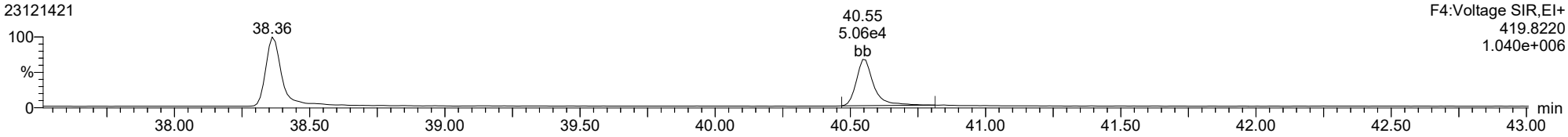
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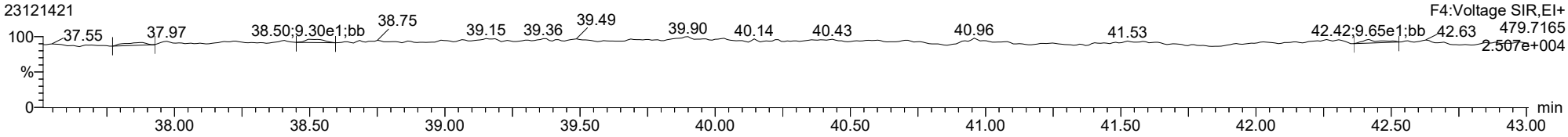
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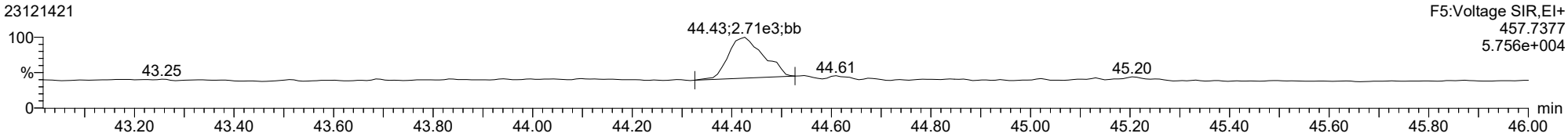


FUNCTION4 NCDPE

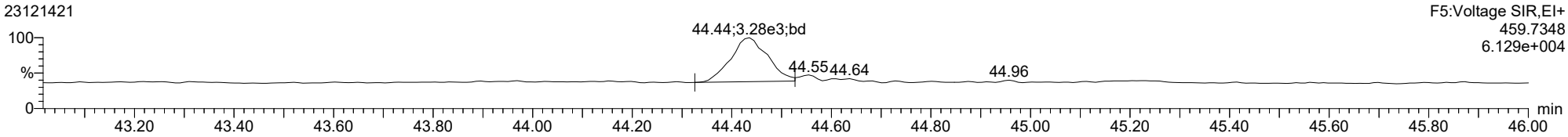


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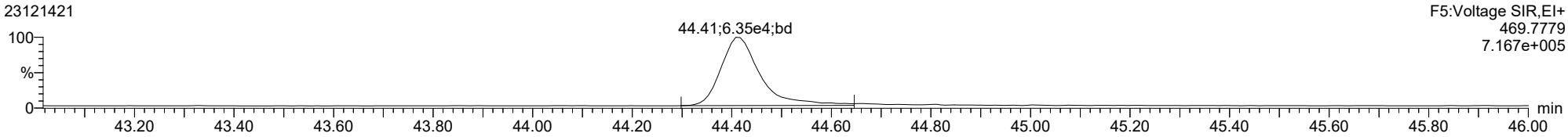
OCDD



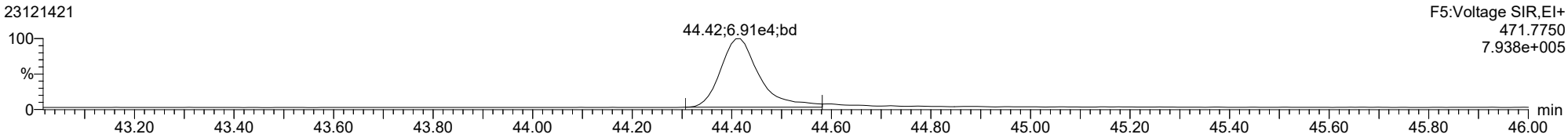
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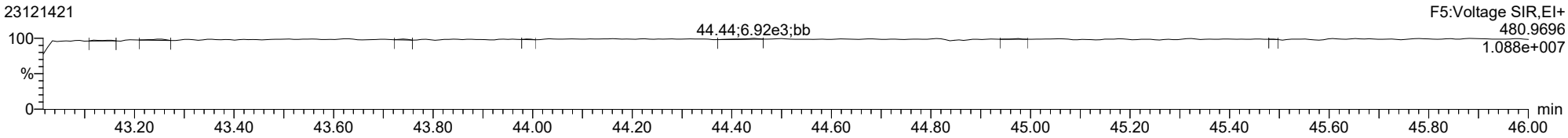
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13C-OCDD



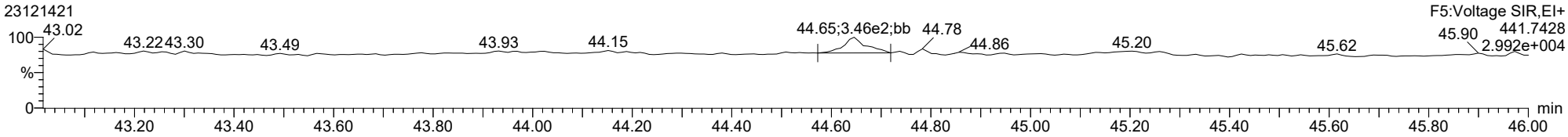
FUNCTION5 PFK



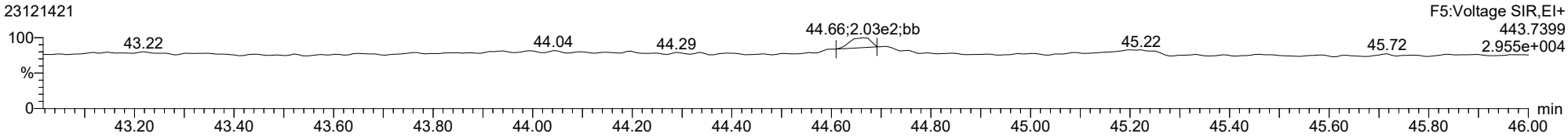
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ID: BLK0112-BLK1, Name: 23121421, Date: 15-Dec-2023, Time: 02:20:02, Conditions: AUTOSPEC01, User: pk

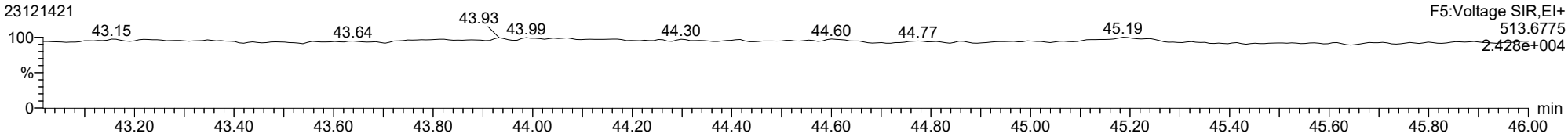
OCDF



OCDF



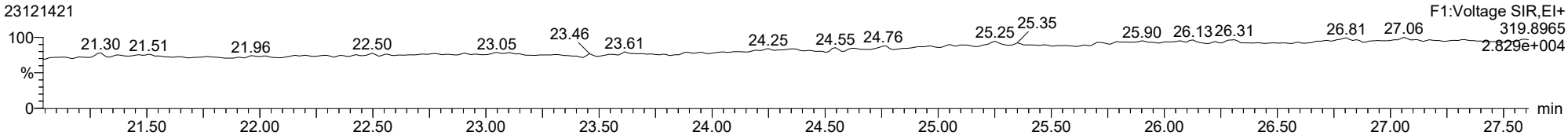
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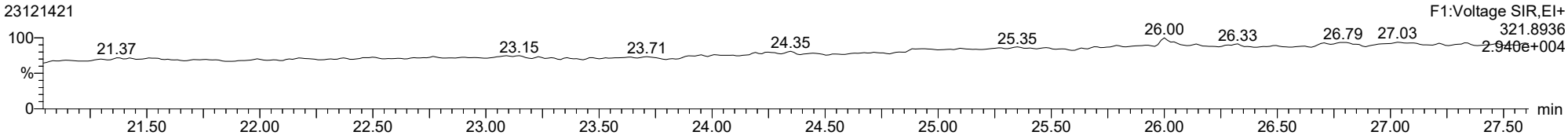
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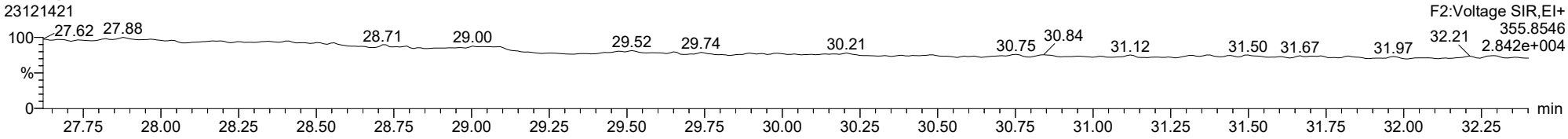
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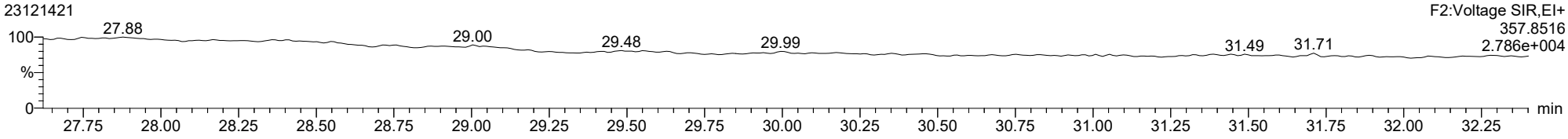
Total-tetradioxins



Total-pentadioxins

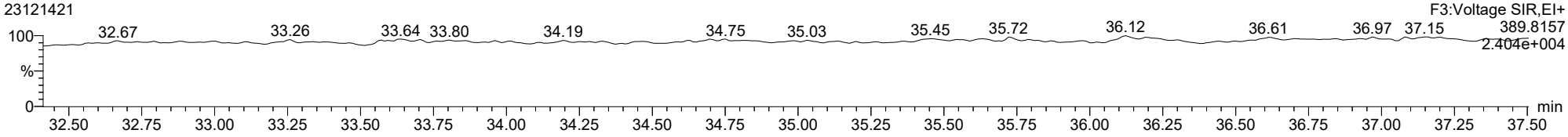


Total-pentadioxins

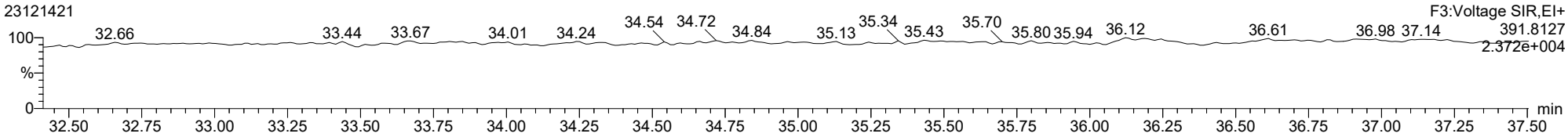


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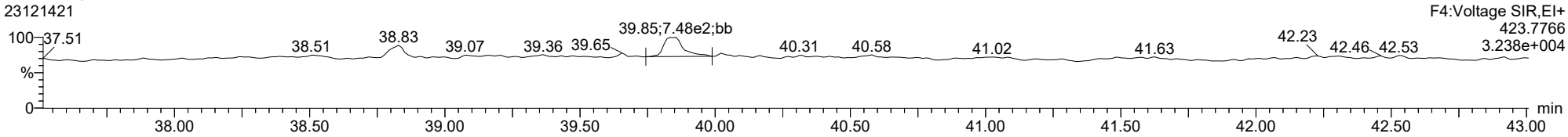
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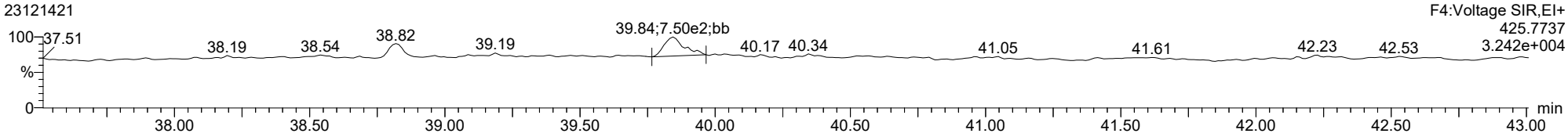
Total-hexadioxins



Total-heptadioxins

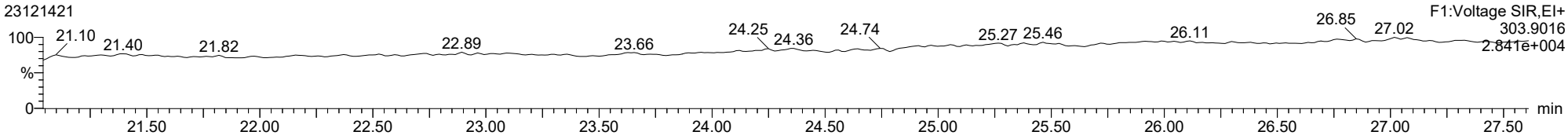


Total-heptadioxins

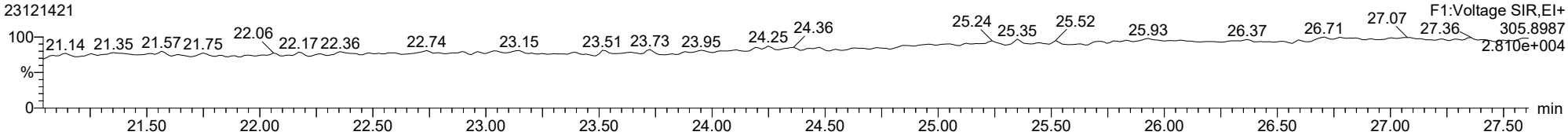


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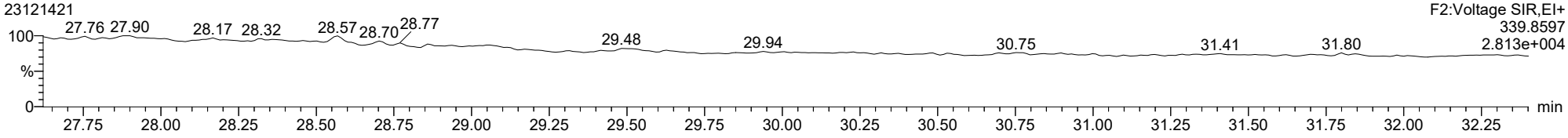
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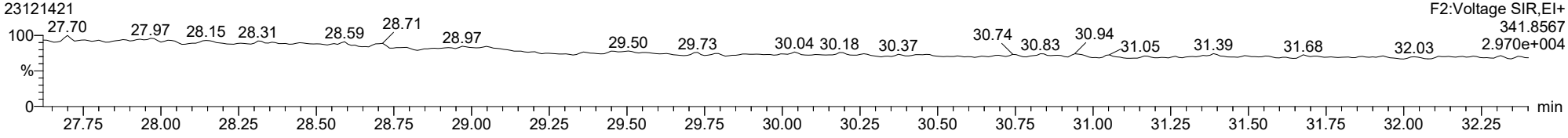
Total-tetrafurans



Total-pentafurans



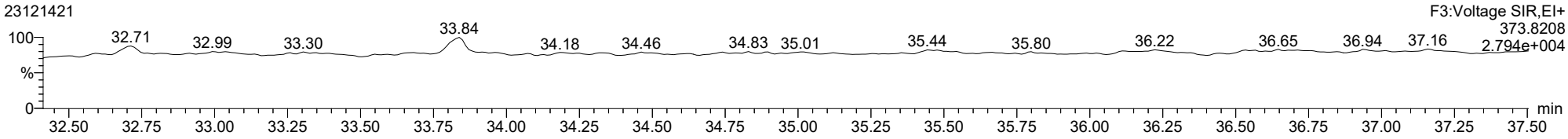
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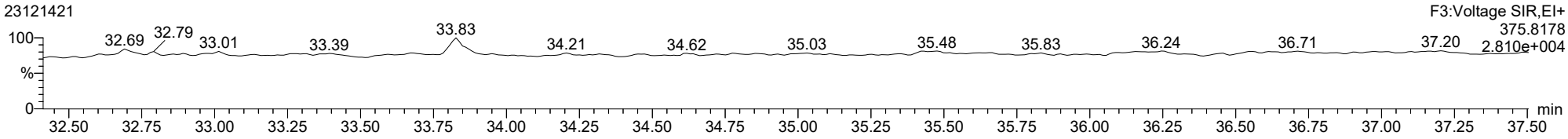
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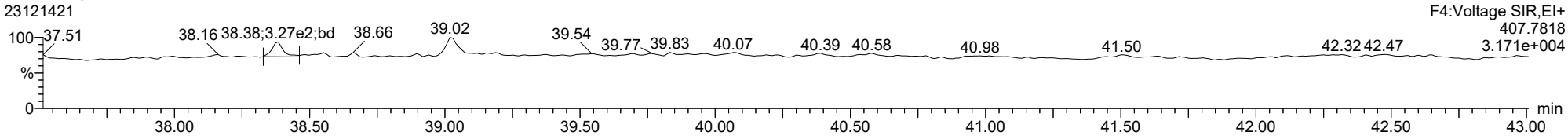
Total-hexafurans



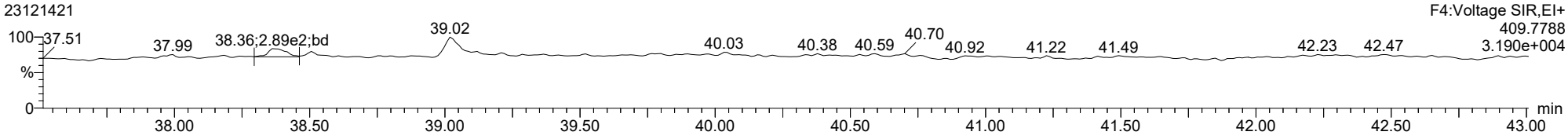
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

LCS

Form 1
METHOD BLANK DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23I0156
Client:	Floyd - Snider			Project:	Smith-Kem
Matrix:	Solid	Laboratory ID:	BLK0112-BS1	File ID:	23121422
Sampled:	N/A	Prepared:	11/14/23 13:25	Analyzed:	12/15/23 03:08
Solids Wt%:		Preparation:	EPA 1613	Initial/Final:	10 g / 20 uL
Result Basis:	Dry	Sequence:	SLL0222	Calibration:	GH00041
Batch:	BLK0112	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.794	0.655-0.886	0.278	1.00	17.9	ng/kg	
1746-01-6	2,3,7,8-TCDD	1	0.780	0.655-0.886	0.289	1.00	16.4	ng/kg	
57117-41-6	1,2,3,7,8-PeCDF	1	1.544	1.318-1.783	0.432	1.00	90.9	ng/kg	
57117-31-4	2,3,4,7,8-PeCDF	1	1.564	1.318-1.783	0.463	1.00	95.5	ng/kg	
40321-76-4	1,2,3,7,8-PeCDD	1	1.557	1.318-1.783	0.342	1.00	80.7	ng/kg	
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.337	1.054-1.426	0.515	1.00	90.9	ng/kg	
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.337	1.054-1.426	0.542	1.00	91.1	ng/kg	
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.196	1.054-1.426	0.554	1.00	92.7	ng/kg	
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.248	1.054-1.426	0.683	1.00	93.7	ng/kg	
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.200	1.054-1.426	0.354	1.00	75.0	ng/kg	
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.225	1.054-1.426	0.361	1.00	84.2	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.223	1.054-1.426	0.408	1.00	88.1	ng/kg	
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.093	0.893-1.208	0.646	1.00	99.0	ng/kg	B
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	0.995	0.893-1.208	0.997	1.00	101	ng/kg	
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.043	0.893-1.208	0.554	2.50	83.2	ng/kg	B
39001-02-0	OCDF	1	0.899	0.757-1.024	1.45	2.50	173	ng/kg	B
3268-87-9	OCDD	1	0.868	0.757-1.024	1.27	10.0	179	ng/kg	B

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 194.8
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 194.8

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LCS

Form 2
METHOD BLANK DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23I0156
Client:	Floyd - Snider			Project:	Smith-Kem
Matrix:	Solid	Laboratory ID:	BLK0112-BS1	File ID:	23121422
Sampled:	N/A	Prepared:	11/14/23 13:25	Analyzed:	12/15/23 03:08
Solids Wt%:	0.00	Preparation:	EPA 1613	Initial/Final:	10 g / 20 uL
Result Basis:	Dry	Sequence:	SLL0222	Calibration:	GH00041
Batch:	BLK0112	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF	1	0.751	0.655-0.886	0.13	42.0	24 - 169 %	
13C12-2,3,7,8-TCDD	1	0.796	0.655-0.886	0.25	54.4	25 - 164 %	
13C12-1,2,3,7,8-PeCDF	1	1.530	1.318-1.783	0.26	57.4	24 - 185 %	
13C12-2,3,4,7,8-PeCDF	1	1.510	1.318-1.783	0.28	53.4	21 - 178 %	
13C12-1,2,3,7,8-PeCDD	1	1.599	1.318-1.783	0.31	67.4	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF	1	0.519	0.434-0.587	0.50	62.1	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF	1	0.491	0.434-0.587	0.41	57.4	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF	1	0.493	0.434-0.587	0.50	60.9	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF	1	0.526	0.434-0.587	0.58	65.4	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD	1	1.240	1.054-1.426	0.63	74.9	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD	1	1.217	1.054-1.426	0.52	73.7	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF	1	0.465	0.374-0.506	0.42	52.1	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF	1	0.442	0.374-0.506	0.55	52.0	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD	1	1.055	0.893-1.208	0.52	67.8	23 - 140 %	
13C12-OCDD	1	0.879	0.757-1.024	0.78	56.7	17 - 157 %	
37Cl4-2,3,7,8-TCDD	1	328.000		0.11	64.6	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
Printed: Friday, December 15, 2023 13:56:31 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin231215.mdb 15 Dec 2023 13:28:43
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.379	1.001	6.293e3	7.931e3	0.903	0.794	0.770	482	591	9.70e4	1.07e5	201.4	180.9	NO	bd	bd	8.945
12378-PeCDF	29.516	1.001	4.595e4	2.977e4	0.923	1.544	1.550	762	926	7.00e5	4.66e5	919.6	502.9	NO	bb	bb	45.435
23478-PeCDF	30.853	1.000	4.571e4	2.923e4	0.991	1.564	1.550	762	926	7.04e5	4.53e5	924.8	489.7	NO	bb	bb	47.728
123478-HxCDF	34.485	1.001	3.706e4	2.771e4	1.128	1.337	1.240	945	952	5.64e5	4.38e5	597.5	460.1	NO	bd	bd	45.466
234678-HxCDF	35.499	1.000	3.393e4	2.837e4	1.081	1.196	1.240	945	952	5.25e5	4.36e5	555.8	458.3	NO	bb	bd	46.368
123678-HxCDF	34.630	1.001	3.859e4	2.886e4	1.032	1.337	1.240	945	952	5.55e5	4.37e5	587.9	459.1	NO	db	db	45.547
123789-HxCDF	36.535	1.000	2.981e4	2.389e4	0.988	1.248	1.240	945	952	4.45e5	3.76e5	471.3	394.6	NO	bb	bb	46.849
1234678-HpCDF	38.384	1.000	2.875e4	2.631e4	1.164	1.093	1.050	961	834	4.57e5	4.19e5	475.0	502.7	NO	bb	bb	49.483
1234789-HpCDF	40.568	1.000	2.046e4	2.056e4	1.104	0.995	1.050	961	834	3.02e5	2.91e5	313.9	348.5	NO	bb	bd	50.728
OCDF	44.664	1.006	3.116e4	3.466e4	1.130	0.899	0.890	766	1448	3.55e5	3.98e5	463.4	274.7	NO	bd	bd	86.730
2378-TCDD	26.014	1.001	6.135e3	7.868e3	1.243	0.780	0.770	784	479	8.84e4	1.13e5	112.9	235.5	NO	bd	bb	8.178
12378-PeCDD	31.109	1.001	3.274e4	2.103e4	1.150	1.557	1.550	571	580	4.60e5	3.11e5	805.7	535.9	NO	bd	bd	40.333
123478-HxCDD	35.621	1.000	2.633e4	2.193e4	0.960	1.200	1.240	598	592	4.27e5	3.53e5	713.9	596.6	NO	bd	bd	37.504
123678-HxCDD	35.732	1.000	3.260e4	2.661e4	0.883	1.225	1.240	598	592	4.65e5	3.78e5	778.2	637.6	NO	db	dd	42.113
123789-HxCDD	36.122	1.011	2.856e4	2.335e4	0.804	1.223	1.240	598	592	4.36e5	3.46e5	730.0	583.7	NO	bd	bd	44.033
1234678-HpCDD	39.843	1.000	2.025e4	1.942e4	1.200	1.043	1.050	637	770	2.90e5	2.83e5	455.8	367.2	NO	bd	bd	41.584
OCDD	44.435	1.000	2.956e4	3.404e4	1.059	0.868	0.890	1154	662	3.36e5	3.78e5	291.2	571.6	NO	bd	bd	89.463
13C-2378-TCDF	25.365	1.007	7.554e4	1.005e5	1.835	0.751	0.770	736	645	1.10e6	1.42e6	1495.8	2204.2	NO	bb	dd	42.021
13C-12378-PeCDF	29.493	1.171	1.092e5	7.135e4	1.377	1.530	1.550	1127	992	1.53e6	1.02e6	1361.0	1032.2	NO	bd	bd	57.437
13C-23478-PeCDF	30.841	1.225	9.537e4	6.314e4	1.301	1.510	1.550	1127	992	1.33e6	8.95e5	1179.1	902.4	NO	bd	bb	53.353
13C-123478-HxCDF	34.462	0.954	4.315e4	8.313e4	1.091	0.519	0.510	1262	1449	6.70e5	1.27e6	531.0	876.9	NO	bd	bd	62.102
13C-123678-HxCDF	34.607	0.958	4.726e4	9.618e4	1.340	0.491	0.510	1262	1449	6.70e5	1.33e6	531.4	916.8	NO	db	dd	57.405
13C-234678-HxCDF	35.487	0.983	4.104e4	8.321e4	1.093	0.493	0.510	1262	1449	6.27e5	1.19e6	497.1	822.8	NO	bb	bb	60.944
13C-123789-HxCDF	36.523	1.011	4.003e4	7.603e4	0.952	0.526	0.510	1262	1449	5.82e5	1.10e6	461.5	757.6	NO	bb	bb	65.418
13C-1234678-HpCDF	38.373	1.063	3.036e4	6.526e4	0.985	0.465	0.440	787	1243	4.55e5	9.79e5	578.7	788.0	NO	bb	bb	52.070
13C-1234789-HpCDF	40.556	1.123	2.248e4	5.080e4	0.756	0.442	0.440	787	1243	3.00e5	7.08e5	381.6	570.0	NO	bb	bb	52.003
13C-1234-TCDD	25.181	0.000	1.013e5	1.270e5	1.000	0.798	0.770	905	679	1.55e6	1.94e6	1713.6	2862.0	NO	bb	bb	100.000
13C-2378-TCDD	26.000	1.033	6.107e4	7.668e4	1.110	0.796	0.770	905	679	9.35e5	1.16e6	1033.6	1704.2	NO	bb	bb	54.379
13C-12378-PeCDD	31.087	1.235	7.132e4	4.459e4	0.754	1.599	1.550	771	587	1.08e6	6.87e5	1400.1	1170.0	NO	bb	bb	67.358
13C-123478-HxCDD	35.610	0.986	7.418e4	5.985e4	0.960	1.240	1.240	1946	1015	1.16e6	9.36e5	598.5	921.4	NO	bd	bd	74.894
13C-123678-HxCDD	35.721	0.989	8.744e4	7.186e4	1.159	1.217	1.240	1946	1015	1.23e6	1.03e6	632.8	1010.5	NO	db	db	73.702
13C-1234678-HpCDD	39.832	1.103	4.081e4	3.870e4	0.629	1.055	1.050	789	815	6.53e5	5.93e5	827.3	727.5	NO	bb	bb	67.770
13C-OCDD	44.417	1.230	6.282e4	7.148e4	0.635	0.879	0.890	1024	1404	7.59e5	8.65e5	741.0	615.9	NO	bb	bb	113.415
13C-123789-HxCDD	36.111	0.000	1.033e5	8.314e4	1.000	1.243	1.240	1946	1015	1.64e6	1.30e6	840.8	1279.8	NO	bb	bb	100.000
37CL-2378-TCDD	26.014	1.033	6.823e4		1.157			719		1.08e6		1495.8			bb		25.820

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
Printed: Friday, December 15, 2023 13:56:31 Pacific Standard Time

ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.170		0.770	482	591								
1289-TCDF					0.847		0.770	482	591								
13468-PECDF	26.791	0.908	2.020e2	2.037e2	1.241	0.992	1.550	478	607	2.66e3	2.45e3	5.6	4.0	YES	bb	bb	0.181
12389-PECDF					0.880		1.550	762	926								
123468-HXCDF					1.206		1.240	945	952								
1368-TCDD					1.181		0.770	784	479								
1289-TCDD					0.963		0.770	784	479								
12479-PECDD					2.166		1.550	571	580								
12389-PECDD					1.326		1.550	571	580								
124679-HXCDD					1.127		1.240	598	592								
1234679-HPCDD	38.830	0.975	7.137e2	7.022e2	1.303	1.016	1.050	637	770	1.18e4	1.05e4	18.5	13.6	NO	bd	bb	1.367
Total-tetrafurans			6.293e3		0.973			482		9.70e4							8.945
Total-penta1			0.000e0					478		0.00e0							
Total-pentafurans			9.193e4		0.931			762		1.41e6							93.434
Total-hexafurans			1.397e5		1.087			945		2.10e6							184.616
Total-heptafurans			4.970e4		1.134			961		7.66e5							101.273
Total-Furans			3.188e5		1.053			482		4.72e6							474.998
Total-tetradioxins			6.405e3		1.129			784		9.19e4							8.572
Total-pentadioxins			3.274e4		1.548			571		4.60e5							40.333
Total-hexadioxins			8.749e4		0.943			598		1.33e6							123.650
Total-heptadioxins			2.096e4		1.251			637		3.02e5							42.951
Total-Dioxins			1.772e5		1.182			784		2.52e6							304.969
Total-TEQ			4.959e5					784		7.24e6							779.967
FUNCTION1 PFK			7.925e6					275191		3.53e7							
FUNCTION2 PFK			2.239e5					141954		2.44e6							0.000
FUNCTION3 PFK			4.458e5					178350		1.14e7							0.000
FUNCTION4 PFK			8.386e4					145318		2.97e6							
FUNCTION5 PFK			4.642e5					118681		1.09e7							
FUNCTION1 HXCD...			0.000e0					425		0.00e0							
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			4.377e2					572		7.24e3							0.000
FUNCTION3 OCDPE			3.846e2					487		6.35e3							0.000
FUNCTION4 NCDPE			0.000e0					472		0.00e0							
FUNCTION5 DCDPE			0.000e0					337		0.00e0							

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
Printed: Friday, December 15, 2023 13:56:31 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin231215.mdb 15 Dec 2023 13:28:43
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.38	6.293e3	7.931e3	0.903	0.79	0.77	201.4	YES	NO	bd	bd	8.945

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.85	4.571e4	2.923e4	0.991	1.56	1.55	924.8	YES	NO	bb	bb	47.728
2	12378-PeCDF	29.52	4.595e4	2.977e4	0.923	1.54	1.55	919.6	YES	NO	bb	bb	45.435
3	Total-pentafurans	29.15	2.646e2	1.636e2	0.931	1.62	1.55	6.5	YES	NO	bb	bb	0.271

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.53	2.981e4	2.389e4	0.988	1.25	1.24	471.3	YES	NO	bb	bb	46.849
2	234678-HxCDF	35.50	3.393e4	2.837e4	1.081	1.20	1.24	555.8	YES	NO	bb	bd	46.368
3	123678-HxCDF	34.63	3.859e4	2.886e4	1.032	1.34	1.24	587.9	YES	NO	db	db	45.547
4	123478-HxCDF	34.48	3.706e4	2.771e4	1.128	1.34	1.24	597.5	YES	NO	bd	bd	45.466
5	Total-hexafurans	33.84	2.963e2	2.381e2	1.087	1.24	1.24	5.3	YES	NO	bb	bb	0.386

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.57	2.046e4	2.056e4	1.104	1.00	1.05	313.9	YES	NO	bb	bd	50.728
2	Total-heptafurans	39.03	4.890e2	5.279e2	1.134	0.93	1.05	8.1	YES	NO	bb	bb	1.062
3	1234678-HpCDF	38.38	2.875e4	2.631e4	1.164	1.09	1.05	475.0	YES	NO	bb	bb	49.483

ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.38	6.293e3	7.931e3	0.903	0.79	0.77	201.4	YES	NO	bd	bd	8.945
2	23478-PeCDF	30.85	4.571e4	2.923e4	0.991	1.56	1.55	924.8	YES	NO	bb	bb	47.728
3	12378-PeCDF	29.52	4.595e4	2.977e4	0.923	1.54	1.55	919.6	YES	NO	bb	bb	45.435
4	Total-pentafurans	29.15	2.646e2	1.636e2	0.931	1.62	1.55	6.5	YES	NO	bb	bb	0.271
5	123789-HxCDF	36.53	2.981e4	2.389e4	0.988	1.25	1.24	471.3	YES	NO	bb	bb	46.849
6	234678-HxCDF	35.50	3.393e4	2.837e4	1.081	1.20	1.24	555.8	YES	NO	bb	bd	46.368
7	123678-HxCDF	34.63	3.859e4	2.886e4	1.032	1.34	1.24	587.9	YES	NO	db	db	45.547
8	123478-HxCDF	34.48	3.706e4	2.771e4	1.128	1.34	1.24	597.5	YES	NO	bd	bd	45.466
9	Total-hexafurans	33.84	2.963e2	2.381e2	1.087	1.24	1.24	5.3	YES	NO	bb	bb	0.386
10	1234789-HpCDF	40.57	2.046e4	2.056e4	1.104	1.00	1.05	313.9	YES	NO	bb	bd	50.728
11	Total-heptafurans	39.03	4.890e2	5.279e2	1.134	0.93	1.05	8.1	YES	NO	bb	bb	1.062
12	1234678-HpCDF	38.38	2.875e4	2.631e4	1.164	1.09	1.05	475.0	YES	NO	bb	bb	49.483
13	OCDF	44.66	3.116e4	3.466e4	1.130	0.90	0.89	463.4	YES	NO	bd	bd	86.730

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.01	6.135e3	7.868e3	1.243	0.78	0.77	112.9	YES	NO	bd	bb	8.178
2	Total-tetradioxins	25.63	2.698e2	3.431e2	1.129	0.79	0.77	4.4	YES	NO	bb	bb	0.394

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.11	3.274e4	2.103e4	1.150	1.56	1.55	805.7	YES	NO	bd	bd	40.333

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.12	2.856e4	2.335e4	0.804	1.22	1.24	730.0	YES	NO	bd	bd	44.033
2	123678-HxCDD	35.73	3.260e4	2.661e4	0.883	1.23	1.24	778.2	YES	NO	db	dd	42.113
3	123478-HxCDD	35.62	2.633e4	2.193e4	0.960	1.20	1.24	713.9	YES	NO	bd	bd	37.504

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.84	2.025e4	1.942e4	1.200	1.04	1.05	455.8	YES	NO	bd	bd	41.584
2	1234679-HPCDD	38.83	7.137e2	7.022e2	1.303	1.02	1.05	18.5	YES	NO	bd	bb	1.367

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.01	6.135e3	7.868e3	1.243	0.78	0.77	112.9	YES	NO	bd	bb	8.178
2	Total-tetradioxins	25.63	2.698e2	3.431e2	1.129	0.79	0.77	4.4	YES	NO	bb	bb	0.394
3	123789-HxCDD	36.12	2.856e4	2.335e4	0.804	1.22	1.24	730.0	YES	NO	bd	bd	44.033
4	123678-HxCDD	35.73	3.260e4	2.661e4	0.883	1.23	1.24	778.2	YES	NO	db	dd	42.113
5	123478-HxCDD	35.62	2.633e4	2.193e4	0.960	1.20	1.24	713.9	YES	NO	bd	bd	37.504
6	12378-PeCDD	31.11	3.274e4	2.103e4	1.150	1.56	1.55	805.7	YES	NO	bd	bd	40.333
7	1234678-HpCDD	39.84	2.025e4	1.942e4	1.200	1.04	1.05	455.8	YES	NO	bd	bd	41.584
8	1234679-HPCDD	38.83	7.137e2	7.022e2	1.303	1.02	1.05	18.5	YES	NO	bd	bb	1.367
9	OCDD	44.44	2.956e4	3.404e4	1.059	0.87	0.89	291.2	YES	NO	bd	bd	89.463

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.38	6.293e3	7.931e3	0.903	0.79	0.77	201.4	YES	NO	bd	bd	8.945
2	23478-PeCDF	30.85	4.571e4	2.923e4	0.991	1.56	1.55	924.8	YES	NO	bb	bb	47.728
3	12378-PeCDF	29.52	4.595e4	2.977e4	0.923	1.54	1.55	919.6	YES	NO	bb	bb	45.435
4	Total-pentafurans	29.15	2.646e2	1.636e2	0.931	1.62	1.55	6.5	YES	NO	bb	bb	0.271
5	123789-HxCDF	36.53	2.981e4	2.389e4	0.988	1.25	1.24	471.3	YES	NO	bb	bb	46.849
6	234678-HxCDF	35.50	3.393e4	2.837e4	1.081	1.20	1.24	555.8	YES	NO	bb	bd	46.368
7	123678-HxCDF	34.63	3.859e4	2.886e4	1.032	1.34	1.24	587.9	YES	NO	db	db	45.547
8	123478-HxCDF	34.48	3.706e4	2.771e4	1.128	1.34	1.24	597.5	YES	NO	bd	bd	45.466
9	Total-hexafurans	33.84	2.963e2	2.381e2	1.087	1.24	1.24	5.3	YES	NO	bb	bb	0.386
10	1234789-HpCDF	40.57	2.046e4	2.056e4	1.104	1.00	1.05	313.9	YES	NO	bb	bd	50.728
11	Total-heptafurans	39.03	4.890e2	5.279e2	1.134	0.93	1.05	8.1	YES	NO	bb	bb	1.062
12	1234678-HpCDF	38.38	2.875e4	2.631e4	1.164	1.09	1.05	475.0	YES	NO	bb	bb	49.483
13	OCDF	44.66	3.116e4	3.466e4	1.130	0.90	0.89	463.4	YES	NO	bd	bd	86.730
14	2378-TCDD	26.01	6.135e3	7.868e3	1.243	0.78	0.77	112.9	YES	NO	bd	bb	8.178
15	Total-tetradioxins	25.63	2.698e2	3.431e2	1.129	0.79	0.77	4.4	YES	NO	bb	bb	0.394
16	123789-HxCDD	36.12	2.856e4	2.335e4	0.804	1.22	1.24	730.0	YES	NO	bd	bd	44.033
17	123678-HxCDD	35.73	3.260e4	2.661e4	0.883	1.23	1.24	778.2	YES	NO	db	dd	42.113
18	123478-HxCDD	35.62	2.633e4	2.193e4	0.960	1.20	1.24	713.9	YES	NO	bd	bd	37.504
19	12378-PeCDD	31.11	3.274e4	2.103e4	1.150	1.56	1.55	805.7	YES	NO	bd	bd	40.333
20	1234678-HpCDD	39.84	2.025e4	1.942e4	1.200	1.04	1.05	455.8	YES	NO	bd	bd	41.584
21	1234679-HPCDD	38.83	7.137e2	7.022e2	1.303	1.02	1.05	18.5	YES	NO	bd	bb	1.367
22	OCDD	44.44	2.956e4	3.404e4	1.059	0.87	0.89	291.2	YES	NO	bd	bd	89.463

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
Printed: Friday, December 15, 2023 13:56:31 Pacific Standard Time

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	24.36	3.592e5					9.2	YES		dd		
2	FUNCTION1 PFK	24.23	4.930e5					9.5	YES		bd		
3	FUNCTION1 PFK	23.92	1.879e5					6.6	YES		bb		
4	FUNCTION1 PFK	23.54	2.335e5					7.4	YES		db		
5	FUNCTION1 PFK	23.26	2.155e6					12.3	YES		bd		
6	FUNCTION1 PFK	22.57	1.965e6					17.7	YES		db		
7	FUNCTION1 PFK	22.30	1.615e5					10.5	YES		dd		
8	FUNCTION1 PFK	22.16	3.818e5					10.4	YES		bd		
9	FUNCTION1 PFK	21.93	1.329e5					6.3	YES		bb		
10	FUNCTION1 PFK	21.47	1.171e5					4.2	YES		bb		
11	FUNCTION1 PFK	27.12	1.763e5					6.2	YES		bb		
12	FUNCTION1 PFK	26.55	4.282e4					3.2	YES		bb		
13	FUNCTION1 PFK	25.58	2.656e5					3.1	YES		bb		
14	FUNCTION1 PFK	25.19	3.895e5					11.3	YES		bb		
15	FUNCTION1 PFK	25.00	3.621e4					0.0	NO		bb		
16	FUNCTION1 PFK	24.62	8.273e5					10.3	YES		db		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	27.67	2.239e5					17.2	YES		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	33.26	6.308e3					1.0	NO		db		0.000
2	FUNCTION3 PFK	33.20	5.835e3					1.2	NO		bd		0.000
3	FUNCTION3 PFK	32.88	2.250e4					2.4	NO		bb		0.000
4	FUNCTION3 PFK	32.76	2.250e4					2.3	NO		bb		0.000
5	FUNCTION3 PFK	32.64	4.472e4					3.7	YES		bb		0.000
6	FUNCTION3 PFK	32.52	2.137e4					2.5	NO		db		0.000
7	FUNCTION3 PFK	32.48	1.160e4					2.2	NO		bd		0.000
8	FUNCTION3 PFK	34.82	2.902e3					0.7	NO		db		0.000
9	FUNCTION3 PFK	34.79	9.076e3					0.8	NO		bd		0.000
10	FUNCTION3 PFK	34.60	1.044e4					1.4	NO		bb		0.000
11	FUNCTION3 PFK	34.48	5.365e3					1.3	NO		db		0.000
12	FUNCTION3 PFK	34.44	9.609e3					1.5	NO		bd		0.000
13	FUNCTION3 PFK	34.34	1.065e4					1.5	NO		bb		0.000
14	FUNCTION3 PFK	34.28	9.777e3					1.3	NO		db		0.000
15	FUNCTION3 PFK	34.22	5.183e3					1.2	NO		bd		0.000
16	FUNCTION3 PFK	34.09	6.170e3					1.1	NO		bb		0.000
17	FUNCTION3 PFK	33.88	5.071e3					1.1	NO		db		0.000
18	FUNCTION3 PFK	33.82	1.327e4					2.0	NO		bd		0.000
19	FUNCTION3 PFK	33.75	1.868e4					1.9	NO		bb		0.000
20	FUNCTION3 PFK	33.46	1.120e3					0.6	NO		bb		0.000
21	FUNCTION3 PFK	33.42	1.074e4					1.9	NO		db		0.000
22	FUNCTION3 PFK	33.36	7.187e3					1.4	NO		bd		0.000
23	FUNCTION3 PFK	33.30	2.682e3					0.9	NO		bb		0.000
24	FUNCTION3 PFK	36.53	4.525e3					1.1	NO		bb		0.000
25	FUNCTION3 PFK	36.45	9.057e3					1.4	NO		db		0.000
26	FUNCTION3 PFK	36.40	4.233e3					1.1	NO		bd		0.000
27	FUNCTION3 PFK	36.06	3.687e4					3.0	YES		db		0.000
28	FUNCTION3 PFK	35.94	3.741e4					2.7	NO		bd		0.000
29	FUNCTION3 PFK	35.82	5.663e3					1.0	NO		bb		0.000
30	FUNCTION3 PFK	35.75	6.376e3					1.4	NO		db		0.000
31	FUNCTION3 PFK	35.72	5.680e3					1.0	NO		bd		0.000
32	FUNCTION3 PFK	35.65	5.049e3					1.1	NO		bb		0.000
33	FUNCTION3 PFK	35.49	3.364e3					1.0	NO		bb		0.000
34	FUNCTION3 PFK	35.31	1.228e4					2.2	NO		db		0.000
35	FUNCTION3 PFK	35.26	9.286e3					1.6	NO		bd		0.000
36	FUNCTION3 PFK	35.15	2.150e3					0.7	NO		bb		0.000
37	FUNCTION3 PFK	35.11	1.891e3					0.8	NO		db		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION3 PFK	35.05	9.919e3					1.9	NO		bd		0.000
39	FUNCTION3 PFK	35.01	1.133e3					0.6	NO		bb		0.000
40	FUNCTION3 PFK	37.41	3.934e3					0.9	NO		bb		0.000
41	FUNCTION3 PFK	37.31	3.246e3					1.0	NO		bb		0.000
42	FUNCTION3 PFK	37.19	6.717e3					1.1	NO		bb		0.000
43	FUNCTION3 PFK	37.10	1.024e4					1.3	NO		bb		0.000
44	FUNCTION3 PFK	36.75	3.343e3					0.8	NO		bb		0.000
45	FUNCTION3 PFK	36.58	6.714e2					0.3	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	40.16	4.818e3					1.2	NO		bb		
2	FUNCTION4 PFK	40.03	3.271e3					0.9	NO		bb		
3	FUNCTION4 PFK	39.85	1.122e4					1.9	NO		bb		
4	FUNCTION4 PFK	38.85	3.660e3					0.9	NO		bb		
5	FUNCTION4 PFK	38.81	2.689e3					0.8	NO		bb		
6	FUNCTION4 PFK	38.51	6.495e3					1.5	NO		bb		
7	FUNCTION4 PFK	38.40	5.860e3					1.0	NO		bb		
8	FUNCTION4 PFK	37.84	1.685e3					0.6	NO		bb		
9	FUNCTION4 PFK	37.65	1.301e4					1.9	NO		bb		
10	FUNCTION4 PFK	42.94	2.305e3					0.9	NO		bb		
11	FUNCTION4 PFK	42.90	2.189e3					0.8	NO		bb		
12	FUNCTION4 PFK	42.80	2.112e3					0.8	NO		bb		
13	FUNCTION4 PFK	42.63	3.426e3					0.8	NO		bb		
14	FUNCTION4 PFK	42.15	8.525e2					0.5	NO		bb		
15	FUNCTION4 PFK	42.10	7.014e2					0.4	NO		bb		
16	FUNCTION4 PFK	42.00	2.475e3					0.8	NO		bb		
17	FUNCTION4 PFK	41.36	7.251e3					1.7	NO		bb		
18	FUNCTION4 PFK	41.15	3.509e3					1.1	NO		bb		
19	FUNCTION4 PFK	40.92	4.725e3					1.1	NO		bb		
20	FUNCTION4 PFK	40.39	1.603e3					0.7	NO		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.17	4.289e4					10.4	YES		dd		
2	FUNCTION5 PFK	43.13	4.674e4					11.7	YES		dd		
3	FUNCTION5 PFK	43.09	6.613e4					13.2	YES		dd		
4	FUNCTION5 PFK	43.05	7.523e4					14.5	YES		bd		
5	FUNCTION5 PFK	45.81	3.537e3					1.4	NO		bd		
6	FUNCTION5 PFK	45.71	2.320e3					1.0	NO		bb		
7	FUNCTION5 PFK	45.00	2.072e3					1.0	NO		db		
8	FUNCTION5 PFK	44.98	3.607e3					1.2	NO		bd		
9	FUNCTION5 PFK	44.91	3.011e3					1.3	NO		db		
10	FUNCTION5 PFK	44.87	5.124e3					1.5	NO		bd		
11	FUNCTION5 PFK	44.74	6.273e3					1.9	NO		db		
12	FUNCTION5 PFK	44.70	5.819e3					1.6	NO		dd		
13	FUNCTION5 PFK	44.65	8.636e3					1.3	NO		dd		
14	FUNCTION5 PFK	44.53	1.029e4					1.7	NO		bd		
15	FUNCTION5 PFK	44.21	5.842e3					1.9	NO		bb		
16	FUNCTION5 PFK	44.08	4.572e3					1.7	NO		bb		
17	FUNCTION5 PFK	44.03	4.078e3					0.8	NO		bb		
18	FUNCTION5 PFK	43.38	2.642e4					4.4	YES		db		
19	FUNCTION5 PFK	43.30	6.898e4					6.7	YES		dd		
20	FUNCTION5 PFK	43.23	6.727e4					9.8	YES		dd		
21	FUNCTION5 PFK	45.92	2.565e3					1.1	NO		bb		
22	FUNCTION5 PFK	45.87	1.400e3					0.8	NO		bb		
23	FUNCTION5 PFK	45.84	1.416e3					0.8	NO		db		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.44	1.368e2					4.3	YES		bb		0.000
2	FUNCTION2 HPCD...	30.51	9.524e1					2.6	NO		db		0.000
3	FUNCTION2 HPCD...	30.44	8.811e1					2.3	NO		bd		0.000
4	FUNCTION2 HPCD...	28.58	1.175e2					3.5	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.78	8.018e1					2.5	NO		bb		0.000
2	FUNCTION3 OCDPE	33.82	1.353e2					5.4	YES		bb		0.000
3	FUNCTION3 OCDPE	32.69	1.692e2					5.2	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS6

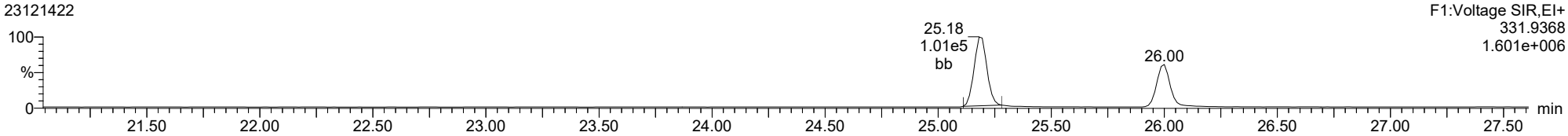
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Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
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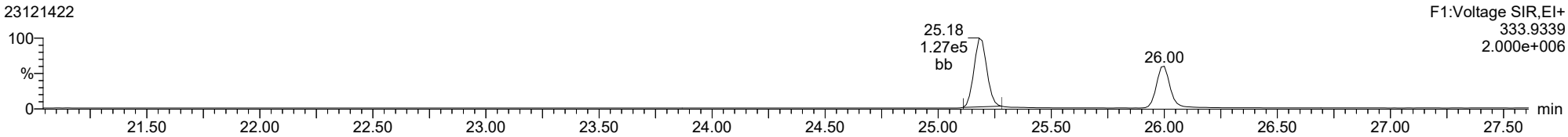
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ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

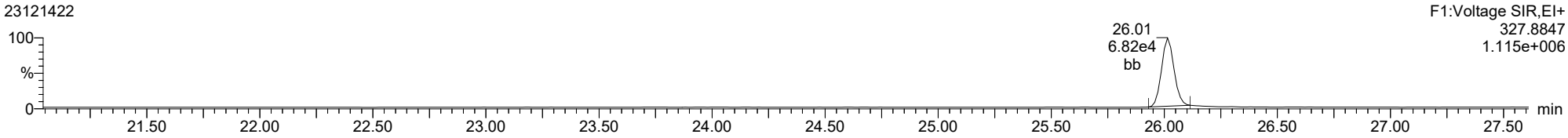
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13C-1234-TCDD

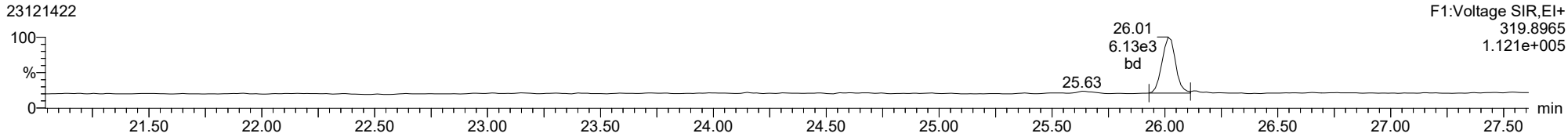


37CL-2378-TCDD

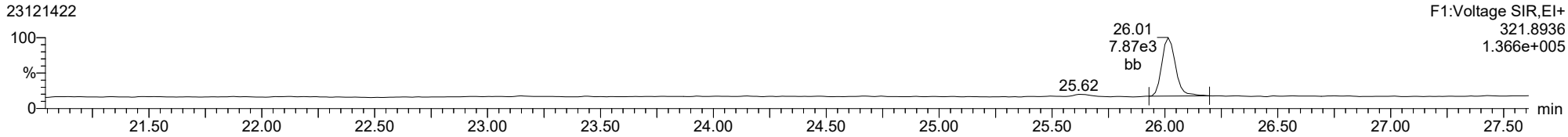


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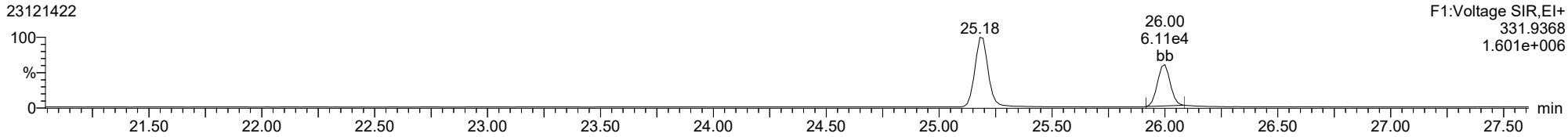
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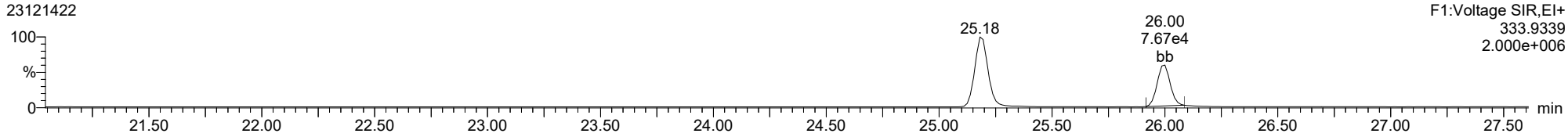
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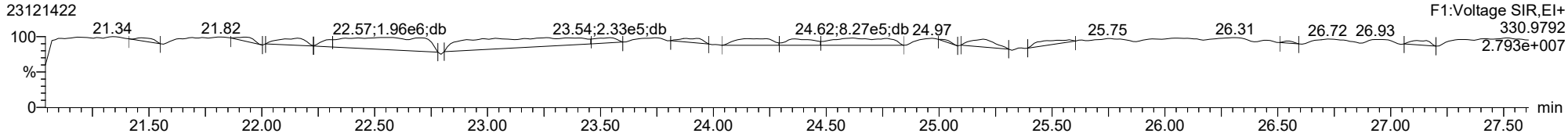
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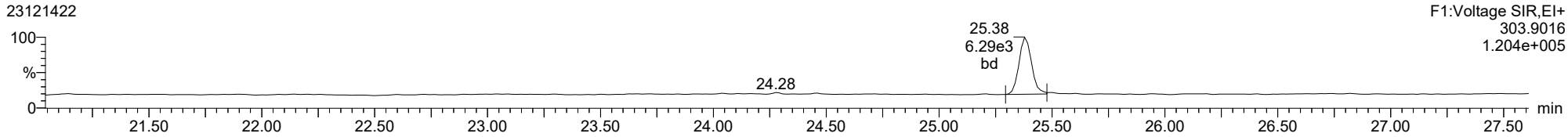


FUNCTION1 PFK

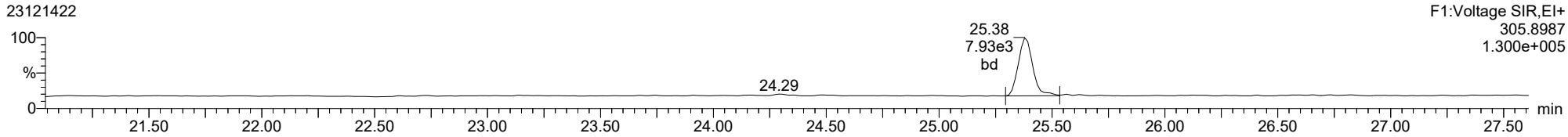


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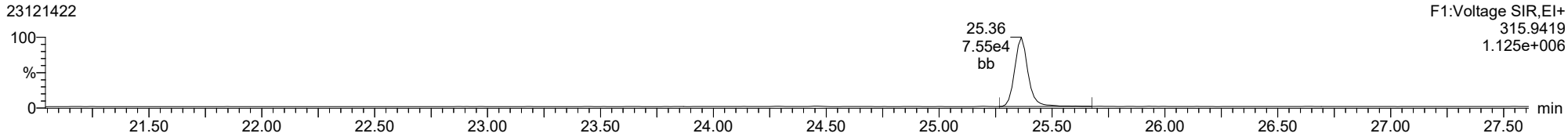
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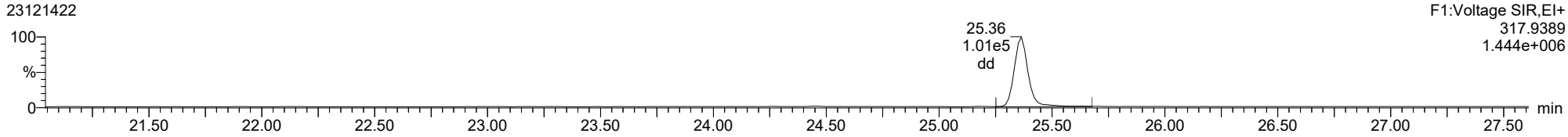
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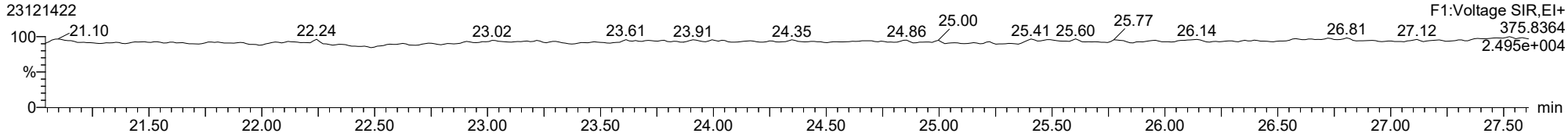
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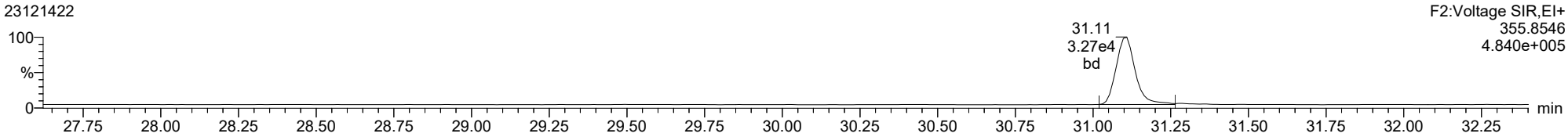


FUNCTION1 HXCDPE

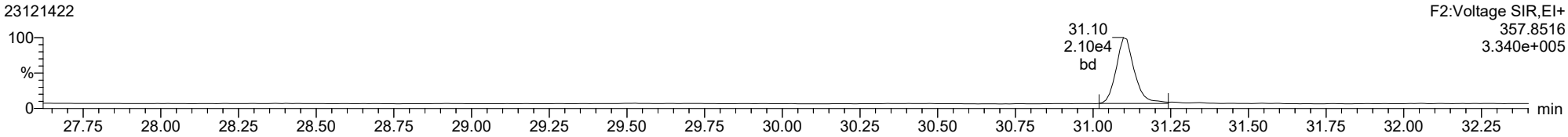


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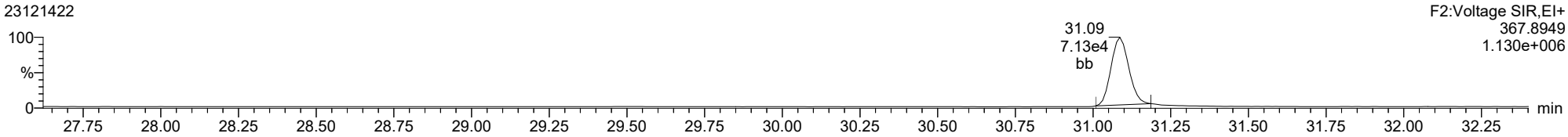
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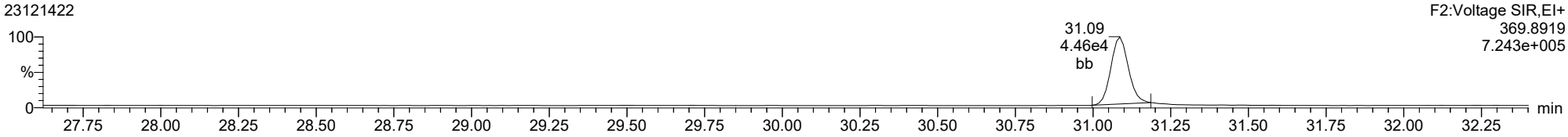
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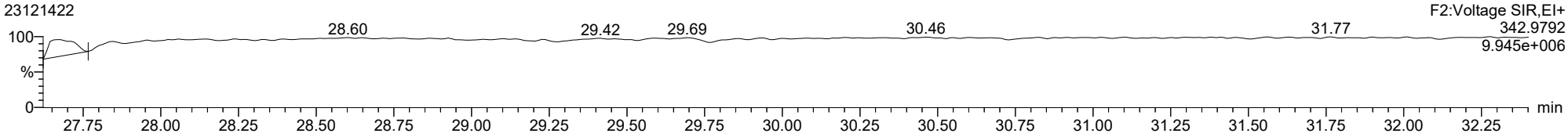
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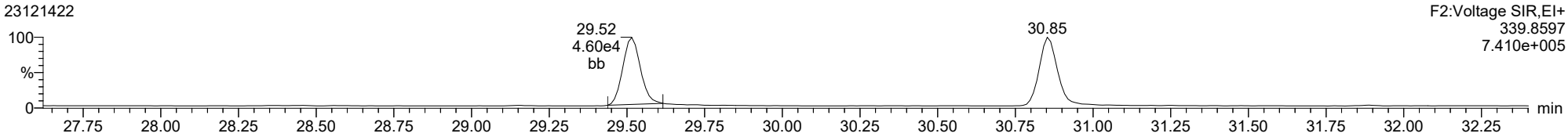


FUNCTION2 PFK

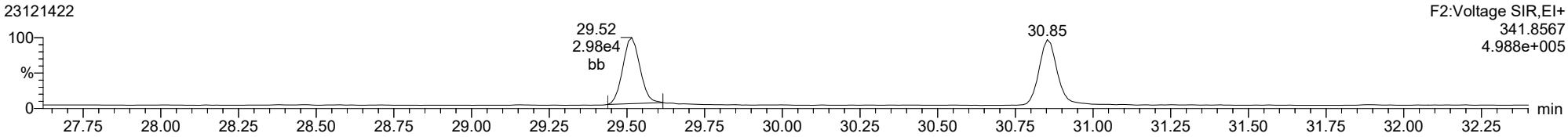


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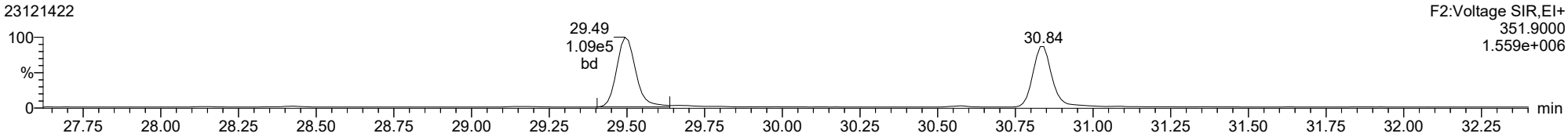
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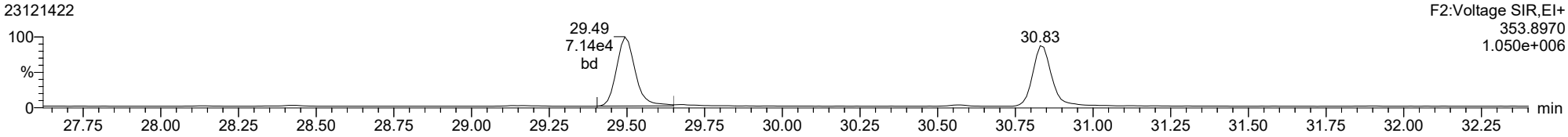
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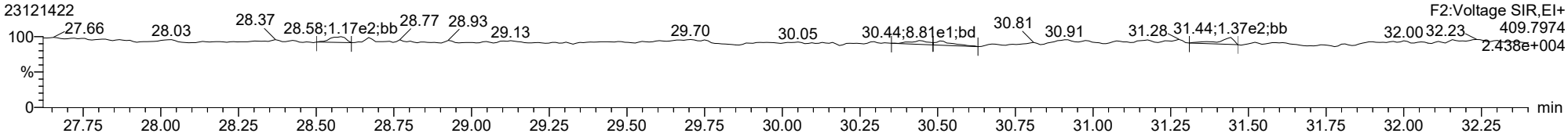
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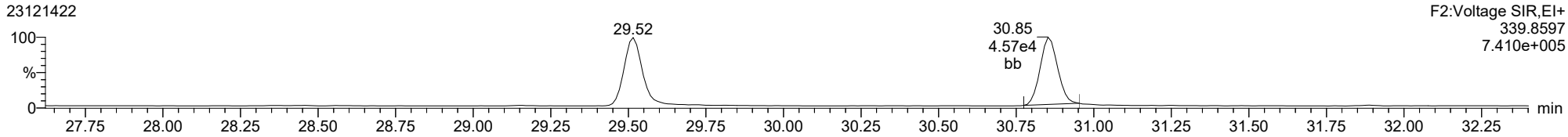


FUNCTION2 HPCDPE

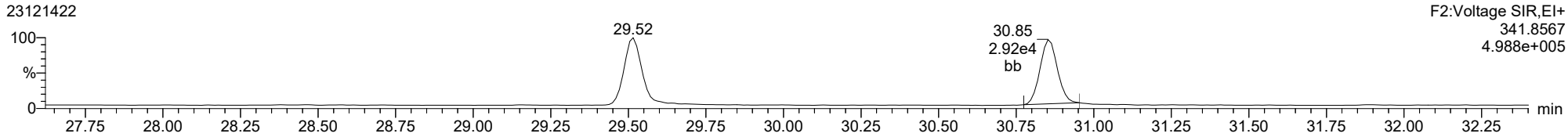


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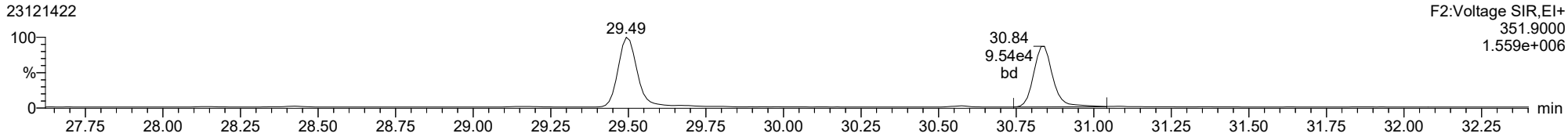
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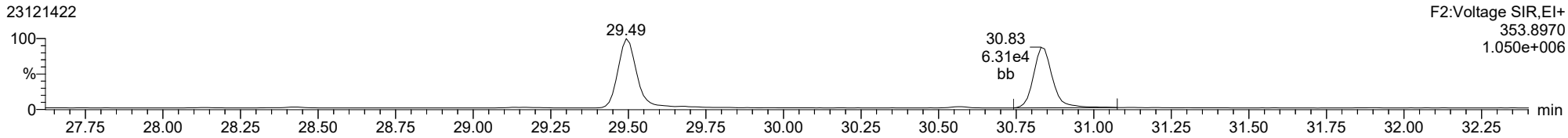
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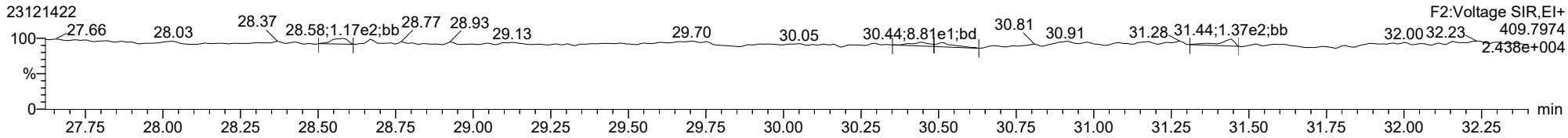
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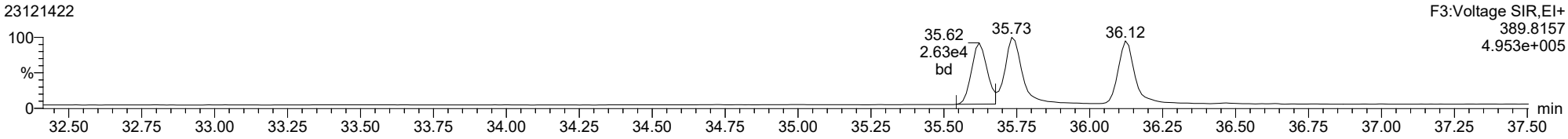
FUNCTION2 HPCDPE



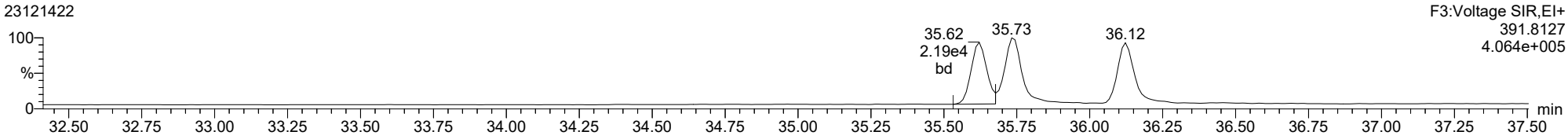
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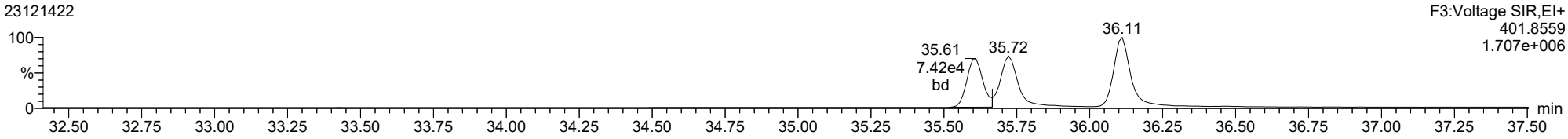
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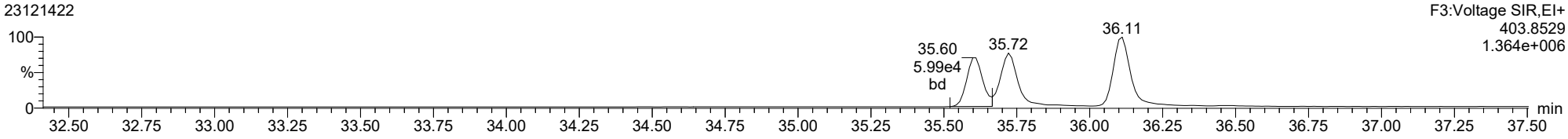
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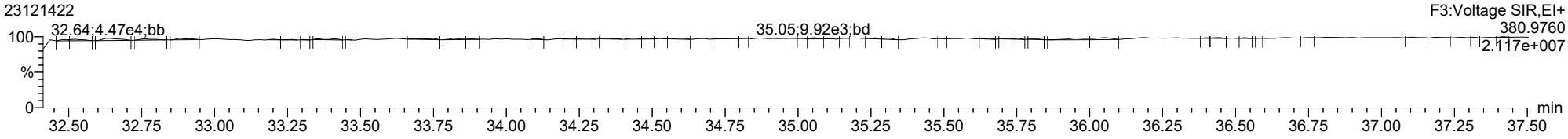
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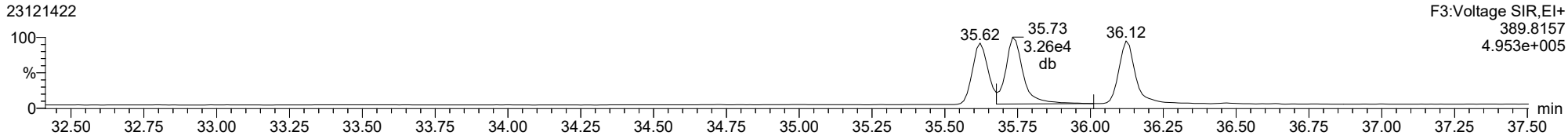


FUNCTION3 PFK

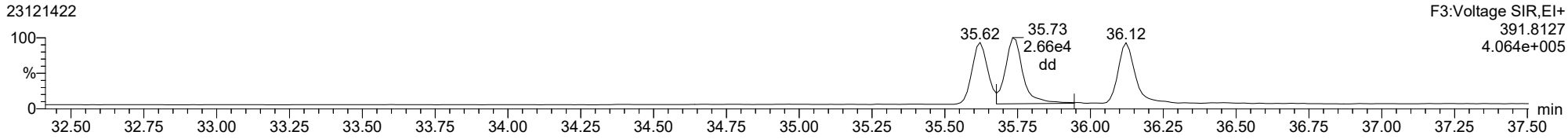


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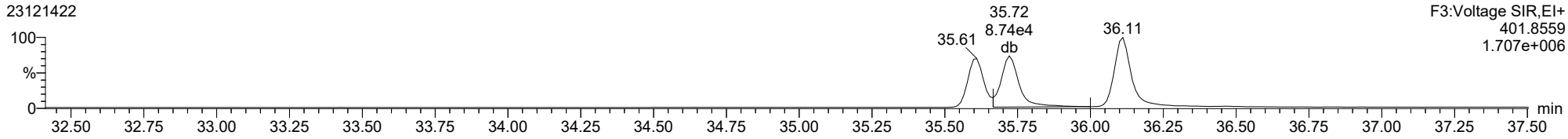
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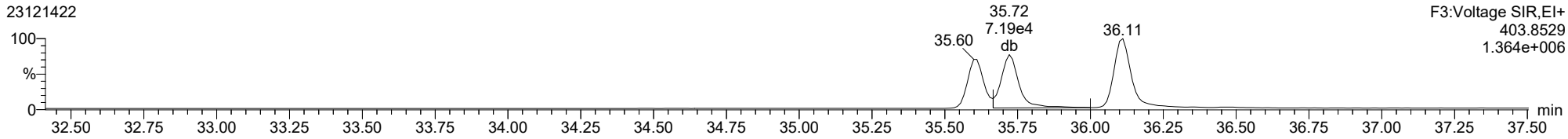
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13C-123678-HxCDD

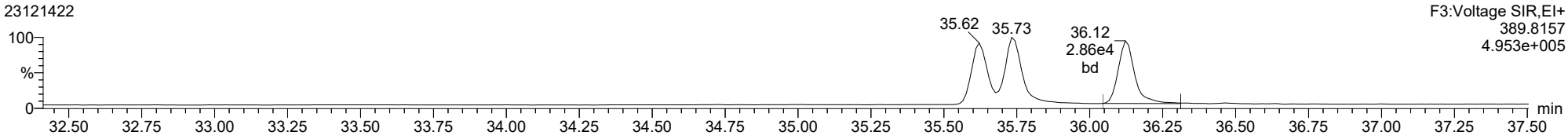


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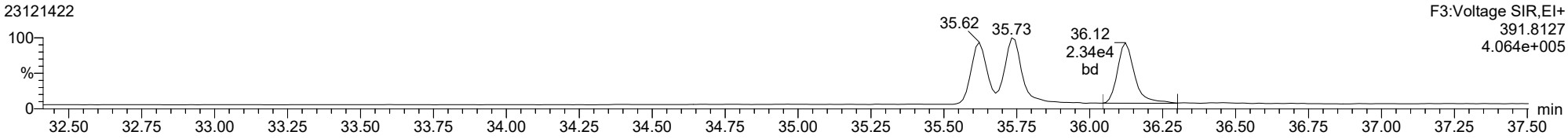


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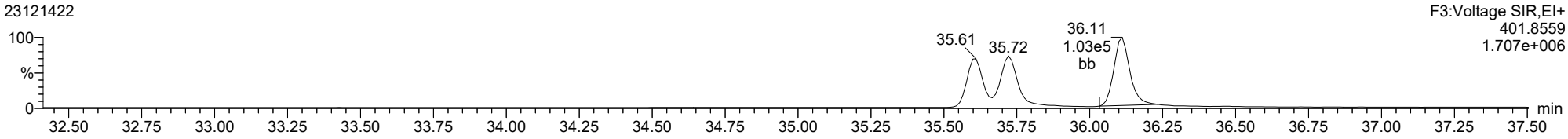
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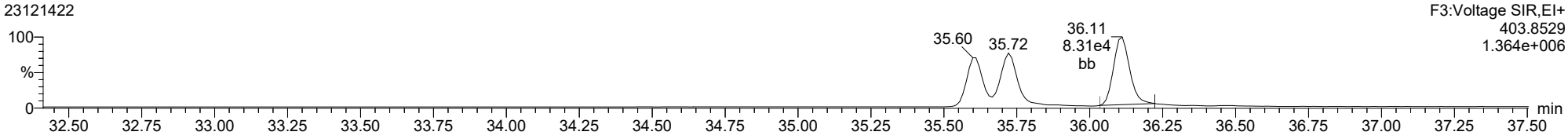
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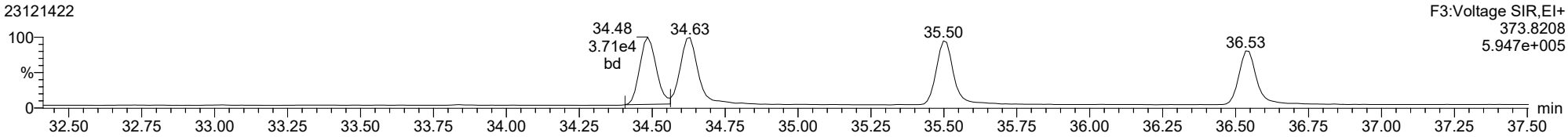


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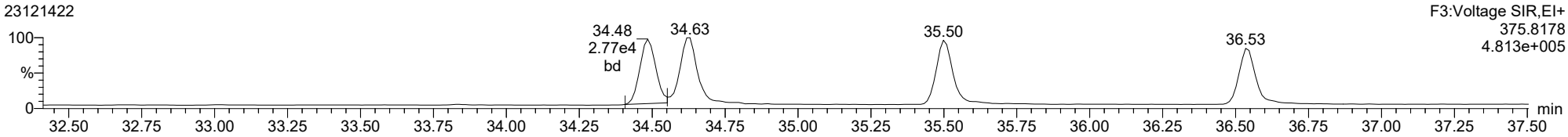


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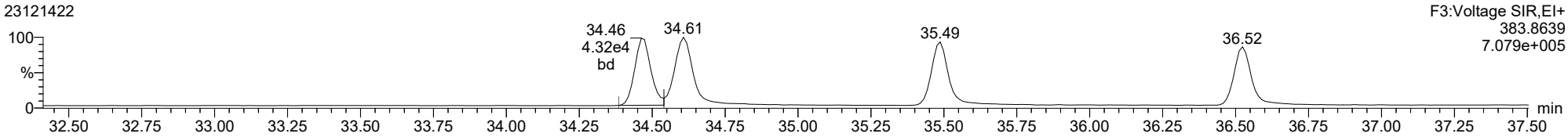
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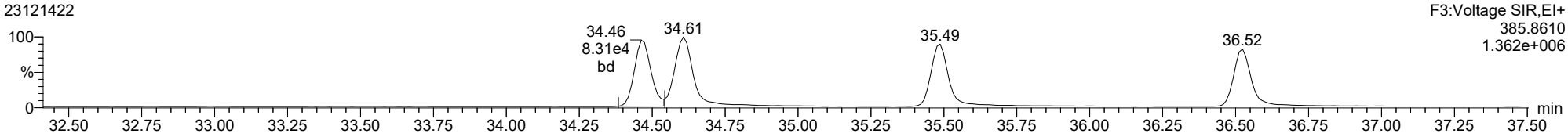
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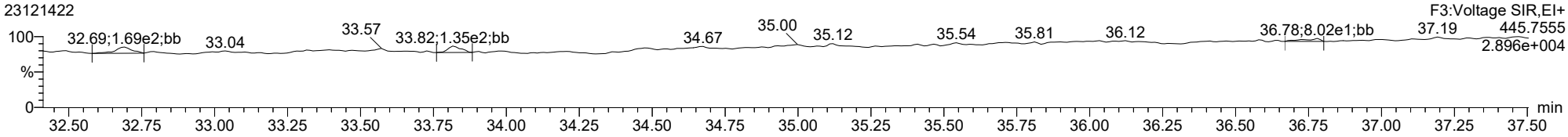
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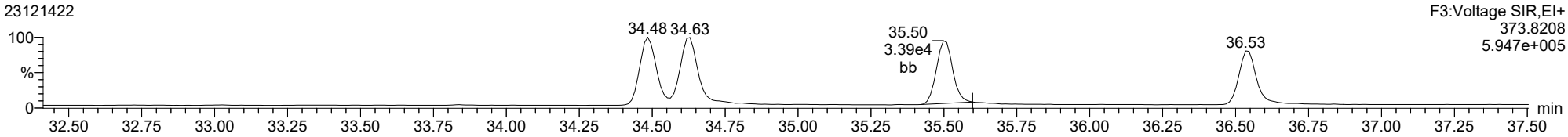
FUNCTION3 OCDPE



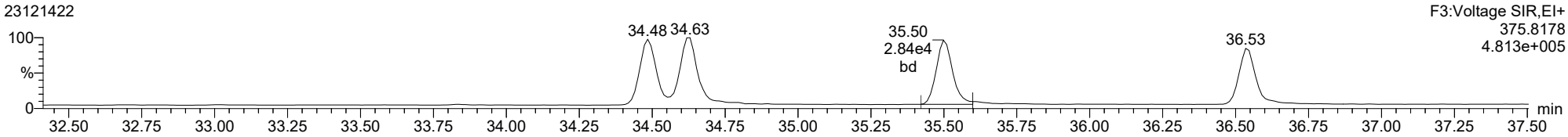
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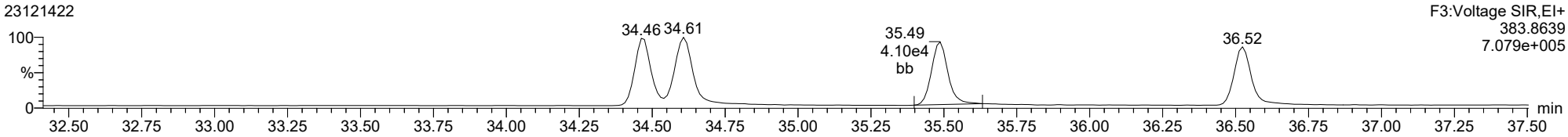
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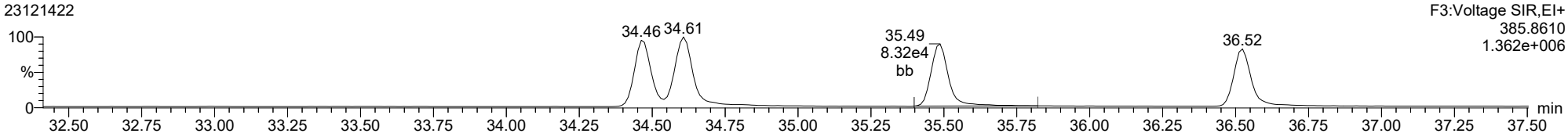
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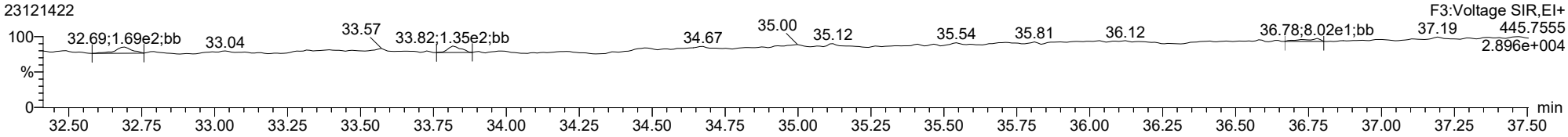
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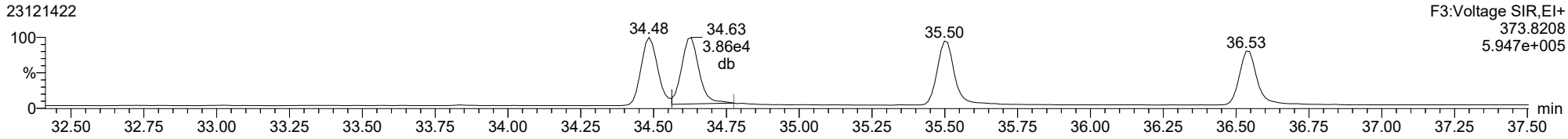


FUNCTION3 OCDPE

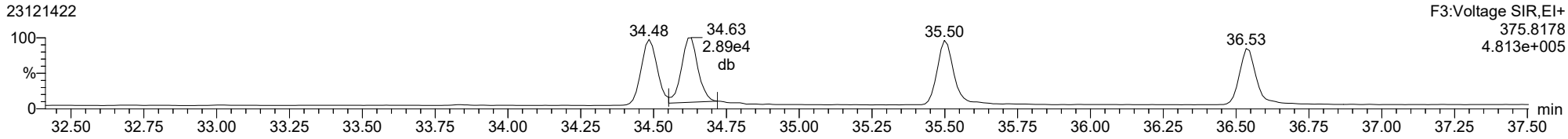


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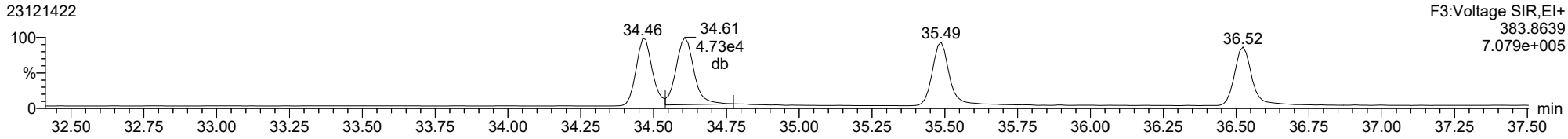
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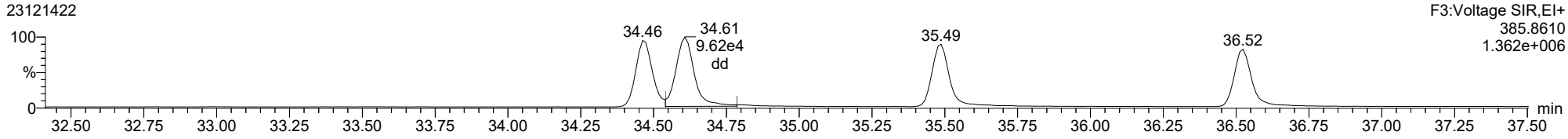
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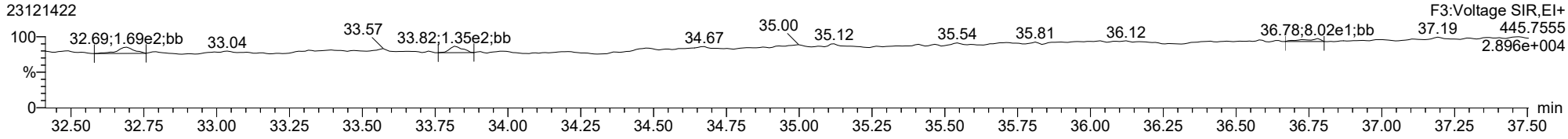
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13C-123678-HxCDF

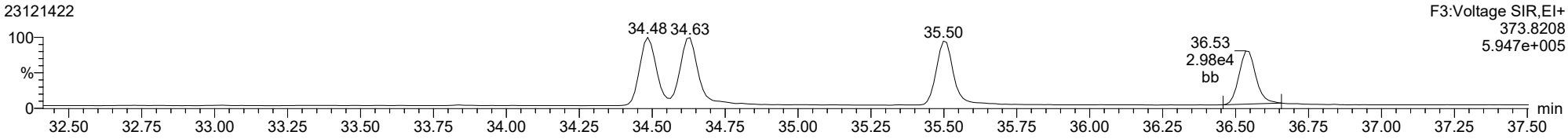


FUNCTION3 OCDPE

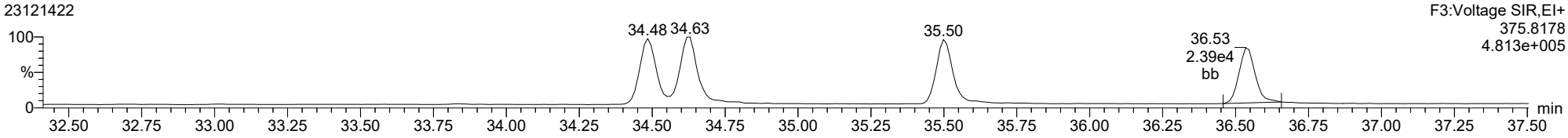


ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

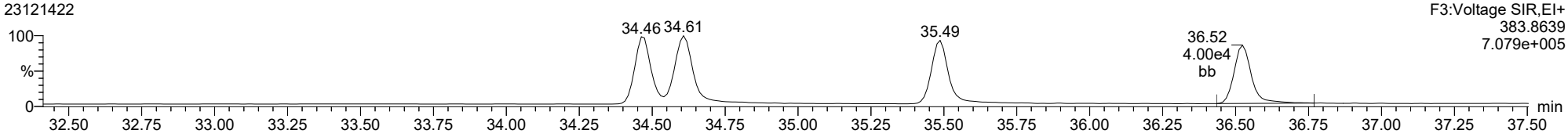
123789-HxCDF



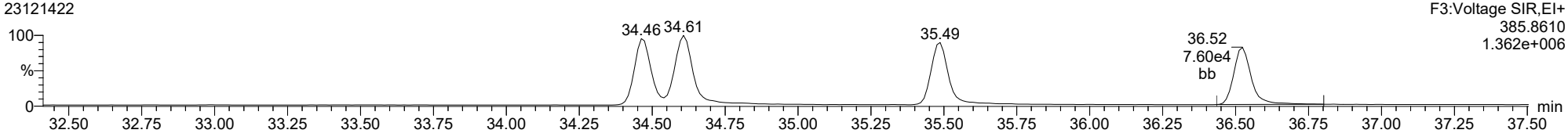
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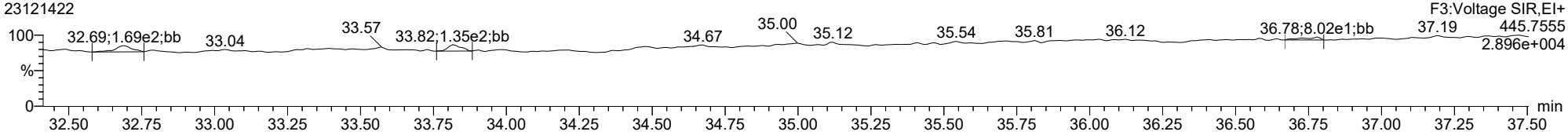
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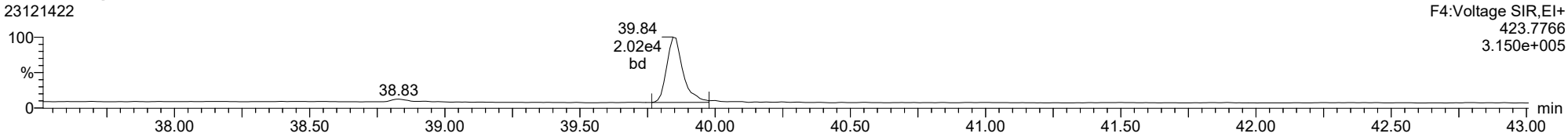


FUNCTION3 OCDPE

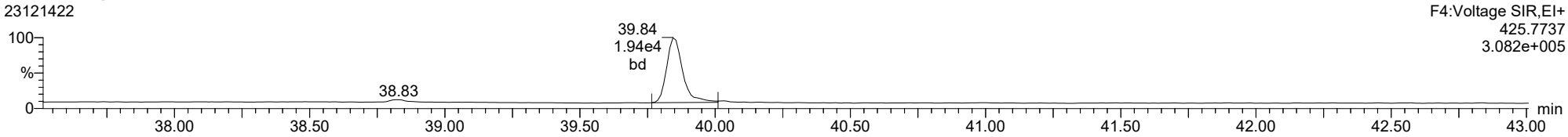


ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

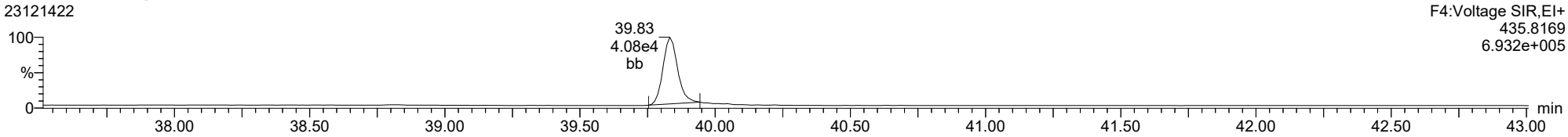
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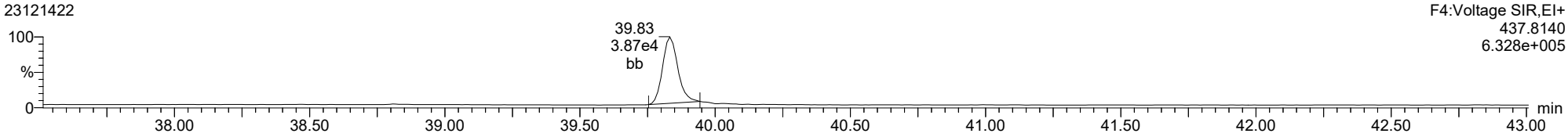
1234678-HpCDD



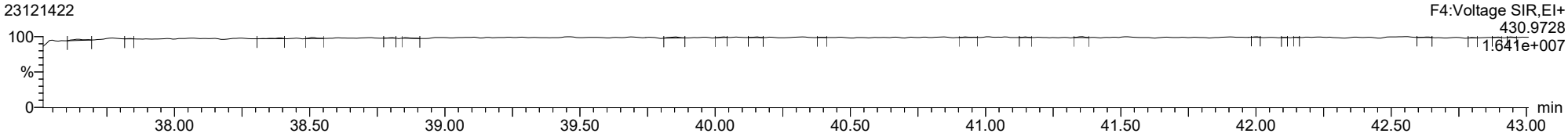
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13C-1234678-HpCDD

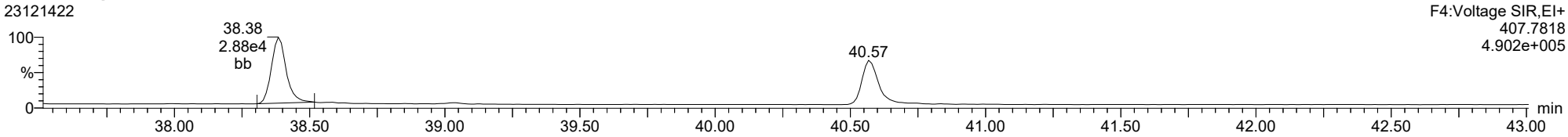


FUNCTION4 PFK

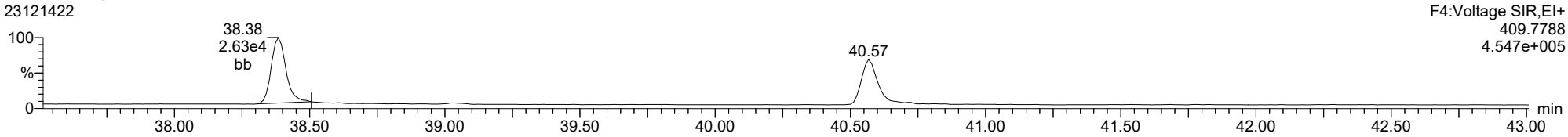


ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

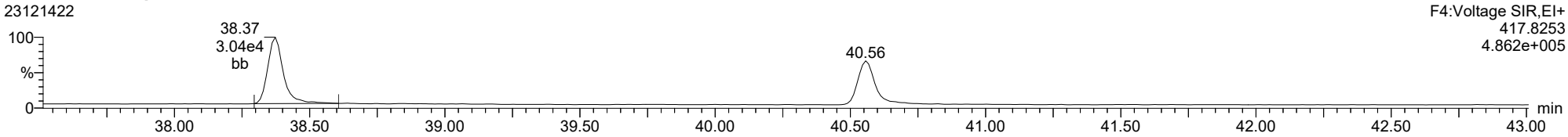
1234678-HpCDF



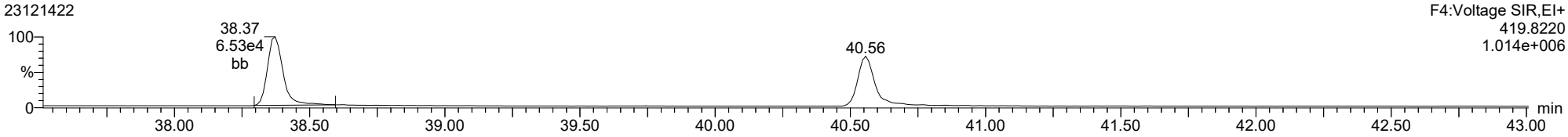
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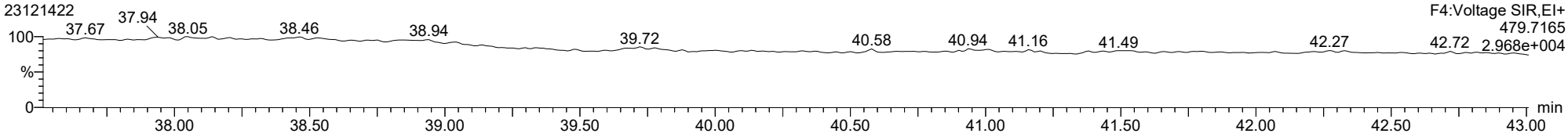
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13C-1234678-HpCDF

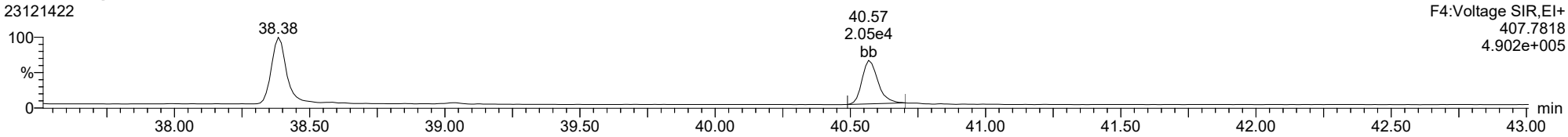


FUNCTION4 NCDPE

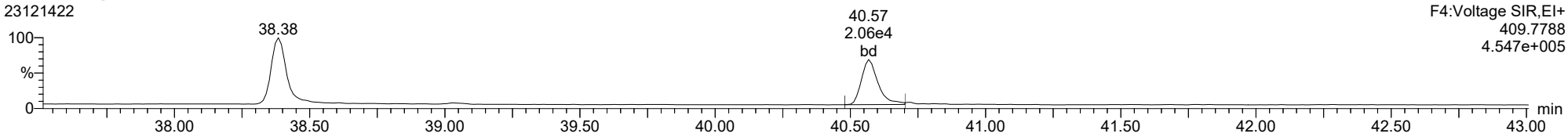


ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

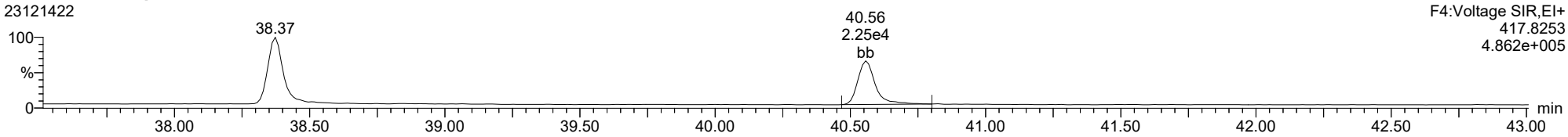
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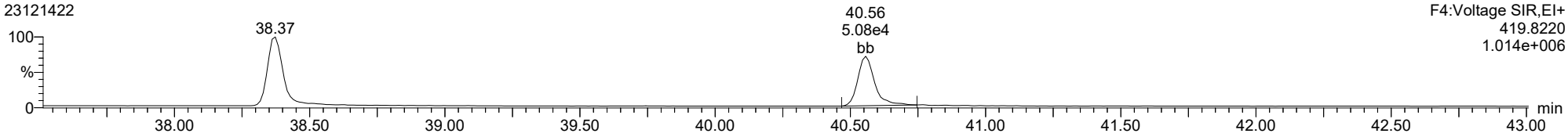
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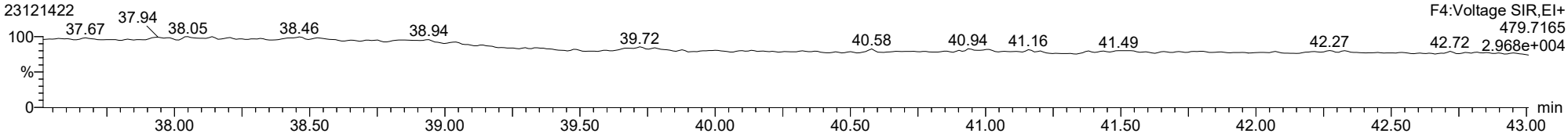
13C-1234789-HpCDF



13C-1234789-HpCDF

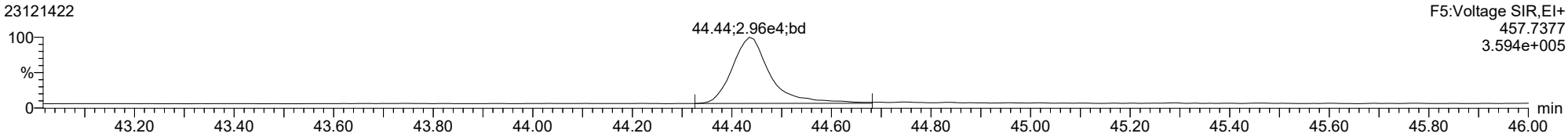


FUNCTION4 NCDPE

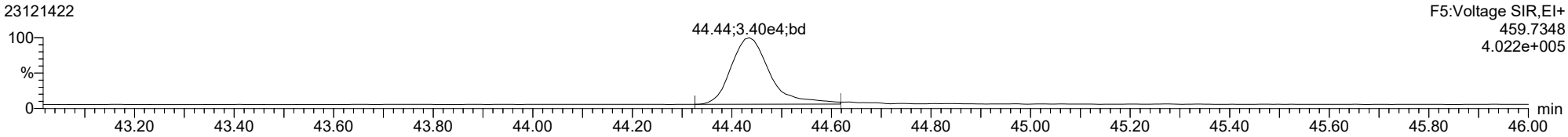


ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

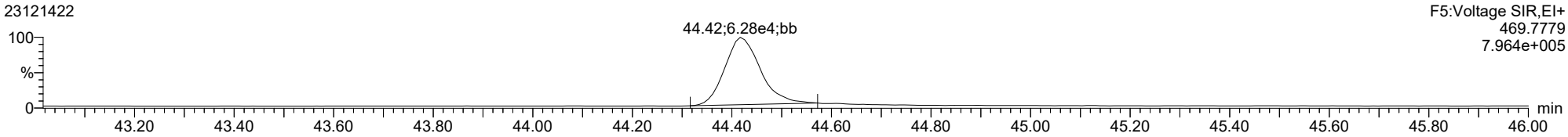
OCDD



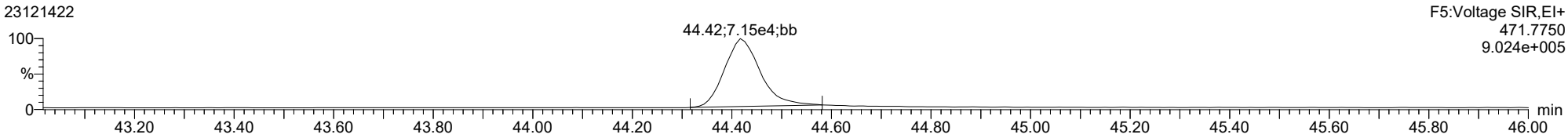
OCDD



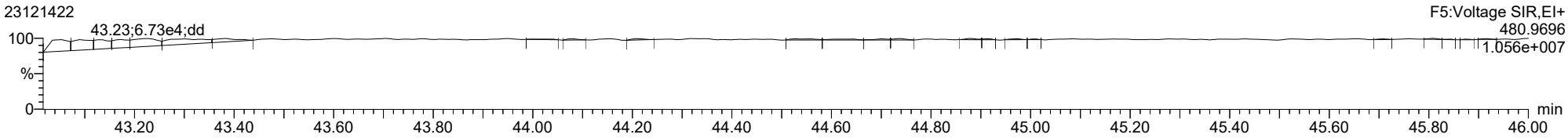
13C-OCDD



13C-OCDD

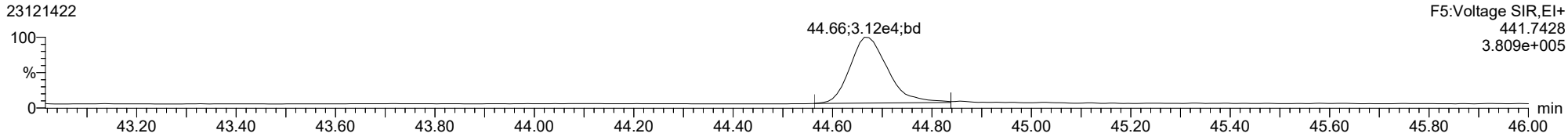


FUNCTION5 PFK

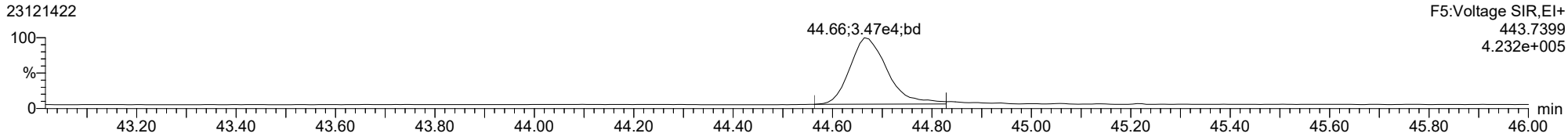


ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

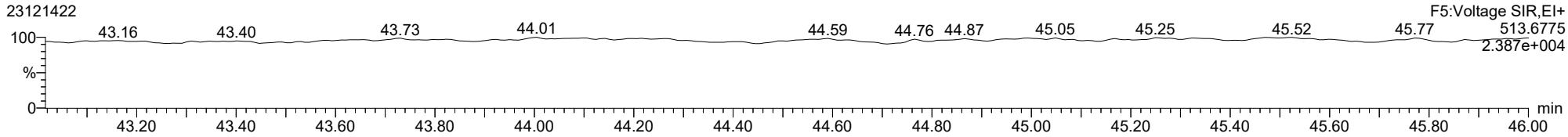
OCDF



OCDF



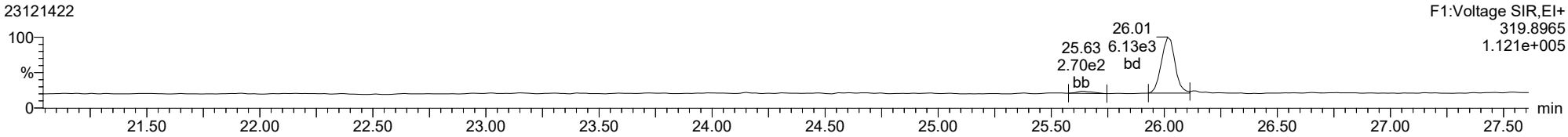
FUNCTION5 DCDPE



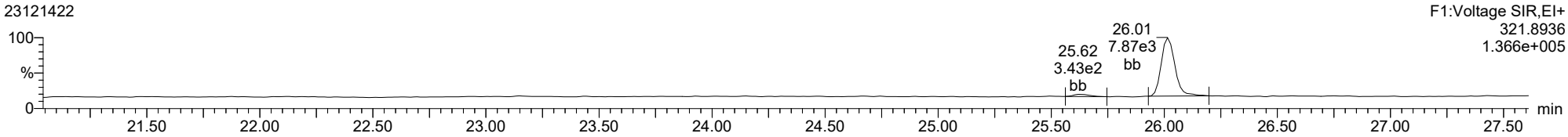
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Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
Printed: Friday, December 15, 2023 13:56:31 Pacific Standard Time

ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

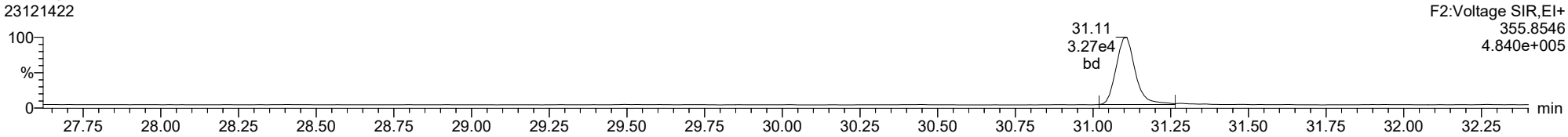
Total-tetradioxins



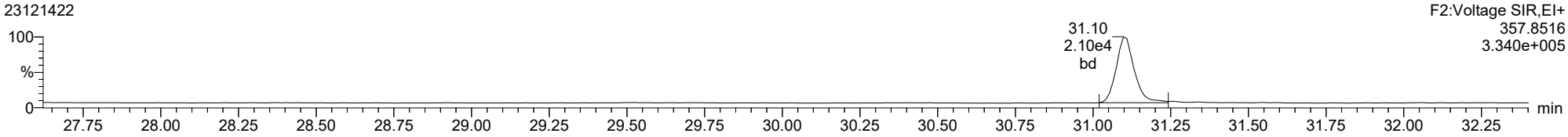
Total-tetradioxins



Total-pentadioxins



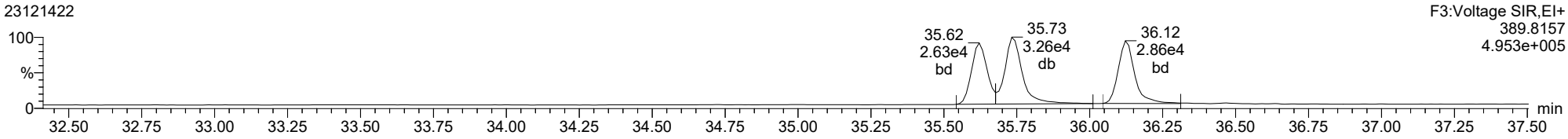
Total-pentadioxins



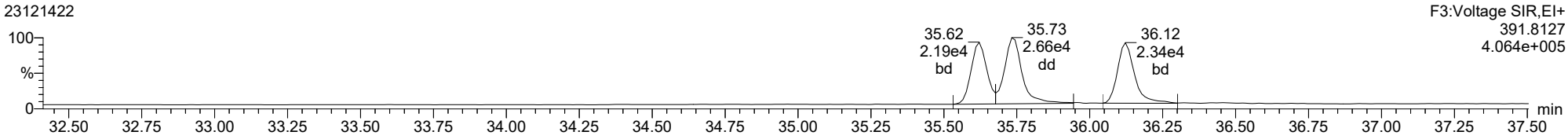
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Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
Printed: Friday, December 15, 2023 13:56:31 Pacific Standard Time

ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

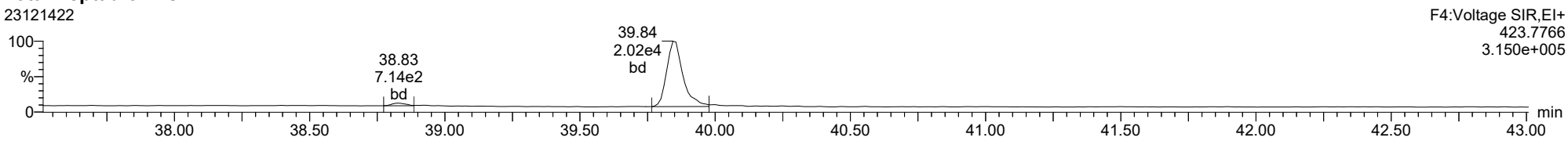
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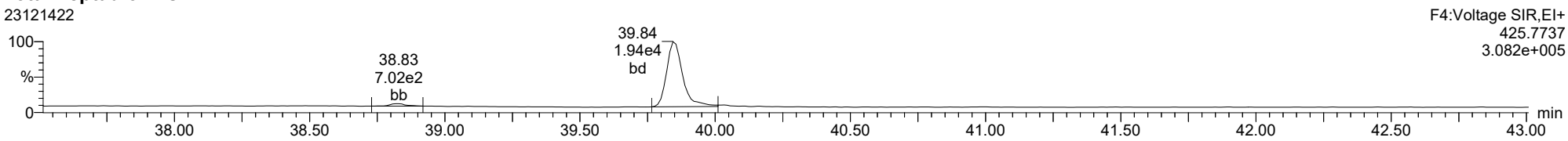
Total-hexadioxins



Total-heptadioxins



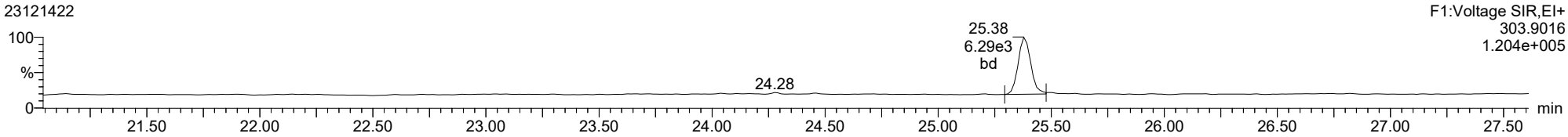
Total-heptadioxins



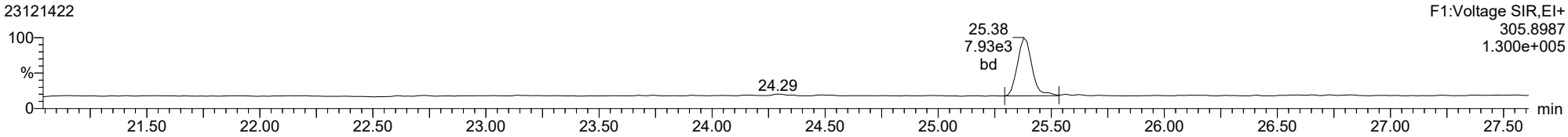
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ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

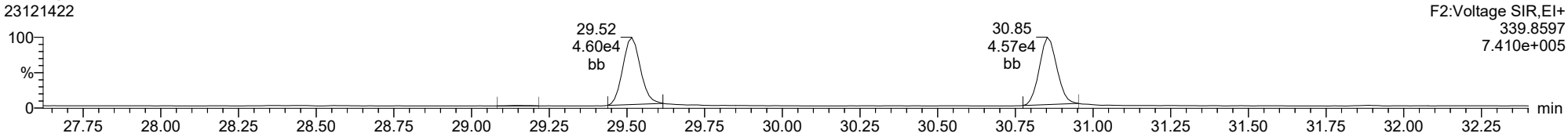
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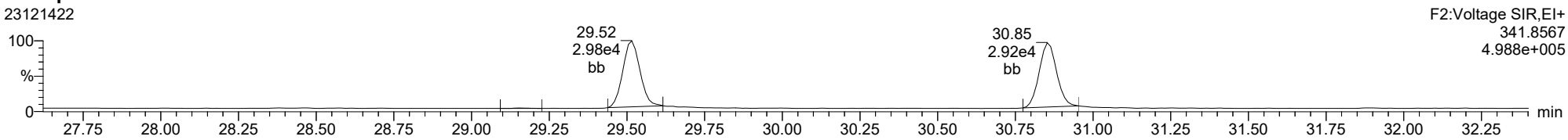
Total-tetrafurans



Total-pentafurans



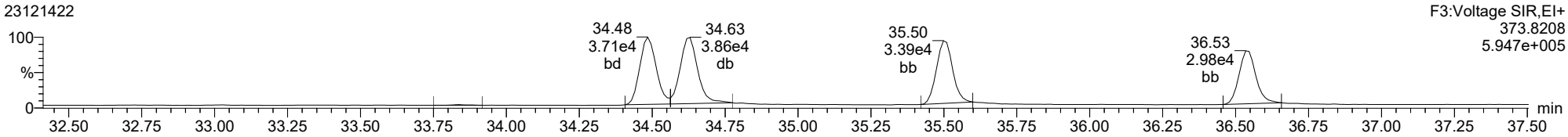
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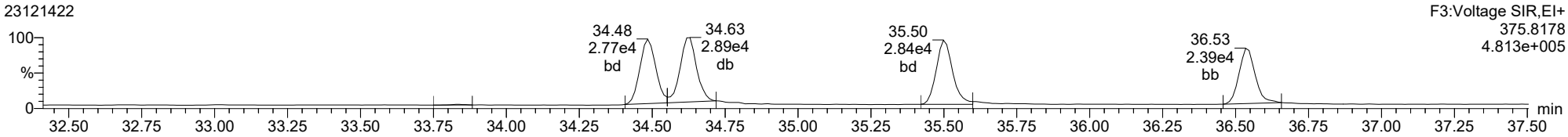
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ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

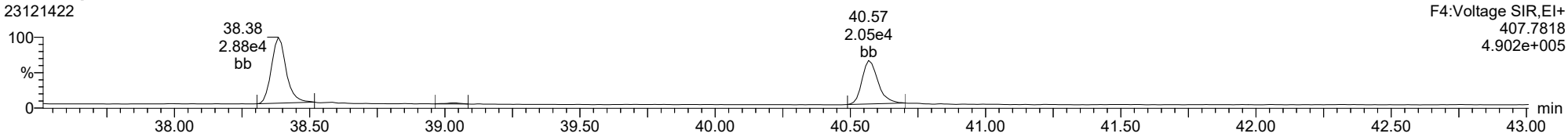
Total-hexafurans



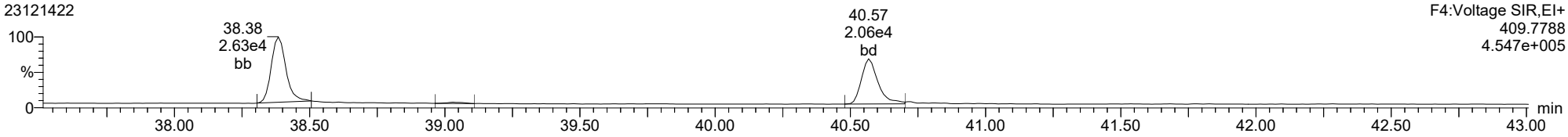
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

LCS RECOVERY
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Matrix:	Solid	Analyzed:	12/15/23 03:08
Batch:	BLK0112	Laboratory ID:	BLK0112-BS1
Preparation:	EPA 1613	Sequence Name:	LCS
Initial/Final:	10 g / 20 uL		

COMPOUND	SPIKE ADDED (ng/kg wet)	LCS CONCENTRATION (ng/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
2,3,7,8-TCDF	20.0	17.9		89.4	75 - 158
2,3,7,8-TCDD	20.0	16.4		81.8	67 - 158
1,2,3,7,8-PeCDF	100	90.9		90.9	80 - 134
2,3,4,7,8-PeCDF	100	95.5		95.5	68 - 160
1,2,3,7,8-PeCDD	100	80.7		80.7	70 - 142
1,2,3,4,7,8-HxCDF	100	90.9		90.9	72 - 134
1,2,3,6,7,8-HxCDF	100	91.1		91.1	84 - 130
2,3,4,6,7,8-HxCDF	100	92.7		92.7	70 - 156
1,2,3,7,8,9-HxCDF	100	93.7		93.7	78 - 130
1,2,3,4,7,8-HxCDD	100	75.0		75.0	70 - 164
1,2,3,6,7,8-HxCDD	100	84.2		84.2	76 - 134
1,2,3,7,8,9-HxCDD	100	88.1		88.1	64 - 162
1,2,3,4,6,7,8-HpCDF	100	99.0	B	99.0	82 - 122
1,2,3,4,7,8,9-HpCDF	100	101		101	78 - 138
1,2,3,4,6,7,8-HpCDD	100	83.2	B	83.2	70 - 140
OCDF	200	173	B	86.7	63 - 170
OCDD	200	179	B	89.5	78 - 144

* Indicates values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
Printed: Friday, December 15, 2023 13:56:31 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin231215.mdb 15 Dec 2023 13:28:43
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.379	1.001	6.293e3	7.931e3	0.903	0.794	0.770	482	591	9.70e4	1.07e5	201.4	180.9	NO	bd	bd	8.945
12378-PeCDF	29.516	1.001	4.595e4	2.977e4	0.923	1.544	1.550	762	926	7.00e5	4.66e5	919.6	502.9	NO	bb	bb	45.435
23478-PeCDF	30.853	1.000	4.571e4	2.923e4	0.991	1.564	1.550	762	926	7.04e5	4.53e5	924.8	489.7	NO	bb	bb	47.728
123478-HxCDF	34.485	1.001	3.706e4	2.771e4	1.128	1.337	1.240	945	952	5.64e5	4.38e5	597.5	460.1	NO	bd	bd	45.466
234678-HxCDF	35.499	1.000	3.393e4	2.837e4	1.081	1.196	1.240	945	952	5.25e5	4.36e5	555.8	458.3	NO	bb	bd	46.368
123678-HxCDF	34.630	1.001	3.859e4	2.886e4	1.032	1.337	1.240	945	952	5.55e5	4.37e5	587.9	459.1	NO	db	db	45.547
123789-HxCDF	36.535	1.000	2.981e4	2.389e4	0.988	1.248	1.240	945	952	4.45e5	3.76e5	471.3	394.6	NO	bb	bb	46.849
1234678-HpCDF	38.384	1.000	2.875e4	2.631e4	1.164	1.093	1.050	961	834	4.57e5	4.19e5	475.0	502.7	NO	bb	bb	49.483
1234789-HpCDF	40.568	1.000	2.046e4	2.056e4	1.104	0.995	1.050	961	834	3.02e5	2.91e5	313.9	348.5	NO	bb	bd	50.728
OCDF	44.664	1.006	3.116e4	3.466e4	1.130	0.899	0.890	766	1448	3.55e5	3.98e5	463.4	274.7	NO	bd	bd	86.730
2378-TCDD	26.014	1.001	6.135e3	7.868e3	1.243	0.780	0.770	784	479	8.84e4	1.13e5	112.9	235.5	NO	bd	bb	8.178
12378-PeCDD	31.109	1.001	3.274e4	2.103e4	1.150	1.557	1.550	571	580	4.60e5	3.11e5	805.7	535.9	NO	bd	bd	40.333
123478-HxCDD	35.621	1.000	2.633e4	2.193e4	0.960	1.200	1.240	598	592	4.27e5	3.53e5	713.9	596.6	NO	bd	bd	37.504
123678-HxCDD	35.732	1.000	3.260e4	2.661e4	0.883	1.225	1.240	598	592	4.65e5	3.78e5	778.2	637.6	NO	db	dd	42.113
123789-HxCDD	36.122	1.011	2.856e4	2.335e4	0.804	1.223	1.240	598	592	4.36e5	3.46e5	730.0	583.7	NO	bd	bd	44.033
1234678-HpCDD	39.843	1.000	2.025e4	1.942e4	1.200	1.043	1.050	637	770	2.90e5	2.83e5	455.8	367.2	NO	bd	bd	41.584
OCDD	44.435	1.000	2.956e4	3.404e4	1.059	0.868	0.890	1154	662	3.36e5	3.78e5	291.2	571.6	NO	bd	bd	89.463
13C-2378-TCDF	25.365	1.007	7.554e4	1.005e5	1.835	0.751	0.770	736	645	1.10e6	1.42e6	1495.8	2204.2	NO	bb	dd	42.021
13C-12378-PeCDF	29.493	1.171	1.092e5	7.135e4	1.377	1.530	1.550	1127	992	1.53e6	1.02e6	1361.0	1032.2	NO	bd	bd	57.437
13C-23478-PeCDF	30.841	1.225	9.537e4	6.314e4	1.301	1.510	1.550	1127	992	1.33e6	8.95e5	1179.1	902.4	NO	bd	bb	53.353
13C-123478-HxCDF	34.462	0.954	4.315e4	8.313e4	1.091	0.519	0.510	1262	1449	6.70e5	1.27e6	531.0	876.9	NO	bd	bd	62.102
13C-123678-HxCDF	34.607	0.958	4.726e4	9.618e4	1.340	0.491	0.510	1262	1449	6.70e5	1.33e6	531.4	916.8	NO	db	dd	57.405
13C-234678-HxCDF	35.487	0.983	4.104e4	8.321e4	1.093	0.493	0.510	1262	1449	6.27e5	1.19e6	497.1	822.8	NO	bb	bb	60.944
13C-123789-HxCDF	36.523	1.011	4.003e4	7.603e4	0.952	0.526	0.510	1262	1449	5.82e5	1.10e6	461.5	757.6	NO	bb	bb	65.418
13C-1234678-HpCDF	38.373	1.063	3.036e4	6.526e4	0.985	0.465	0.440	787	1243	4.55e5	9.79e5	578.7	788.0	NO	bb	bb	52.070
13C-1234789-HpCDF	40.556	1.123	2.248e4	5.080e4	0.756	0.442	0.440	787	1243	3.00e5	7.08e5	381.6	570.0	NO	bb	bb	52.003
13C-1234-TCDD	25.181	0.000	1.013e5	1.270e5	1.000	0.798	0.770	905	679	1.55e6	1.94e6	1713.6	2862.0	NO	bb	bb	100.000
13C-2378-TCDD	26.000	1.033	6.107e4	7.668e4	1.110	0.796	0.770	905	679	9.35e5	1.16e6	1033.6	1704.2	NO	bb	bb	54.379
13C-12378-PeCDD	31.087	1.235	7.132e4	4.459e4	0.754	1.599	1.550	771	587	1.08e6	6.87e5	1400.1	1170.0	NO	bb	bb	67.358
13C-123478-HxCDD	35.610	0.986	7.418e4	5.985e4	0.960	1.240	1.240	1946	1015	1.16e6	9.36e5	598.5	921.4	NO	bd	bd	74.894
13C-123678-HxCDD	35.721	0.989	8.744e4	7.186e4	1.159	1.217	1.240	1946	1015	1.23e6	1.03e6	632.8	1010.5	NO	db	db	73.702
13C-1234678-HpCDD	39.832	1.103	4.081e4	3.870e4	0.629	1.055	1.050	789	815	6.53e5	5.93e5	827.3	727.5	NO	bb	bb	67.770
13C-OCDD	44.417	1.230	6.282e4	7.148e4	0.635	0.879	0.890	1024	1404	7.59e5	8.65e5	741.0	615.9	NO	bb	bb	113.415
13C-123789-HxCDD	36.111	0.000	1.033e5	8.314e4	1.000	1.243	1.240	1946	1015	1.64e6	1.30e6	840.8	1279.8	NO	bb	bb	100.000
37CL-2378-TCDD	26.014	1.033	6.823e4		1.157			719		1.08e6		1495.8			bb		25.820

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
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ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.170		0.770	482	591								
1289-TCDF					0.847		0.770	482	591								
13468-PECDF	26.791	0.908	2.020e2	2.037e2	1.241	0.992	1.550	478	607	2.66e3	2.45e3	5.6	4.0	YES	bb	bb	0.181
12389-PECDF					0.880		1.550	762	926								
123468-HXCDF					1.206		1.240	945	952								
1368-TCDD					1.181		0.770	784	479								
1289-TCDD					0.963		0.770	784	479								
12479-PECDD					2.166		1.550	571	580								
12389-PECDD					1.326		1.550	571	580								
124679-HXCDD					1.127		1.240	598	592								
1234679-HPCDD	38.830	0.975	7.137e2	7.022e2	1.303	1.016	1.050	637	770	1.18e4	1.05e4	18.5	13.6	NO	bd	bb	1.367
Total-tetrafurans			6.293e3		0.973			482		9.70e4							8.945
Total-penta1			0.000e0					478		0.00e0							
Total-pentafurans			9.193e4		0.931			762		1.41e6							93.434
Total-hexafurans			1.397e5		1.087			945		2.10e6							184.616
Total-heptafurans			4.970e4		1.134			961		7.66e5							101.273
Total-Furans			3.188e5		1.053			482		4.72e6							474.998
Total-tetradioxins			6.405e3		1.129			784		9.19e4							8.572
Total-pentadioxins			3.274e4		1.548			571		4.60e5							40.333
Total-hexadioxins			8.749e4		0.943			598		1.33e6							123.650
Total-heptadioxins			2.096e4		1.251			637		3.02e5							42.951
Total-Dioxins			1.772e5		1.182			784		2.52e6							304.969
Total-TEQ			4.959e5					784		7.24e6							779.967
FUNCTION1 PFK			7.925e6					275191		3.53e7							
FUNCTION2 PFK			2.239e5					141954		2.44e6							0.000
FUNCTION3 PFK			4.458e5					178350		1.14e7							0.000
FUNCTION4 PFK			8.386e4					145318		2.97e6							
FUNCTION5 PFK			4.642e5					118681		1.09e7							
FUNCTION1 HXCD...			0.000e0					425		0.00e0							
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			4.377e2					572		7.24e3							0.000
FUNCTION3 OCDPE			3.846e2					487		6.35e3							0.000
FUNCTION4 NCDPE			0.000e0					472		0.00e0							
FUNCTION5 DCDPE			0.000e0					337		0.00e0							

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Method: T:\Autospec\Methods\Dioxin231215.mdb 15 Dec 2023 13:28:43
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.38	6.293e3	7.931e3	0.903	0.79	0.77	201.4	YES	NO	bd	bd	8.945

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.85	4.571e4	2.923e4	0.991	1.56	1.55	924.8	YES	NO	bb	bb	47.728
2	12378-PeCDF	29.52	4.595e4	2.977e4	0.923	1.54	1.55	919.6	YES	NO	bb	bb	45.435
3	Total-pentafurans	29.15	2.646e2	1.636e2	0.931	1.62	1.55	6.5	YES	NO	bb	bb	0.271

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.53	2.981e4	2.389e4	0.988	1.25	1.24	471.3	YES	NO	bb	bb	46.849
2	234678-HxCDF	35.50	3.393e4	2.837e4	1.081	1.20	1.24	555.8	YES	NO	bb	bd	46.368
3	123678-HxCDF	34.63	3.859e4	2.886e4	1.032	1.34	1.24	587.9	YES	NO	db	db	45.547
4	123478-HxCDF	34.48	3.706e4	2.771e4	1.128	1.34	1.24	597.5	YES	NO	bd	bd	45.466
5	Total-hexafurans	33.84	2.963e2	2.381e2	1.087	1.24	1.24	5.3	YES	NO	bb	bb	0.386

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.57	2.046e4	2.056e4	1.104	1.00	1.05	313.9	YES	NO	bb	bd	50.728
2	Total-heptafurans	39.03	4.890e2	5.279e2	1.134	0.93	1.05	8.1	YES	NO	bb	bb	1.062
3	1234678-HpCDF	38.38	2.875e4	2.631e4	1.164	1.09	1.05	475.0	YES	NO	bb	bb	49.483

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.38	6.293e3	7.931e3	0.903	0.79	0.77	201.4	YES	NO	bd	bd	8.945
2	23478-PeCDF	30.85	4.571e4	2.923e4	0.991	1.56	1.55	924.8	YES	NO	bb	bb	47.728
3	12378-PeCDF	29.52	4.595e4	2.977e4	0.923	1.54	1.55	919.6	YES	NO	bb	bb	45.435
4	Total-pentafurans	29.15	2.646e2	1.636e2	0.931	1.62	1.55	6.5	YES	NO	bb	bb	0.271
5	123789-HxCDF	36.53	2.981e4	2.389e4	0.988	1.25	1.24	471.3	YES	NO	bb	bb	46.849
6	234678-HxCDF	35.50	3.393e4	2.837e4	1.081	1.20	1.24	555.8	YES	NO	bb	bd	46.368
7	123678-HxCDF	34.63	3.859e4	2.886e4	1.032	1.34	1.24	587.9	YES	NO	db	db	45.547
8	123478-HxCDF	34.48	3.706e4	2.771e4	1.128	1.34	1.24	597.5	YES	NO	bd	bd	45.466
9	Total-hexafurans	33.84	2.963e2	2.381e2	1.087	1.24	1.24	5.3	YES	NO	bb	bb	0.386
10	1234789-HpCDF	40.57	2.046e4	2.056e4	1.104	1.00	1.05	313.9	YES	NO	bb	bd	50.728
11	Total-heptafurans	39.03	4.890e2	5.279e2	1.134	0.93	1.05	8.1	YES	NO	bb	bb	1.062
12	1234678-HpCDF	38.38	2.875e4	2.631e4	1.164	1.09	1.05	475.0	YES	NO	bb	bb	49.483
13	OCDF	44.66	3.116e4	3.466e4	1.130	0.90	0.89	463.4	YES	NO	bd	bd	86.730

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.01	6.135e3	7.868e3	1.243	0.78	0.77	112.9	YES	NO	bd	bb	8.178
2	Total-tetradioxins	25.63	2.698e2	3.431e2	1.129	0.79	0.77	4.4	YES	NO	bb	bb	0.394

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.11	3.274e4	2.103e4	1.150	1.56	1.55	805.7	YES	NO	bd	bd	40.333

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.12	2.856e4	2.335e4	0.804	1.22	1.24	730.0	YES	NO	bd	bd	44.033
2	123678-HxCDD	35.73	3.260e4	2.661e4	0.883	1.23	1.24	778.2	YES	NO	db	dd	42.113
3	123478-HxCDD	35.62	2.633e4	2.193e4	0.960	1.20	1.24	713.9	YES	NO	bd	bd	37.504

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.84	2.025e4	1.942e4	1.200	1.04	1.05	455.8	YES	NO	bd	bd	41.584
2	1234679-HPCDD	38.83	7.137e2	7.022e2	1.303	1.02	1.05	18.5	YES	NO	bd	bb	1.367

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.01	6.135e3	7.868e3	1.243	0.78	0.77	112.9	YES	NO	bd	bb	8.178
2	Total-tetradioxins	25.63	2.698e2	3.431e2	1.129	0.79	0.77	4.4	YES	NO	bb	bb	0.394
3	123789-HxCDD	36.12	2.856e4	2.335e4	0.804	1.22	1.24	730.0	YES	NO	bd	bd	44.033
4	123678-HxCDD	35.73	3.260e4	2.661e4	0.883	1.23	1.24	778.2	YES	NO	db	dd	42.113
5	123478-HxCDD	35.62	2.633e4	2.193e4	0.960	1.20	1.24	713.9	YES	NO	bd	bd	37.504
6	12378-PeCDD	31.11	3.274e4	2.103e4	1.150	1.56	1.55	805.7	YES	NO	bd	bd	40.333
7	1234678-HpCDD	39.84	2.025e4	1.942e4	1.200	1.04	1.05	455.8	YES	NO	bd	bd	41.584
8	1234679-HPCDD	38.83	7.137e2	7.022e2	1.303	1.02	1.05	18.5	YES	NO	bd	bb	1.367
9	OCDD	44.44	2.956e4	3.404e4	1.059	0.87	0.89	291.2	YES	NO	bd	bd	89.463

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.38	6.293e3	7.931e3	0.903	0.79	0.77	201.4	YES	NO	bd	bd	8.945
2	23478-PeCDF	30.85	4.571e4	2.923e4	0.991	1.56	1.55	924.8	YES	NO	bb	bb	47.728
3	12378-PeCDF	29.52	4.595e4	2.977e4	0.923	1.54	1.55	919.6	YES	NO	bb	bb	45.435
4	Total-pentafurans	29.15	2.646e2	1.636e2	0.931	1.62	1.55	6.5	YES	NO	bb	bb	0.271
5	123789-HxCDF	36.53	2.981e4	2.389e4	0.988	1.25	1.24	471.3	YES	NO	bb	bb	46.849
6	234678-HxCDF	35.50	3.393e4	2.837e4	1.081	1.20	1.24	555.8	YES	NO	bb	bd	46.368
7	123678-HxCDF	34.63	3.859e4	2.886e4	1.032	1.34	1.24	587.9	YES	NO	db	db	45.547
8	123478-HxCDF	34.48	3.706e4	2.771e4	1.128	1.34	1.24	597.5	YES	NO	bd	bd	45.466
9	Total-hexafurans	33.84	2.963e2	2.381e2	1.087	1.24	1.24	5.3	YES	NO	bb	bb	0.386
10	1234789-HpCDF	40.57	2.046e4	2.056e4	1.104	1.00	1.05	313.9	YES	NO	bb	bd	50.728
11	Total-heptafurans	39.03	4.890e2	5.279e2	1.134	0.93	1.05	8.1	YES	NO	bb	bb	1.062
12	1234678-HpCDF	38.38	2.875e4	2.631e4	1.164	1.09	1.05	475.0	YES	NO	bb	bb	49.483
13	OCDF	44.66	3.116e4	3.466e4	1.130	0.90	0.89	463.4	YES	NO	bd	bd	86.730
14	2378-TCDD	26.01	6.135e3	7.868e3	1.243	0.78	0.77	112.9	YES	NO	bd	bb	8.178
15	Total-tetradioxins	25.63	2.698e2	3.431e2	1.129	0.79	0.77	4.4	YES	NO	bb	bb	0.394
16	123789-HxCDD	36.12	2.856e4	2.335e4	0.804	1.22	1.24	730.0	YES	NO	bd	bd	44.033
17	123678-HxCDD	35.73	3.260e4	2.661e4	0.883	1.23	1.24	778.2	YES	NO	db	dd	42.113
18	123478-HxCDD	35.62	2.633e4	2.193e4	0.960	1.20	1.24	713.9	YES	NO	bd	bd	37.504
19	12378-PeCDD	31.11	3.274e4	2.103e4	1.150	1.56	1.55	805.7	YES	NO	bd	bd	40.333
20	1234678-HpCDD	39.84	2.025e4	1.942e4	1.200	1.04	1.05	455.8	YES	NO	bd	bd	41.584
21	1234679-HPCDD	38.83	7.137e2	7.022e2	1.303	1.02	1.05	18.5	YES	NO	bd	bb	1.367
22	OCDD	44.44	2.956e4	3.404e4	1.059	0.87	0.89	291.2	YES	NO	bd	bd	89.463

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Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
Printed: Friday, December 15, 2023 13:56:31 Pacific Standard Time

ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	24.36	3.592e5					9.2	YES		dd		
2	FUNCTION1 PFK	24.23	4.930e5					9.5	YES		bd		
3	FUNCTION1 PFK	23.92	1.879e5					6.6	YES		bb		
4	FUNCTION1 PFK	23.54	2.335e5					7.4	YES		db		
5	FUNCTION1 PFK	23.26	2.155e6					12.3	YES		bd		
6	FUNCTION1 PFK	22.57	1.965e6					17.7	YES		db		
7	FUNCTION1 PFK	22.30	1.615e5					10.5	YES		dd		
8	FUNCTION1 PFK	22.16	3.818e5					10.4	YES		bd		
9	FUNCTION1 PFK	21.93	1.329e5					6.3	YES		bb		
10	FUNCTION1 PFK	21.47	1.171e5					4.2	YES		bb		
11	FUNCTION1 PFK	27.12	1.763e5					6.2	YES		bb		
12	FUNCTION1 PFK	26.55	4.282e4					3.2	YES		bb		
13	FUNCTION1 PFK	25.58	2.656e5					3.1	YES		bb		
14	FUNCTION1 PFK	25.19	3.895e5					11.3	YES		bb		
15	FUNCTION1 PFK	25.00	3.621e4					0.0	NO		bb		
16	FUNCTION1 PFK	24.62	8.273e5					10.3	YES		db		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	27.67	2.239e5					17.2	YES		bb		0.000

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
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ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	33.26	6.308e3					1.0	NO		db		0.000
2	FUNCTION3 PFK	33.20	5.835e3					1.2	NO		bd		0.000
3	FUNCTION3 PFK	32.88	2.250e4					2.4	NO		bb		0.000
4	FUNCTION3 PFK	32.76	2.250e4					2.3	NO		bb		0.000
5	FUNCTION3 PFK	32.64	4.472e4					3.7	YES		bb		0.000
6	FUNCTION3 PFK	32.52	2.137e4					2.5	NO		db		0.000
7	FUNCTION3 PFK	32.48	1.160e4					2.2	NO		bd		0.000
8	FUNCTION3 PFK	34.82	2.902e3					0.7	NO		db		0.000
9	FUNCTION3 PFK	34.79	9.076e3					0.8	NO		bd		0.000
10	FUNCTION3 PFK	34.60	1.044e4					1.4	NO		bb		0.000
11	FUNCTION3 PFK	34.48	5.365e3					1.3	NO		db		0.000
12	FUNCTION3 PFK	34.44	9.609e3					1.5	NO		bd		0.000
13	FUNCTION3 PFK	34.34	1.065e4					1.5	NO		bb		0.000
14	FUNCTION3 PFK	34.28	9.777e3					1.3	NO		db		0.000
15	FUNCTION3 PFK	34.22	5.183e3					1.2	NO		bd		0.000
16	FUNCTION3 PFK	34.09	6.170e3					1.1	NO		bb		0.000
17	FUNCTION3 PFK	33.88	5.071e3					1.1	NO		db		0.000
18	FUNCTION3 PFK	33.82	1.327e4					2.0	NO		bd		0.000
19	FUNCTION3 PFK	33.75	1.868e4					1.9	NO		bb		0.000
20	FUNCTION3 PFK	33.46	1.120e3					0.6	NO		bb		0.000
21	FUNCTION3 PFK	33.42	1.074e4					1.9	NO		db		0.000
22	FUNCTION3 PFK	33.36	7.187e3					1.4	NO		bd		0.000
23	FUNCTION3 PFK	33.30	2.682e3					0.9	NO		bb		0.000
24	FUNCTION3 PFK	36.53	4.525e3					1.1	NO		bb		0.000
25	FUNCTION3 PFK	36.45	9.057e3					1.4	NO		db		0.000
26	FUNCTION3 PFK	36.40	4.233e3					1.1	NO		bd		0.000
27	FUNCTION3 PFK	36.06	3.687e4					3.0	YES		db		0.000
28	FUNCTION3 PFK	35.94	3.741e4					2.7	NO		bd		0.000
29	FUNCTION3 PFK	35.82	5.663e3					1.0	NO		bb		0.000
30	FUNCTION3 PFK	35.75	6.376e3					1.4	NO		db		0.000
31	FUNCTION3 PFK	35.72	5.680e3					1.0	NO		bd		0.000
32	FUNCTION3 PFK	35.65	5.049e3					1.1	NO		bb		0.000
33	FUNCTION3 PFK	35.49	3.364e3					1.0	NO		bb		0.000
34	FUNCTION3 PFK	35.31	1.228e4					2.2	NO		db		0.000
35	FUNCTION3 PFK	35.26	9.286e3					1.6	NO		bd		0.000
36	FUNCTION3 PFK	35.15	2.150e3					0.7	NO		bb		0.000
37	FUNCTION3 PFK	35.11	1.891e3					0.8	NO		db		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION3 PFK	35.05	9.919e3					1.9	NO		bd		0.000
39	FUNCTION3 PFK	35.01	1.133e3					0.6	NO		bb		0.000
40	FUNCTION3 PFK	37.41	3.934e3					0.9	NO		bb		0.000
41	FUNCTION3 PFK	37.31	3.246e3					1.0	NO		bb		0.000
42	FUNCTION3 PFK	37.19	6.717e3					1.1	NO		bb		0.000
43	FUNCTION3 PFK	37.10	1.024e4					1.3	NO		bb		0.000
44	FUNCTION3 PFK	36.75	3.343e3					0.8	NO		bb		0.000
45	FUNCTION3 PFK	36.58	6.714e2					0.3	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	40.16	4.818e3					1.2	NO		bb		
2	FUNCTION4 PFK	40.03	3.271e3					0.9	NO		bb		
3	FUNCTION4 PFK	39.85	1.122e4					1.9	NO		bb		
4	FUNCTION4 PFK	38.85	3.660e3					0.9	NO		bb		
5	FUNCTION4 PFK	38.81	2.689e3					0.8	NO		bb		
6	FUNCTION4 PFK	38.51	6.495e3					1.5	NO		bb		
7	FUNCTION4 PFK	38.40	5.860e3					1.0	NO		bb		
8	FUNCTION4 PFK	37.84	1.685e3					0.6	NO		bb		
9	FUNCTION4 PFK	37.65	1.301e4					1.9	NO		bb		
10	FUNCTION4 PFK	42.94	2.305e3					0.9	NO		bb		
11	FUNCTION4 PFK	42.90	2.189e3					0.8	NO		bb		
12	FUNCTION4 PFK	42.80	2.112e3					0.8	NO		bb		
13	FUNCTION4 PFK	42.63	3.426e3					0.8	NO		bb		
14	FUNCTION4 PFK	42.15	8.525e2					0.5	NO		bb		
15	FUNCTION4 PFK	42.10	7.014e2					0.4	NO		bb		
16	FUNCTION4 PFK	42.00	2.475e3					0.8	NO		bb		
17	FUNCTION4 PFK	41.36	7.251e3					1.7	NO		bb		
18	FUNCTION4 PFK	41.15	3.509e3					1.1	NO		bb		
19	FUNCTION4 PFK	40.92	4.725e3					1.1	NO		bb		
20	FUNCTION4 PFK	40.39	1.603e3					0.7	NO		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.17	4.289e4					10.4	YES		dd		
2	FUNCTION5 PFK	43.13	4.674e4					11.7	YES		dd		
3	FUNCTION5 PFK	43.09	6.613e4					13.2	YES		dd		
4	FUNCTION5 PFK	43.05	7.523e4					14.5	YES		bd		
5	FUNCTION5 PFK	45.81	3.537e3					1.4	NO		bd		
6	FUNCTION5 PFK	45.71	2.320e3					1.0	NO		bb		
7	FUNCTION5 PFK	45.00	2.072e3					1.0	NO		db		
8	FUNCTION5 PFK	44.98	3.607e3					1.2	NO		bd		
9	FUNCTION5 PFK	44.91	3.011e3					1.3	NO		db		
10	FUNCTION5 PFK	44.87	5.124e3					1.5	NO		bd		
11	FUNCTION5 PFK	44.74	6.273e3					1.9	NO		db		
12	FUNCTION5 PFK	44.70	5.819e3					1.6	NO		dd		
13	FUNCTION5 PFK	44.65	8.636e3					1.3	NO		dd		
14	FUNCTION5 PFK	44.53	1.029e4					1.7	NO		bd		
15	FUNCTION5 PFK	44.21	5.842e3					1.9	NO		bb		
16	FUNCTION5 PFK	44.08	4.572e3					1.7	NO		bb		
17	FUNCTION5 PFK	44.03	4.078e3					0.8	NO		bb		
18	FUNCTION5 PFK	43.38	2.642e4					4.4	YES		db		
19	FUNCTION5 PFK	43.30	6.898e4					6.7	YES		dd		
20	FUNCTION5 PFK	43.23	6.727e4					9.8	YES		dd		
21	FUNCTION5 PFK	45.92	2.565e3					1.1	NO		bb		
22	FUNCTION5 PFK	45.87	1.400e3					0.8	NO		bb		
23	FUNCTION5 PFK	45.84	1.416e3					0.8	NO		db		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.44	1.368e2					4.3	YES		bb		0.000
2	FUNCTION2 HPCD...	30.51	9.524e1					2.6	NO		db		0.000
3	FUNCTION2 HPCD...	30.44	8.811e1					2.3	NO		bd		0.000
4	FUNCTION2 HPCD...	28.58	1.175e2					3.5	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.78	8.018e1					2.5	NO		bb		0.000
2	FUNCTION3 OCDPE	33.82	1.353e2					5.4	YES		bb		0.000
3	FUNCTION3 OCDPE	32.69	1.692e2					5.2	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS6

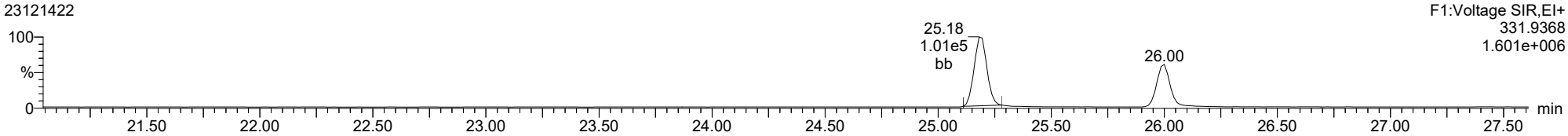
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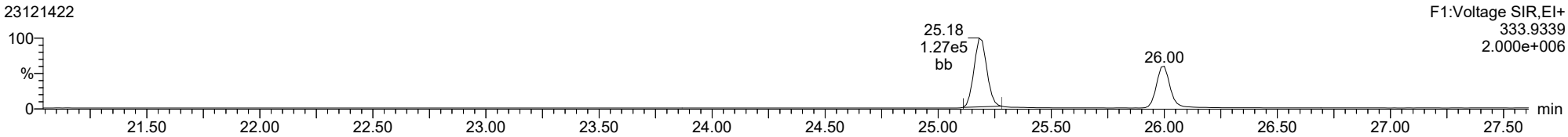
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ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

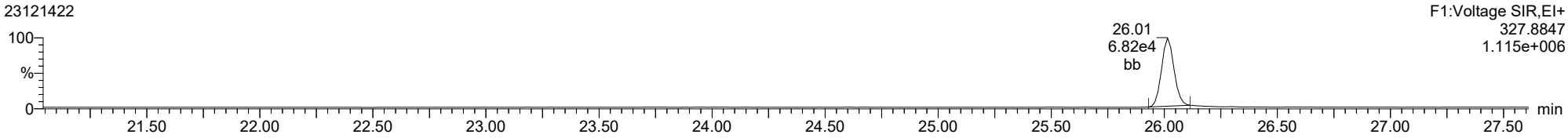
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13C-1234-TCDD

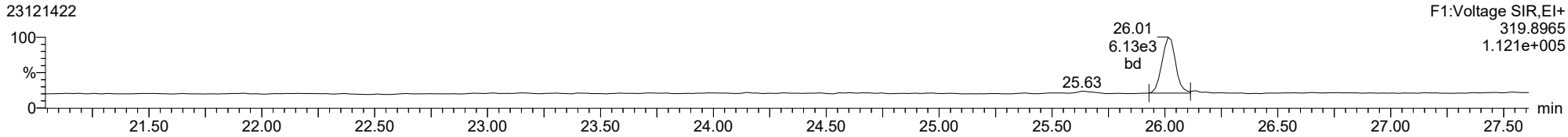


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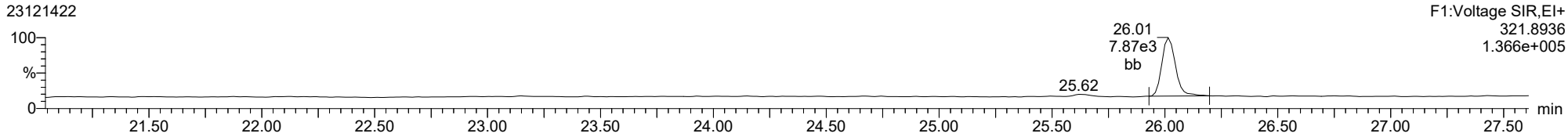


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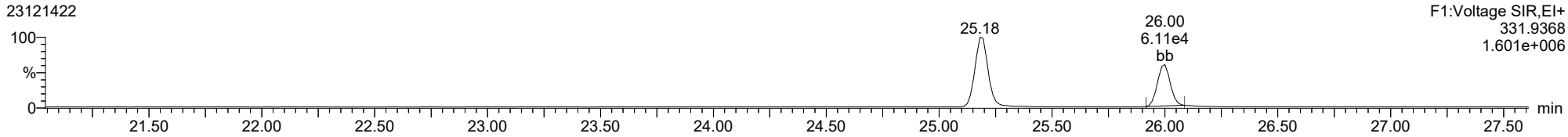
2378-TCDD



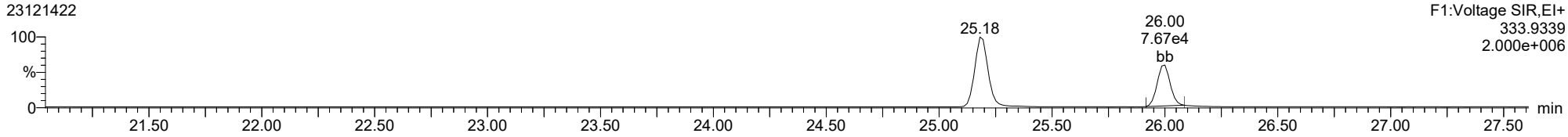
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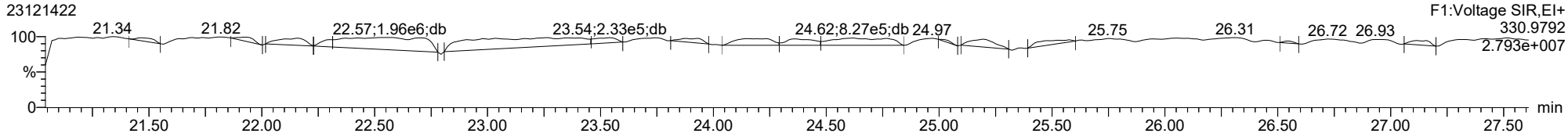
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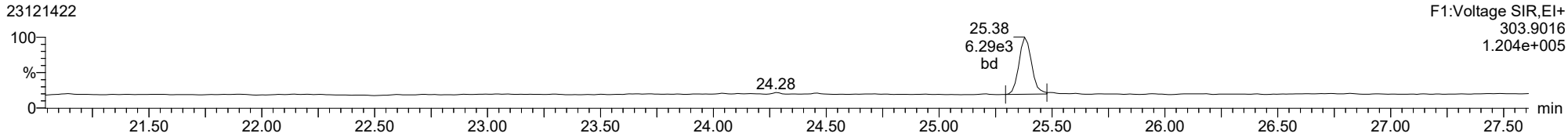


FUNCTION1 PFK

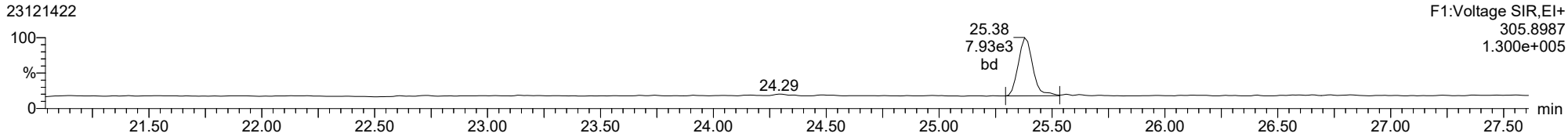


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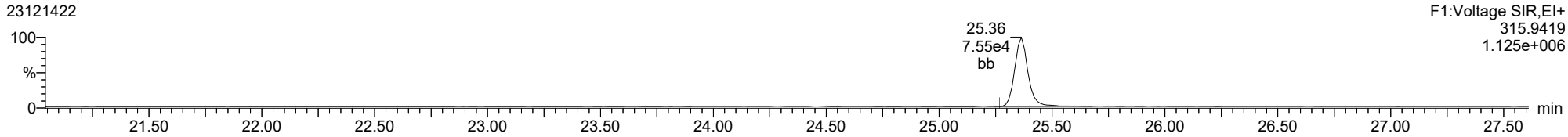
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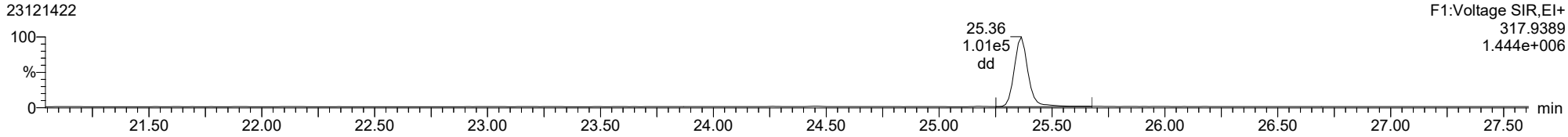
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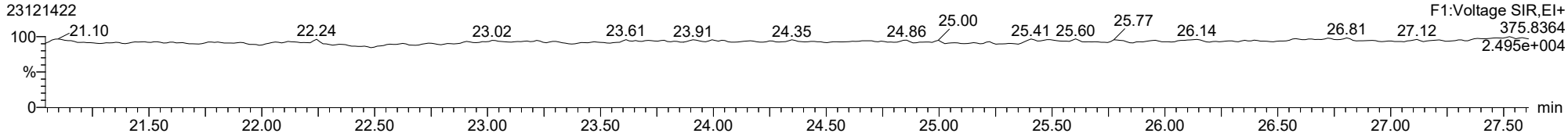
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13C-2378-TCDF

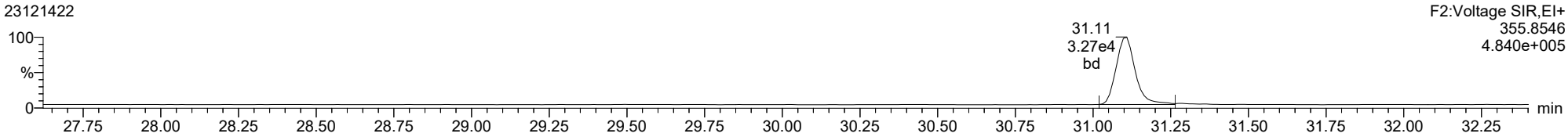


FUNCTION1 HXCDPE

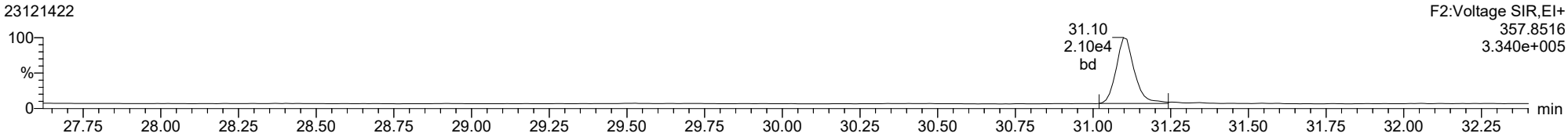


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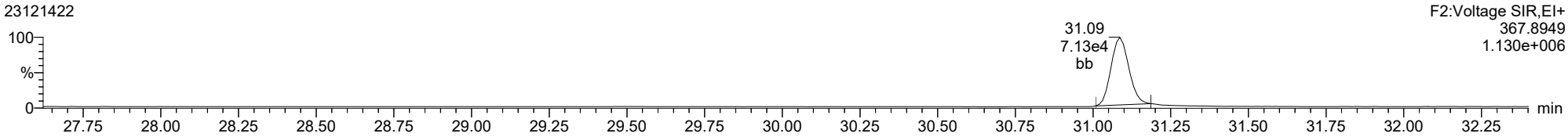
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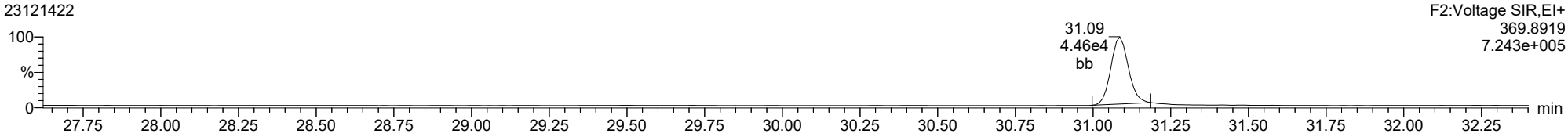
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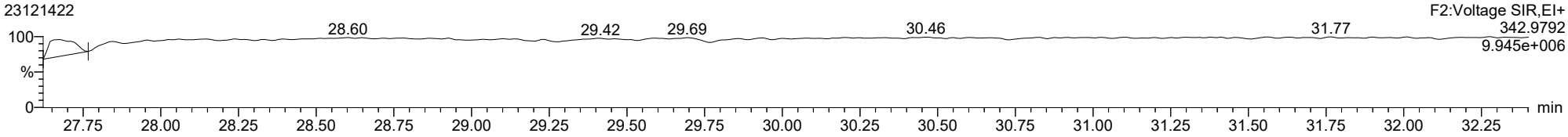
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13C-12378-PeCDD

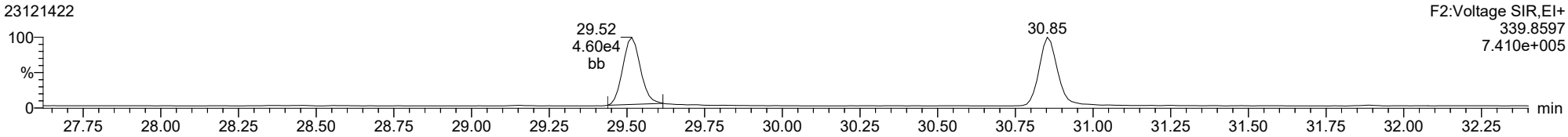


FUNCTION2 PFK

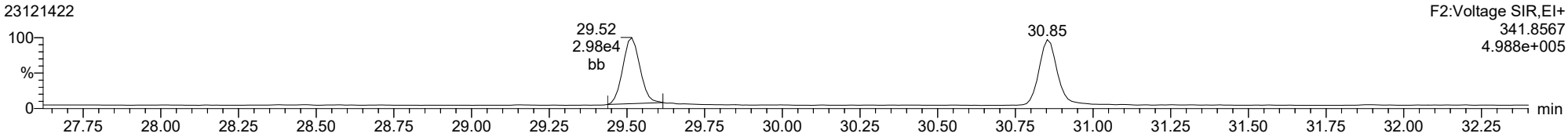


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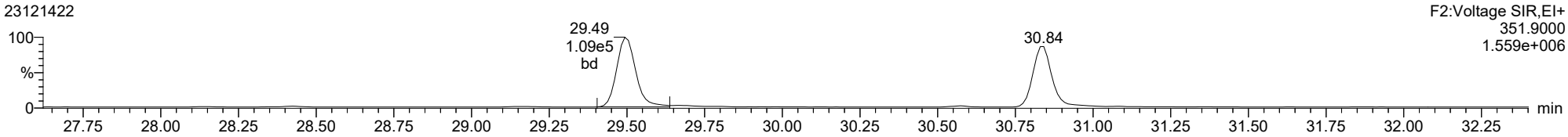
12378-PeCDF



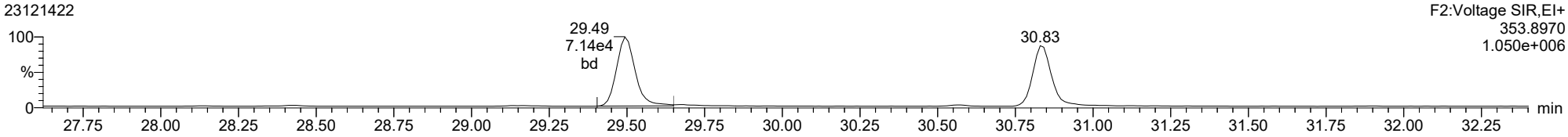
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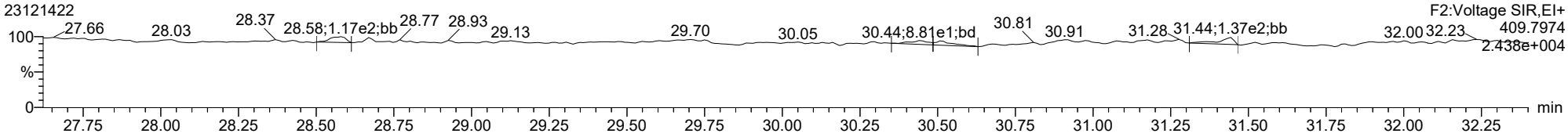
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13C-12378-PeCDF

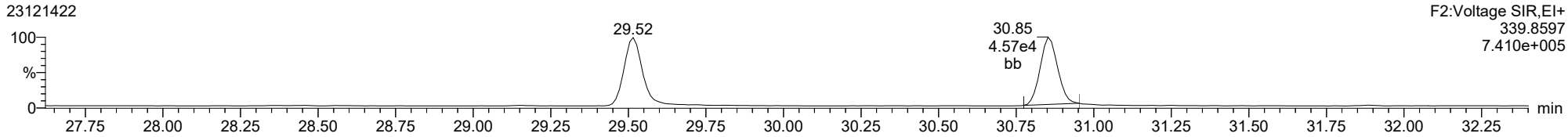


FUNCTION2 HPCDPE

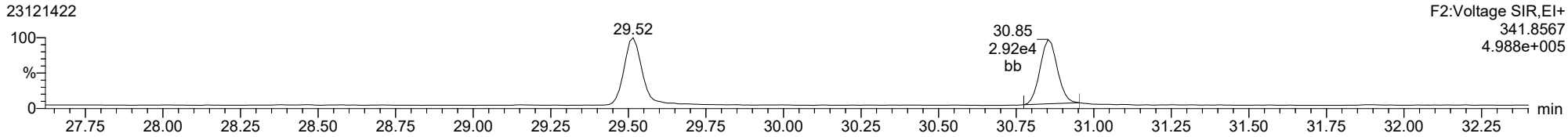


ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

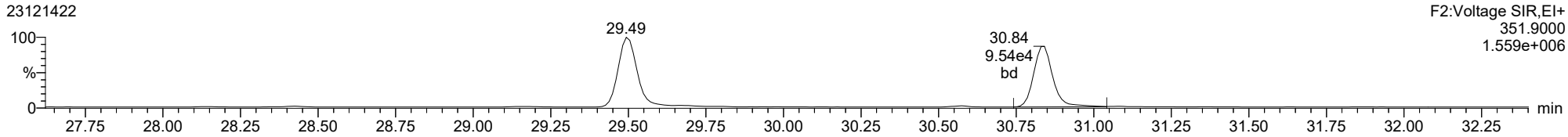
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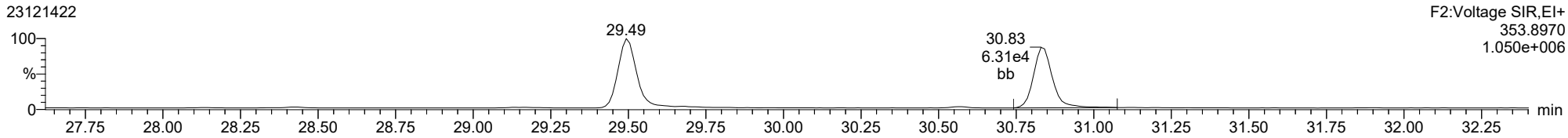
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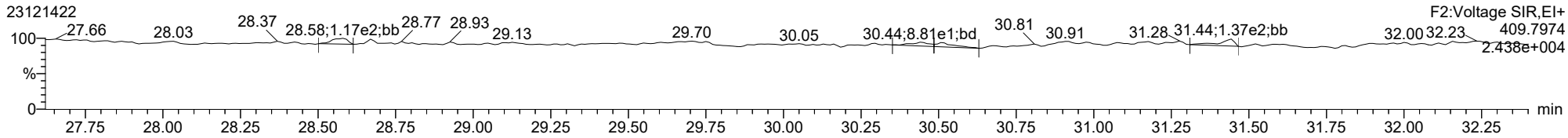
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13C-23478-PeCDF



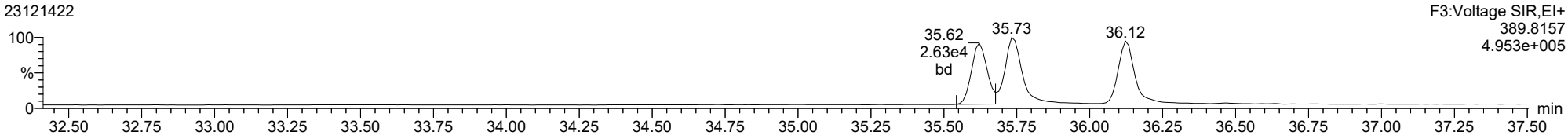
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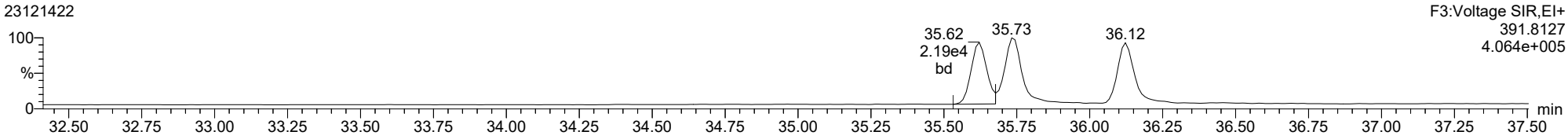
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ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

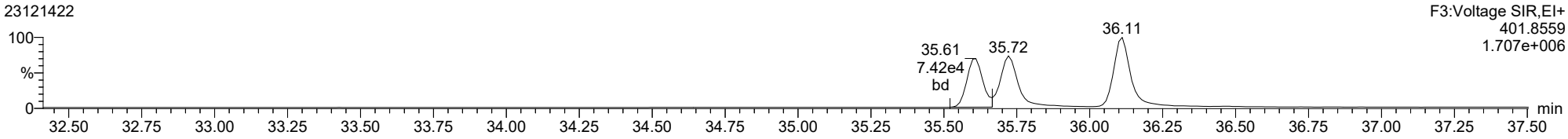
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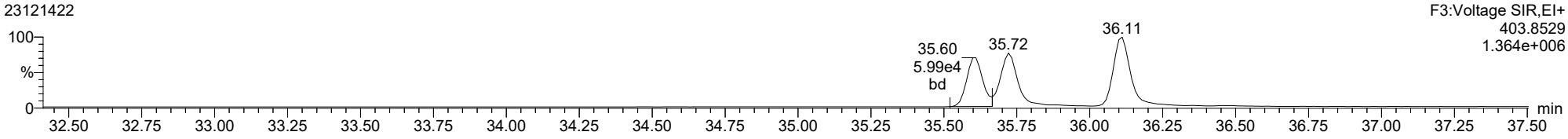
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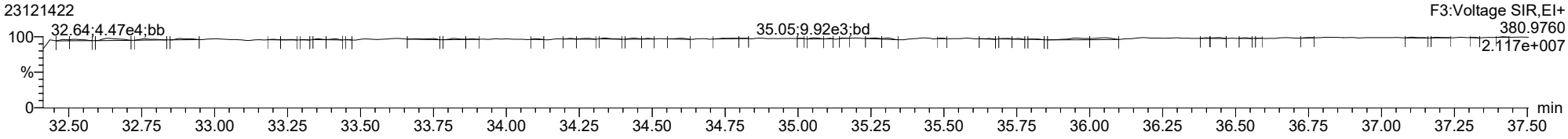
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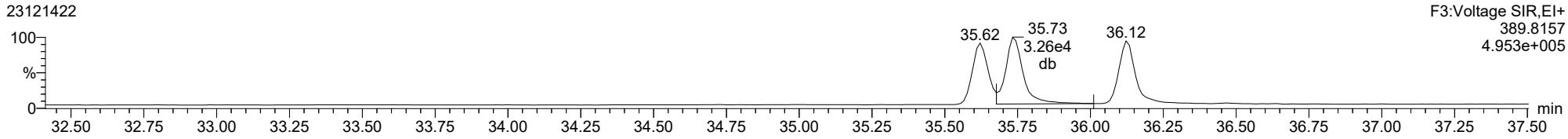


FUNCTION3 PFK

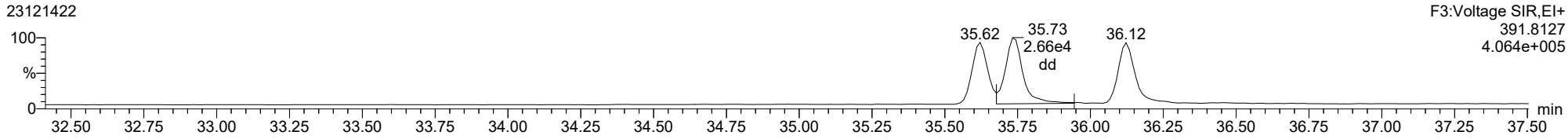


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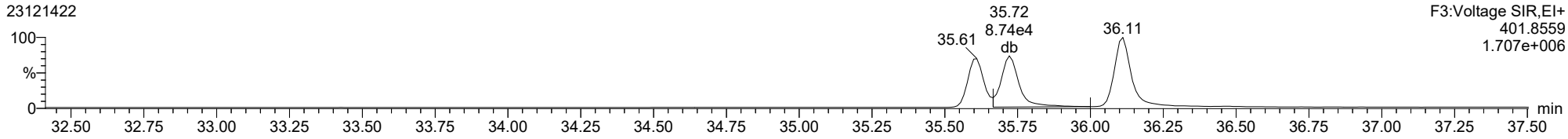
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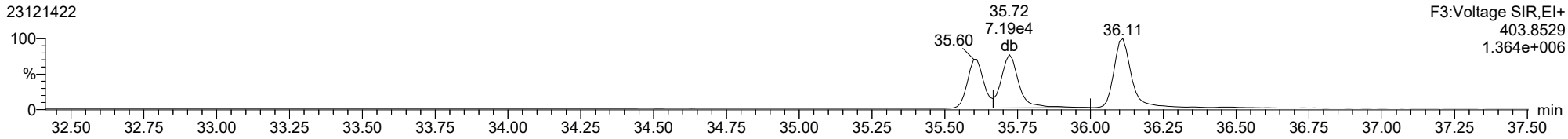
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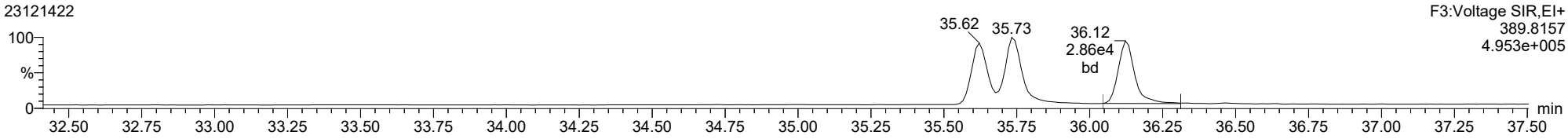


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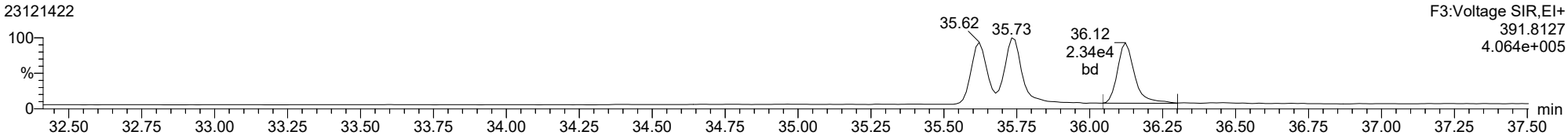


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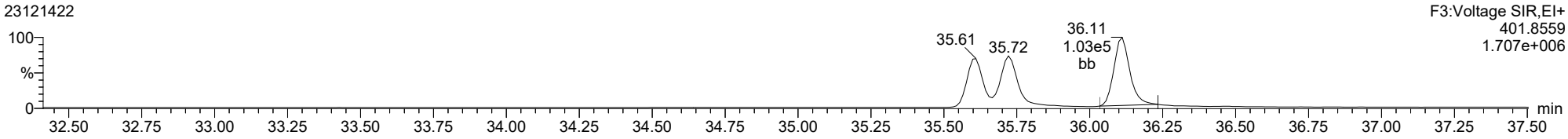
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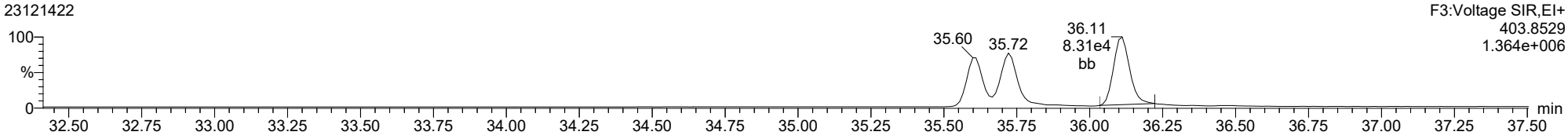
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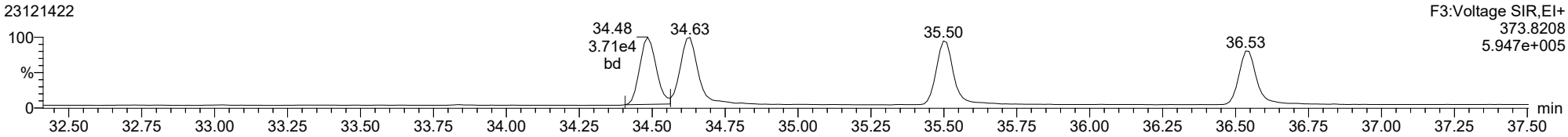


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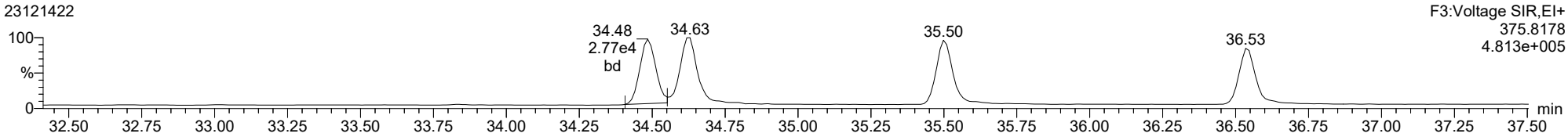


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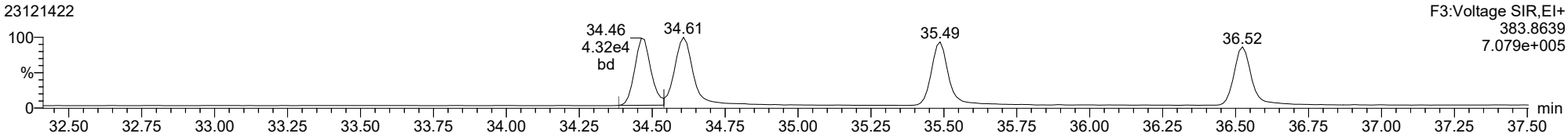
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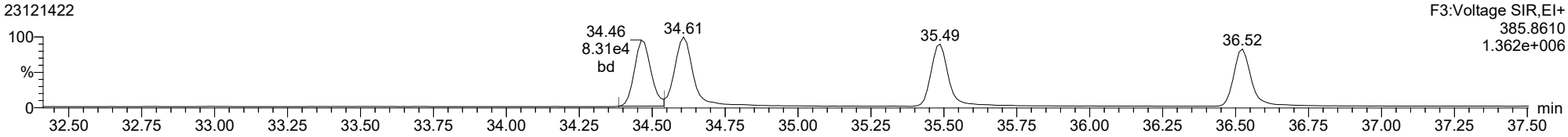
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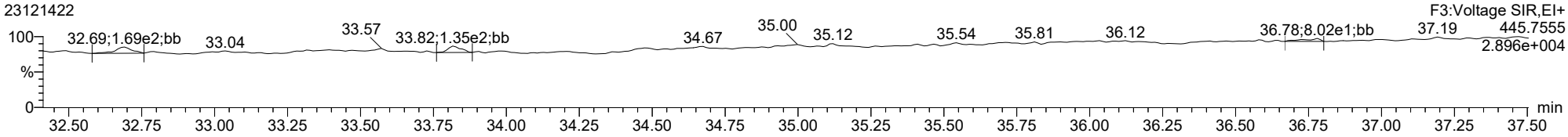
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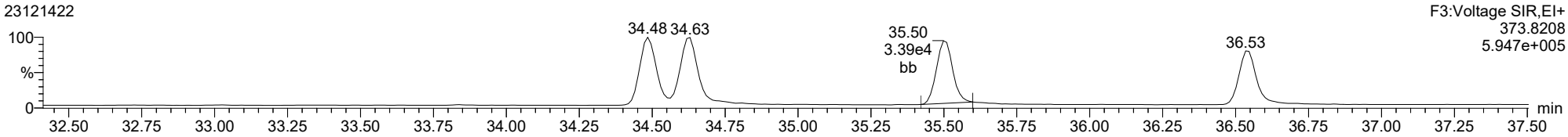
FUNCTION3 OCDPE



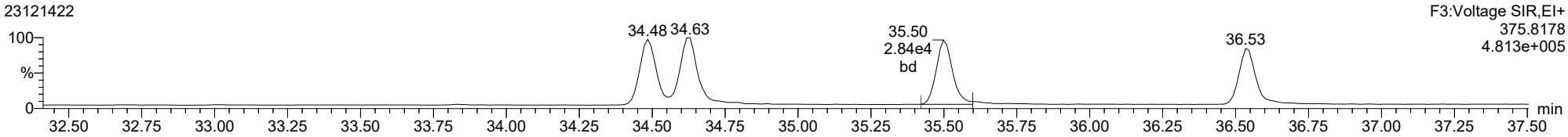
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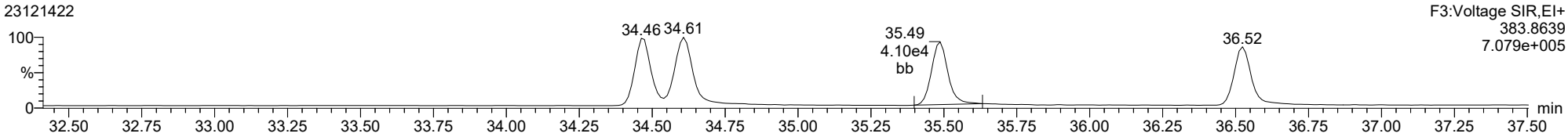
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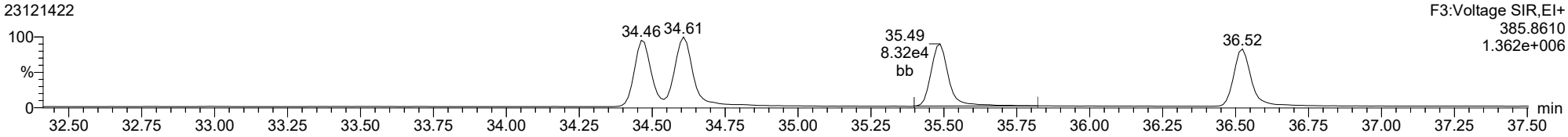
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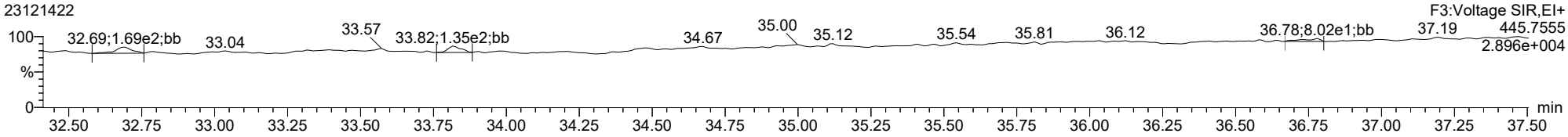
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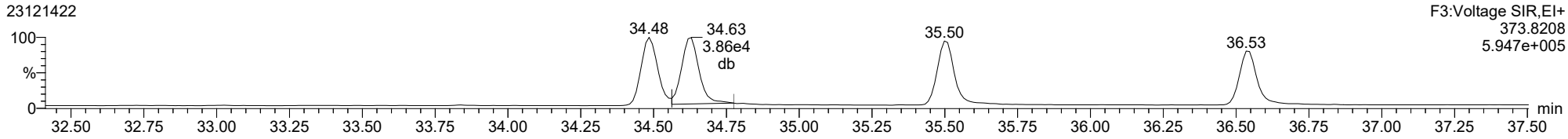


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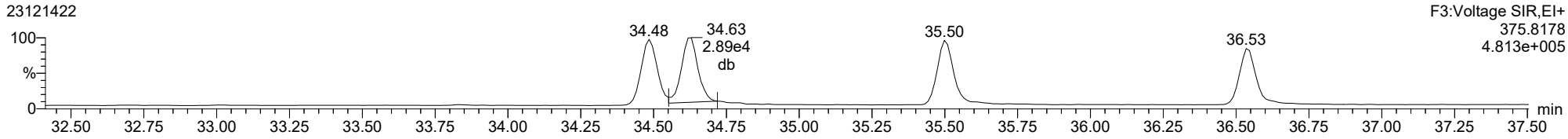


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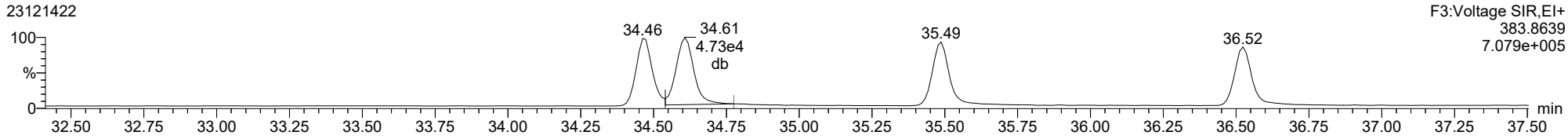
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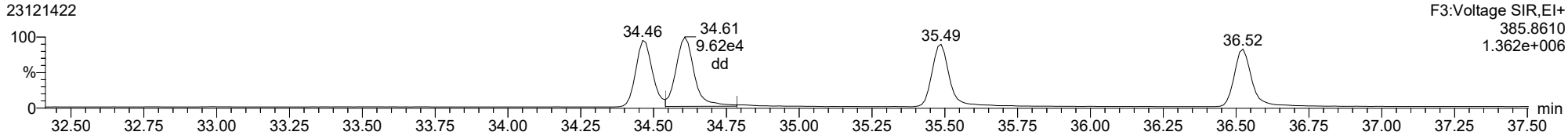
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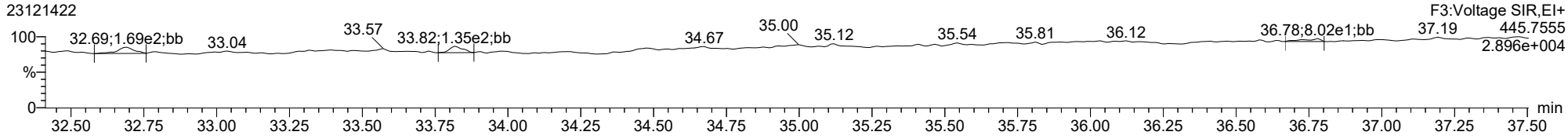
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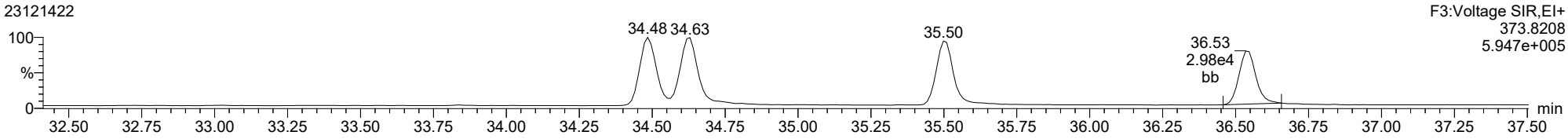


FUNCTION3 OCDPE

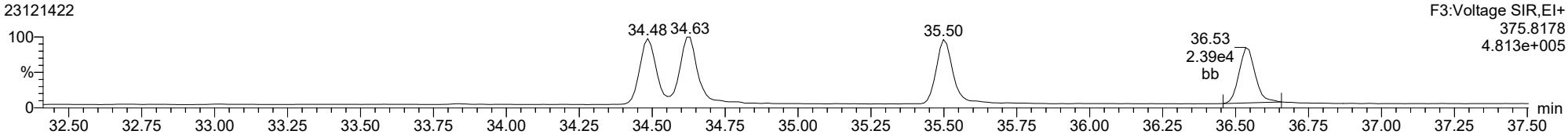


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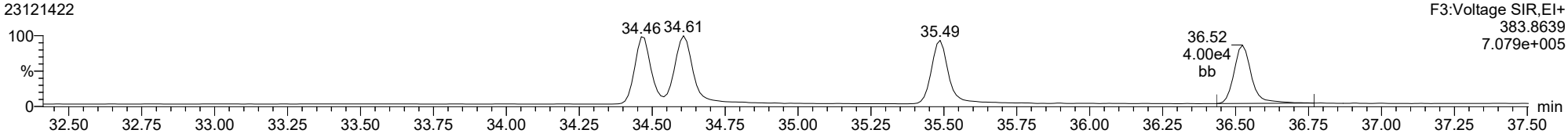
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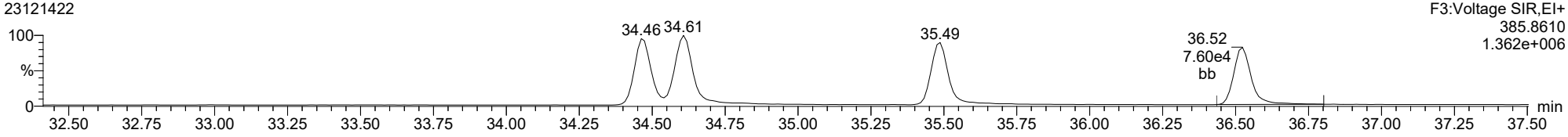
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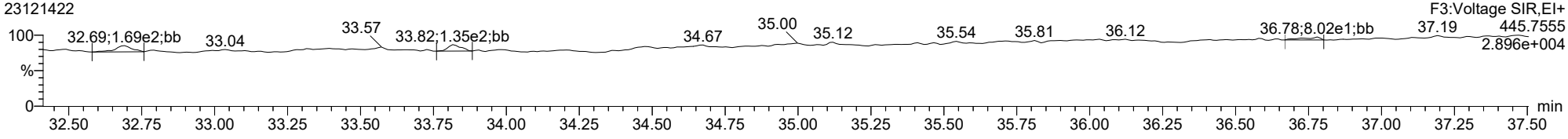
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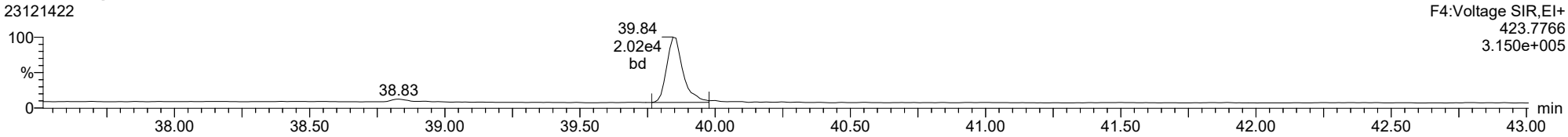


FUNCTION3 OCDPE

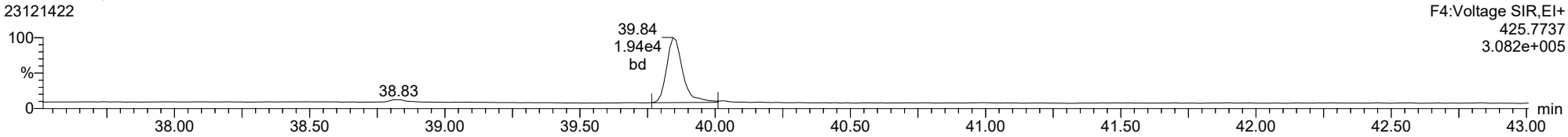


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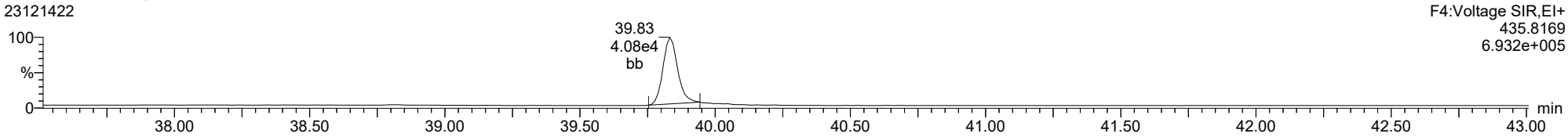
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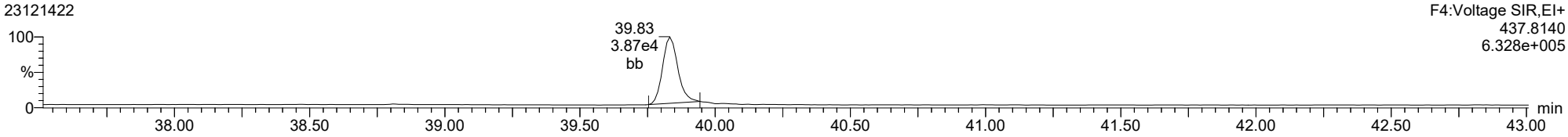
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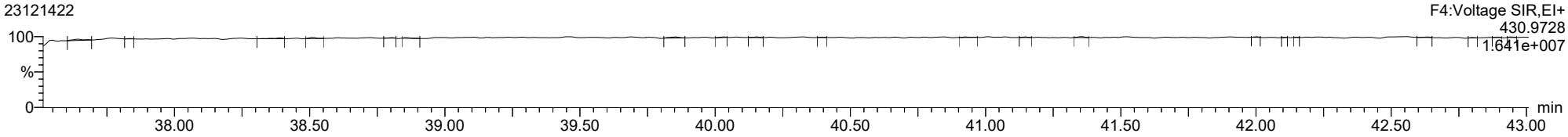
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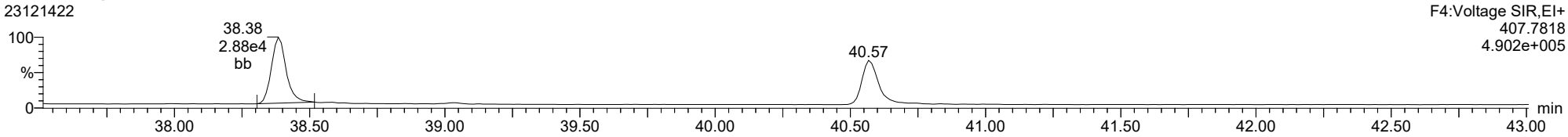


FUNCTION4 PFK

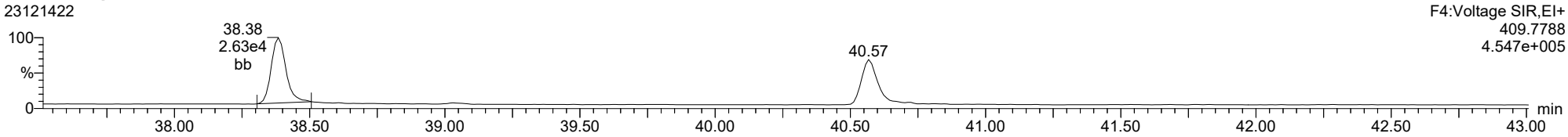


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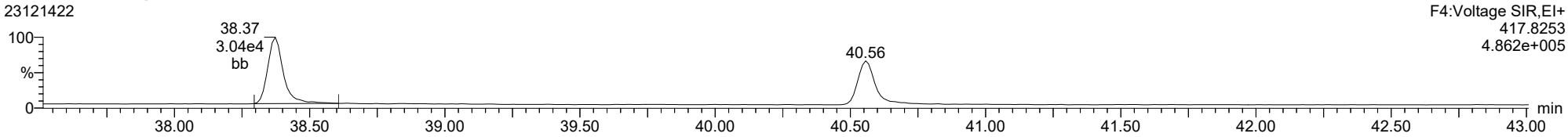
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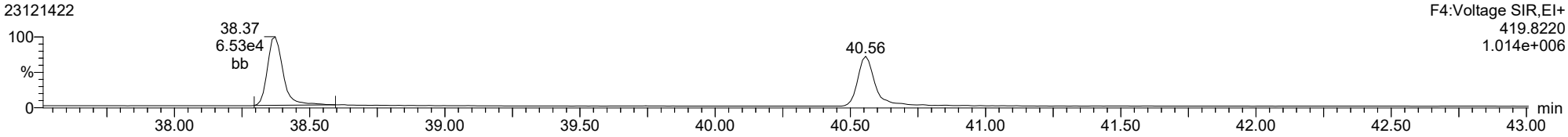
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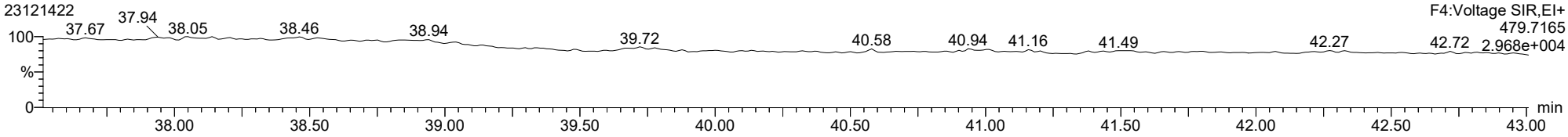
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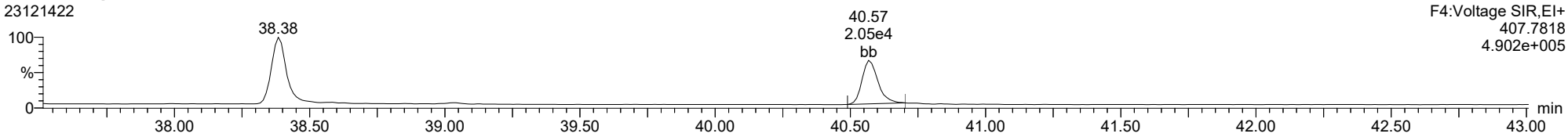


FUNCTION4 NCDPE

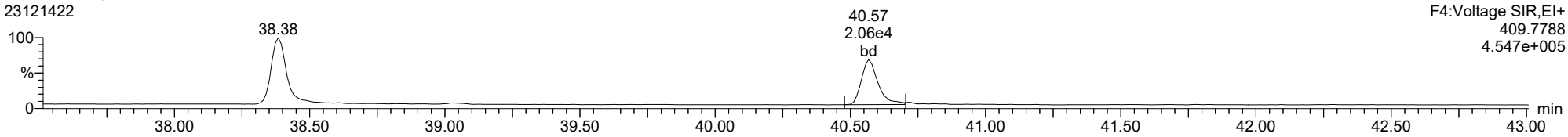


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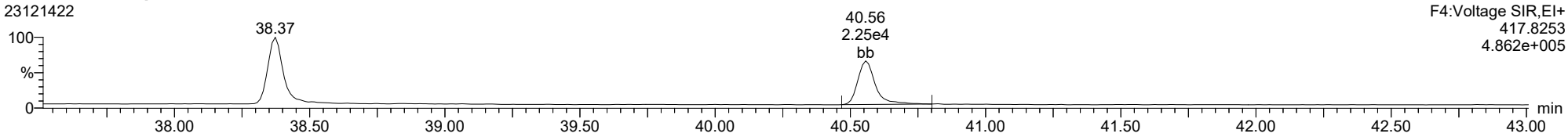
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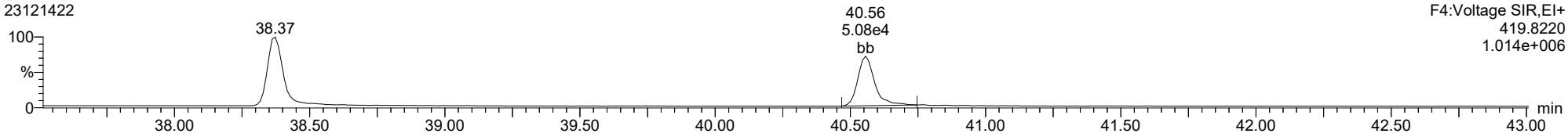
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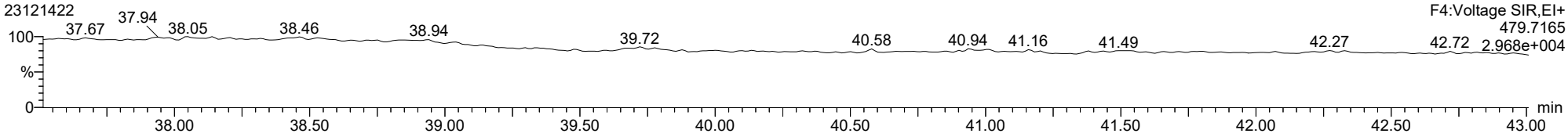
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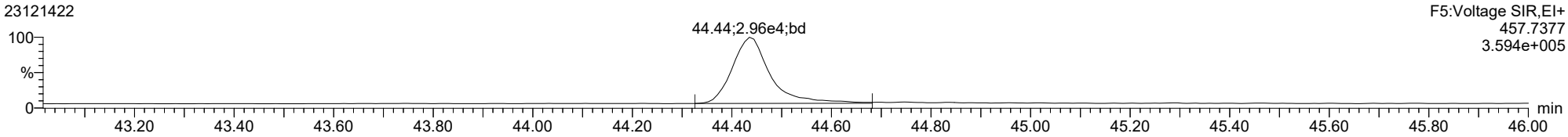


FUNCTION4 NCDPE

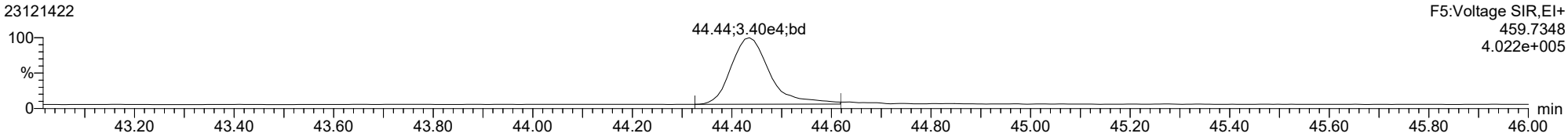


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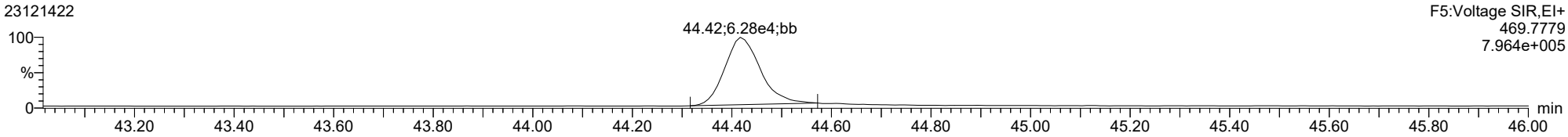
OCDD



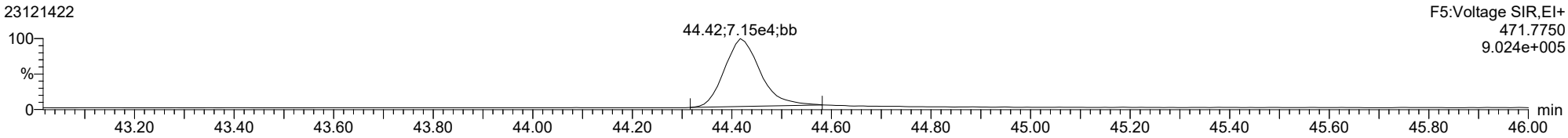
OCDD



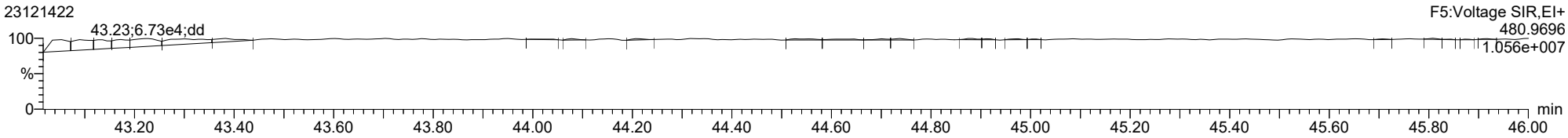
13C-OCDD



13C-OCDD

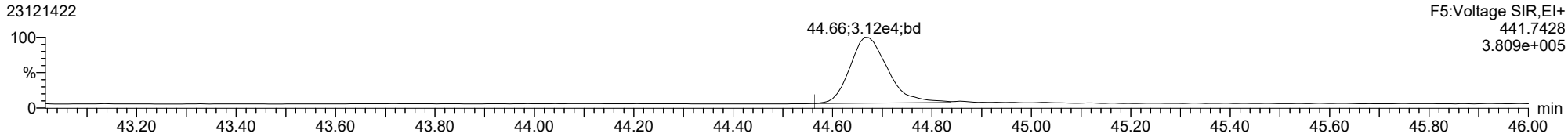


FUNCTION5 PFK

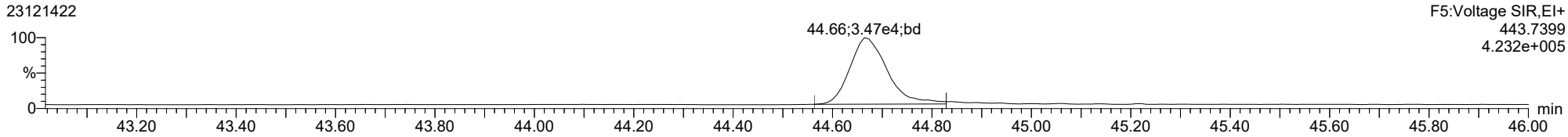


ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

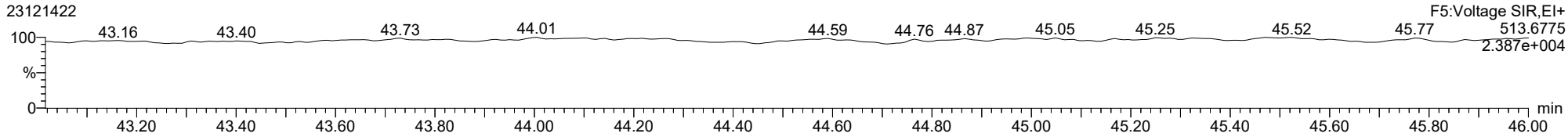
OCDF



OCDF



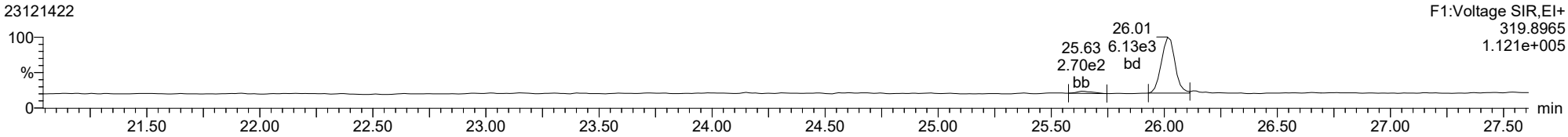
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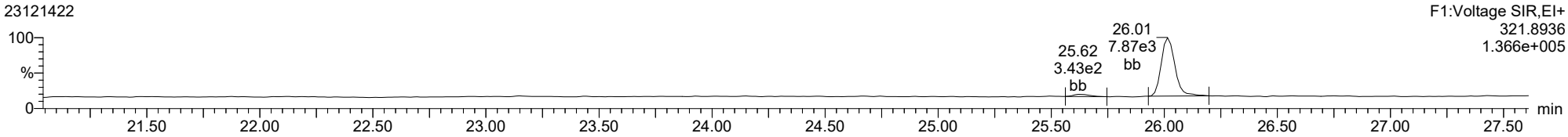
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Printed: Friday, December 15, 2023 13:56:31 Pacific Standard Time

ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

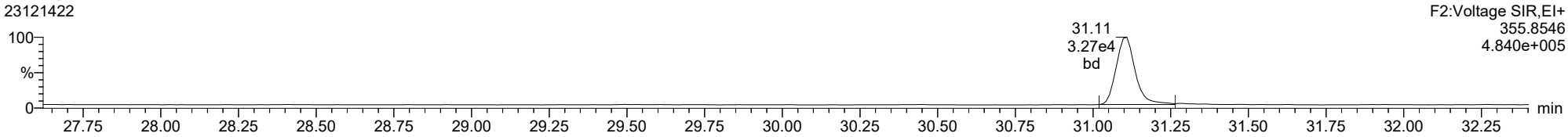
Total-tetradioxins



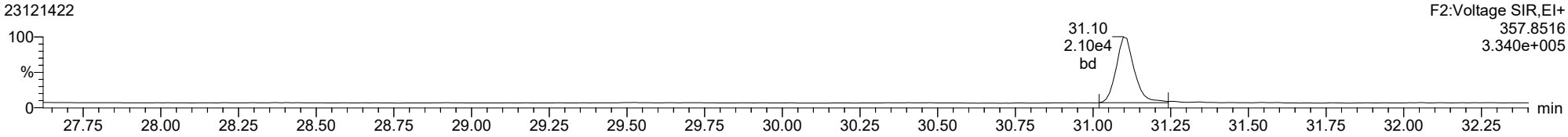
Total-tetradioxins



Total-pentadioxins



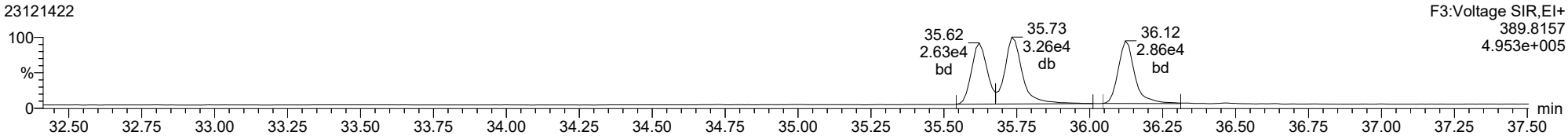
Total-pentadioxins



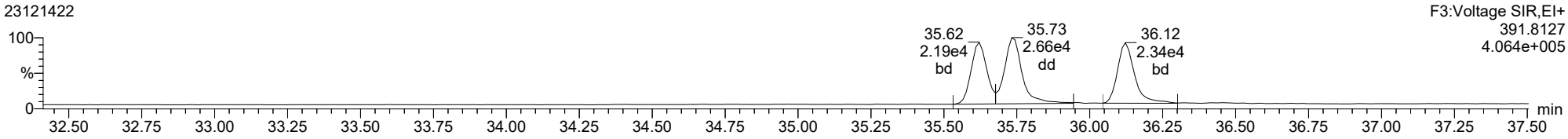
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Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
Printed: Friday, December 15, 2023 13:56:31 Pacific Standard Time

ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

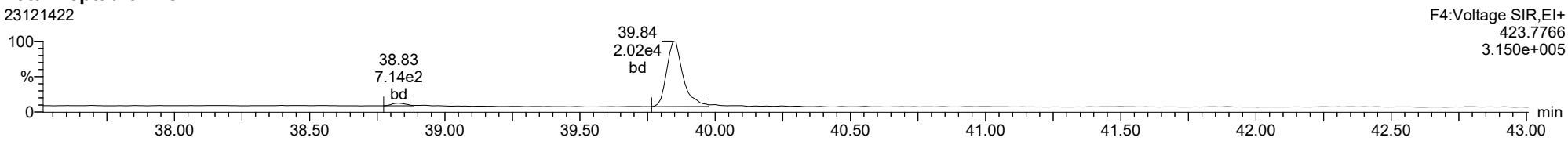
Total-hexadioxins



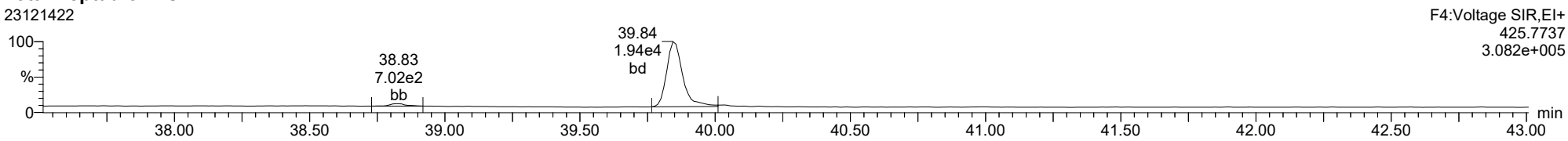
Total-hexadioxins



Total-heptadioxins



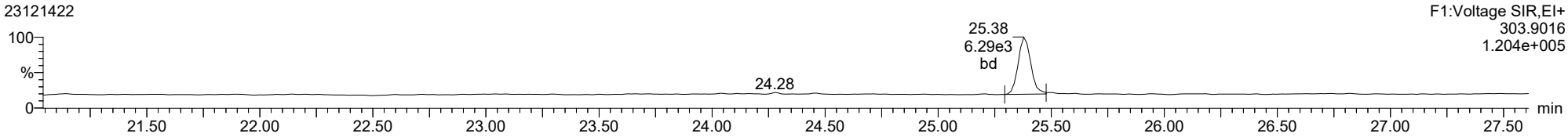
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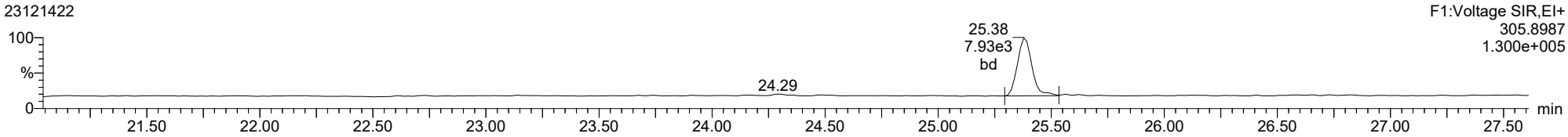
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ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

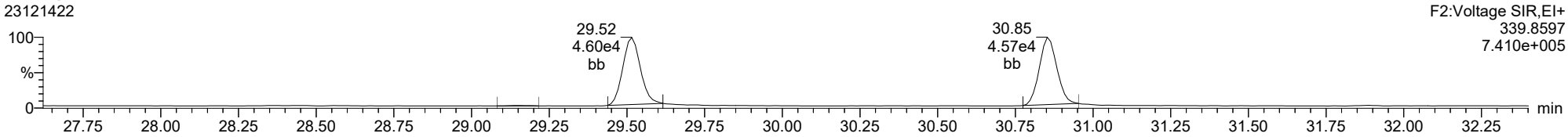
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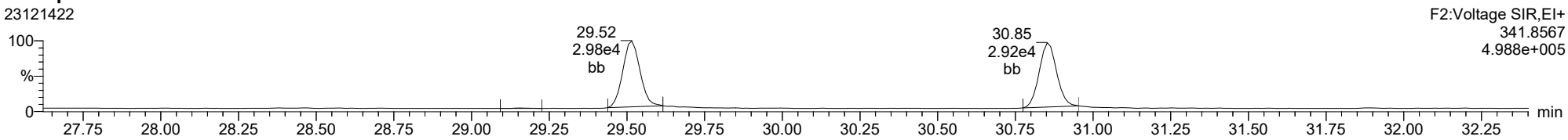
Total-tetrafurans



Total-pentafurans



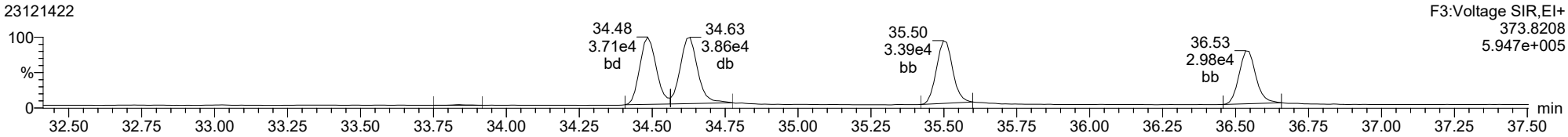
Total-pentafurans



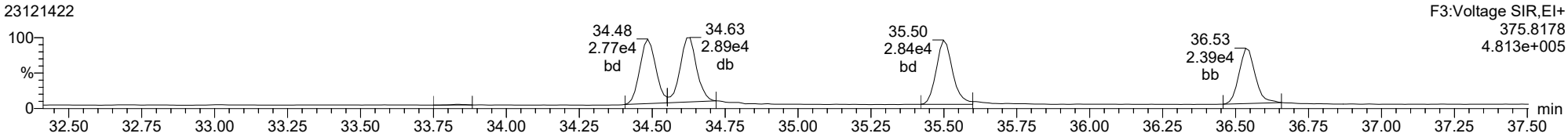
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ID: BLK0112-BS1, Name: 23121422, Date: 15-Dec-2023, Time: 03:08:54, Conditions: AUTOSPEC01, User: pk

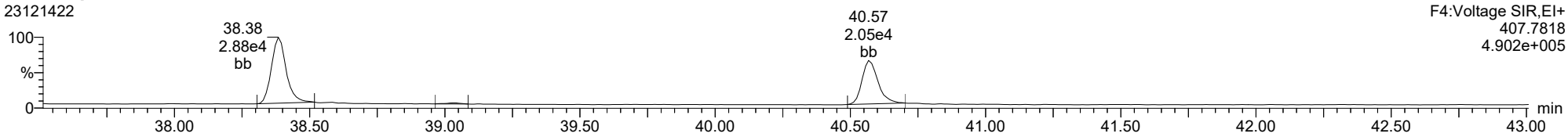
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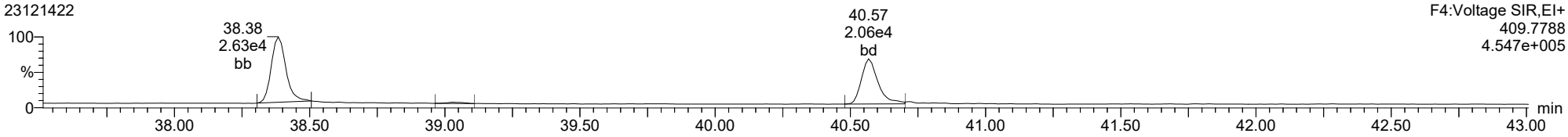
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GH00041	Instrument:	AUTOSPEC01
Calibration Date:	08/11/2023	Column (1):	RTX-Dioxin2

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RRF	Conc	**RRF**	Conc	RRF	Conc	RRF	Conc	**RRF**	Conc	**RRF**
2,3,7,8-TCDF			0.5	0.9170169	2	0.8896049	10	0.8956648	40	0.9072161	200	0.9062335
2,3,7,8-TCDD			0.5	1.291459	2	1.233047	10	1.171298	40	1.242227	200	1.27688
1,2,3,7,8-PeCDF	0.5	0.9050012	2.5	0.8965486	10	0.9540675	50	0.9277948	200	0.9293139	1000	0.9266945
2,3,4,7,8-PeCDF	0.5	0.9085743	2.5	1.051184	10	0.9802419	50	0.9945154	200	0.9985836	1000	1.010871
1,2,3,7,8-PeCDD	0.5	1.13089	2.5	1.142394	10	1.12465	50	1.173623	200	1.163067	1000	1.165895
1,2,3,4,7,8-HxCDF	0.5	1.171522	2.5	1.146258	10	1.102409	50	1.083471	200	1.1275	1000	1.137861
1,2,3,6,7,8-HxCDF	0.5	1.002442	2.5	1.01135	10	1.068924	50	1.022077	200	1.03404	1000	1.055313
2,3,4,6,7,8-HxCDF	0.5	1.047067	2.5	1.079021	10	1.105346	50	1.050327	200	1.086324	1000	1.120738
1,2,3,7,8,9-HxCDF	0.5	0.9624625	2.5	0.9081871	10	0.9833481	50	0.9872332	200	1.040889	1000	1.043569
1,2,3,4,7,8-HxCDD	0.5	1.146907	2.5	0.8861021	10	0.9660919	50	0.8986722	200	0.9337293	1000	0.9290194
1,2,3,6,7,8-HxCDD	0.5	0.8554847	2.5	0.8247378	10	0.8750677	50	0.9220737	200	0.8930401	1000	0.9257571
1,2,3,7,8,9-HxCDD	0.5	0.7019908	2.5	0.7130637	10	0.8584371	50	0.8446464	200	0.829624	1000	0.8746994
1,2,3,4,6,7,8-HpCDF	0.5	1.223099	2.5	1.104545	10	1.167736	50	1.124315	200	1.161503	1000	1.201057
1,2,3,4,7,8,9-HpCDF	0.5	0.93457	2.5	1.013728	10	1.111552	50	1.146994	200	1.261925	1000	1.153009
1,2,3,4,6,7,8-HpCDD	0.5	1.487743	2.5	1.080656	10	1.131152	50	1.184304	200	1.134631	1000	1.179134
OCDF	1	0.9623343	5	0.9592974	20	1.274279	100	1.104526	400	1.250961	2000	1.229832
OCDD	1	1.11973	5	0.9863372	20	1.039534	100	0.989959	400	1.135737	2000	1.080698
13C12-2,3,7,8-TCDF	100	1.827549	100	1.875447	100	1.843357	100	1.772636	100	1.770442	100	1.922881
13C12-2,3,7,8-TCDD	100	1.088774	100	1.14768	100	1.064817	100	1.160829	100	0.9954637	100	1.199712
13C12-1,2,3,7,8-PeCDF	100	1.417003	100	1.445072	100	1.312187	100	1.305943	100	1.210215	100	1.568867
13C12-2,3,4,7,8-PeCDF	100	1.306495	100	1.301506	100	1.260886	100	1.252619	100	1.167718	100	1.518179
13C12-1,2,3,7,8-PeCDD	100	0.7639065	100	0.7852329	100	0.685109	100	0.7320055	100	0.6328894	100	0.9229378
13C12-1,2,3,4,7,8-HxCDF	100	1.017315	100	1.068631	100	1.169113	100	1.126009	100	1.156912	100	1.005921
13C12-1,2,3,6,7,8-HxCDF	100	1.231598	100	1.390159	100	1.481835	100	1.379081	100	1.388592	100	1.170109
13C12-2,3,4,6,7,8-HxCDF	100	1.027322	100	1.107706	100	1.15593	100	1.115236	100	1.117234	100	1.037253
13C12-1,2,3,7,8,9-HxCDF	100	0.8795225	100	0.9166548	100	1.027554	100	0.9757214	100	0.9944612	100	0.9157163
13C12-1,2,3,4,7,8-HxCDD	100	0.9104907	100	0.9956927	100	0.9346567	100	0.972884	100	0.9645194	100	0.981134
13C12-1,2,3,6,7,8-HxCDD	100	1.183922	100	1.232021	100	1.115505	100	1.222273	100	1.126356	100	1.075454

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GH00041	Instrument:	AUTOSPEC01
Calibration Date:	08/11/2023	Column (1):	RTX-Dioxin2

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RRF	Conc	**RRF**	Conc	RRF	Conc	RRF	Conc	**RRF**	Conc	**RRF**
13C12-1,2,3,4,6,7,8-HpCDF	100	0.9279461	100	1.003576	100	1.022714	100	1.032271	100	0.9834014	100	0.939784
13C12-1,2,3,4,7,8,9-HpCDF	100	0.7242028	100	0.7724378	100	0.7645327	100	0.7376695	100	0.747954	100	0.7880098
13C12-1,2,3,4,6,7,8-HpCDD	100	0.6408675	100	0.6675492	100	0.5609532	100	0.6552775	100	0.61085	100	0.6402193
13C12-OCDD	200	0.6642378	200	0.7010461	200	0.5069038	200	0.6533745	200	0.5799566	200	0.7053341
37Cl4-2,3,7,8-TCDD	0.1	1.195029	0.5	1.123797	2	1.12089	10	1.150483	40	1.052937	200	1.300967
13C12-1,2,3,4-TCDD	100	1	100	1	100	1	100	1	100	1	100	1
13C12-1,2,3,7,8,9-HxCDD	100	1	100	1	100	1	100	1	100	1	100	1

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GH00041	Instrument:	AUTOSPEC01
Calibration Date:	08/11/2023	Column (1):	RTX-Dioxin2

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
2,3,7,8-TCDF	0.9031472	1.2			RSD ()	
2,3,7,8-TCDD	1.242982	3.8			RSD ()	
1,2,3,7,8-PeCDF	0.9232368	2.2			RSD ()	
2,3,4,7,8-PeCDF	0.9906617	4.7			RSD ()	
1,2,3,7,8-PeCDD	1.150086	1.8			RSD ()	
1,2,3,4,7,8-HxCDF	1.12817	2.8			RSD ()	
1,2,3,6,7,8-HxCDF	1.032358	2.5			RSD ()	
2,3,4,6,7,8-HxCDF	1.08147	2.7			RSD ()	
1,2,3,7,8,9-HxCDF	0.9876148	5.1			RSD ()	
1,2,3,4,7,8-HxCDD	0.960087	10.0			RSD ()	
1,2,3,6,7,8-HxCDD	0.8826935	4.4			RSD ()	
1,2,3,7,8,9-HxCDD	0.8037436	9.5			RSD ()	
1,2,3,4,6,7,8-HpCDF	1.163709	3.8			RSD ()	
1,2,3,4,7,8,9-HpCDF	1.10363	10.4			RSD ()	
1,2,3,4,6,7,8-HpCDD	1.199603	12.2			RSD ()	
OCDF	1.130205	12.7			RSD ()	
OCDD	1.058666	6.0			RSD ()	
13C12-2,3,7,8-TCDF	1.835385	3.2			RSD ()	
13C12-2,3,7,8-TCDD	1.109546	6.7			RSD ()	
13C12-1,2,3,7,8-PeCDF	1.376548	9.2			RSD ()	
13C12-2,3,4,7,8-PeCDF	1.301234	9.0			RSD ()	
13C12-1,2,3,7,8-PeCDD	0.7536802	13.2			RSD ()	
13C12-1,2,3,4,7,8-HxCDF	1.09065	6.5			RSD ()	
13C12-1,2,3,6,7,8-HxCDF	1.340229	8.6			RSD ()	
13C12-2,3,4,6,7,8-HxCDF	1.093447	4.6			RSD ()	
13C12-1,2,3,7,8,9-HxCDF	0.951605	5.9			RSD ()	
13C12-1,2,3,4,7,8-HxCDD	0.9598962	3.3			RSD ()	
13C12-1,2,3,6,7,8-HxCDD	1.159255	5.4			RSD ()	
13C12-1,2,3,4,6,7,8-HpCDF	0.9849488	4.4			RSD ()	
13C12-1,2,3,4,7,8,9-HpCDF	0.7558011	3.1			RSD ()	
13C12-1,2,3,4,6,7,8-HpCDD	0.6292861	6.1			RSD ()	

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Calibration:	GH00041	Instrument:	AUTOSPEC01
Calibration Date:	08/11/2023	Column (1):	RTX-Dioxin2

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
13C12-OCDD	0.6351422	12.2			RSD ()	
37Cl4-2,3,7,8-TCDD	1.157351	7.3			RSD ()	
13C12-1,2,3,4-TCDD	1	0.0			RSD ()	
13C12-1,2,3,7,8,9-HxCDD	1	0.0			RSD ()	

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Analytical Chemists and Consultants

Printed: 8/15/2023 1:59:43PM

ANALYSIS SEQUENCE

SLH0135

Instrument: AUTOSPEC01 HRGCMS Column ID: L2314
Calibration ID: GH00041 Tune File: JUL0323_1
EM Voltage: 350 Resolution check times : 10:27, 18:59

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
SLH0135-ICV1	CS3F1	QC		1	K009821	G007694	08/11/2023 10:28	23081102	PK	
SLH0135-RES1	ISCF1	QC		2	L002084	G007694	08/11/2023 11:19	23081103	PK	
SLH0135-CAL1	CSLCF	QC		3	I005460		08/11/2023 12:07	23081104	PK	
SLH0135-CAL2	CS1CF	QC		4	I005456		08/11/2023 13:01	23081105	PK	
SLH0135-CAL3	CS2CF	QC		5	I005457		08/11/2023 13:56	23081106	PK	
SLH0135-CAL4	CS3CF	QC		6	K009821		08/11/2023 14:52	23081107	PK	
SLH0135-CAL5	CS4CF	QC		7	I005458		08/11/2023 15:40	23081108	PK	
SLH0135-CAL6	CS5CF	QC		8	I005459		08/11/2023 16:29	23081109	PK	
SLH0135-SCV1	ICVCF	QC		9	H008219		08/11/2023 17:18	23081110	PK	
SLH0135-CCV1	CS3F2	QC		10	K009821	G007694	08/11/2023 18:06	23081111	PK	
SLH0135-RES2	ISCF2	QC		11	L002084	G007694	08/11/2023 18:59	23081112	PK	

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:23:00 Pacific Daylight Time 8/15/23 PK

Event	Details	Sample ID
Process Quantify		
Process Integrate		
Process Extract		
Process Calibrate		
Pre modification peak	Sample:23081104, Compound:HF, RT:34.421	1
Pre modification peak	Sample:23081104, Compound:PD, RT:30.878	1
Pre modification peak	Sample:23081104, Compound:HD, RT:35.412	1
Pre modification peak	Sample:23081104, Compound:HPD, RT:39.657	1
Pre modification peak	Sample:23081104, Compound:OD, RT:44.238	1
Pre modification peak	Sample:23081104, Compound:PF, RT:30.622	1
Pre modification peak	Sample:23081104, Compound:HF, RT:35.312	1
Pre modification peak	Sample:23081104, Compound:HF, RT:36.326	1
Pre modification peak	Sample:23081107, Compound:HPD, RT:38.666	4
Peak modified	Sample:23081104, Compound:HF, RT:34.421	1
Peak modified	Sample:23081104, Compound:PD, RT:30.878	1
Peak modified	Sample:23081104, Compound:HD, RT:35.412	1
Peak modified	Sample:23081104, Compound:HD, RT:35.412	1
Peak modified	Sample:23081104, Compound:HD, RT:35.412	1
Peak modified	Sample:23081104, Compound:HD, RT:35.412	1
Peak modified	Sample:23081104, Compound:HPD, RT:39.657	1
Peak modified	Sample:23081104, Compound:HPD, RT:39.657	1
Peak modified	Sample:23081104, Compound:OD, RT:44.238	1
Peak modified	Sample:23081104, Compound:PF, RT:30.622	1
Peak modified	Sample:23081104, Compound:HF, RT:35.312	1
Peak modified	Sample:23081104, Compound:HF, RT:36.326	1
Peak modified	Sample:23081107, Compound:HPD, RT:38.666	4
Peak deleted	Sample:23081104, Compound:TF, RT:25.167	1
Peak deleted	Sample:23081104, Compound:TD, RT:25.774	1
Peak deleted	Sample:23081109, Compound:TF, RT:26.594	6
Peak deleted	Sample:23081108, Compound:PF, RT:31.646	5
Peak deleted	Sample:23081109, Compound:PF, RT:31.658	6
Peak deleted	Sample:23081109, Compound:HF, RT:32.582	6
Peak deleted	Sample:23081109, Compound:TD, RT:26.368	6
Peak deleted	Sample:23081108, Compound:PD, RT:31.234	5
Peak deleted	Sample:23081108, Compound:HPD, RT:38.665	5
Peak deleted	Sample:23081109, Compound:HPD, RT:38.654	6
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\230811ICIH.qld'	
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\230811ICIH.qld'	
Dataset Created		
Calibration Saved	Saved to 'T:\Autospec\Curves\230811ICIH.cdb'	

Dataset: T:\Autospec\Processed Data Batch\230811ICVIH.qld
Last Altered: Tuesday, August 15, 2023 12:21:02 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:22:06 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 12 Aug 2023 10:54:09
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.153	1.001	3.267e4	4.418e4	0.903	0.739	0.770	1410	1260	4.83e5	6.44e5	342.9	510.8	NO	bb	bb	10.031
12378-PeCDF	29.307	1.001	1.871e5	1.156e5	0.923	1.618	1.550	1821	2061	2.72e6	1.69e6	1495.1	820.5	NO	bb	bb	48.648
23478-PeCDF	30.644	1.001	1.913e5	1.241e5	0.991	1.541	1.550	1821	2061	2.79e6	1.79e6	1530.5	870.8	NO	bb	bb	49.008
123478-HxCDF	34.287	1.000	1.489e5	1.185e5	1.128	1.257	1.240	2017	1502	2.25e6	1.80e6	1117.2	1197.9	NO	bd	bd	48.528
234678-HxCDF	35.312	1.000	1.362e5	1.137e5	1.081	1.198	1.240	2017	1502	2.11e6	1.73e6	1048.4	1153.8	NO	bb	bb	50.502
123678-HxCDF	34.432	1.001	1.589e5	1.237e5	1.032	1.285	1.240	2017	1502	2.28e6	1.79e6	1128.5	1194.7	NO	db	db	50.011
123789-HxCDF	36.360	1.001	1.143e5	9.000e4	0.988	1.270	1.240	2017	1502	1.64e6	1.31e6	815.1	875.3	NO	bb	bb	52.425
1234678-HpCDF	38.231	1.000	1.206e5	1.238e5	1.164	0.975	1.050	1813	1581	1.96e6	1.86e6	1080.8	1179.7	NO	bb	bd	48.385
1234789-HpCDF	40.393	1.000	9.889e4	9.879e4	1.104	1.001	1.050	1813	1581	1.34e6	1.31e6	741.6	828.6	NO	bb	bd	50.882
OCDF	44.467	1.005	1.502e5	1.593e5	1.130	0.943	0.890	2635	2358	1.65e6	1.82e6	627.8	770.8	NO	bd	bb	91.314
2378-TCDD	25.803	1.001	2.952e4	3.590e4	1.243	0.822	0.770	909	976	4.44e5	5.33e5	488.6	546.5	NO	bb	bb	9.127
12378-PeCDD	30.889	1.000	1.367e5	8.588e4	1.150	1.592	1.550	1821	1131	2.04e6	1.27e6	1120.9	1118.1	NO	bb	bb	51.387
123478-HxCDD	35.435	1.001	1.108e5	8.990e4	0.960	1.233	1.240	1642	1463	1.69e6	1.40e6	1029.2	955.0	NO	bd	bd	47.909
123678-HxCDD	35.546	1.000	1.224e5	1.046e5	0.883	1.170	1.240	1642	1463	1.84e6	1.52e6	1119.7	1039.8	NO	db	dd	52.387
123789-HxCDD	35.936	1.011	1.128e5	9.363e4	0.804	1.205	1.240	1642	1463	1.66e6	1.38e6	1013.3	945.6	NO	bb	bb	55.394
1234678-HpCDD	39.680	1.000	9.018e4	7.760e4	1.200	1.162	1.050	1298	1454	1.26e6	1.16e6	968.3	797.3	NO	bd	bb	46.513
OCDD	44.247	1.000	1.584e5	1.773e5	1.059	0.893	0.890	2820	2004	1.74e6	1.94e6	616.2	969.1	NO	bd	bd	105.741
13C-2378-TCDF	25.139	1.007	3.752e5	4.731e5	1.835	0.793	0.770	1743	1019	5.50e6	6.96e6	3156.8	6833.5	NO	bb	bb	93.584
13C-12378-PeCDF	29.285	1.173	4.095e5	2.644e5	1.377	1.549	1.550	2319	2122	6.02e6	3.91e6	2596.1	1840.7	NO	bb	bb	99.132
13C-23478-PeCDF	30.622	1.226	3.942e5	2.553e5	1.301	1.544	1.550	2319	2122	5.70e6	3.76e6	2456.8	1772.1	NO	bb	bb	101.066
13C-123478-HxCDF	34.276	0.954	1.654e5	3.231e5	1.091	0.512	0.510	1344	2378	2.47e6	4.81e6	1838.1	2021.3	NO	bd	bd	100.193
13C-123678-HxCDF	34.410	0.958	1.939e5	3.534e5	1.340	0.549	0.510	1344	2378	2.59e6	5.02e6	1926.2	2110.2	NO	dd	db	91.372
13C-234678-HxCDF	35.301	0.983	1.551e5	3.025e5	1.093	0.513	0.510	1344	2378	2.26e6	4.41e6	1679.6	1852.4	NO	bb	bb	93.633
13C-123789-HxCDF	36.337	1.011	1.338e5	2.608e5	0.952	0.513	0.510	1344	2378	1.91e6	3.82e6	1420.2	1605.6	NO	bb	bb	92.769
13C-1234678-HpCDF	38.220	1.064	1.397e5	2.943e5	0.985	0.475	0.440	1575	2088	2.04e6	4.54e6	1292.2	2173.4	NO	bd	bb	98.578
13C-1234789-HpCDF	40.382	1.124	1.068e5	2.453e5	0.756	0.435	0.440	1575	2088	1.42e6	3.11e6	899.8	1489.6	NO	bd	bb	104.203
13C-1234-TCDD	24.969	0.000	2.166e5	2.773e5	1.000	0.781	0.770	1831	1204	3.27e6	4.17e6	1785.4	3464.8	NO	bb	bb	100.000
13C-2378-TCDD	25.774	1.032	2.575e5	3.192e5	1.110	0.807	0.770	1831	1204	3.85e6	4.88e6	2104.1	4053.6	NO	bb	bb	105.229
13C-12378-PeCDD	30.878	1.237	2.354e5	1.412e5	0.754	1.667	1.550	948	840	3.39e6	2.08e6	3572.5	2479.5	NO	bb	bb	101.171
13C-123478-HxCDD	35.412	0.986	2.434e5	1.930e5	0.960	1.261	1.240	1622	1115	3.72e6	2.95e6	2295.3	2649.4	NO	bd	bd	101.721
13C-123678-HxCDD	35.535	0.989	2.685e5	2.223e5	1.159	1.208	1.240	1622	1115	3.87e6	3.15e6	2386.3	2828.6	NO	db	db	94.721
13C-1234678-HpCDD	39.668	1.104	1.607e5	1.400e5	0.629	1.148	1.050	1237	1522	2.19e6	2.03e6	1766.5	1330.4	NO	bd	bb	106.902
13C-OCDD	44.229	1.231	2.897e5	3.101e5	0.635	0.934	0.890	1717	2028	3.19e6	3.43e6	1855.4	1692.1	NO	bd	bd	211.248
13C-123789-HxCDD	35.925	0.000	2.477e5	1.993e5	1.000	1.243	1.240	1622	1115	3.79e6	2.98e6	2336.3	2673.0	NO	bb	bb	100.000
37CL-2378-TCDD	25.788	1.033	5.819e4		1.157			1031		8.39e5		814.2			bb		10.181

Dataset: T:\Autospec\Processed Data Batch\230811ICVIH.qld
Last Altered: Tuesday, August 15, 2023 12:21:02 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:22:06 Pacific Daylight Time

ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.678	0.862	4.357e4	5.802e4	1.170	0.751	0.770	1410	1260	6.55e5	8.89e5	464.6	705.7	NO	bb	bb	10.233
1289-TCDF	26.636	1.060	3.249e4	4.226e4	0.847	0.769	0.770	1410	1260	4.59e5	5.91e5	325.7	469.0	NO	db	db	10.408
13468-PECDF	26.509	0.905	2.435e5	1.584e5	1.241	1.538	1.550	709	694	3.73e6	2.42e6	5263.9	3490.4	NO	bb	bb	48.052
12389-PECDF	31.669	1.081	1.948e5	1.176e5	0.880	1.656	1.550	1821	2061	2.59e6	1.63e6	1421.1	790.4	NO	bd	bb	52.702
123468-HXCDF	32.594	0.951	1.572e5	1.265e5	1.206	1.243	1.240	2017	1502	2.34e6	1.90e6	1162.2	1262.2	NO	bb	bb	48.177
1368-TCDD	22.935	0.890	2.959e4	3.663e4	1.181	0.808	0.770	909	976	4.61e5	5.72e5	507.2	585.7	NO	bb	bb	9.725
1289-TCDD	26.396	1.024	2.667e4	3.303e4	0.963	0.807	0.770	909	976	3.82e5	4.40e5	420.6	451.1	NO	bb	bd	10.754
12479-PECDD	28.170	0.912	2.449e5	1.524e5	2.166	1.607	1.550	1821	1131	2.32e6	1.47e6	1275.6	1295.2	NO	bb	bb	48.697
12389-PECDD	31.290	1.013	1.599e5	1.040e5	1.326	1.538	1.550	1821	1131	2.26e6	1.42e6	1241.0	1256.0	NO	bb	bd	52.847
124679-HXCDD	33.385	0.943	1.262e5	1.040e5	1.127	1.213	1.240	1642	1463	1.83e6	1.51e6	1114.4	1030.9	NO	bb	bb	46.808
1234679-HPCDD	38.666	0.975	1.017e5	9.556e4	1.303	1.064	1.050	1298	1454	1.56e6	1.48e6	1205.3	1021.4	NO	bb	bb	50.367
Total-tetrafurans			1.090e5		0.973			1410		1.60e6							30.751
Total-penta1			2.435e5					709		3.73e6							48.052
Total-pentafurans			6.055e5		0.931			1821		8.58e6							158.813
Total-hexafurans			7.156e5		1.087			2017		1.06e7							249.643
Total-heptafurans			2.195e5		1.134			1813		3.30e6							99.267
Total-Furans			2.043e6		1.053			1410		2.95e7							677.840
Total-tetradioxins			1.446e5		1.129			909		1.97e6							49.641
Total-pentadioxins			5.415e5		1.548			1821		6.62e6							152.931
Total-hexadioxins			4.722e5		0.943			1642		7.02e6							202.499
Total-heptadioxins			1.919e5		1.251			1298		2.82e6							96.880
Total-Dioxins			1.509e6		1.182			909		2.02e7							607.691
Total-TEQ			3.552e6					909		4.97e7							1285.531
FUNCTION1 PFK			7.924e5					446175		1.36e7							
FUNCTION2 PFK			5.581e5					351760		1.44e7							0.000
FUNCTION3 PFK			1.585e5					424568		5.08e6							0.000
FUNCTION4 PFK			0.000e0					308815		0.00e0							
FUNCTION5 PFK			5.965e4					171904		2.21e6							
FUNCTION1 HXCD...			1.292e3					668		1.76e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			3.182e2					688		6.67e3							0.000
FUNCTION3 OCDPE			6.041e2					430		9.00e3							0.000
FUNCTION4 NCDPE			3.725e2					636		5.58e3							0.000
FUNCTION5 DCDPE			0.000e0					371		0.00e0							

Method: T:\Autospec\Methods\Dioxin230810.mdb 12 Aug 2023 10:54:09
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	3.249e4	4.226e4	0.847	0.77	0.77	325.7	YES	NO	db	db	10.408
2	2378-TCDF	25.15	3.267e4	4.418e4	0.903	0.74	0.77	342.9	YES	NO	bb	bb	10.031
3	Total-tetrafurans	24.26	2.922e2	3.648e2	0.973	0.80	0.77	4.1	YES	NO	bb	bb	0.080
4	1368-TCDF	21.68	4.357e4	5.802e4	1.170	0.75	0.77	464.6	YES	NO	bb	bb	10.233

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.51	2.435e5	1.584e5	1.241	1.54	1.55	5263.9	YES	NO	bb	bb	48.052

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.64	1.913e5	1.241e5	0.991	1.54	1.55	1530.5	YES	NO	bb	bb	49.008
2	12378-PeCDF	29.31	1.871e5	1.156e5	0.923	1.62	1.55	1495.1	YES	NO	bb	bb	48.648
3	Total-pentafurans	28.16	3.242e4	1.967e4	0.931	1.65	1.55	264.3	YES	NO	bb	bb	8.454
4	12389-PECDF	31.67	1.948e5	1.176e5	0.880	1.66	1.55	1421.1	YES	NO	bd	bb	52.702

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.36	1.143e5	9.000e4	0.988	1.27	1.24	815.1	YES	NO	bb	bb	52.425
2	234678-HxCDF	35.31	1.362e5	1.137e5	1.081	1.20	1.24	1048.4	YES	NO	bb	bb	50.502
3	123678-HxCDF	34.43	1.589e5	1.237e5	1.032	1.28	1.24	1128.5	YES	NO	db	db	50.011
4	123478-HxCDF	34.29	1.489e5	1.185e5	1.128	1.26	1.24	1117.2	YES	NO	bd	bd	48.528
5	123468-HXCDF	32.59	1.572e5	1.265e5	1.206	1.24	1.24	1162.2	YES	NO	bb	bb	48.177

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.39	9.889e4	9.879e4	1.104	1.00	1.05	741.6	YES	NO	bb	bd	50.882
2	1234678-HpCDF	38.23	1.206e5	1.238e5	1.164	0.97	1.05	1080.8	YES	NO	bb	bd	48.385

ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	3.249e4	4.226e4	0.847	0.77	0.77	325.7	YES	NO	db	db	10.408
2	2378-TCDF	25.15	3.267e4	4.418e4	0.903	0.74	0.77	342.9	YES	NO	bb	bb	10.031
3	Total-tetrafurans	24.26	2.922e2	3.648e2	0.973	0.80	0.77	4.1	YES	NO	bb	bb	0.080
4	1368-TCDF	21.68	4.357e4	5.802e4	1.170	0.75	0.77	464.6	YES	NO	bb	bb	10.233
5	23478-PeCDF	30.64	1.913e5	1.241e5	0.991	1.54	1.55	1530.5	YES	NO	bb	bb	49.008
6	12378-PeCDF	29.31	1.871e5	1.156e5	0.923	1.62	1.55	1495.1	YES	NO	bb	bb	48.648
7	Total-pentafurans	28.16	3.242e4	1.967e4	0.931	1.65	1.55	264.3	YES	NO	bb	bb	8.454
8	12389-PECDF	31.67	1.948e5	1.176e5	0.880	1.66	1.55	1421.1	YES	NO	bd	bb	52.702
9	123789-HxCDF	36.36	1.143e5	9.000e4	0.988	1.27	1.24	815.1	YES	NO	bb	bb	52.425
10	234678-HxCDF	35.31	1.362e5	1.137e5	1.081	1.20	1.24	1048.4	YES	NO	bb	bb	50.502
11	123678-HxCDF	34.43	1.589e5	1.237e5	1.032	1.28	1.24	1128.5	YES	NO	db	db	50.011
12	123478-HxCDF	34.29	1.489e5	1.185e5	1.128	1.26	1.24	1117.2	YES	NO	bd	bd	48.528
13	123468-HXCDF	32.59	1.572e5	1.265e5	1.206	1.24	1.24	1162.2	YES	NO	bb	bb	48.177
14	1234789-HpCDF	40.39	9.889e4	9.879e4	1.104	1.00	1.05	741.6	YES	NO	bb	bd	50.882
15	1234678-HpCDF	38.23	1.206e5	1.238e5	1.164	0.97	1.05	1080.8	YES	NO	bb	bd	48.385
16	OCDF	44.47	1.502e5	1.593e5	1.130	0.94	0.89	627.8	YES	NO	bd	bb	91.314
17	13468-PECDF	26.51	2.435e5	1.584e5	1.241	1.54	1.55	5263.9	YES	NO	bb	bb	48.052

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.40	2.667e4	3.303e4	0.963	0.81	0.77	420.6	YES	NO	bb	bd	10.754
2	2378-TCDD	25.80	2.952e4	3.590e4	1.243	0.82	0.77	488.6	YES	NO	bb	bb	9.127
3	Total-tetradioxins	25.46	4.462e4	5.454e4	1.129	0.82	0.77	507.1	YES	NO	bd	bb	15.232
4	Total-tetradioxins	24.98	1.421e4	1.705e4	1.129	0.83	0.77	248.5	YES	NO	bd	bb	4.803
5	1368-TCDD	22.94	2.959e4	3.663e4	1.181	0.81	0.77	507.2	YES	NO	bb	bb	9.725

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.29	1.599e5	1.040e5	1.326	1.54	1.55	1241.0	YES	NO	bb	bd	52.847
2	12378-PeCDD	30.89	1.367e5	8.588e4	1.150	1.59	1.55	1120.9	YES	NO	bb	bb	51.387
3	12479-PECDD	28.17	2.449e5	1.524e5	2.166	1.61	1.55	1275.6	YES	NO	bb	bb	48.697

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDD	35.43	1.108e5	8.990e4	0.960	1.23	1.24	1029.2	YES	NO	bd	bd	47.909
2	124679-HXCDD	33.38	1.262e5	1.040e5	1.127	1.21	1.24	1114.4	YES	NO	bb	bb	46.808
3	123789-HxCDD	35.94	1.128e5	9.363e4	0.804	1.20	1.24	1013.3	YES	NO	bb	bb	55.394
4	123678-HxCDD	35.55	1.224e5	1.046e5	0.883	1.17	1.24	1119.7	YES	NO	db	dd	52.387

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.68	9.018e4	7.760e4	1.200	1.16	1.05	968.3	YES	NO	bd	bb	46.513
2	1234679-HPCDD	38.67	1.017e5	9.556e4	1.303	1.06	1.05	1205.3	YES	NO	bb	bb	50.367

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.40	2.667e4	3.303e4	0.963	0.81	0.77	420.6	YES	NO	bb	bd	10.754
2	2378-TCDD	25.80	2.952e4	3.590e4	1.243	0.82	0.77	488.6	YES	NO	bb	bb	9.127
3	Total-tetradioxins	25.46	4.462e4	5.454e4	1.129	0.82	0.77	507.1	YES	NO	bd	bb	15.232
4	Total-tetradioxins	24.98	1.421e4	1.705e4	1.129	0.83	0.77	248.5	YES	NO	bd	bb	4.803
5	1368-TCDD	22.94	2.959e4	3.663e4	1.181	0.81	0.77	507.2	YES	NO	bb	bb	9.725
6	12389-PECDD	31.29	1.599e5	1.040e5	1.326	1.54	1.55	1241.0	YES	NO	bb	bd	52.847
7	12378-PeCDD	30.89	1.367e5	8.588e4	1.150	1.59	1.55	1120.9	YES	NO	bb	bb	51.387
8	12479-PECDD	28.17	2.449e5	1.524e5	2.166	1.61	1.55	1275.6	YES	NO	bb	bb	48.697
9	123478-HxCDD	35.43	1.108e5	8.990e4	0.960	1.23	1.24	1029.2	YES	NO	bd	bd	47.909
10	124679-HXCDD	33.38	1.262e5	1.040e5	1.127	1.21	1.24	1114.4	YES	NO	bb	bb	46.808
11	123789-HxCDD	35.94	1.128e5	9.363e4	0.804	1.20	1.24	1013.3	YES	NO	bb	bb	55.394
12	123678-HxCDD	35.55	1.224e5	1.046e5	0.883	1.17	1.24	1119.7	YES	NO	db	dd	52.387
13	1234678-HpCDD	39.68	9.018e4	7.760e4	1.200	1.16	1.05	968.3	YES	NO	bd	bb	46.513
14	1234679-HPCDD	38.67	1.017e5	9.556e4	1.303	1.06	1.05	1205.3	YES	NO	bb	bb	50.367
15	OCDD	44.25	1.584e5	1.773e5	1.059	0.89	0.89	616.2	YES	NO	bd	bd	105.741

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	3.249e4	4.226e4	0.847	0.77	0.77	325.7	YES	NO	db	db	10.408
2	2378-TCDF	25.15	3.267e4	4.418e4	0.903	0.74	0.77	342.9	YES	NO	bb	bb	10.031
3	Total-tetrafurans	24.26	2.922e2	3.648e2	0.973	0.80	0.77	4.1	YES	NO	bb	bb	0.080
4	1368-TCDF	21.68	4.357e4	5.802e4	1.170	0.75	0.77	464.6	YES	NO	bb	bb	10.233
5	23478-PeCDF	30.64	1.913e5	1.241e5	0.991	1.54	1.55	1530.5	YES	NO	bb	bb	49.008
6	12378-PeCDF	29.31	1.871e5	1.156e5	0.923	1.62	1.55	1495.1	YES	NO	bb	bb	48.648
7	Total-pentafurans	28.16	3.242e4	1.967e4	0.931	1.65	1.55	264.3	YES	NO	bb	bb	8.454
8	12389-PECDF	31.67	1.948e5	1.176e5	0.880	1.66	1.55	1421.1	YES	NO	bd	bb	52.702
9	123789-HxCDF	36.36	1.143e5	9.000e4	0.988	1.27	1.24	815.1	YES	NO	bb	bb	52.425
10	234678-HxCDF	35.31	1.362e5	1.137e5	1.081	1.20	1.24	1048.4	YES	NO	bb	bb	50.502
11	123678-HxCDF	34.43	1.589e5	1.237e5	1.032	1.28	1.24	1128.5	YES	NO	db	db	50.011
12	123478-HxCDF	34.29	1.489e5	1.185e5	1.128	1.26	1.24	1117.2	YES	NO	bd	bd	48.528
13	123468-HXCDF	32.59	1.572e5	1.265e5	1.206	1.24	1.24	1162.2	YES	NO	bb	bb	48.177
14	1234789-HpCDF	40.39	9.889e4	9.879e4	1.104	1.00	1.05	741.6	YES	NO	bb	bd	50.882
15	1234678-HpCDF	38.23	1.206e5	1.238e5	1.164	0.97	1.05	1080.8	YES	NO	bb	bd	48.385
16	OCDF	44.47	1.502e5	1.593e5	1.130	0.94	0.89	627.8	YES	NO	bd	bb	91.314
17	13468-PECDF	26.51	2.435e5	1.584e5	1.241	1.54	1.55	5263.9	YES	NO	bb	bb	48.052
18	1289-TCDD	26.40	2.667e4	3.303e4	0.963	0.81	0.77	420.6	YES	NO	bb	bd	10.754
19	2378-TCDD	25.80	2.952e4	3.590e4	1.243	0.82	0.77	488.6	YES	NO	bb	bb	9.127
20	Total-tetradioxins	25.46	4.462e4	5.454e4	1.129	0.82	0.77	507.1	YES	NO	bd	bb	15.232
21	Total-tetradioxins	24.98	1.421e4	1.705e4	1.129	0.83	0.77	248.5	YES	NO	bd	bb	4.803
22	1368-TCDD	22.94	2.959e4	3.663e4	1.181	0.81	0.77	507.2	YES	NO	bb	bb	9.725
23	12389-PECDD	31.29	1.599e5	1.040e5	1.326	1.54	1.55	1241.0	YES	NO	bb	bd	52.847
24	12378-PeCDD	30.89	1.367e5	8.588e4	1.150	1.59	1.55	1120.9	YES	NO	bb	bb	51.387
25	12479-PECDD	28.17	2.449e5	1.524e5	2.166	1.61	1.55	1275.6	YES	NO	bb	bb	48.697
26	123478-HxCDD	35.43	1.108e5	8.990e4	0.960	1.23	1.24	1029.2	YES	NO	bd	bd	47.909
27	124679-HXCDD	33.38	1.262e5	1.040e5	1.127	1.21	1.24	1114.4	YES	NO	bb	bb	46.808
28	123789-HxCDD	35.94	1.128e5	9.363e4	0.804	1.20	1.24	1013.3	YES	NO	bb	bb	55.394
29	123678-HxCDD	35.55	1.224e5	1.046e5	0.883	1.17	1.24	1119.7	YES	NO	db	dd	52.387
30	1234678-HpCDD	39.68	9.018e4	7.760e4	1.200	1.16	1.05	968.3	YES	NO	bd	bb	46.513
31	1234679-HPCDD	38.67	1.017e5	9.556e4	1.303	1.06	1.05	1205.3	YES	NO	bb	bb	50.367
32	OCDD	44.25	1.584e5	1.773e5	1.059	0.89	0.89	616.2	YES	NO	bd	bd	105.741

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	26.10	3.058e4					0.7	NO		bb		
2	FUNCTION1 PFK	25.83	2.167e4					1.5	NO		bb		
3	FUNCTION1 PFK	25.75	1.003e4					1.0	NO		bb		
4	FUNCTION1 PFK	25.68	2.815e4					1.7	NO		bb		
5	FUNCTION1 PFK	25.20	4.577e4					1.7	NO		bb		
6	FUNCTION1 PFK	25.10	1.950e4					1.5	NO		bb		
7	FUNCTION1 PFK	24.98	1.460e4					1.0	NO		bb		
8	FUNCTION1 PFK	24.25	2.099e4					1.6	NO		bb		
9	FUNCTION1 PFK	22.89	4.902e4					1.9	NO		bb		
10	FUNCTION1 PFK	22.67	2.144e4					1.5	NO		db		
11	FUNCTION1 PFK	22.61	1.329e4					1.0	NO		bd		
12	FUNCTION1 PFK	22.53	9.681e3					1.0	NO		bb		
13	FUNCTION1 PFK	22.00	3.405e4					2.0	NO		bb		
14	FUNCTION1 PFK	21.38	2.152e5					5.1	YES		bb		
15	FUNCTION1 PFK	21.13	2.235e4					1.5	NO		bb		
16	FUNCTION1 PFK	26.38	2.126e5					4.1	YES		bb		
17	FUNCTION1 PFK	26.27	2.350e4					1.6	NO		bb		

Dataset: T:\Autospec\Processed Data Batch\230811ICVIH.qld
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Printed: Tuesday, August 15, 2023 12:22:06 Pacific Daylight Time

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.26	1.698e4					1.3	NO		bd		0.000
2	FUNCTION2 PFK	29.22	9.896e3					0.8	NO		db		0.000
3	FUNCTION2 PFK	29.13	1.828e4					1.7	NO		bd		0.000
4	FUNCTION2 PFK	28.98	6.411e3					0.9	NO		db		0.000
5	FUNCTION2 PFK	28.91	3.286e4					2.2	NO		bd		0.000
6	FUNCTION2 PFK	28.76	8.921e3					1.0	NO		bb		0.000
7	FUNCTION2 PFK	28.35	2.476e3					0.6	NO		bb		0.000
8	FUNCTION2 PFK	28.30	1.117e4					1.4	NO		bb		0.000
9	FUNCTION2 PFK	28.26	1.521e3					0.4	NO		bb		0.000
10	FUNCTION2 PFK	28.20	2.571e4					1.7	NO		bb		0.000
11	FUNCTION2 PFK	27.96	1.137e4					1.0	NO		bb		0.000
12	FUNCTION2 PFK	27.76	1.343e4					1.0	NO		bb		0.000
13	FUNCTION2 PFK	27.50	5.807e3					0.8	NO		bb		0.000
14	FUNCTION2 PFK	31.48	1.330e4					1.4	NO		db		0.000
15	FUNCTION2 PFK	31.45	2.866e4					1.6	NO		dd		0.000
16	FUNCTION2 PFK	31.35	6.909e3					0.8	NO		dd		0.000
17	FUNCTION2 PFK	31.29	1.971e4					1.8	NO		bd		0.000
18	FUNCTION2 PFK	30.92	2.157e4					1.4	NO		bb		0.000
19	FUNCTION2 PFK	30.73	1.688e3					0.4	NO		bb		0.000
20	FUNCTION2 PFK	30.50	1.583e4					1.4	NO		bb		0.000
21	FUNCTION2 PFK	30.43	7.919e3					0.8	NO		bb		0.000
22	FUNCTION2 PFK	30.20	1.363e4					1.2	NO		bb		0.000
23	FUNCTION2 PFK	30.01	3.933e4					2.2	NO		db		0.000
24	FUNCTION2 PFK	29.85	1.133e5					4.0	YES		bd		0.000
25	FUNCTION2 PFK	29.76	1.253e4					1.2	NO		db		0.000
26	FUNCTION2 PFK	29.66	4.510e4					1.8	NO		bd		0.000
27	FUNCTION2 PFK	29.55	1.168e4					1.2	NO		bb		0.000
28	FUNCTION2 PFK	29.42	1.201e4					1.4	NO		bb		0.000
29	FUNCTION2 PFK	29.32	7.622e3					1.1	NO		db		0.000
30	FUNCTION2 PFK	31.96	1.865e3					0.5	NO		bb		0.000
31	FUNCTION2 PFK	31.91	6.856e3					1.0	NO		bb		0.000
32	FUNCTION2 PFK	31.80	1.369e4					1.0	NO		bb		0.000

Dataset: T:\Autospec\Processed Data Batch\230811ICVIH.qld
Last Altered: Tuesday, August 15, 2023 12:21:02 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:22:06 Pacific Daylight Time

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	35.95	2.169e4					1.7	NO		bb		0.000
2	FUNCTION3 PFK	35.70	2.880e4					2.0	NO		bb		0.000
3	FUNCTION3 PFK	34.21	2.768e3					0.6	NO		bb		0.000
4	FUNCTION3 PFK	33.50	2.810e4					2.1	NO		db		0.000
5	FUNCTION3 PFK	33.46	3.177e4					2.4	NO		bd		0.000
6	FUNCTION3 PFK	33.07	1.826e4					1.5	NO		bb		0.000
7	FUNCTION3 PFK	32.40	2.714e4					1.7	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.38	4.668e3					1.2	NO		bd		
2	FUNCTION5 PFK	44.06	1.022e4					2.0	NO		bb		
3	FUNCTION5 PFK	43.01	7.561e3					2.2	NO		bb		
4	FUNCTION5 PFK	45.92	5.621e3					1.7	NO		bb		
5	FUNCTION5 PFK	45.85	3.368e3					1.3	NO		bb		
6	FUNCTION5 PFK	44.70	2.424e3					0.9	NO		db		
7	FUNCTION5 PFK	44.66	2.009e4					2.1	NO		bd		
8	FUNCTION5 PFK	44.42	5.700e3					1.5	NO		db		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.31	9.776e1					2.1	NO		db		0.000
2	FUNCTION1 HXCD...	26.17	1.145e2					2.2	NO		dd		0.000
3	FUNCTION1 HXCD...	26.10	1.085e2					2.3	NO		bd		0.000
4	FUNCTION1 HXCD...	25.79	1.710e2					2.7	NO		db		0.000
5	FUNCTION1 HXCD...	25.66	8.247e1					2.4	NO		dd		0.000
6	FUNCTION1 HXCD...	25.56	9.000e1					1.7	NO		bd		0.000
7	FUNCTION1 HXCD...	24.96	1.201e2					2.8	NO		bb		0.000
8	FUNCTION1 HXCD...	23.43	1.148e2					2.1	NO		bb		0.000
9	FUNCTION1 HXCD...	22.43	7.998e1					1.3	NO		bb		0.000
10	FUNCTION1 HXCD...	21.38	1.181e2					2.0	NO		bb		0.000
11	FUNCTION1 HXCD...	27.05	1.032e2					1.9	NO		bb		0.000
12	FUNCTION1 HXCD...	26.66	9.117e1					2.9	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.90	7.786e1					1.4	NO		bb		0.000
2	FUNCTION2 HPCD...	30.49	2.403e2					8.3	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.91	9.546e1					2.9	NO		bb		0.000
2	FUNCTION3 OCDPE	35.53	1.655e2					5.4	YES		db		0.000
3	FUNCTION3 OCDPE	35.42	1.776e2					8.6	YES		dd		0.000
4	FUNCTION3 OCDPE	35.30	1.655e2					4.0	YES		bd		0.000

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ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	41.97	8.451e1					2.2	NO		bb		0.000
2	FUNCTION4 NCDPE	40.79	7.795e1					2.1	NO		bb		0.000
3	FUNCTION4 NCDPE	38.00	8.803e1					1.5	NO		bb		0.000
4	FUNCTION4 NCDPE	37.36	1.220e2					2.9	NO		bb		0.000

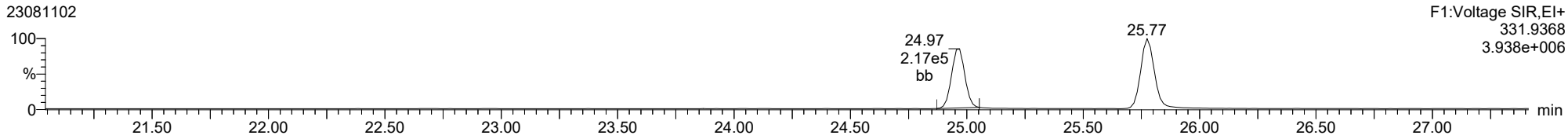
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

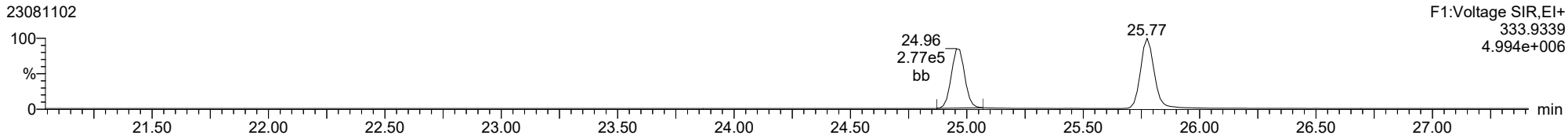
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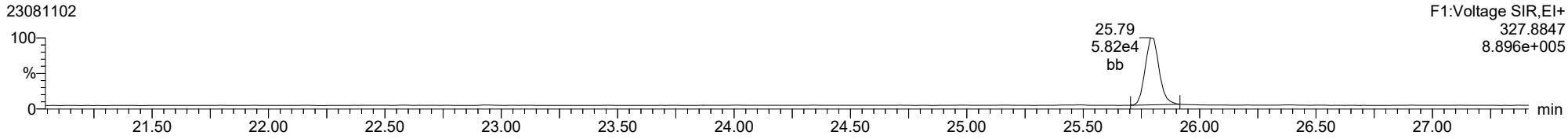
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13C-1234-TCDD

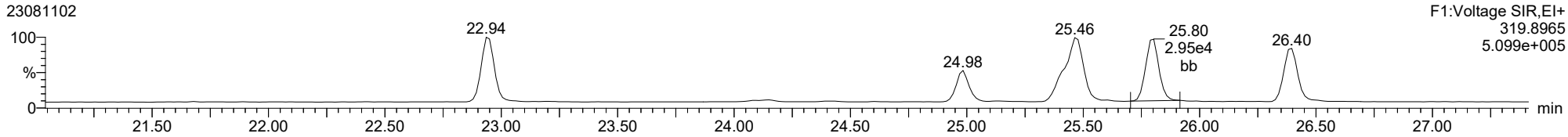


37CL-2378-TCDD

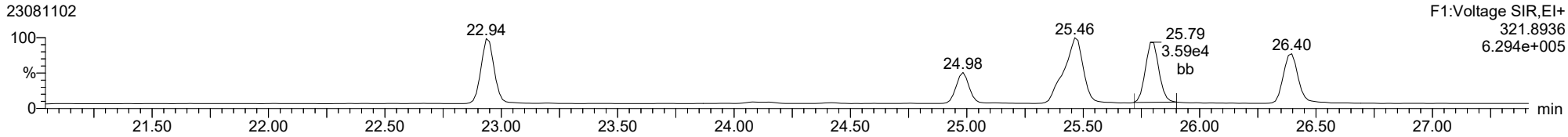


ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

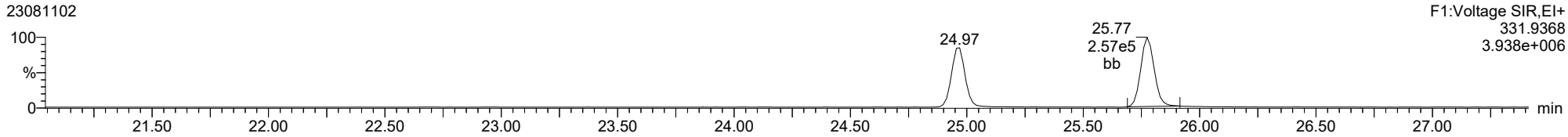
2378-TCDD



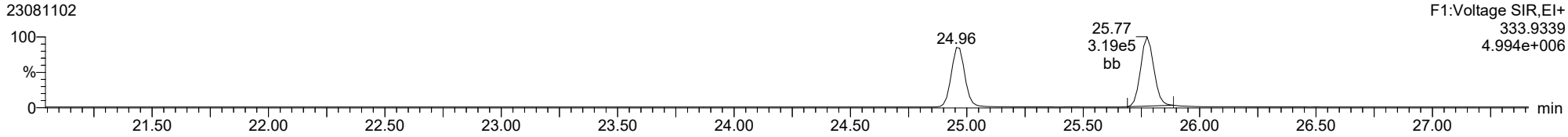
2378-TCDD



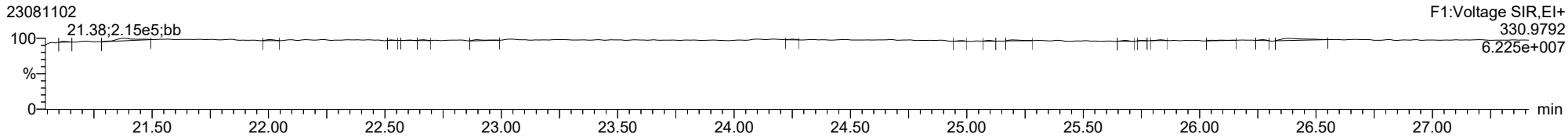
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13C-2378-TCDD

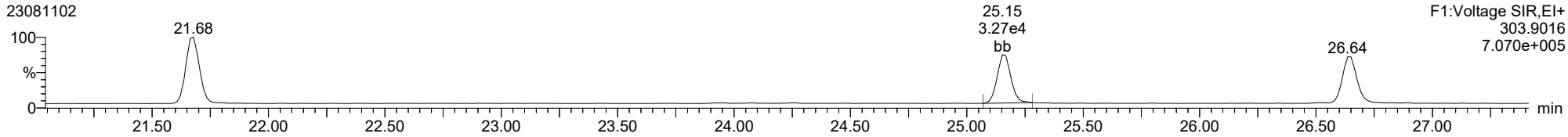


FUNCTION1 PFK

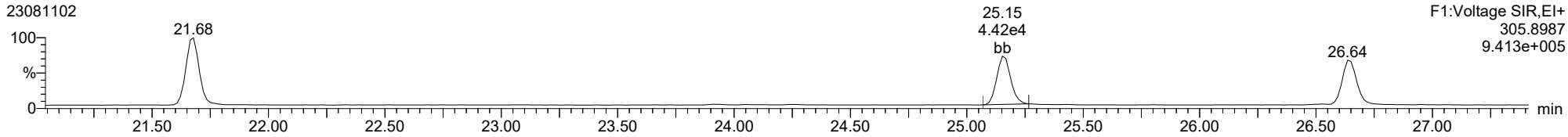


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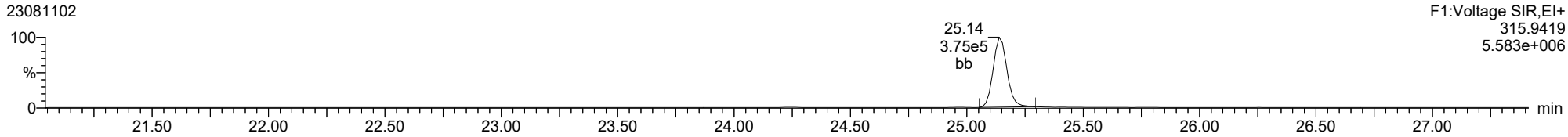
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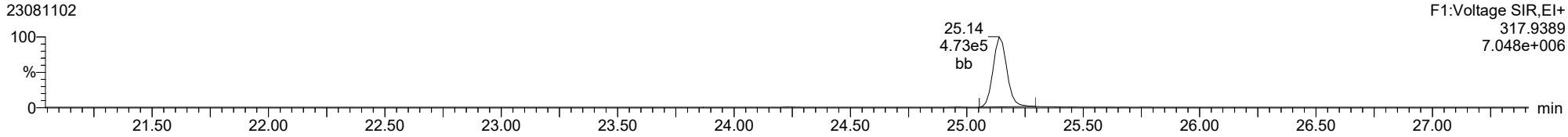
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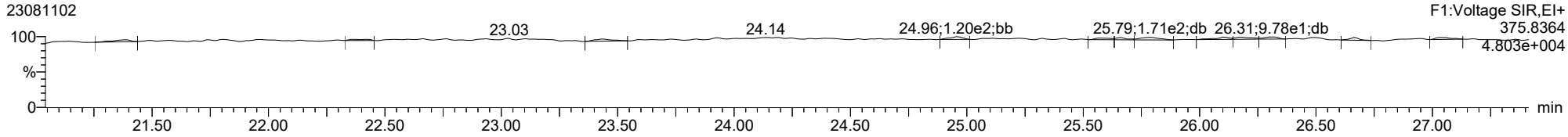
13C-2378-TCDF



13C-2378-TCDF

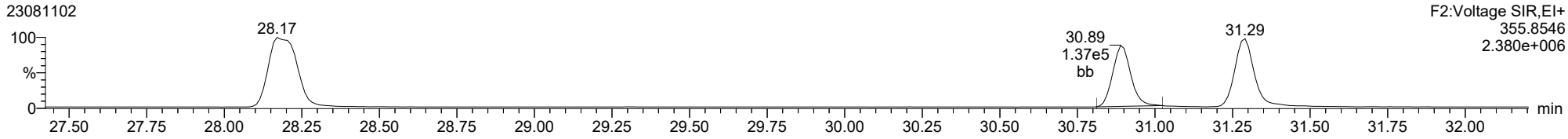


FUNCTION1 HXCDPE

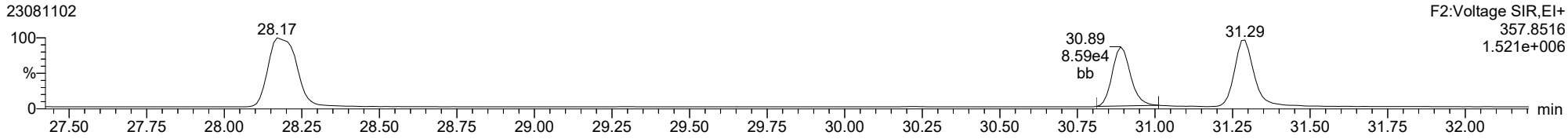


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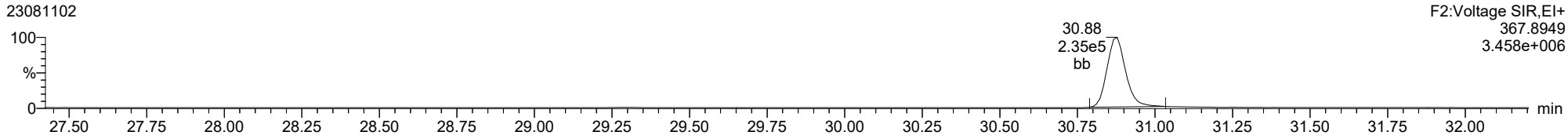
12378-PeCDD



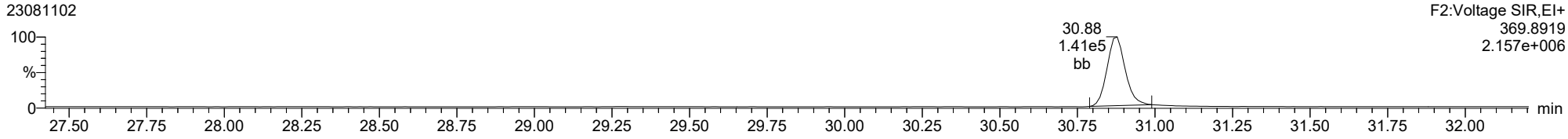
12378-PeCDD



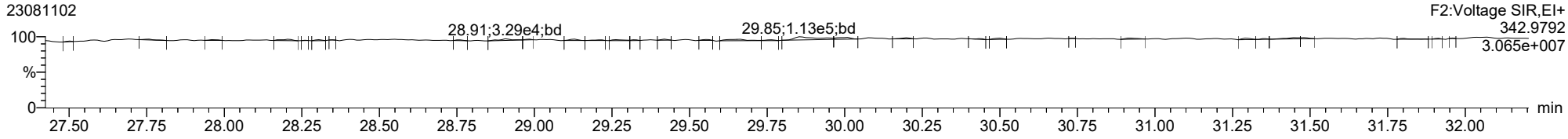
13C-12378-PeCDD



13C-12378-PeCDD

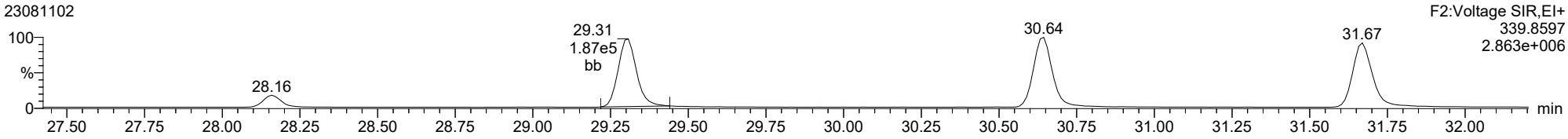


FUNCTION2 PFK

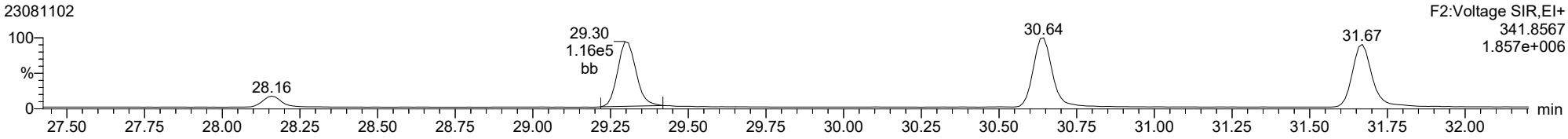


ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

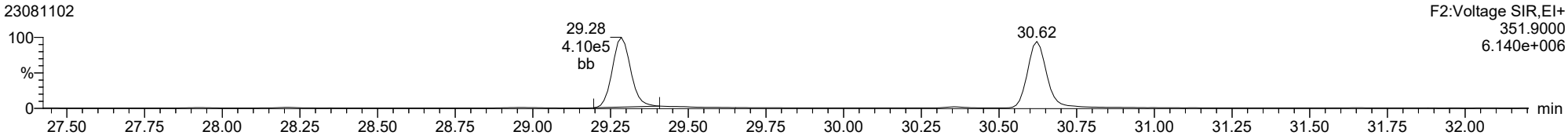
12378-PeCDF



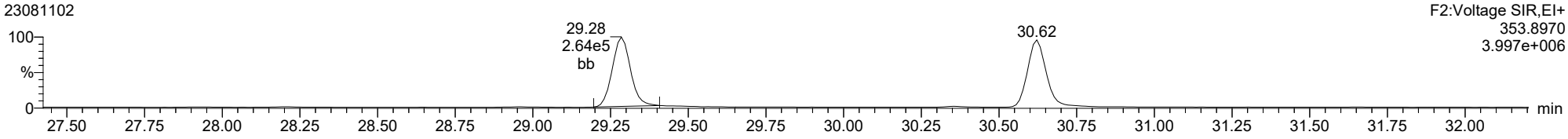
12378-PeCDF



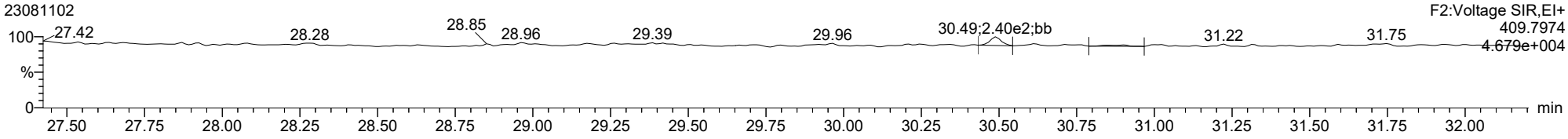
13C-12378-PeCDF



13C-12378-PeCDF

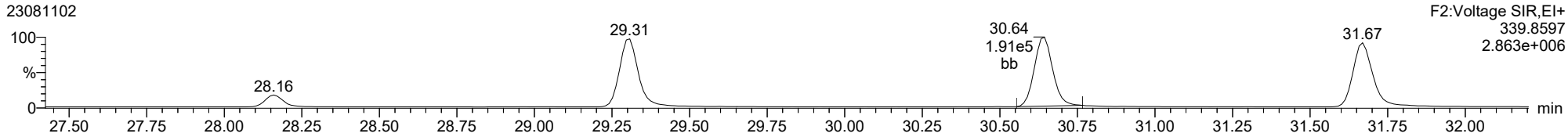


FUNCTION2 HPCDPE

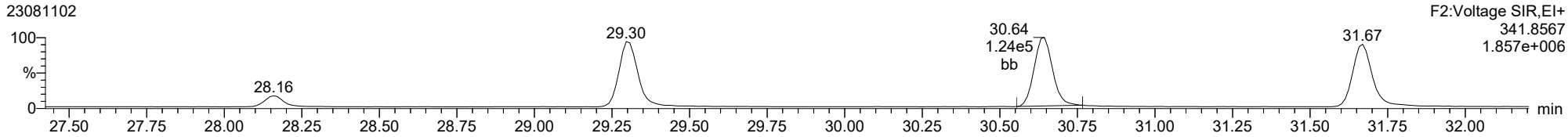


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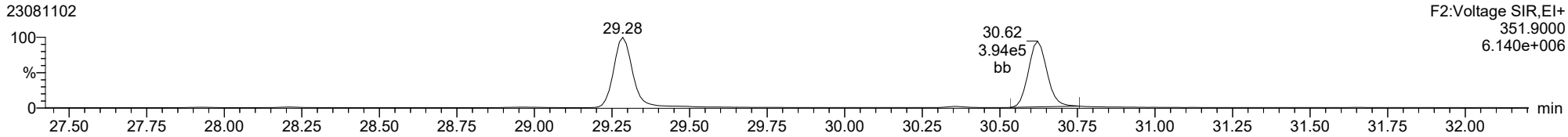
23478-PeCDF



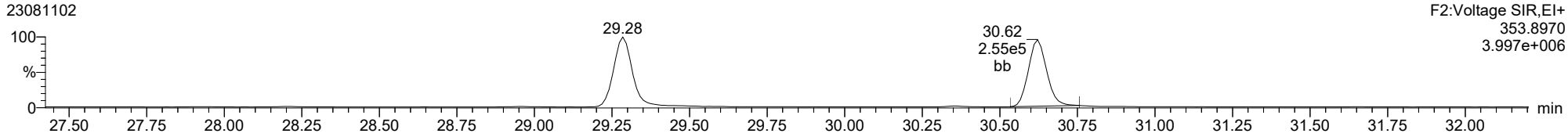
23478-PeCDF



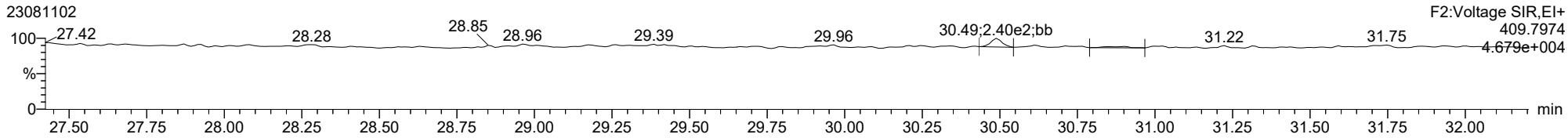
13C-23478-PeCDF



13C-23478-PeCDF

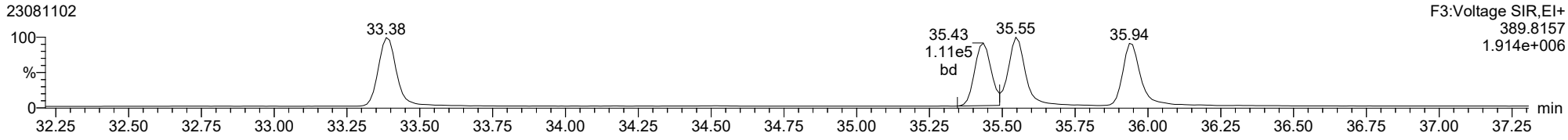


FUNCTION2 HPCDPE

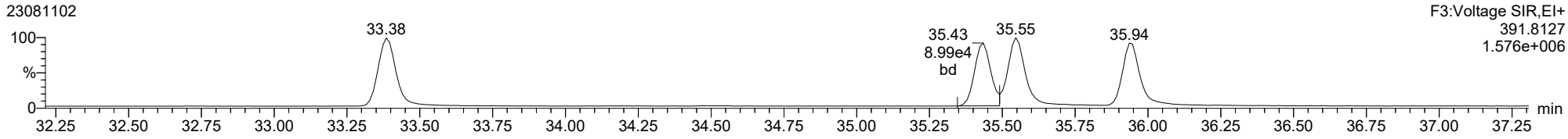


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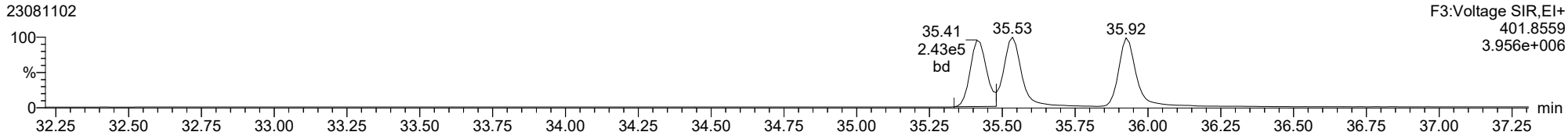
123478-HxCDD



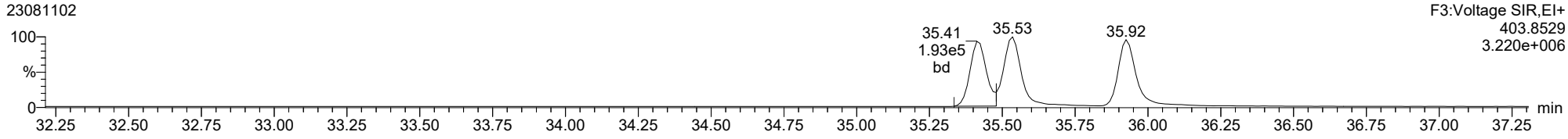
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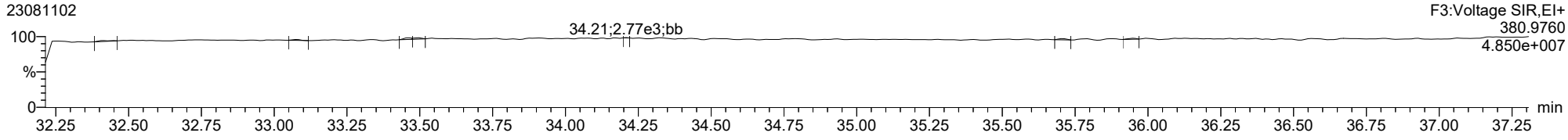
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13C-123478-HxCDD

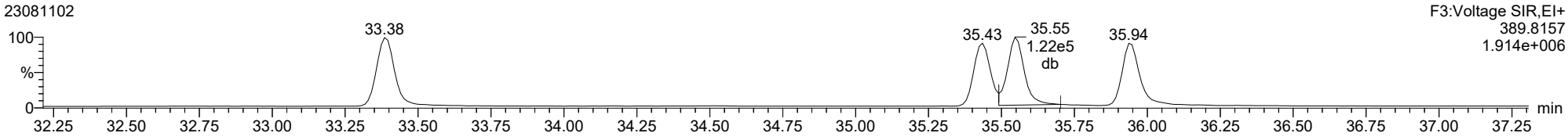


FUNCTION3 PFK

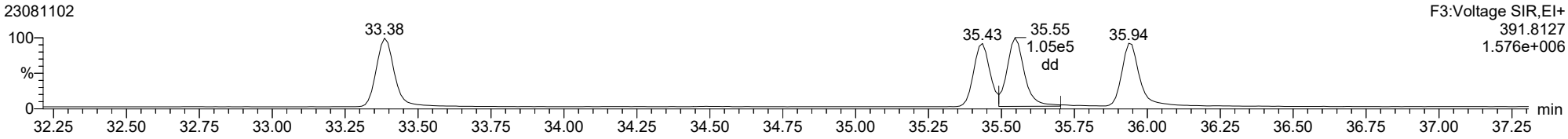


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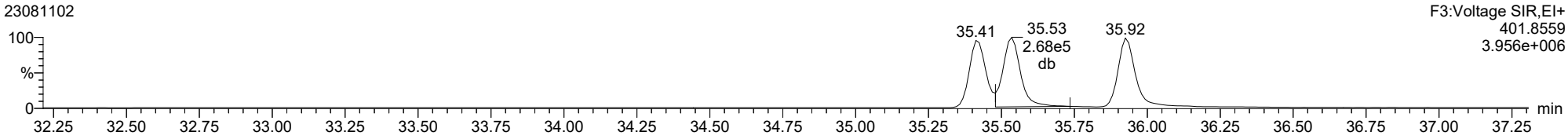
123678-HxCDD



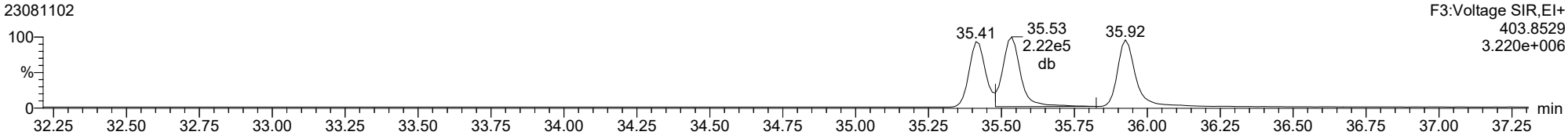
123678-HxCDD



13C-123678-HxCDD

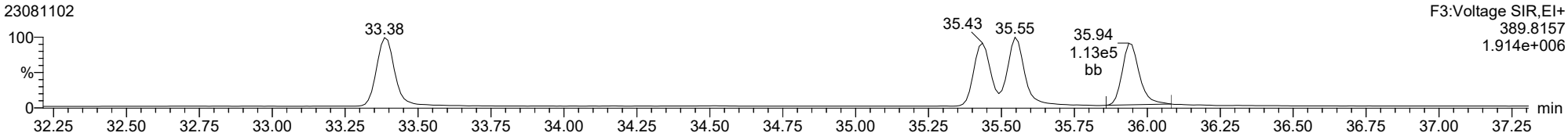


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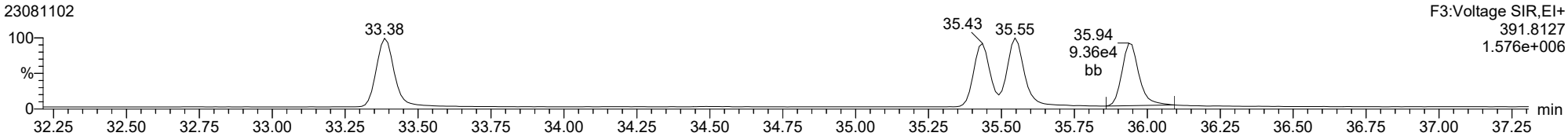


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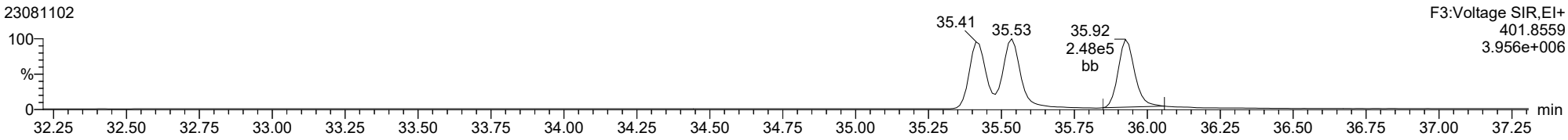
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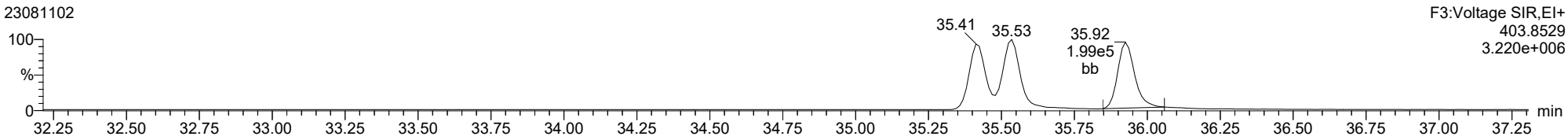
123789-HxCDD



13C-123789-HxCDD

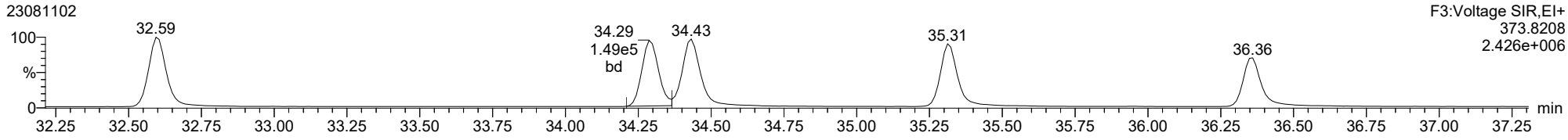


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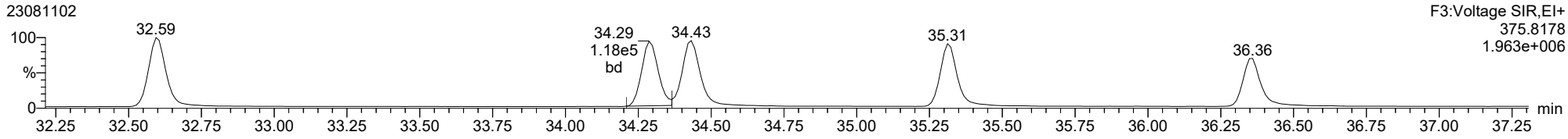


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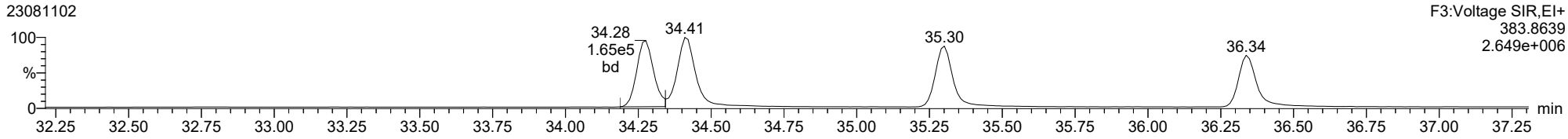
123478-HxCDF



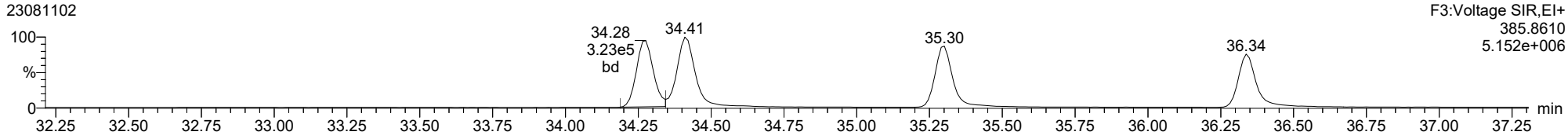
123478-HxCDF



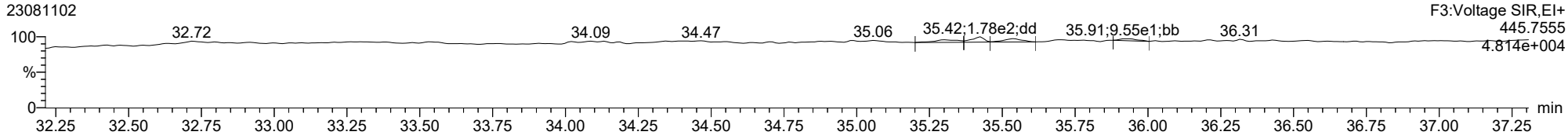
13C-123478-HxCDF



13C-123478-HxCDF

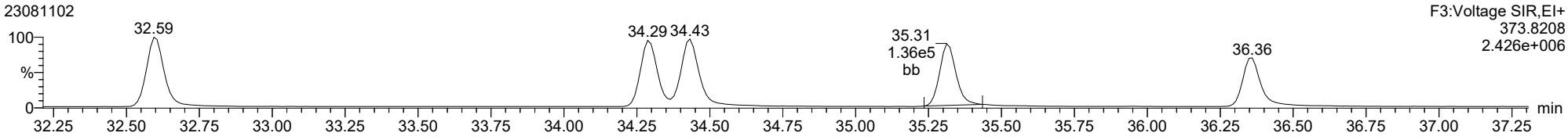


FUNCTION3 OCDPE

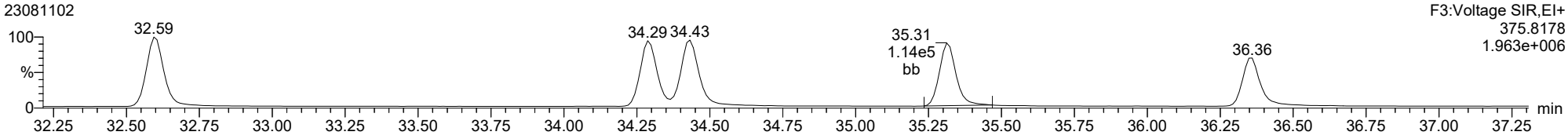


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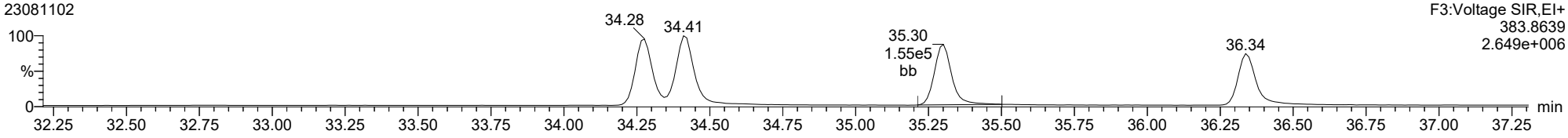
234678-HxCDF



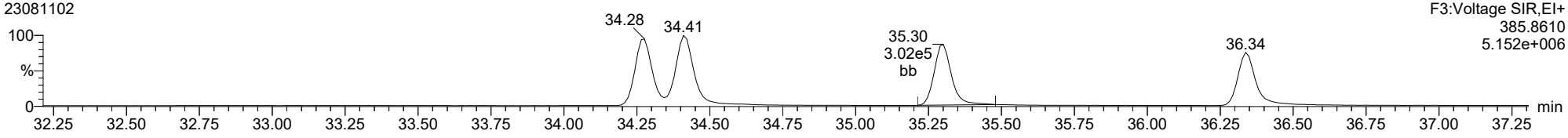
234678-HxCDF



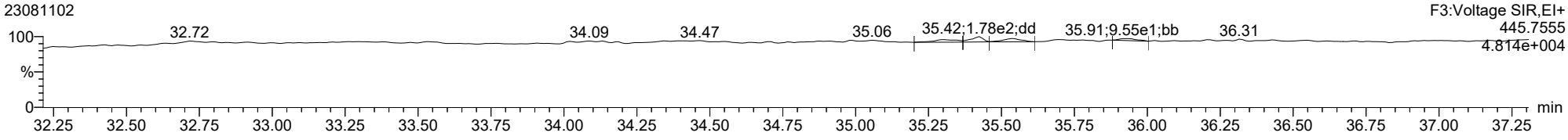
13C-234678-HxCDF



13C-234678-HxCDF

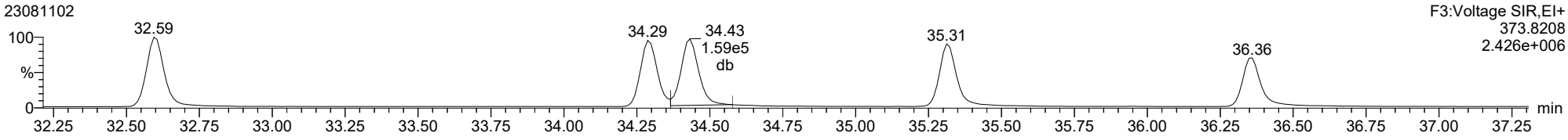


FUNCTION3 OCDPE

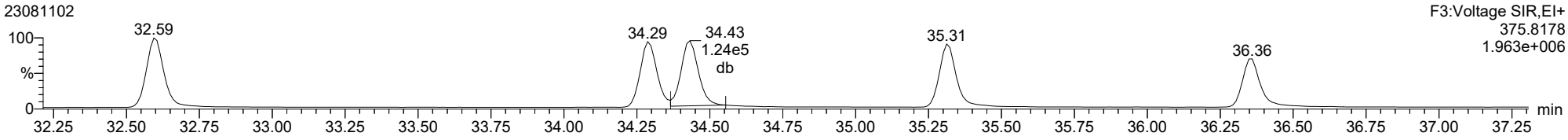


ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

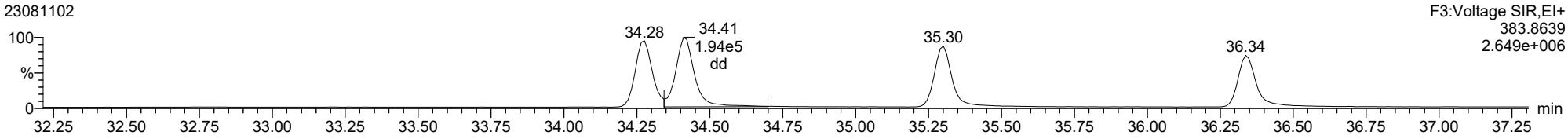
123678-HxCDF



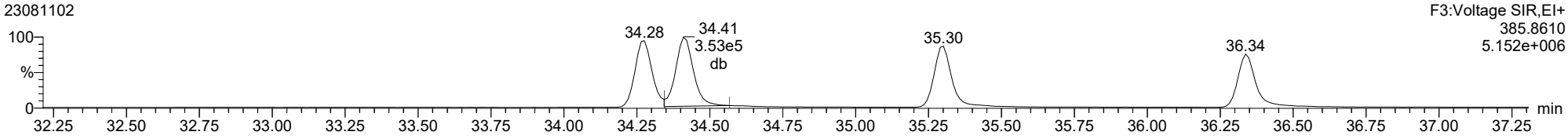
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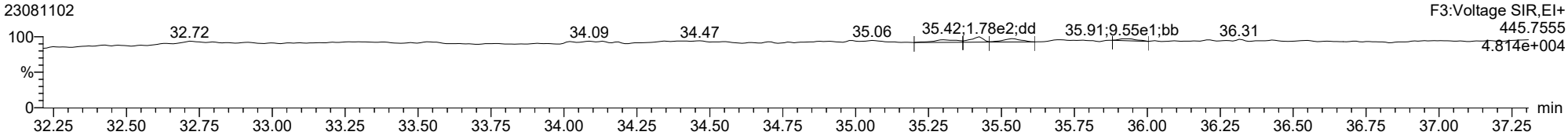
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13C-123678-HxCDF

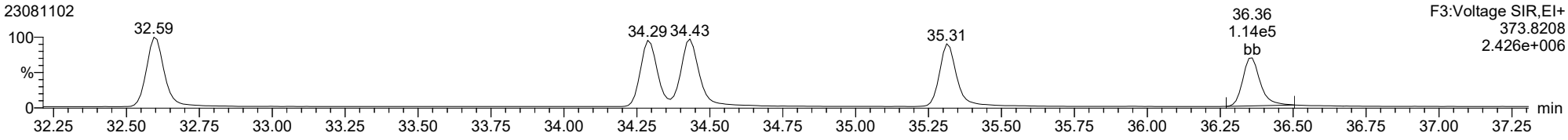


FUNCTION3 OCDPE

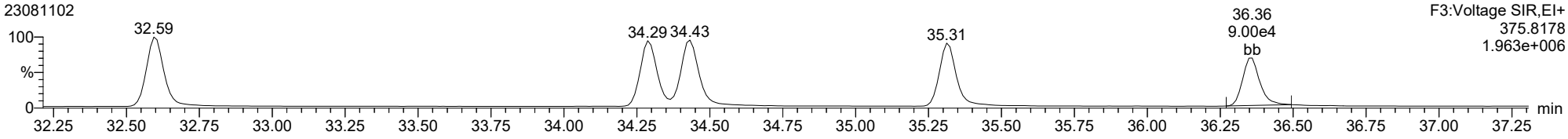


ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

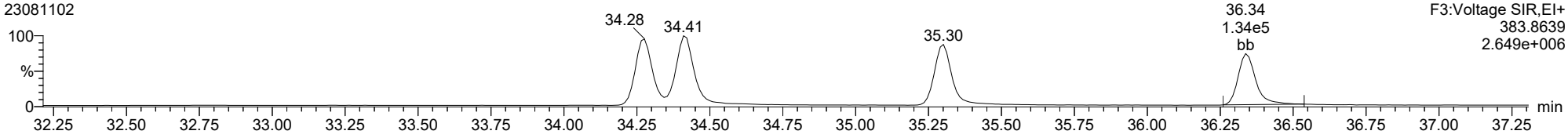
123789-HxCDF



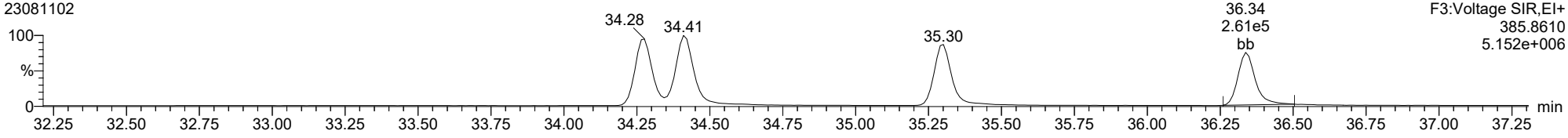
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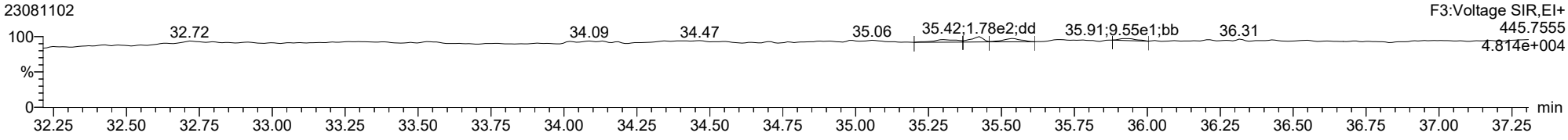
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13C-123789-HxCDF

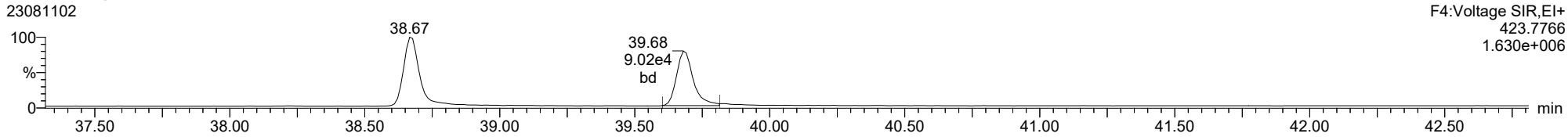


FUNCTION3 OCDPE

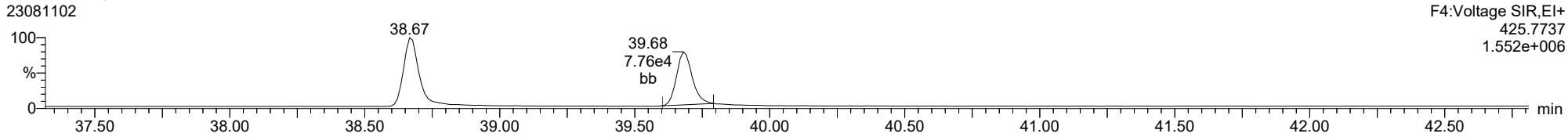


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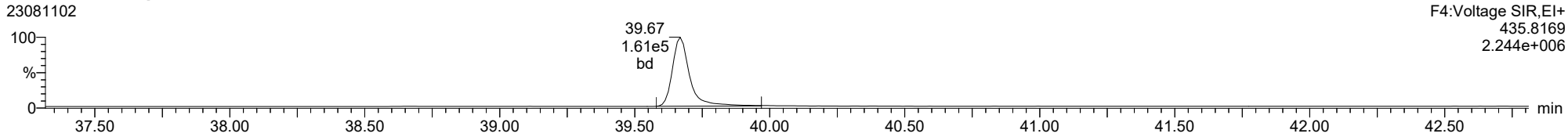
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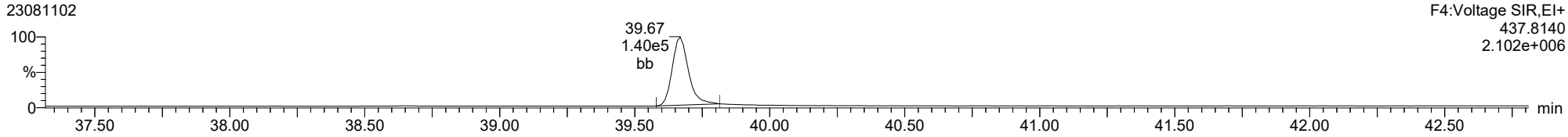
1234678-HpCDD



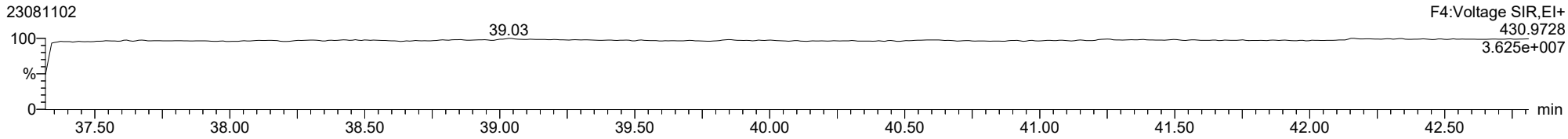
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13C-1234678-HpCDD

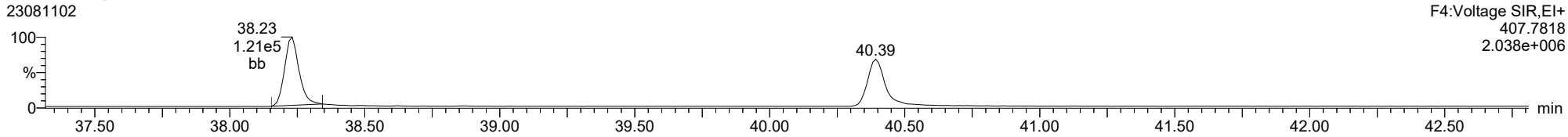


FUNCTION4 PFK

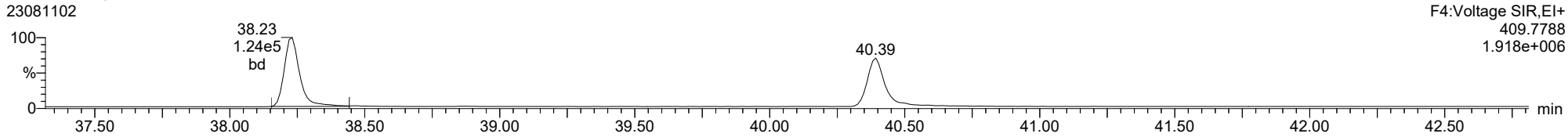


ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

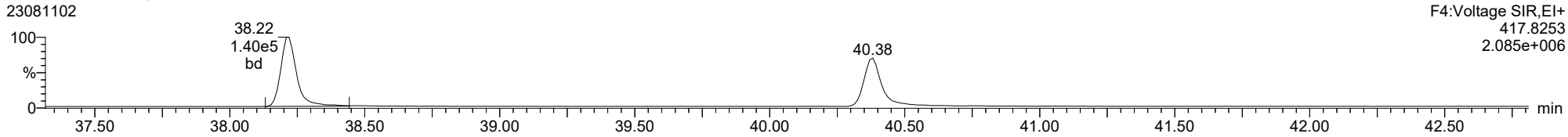
1234678-HpCDF



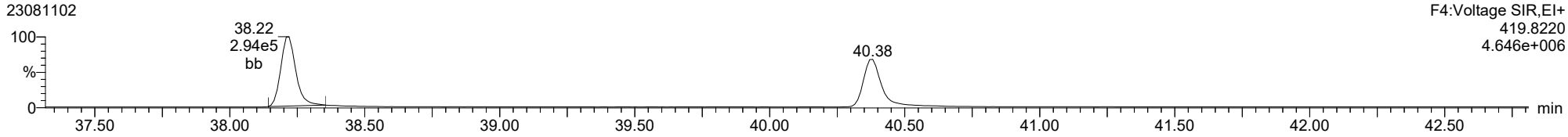
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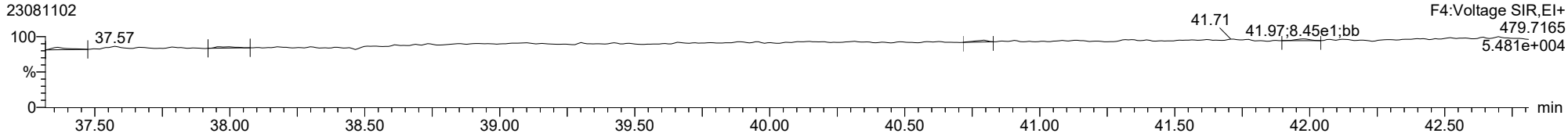
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13C-1234678-HpCDF

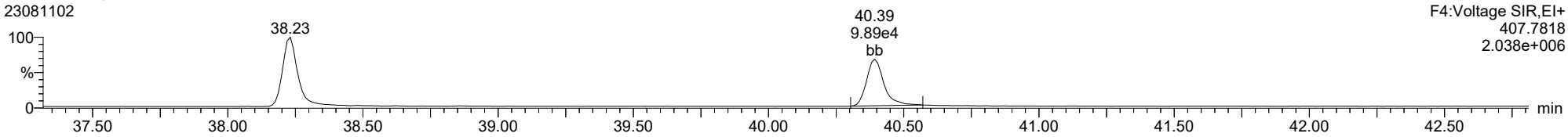


FUNCTION4 NCDPE

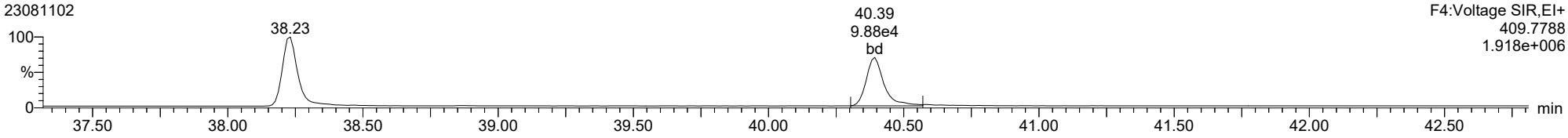


ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

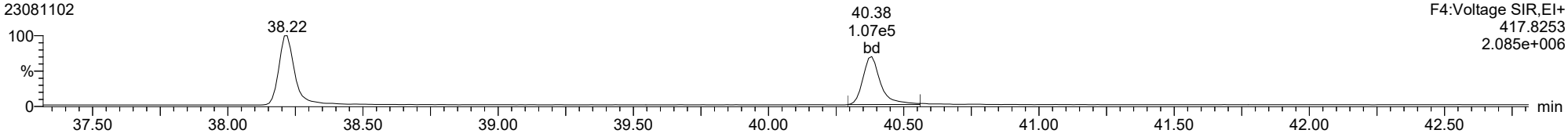
1234789-HpCDF



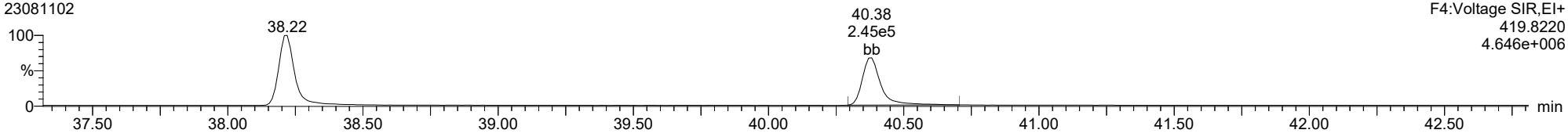
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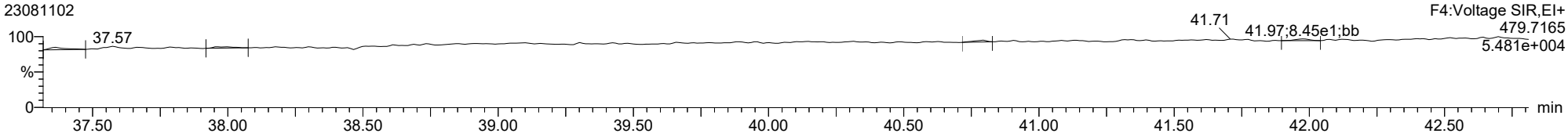
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13C-1234789-HpCDF

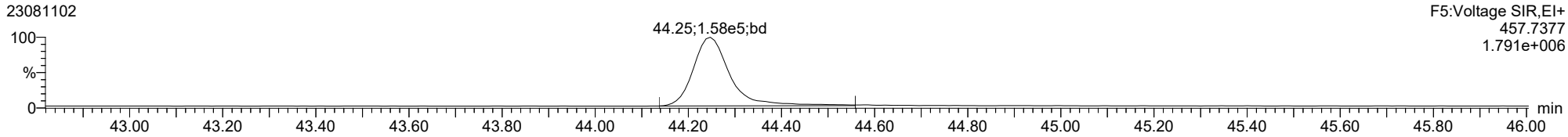


FUNCTION4 NCDPE

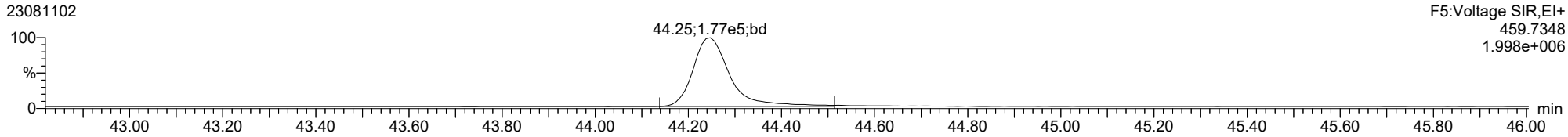


ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

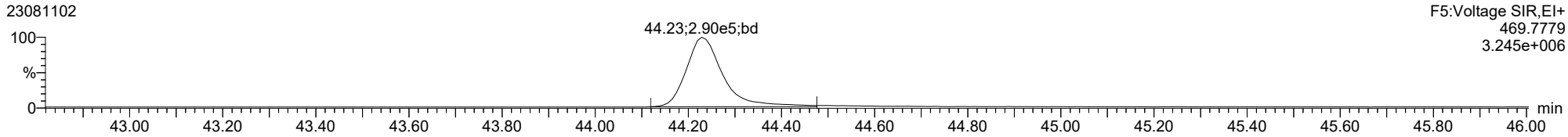
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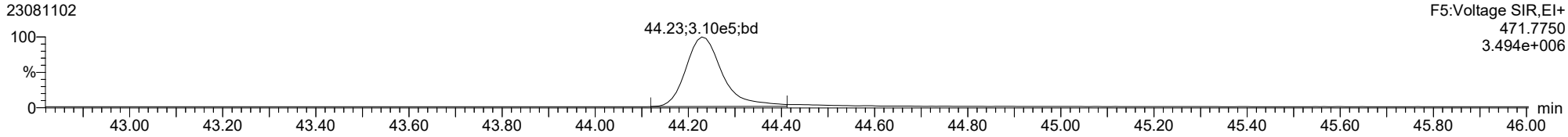
OCDD



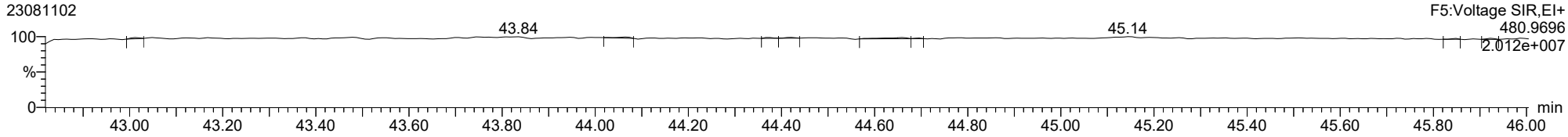
13C-OCDD



13C-OCDD

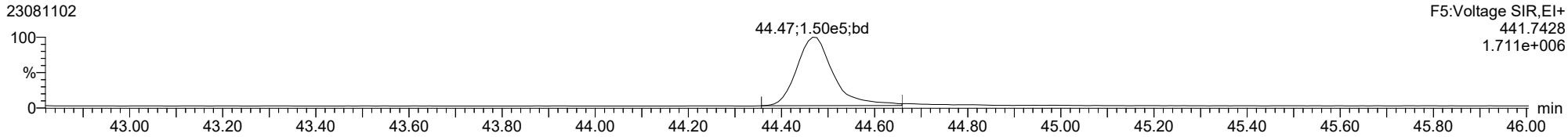


FUNCTION5 PFK

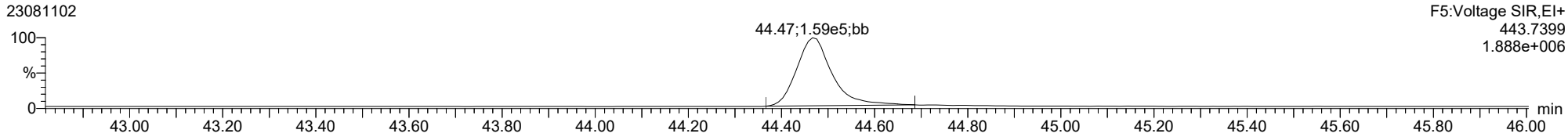


ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

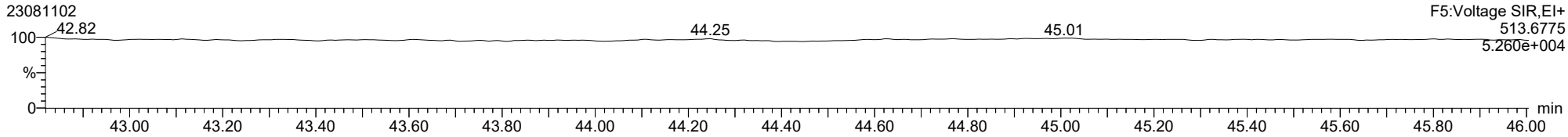
OCDF



OCDF

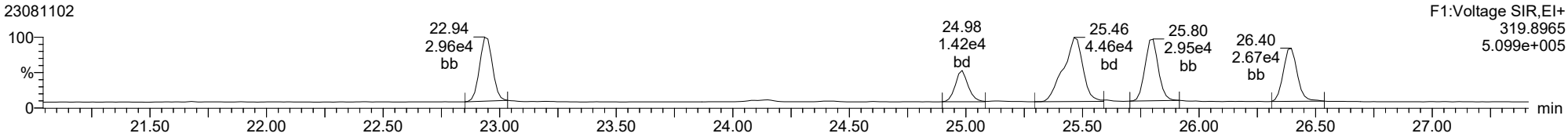


FUNCTION5 DCDPE

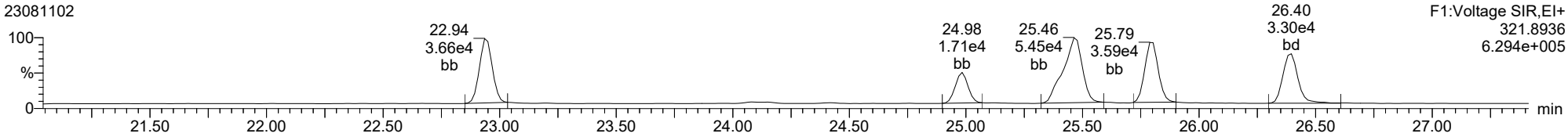


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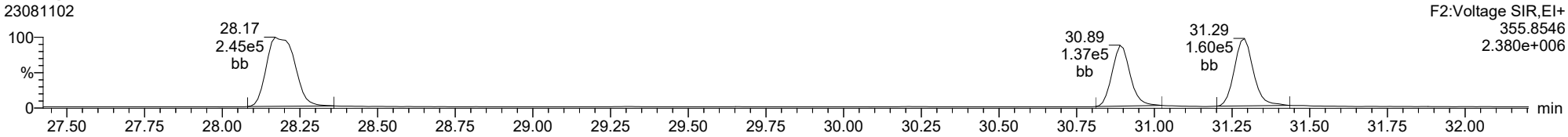
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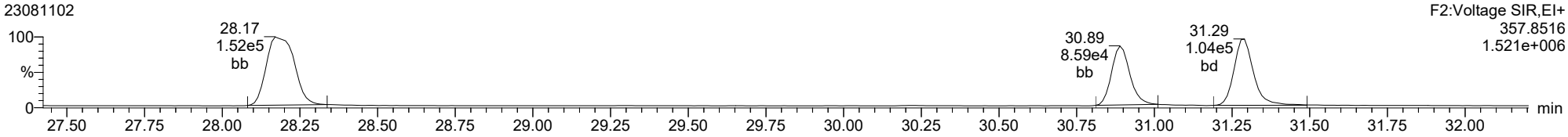
Total-tetradioxins



Total-pentadioxins

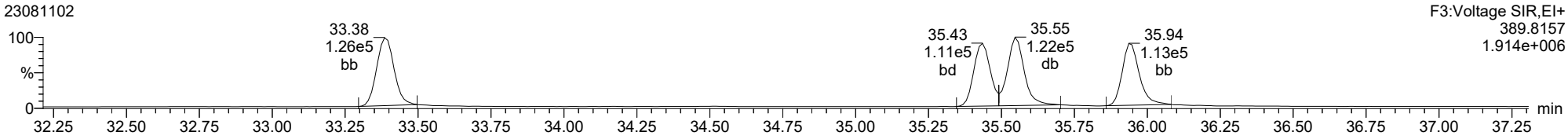


Total-pentadioxins

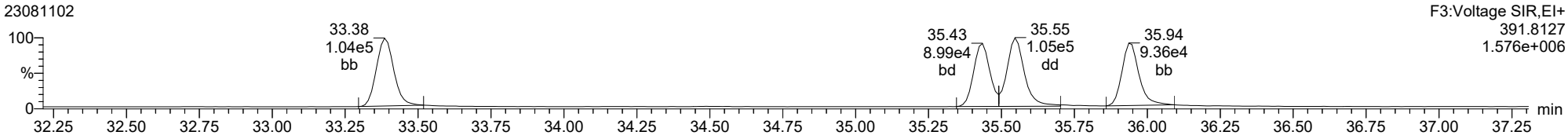


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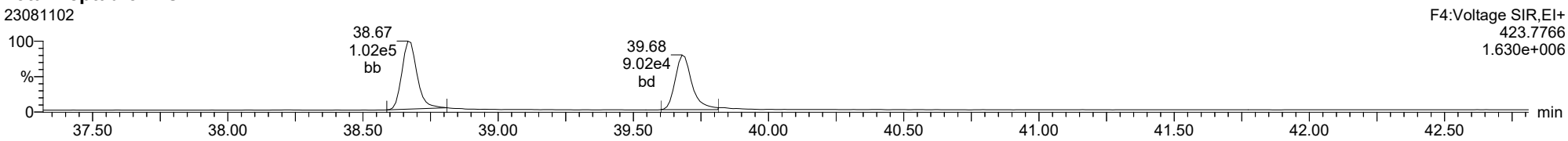
Total-hexadioxins



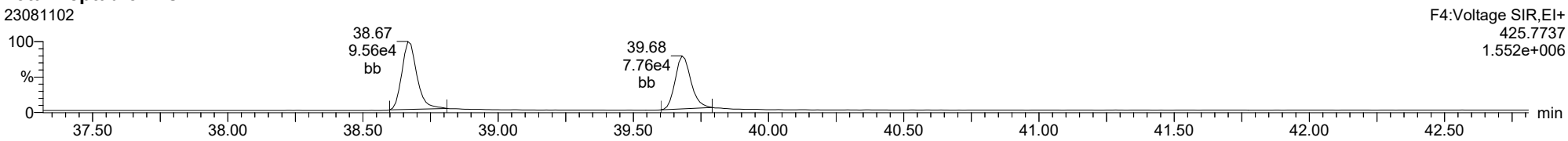
Total-hexadioxins



Total-heptadioxins



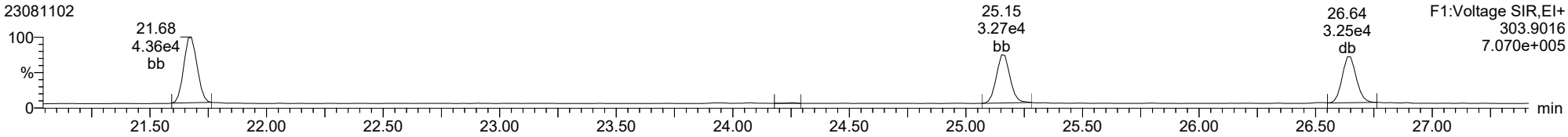
Total-heptadioxins



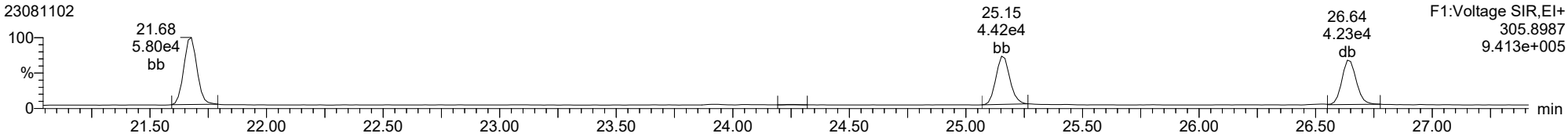
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Last Altered: Tuesday, August 15, 2023 12:21:02 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:22:06 Pacific Daylight Time

ID: CS3F1, Name: 23081102, Date: 11-Aug-2023, Time: 10:28:53, Conditions: AUTOSPEC01, User: pk

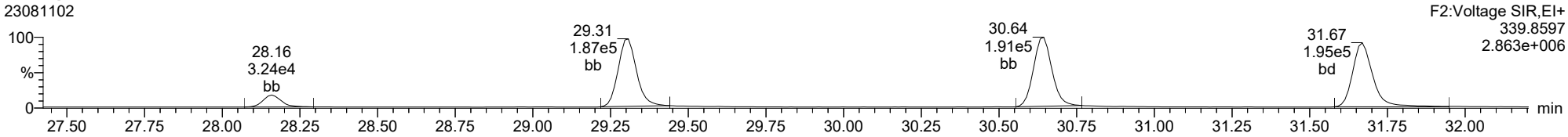
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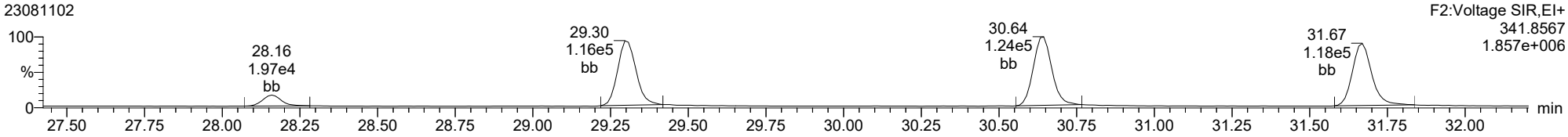
Total-tetrafurans



Total-pentafurans

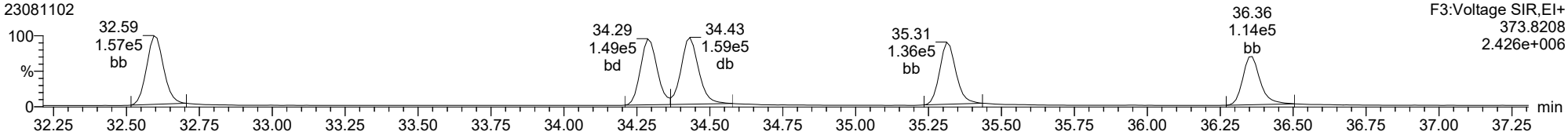


Total-pentafurans

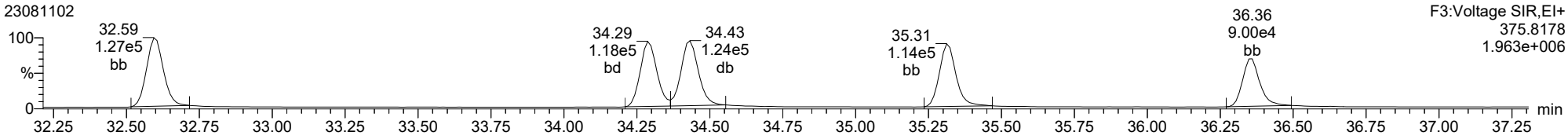


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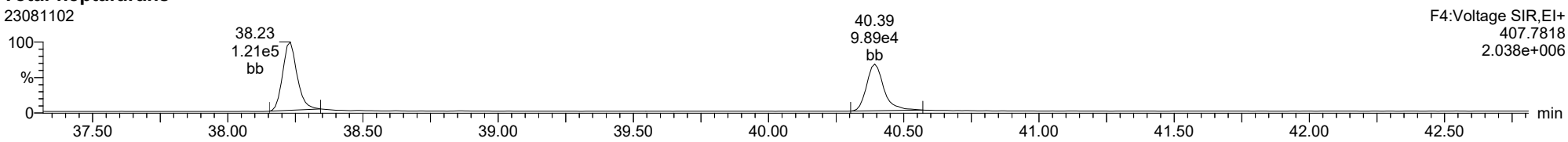
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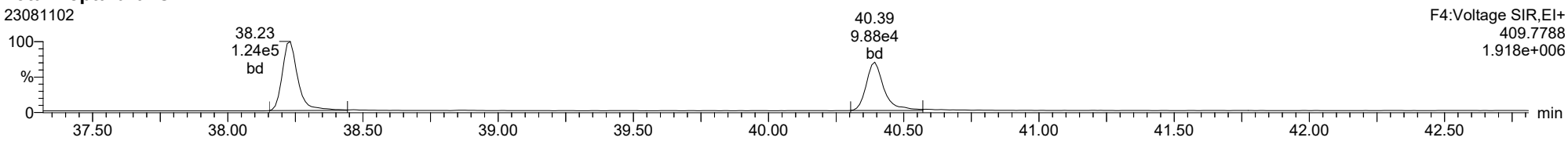
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
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Printed: Tuesday, August 15, 2023 12:23:54 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF					0.903		0.770	620	1084								
12378-PeCDF	29.285	1.000	1.884e3	1.134e3	0.923	1.661	1.550	694	714	2.90e4	1.67e4	41.8	23.4	NO	bb	bb	0.490
23478-PeCDF	30.622	1.000	1.678e3	1.115e3	0.991	1.504	1.550	694	714	2.63e4	1.74e4	37.8	24.3	NO	bb	MM	0.459
123478-HxCDF	34.276	1.000	1.424e3	1.052e3	1.128	1.355	1.240	557	621	1.90e4	1.52e4	34.0	24.4	NO	bd	bd	0.519
234678-HxCDF	35.301	1.000	1.282e3	9.529e2	1.081	1.345	1.240	557	621	1.62e4	1.44e4	29.0	23.3	NO	bd	MM	0.484
123678-HxCDF	34.421	1.001	1.456e3	1.109e3	1.032	1.313	1.240	557	621	2.26e4	1.47e4	40.6	23.7	NO	MM	db	0.486
123789-HxCDF	36.337	1.000	9.213e2	8.373e2	0.988	1.100	1.240	557	621	1.31e4	1.08e4	23.4	17.4	NO	bd	MM	0.487
1234678-HpCDF	38.220	1.000	1.279e3	1.078e3	1.164	1.186	1.050	652	594	1.98e4	1.55e4	30.3	26.1	NO	bb	bb	0.526
1234789-HpCDF	40.382	1.000	7.409e2	6.652e2	1.104	1.114	1.050	652	594	1.15e4	1.20e4	17.6	20.2	NO	bb	bb	0.423
OCDF	44.458	1.005	1.244e3	1.412e3	1.130	0.881	0.890	747	1121	1.70e4	1.59e4	22.7	14.1	NO	bd	bb	0.851
2378-TCDD					1.243		0.770	1009	502								
12378-PeCDD	30.878	1.001	1.244e3	7.881e2	1.150	1.579	1.550	698	698	1.80e4	1.04e4	25.7	14.9	NO	MM	bb	0.492
123478-HxCDD	35.424	1.001	1.264e3	9.051e2	0.960	1.397	1.240	537	779	2.06e4	1.40e4	38.4	18.0	NO	dd	MM	0.597
123678-HxCDD	35.546	1.001	1.088e3	1.016e3	0.883	1.071	1.240	537	779	1.58e4	1.42e4	29.3	18.2	NO	db	db	0.485
123789-HxCDD	35.936	1.012	8.774e2	6.498e2	0.804	1.350	1.240	537	779	1.17e4	1.12e4	21.8	14.4	NO	bb	bb	0.437
1234678-HpCDD	39.657	1.000	1.060e3	9.203e2	1.200	1.152	1.050	800	828	1.59e4	1.09e4	19.9	13.1	NO	MM	bb	0.620
OCDD	44.238	1.000	1.480e3	1.611e3	1.059	0.919	0.890	745	807	1.88e4	1.99e4	25.2	24.6	NO	bb	MM	1.058
13C-2378-TCDF	25.125	1.007	3.809e5	4.791e5	1.835	0.795	0.770	1678	1670	5.47e6	6.97e6	3260.3	4171.6	NO	bb	bb	99.573
13C-12378-PeCDF	29.274	1.174	3.978e5	2.690e5	1.377	1.479	1.550	2452	1825	5.52e6	3.61e6	2253.4	1977.4	NO	bb	bd	102.939
13C-23478-PeCDF	30.611	1.227	3.737e5	2.411e5	1.301	1.550	1.550	2452	1825	5.25e6	3.34e6	2140.6	1832.6	NO	bb	bb	100.404
13C-123478-HxCDF	34.265	0.954	1.433e5	2.793e5	1.091	0.513	0.510	1837	2437	2.05e6	4.04e6	1114.0	1659.7	NO	bd	bd	93.276
13C-123678-HxCDF	34.398	0.958	1.744e5	3.373e5	1.340	0.517	0.510	1837	2437	2.22e6	4.36e6	1206.1	1788.4	NO	db	db	91.895
13C-234678-HxCDF	35.290	0.983	1.411e5	2.858e5	1.093	0.494	0.510	1837	2437	1.89e6	3.72e6	1026.7	1525.6	NO	bb	bb	93.953
13C-123789-HxCDF	36.326	1.012	1.194e5	2.460e5	0.952	0.486	0.510	1837	2437	1.61e6	3.15e6	878.8	1293.2	NO	bb	bd	92.425
13C-1234678-HpCDF	38.209	1.064	1.196e5	2.660e5	0.985	0.450	0.440	1900	2426	1.78e6	3.88e6	937.8	1599.4	NO	bb	bb	94.213
13C-1234789-HpCDF	40.370	1.124	9.081e4	2.101e5	0.756	0.432	0.440	1900	2426	1.18e6	2.64e6	620.8	1088.8	NO	bb	bb	95.819
13C-1234-TCDD	24.941	0.000	2.078e5	2.628e5	1.000	0.791	0.770	1573	1080	3.13e6	3.99e6	1989.5	3694.9	NO	bb	bb	100.000
13C-2378-TCDD	25.760	1.033	2.247e5	2.876e5	1.110	0.781	0.770	1573	1080	3.38e6	4.29e6	2151.4	3969.2	NO	bb	bb	98.128
13C-12378-PeCDD	30.855	1.237	2.225e5	1.369e5	0.754	1.625	1.550	1069	1005	3.13e6	1.95e6	2925.3	1945.2	NO	bb	bb	101.357
13C-123478-HxCDD	35.401	0.986	2.102e5	1.681e5	0.960	1.250	1.240	2398	2304	3.26e6	2.62e6	1360.6	1138.7	NO	bd	bd	94.853
13C-123678-HxCDD	35.524	0.989	2.731e5	2.188e5	1.159	1.248	1.240	2398	2304	3.39e6	2.76e6	1413.4	1196.6	NO	db	dd	102.128
13C-1234678-HpCDD	39.657	1.104	1.414e5	1.248e5	0.629	1.133	1.050	1206	1681	1.79e6	1.67e6	1480.9	994.5	NO	bd	bb	101.840
13C-OCDD	44.220	1.231	2.620e5	2.900e5	0.635	0.904	0.890	2308	3179	2.71e6	2.93e6	1172.9	920.5	NO	bd	bd	209.162
13C-123789-HxCDD	35.914	0.000	2.382e5	1.773e5	1.000	1.343	1.240	2398	2304	3.12e6	2.48e6	1302.6	1074.2	NO	bd	bb	100.000
37CL-2378-TCDD	25.774	1.033	5.623e2		1.157			715		6.32e3		8.8			bb		0.103

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:23:54 Pacific Daylight Time

ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.170		0.770	620	1084								
1289-TCDF					0.847		0.770	620	1084								
13468-PECDF					1.241		1.550	569	726								
12389-PECDF					0.880		1.550	694	714								
123468-HXCDF					1.206		1.240	557	621								
1368-TCDD					1.181		0.770	1009	502								
1289-TCDD					0.963		0.770	1009	502								
12479-PECDD					2.166		1.550	698	698								
12389-PECDD					1.326		1.550	698	698								
124679-HXCDD					1.127		1.240	537	779								
1234679-HPCDD					1.303		1.050	800	828								
Total-tetrafurans			0.000e0		0.973			620		0.00e0							
Total-penta1			0.000e0					569		0.00e0							
Total-pentafurans			3.561e3		0.931			694		5.53e4							0.949
Total-hexafurans			5.083e3		1.087			557		7.08e4							1.976
Total-heptafurans			2.020e3		1.134			652		3.12e4							0.949
Total-Furans			1.191e4		1.053			620		1.74e5							4.725
Total-tetradioxins			0.000e0		1.129			1009		0.00e0							
Total-pentadioxins			1.244e3		1.548			698		1.80e4							0.492
Total-hexadioxins			3.230e3		0.943			537		4.81e4							1.519
Total-heptadioxins			1.060e3		1.251			800		1.59e4							0.620
Total-Dioxins			7.014e3		1.182			1009		1.01e5							3.688
Total-TEQ			1.892e4					1009		2.75e5							8.413
FUNCTION1 PFK			6.705e5					413218		1.14e7							
FUNCTION2 PFK			7.487e5					282117		1.93e7							0.000
FUNCTION3 PFK			0.000e0					352784		0.00e0							
FUNCTION4 PFK			2.154e4					324184		7.26e5							
FUNCTION5 PFK			1.598e5					219229		6.10e6							
FUNCTION1 HXCD...			0.000e0					576		0.00e0							
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			2.109e2					630		4.06e3							0.000
FUNCTION3 OCDPE			2.113e2					513		2.77e3							0.000
FUNCTION4 NCDPE			0.000e0					613		0.00e0							
FUNCTION5 DCDPE			1.021e2					592		2.13e3							0.000

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.62	1.678e3	1.115e3	0.991	1.50	1.55	37.8	YES	NO	bb	MM	0.459
2	12378-PeCDF	29.28	1.884e3	1.134e3	0.923	1.66	1.55	41.8	YES	NO	bb	bb	0.490

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	234678-HxCDF	35.30	1.282e3	9.529e2	1.081	1.35	1.24	29.0	YES	NO	bd	MM	0.484
2	123678-HxCDF	34.42	1.456e3	1.109e3	1.032	1.31	1.24	40.6	YES	NO	MM	db	0.486
3	123478-HxCDF	34.28	1.424e3	1.052e3	1.128	1.35	1.24	34.0	YES	NO	bd	bd	0.519
4	123789-HxCDF	36.34	9.213e2	8.373e2	0.988	1.10	1.24	23.4	YES	NO	bd	MM	0.487

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.22	1.279e3	1.078e3	1.164	1.19	1.05	30.3	YES	NO	bb	bb	0.526
2	1234789-HpCDF	40.38	7.409e2	6.652e2	1.104	1.11	1.05	17.6	YES	NO	bb	bb	0.423

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	234678-HxCDF	35.30	1.282e3	9.529e2	1.081	1.35	1.24	29.0	YES	NO	bd	MM	0.484
2	123678-HxCDF	34.42	1.456e3	1.109e3	1.032	1.31	1.24	40.6	YES	NO	MM	db	0.486
3	123478-HxCDF	34.28	1.424e3	1.052e3	1.128	1.35	1.24	34.0	YES	NO	bd	bd	0.519
4	23478-PeCDF	30.62	1.678e3	1.115e3	0.991	1.50	1.55	37.8	YES	NO	bb	MM	0.459
5	12378-PeCDF	29.28	1.884e3	1.134e3	0.923	1.66	1.55	41.8	YES	NO	bb	bb	0.490
6	1234678-HpCDF	38.22	1.279e3	1.078e3	1.164	1.19	1.05	30.3	YES	NO	bb	bb	0.526
7	123789-HxCDF	36.34	9.213e2	8.373e2	0.988	1.10	1.24	23.4	YES	NO	bd	MM	0.487
8	OCDF	44.46	1.244e3	1.412e3	1.130	0.88	0.89	22.7	YES	NO	bd	bb	0.851
9	1234789-HpCDF	40.38	7.409e2	6.652e2	1.104	1.11	1.05	17.6	YES	NO	bb	bb	0.423

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.88	1.244e3	7.881e2	1.150	1.58	1.55	25.7	YES	NO	MM	bb	0.492

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.94	8.774e2	6.498e2	0.804	1.35	1.24	21.8	YES	NO	bb	bb	0.437
2	123678-HxCDD	35.55	1.088e3	1.016e3	0.883	1.07	1.24	29.3	YES	NO	db	db	0.485
3	123478-HxCDD	35.42	1.264e3	9.051e2	0.960	1.40	1.24	38.4	YES	NO	dd	MM	0.597

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.66	1.060e3	9.203e2	1.200	1.15	1.05	19.9	YES	NO	MM	bb	0.620

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.94	8.774e2	6.498e2	0.804	1.35	1.24	21.8	YES	NO	bb	bb	0.437
2	123678-HxCDD	35.55	1.088e3	1.016e3	0.883	1.07	1.24	29.3	YES	NO	db	db	0.485
3	123478-HxCDD	35.42	1.264e3	9.051e2	0.960	1.40	1.24	38.4	YES	NO	dd	MM	0.597
4	12378-PeCDD	30.88	1.244e3	7.881e2	1.150	1.58	1.55	25.7	YES	NO	MM	bb	0.492
5	OCDD	44.24	1.480e3	1.611e3	1.059	0.92	0.89	25.2	YES	NO	bb	MM	1.058
6	1234678-HpCDD	39.66	1.060e3	9.203e2	1.200	1.15	1.05	19.9	YES	NO	MM	bb	0.620

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	234678-HxCDF	35.30	1.282e3	9.529e2	1.081	1.35	1.24	29.0	YES	NO	bd	MM	0.484
2	123678-HxCDF	34.42	1.456e3	1.109e3	1.032	1.31	1.24	40.6	YES	NO	MM	db	0.486
3	123478-HxCDF	34.28	1.424e3	1.052e3	1.128	1.35	1.24	34.0	YES	NO	bd	bd	0.519
4	23478-PeCDF	30.62	1.678e3	1.115e3	0.991	1.50	1.55	37.8	YES	NO	bb	MM	0.459
5	12378-PeCDF	29.28	1.884e3	1.134e3	0.923	1.66	1.55	41.8	YES	NO	bb	bb	0.490
6	1234678-HpCDF	38.22	1.279e3	1.078e3	1.164	1.19	1.05	30.3	YES	NO	bb	bb	0.526
7	123789-HxCDF	36.34	9.213e2	8.373e2	0.988	1.10	1.24	23.4	YES	NO	bd	MM	0.487
8	OCDF	44.46	1.244e3	1.412e3	1.130	0.88	0.89	22.7	YES	NO	bd	bb	0.851
9	1234789-HpCDF	40.38	7.409e2	6.652e2	1.104	1.11	1.05	17.6	YES	NO	bb	bb	0.423
10	123789-HxCDD	35.94	8.774e2	6.498e2	0.804	1.35	1.24	21.8	YES	NO	bb	bb	0.437
11	123678-HxCDD	35.55	1.088e3	1.016e3	0.883	1.07	1.24	29.3	YES	NO	db	db	0.485
12	123478-HxCDD	35.42	1.264e3	9.051e2	0.960	1.40	1.24	38.4	YES	NO	dd	MM	0.597
13	12378-PeCDD	30.88	1.244e3	7.881e2	1.150	1.58	1.55	25.7	YES	NO	MM	bb	0.492
14	OCDD	44.24	1.480e3	1.611e3	1.059	0.92	0.89	25.2	YES	NO	bb	MM	1.058
15	1234678-HpCDD	39.66	1.060e3	9.203e2	1.200	1.15	1.05	19.9	YES	NO	MM	bb	0.620

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	27.33	7.051e4					2.0	NO		bb		
2	FUNCTION1 PFK	26.51	8.607e4					2.9	NO		bb		
3	FUNCTION1 PFK	25.58	7.848e4					2.2	NO		bb		
4	FUNCTION1 PFK	24.45	7.780e4					3.9	YES		bb		
5	FUNCTION1 PFK	23.99	3.124e4					1.6	NO		bb		
6	FUNCTION1 PFK	23.18	5.543e4					2.6	NO		bb		
7	FUNCTION1 PFK	23.02	5.454e4					2.2	NO		bb		
8	FUNCTION1 PFK	22.86	2.387e4					1.6	NO		bb		
9	FUNCTION1 PFK	21.38	1.061e5					2.6	NO		db		
10	FUNCTION1 PFK	21.32	3.918e4					2.4	NO		bd		
11	FUNCTION1 PFK	21.16	2.365e4					2.1	NO		db		
12	FUNCTION1 PFK	21.13	2.362e4					1.6	NO		bd		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.45	1.899e4					1.2	NO		bb		0.000
2	FUNCTION2 PFK	29.21	6.358e4					1.7	NO		bb		0.000
3	FUNCTION2 PFK	29.04	1.204e4					1.0	NO		bb		0.000
4	FUNCTION2 PFK	28.79	1.769e4					1.9	NO		db		0.000
5	FUNCTION2 PFK	28.72	2.654e4					2.1	NO		bd		0.000
6	FUNCTION2 PFK	28.65	8.539e3					1.2	NO		db		0.000
7	FUNCTION2 PFK	28.60	8.457e3					1.1	NO		bd		0.000
8	FUNCTION2 PFK	28.44	1.958e3					0.4	NO		bb		0.000
9	FUNCTION2 PFK	28.39	3.544e3					0.8	NO		bb		0.000
10	FUNCTION2 PFK	27.98	4.790e3					0.8	NO		db		0.000
11	FUNCTION2 PFK	27.94	1.066e4					1.6	NO		dd		0.000
12	FUNCTION2 PFK	27.90	2.600e4					2.5	NO		bd		0.000
13	FUNCTION2 PFK	27.84	1.458e3					0.5	NO		bb		0.000
14	FUNCTION2 PFK	27.62	4.636e4					2.4	NO		bb		0.000
15	FUNCTION2 PFK	27.51	1.812e4					2.0	NO		db		0.000
16	FUNCTION2 PFK	27.47	2.559e4					2.6	NO		bd		0.000
17	FUNCTION2 PFK	30.73	5.726e4					2.3	NO		bb		0.000
18	FUNCTION2 PFK	30.57	3.668e3					0.8	NO		db		0.000
19	FUNCTION2 PFK	30.52	3.079e4					2.3	NO		bd		0.000
20	FUNCTION2 PFK	30.41	1.410e4					1.2	NO		bb		0.000
21	FUNCTION2 PFK	30.29	7.170e3					1.1	NO		bb		0.000
22	FUNCTION2 PFK	30.21	1.308e4					1.4	NO		bb		0.000
23	FUNCTION2 PFK	30.10	4.503e3					0.6	NO		db		0.000
24	FUNCTION2 PFK	30.05	1.008e4					1.5	NO		dd		0.000
25	FUNCTION2 PFK	30.02	1.789e4					1.8	NO		dd		0.000
26	FUNCTION2 PFK	29.98	1.502e4					1.7	NO		bd		0.000
27	FUNCTION2 PFK	29.89	2.330e4					2.5	NO		db		0.000
28	FUNCTION2 PFK	29.83	1.834e4					2.0	NO		dd		0.000
29	FUNCTION2 PFK	29.75	3.782e4					2.3	NO		dd		0.000
30	FUNCTION2 PFK	29.70	1.853e4					1.6	NO		bd		0.000
31	FUNCTION2 PFK	29.62	4.685e3					0.8	NO		bb		0.000
32	FUNCTION2 PFK	29.56	2.778e3					0.5	NO		bb		0.000
33	FUNCTION2 PFK	32.08	5.572e3					0.7	NO		bb		0.000
34	FUNCTION2 PFK	31.91	3.439e4					2.3	NO		bb		0.000
35	FUNCTION2 PFK	31.82	8.072e3					1.1	NO		db		0.000
36	FUNCTION2 PFK	31.78	9.469e3					1.1	NO		bd		0.000
37	FUNCTION2 PFK	31.58	4.107e3					0.8	NO		bb		0.000

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION2 PFK	31.54	1.047e4					1.2	NO		bb		0.000
39	FUNCTION2 PFK	31.46	7.901e3					1.1	NO		bb		0.000
40	FUNCTION2 PFK	31.40	1.825e3					0.6	NO		bb		0.000
41	FUNCTION2 PFK	31.29	1.391e4					1.5	NO		bb		0.000
42	FUNCTION2 PFK	31.22	4.769e3					0.6	NO		bb		0.000
43	FUNCTION2 PFK	31.18	3.877e3					0.8	NO		bb		0.000
44	FUNCTION2 PFK	31.11	1.368e4					1.6	NO		db		0.000
45	FUNCTION2 PFK	31.07	1.582e4					1.6	NO		dd		0.000
46	FUNCTION2 PFK	30.99	1.154e4					1.3	NO		bd		0.000
47	FUNCTION2 PFK	30.87	8.968e3					1.4	NO		db		0.000
48	FUNCTION2 PFK	30.86	9.432e3					1.2	NO		bd		0.000
49	FUNCTION2 PFK	32.15	1.152e4					1.3	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	41.41	2.154e4					2.2	NO		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.54	6.590e3					1.3	NO		bd		
2	FUNCTION5 PFK	44.35	1.591e4					2.0	NO		bb		
3	FUNCTION5 PFK	44.29	1.893e3					0.6	NO		bb		
4	FUNCTION5 PFK	43.92	8.732e3					1.8	NO		bb		
5	FUNCTION5 PFK	43.77	3.693e3					0.9	NO		bb		
6	FUNCTION5 PFK	43.49	1.170e4					1.9	NO		db		
7	FUNCTION5 PFK	43.44	3.839e3					1.0	NO		bd		
8	FUNCTION5 PFK	43.17	6.024e3					1.4	NO		bb		
9	FUNCTION5 PFK	43.00	4.281e3					0.8	NO		bb		
10	FUNCTION5 PFK	42.96	1.229e4					1.3	NO		db		
11	FUNCTION5 PFK	42.89	8.136e3					1.2	NO		bd		
12	FUNCTION5 PFK	45.63	1.111e4					1.4	NO		db		
13	FUNCTION5 PFK	45.57	1.193e4					1.9	NO		bd		
14	FUNCTION5 PFK	45.35	8.690e2					0.4	NO		bb		
15	FUNCTION5 PFK	45.30	8.430e3					1.4	NO		bb		
16	FUNCTION5 PFK	45.25	2.811e3					0.8	NO		bb		
17	FUNCTION5 PFK	45.18	3.339e3					1.0	NO		bb		
18	FUNCTION5 PFK	45.07	9.295e3					1.2	NO		bb		
19	FUNCTION5 PFK	45.01	7.058e3					1.3	NO		bb		
20	FUNCTION5 PFK	44.84	4.703e3					1.2	NO		bb		
21	FUNCTION5 PFK	44.78	1.010e4					1.3	NO		bb		
22	FUNCTION5 PFK	44.72	8.244e2					0.4	NO		bb		
23	FUNCTION5 PFK	44.59	6.289e3					1.4	NO		db		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.90	1.280e2					1.8	NO		bb		0.000
2	FUNCTION2 HPCD...	29.04	8.294e1					4.7	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	33.99	1.362e2					3.8	YES		bb		0.000
2	FUNCTION3 OCDPE	33.64	7.511e1					1.6	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

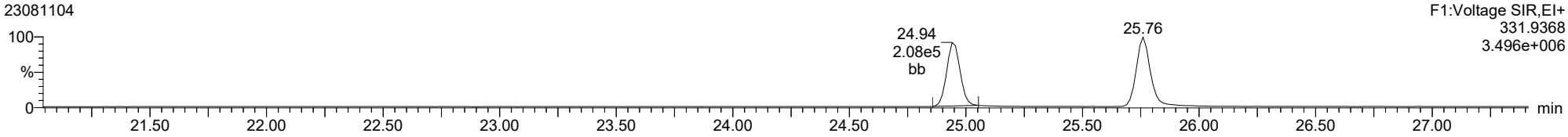
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.60	1.021e2					3.6	YES		bb		0.000

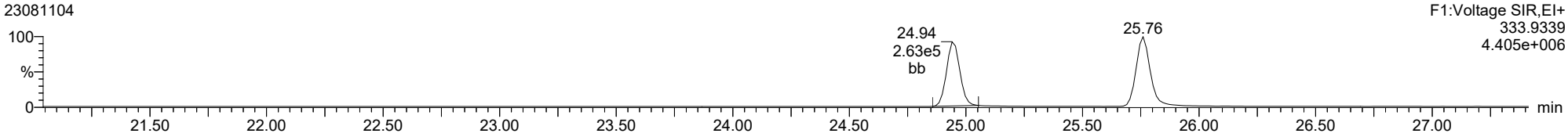
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ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

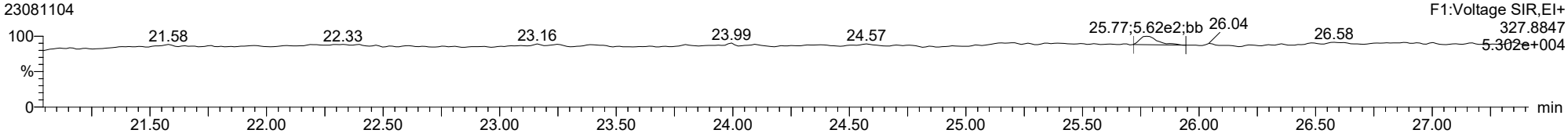
13C-1234-TCDD



13C-1234-TCDD

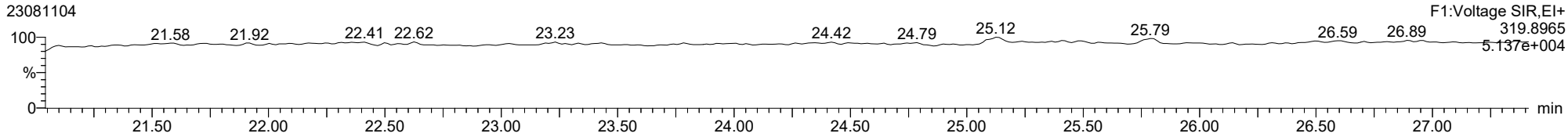


37CL-2378-TCDD

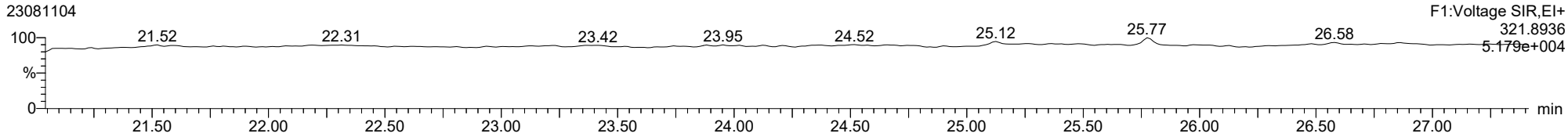


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

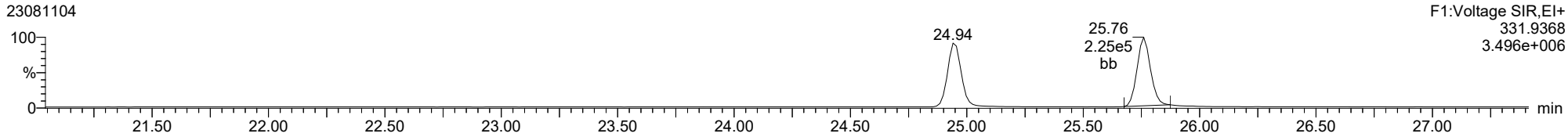
2378-TCDD



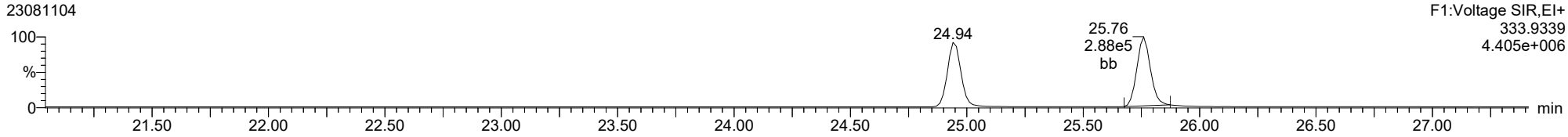
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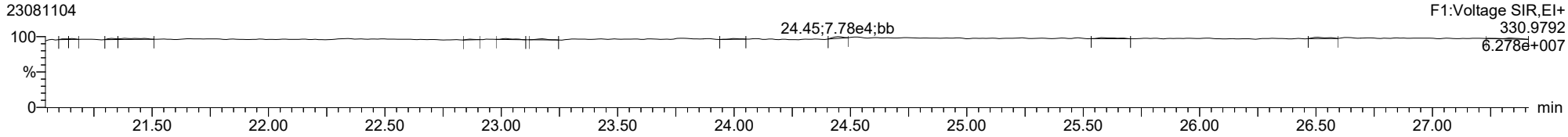
13C-2378-TCDD



13C-2378-TCDD

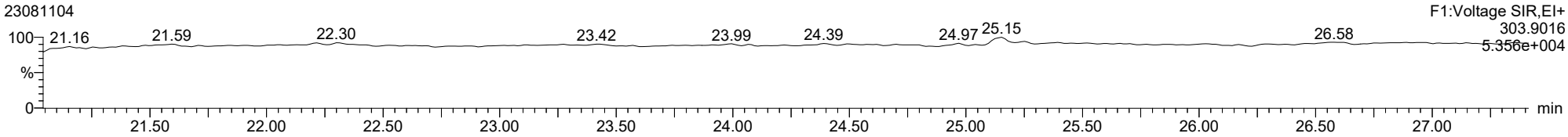


FUNCTION1 PFK

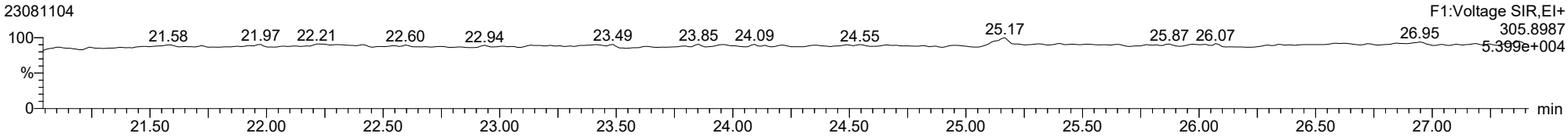


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

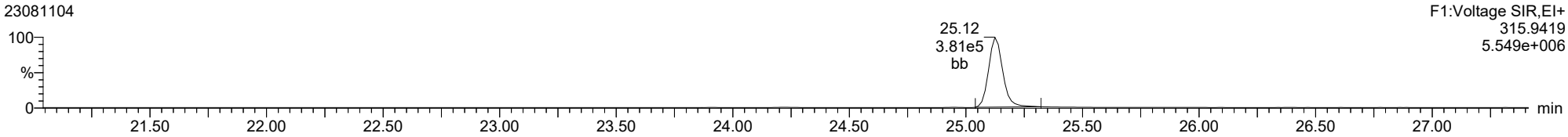
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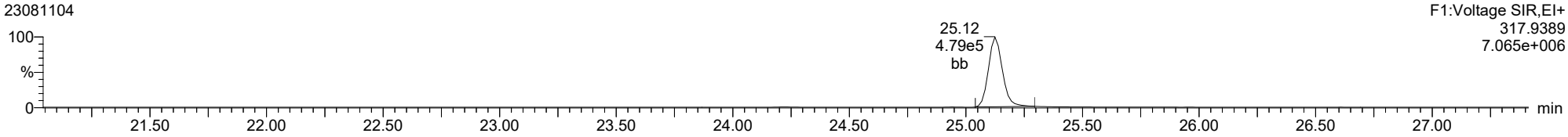
2378-TCDF



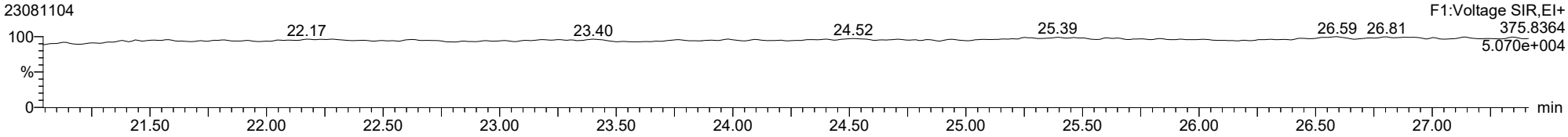
13C-2378-TCDF



13C-2378-TCDF

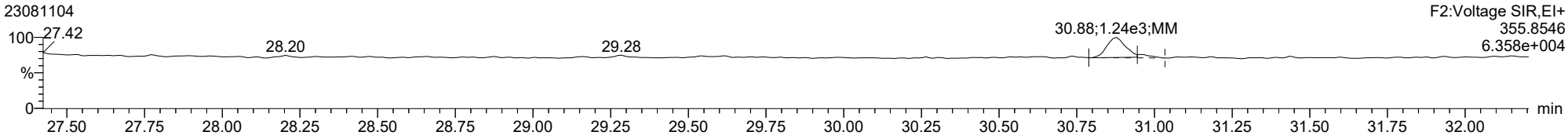


FUNCTION1 HXCDPE

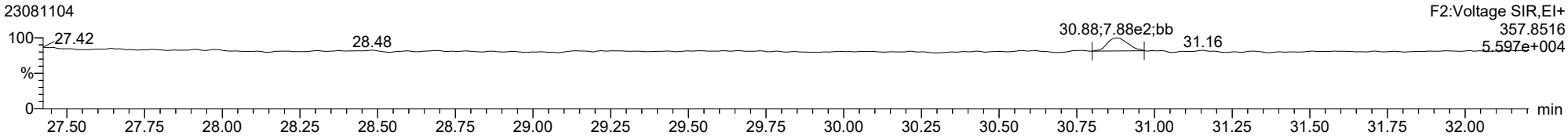


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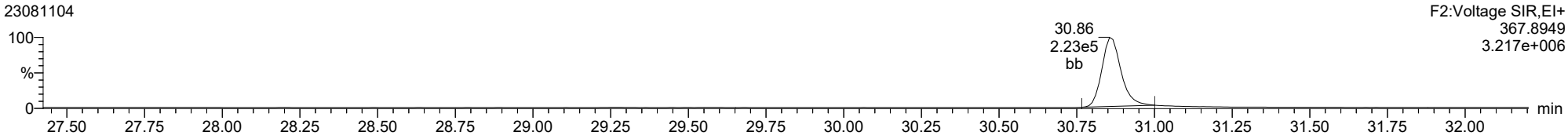
12378-PeCDD



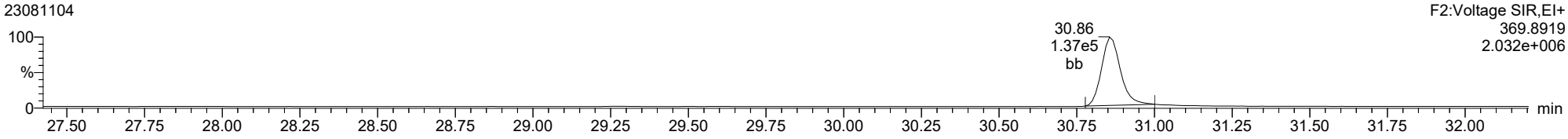
12378-PeCDD



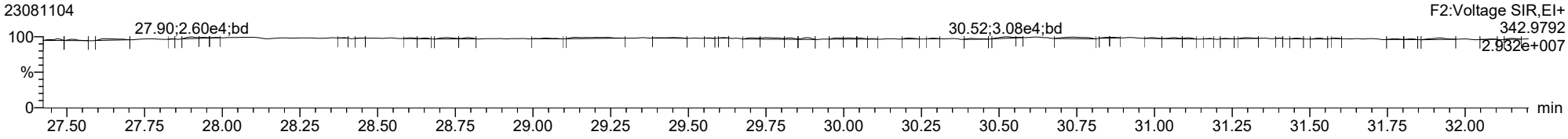
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13C-12378-PeCDD

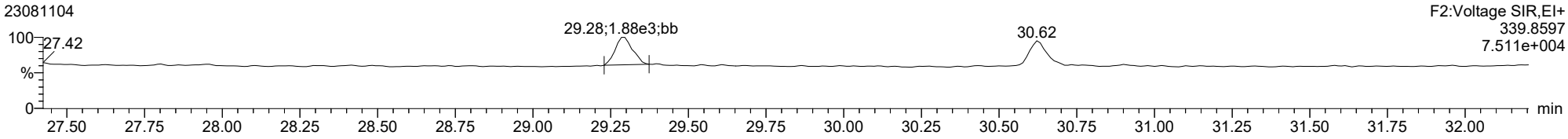


FUNCTION2 PFK

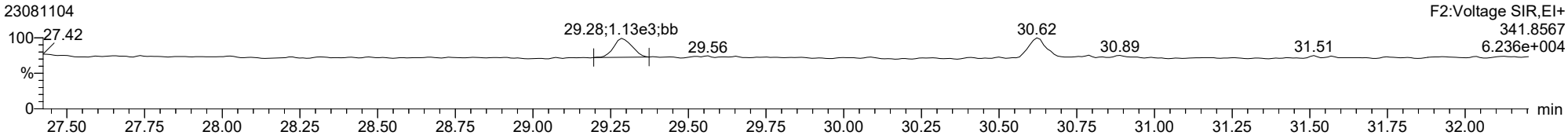


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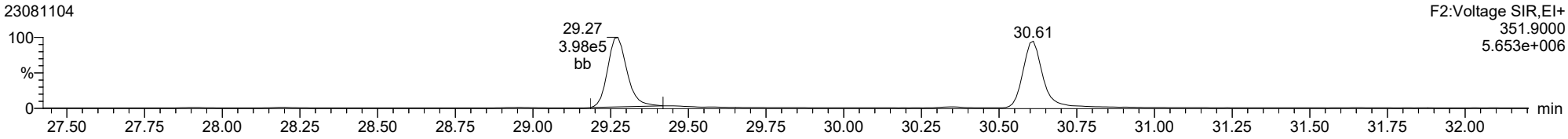
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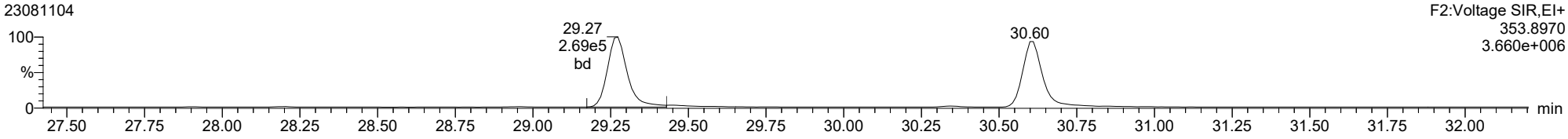
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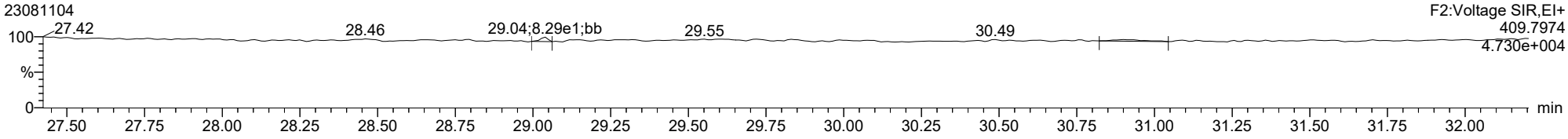
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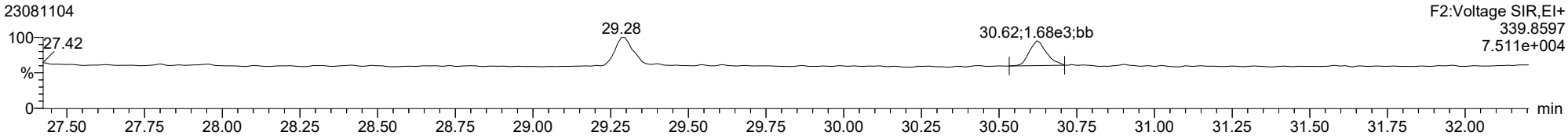


FUNCTION2 HPCDPE

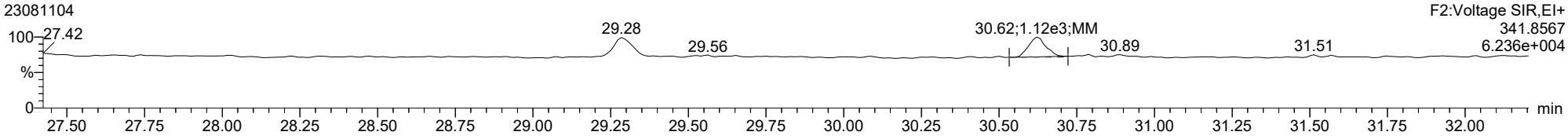


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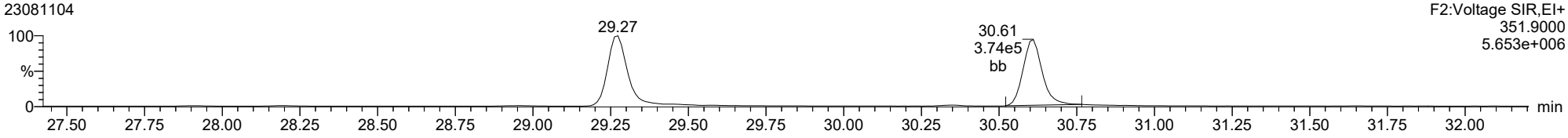
23478-PeCDF



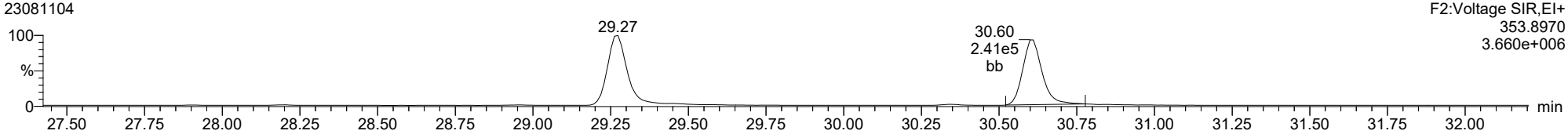
23478-PeCDF



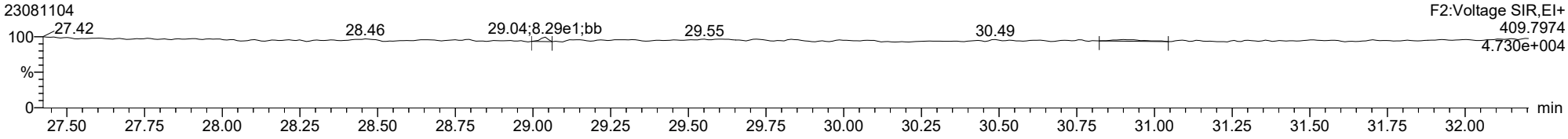
13C-23478-PeCDF



13C-23478-PeCDF



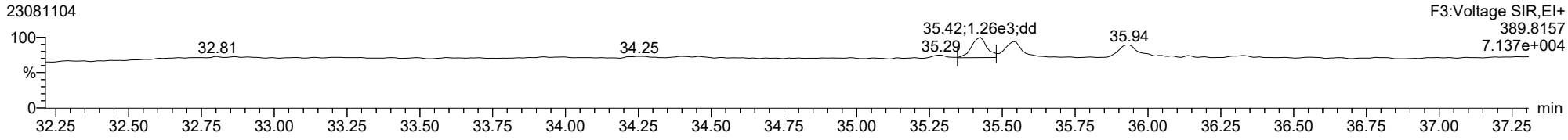
FUNCTION2 HPCDPE



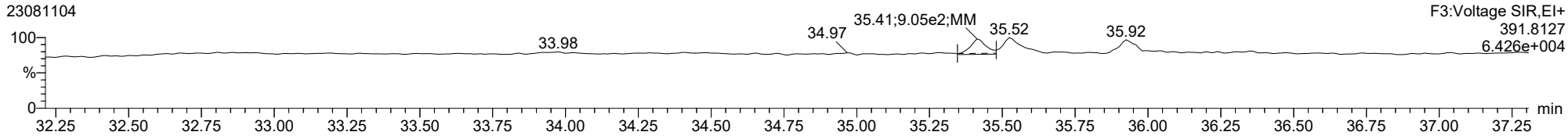
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Printed: Tuesday, August 15, 2023 12:23:54 Pacific Daylight Time

ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

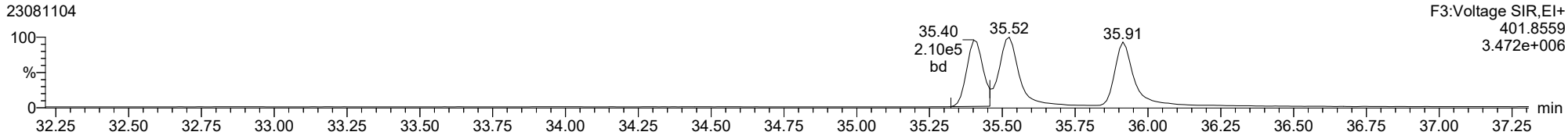
123478-HxCDD



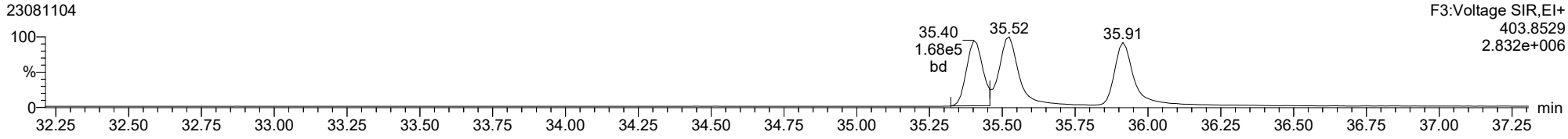
123478-HxCDD



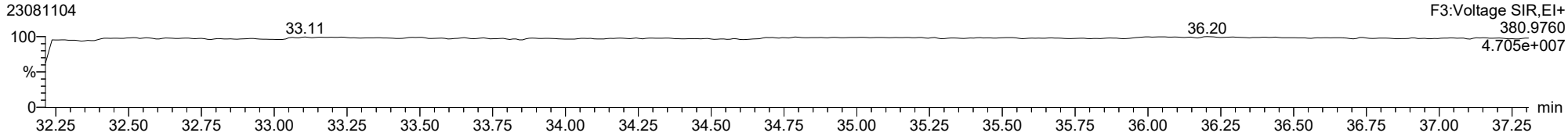
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13C-123478-HxCDD



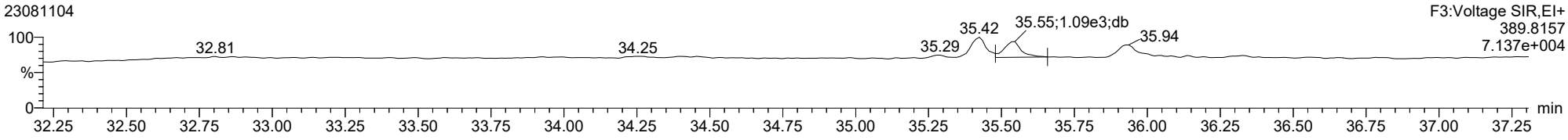
FUNCTION3 PFK



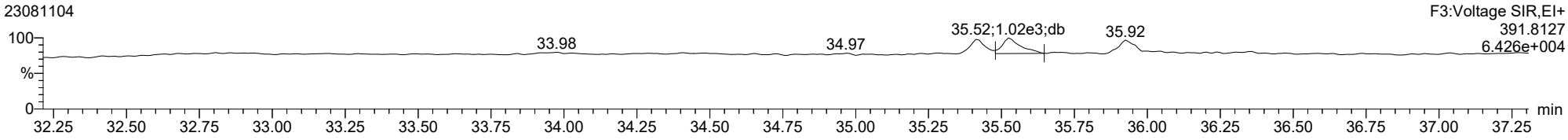
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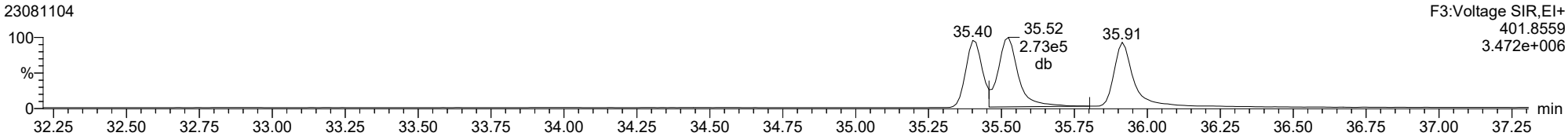
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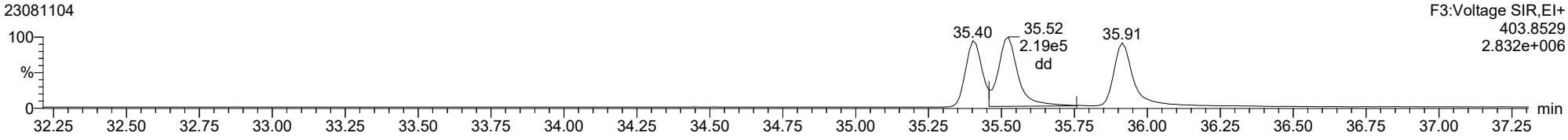
123678-HxCDD



13C-123678-HxCDD



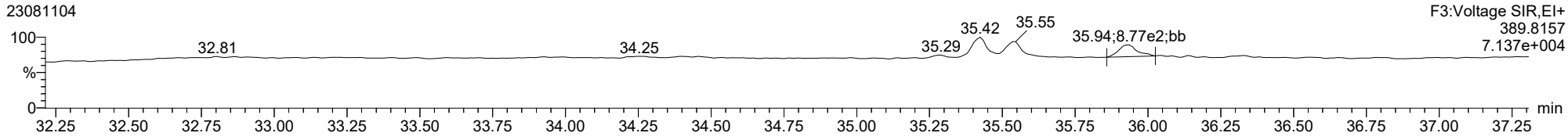
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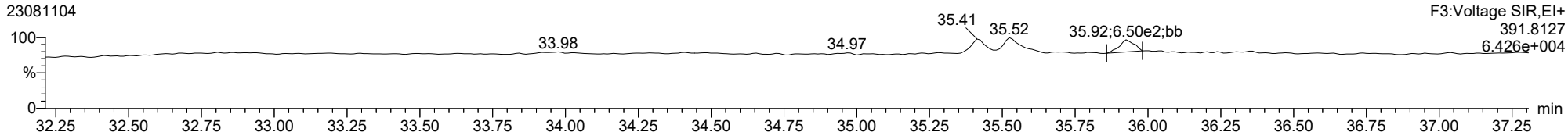
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ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

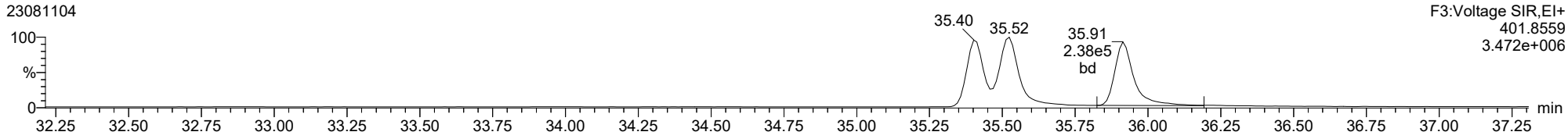
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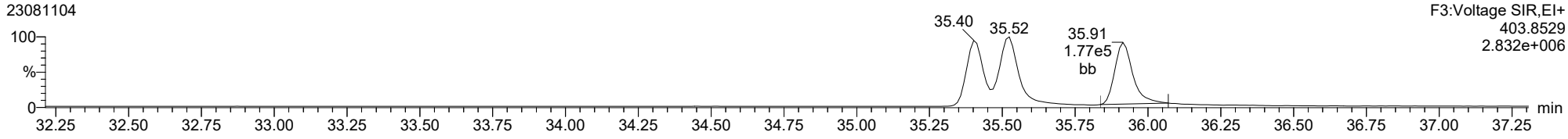
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13C-123789-HxCDD

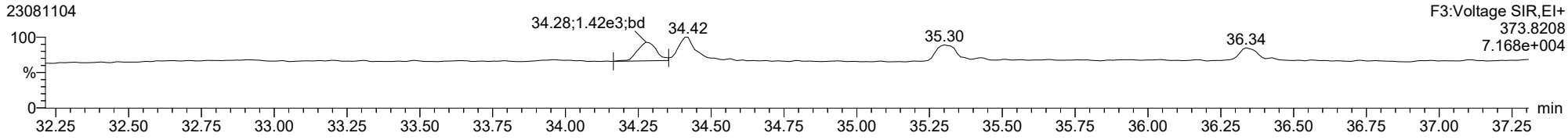


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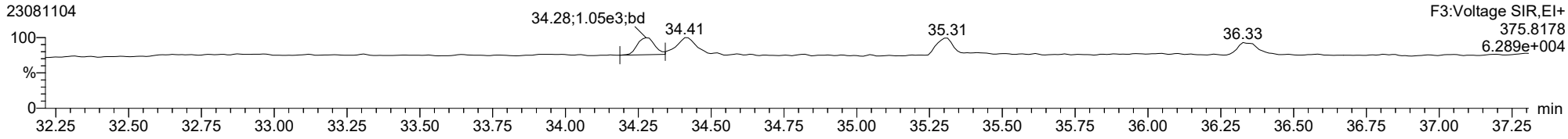


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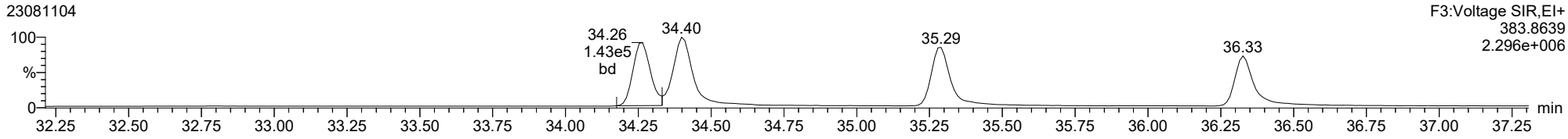
123478-HxCDF



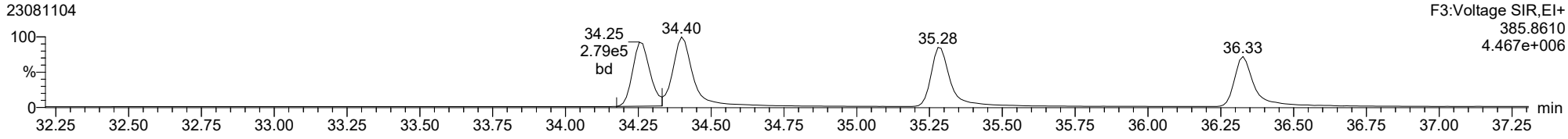
123478-HxCDF



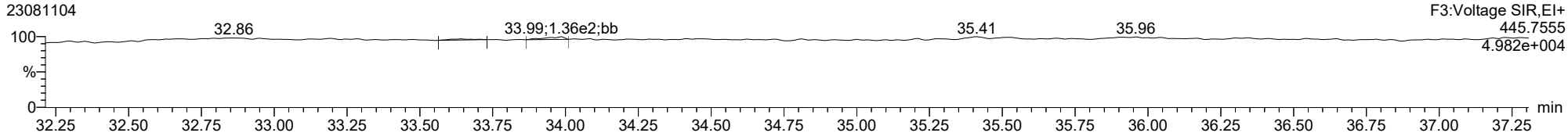
13C-123478-HxCDF



13C-123478-HxCDF

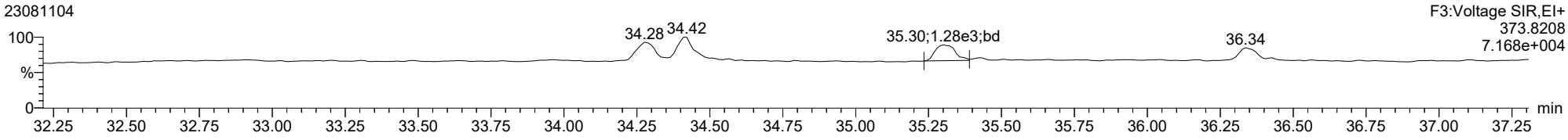


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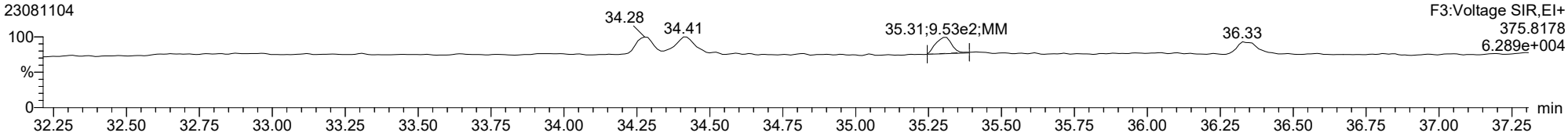


ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

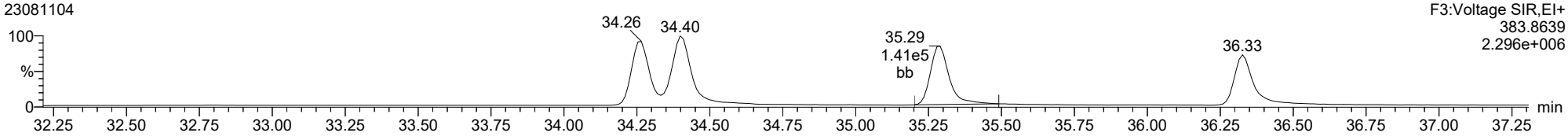
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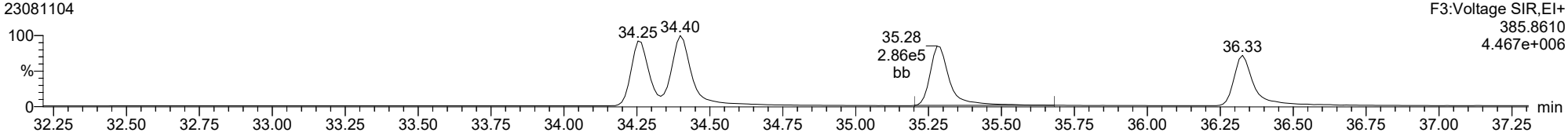
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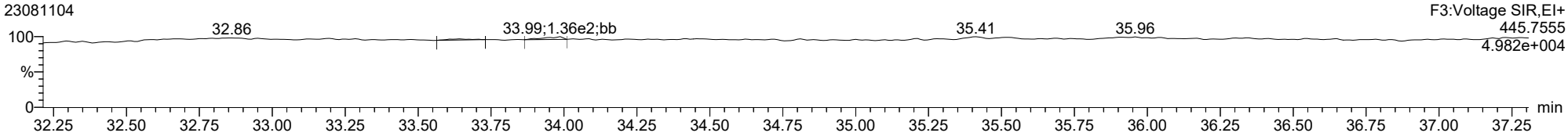
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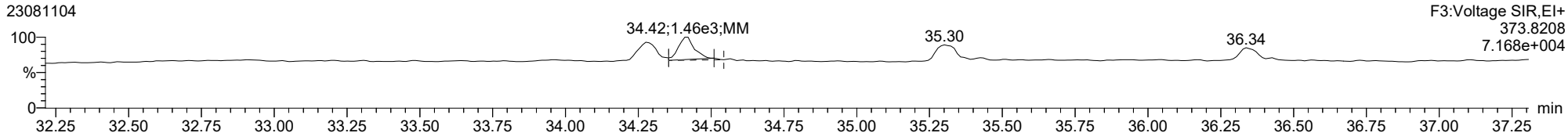


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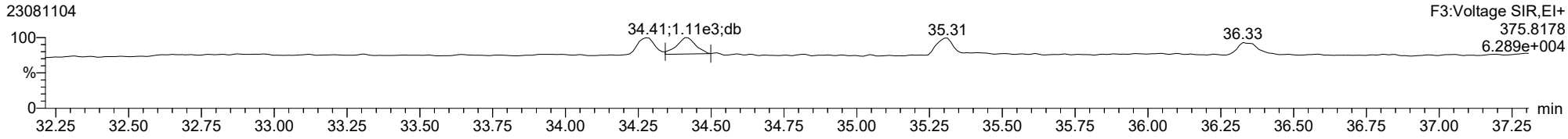


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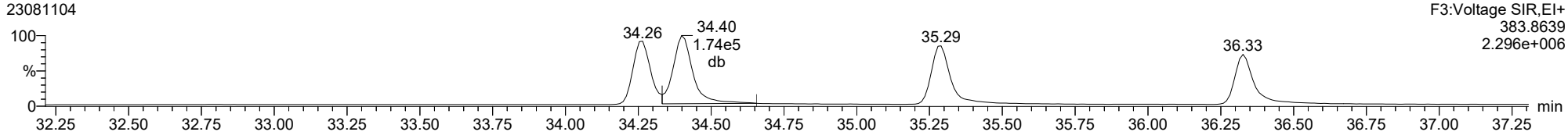
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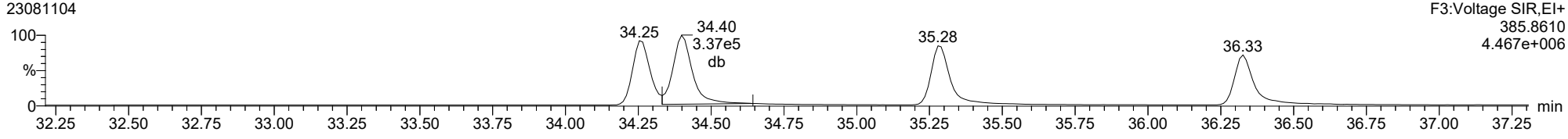
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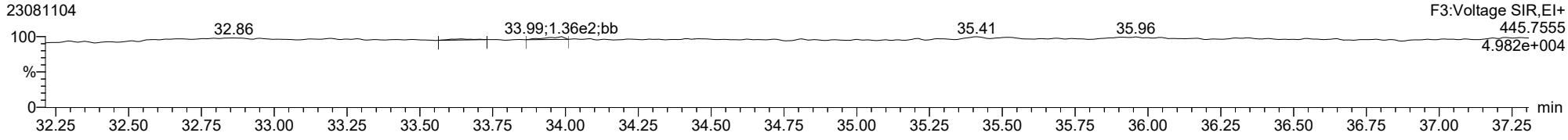
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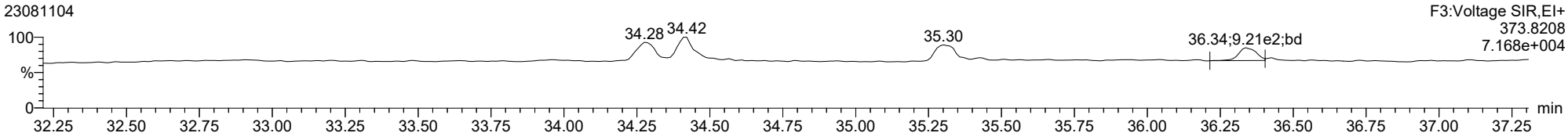


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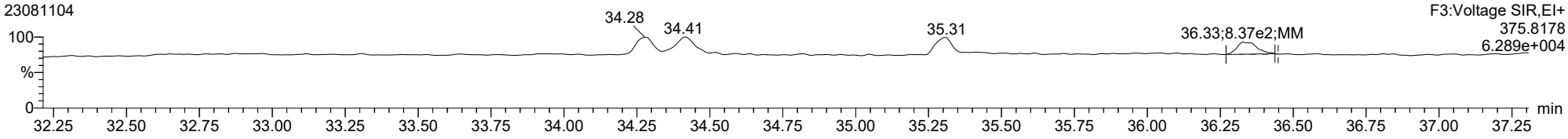


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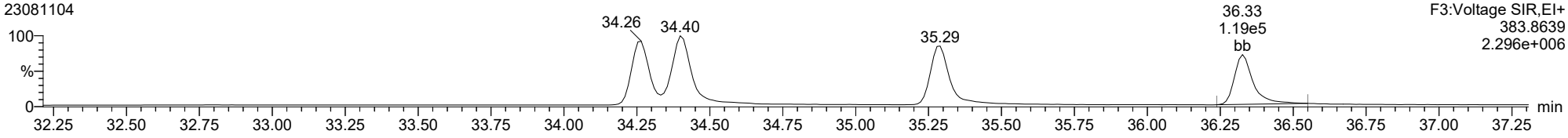
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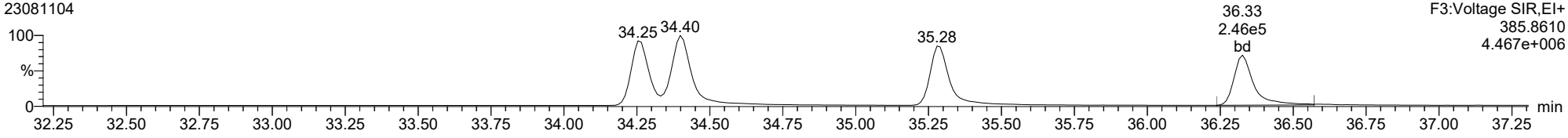
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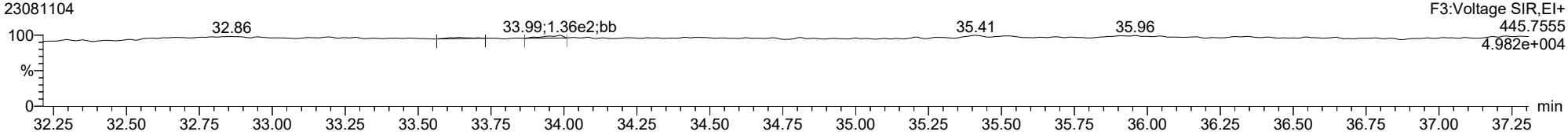
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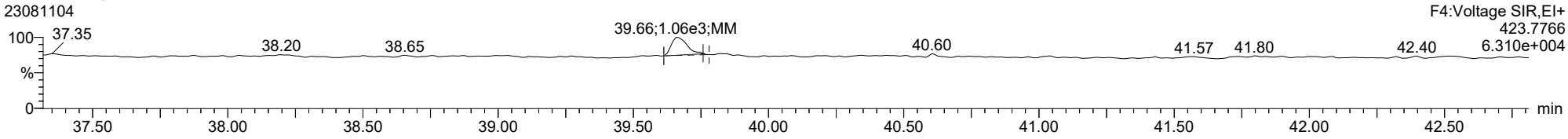


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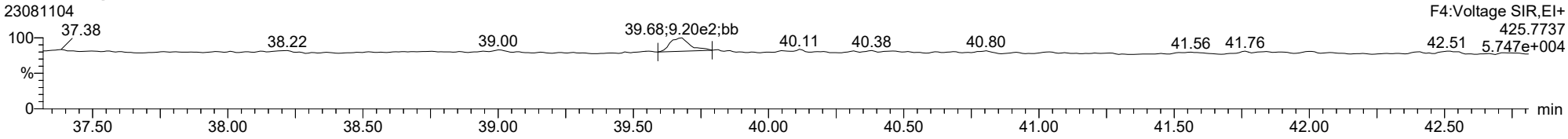


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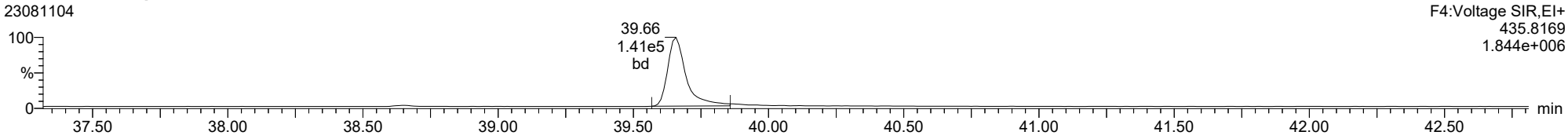
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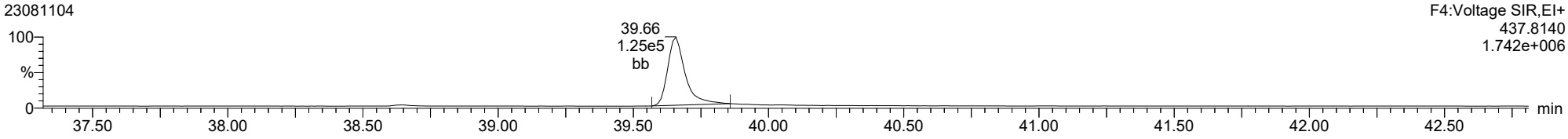
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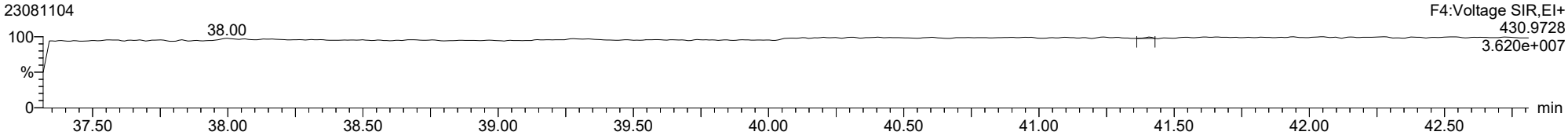
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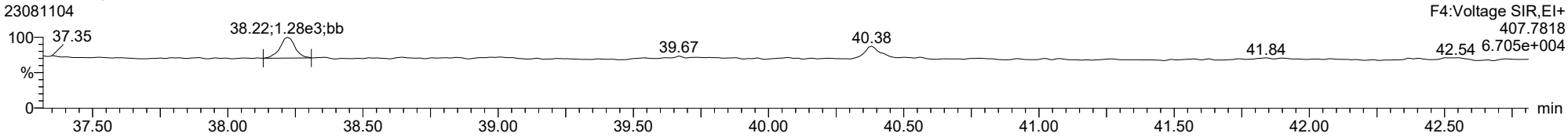


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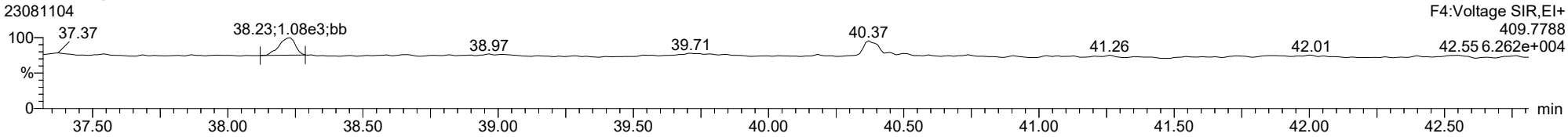


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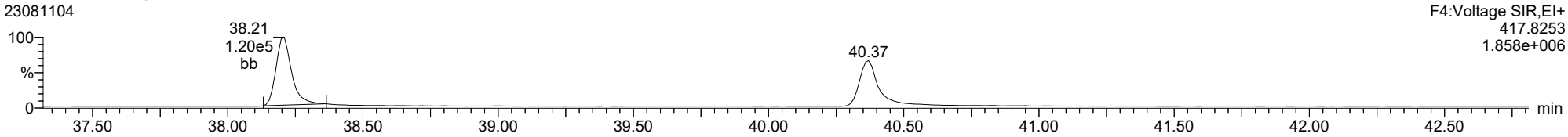
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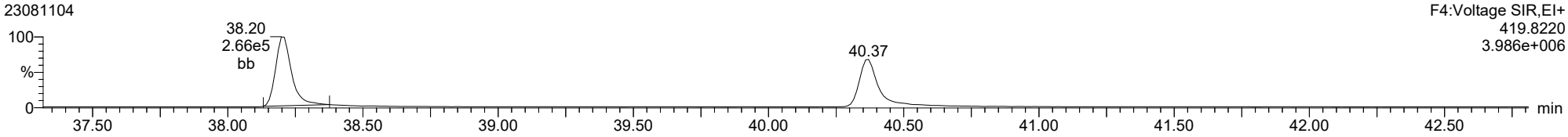
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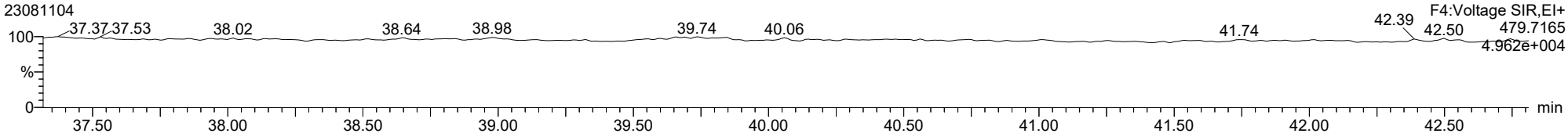
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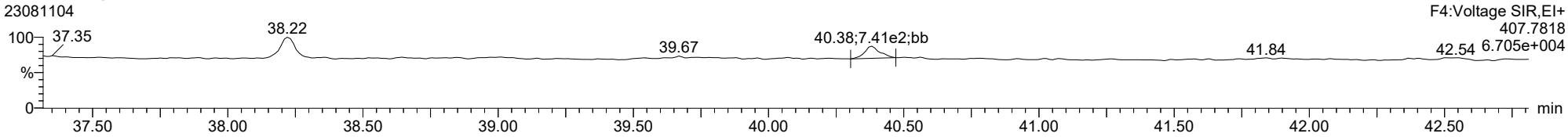


FUNCTION4 NCDPE

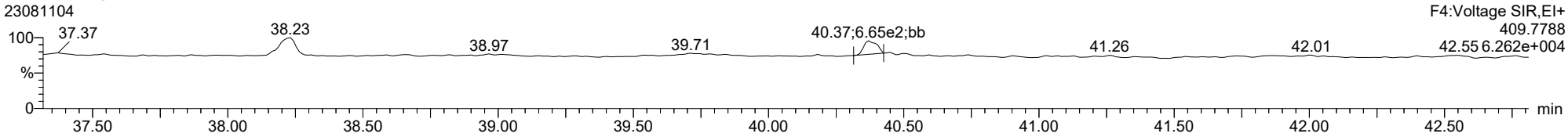


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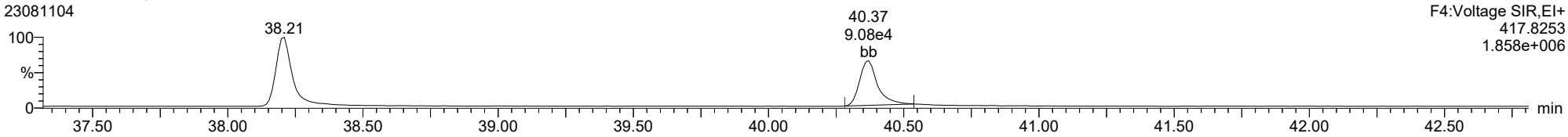
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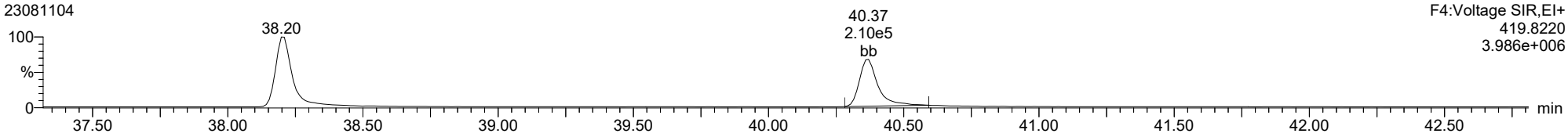
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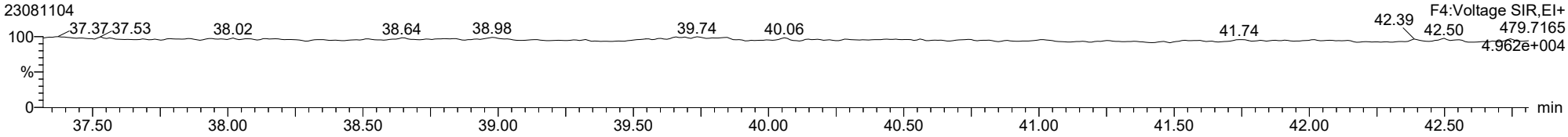
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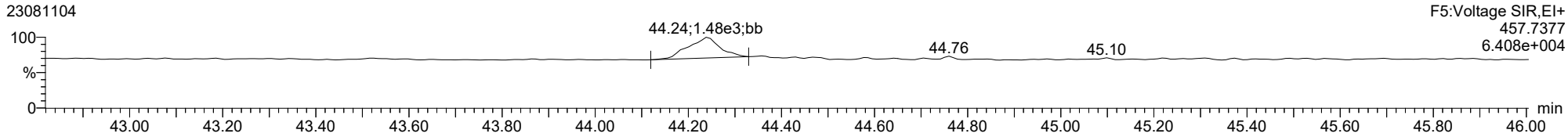


FUNCTION4 NCDPE

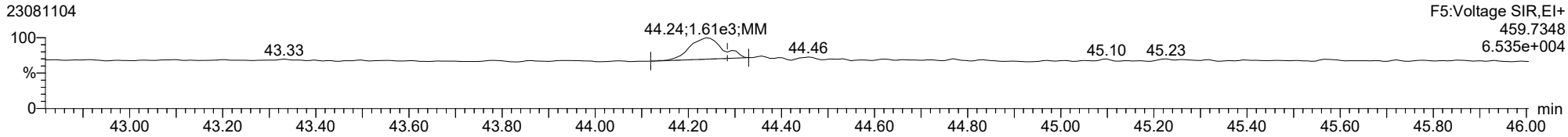


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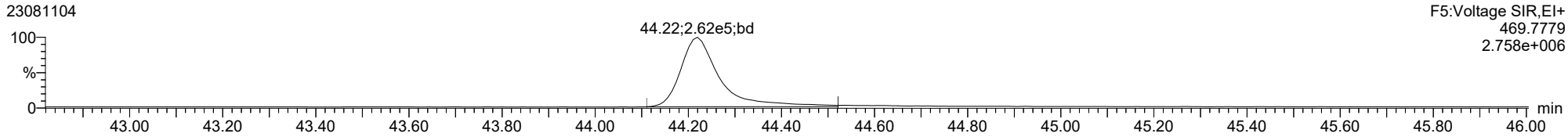
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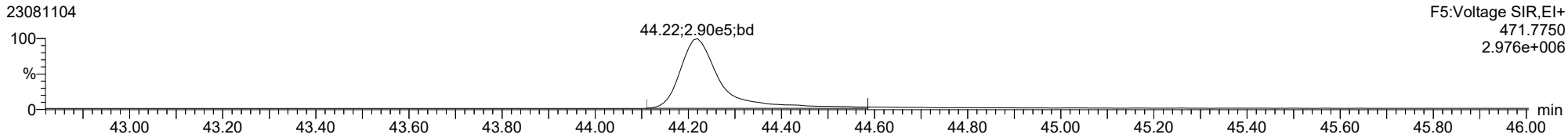
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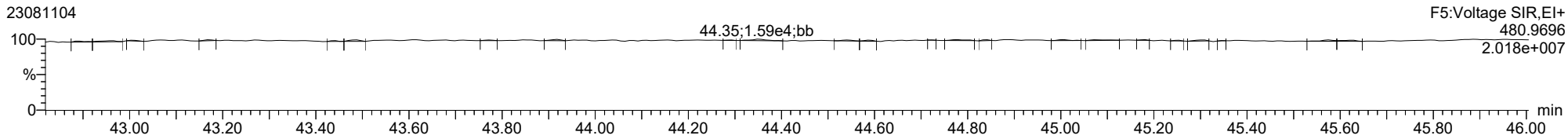
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13C-OCDD

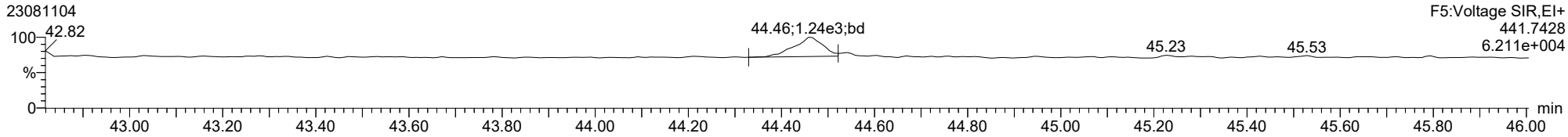


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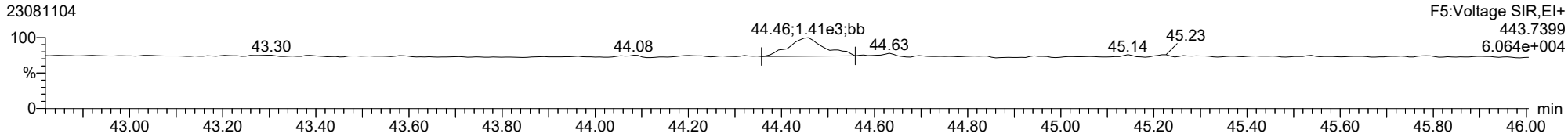


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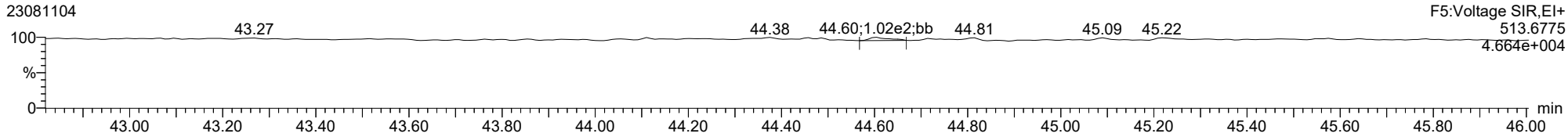
OCDF



OCDF

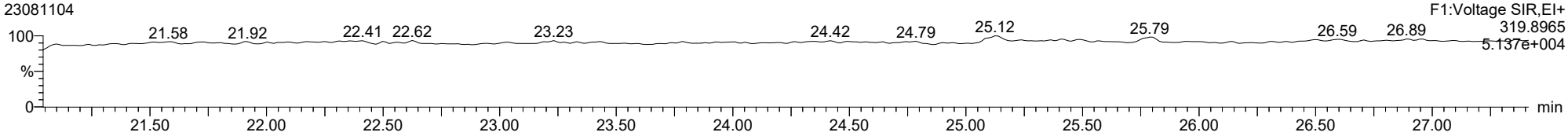


FUNCTION5 DCDPE

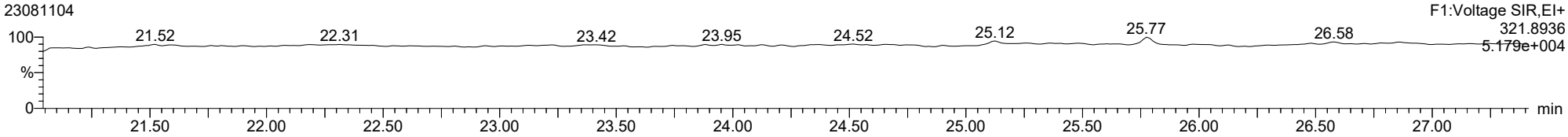


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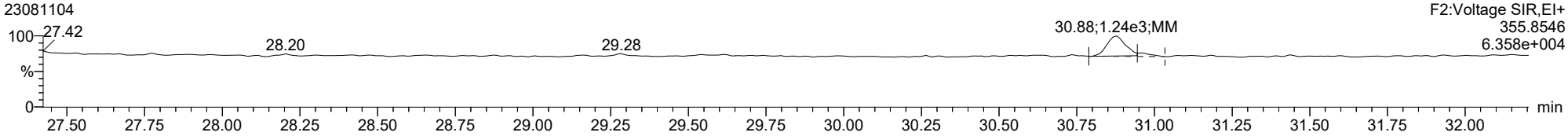
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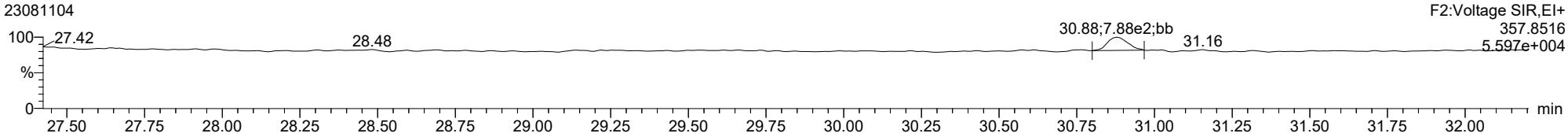
Total-tetradioxins



Total-pentadioxins

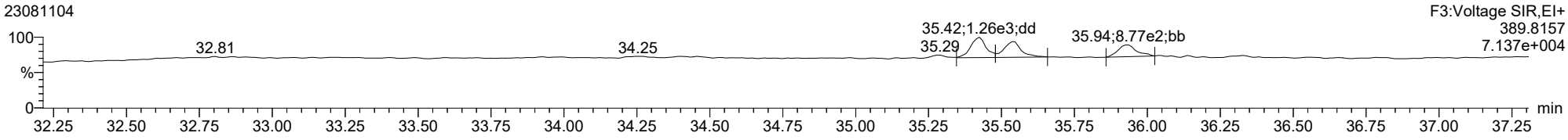


Total-pentadioxins

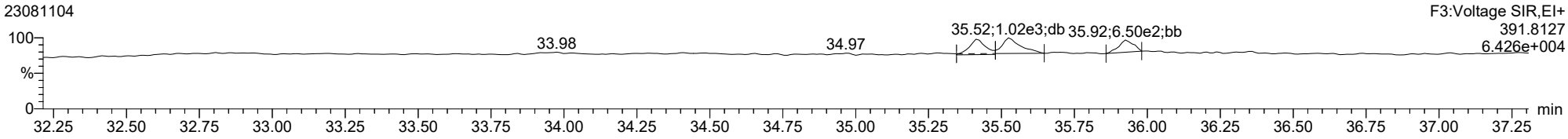


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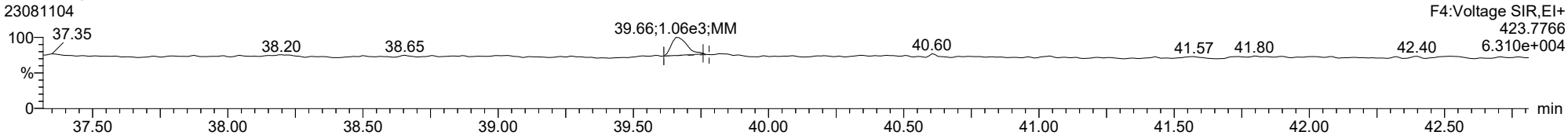
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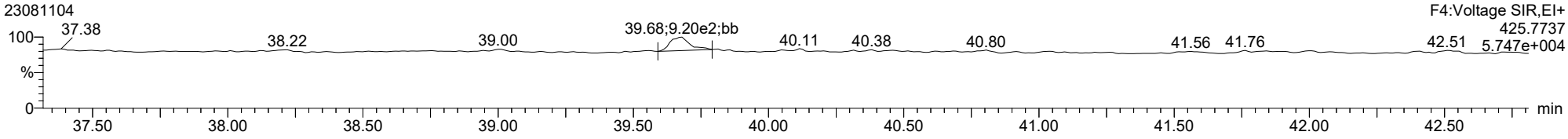
Total-hexadioxins



Total-heptadioxins



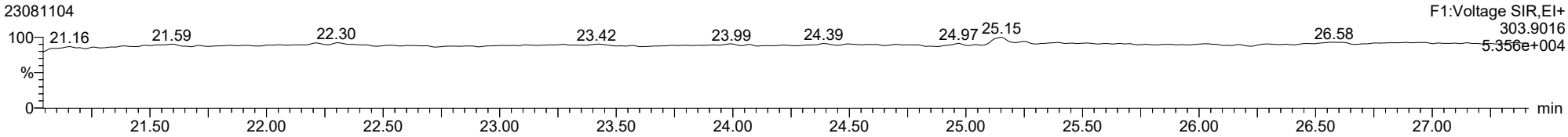
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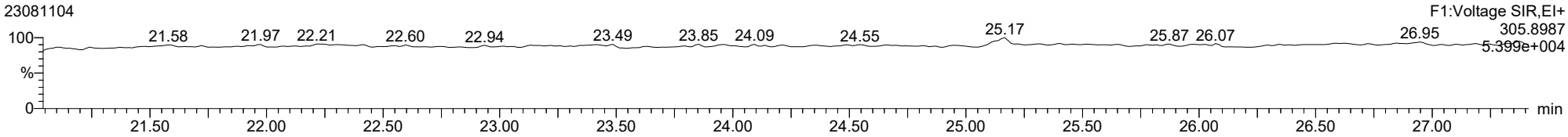
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Printed: Tuesday, August 15, 2023 12:23:54 Pacific Daylight Time

ID: CSLCF, Name: 23081104, Date: 11-Aug-2023, Time: 12:07:03, Conditions: AUTOSPEC01, User: pk

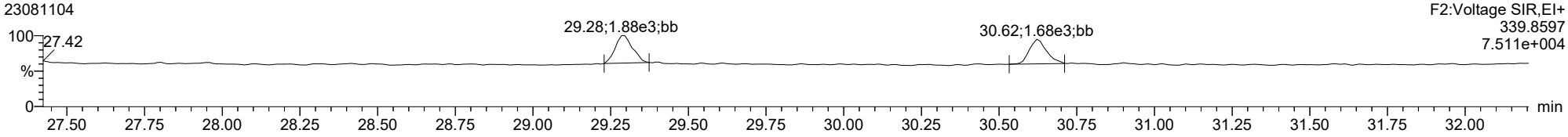
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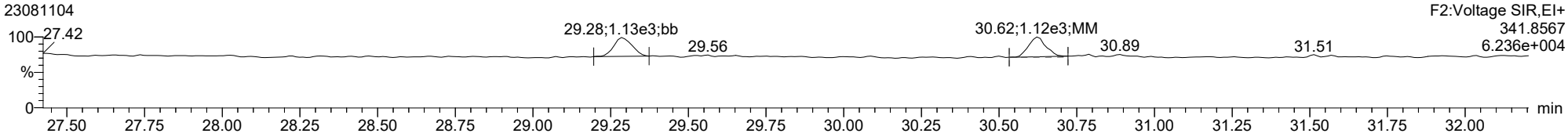
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Total-pentafurans



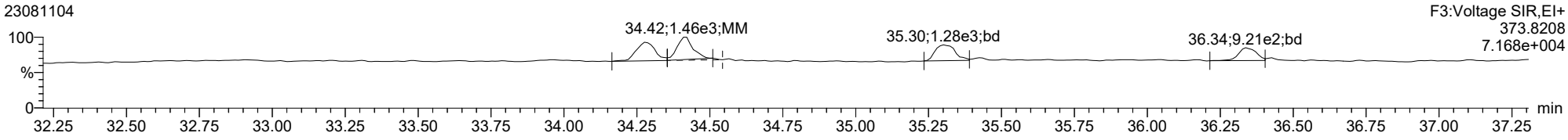
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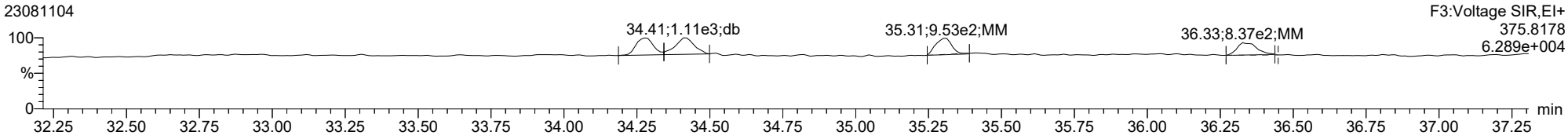
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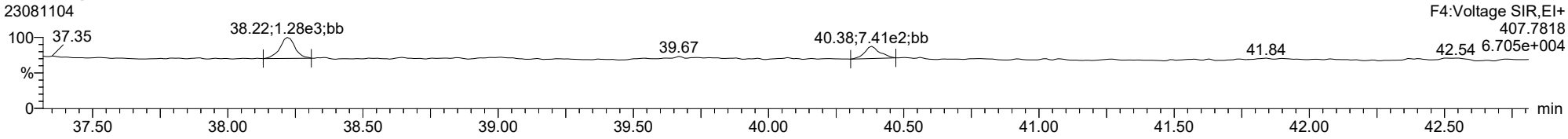
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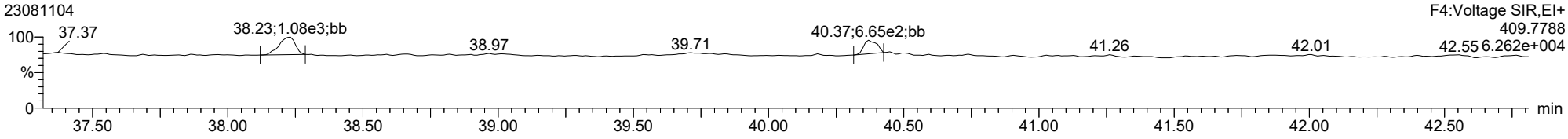
Total-hexafurans



Total-heptafurans



Total-heptafurans



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Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.153	1.001	1.869e3	2.531e3	0.903	0.738	0.770	607	948	2.63e4	3.50e4	43.4	37.0	NO	bb	bb	0.508
12378-PeCDF	29.296	1.000	9.818e3	6.752e3	0.923	1.454	1.550	897	870	1.32e5	1.05e5	147.3	121.1	NO	bb	bb	2.428
23478-PeCDF	30.644	1.001	1.114e4	6.361e3	0.991	1.751	1.550	897	870	1.63e5	9.08e4	181.2	104.4	NO	bd	bb	2.653
123478-HxCDF	34.287	1.000	7.325e3	5.847e3	1.128	1.253	1.240	965	778	1.03e5	8.56e4	106.5	110.0	NO	bd	bd	2.540
234678-HxCDF	35.312	1.000	6.992e3	5.860e3	1.081	1.193	1.240	965	778	9.58e4	7.93e4	99.2	101.9	NO	bd	bb	2.494
123678-HxCDF	34.432	1.001	8.290e3	6.828e3	1.032	1.214	1.240	965	778	1.12e5	9.41e4	116.4	121.0	NO	db	dd	2.449
123789-HxCDF	36.348	1.000	4.809e3	4.143e3	0.988	1.161	1.240	965	778	7.16e4	5.08e4	74.2	65.3	NO	bb	bb	2.299
1234678-HpCDF	38.231	1.000	6.302e3	5.617e3	1.164	1.122	1.050	701	740	8.16e4	8.79e4	116.5	118.7	NO	bb	bd	2.373
1234789-HpCDF	40.393	1.000	4.119e3	4.301e3	1.104	0.958	1.050	701	740	5.52e4	5.68e4	78.8	76.7	NO	bb	bd	2.296
OCDF	44.467	1.005	7.021e3	7.442e3	1.130	0.943	0.890	689	1027	7.58e4	8.91e4	110.0	86.8	NO	bd	bd	4.244
2378-TCDD	25.803	1.001	1.741e3	2.051e3	1.243	0.849	0.770	749	648	2.33e4	3.20e4	31.1	49.3	NO	bb	bd	0.520
12378-PeCDD	30.889	1.000	7.141e3	4.332e3	1.150	1.648	1.550	748	524	1.09e5	6.14e4	146.1	117.2	NO	bd	bb	2.483
123478-HxCDD	35.435	1.001	5.228e3	4.259e3	0.960	1.227	1.240	969	784	7.96e4	6.49e4	82.2	82.8	NO	bd	bd	2.307
123678-HxCDD	35.546	1.000	6.122e3	4.803e3	0.883	1.275	1.240	969	784	8.53e4	6.59e4	88.0	84.0	NO	dd	db	2.336
123789-HxCDD	35.936	1.011	4.721e3	3.820e3	0.804	1.236	1.240	969	784	7.02e4	5.55e4	72.5	70.7	NO	bd	bb	2.218
1234678-HpCDD	39.680	1.000	4.195e3	3.562e3	1.200	1.178	1.050	930	787	6.18e4	5.19e4	66.4	65.9	NO	bb	bb	2.252
OCDD	44.238	1.000	7.186e3	7.684e3	1.059	0.935	0.890	1114	762	8.26e4	9.31e4	74.1	122.3	NO	bb	bd	4.658
13C-2378-TCDF	25.139	1.007	4.246e5	5.349e5	1.835	0.794	0.770	1462	1519	5.96e6	7.55e6	4077.1	4968.7	NO	bb	bb	102.183
13C-12378-PeCDF	29.285	1.173	4.516e5	2.877e5	1.377	1.570	1.550	3504	2886	6.51e6	4.14e6	1859.1	1432.9	NO	bb	bb	104.978
13C-23478-PeCDF	30.622	1.226	4.060e5	2.598e5	1.301	1.563	1.550	3504	2886	5.72e6	3.71e6	1632.3	1285.9	NO	bb	bb	100.021
13C-123478-HxCDF	34.276	0.954	1.550e5	3.046e5	1.091	0.509	0.510	1767	3144	2.20e6	4.37e6	1244.4	1391.1	NO	bd	bd	97.981
13C-123678-HxCDF	34.410	0.958	1.978e5	4.002e5	1.340	0.494	0.510	1767	3144	2.44e6	4.84e6	1379.8	1538.2	NO	db	db	103.726
13C-234678-HxCDF	35.301	0.983	1.551e5	3.213e5	1.093	0.483	0.510	1767	3144	2.13e6	4.17e6	1206.1	1327.8	NO	bb	bb	101.304
13C-123789-HxCDF	36.337	1.012	1.331e5	2.611e5	0.952	0.510	0.510	1767	3144	1.70e6	3.36e6	962.9	1069.8	NO	bb	bb	96.327
13C-1234678-HpCDF	38.220	1.064	1.295e5	3.022e5	0.985	0.428	0.440	2154	2867	1.90e6	4.11e6	882.3	1433.9	NO	bb	bd	101.891
13C-1234789-HpCDF	40.382	1.124	1.038e5	2.284e5	0.756	0.455	0.440	2154	2867	1.27e6	2.80e6	589.1	976.5	NO	bd	bb	102.201
13C-1234-TCDD	24.969	0.000	2.249e5	2.867e5	1.000	0.785	0.770	1471	1413	3.31e6	4.16e6	2247.7	2946.6	NO	bb	bb	100.000
13C-2378-TCDD	25.774	1.032	2.598e5	3.274e5	1.110	0.794	0.770	1471	1413	3.75e6	4.74e6	2547.1	3354.2	NO	bb	bb	103.437
13C-12378-PeCDD	30.878	1.237	2.472e5	1.545e5	0.754	1.600	1.550	1248	1186	3.35e6	2.06e6	2685.7	1740.2	NO	bb	bb	104.186
13C-123478-HxCDD	35.412	0.986	2.370e5	1.912e5	0.960	1.239	1.240	1678	2744	3.48e6	2.81e6	2071.0	1025.4	NO	bd	bd	103.729
13C-123678-HxCDD	35.535	0.989	2.914e5	2.386e5	1.159	1.221	1.240	1678	2744	3.80e6	3.07e6	2262.4	1117.2	NO	db	db	106.277
13C-1234678-HpCDD	39.668	1.104	1.492e5	1.379e5	0.629	1.082	1.050	2077	1506	1.99e6	1.88e6	959.9	1249.3	NO	bb	bb	106.080
13C-OCDD	44.229	1.231	2.878e5	3.153e5	0.635	0.913	0.890	1771	2421	2.88e6	3.12e6	1628.5	1289.7	NO	bd	bb	220.753
13C-123789-HxCDD	35.925	0.000	2.385e5	1.916e5	1.000	1.245	1.240	1678	2744	3.26e6	2.67e6	1945.5	973.8	NO	bb	bb	100.000
37CL-2378-TCDD	25.803	1.033	2.875e3		1.157			862		4.26e4		49.4			bb		0.486

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:07 Pacific Daylight Time

ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.170		0.770	607	948								
1289-TCDF					0.847		0.770	607	948								
13468-PECDF					1.241		1.550	544	667								
12389-PECDF					0.880		1.550	897	870								
123468-HXCDF					1.206		1.240	965	778								
1368-TCDD					1.181		0.770	749	648								
1289-TCDD					0.963		0.770	749	648								
12479-PECDD					2.166		1.550	748	524								
12389-PECDD					1.326		1.550	748	524								
124679-HXCDD					1.127		1.240	969	784								
1234679-HPCDD					1.303		1.050	930	787								
Total-tetrafurans			1.869e3		0.973			607		2.63e4							0.508
Total-penta1			0.000e0					544		0.00e0							
Total-pentafurans			2.095e4		0.931			897		2.95e5							5.080
Total-hexafurans			2.742e4		1.087			965		3.83e5							9.782
Total-heptafurans			1.042e4		1.134			701		1.37e5							4.669
Total-Furans			6.768e4		1.053			607		9.16e5							24.284
Total-tetradioxins			1.741e3		1.129			749		2.33e4							0.520
Total-pentadioxins			7.141e3		1.548			748		1.09e5							2.483
Total-hexadioxins			1.607e4		0.943			969		2.35e5							6.861
Total-heptadioxins			4.195e3		1.251			930		6.18e4							2.252
Total-Dioxins			3.633e4		1.182			749		5.12e5							16.774
Total-TEQ			1.040e5					749		1.43e6							41.058
FUNCTION1 PFK			1.685e5					481618		3.23e6							
FUNCTION2 PFK			3.490e5					353619		9.72e6							0.000
FUNCTION3 PFK			3.025e5					411684		5.51e6							0.000
FUNCTION4 PFK			5.244e4					281669		8.98e5							
FUNCTION5 PFK			5.040e4					232970		2.05e6							
FUNCTION1 HXCD...			1.506e2					618		4.08e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			1.806e2					647		3.08e3							0.000
FUNCTION3 OCDPE			0.000e0					540		0.00e0							
FUNCTION4 NCDPE			3.562e2					656		5.44e3							0.000
FUNCTION5 DCDPE			7.446e1					445		7.45e2							0.000

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:07 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.15	1.869e3	2.531e3	0.903	0.74	0.77	43.4	YES	NO	bb	bb	0.508

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.64	1.114e4	6.361e3	0.991	1.75	1.55	181.2	YES	NO	bd	bb	2.653
2	12378-PeCDF	29.30	9.818e3	6.752e3	0.923	1.45	1.55	147.3	YES	NO	bb	bb	2.428

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.35	4.809e3	4.143e3	0.988	1.16	1.24	74.2	YES	NO	bb	bb	2.299
2	234678-HxCDF	35.31	6.992e3	5.860e3	1.081	1.19	1.24	99.2	YES	NO	bd	bb	2.494
3	123678-HxCDF	34.43	8.290e3	6.828e3	1.032	1.21	1.24	116.4	YES	NO	db	dd	2.449
4	123478-HxCDF	34.29	7.325e3	5.847e3	1.128	1.25	1.24	106.5	YES	NO	bd	bd	2.540

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.39	4.119e3	4.301e3	1.104	0.96	1.05	78.8	YES	NO	bb	bd	2.296
2	1234678-HpCDF	38.23	6.302e3	5.617e3	1.164	1.12	1.05	116.5	YES	NO	bb	bd	2.373

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.64	1.114e4	6.361e3	0.991	1.75	1.55	181.2	YES	NO	bd	bb	2.653
2	12378-PeCDF	29.30	9.818e3	6.752e3	0.923	1.45	1.55	147.3	YES	NO	bb	bb	2.428
3	2378-TCDF	25.15	1.869e3	2.531e3	0.903	0.74	0.77	43.4	YES	NO	bb	bb	0.508
4	123789-HxCDF	36.35	4.809e3	4.143e3	0.988	1.16	1.24	74.2	YES	NO	bb	bb	2.299
5	234678-HxCDF	35.31	6.992e3	5.860e3	1.081	1.19	1.24	99.2	YES	NO	bd	bb	2.494
6	123678-HxCDF	34.43	8.290e3	6.828e3	1.032	1.21	1.24	116.4	YES	NO	db	dd	2.449
7	123478-HxCDF	34.29	7.325e3	5.847e3	1.128	1.25	1.24	106.5	YES	NO	bd	bd	2.540
8	1234789-HpCDF	40.39	4.119e3	4.301e3	1.104	0.96	1.05	78.8	YES	NO	bb	bd	2.296
9	1234678-HpCDF	38.23	6.302e3	5.617e3	1.164	1.12	1.05	116.5	YES	NO	bb	bd	2.373
10	OCDF	44.47	7.021e3	7.442e3	1.130	0.94	0.89	110.0	YES	NO	bd	bd	4.244

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.80	1.741e3	2.051e3	1.243	0.85	0.77	31.1	YES	NO	bb	bd	0.520

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.89	7.141e3	4.332e3	1.150	1.65	1.55	146.1	YES	NO	bd	bb	2.483

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.94	4.721e3	3.820e3	0.804	1.24	1.24	72.5	YES	NO	bd	bb	2.218
2	123678-HxCDD	35.55	6.122e3	4.803e3	0.883	1.27	1.24	88.0	YES	NO	dd	db	2.336
3	123478-HxCDD	35.43	5.228e3	4.259e3	0.960	1.23	1.24	82.2	YES	NO	bd	bd	2.307

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.68	4.195e3	3.562e3	1.200	1.18	1.05	66.4	YES	NO	bb	bb	2.252

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.80	1.741e3	2.051e3	1.243	0.85	0.77	31.1	YES	NO	bb	bd	0.520
2	123789-HxCDD	35.94	4.721e3	3.820e3	0.804	1.24	1.24	72.5	YES	NO	bd	bb	2.218
3	123678-HxCDD	35.55	6.122e3	4.803e3	0.883	1.27	1.24	88.0	YES	NO	dd	db	2.336
4	123478-HxCDD	35.43	5.228e3	4.259e3	0.960	1.23	1.24	82.2	YES	NO	bd	bd	2.307
5	12378-PeCDD	30.89	7.141e3	4.332e3	1.150	1.65	1.55	146.1	YES	NO	bd	bb	2.483
6	OCDD	44.24	7.186e3	7.684e3	1.059	0.94	0.89	74.1	YES	NO	bb	bd	4.658
7	1234678-HpCDD	39.68	4.195e3	3.562e3	1.200	1.18	1.05	66.4	YES	NO	bb	bb	2.252

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.64	1.114e4	6.361e3	0.991	1.75	1.55	181.2	YES	NO	bd	bb	2.653
2	12378-PeCDF	29.30	9.818e3	6.752e3	0.923	1.45	1.55	147.3	YES	NO	bb	bb	2.428
3	2378-TCDF	25.15	1.869e3	2.531e3	0.903	0.74	0.77	43.4	YES	NO	bb	bb	0.508
4	123789-HxCDF	36.35	4.809e3	4.143e3	0.988	1.16	1.24	74.2	YES	NO	bb	bb	2.299
5	234678-HxCDF	35.31	6.992e3	5.860e3	1.081	1.19	1.24	99.2	YES	NO	bd	bb	2.494
6	123678-HxCDF	34.43	8.290e3	6.828e3	1.032	1.21	1.24	116.4	YES	NO	db	dd	2.449
7	123478-HxCDF	34.29	7.325e3	5.847e3	1.128	1.25	1.24	106.5	YES	NO	bd	bd	2.540
8	1234789-HpCDF	40.39	4.119e3	4.301e3	1.104	0.96	1.05	78.8	YES	NO	bb	bd	2.296
9	1234678-HpCDF	38.23	6.302e3	5.617e3	1.164	1.12	1.05	116.5	YES	NO	bb	bd	2.373
10	OCDF	44.47	7.021e3	7.442e3	1.130	0.94	0.89	110.0	YES	NO	bd	bd	4.244
11	2378-TCDD	25.80	1.741e3	2.051e3	1.243	0.85	0.77	31.1	YES	NO	bb	bd	0.520
12	123789-HxCDD	35.94	4.721e3	3.820e3	0.804	1.24	1.24	72.5	YES	NO	bd	bb	2.218
13	123678-HxCDD	35.55	6.122e3	4.803e3	0.883	1.27	1.24	88.0	YES	NO	dd	db	2.336
14	123478-HxCDD	35.43	5.228e3	4.259e3	0.960	1.23	1.24	82.2	YES	NO	bd	bd	2.307
15	12378-PeCDD	30.89	7.141e3	4.332e3	1.150	1.65	1.55	146.1	YES	NO	bd	bb	2.483
16	OCDD	44.24	7.186e3	7.684e3	1.059	0.94	0.89	74.1	YES	NO	bb	bd	4.658
17	1234678-HpCDD	39.68	4.195e3	3.562e3	1.200	1.18	1.05	66.4	YES	NO	bb	bb	2.252

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	24.46	9.288e4					3.6	YES		bb		
2	FUNCTION1 PFK	21.17	7.566e4					3.1	YES		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	27.78	1.684e4					1.7	NO		bd		0.000
2	FUNCTION2 PFK	27.66	6.206e3					0.7	NO		bb		0.000
3	FUNCTION2 PFK	27.52	1.777e4					1.7	NO		bb		0.000
4	FUNCTION2 PFK	31.50	2.220e3					0.5	NO		bb		0.000
5	FUNCTION2 PFK	31.35	1.532e4					1.0	NO		bb		0.000
6	FUNCTION2 PFK	31.29	3.058e4					1.7	NO		db		0.000
7	FUNCTION2 PFK	31.22	1.055e4					1.3	NO		bd		0.000
8	FUNCTION2 PFK	31.17	7.982e3					0.9	NO		bb		0.000
9	FUNCTION2 PFK	31.02	2.210e4					1.6	NO		bb		0.000
10	FUNCTION2 PFK	30.78	6.727e3					0.8	NO		bb		0.000
11	FUNCTION2 PFK	30.63	3.779e4					3.0	NO		db		0.000
12	FUNCTION2 PFK	30.59	2.979e4					2.9	NO		bd		0.000
13	FUNCTION2 PFK	30.50	2.622e4					1.4	NO		bb		0.000
14	FUNCTION2 PFK	29.88	6.065e3					0.9	NO		bb		0.000
15	FUNCTION2 PFK	29.69	3.832e4					1.9	NO		bb		0.000
16	FUNCTION2 PFK	29.44	9.175e3					1.0	NO		bb		0.000
17	FUNCTION2 PFK	28.98	7.307e3					0.6	NO		bb		0.000
18	FUNCTION2 PFK	28.18	2.082e4					1.2	NO		bb		0.000
19	FUNCTION2 PFK	27.81	1.127e4					1.5	NO		db		0.000
20	FUNCTION2 PFK	31.76	2.592e4					1.1	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	34.32	2.413e4					2.4	NO		bb		0.000
2	FUNCTION3 PFK	33.62	1.658e5					3.9	YES		bb		0.000
3	FUNCTION3 PFK	33.41	7.609e4					3.5	YES		bb		0.000
4	FUNCTION3 PFK	33.34	1.911e4					1.8	NO		bb		0.000
5	FUNCTION3 PFK	32.35	1.740e4					1.9	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	39.52	5.244e4					3.2	YES		bb		

ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.67	1.198e4					1.6	NO		bb		
2	FUNCTION5 PFK	43.51	4.599e3					1.1	NO		bb		
3	FUNCTION5 PFK	43.42	3.079e3					0.8	NO		bb		
4	FUNCTION5 PFK	43.39	3.025e3					0.7	NO		bb		
5	FUNCTION5 PFK	43.31	1.081e3					0.5	NO		bb		
6	FUNCTION5 PFK	42.96	1.023e3					0.5	NO		bb		
7	FUNCTION5 PFK	45.28	9.172e2					0.4	NO		bb		
8	FUNCTION5 PFK	44.70	2.577e3					0.7	NO		bb		
9	FUNCTION5 PFK	43.99	3.331e3					0.7	NO		bb		
10	FUNCTION5 PFK	43.80	1.879e4					1.8	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	22.34	7.892e1					3.3	YES		bb		0.000
2	FUNCTION1 HXCD...	22.16	7.163e1					3.3	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.00	8.618e1					2.2	NO		bb		0.000
2	FUNCTION2 HPCD...	28.87	9.443e1					2.6	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.28	8.452e1					2.0	NO		bb		0.000
2	FUNCTION4 NCDPE	38.59	1.002e2					2.2	NO		db		0.000
3	FUNCTION4 NCDPE	38.48	8.467e1					2.4	NO		bd		0.000
4	FUNCTION4 NCDPE	37.87	8.682e1					1.7	NO		bb		0.000

ETHERS6

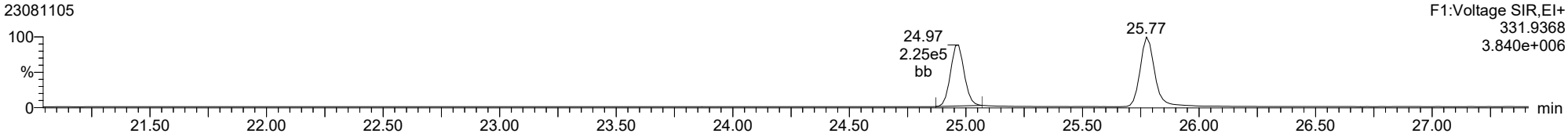
	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	43.03	7.446e1					1.7	NO		bb		0.000

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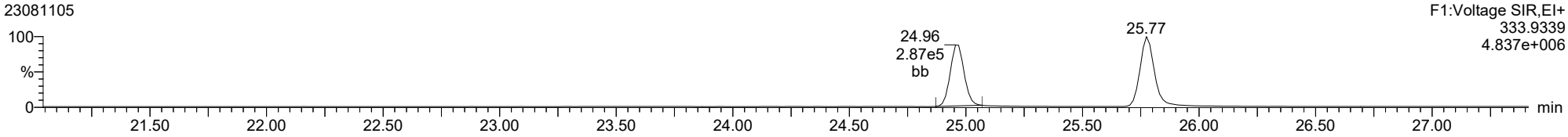
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ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

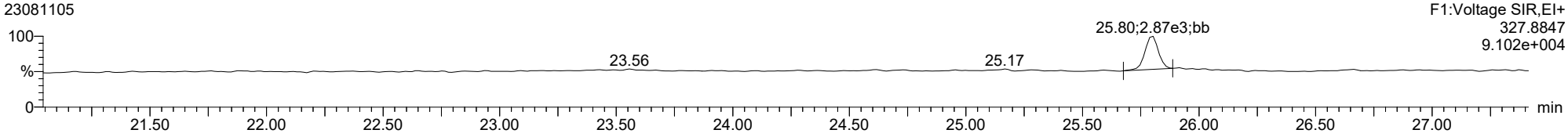
13C-1234-TCDD



13C-1234-TCDD

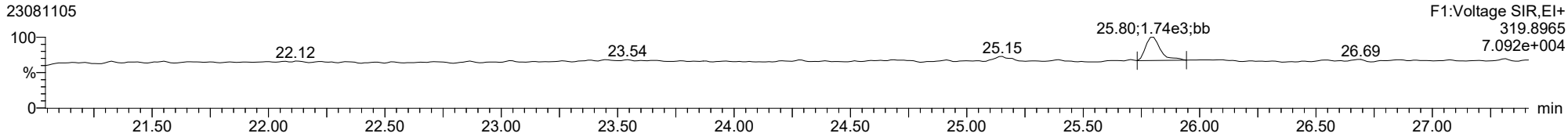


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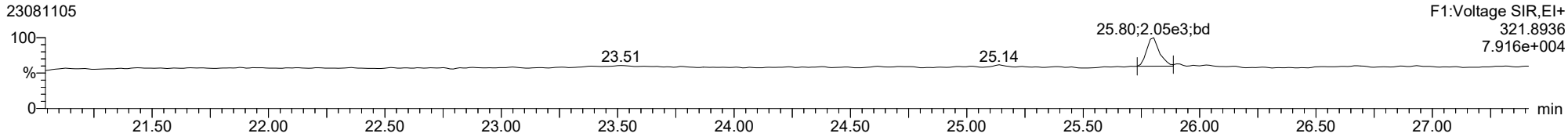


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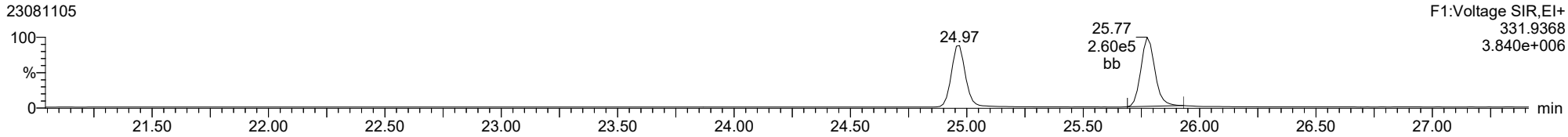
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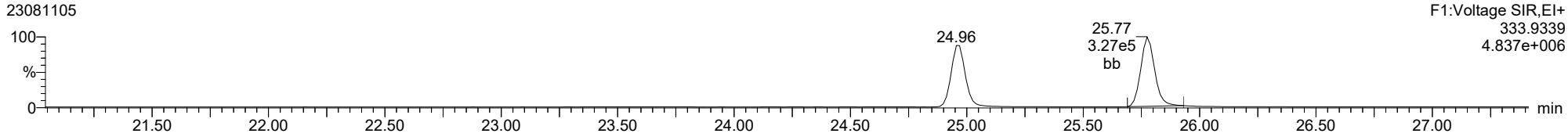
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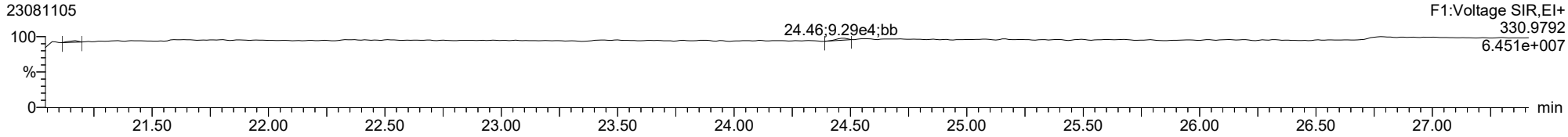
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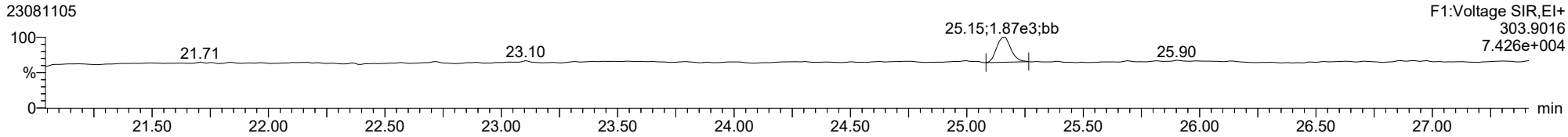


FUNCTION1 PFK

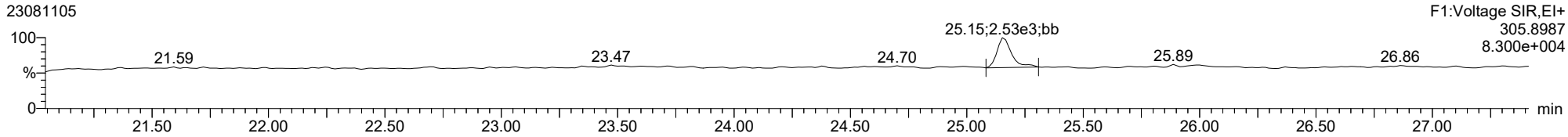


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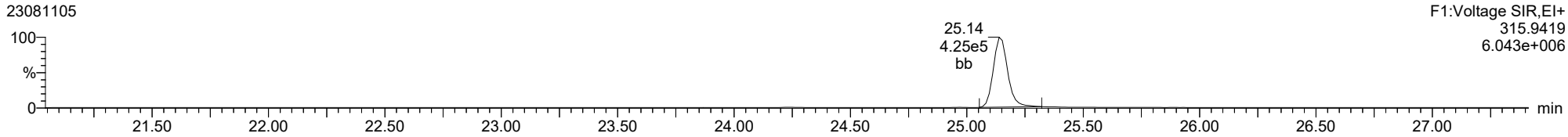
2378-TCDF



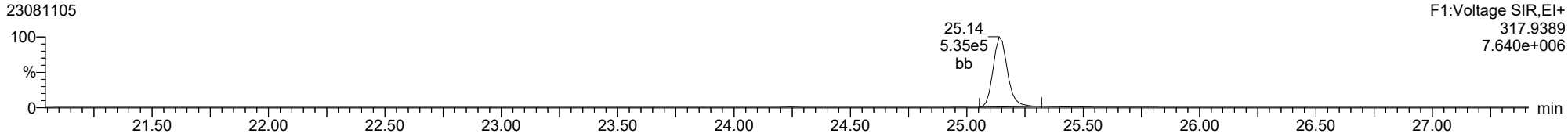
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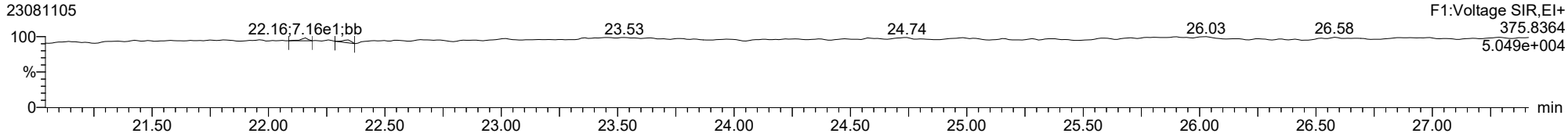
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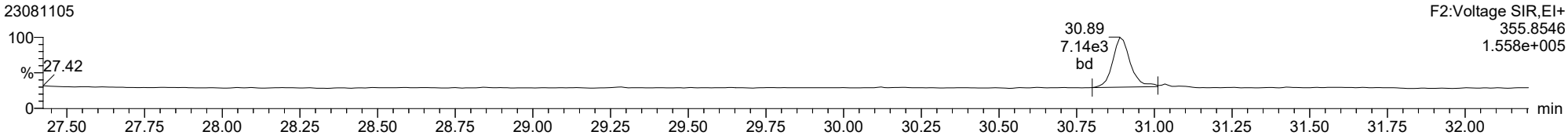


FUNCTION1 HXCDPE

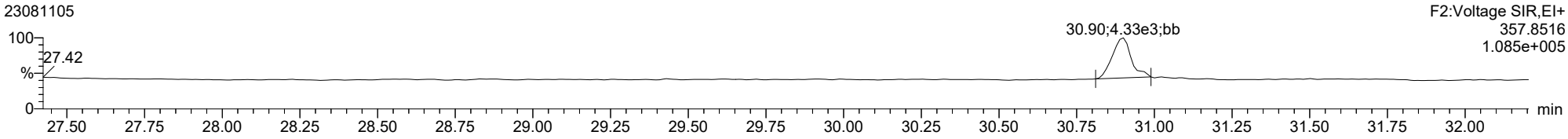


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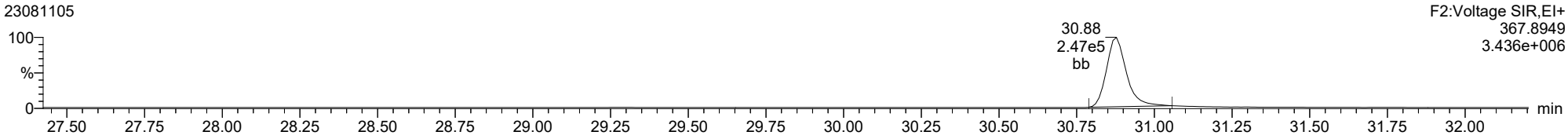
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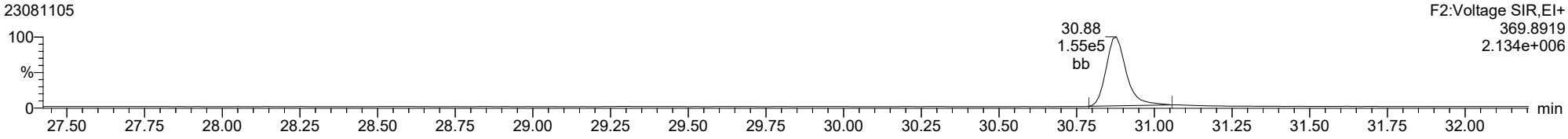
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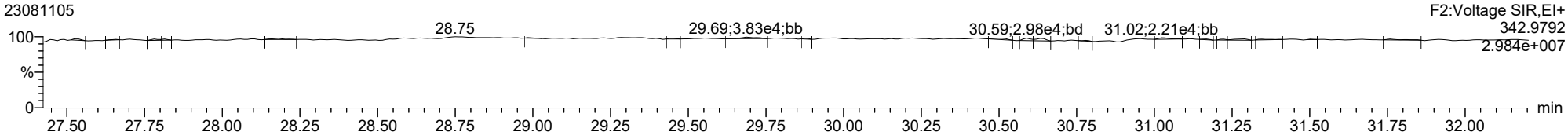
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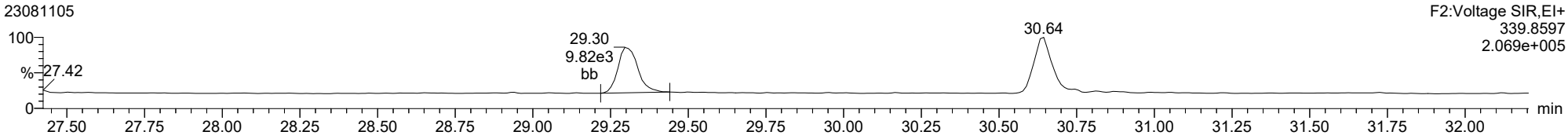


FUNCTION2 PFK

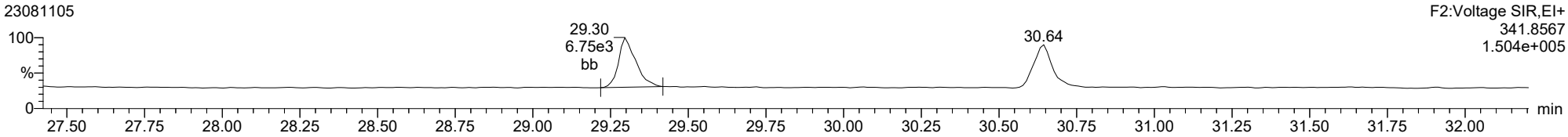


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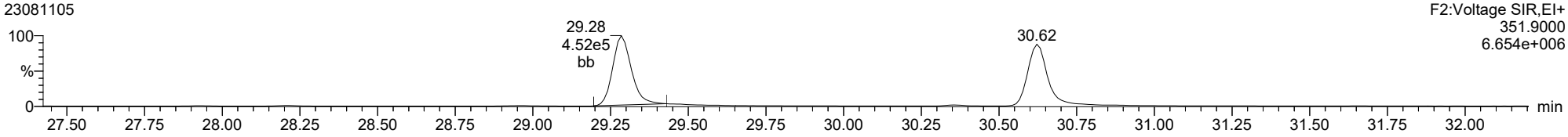
12378-PeCDF



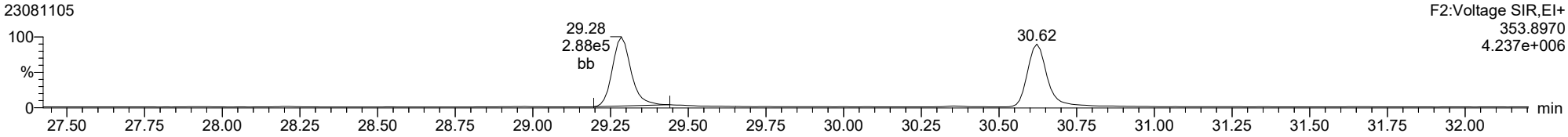
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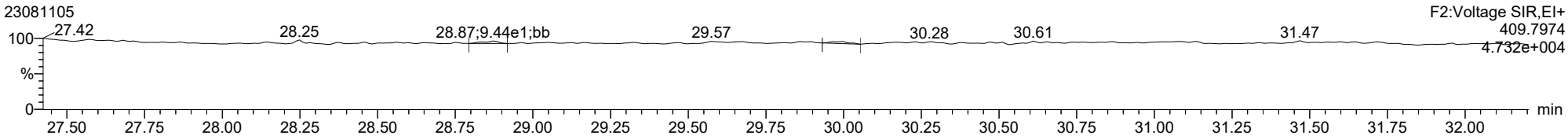
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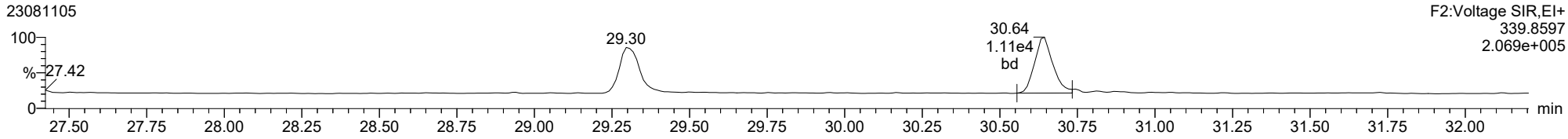


FUNCTION2 HPCDPE

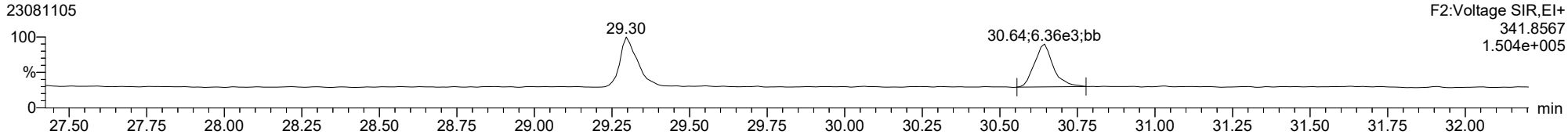


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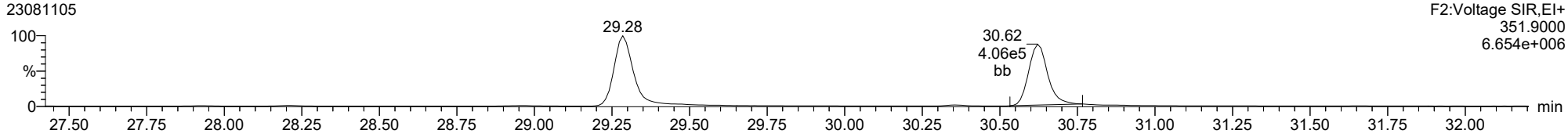
23478-PeCDF



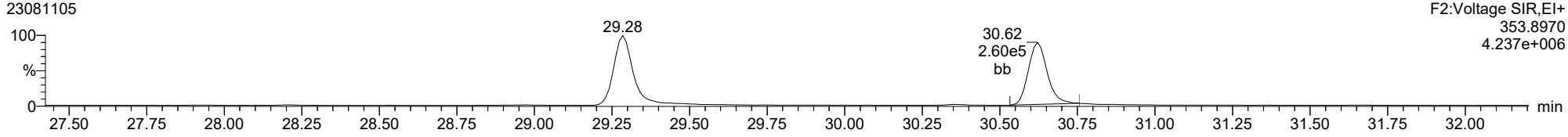
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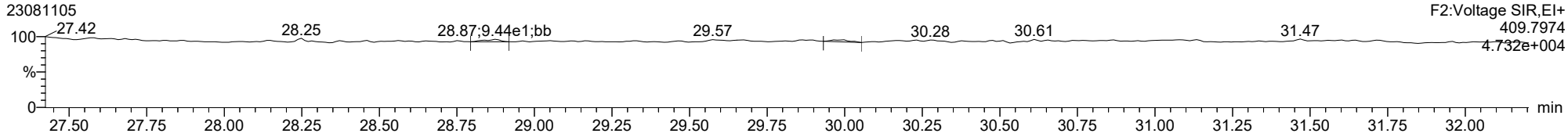
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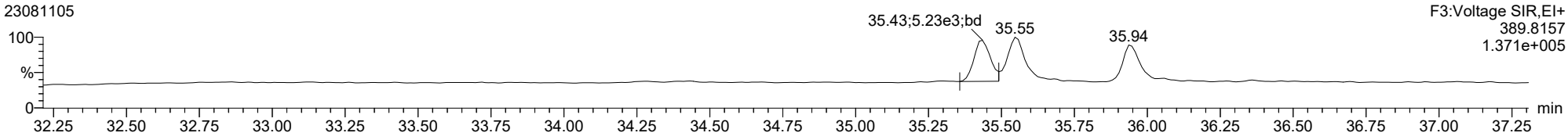


FUNCTION2 HPCDPE

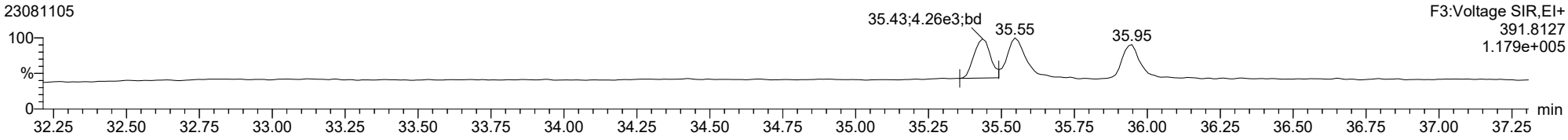


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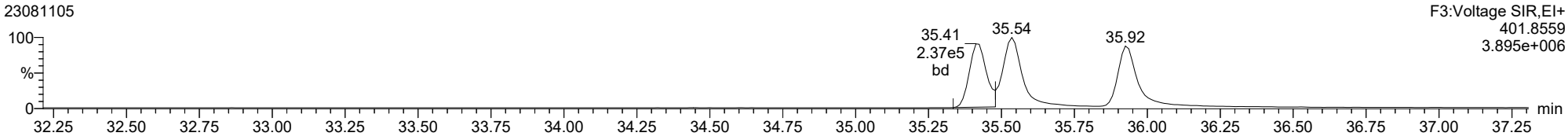
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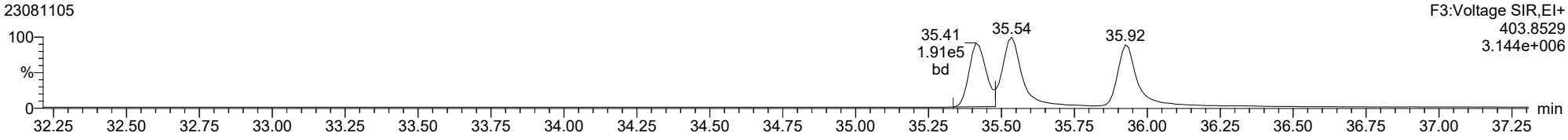
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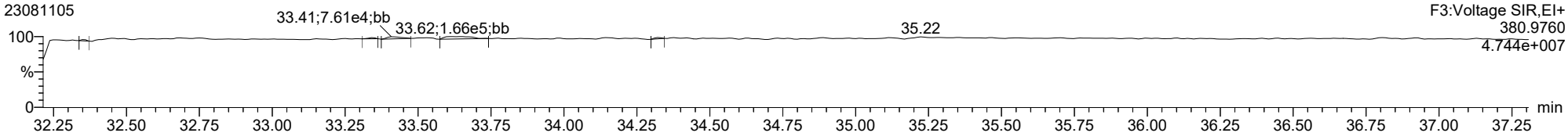
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13C-123478-HxCDD



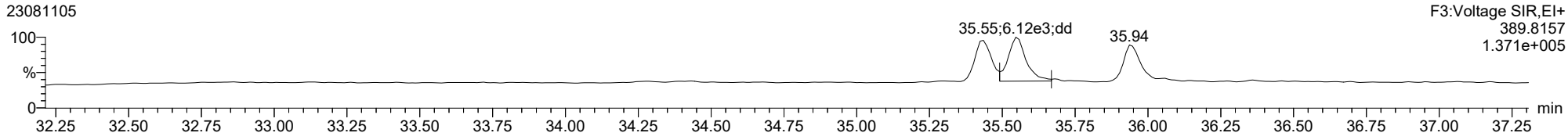
FUNCTION3 PFK



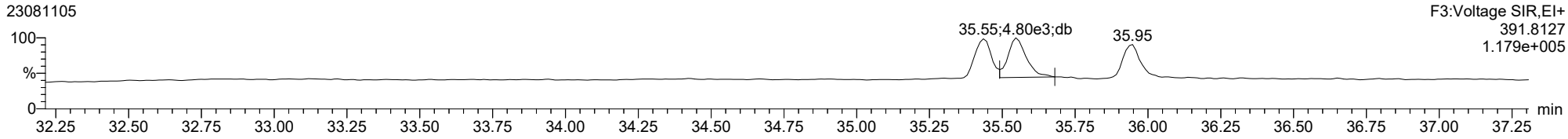
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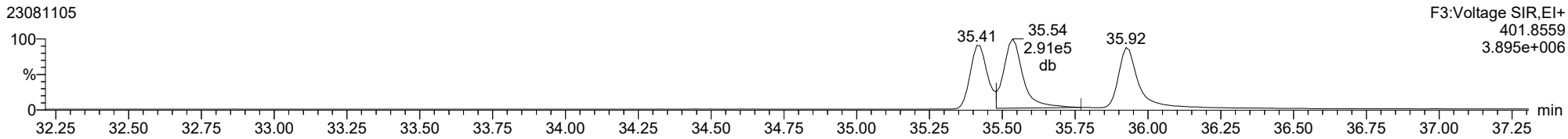
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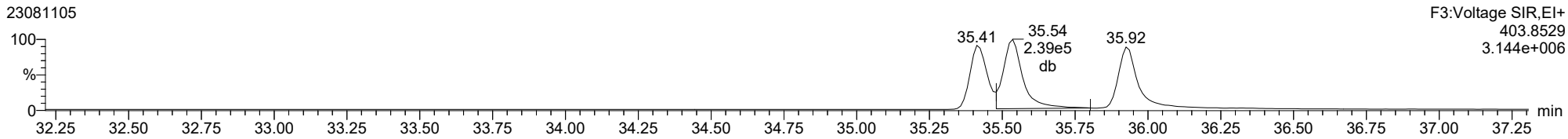
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13C-123678-HxCDD



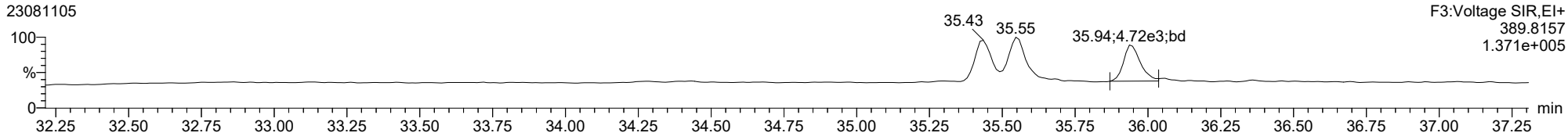
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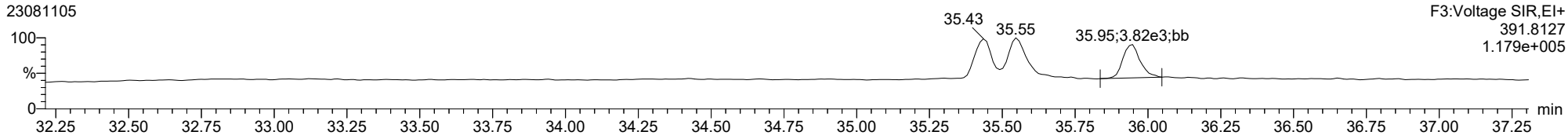
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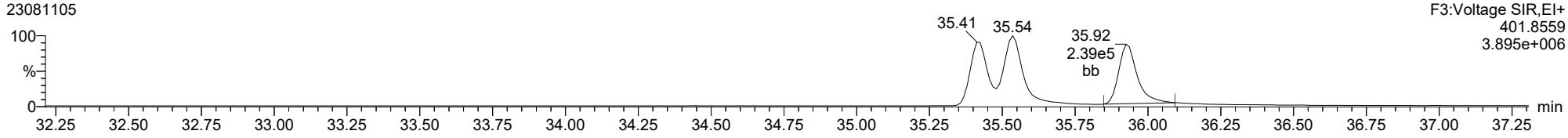
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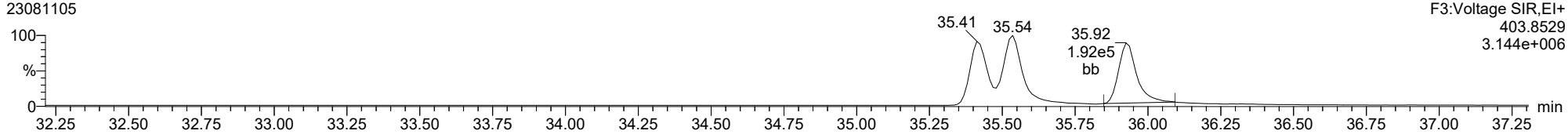
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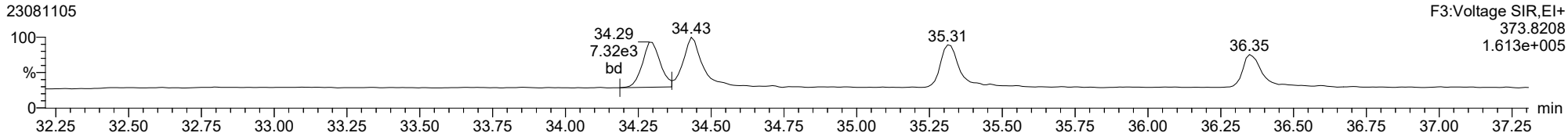


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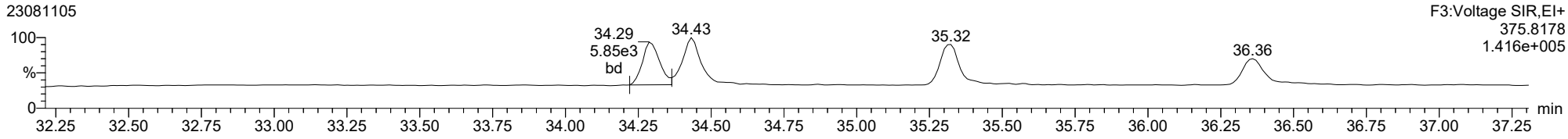


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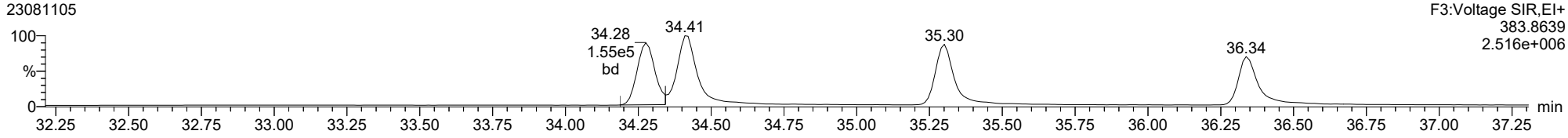
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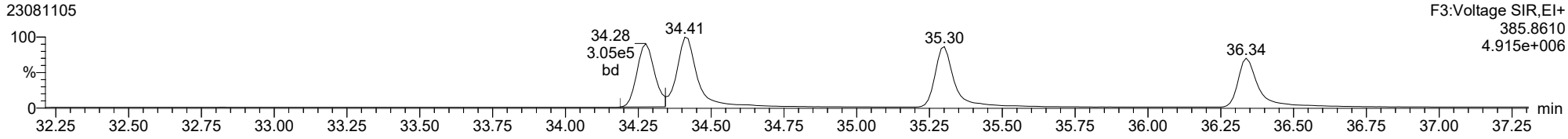
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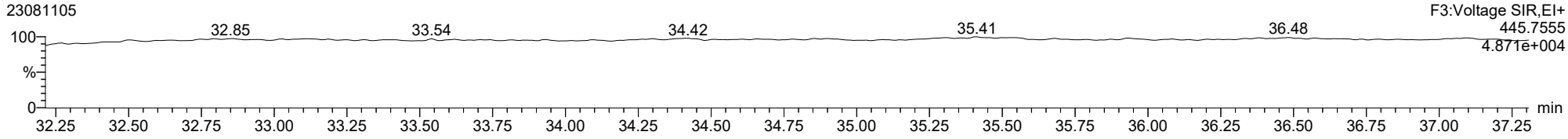
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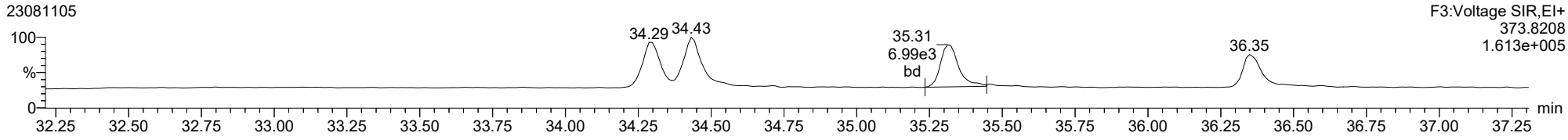


FUNCTION3 OCDPE

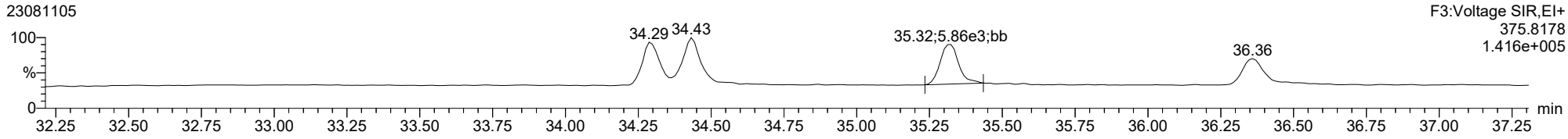


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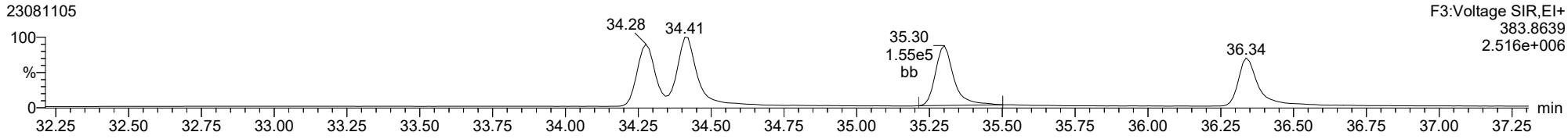
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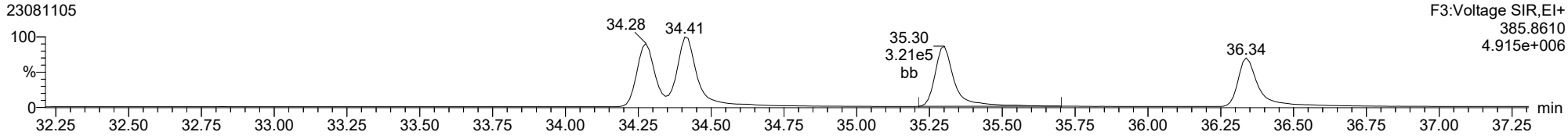
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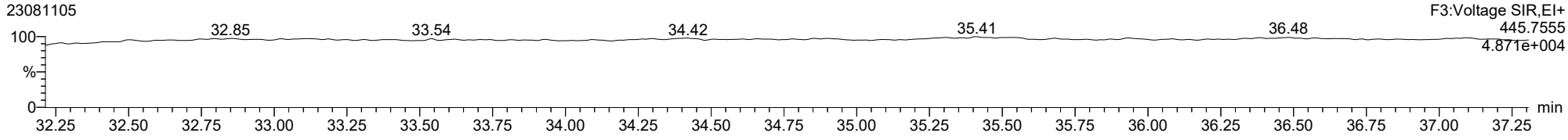
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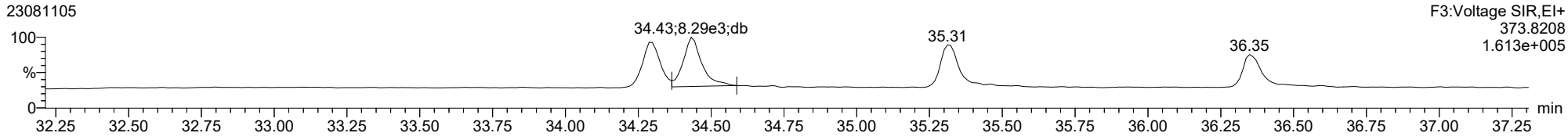


FUNCTION3 OCDPE

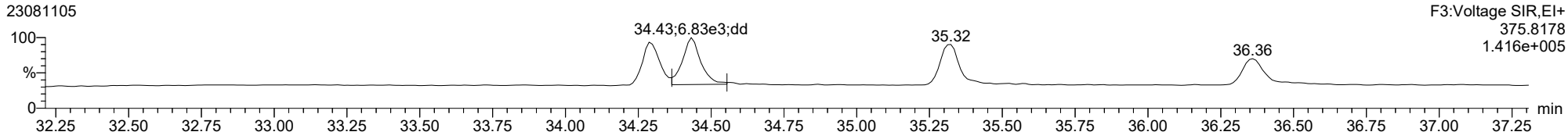


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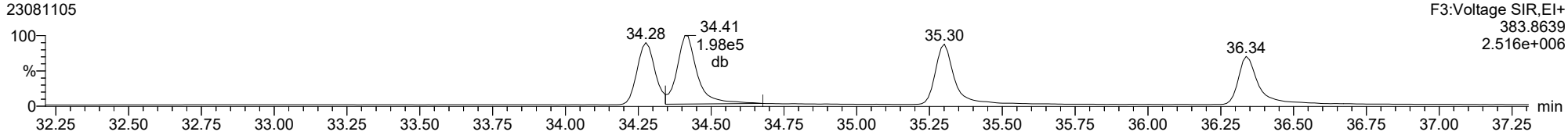
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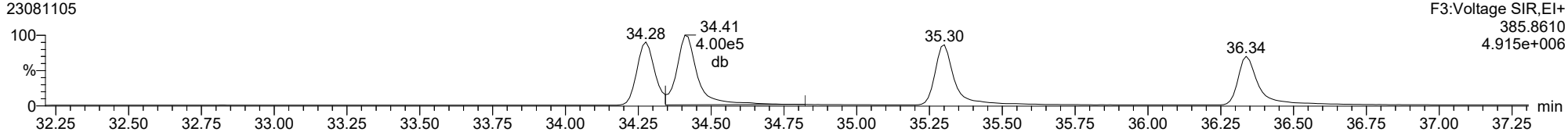
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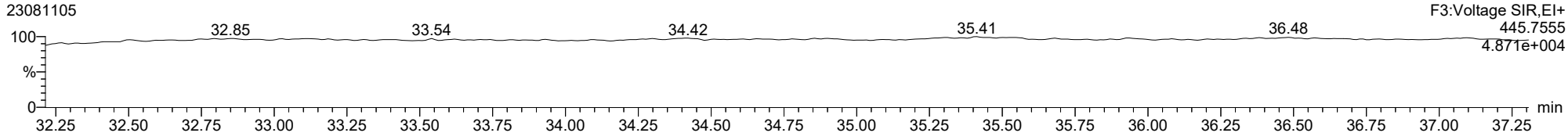
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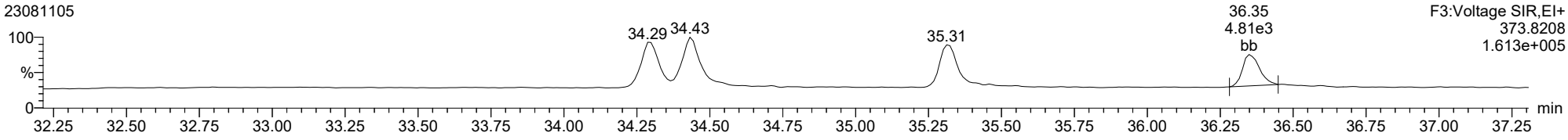


FUNCTION3 OCDPE

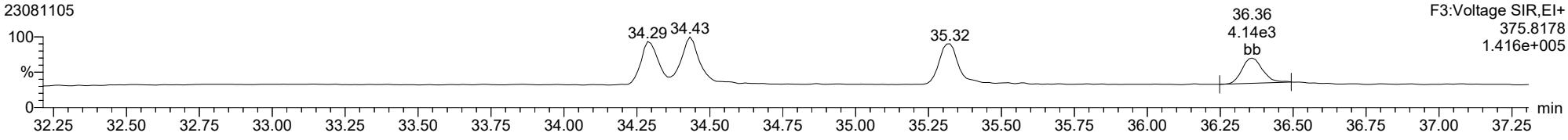


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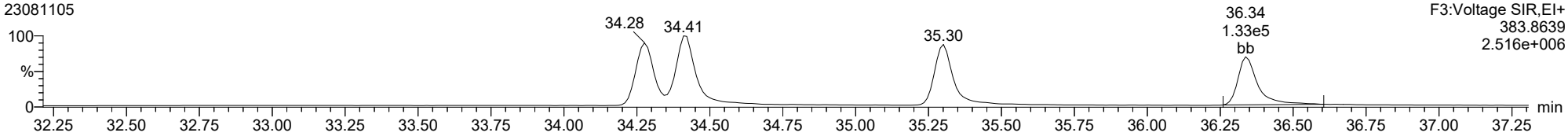
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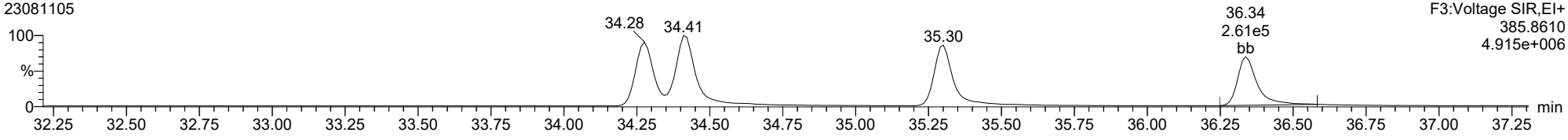
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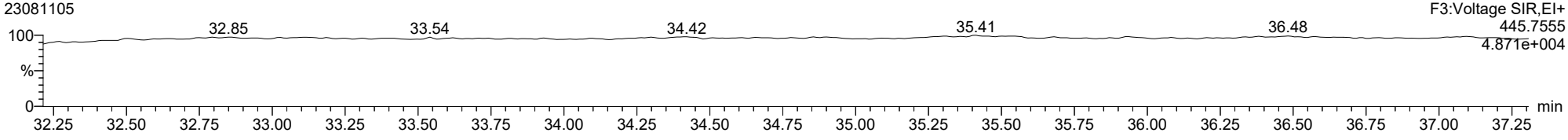
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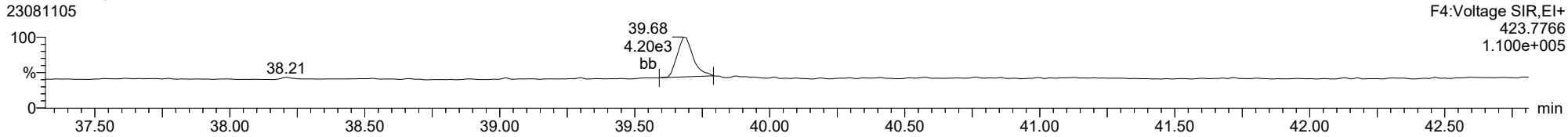


FUNCTION3 OCDPE

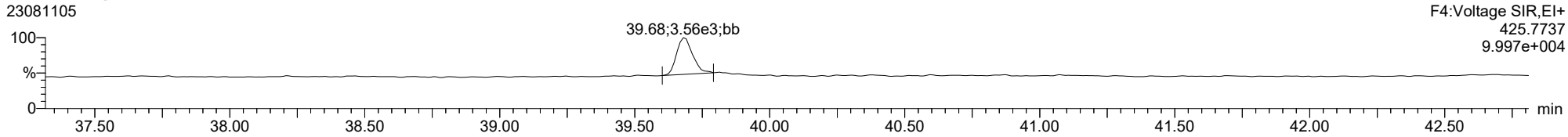


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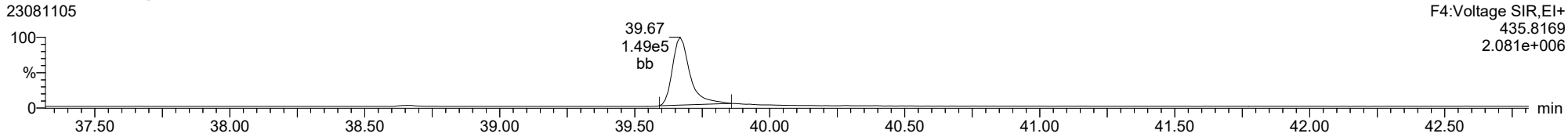
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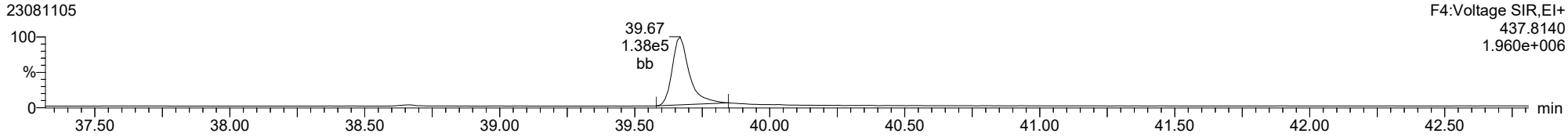
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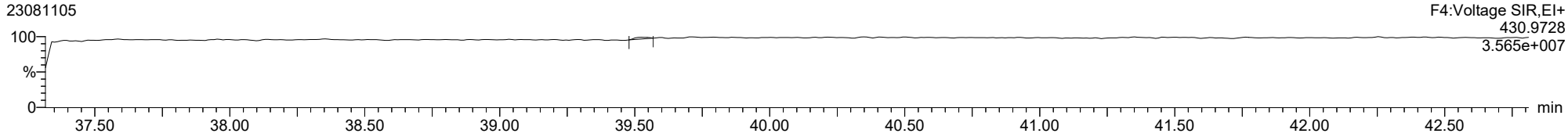
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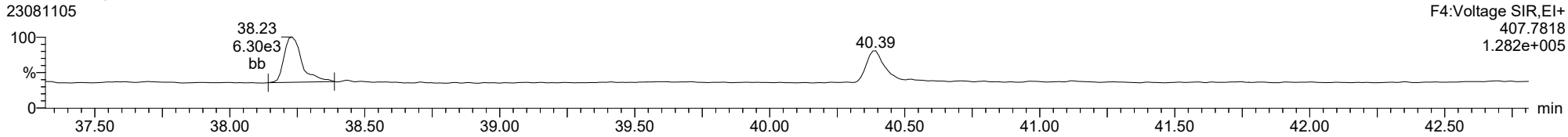


FUNCTION4 PFK

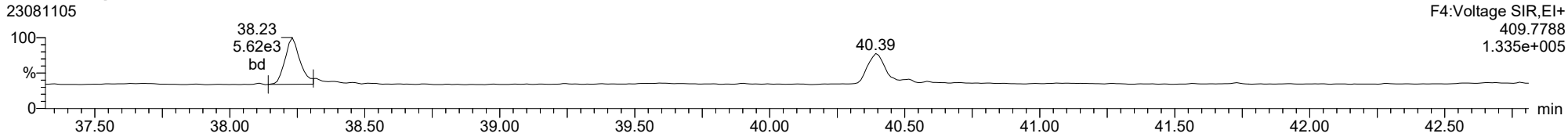


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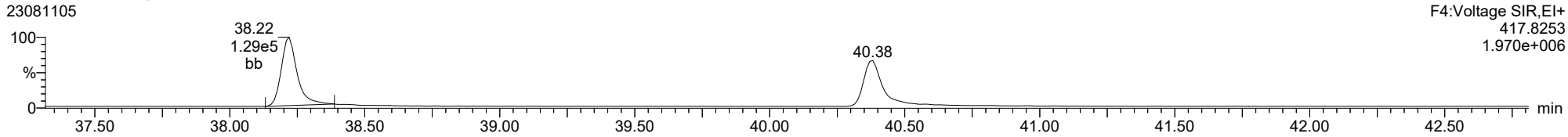
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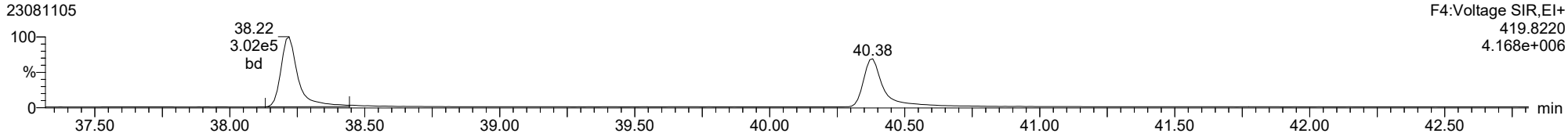
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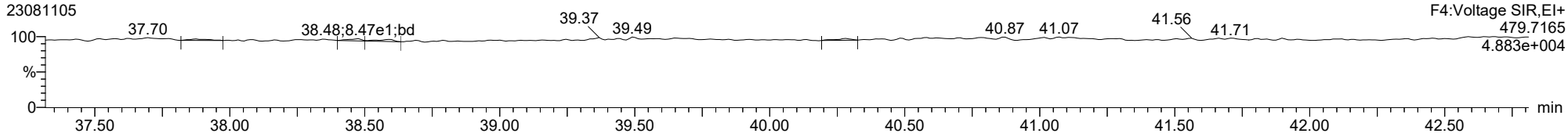
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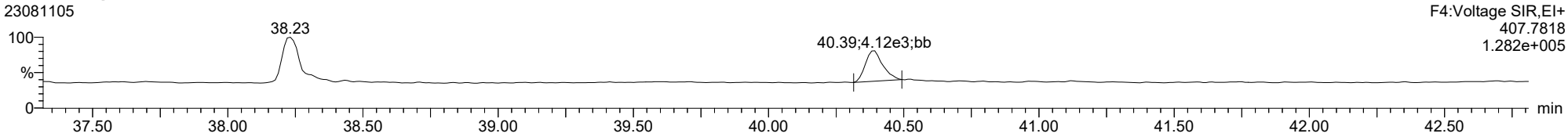


FUNCTION4 NCDPE

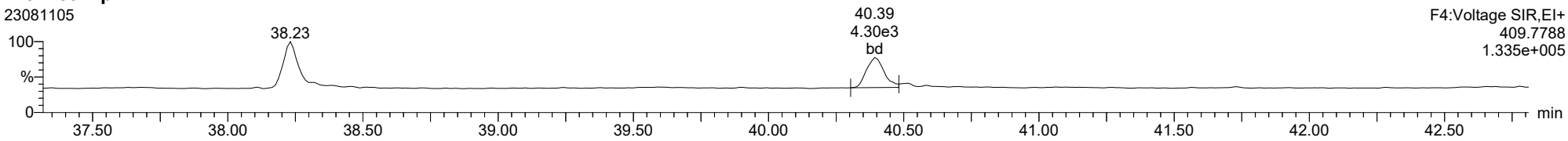


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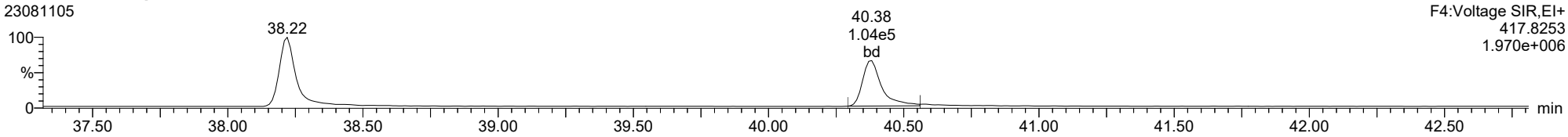
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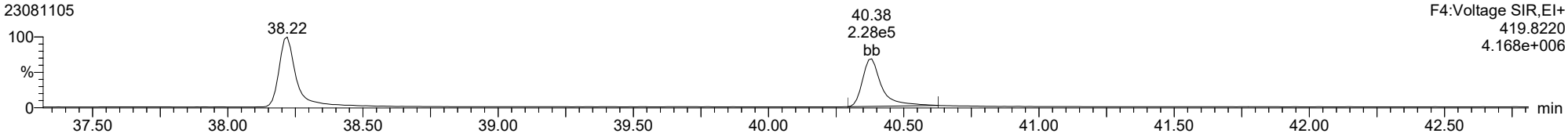
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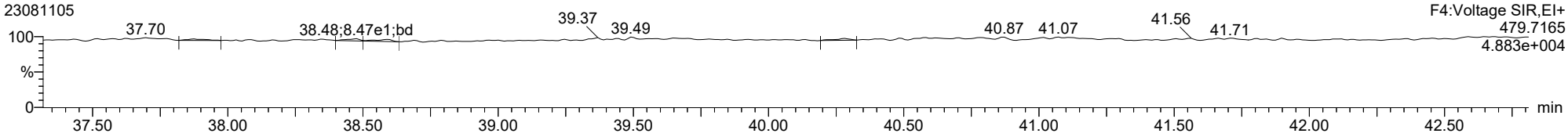
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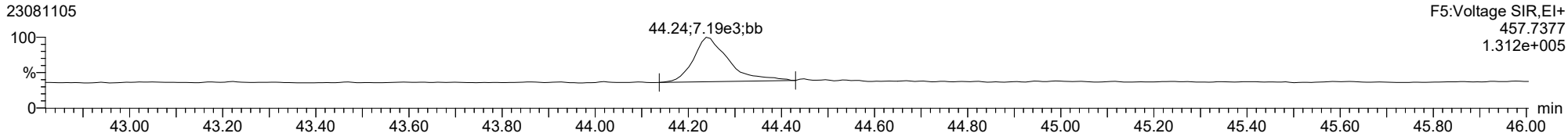


FUNCTION4 NCDPE

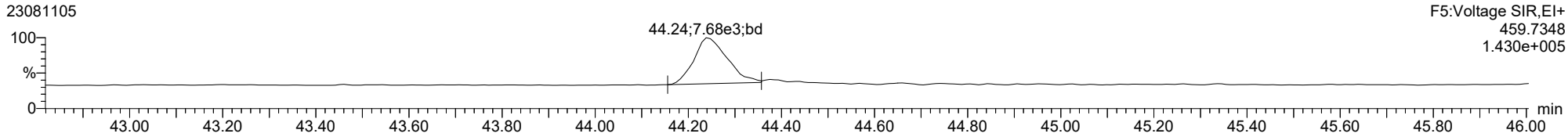


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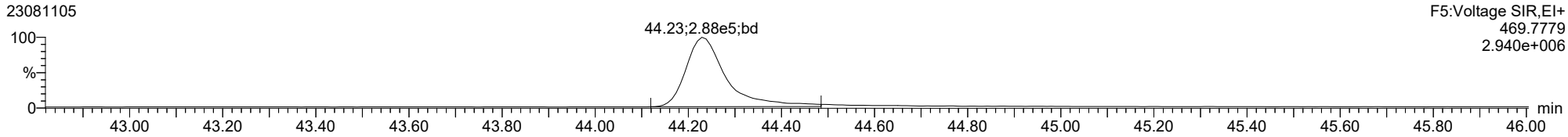
OCDD



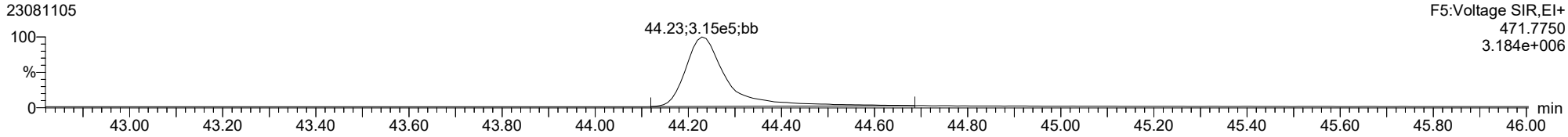
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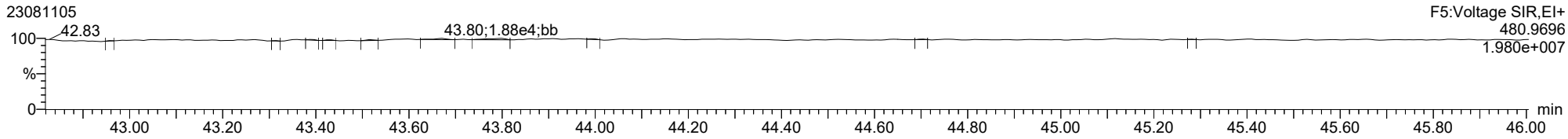
13C-OCDD



13C-OCDD

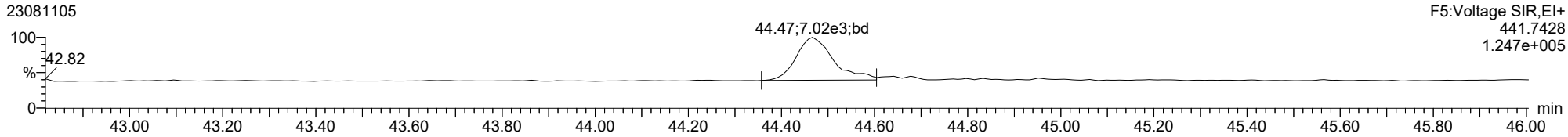


FUNCTION5 PFK

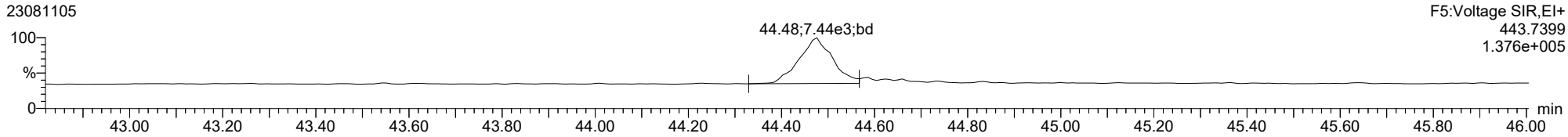


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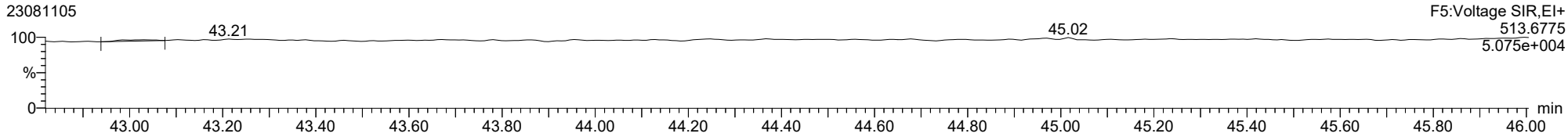
OCDF



OCDF

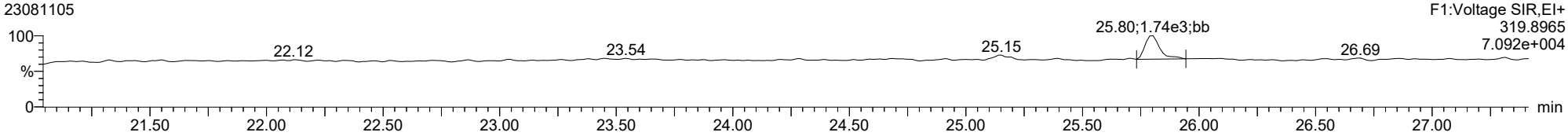


FUNCTION5 DCDPE

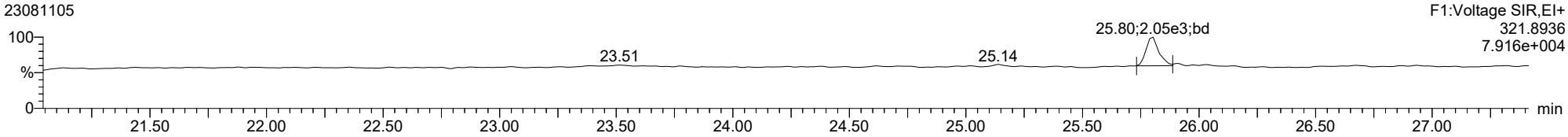


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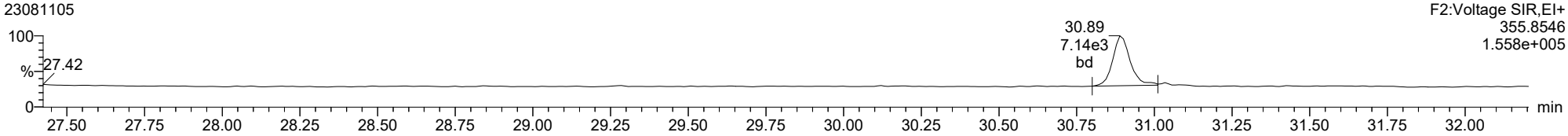
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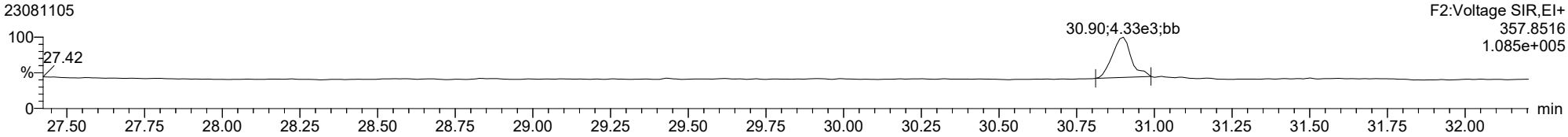
Total-tetradioxins



Total-pentadioxins

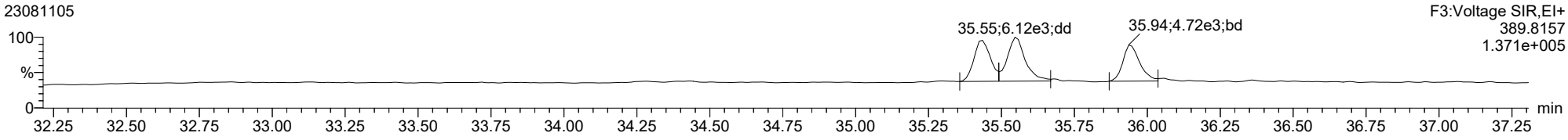


Total-pentadioxins

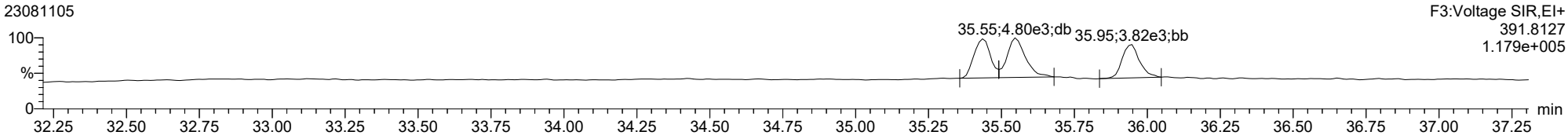


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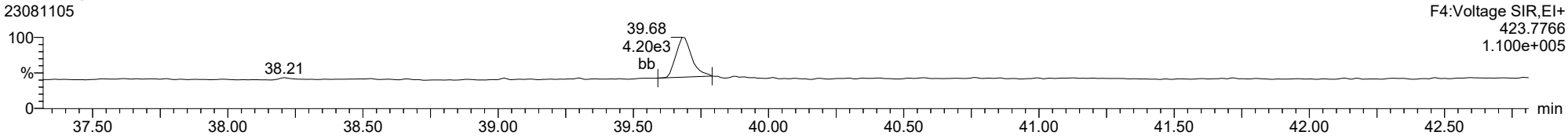
Total-hexadioxins



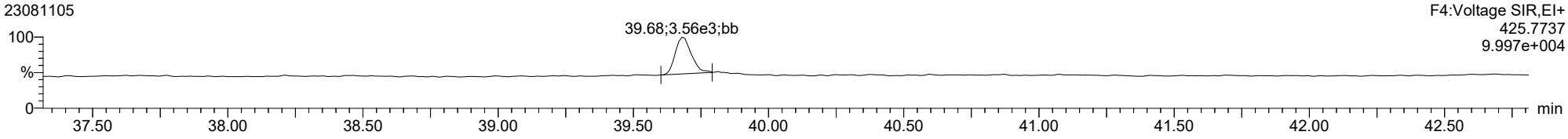
Total-hexadioxins



Total-heptadioxins

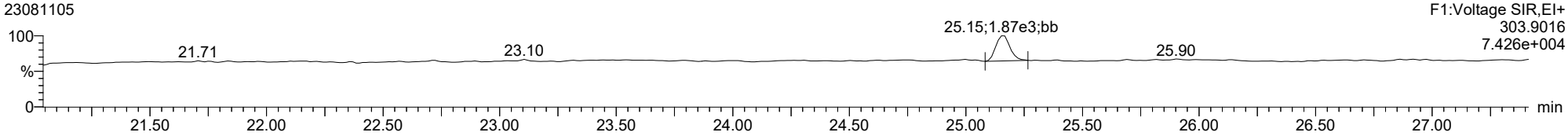


Total-heptadioxins

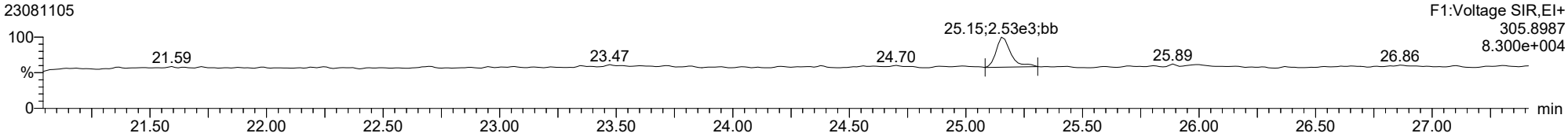


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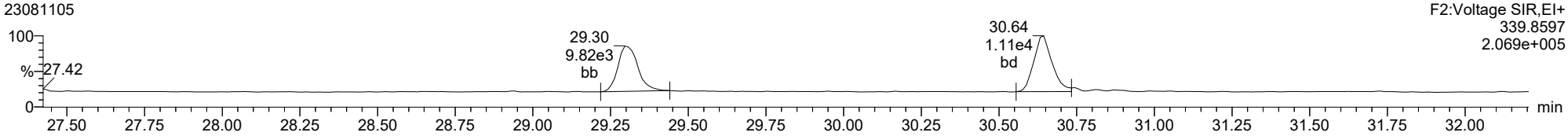
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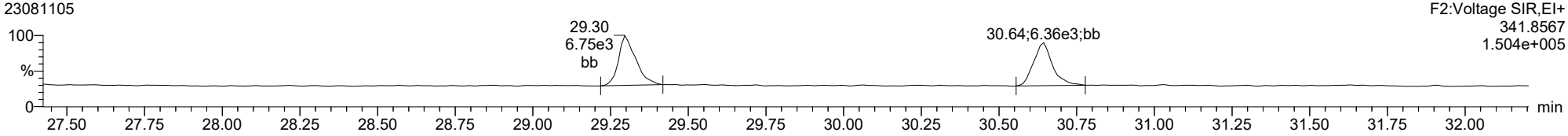
Total-tetrafurans



Total-pentafurans



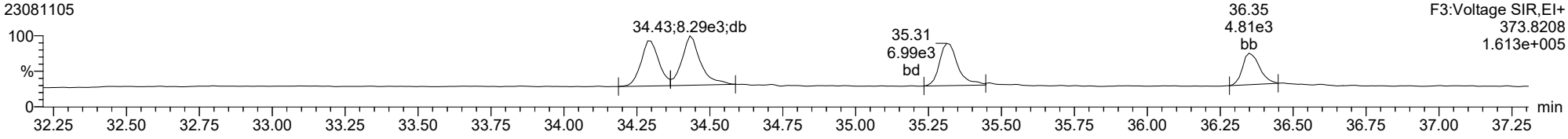
Total-pentafurans



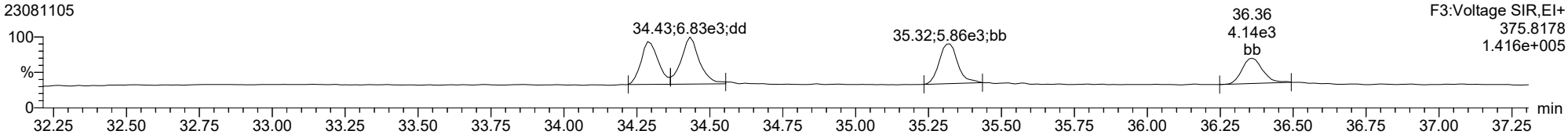
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Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:07 Pacific Daylight Time

ID: CS1CF, Name: 23081105, Date: 11-Aug-2023, Time: 13:01:52, Conditions: AUTOSPEC01, User: pk

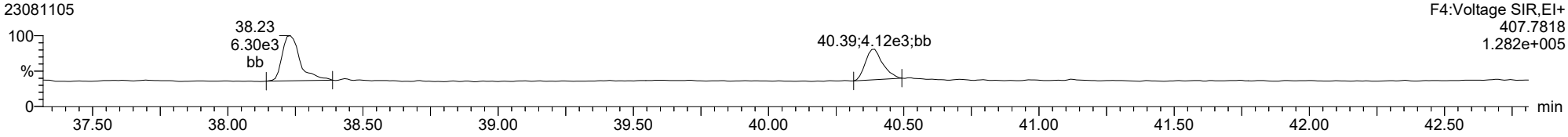
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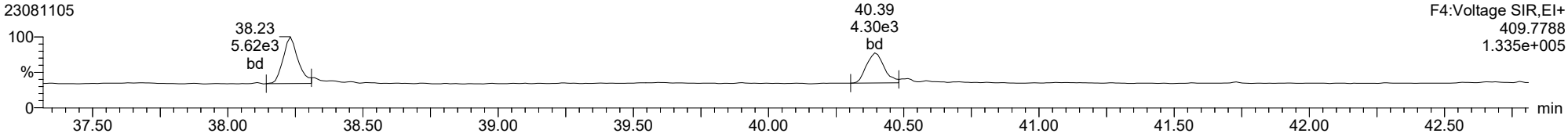
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Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:22 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.167	1.001	6.639e3	8.975e3	0.903	0.740	0.770	538	993	9.21e4	1.31e5	171.1	132.1	NO	bb	bb	1.970
12378-PeCDF	29.307	1.001	3.740e4	2.220e4	0.923	1.684	1.550	1167	1190	4.81e5	3.04e5	411.7	255.4	NO	bb	bd	10.334
23478-PeCDF	30.644	1.001	3.540e4	2.344e4	0.991	1.510	1.550	1167	1190	4.95e5	3.17e5	424.4	266.2	NO	bb	bd	9.895
123478-HxCDF	34.298	1.001	2.384e4	1.903e4	1.128	1.253	1.240	1466	1136	3.44e5	2.76e5	234.6	242.7	NO	bd	bd	9.772
234678-HxCDF	35.323	1.001	2.434e4	1.816e4	1.081	1.340	1.240	1466	1136	3.13e5	2.58e5	213.5	227.4	NO	bd	bb	10.221
123678-HxCDF	34.432	1.000	2.948e4	2.321e4	1.032	1.270	1.240	1466	1136	3.59e5	2.86e5	244.6	251.7	NO	dd	dd	10.354
123789-HxCDF	36.359	1.000	1.833e4	1.528e4	0.988	1.200	1.240	1466	1136	2.44e5	1.98e5	166.3	174.1	NO	bb	bd	9.957
1234678-HpCDF	38.231	1.000	2.069e4	1.904e4	1.164	1.087	1.050	1165	914	2.82e5	2.63e5	242.1	287.7	NO	bd	bd	10.035
1234789-HpCDF	40.403	1.000	1.452e4	1.375e4	1.104	1.056	1.050	1165	914	1.89e5	1.80e5	161.9	196.4	NO	bd	bd	10.072
OCDF	44.475	1.005	2.020e4	2.277e4	1.130	0.887	0.890	1047	1105	2.11e5	2.19e5	201.8	198.1	NO	bd	bd	22.550
2378-TCDD	25.803	1.001	5.548e3	6.953e3	1.243	0.798	0.770	803	625	7.86e4	9.57e4	97.9	153.2	NO	bd	bd	1.984
12378-PeCDD	30.900	1.001	2.229e4	1.439e4	1.150	1.549	1.550	754	561	3.06e5	2.04e5	405.8	364.2	NO	bb	bd	9.779
123478-HxCDD	35.435	1.000	1.653e4	1.351e4	0.960	1.224	1.240	811	937	2.39e5	1.94e5	295.1	207.1	NO	bd	bd	10.063
123678-HxCDD	35.557	1.001	1.716e4	1.531e4	0.883	1.121	1.240	811	937	2.38e5	1.95e5	293.1	207.7	NO	dd	dd	9.914
123789-HxCDD	35.947	1.012	1.586e4	1.341e4	0.804	1.183	1.240	811	937	2.09e5	1.88e5	257.8	200.7	NO	bd	bd	10.680
1234678-HpCDD	39.690	1.001	1.073e4	1.037e4	1.200	1.035	1.050	1103	680	1.37e5	1.38e5	123.9	203.2	NO	bd	bd	9.429
OCDD	44.247	1.000	1.670e4	1.836e4	1.059	0.910	0.890	879	1587	1.83e5	2.04e5	207.8	128.8	NO	bd	bb	19.639
13C-2378-TCDF	25.153	1.007	3.886e5	4.890e5	1.835	0.795	0.770	1364	1344	5.37e6	6.83e6	3939.0	5083.6	NO	bb	bb	100.434
13C-12378-PeCDF	29.285	1.173	3.779e5	2.468e5	1.377	1.531	1.550	3286	2729	5.12e6	3.35e6	1559.6	1229.0	NO	bb	bb	95.324
13C-23478-PeCDF	30.622	1.226	3.655e5	2.348e5	1.301	1.557	1.550	3286	2729	4.81e6	3.14e6	1465.3	1148.8	NO	bb	bb	96.899
13C-123478-HxCDF	34.276	0.954	1.314e5	2.576e5	1.091	0.510	0.510	1750	2697	1.85e6	3.61e6	1057.7	1339.3	NO	bd	bd	107.194
13C-123678-HxCDF	34.421	0.958	1.547e5	3.382e5	1.340	0.457	0.510	1750	2697	2.05e6	4.08e6	1171.2	1512.3	NO	db	db	110.566
13C-234678-HxCDF	35.301	0.982	1.364e5	2.481e5	1.093	0.550	0.510	1750	2697	1.72e6	3.32e6	983.2	1231.8	NO	bb	bb	105.714
13C-123789-HxCDF	36.348	1.012	1.112e5	2.306e5	0.952	0.482	0.510	1750	2697	1.36e6	2.75e6	779.0	1019.4	NO	bb	bb	107.981
13C-1234678-HpCDF	38.220	1.064	9.913e4	2.411e5	0.985	0.411	0.440	1895	2595	1.40e6	3.17e6	737.2	1220.7	NO	bb	bb	103.834
13C-1234789-HpCDF	40.381	1.124	7.550e4	1.788e5	0.756	0.422	0.440	1895	2595	9.30e5	2.09e6	490.9	805.4	NO	bb	bd	101.155
13C-1234-TCDD	24.969	0.000	2.112e5	2.649e5	1.000	0.797	0.770	1680	1124	3.19e6	4.00e6	1899.2	3554.0	NO	bb	bb	100.000
13C-2378-TCDD	25.788	1.033	2.248e5	2.821e5	1.110	0.797	0.770	1680	1124	3.12e6	3.97e6	1858.7	3527.9	NO	bb	bb	95.969
13C-12378-PeCDD	30.878	1.237	2.020e5	1.242e5	0.754	1.627	1.550	1223	944	2.75e6	1.67e6	2245.0	1771.6	NO	bb	bb	90.902
13C-123478-HxCDD	35.423	0.986	1.742e5	1.367e5	0.960	1.275	1.240	1410	1296	2.60e6	2.05e6	1845.4	1580.5	NO	bd	bd	97.371
13C-123678-HxCDD	35.535	0.989	2.078e5	1.633e5	1.159	1.273	1.240	1410	1296	2.57e6	2.02e6	1824.4	1557.0	NO	db	db	96.226
13C-1234678-HpCDD	39.668	1.104	9.858e4	8.803e4	0.629	1.120	1.050	1254	2104	1.25e6	1.14e6	994.6	540.8	NO	bd	bd	89.141
13C-OCDD	44.238	1.231	1.612e5	1.761e5	0.635	0.915	0.890	2400	1954	1.62e6	1.78e6	676.5	910.4	NO	bd	bd	159.619
13C-123789-HxCDD	35.936	0.000	1.861e5	1.465e5	1.000	1.270	1.240	1410	1296	2.41e6	1.88e6	1710.5	1449.2	NO	bb	bb	100.000
37CL-2378-TCDD	25.803	1.033	1.067e4		1.157			862		1.46e5		169.4			bb		1.937

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:22 Pacific Daylight Time

ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.170		0.770	538	993								
1289-TCDF					0.847		0.770	538	993								
13468-PECDF					1.241		1.550	576	687								
12389-PECDF					0.880		1.550	1167	1190								
123468-HXCDF					1.206		1.240	1466	1136								
1368-TCDD					1.181		0.770	803	625								
1289-TCDD					0.963		0.770	803	625								
12479-PECDD					2.166		1.550	754	561								
12389-PECDD					1.326		1.550	754	561								
124679-HXCDD					1.127		1.240	811	937								
1234679-HPCDD					1.303		1.050	1103	680								
Total-tetrafurans			6.639e3		0.973			538		9.21e4							1.970
Total-penta1			0.000e0					576		0.00e0							
Total-pentafurans			7.280e4		0.931			1167		9.76e5							20.229
Total-hexafurans			9.600e4		1.087			1466		1.26e6							40.303
Total-heptafurans			3.521e4		1.134			1165		4.71e5							20.106
Total-Furans			2.308e5		1.053			538		3.01e6							105.158
Total-tetradioxins			5.548e3		1.129			803		7.86e4							1.984
Total-pentadioxins			2.229e4		1.548			754		3.06e5							9.779
Total-hexadioxins			4.955e4		0.943			811		6.86e5							30.657
Total-heptadioxins			1.073e4		1.251			1103		1.37e5							9.429
Total-Dioxins			1.048e5		1.182			803		1.39e6							71.487
Total-TEQ			3.357e5					803		4.40e6							176.646
FUNCTION1 PFK			6.101e5					529815		9.62e6							
FUNCTION2 PFK			3.300e5					262661		9.68e6							0.000
FUNCTION3 PFK			3.679e4					410224		9.46e5							0.000
FUNCTION4 PFK			9.280e4					245564		2.16e6							
FUNCTION5 PFK			2.234e4					217516		1.10e6							
FUNCTION1 HXCD...			1.047e3					646		1.33e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			1.453e2					593		3.14e3							0.000
FUNCTION3 OCDPE			0.000e0					501		0.00e0							
FUNCTION4 NCDPE			0.000e0					705		0.00e0							
FUNCTION5 DCDPE			0.000e0					568		0.00e0							

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.17	6.639e3	8.975e3	0.903	0.74	0.77	171.1	YES	NO	bb	bb	1.970

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.64	3.540e4	2.344e4	0.991	1.51	1.55	424.4	YES	NO	bb	bd	9.895
2	12378-PeCDF	29.31	3.740e4	2.220e4	0.923	1.68	1.55	411.7	YES	NO	bb	bd	10.334

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.36	1.833e4	1.528e4	0.988	1.20	1.24	166.3	YES	NO	bb	bd	9.957
2	234678-HxCDF	35.32	2.434e4	1.816e4	1.081	1.34	1.24	213.5	YES	NO	bd	bb	10.221
3	123678-HxCDF	34.43	2.948e4	2.321e4	1.032	1.27	1.24	244.6	YES	NO	dd	dd	10.354
4	123478-HxCDF	34.30	2.384e4	1.903e4	1.128	1.25	1.24	234.6	YES	NO	bd	bd	9.772

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.40	1.452e4	1.375e4	1.104	1.06	1.05	161.9	YES	NO	bd	bd	10.072
2	1234678-HpCDF	38.23	2.069e4	1.904e4	1.164	1.09	1.05	242.1	YES	NO	bd	bd	10.035

ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.64	3.540e4	2.344e4	0.991	1.51	1.55	424.4	YES	NO	bb	bd	9.895
2	12378-PeCDF	29.31	3.740e4	2.220e4	0.923	1.68	1.55	411.7	YES	NO	bb	bd	10.334
3	2378-TCDF	25.17	6.639e3	8.975e3	0.903	0.74	0.77	171.1	YES	NO	bb	bb	1.970
4	123789-HxCDF	36.36	1.833e4	1.528e4	0.988	1.20	1.24	166.3	YES	NO	bb	bd	9.957
5	234678-HxCDF	35.32	2.434e4	1.816e4	1.081	1.34	1.24	213.5	YES	NO	bd	bb	10.221
6	123678-HxCDF	34.43	2.948e4	2.321e4	1.032	1.27	1.24	244.6	YES	NO	dd	dd	10.354
7	123478-HxCDF	34.30	2.384e4	1.903e4	1.128	1.25	1.24	234.6	YES	NO	bd	bd	9.772
8	1234789-HpCDF	40.40	1.452e4	1.375e4	1.104	1.06	1.05	161.9	YES	NO	bd	bd	10.072
9	1234678-HpCDF	38.23	2.069e4	1.904e4	1.164	1.09	1.05	242.1	YES	NO	bd	bd	10.035
10	OCDF	44.48	2.020e4	2.277e4	1.130	0.89	0.89	201.8	YES	NO	bd	bd	22.550

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.80	5.548e3	6.953e3	1.243	0.80	0.77	97.9	YES	NO	bd	bd	1.984

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.90	2.229e4	1.439e4	1.150	1.55	1.55	405.8	YES	NO	bb	bd	9.779

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.95	1.586e4	1.341e4	0.804	1.18	1.24	257.8	YES	NO	bd	bd	10.680
2	123678-HxCDD	35.56	1.716e4	1.531e4	0.883	1.12	1.24	293.1	YES	NO	dd	dd	9.914
3	123478-HxCDD	35.43	1.653e4	1.351e4	0.960	1.22	1.24	295.1	YES	NO	bd	bd	10.063

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.69	1.073e4	1.037e4	1.200	1.03	1.05	123.9	YES	NO	bd	bd	9.429

ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.80	5.548e3	6.953e3	1.243	0.80	0.77	97.9	YES	NO	bd	bd	1.984
2	123789-HxCDD	35.95	1.586e4	1.341e4	0.804	1.18	1.24	257.8	YES	NO	bd	bd	10.680
3	123678-HxCDD	35.56	1.716e4	1.531e4	0.883	1.12	1.24	293.1	YES	NO	dd	dd	9.914
4	123478-HxCDD	35.43	1.653e4	1.351e4	0.960	1.22	1.24	295.1	YES	NO	bd	bd	10.063
5	12378-PeCDD	30.90	2.229e4	1.439e4	1.150	1.55	1.55	405.8	YES	NO	bb	bd	9.779
6	OCDD	44.25	1.670e4	1.836e4	1.059	0.91	0.89	207.8	YES	NO	bd	bb	19.639
7	1234678-HpCDD	39.69	1.073e4	1.037e4	1.200	1.03	1.05	123.9	YES	NO	bd	bd	9.429

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.64	3.540e4	2.344e4	0.991	1.51	1.55	424.4	YES	NO	bb	bd	9.895
2	12378-PeCDF	29.31	3.740e4	2.220e4	0.923	1.68	1.55	411.7	YES	NO	bb	bd	10.334
3	2378-TCDF	25.17	6.639e3	8.975e3	0.903	0.74	0.77	171.1	YES	NO	bb	bb	1.970
4	123789-HxCDF	36.36	1.833e4	1.528e4	0.988	1.20	1.24	166.3	YES	NO	bb	bd	9.957
5	234678-HxCDF	35.32	2.434e4	1.816e4	1.081	1.34	1.24	213.5	YES	NO	bd	bb	10.221
6	123678-HxCDF	34.43	2.948e4	2.321e4	1.032	1.27	1.24	244.6	YES	NO	dd	dd	10.354
7	123478-HxCDF	34.30	2.384e4	1.903e4	1.128	1.25	1.24	234.6	YES	NO	bd	bd	9.772
8	1234789-HpCDF	40.40	1.452e4	1.375e4	1.104	1.06	1.05	161.9	YES	NO	bd	bd	10.072
9	1234678-HpCDF	38.23	2.069e4	1.904e4	1.164	1.09	1.05	242.1	YES	NO	bd	bd	10.035
10	OCDF	44.48	2.020e4	2.277e4	1.130	0.89	0.89	201.8	YES	NO	bd	bd	22.550
11	2378-TCDD	25.80	5.548e3	6.953e3	1.243	0.80	0.77	97.9	YES	NO	bd	bd	1.984
12	123789-HxCDD	35.95	1.586e4	1.341e4	0.804	1.18	1.24	257.8	YES	NO	bd	bd	10.680
13	123678-HxCDD	35.56	1.716e4	1.531e4	0.883	1.12	1.24	293.1	YES	NO	dd	dd	9.914
14	123478-HxCDD	35.43	1.653e4	1.351e4	0.960	1.22	1.24	295.1	YES	NO	bd	bd	10.063
15	12378-PeCDD	30.90	2.229e4	1.439e4	1.150	1.55	1.55	405.8	YES	NO	bb	bd	9.779
16	OCDD	44.25	1.670e4	1.836e4	1.059	0.91	0.89	207.8	YES	NO	bd	bb	19.639
17	1234678-HpCDD	39.69	1.073e4	1.037e4	1.200	1.03	1.05	123.9	YES	NO	bd	bd	9.429

ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	27.13	4.567e4					1.8	NO		bb		
2	FUNCTION1 PFK	26.93	1.033e5					1.9	NO		bb		
3	FUNCTION1 PFK	25.83	1.767e4					0.9	NO		db		
4	FUNCTION1 PFK	25.76	2.157e4					1.2	NO		bd		
5	FUNCTION1 PFK	25.36	1.644e4					1.0	NO		bb		
6	FUNCTION1 PFK	24.72	9.596e3					0.9	NO		bb		
7	FUNCTION1 PFK	23.80	8.729e4					1.7	NO		bb		
8	FUNCTION1 PFK	23.68	1.279e4					0.8	NO		bb		
9	FUNCTION1 PFK	22.95	2.100e4					1.1	NO		bb		
10	FUNCTION1 PFK	22.55	1.612e5					2.6	NO		bb		
11	FUNCTION1 PFK	21.37	6.636e4					1.6	NO		bb		
12	FUNCTION1 PFK	21.24	1.932e4					1.3	NO		bb		
13	FUNCTION1 PFK	27.37	2.793e4					1.4	NO		bb		

ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.56	1.108e3					0.4	NO		bb		0.000
2	FUNCTION2 PFK	29.42	1.592e4					1.3	NO		bb		0.000
3	FUNCTION2 PFK	29.14	8.800e3					0.6	NO		bb		0.000
4	FUNCTION2 PFK	29.04	1.126e3					0.4	NO		bb		0.000
5	FUNCTION2 PFK	28.89	1.092e3					0.4	NO		bb		0.000
6	FUNCTION2 PFK	28.67	2.760e3					0.6	NO		bb		0.000
7	FUNCTION2 PFK	28.54	4.266e4					2.3	NO		db		0.000
8	FUNCTION2 PFK	28.50	7.502e3					1.4	NO		bd		0.000
9	FUNCTION2 PFK	28.44	4.754e3					0.8	NO		bb		0.000
10	FUNCTION2 PFK	28.24	1.817e3					0.6	NO		bb		0.000
11	FUNCTION2 PFK	27.91	2.129e4					1.8	NO		bb		0.000
12	FUNCTION2 PFK	27.70	1.104e4					1.3	NO		bb		0.000
13	FUNCTION2 PFK	27.56	1.554e4					2.6	NO		bb		0.000
14	FUNCTION2 PFK	27.48	7.233e3					1.3	NO		bb		0.000
15	FUNCTION2 PFK	31.65	2.742e3					0.7	NO		db		0.000
16	FUNCTION2 PFK	31.61	7.483e3					1.0	NO		dd		0.000
17	FUNCTION2 PFK	31.57	8.598e3					1.1	NO		bd		0.000
18	FUNCTION2 PFK	31.48	5.872e3					0.9	NO		bb		0.000
19	FUNCTION2 PFK	31.17	2.153e4					1.7	NO		bb		0.000
20	FUNCTION2 PFK	31.02	6.265e3					1.0	NO		bb		0.000
21	FUNCTION2 PFK	30.97	5.713e3					1.0	NO		db		0.000
22	FUNCTION2 PFK	30.93	5.520e3					1.0	NO		bd		0.000
23	FUNCTION2 PFK	30.78	1.253e4					1.2	NO		db		0.000
24	FUNCTION2 PFK	30.72	1.563e4					2.1	NO		dd		0.000
25	FUNCTION2 PFK	30.69	5.597e4					3.6	YES		bd		0.000
26	FUNCTION2 PFK	30.50	7.111e3					1.1	NO		bb		0.000
27	FUNCTION2 PFK	30.34	3.928e3					0.6	NO		bb		0.000
28	FUNCTION2 PFK	30.29	1.253e4					1.3	NO		db		0.000
29	FUNCTION2 PFK	30.22	9.994e3					1.2	NO		bd		0.000
30	FUNCTION2 PFK	30.08	3.205e3					0.7	NO		bb		0.000
31	FUNCTION2 PFK	31.76	2.713e3					0.6	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	36.80	3.679e4					2.3	NO		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	41.57	1.891e4					2.5	NO		bb		
2	FUNCTION4 PFK	40.08	2.932e4					2.7	NO		bb		
3	FUNCTION4 PFK	37.54	4.458e4					3.6	YES		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.33	1.090e3					0.5	NO		bb		
2	FUNCTION5 PFK	44.09	8.882e3					1.5	NO		bb		
3	FUNCTION5 PFK	43.42	9.419e3					1.5	NO		bb		
4	FUNCTION5 PFK	43.07	1.093e3					0.5	NO		bb		
5	FUNCTION5 PFK	43.00	1.858e3					0.9	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	21.45	1.010e2					1.8	NO		db		0.000
2	FUNCTION1 HXCD...	21.33	1.737e2					2.5	NO		bd		0.000
3	FUNCTION1 HXCD...	26.28	1.182e2					1.7	NO		db		0.000
4	FUNCTION1 HXCD...	26.16	8.898e1					2.4	NO		dd		0.000
5	FUNCTION1 HXCD...	26.10	1.100e2					2.3	NO		bd		0.000
6	FUNCTION1 HXCD...	25.92	8.664e1					2.0	NO		db		0.000
7	FUNCTION1 HXCD...	25.80	8.460e1					1.7	NO		bd		0.000
8	FUNCTION1 HXCD...	23.51	1.186e2					2.4	NO		db		0.000
9	FUNCTION1 HXCD...	23.39	8.900e1					2.1	NO		bd		0.000
10	FUNCTION1 HXCD...	22.67	7.641e1					1.6	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	28.44	7.425e1					2.3	NO		bb		0.000
2	FUNCTION2 HPCD...	27.79	7.103e1					3.0	NO		bb		0.000

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ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

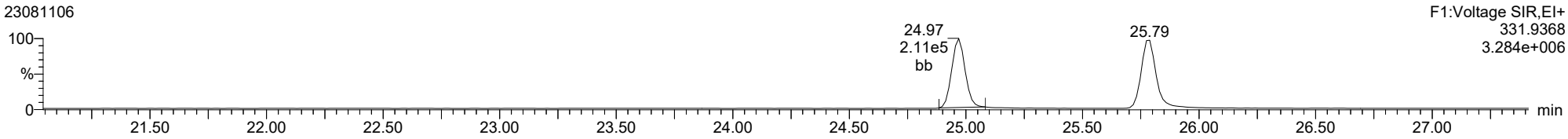
ETHERS6

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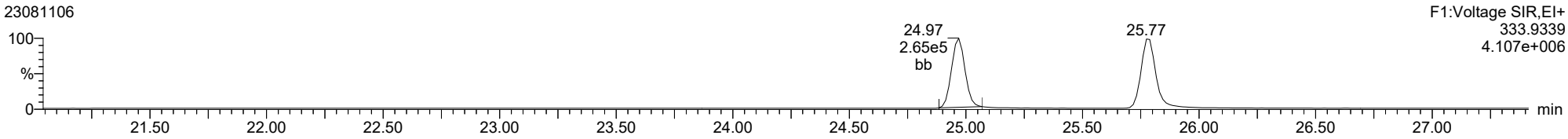
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ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

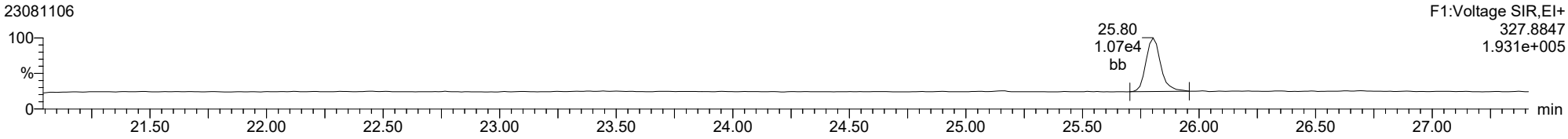
13C-1234-TCDD



13C-1234-TCDD

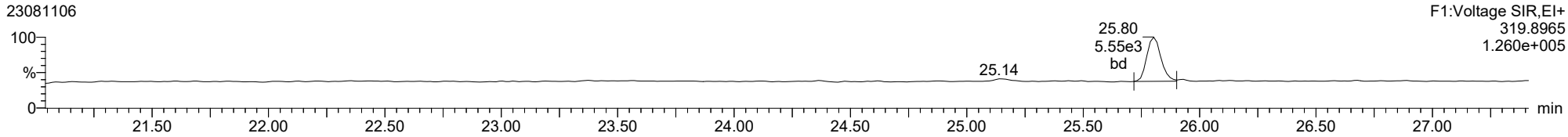


37CL-2378-TCDD

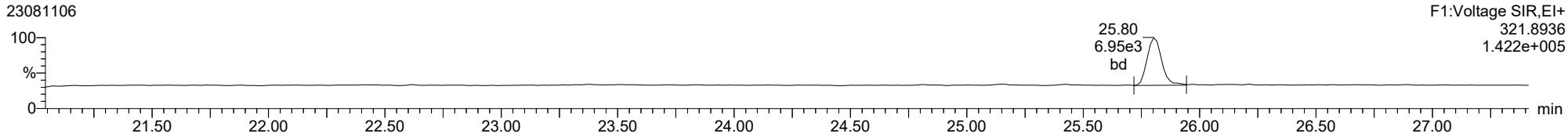


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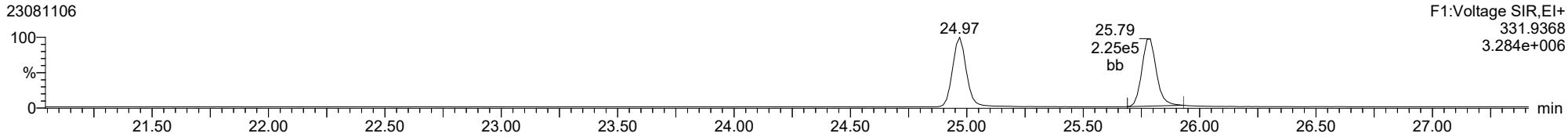
2378-TCDD



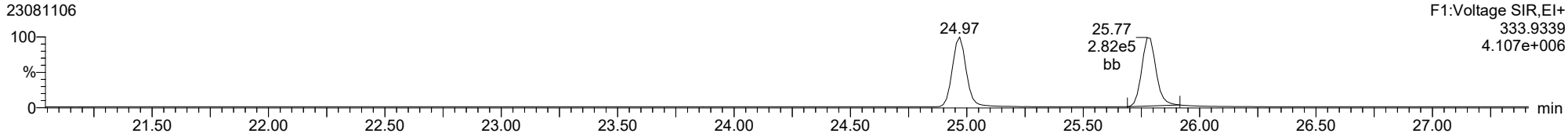
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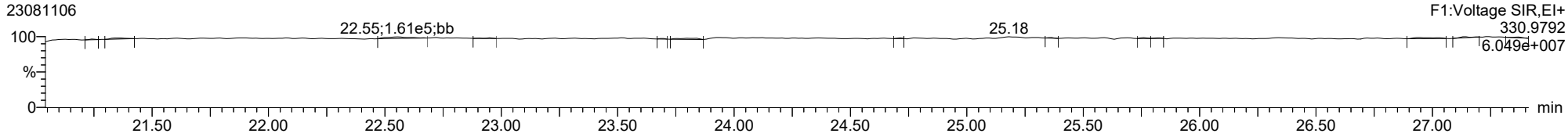
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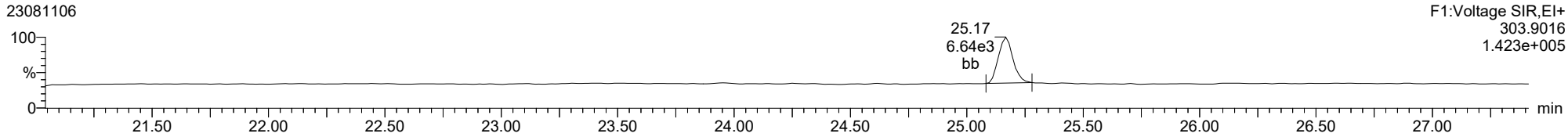


FUNCTION1 PFK

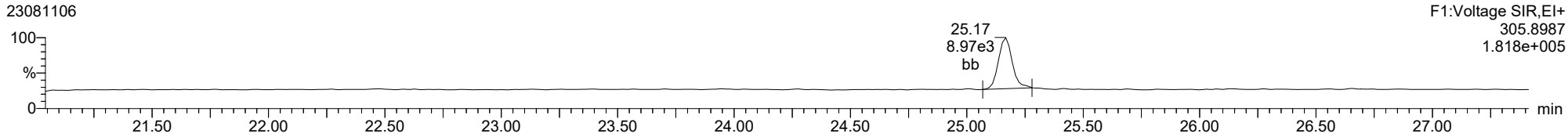


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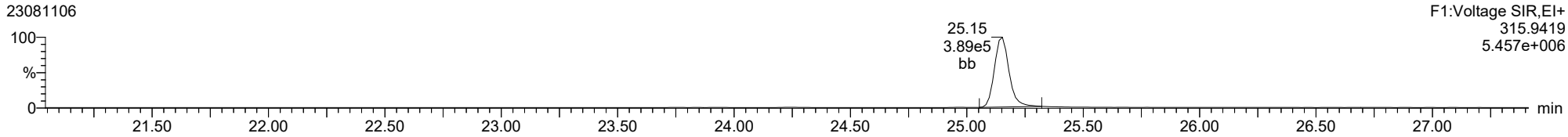
2378-TCDF



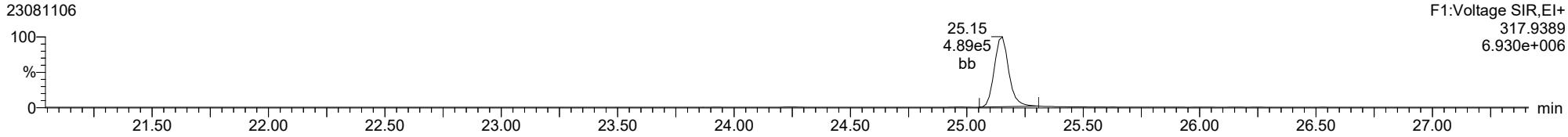
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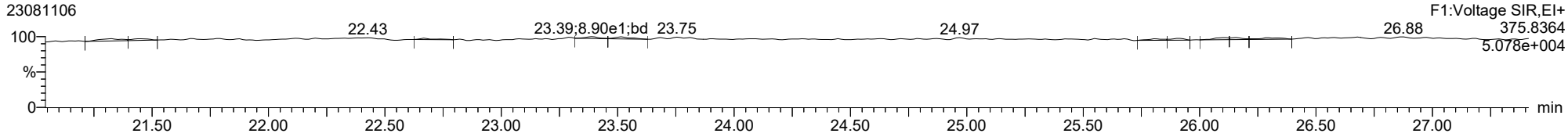
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13C-2378-TCDF

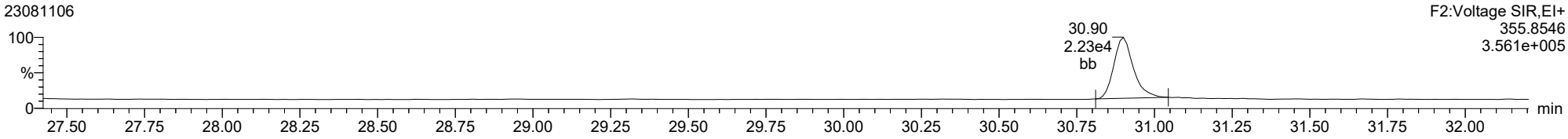


FUNCTION1 HXCDPE

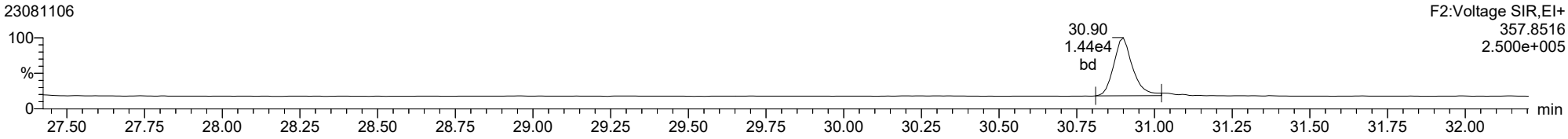


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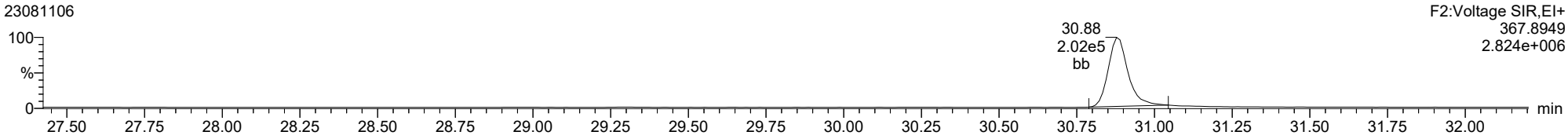
12378-PeCDD



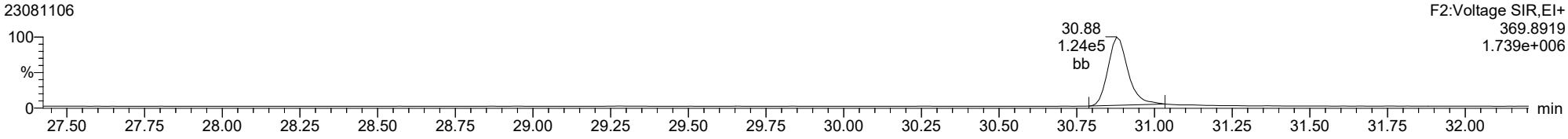
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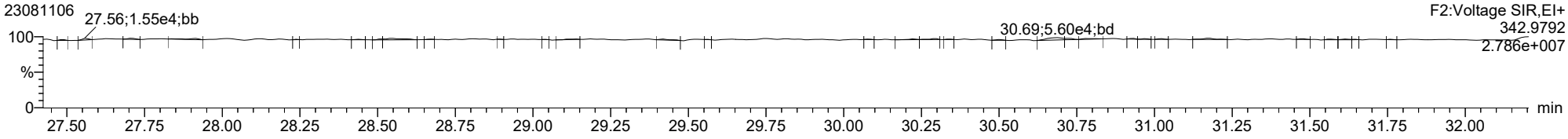
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13C-12378-PeCDD

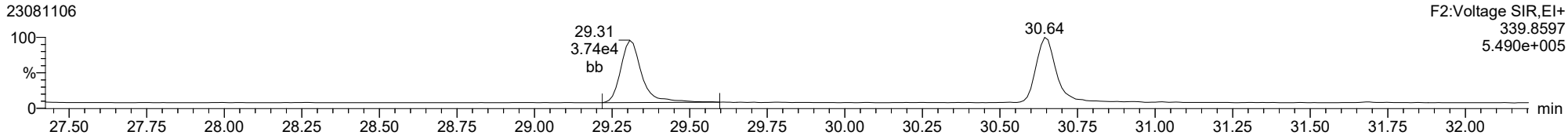


FUNCTION2 PFK

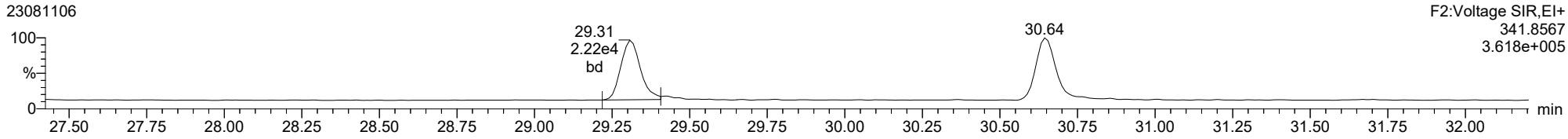


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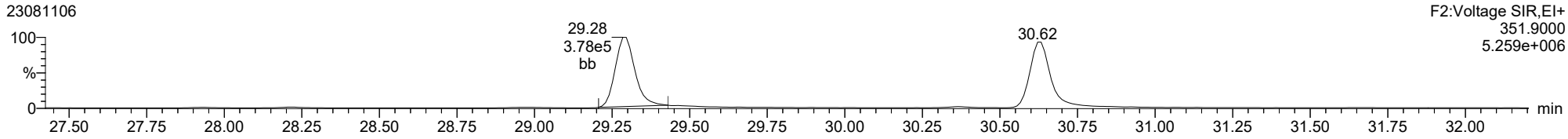
12378-PeCDF



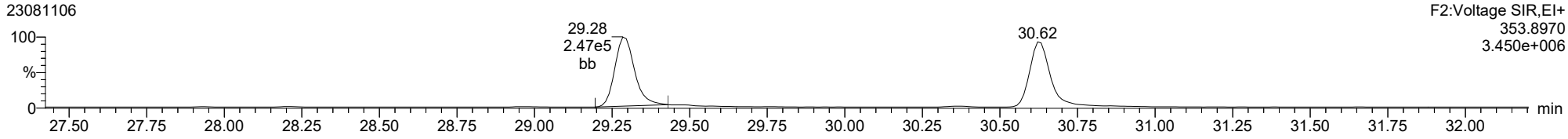
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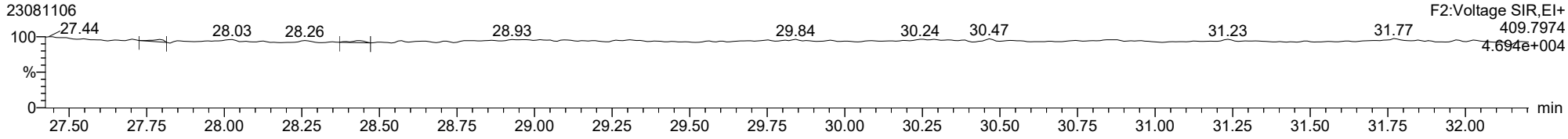
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13C-12378-PeCDF



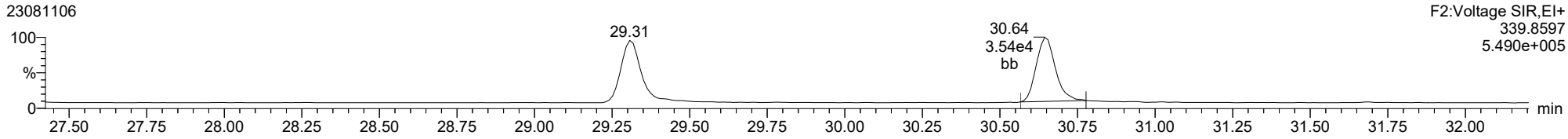
FUNCTION2 HPCDPE



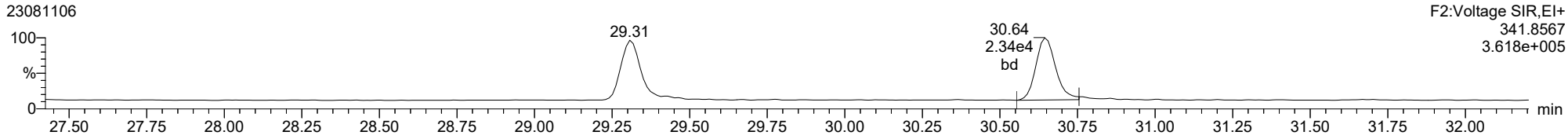
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ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

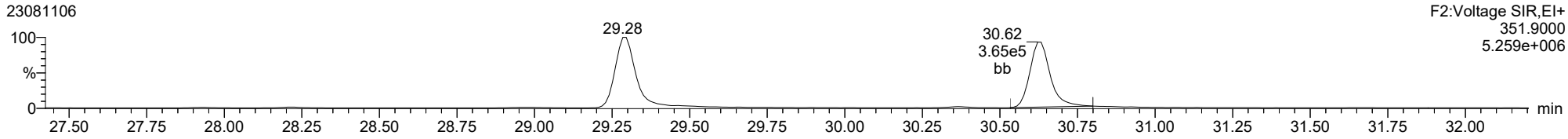
23478-PeCDF



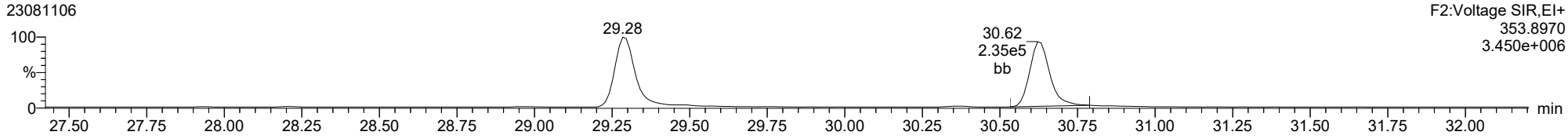
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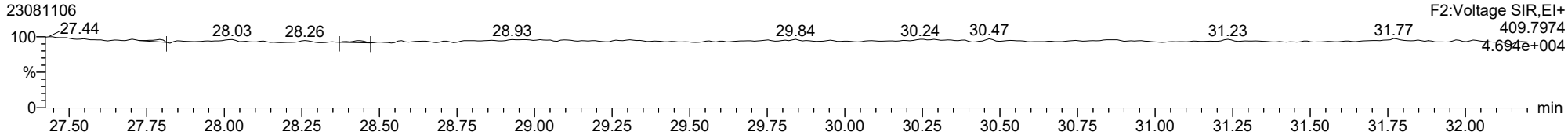
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13C-23478-PeCDF

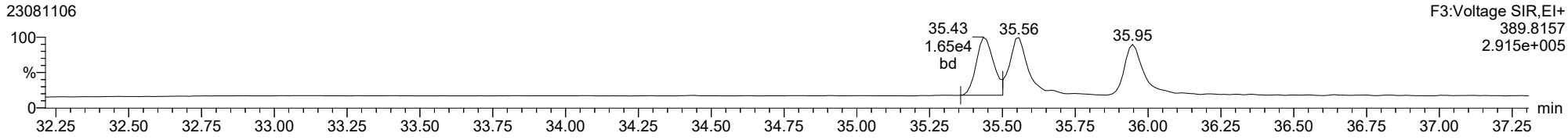


FUNCTION2 HPCDPE

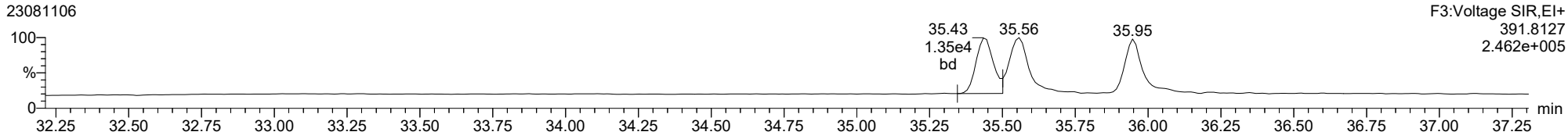


ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

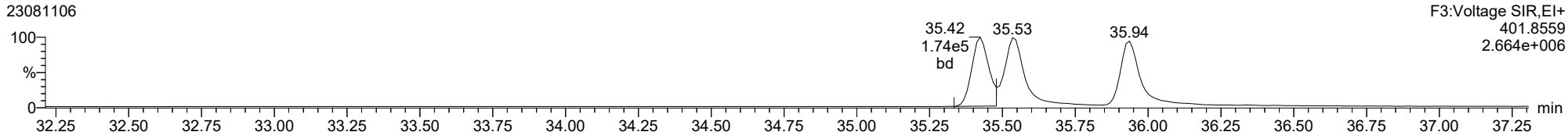
123478-HxCDD



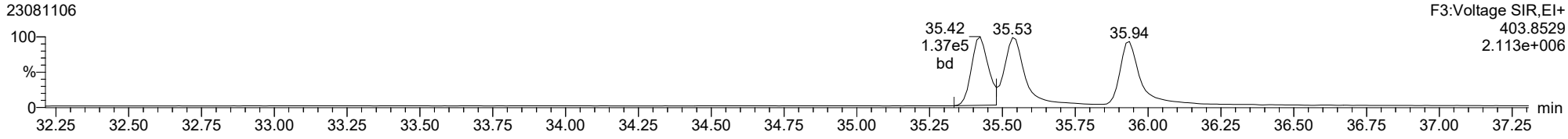
123478-HxCDD



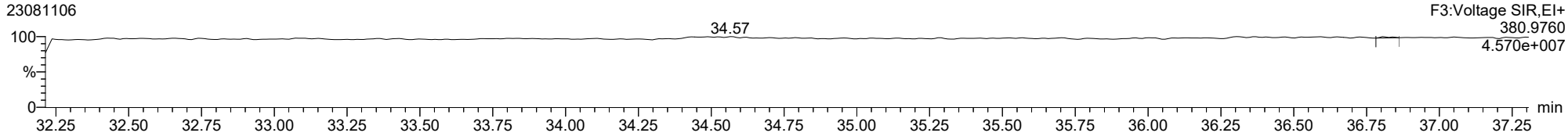
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13C-123478-HxCDD



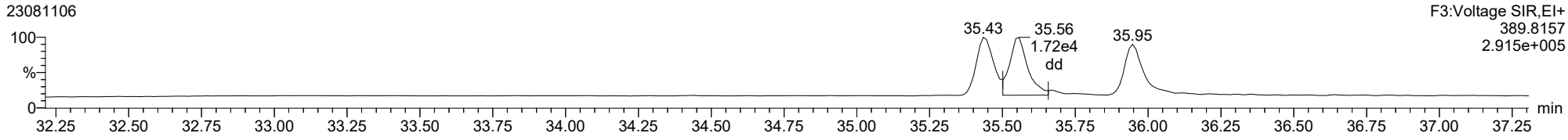
FUNCTION3 PFK



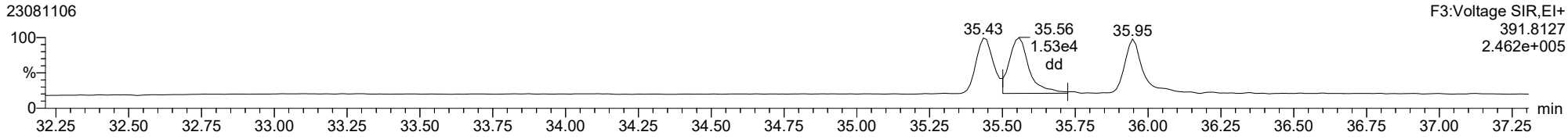
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ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

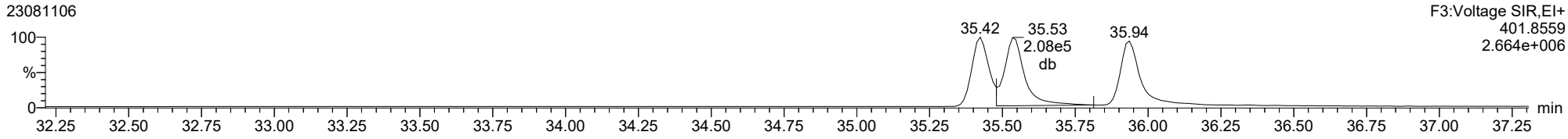
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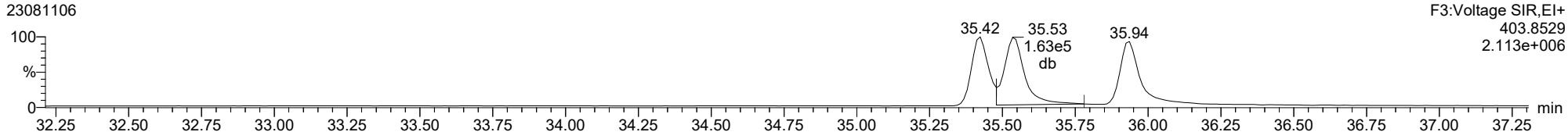
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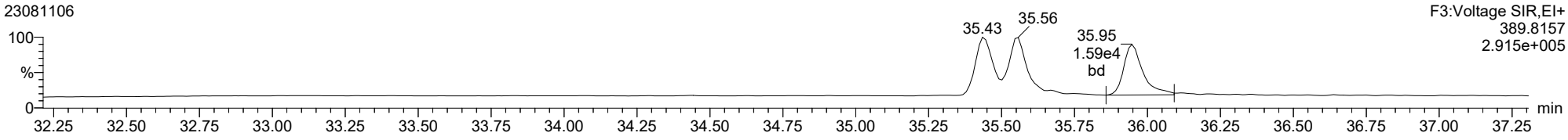


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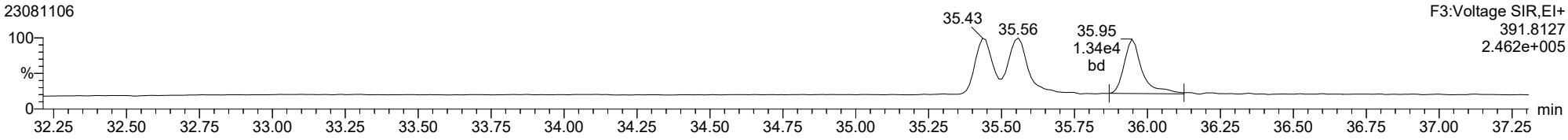


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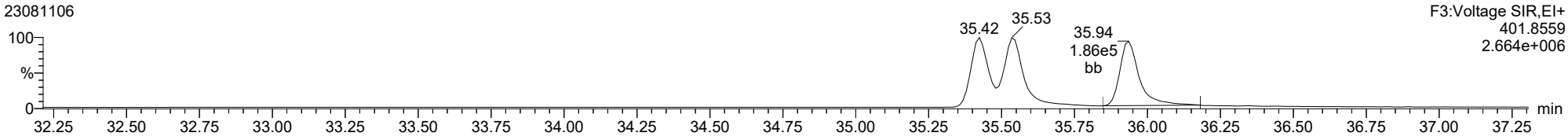
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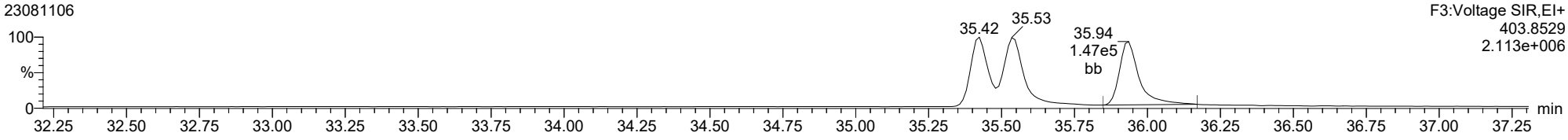
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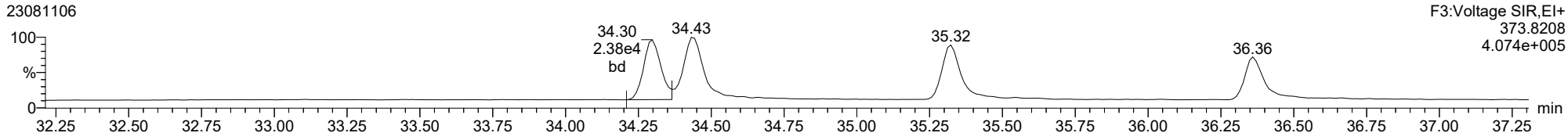


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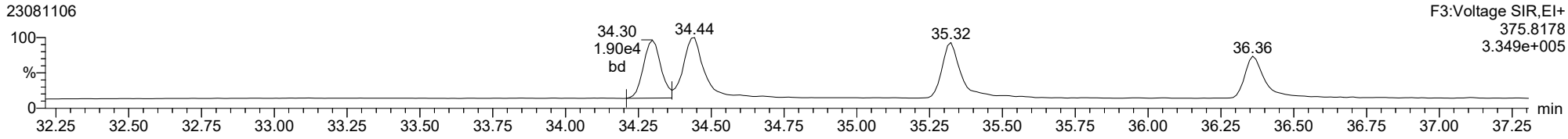


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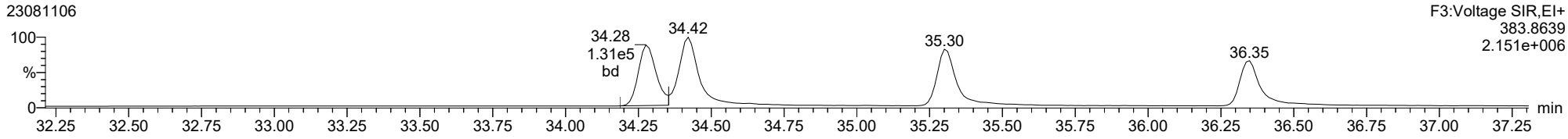
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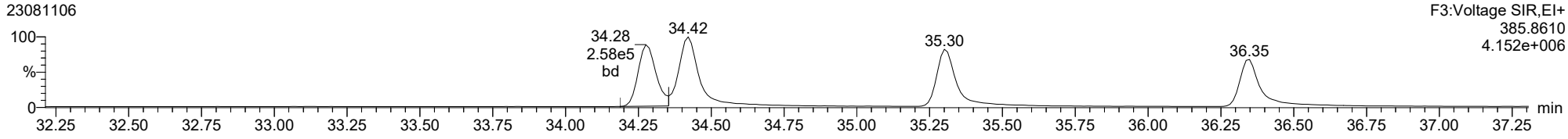
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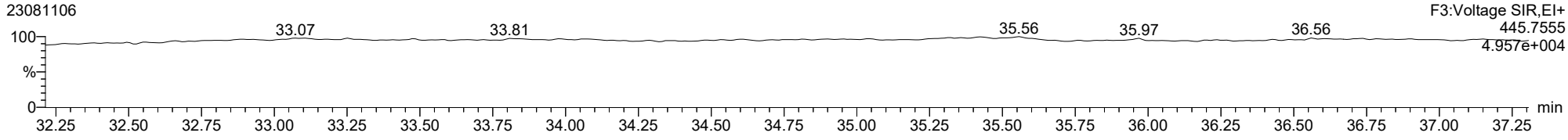
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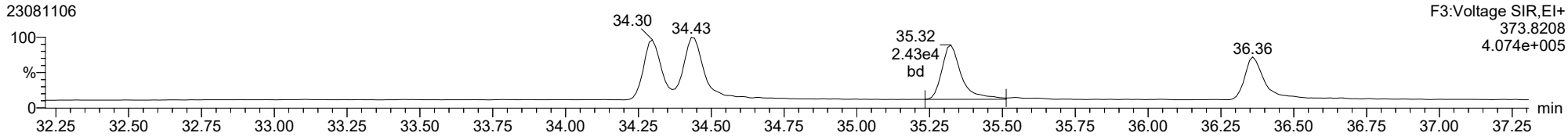


FUNCTION3 OCDPE

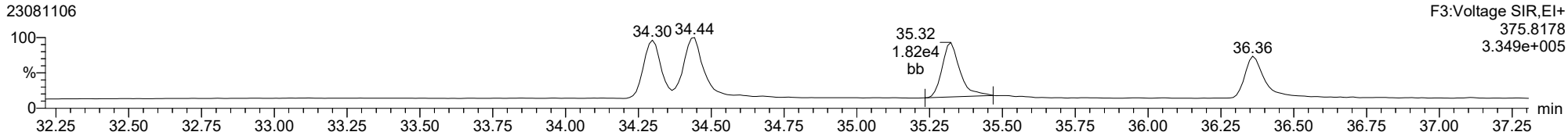


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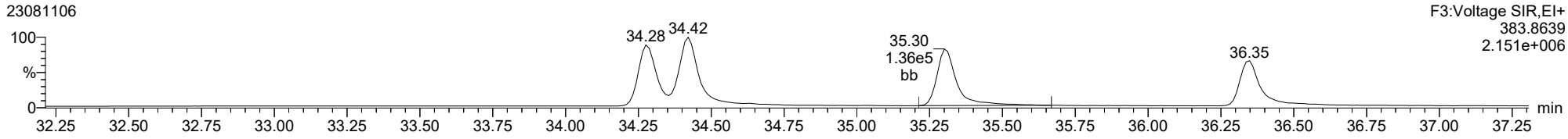
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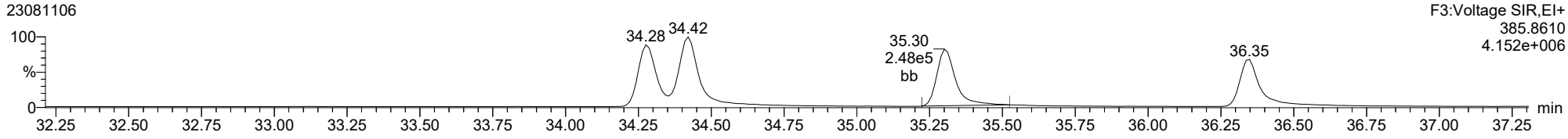
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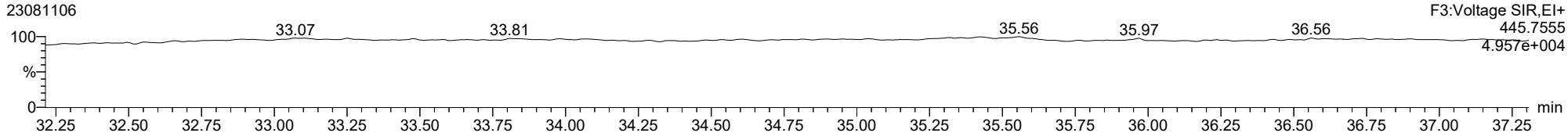
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13C-234678-HxCDF



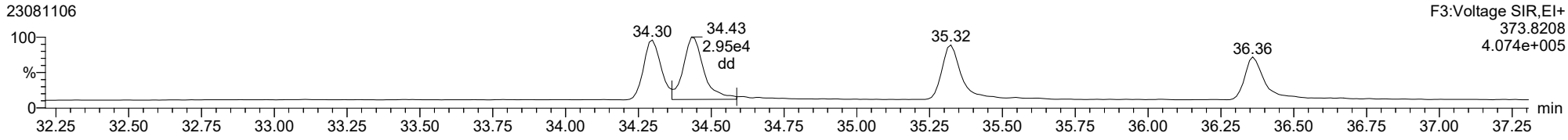
FUNCTION3 OCDPE



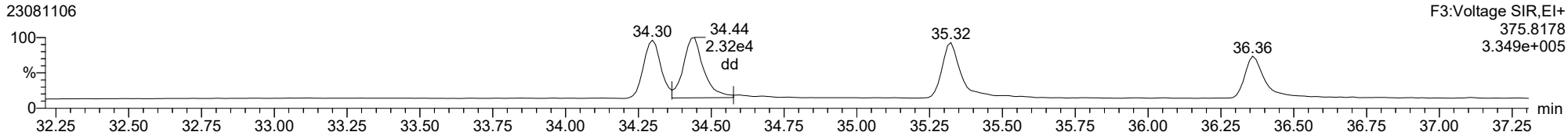
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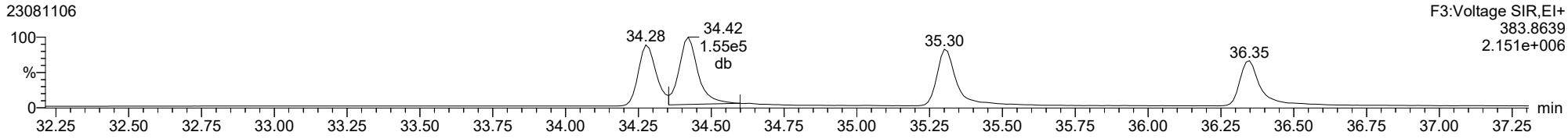
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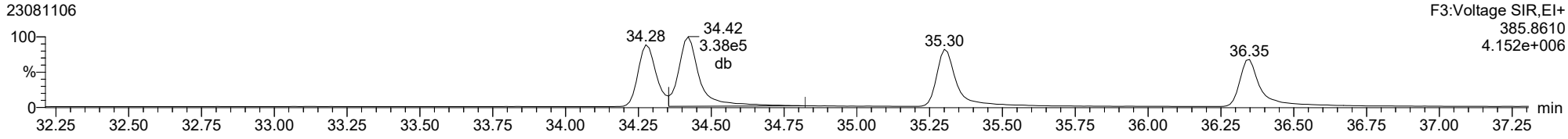
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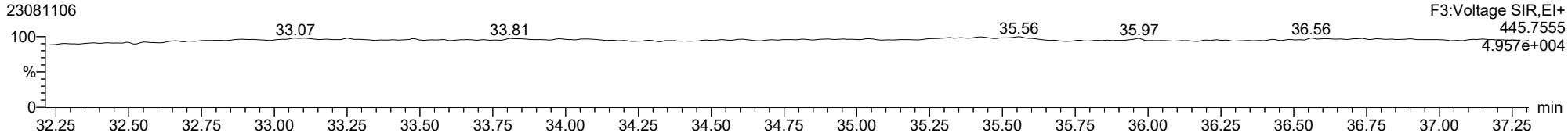
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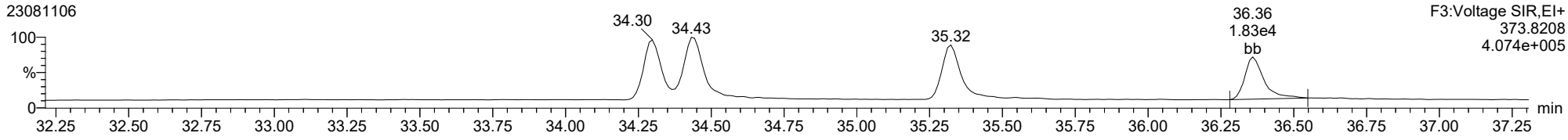


FUNCTION3 OCDPE

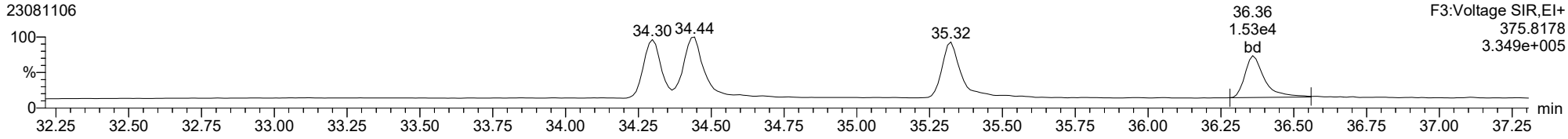


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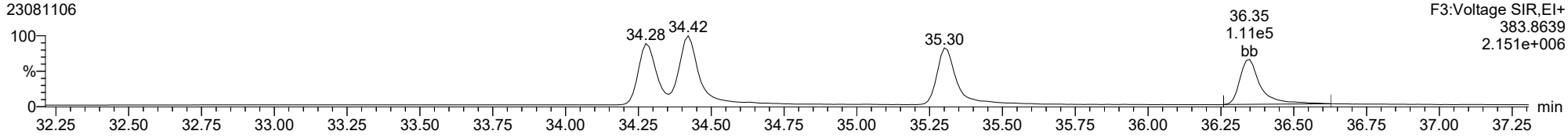
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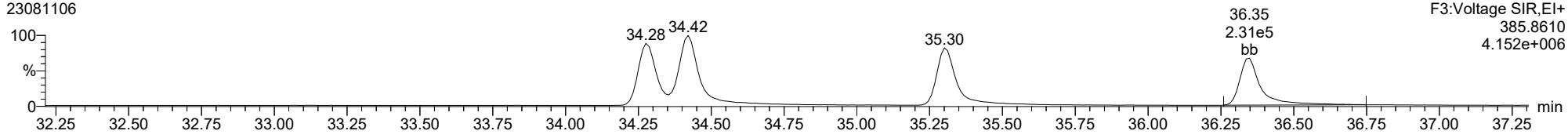
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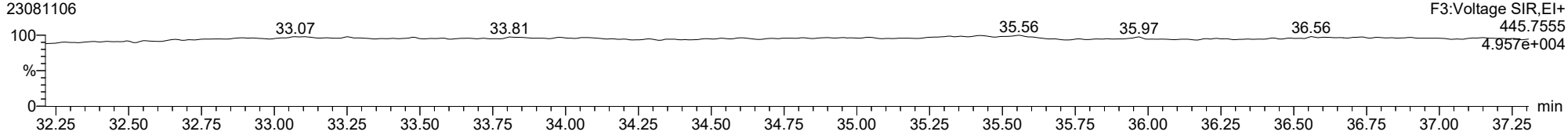
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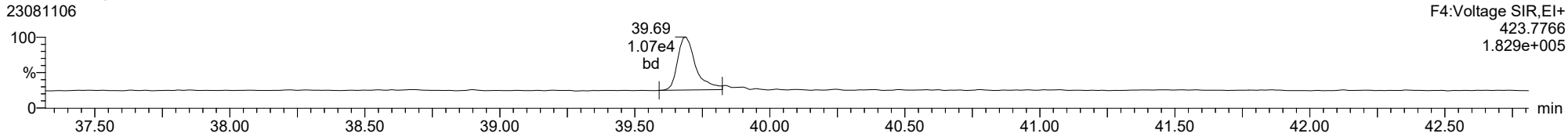


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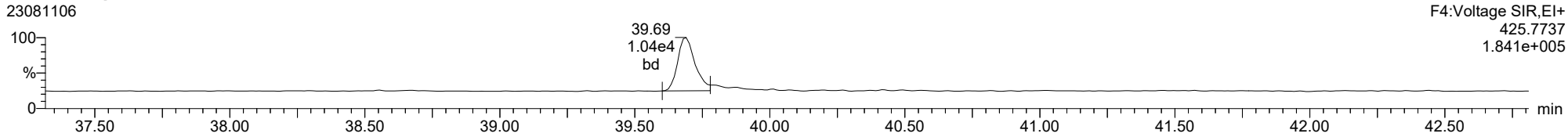


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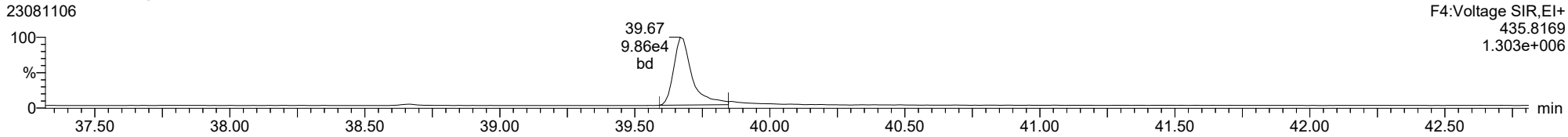
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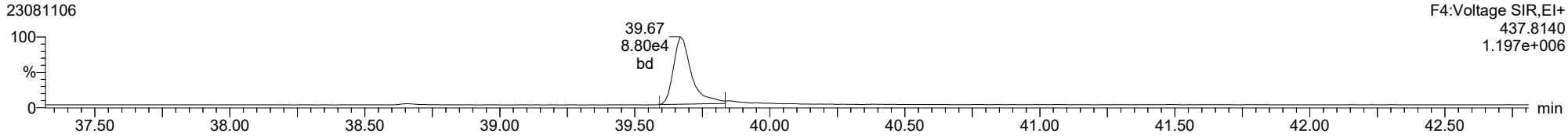
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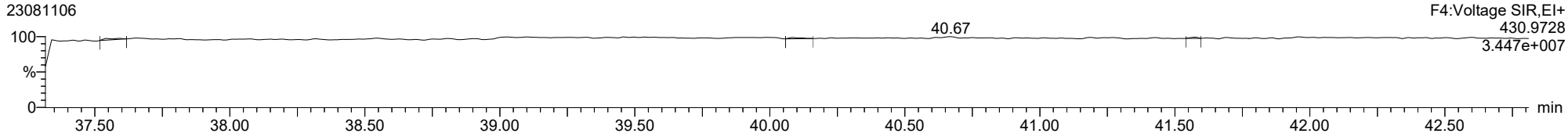
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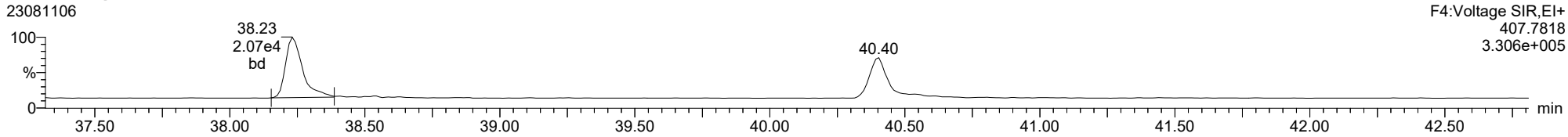


FUNCTION4 PFK

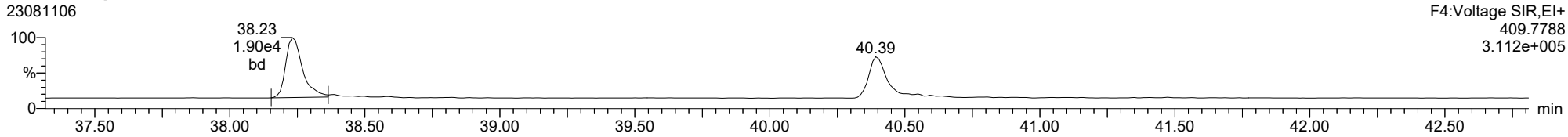


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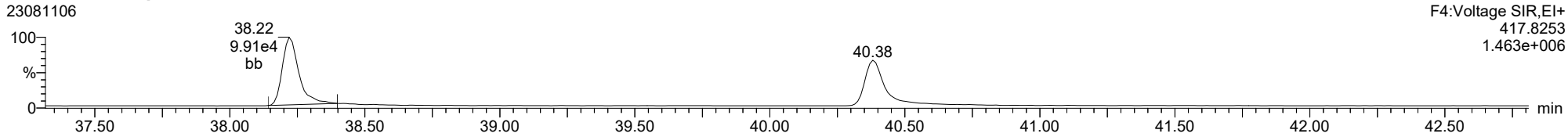
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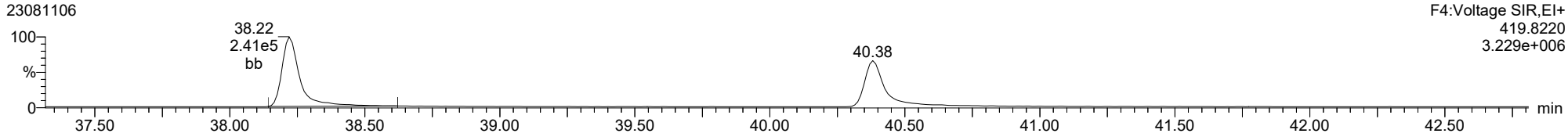
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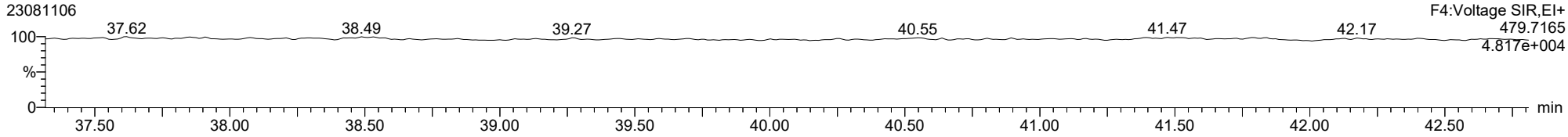
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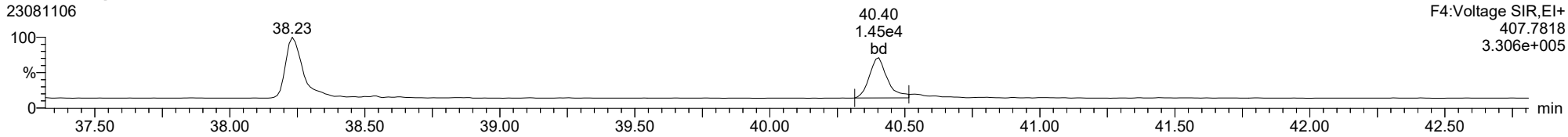


FUNCTION4 NCDPE

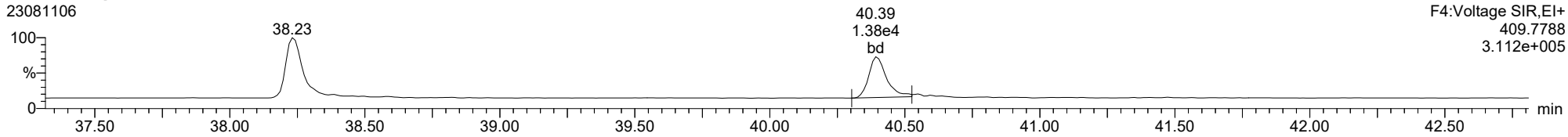


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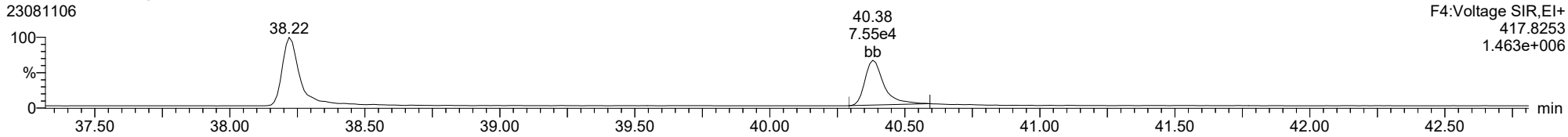
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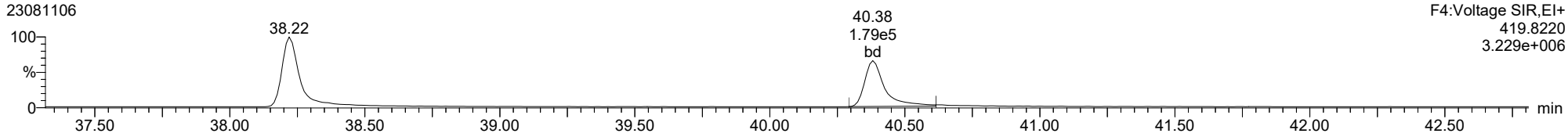
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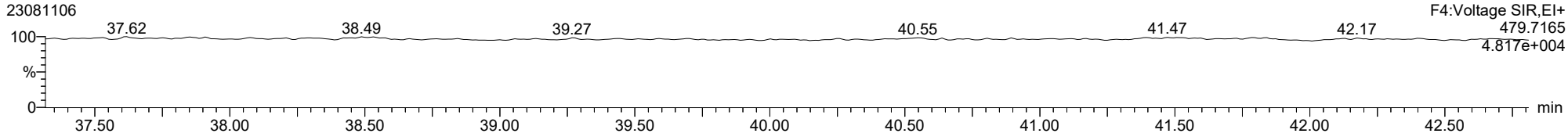
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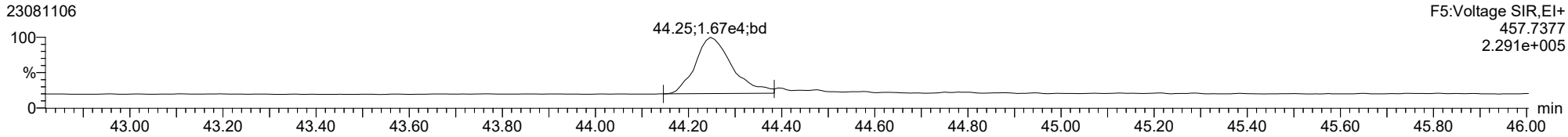


FUNCTION4 NCDPE

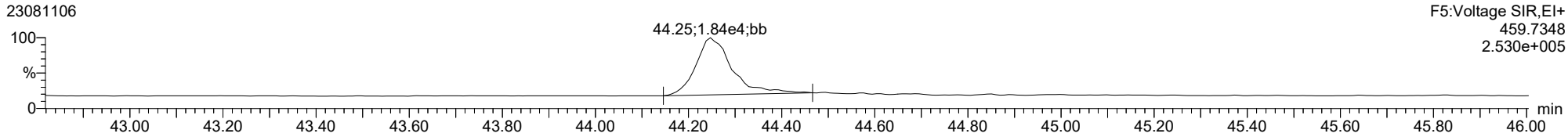


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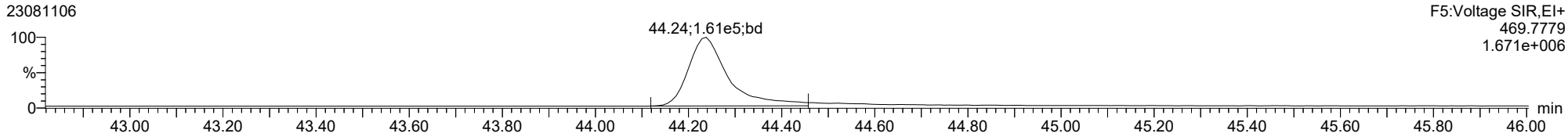
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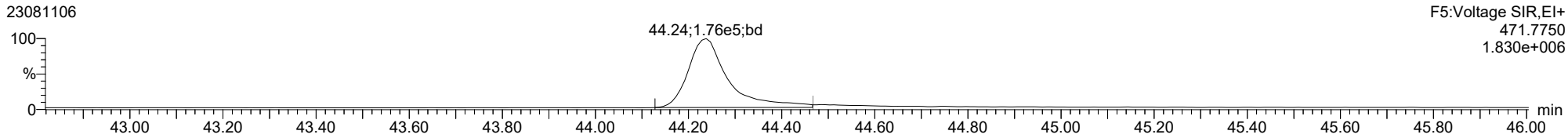
OCDD



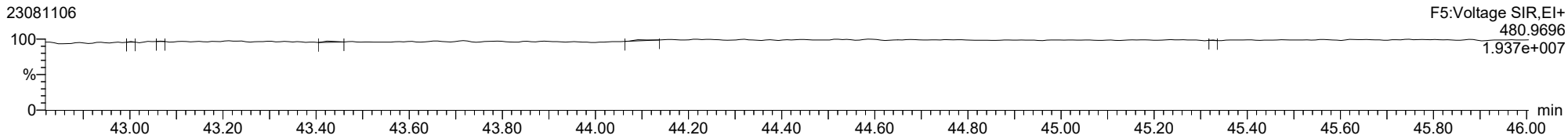
13C-OCDD



13C-OCDD

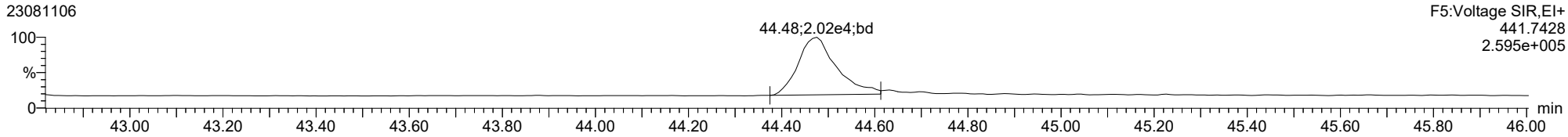


FUNCTION5 PFK

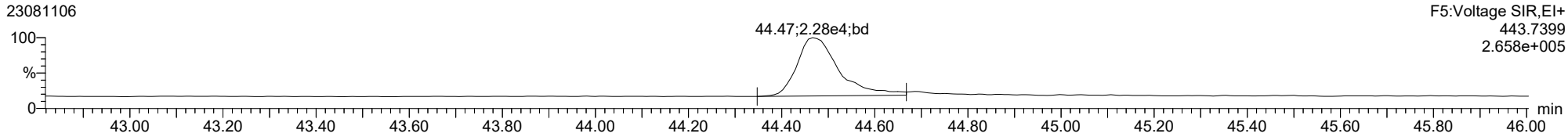


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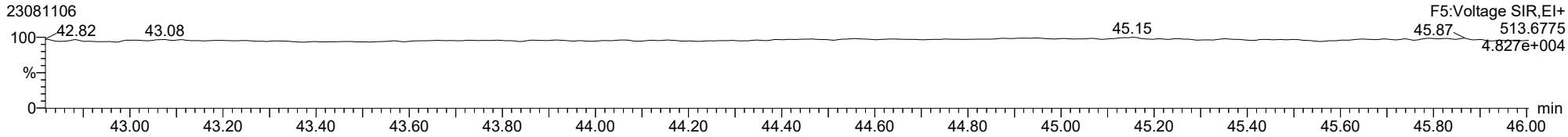
OCDF



OCDF

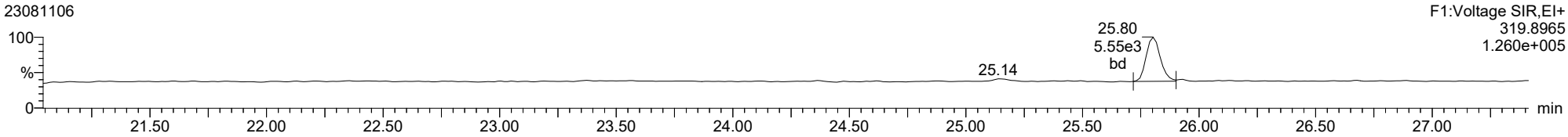


FUNCTION5 DCDPE

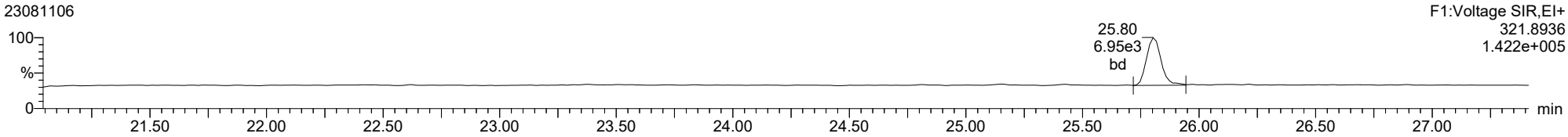


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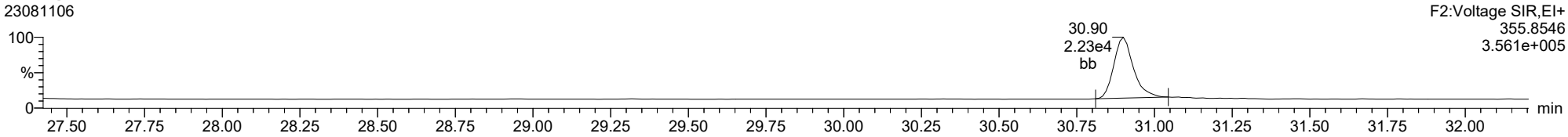
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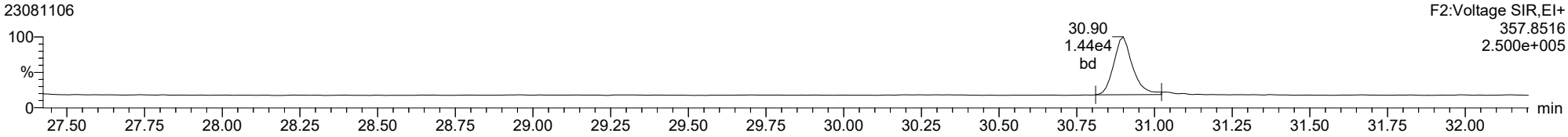
Total-tetradioxins



Total-pentadioxins

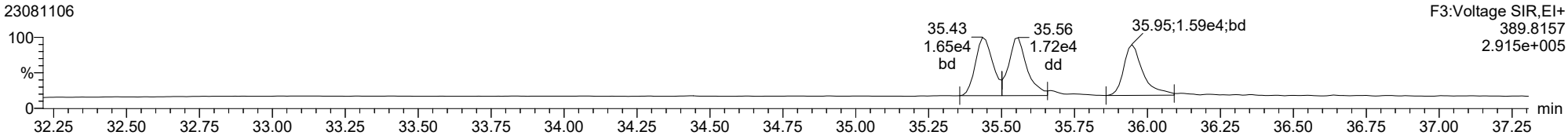


Total-pentadioxins

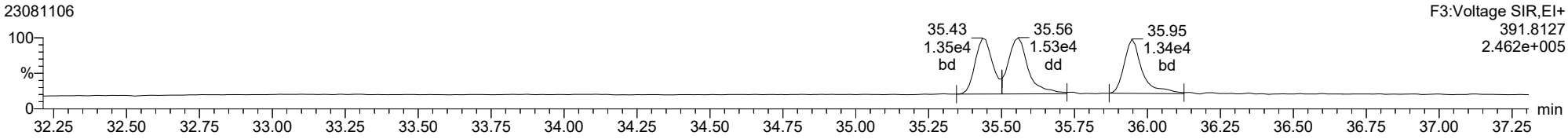


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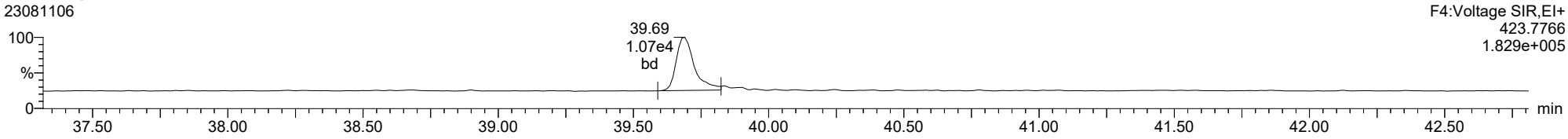
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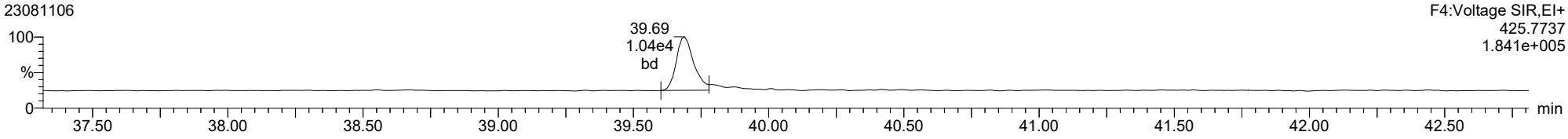
Total-hexadioxins



Total-heptadioxins



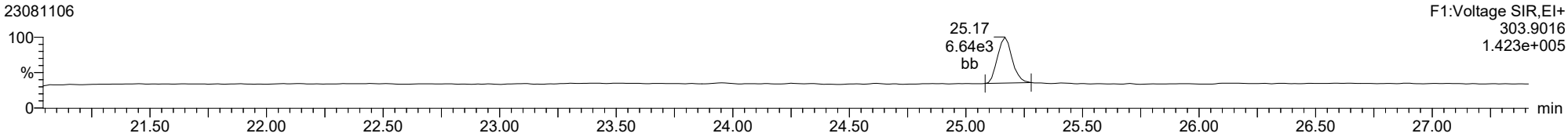
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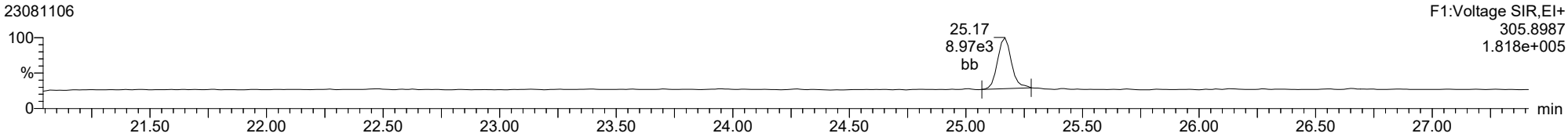
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Printed: Tuesday, August 15, 2023 12:24:22 Pacific Daylight Time

ID: CS2CF, Name: 23081106, Date: 11-Aug-2023, Time: 13:56:53, Conditions: AUTOSPEC01, User: pk

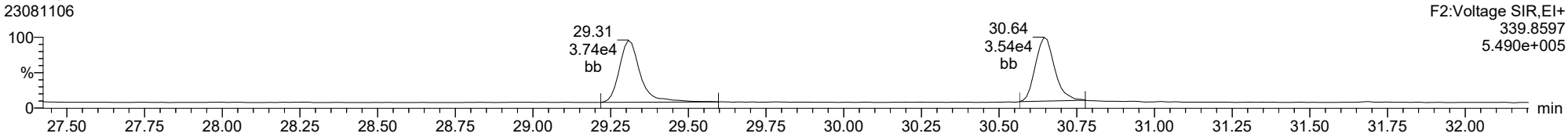
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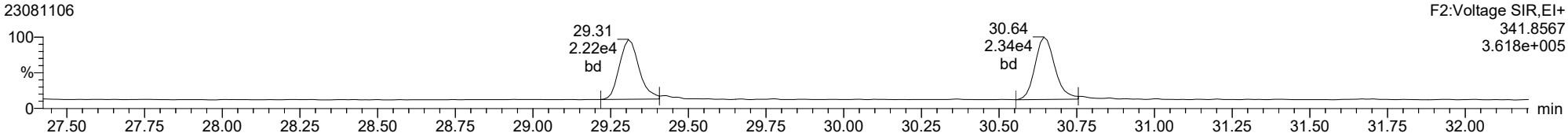
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Total-pentafurans



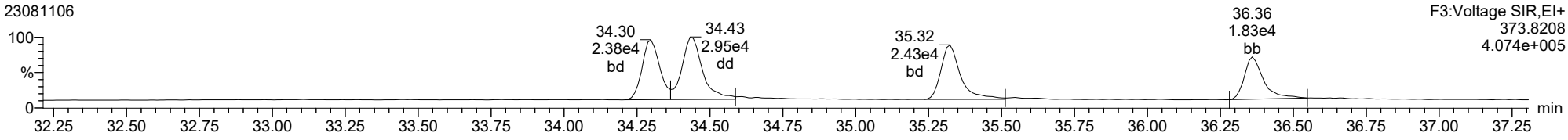
Total-pentafurans



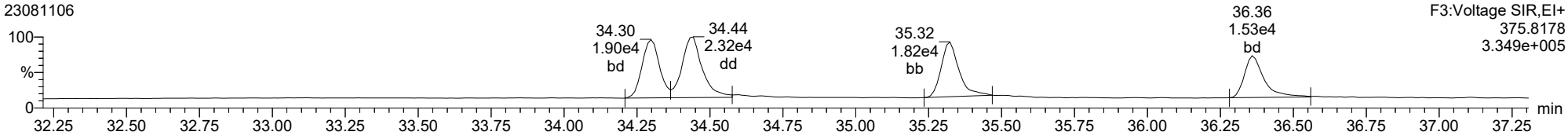
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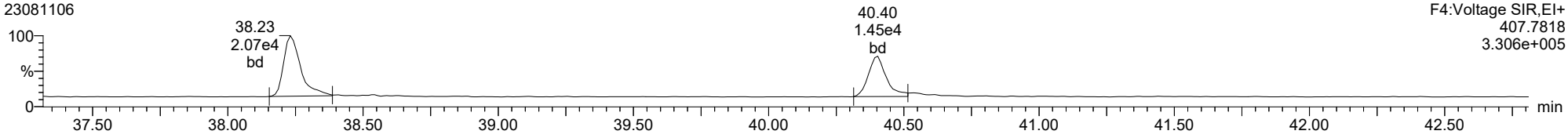
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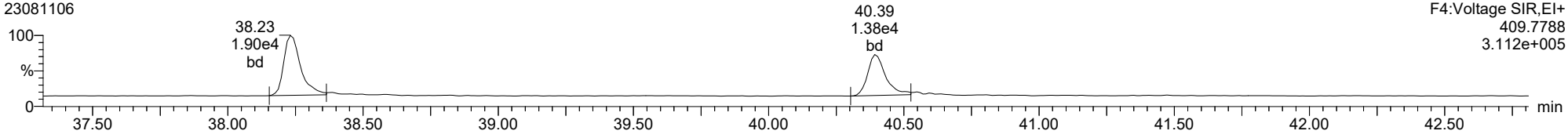
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:35 Pacific Daylight Time

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Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.153	1.001	3.950e4	4.814e4	0.903	0.820	0.770	873	1493	5.76e5	7.02e5	660.2	470.0	NO	bb	bb	9.917
12378-PeCDF	29.296	1.001	2.038e5	1.306e5	0.923	1.560	1.550	2701	2600	2.84e6	1.82e6	1052.5	698.6	NO	bb	bb	50.247
23478-PeCDF	30.633	1.001	2.084e5	1.355e5	0.991	1.538	1.550	2701	2600	2.94e6	1.88e6	1090.3	724.9	NO	bb	bb	50.195
123478-HxCDF	34.287	1.001	1.471e5	1.155e5	1.128	1.273	1.240	2156	1968	2.16e6	1.67e6	999.7	847.7	NO	bd	bd	48.019
234678-HxCDF	35.312	1.001	1.397e5	1.124e5	1.081	1.242	1.240	2156	1968	1.96e6	1.53e6	909.5	778.6	NO	bb	bb	48.560
123678-HxCDF	34.421	1.000	1.708e5	1.326e5	1.032	1.288	1.240	2156	1968	2.22e6	1.77e6	1031.8	901.1	NO	db	db	49.502
123789-HxCDF	36.348	1.000	1.152e5	9.214e4	0.988	1.250	1.240	2156	1968	1.55e6	1.22e6	720.9	619.7	NO	bb	bb	49.981
1234678-HpCDF	38.220	1.000	1.266e5	1.232e5	1.164	1.028	1.050	2236	2527	1.73e6	1.70e6	772.6	672.1	NO	bd	bd	48.307
1234789-HpCDF	40.381	1.000	9.773e4	8.439e4	1.104	1.158	1.050	2236	2527	1.18e6	1.09e6	527.4	431.6	NO	bd	bb	51.965
OCDF	44.457	1.005	1.439e5	1.668e5	1.130	0.863	0.890	3053	2200	1.51e6	1.65e6	496.2	748.3	NO	bd	bd	97.728
2378-TCDD	25.788	1.001	3.416e4	4.089e4	1.243	0.835	0.770	867	861	4.83e5	5.94e5	557.1	689.8	NO	db	bb	9.423
12378-PeCDD	30.878	1.000	1.444e5	9.272e4	1.150	1.557	1.550	1474	1776	2.00e6	1.26e6	1355.0	710.8	NO	bb	bb	51.023
123478-HxCDD	35.424	1.000	1.045e5	8.370e4	0.960	1.248	1.240	2064	1909	1.64e6	1.31e6	794.5	688.4	NO	bd	bd	46.802
123678-HxCDD	35.535	1.000	1.368e5	1.058e5	0.883	1.293	1.240	2064	1909	1.73e6	1.40e6	836.6	732.4	NO	db	db	52.231
123789-HxCDD	35.936	1.012	1.075e5	9.200e4	0.804	1.169	1.240	2064	1909	1.46e6	1.18e6	706.7	615.7	NO	bb	bd	52.545
1234678-HpCDD	39.668	1.000	8.606e4	8.097e4	1.200	1.063	1.050	1598	1550	1.09e6	1.03e6	679.9	666.2	NO	bd	bd	49.362
OCDD	44.238	1.000	1.310e5	1.474e5	1.059	0.889	0.890	2537	2205	1.35e6	1.50e6	533.8	680.4	NO	bd	bd	93.510
13C-2378-TCDF	25.139	1.007	4.359e5	5.426e5	1.835	0.803	0.770	1414	1242	6.17e6	7.67e6	4364.7	6173.2	NO	bb	bb	96.581
13C-12378-PeCDF	29.274	1.173	4.378e5	2.830e5	1.377	1.547	1.550	3103	2166	6.17e6	3.98e6	1989.0	1837.3	NO	bb	bb	94.871
13C-23478-PeCDF	30.610	1.227	4.199e5	2.715e5	1.301	1.547	1.550	3103	2166	5.81e6	3.79e6	1871.2	1752.0	NO	bb	bb	96.264
13C-123478-HxCDF	34.265	0.954	1.623e5	3.225e5	1.091	0.503	0.510	1940	1819	2.28e6	4.56e6	1177.0	2508.0	NO	bd	bd	103.242
13C-123678-HxCDF	34.410	0.958	1.881e5	4.055e5	1.340	0.464	0.510	1940	1819	2.45e6	4.92e6	1263.9	2702.9	NO	db	dd	102.899
13C-234678-HxCDF	35.290	0.983	1.605e5	3.196e5	1.093	0.502	0.510	1940	1819	2.11e6	4.12e6	1086.3	2264.8	NO	bd	bb	101.993
13C-123789-HxCDF	36.337	1.012	1.422e5	2.778e5	0.952	0.512	0.510	1940	1819	1.72e6	3.42e6	888.9	1878.1	NO	bd	bb	102.534
13C-1234678-HpCDF	38.209	1.064	1.341e5	3.102e5	0.985	0.432	0.440	2232	3004	1.84e6	4.12e6	826.4	1371.4	NO	bd	bd	104.805
13C-1234789-HpCDF	40.370	1.124	1.014e5	2.161e5	0.756	0.469	0.440	2232	3004	1.20e6	2.70e6	536.5	900.2	NO	bd	bb	97.601
13C-1234-TCDD	24.955	0.000	2.441e5	3.079e5	1.000	0.793	0.770	1284	927	3.72e6	4.66e6	2895.0	5027.7	NO	bb	bb	100.000
13C-2378-TCDD	25.774	1.033	2.818e5	3.589e5	1.110	0.785	0.770	1284	927	3.93e6	5.00e6	3063.6	5390.0	NO	bb	bb	104.622
13C-12378-PeCDD	30.867	1.237	2.486e5	1.554e5	0.754	1.600	1.550	1606	1291	3.49e6	2.16e6	2172.2	1676.1	NO	bb	bb	97.124
13C-123478-HxCDD	35.412	0.986	2.333e5	1.855e5	0.960	1.258	1.240	2335	1654	3.56e6	2.79e6	1524.6	1684.4	NO	bd	bd	101.353
13C-123678-HxCDD	35.524	0.989	2.914e5	2.348e5	1.159	1.241	1.240	2335	1654	3.67e6	3.00e6	1571.1	1811.5	NO	db	db	105.436
13C-1234678-HpCDD	39.657	1.104	1.504e5	1.316e5	0.629	1.143	1.050	1322	1098	1.89e6	1.73e6	1430.1	1574.5	NO	bd	bb	104.130
13C-OCDD	44.219	1.231	2.700e5	2.925e5	0.635	0.923	0.890	2095	2668	2.66e6	2.85e6	1270.5	1068.4	NO	bd	bd	205.741
13C-123789-HxCDD	35.914	0.000	2.377e5	1.927e5	1.000	1.234	1.240	2335	1654	3.19e6	2.58e6	1365.8	1558.0	NO	bb	bb	100.000
37CL-2378-TCDD	25.788	1.033	6.351e4		1.157			931		9.35e5		1004.8			bb		9.941

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:35 Pacific Daylight Time

ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.664	0.862	4.983e4	6.469e4	1.170	0.770	0.770	873	1493	7.90e5	1.00e6	904.1	670.7	NO	bb	bb	10.000
1289-TCDF	26.636	1.060	3.514e4	4.772e4	0.847	0.736	0.770	873	1493	4.94e5	6.43e5	565.8	430.8	NO	db	db	10.000
13468-PECDF	26.495	0.905	2.671e5	1.802e5	1.241	1.482	1.550	728	832	3.87e6	2.64e6	5321.4	3168.6	NO	bb	bb	50.000
12389-PECDF	31.658	1.081	1.897e5	1.273e5	0.880	1.490	1.550	2701	2600	2.48e6	1.60e6	916.9	617.2	NO	bb	bb	50.000
123468-HXCDF	32.593	0.951	1.625e5	1.297e5	1.206	1.252	1.240	2156	1968	2.24e6	1.79e6	1039.7	910.7	NO	bb	bb	50.000
1368-TCDD	22.935	0.890	3.442e4	4.124e4	1.181	0.835	0.770	867	861	5.40e5	6.51e5	623.2	756.9	NO	bb	bb	10.000
1289-TCDD	26.382	1.024	2.831e4	3.339e4	0.963	0.848	0.770	867	861	3.83e5	4.79e5	442.0	556.7	NO	bb	bb	10.000
12479-PECDD	28.182	0.913	2.672e5	1.705e5	2.166	1.567	1.550	1474	1776	2.50e6	1.55e6	1692.5	875.4	NO	bb	bb	50.000
12389-PECDD	31.279	1.013	1.628e5	1.051e5	1.326	1.549	1.550	1474	1776	2.18e6	1.42e6	1481.5	799.1	NO	bb	bb	50.000
124679-HXCDD	33.385	0.943	1.240e5	1.119e5	1.127	1.108	1.240	2064	1909	1.71e6	1.40e6	829.1	734.3	NO	bb	bd	50.000
1234679-HPCDD	38.666	0.975	8.959e4	9.414e4	1.303	0.952	1.050	1598	1550	1.33e6	1.31e6	833.2	845.1	NO	bb	MM	50.000
Total-tetrafurans			1.249e5		0.973			873		1.87e6							30.041
Total-penta1			2.671e5					728		3.87e6							50.000
Total-pentafurans			6.376e5		0.931			2701		8.77e6							159.187
Total-hexafurans			7.351e5		1.087			2156		1.01e7							246.062
Total-heptafurans			2.244e5		1.134			2236		2.91e6							100.272
Total-Furans			2.133e6		1.053			873		2.91e7							683.290
Total-tetradioxins			1.636e5		1.129			867		2.16e6							49.715
Total-pentadioxins			5.744e5		1.548			1474		6.68e6							151.023
Total-hexadioxins			4.728e5		0.943			2064		6.54e6							201.577
Total-heptadioxins			1.756e5		1.251			1598		2.42e6							99.362
Total-Dioxins			1.517e6		1.182			867		1.91e7							595.187
Total-TEQ			3.650e6					867		4.82e7							1278.478
FUNCTION1 PFK			1.576e6					595063		2.59e7							
FUNCTION2 PFK			1.622e5					281424		5.13e6							0.000
FUNCTION3 PFK			6.816e4					308943		1.50e6							0.000
FUNCTION4 PFK			1.483e6					342383		2.05e7							
FUNCTION5 PFK			2.231e5					155278		7.98e6							
FUNCTION1 HXCD...			9.737e2					478		1.12e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			5.383e2					679		9.82e3							0.000
FUNCTION3 OCDPE			8.571e2					439		1.41e4							0.000
FUNCTION4 NCDPE			3.213e2					631		3.18e3							0.000
FUNCTION5 DCDPE			1.396e2					581		1.95e3							0.000

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Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	27.02	9.270e1	1.173e2	0.973	0.79	0.77	2.6	NO	NO	bb	bb	0.022
2	Total-tetrafurans	26.83	7.458e1	1.106e2	0.973	0.67	0.77	2.7	NO	NO	bb	bb	0.019
3	1289-TCDF	26.64	3.514e4	4.772e4	0.847	0.74	0.77	565.8	YES	NO	db	db	10.000
4	Total-tetrafurans	26.54	3.122e2	4.768e2	0.973	0.65	0.77	4.2	YES	NO	bd	bd	0.083
5	2378-TCDF	25.15	3.950e4	4.814e4	0.903	0.82	0.77	660.2	YES	NO	bb	bb	9.917
6	1368-TCDF	21.66	4.983e4	6.469e4	1.170	0.77	0.77	904.1	YES	NO	bb	bb	10.000

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.49	2.671e5	1.802e5	1.241	1.48	1.55	5321.4	YES	NO	bb	bb	50.000

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.30	2.038e5	1.306e5	0.923	1.56	1.55	1052.5	YES	NO	bb	bb	50.247
2	Total-pentafurans	28.15	3.570e4	2.180e4	0.931	1.64	1.55	186.8	YES	NO	bb	bb	8.746
3	12389-PECDF	31.66	1.897e5	1.273e5	0.880	1.49	1.55	916.9	YES	NO	bb	bb	50.000
4	23478-PeCDF	30.63	2.084e5	1.355e5	0.991	1.54	1.55	1090.3	YES	NO	bb	bb	50.195

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123468-HXCDF	32.59	1.625e5	1.297e5	1.206	1.25	1.24	1039.7	YES	NO	bb	bb	50.000
2	123789-HxCDF	36.35	1.152e5	9.214e4	0.988	1.25	1.24	720.9	YES	NO	bb	bb	49.981
3	234678-HxCDF	35.31	1.397e5	1.124e5	1.081	1.24	1.24	909.5	YES	NO	bb	bb	48.560
4	123678-HxCDF	34.42	1.708e5	1.326e5	1.032	1.29	1.24	1031.8	YES	NO	db	db	49.502
5	123478-HxCDF	34.29	1.471e5	1.155e5	1.128	1.27	1.24	999.7	YES	NO	bd	bd	48.019

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.38	9.773e4	8.439e4	1.104	1.16	1.05	527.4	YES	NO	bd	bb	51.965
2	1234678-HpCDF	38.22	1.266e5	1.232e5	1.164	1.03	1.05	772.6	YES	NO	bd	bd	48.307

ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	27.02	9.270e1	1.173e2	0.973	0.79	0.77	2.6	NO	NO	bb	bb	0.022
2	Total-tetrafurans	26.83	7.458e1	1.106e2	0.973	0.67	0.77	2.7	NO	NO	bb	bb	0.019
3	1289-TCDF	26.64	3.514e4	4.772e4	0.847	0.74	0.77	565.8	YES	NO	db	db	10.000
4	Total-tetrafurans	26.54	3.122e2	4.768e2	0.973	0.65	0.77	4.2	YES	NO	bd	bd	0.083
5	2378-TCDF	25.15	3.950e4	4.814e4	0.903	0.82	0.77	660.2	YES	NO	bb	bb	9.917
6	1368-TCDF	21.66	4.983e4	6.469e4	1.170	0.77	0.77	904.1	YES	NO	bb	bb	10.000
7	12378-PeCDF	29.30	2.038e5	1.306e5	0.923	1.56	1.55	1052.5	YES	NO	bb	bb	50.247
8	Total-pentafurans	28.15	3.570e4	2.180e4	0.931	1.64	1.55	186.8	YES	NO	bb	bb	8.746
9	123468-HXCDF	32.59	1.625e5	1.297e5	1.206	1.25	1.24	1039.7	YES	NO	bb	bb	50.000
10	12389-PECDF	31.66	1.897e5	1.273e5	0.880	1.49	1.55	916.9	YES	NO	bb	bb	50.000
11	23478-PeCDF	30.63	2.084e5	1.355e5	0.991	1.54	1.55	1090.3	YES	NO	bb	bb	50.195
12	123789-HxCDF	36.35	1.152e5	9.214e4	0.988	1.25	1.24	720.9	YES	NO	bb	bb	49.981
13	234678-HxCDF	35.31	1.397e5	1.124e5	1.081	1.24	1.24	909.5	YES	NO	bb	bb	48.560
14	123678-HxCDF	34.42	1.708e5	1.326e5	1.032	1.29	1.24	1031.8	YES	NO	db	db	49.502
15	123478-HxCDF	34.29	1.471e5	1.155e5	1.128	1.27	1.24	999.7	YES	NO	bd	bd	48.019
16	1234789-HpCDF	40.38	9.773e4	8.439e4	1.104	1.16	1.05	527.4	YES	NO	bd	bb	51.965
17	1234678-HpCDF	38.22	1.266e5	1.232e5	1.164	1.03	1.05	772.6	YES	NO	bd	bd	48.307
18	OCDF	44.46	1.439e5	1.668e5	1.130	0.86	0.89	496.2	YES	NO	bd	bd	97.728
19	13468-PECDF	26.49	2.671e5	1.802e5	1.241	1.48	1.55	5321.4	YES	NO	bb	bb	50.000

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	22.94	3.442e4	4.124e4	1.181	0.83	0.77	623.2	YES	NO	bb	bb	10.000
2	1289-TCDD	26.38	2.831e4	3.339e4	0.963	0.85	0.77	442.0	YES	NO	bb	bb	10.000
3	2378-TCDD	25.79	3.416e4	4.089e4	1.243	0.84	0.77	557.1	YES	NO	db	bb	9.423
4	Total-tetradioxins	25.46	5.003e4	6.062e4	1.129	0.83	0.77	586.5	YES	NO	bd	bb	15.297
5	Total-tetradioxins	24.97	1.665e4	1.948e4	1.129	0.85	0.77	278.4	YES	NO	bd	bb	4.994

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.28	1.628e5	1.051e5	1.326	1.55	1.55	1481.5	YES	NO	bb	bb	50.000
2	12378-PeCDD	30.88	1.444e5	9.272e4	1.150	1.56	1.55	1355.0	YES	NO	bb	bb	51.023
3	12479-PECDD	28.18	2.672e5	1.705e5	2.166	1.57	1.55	1692.5	YES	NO	bb	bb	50.000

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.94	1.075e5	9.200e4	0.804	1.17	1.24	706.7	YES	NO	bb	bd	52.545
2	123678-HxCDD	35.53	1.368e5	1.058e5	0.883	1.29	1.24	836.6	YES	NO	db	db	52.231
3	123478-HxCDD	35.42	1.045e5	8.370e4	0.960	1.25	1.24	794.5	YES	NO	bd	bd	46.802
4	124679-HXCDD	33.38	1.240e5	1.119e5	1.127	1.11	1.24	829.1	YES	NO	bb	bd	50.000

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234679-HPCDD	38.67	8.959e4	9.414e4	1.303	0.95	1.05	833.2	YES	NO	bb	MM	50.000
2	1234678-HpCDD	39.67	8.606e4	8.097e4	1.200	1.06	1.05	679.9	YES	NO	bd	bd	49.362

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	22.94	3.442e4	4.124e4	1.181	0.83	0.77	623.2	YES	NO	bb	bb	10.000
2	1289-TCDD	26.38	2.831e4	3.339e4	0.963	0.85	0.77	442.0	YES	NO	bb	bb	10.000
3	2378-TCDD	25.79	3.416e4	4.089e4	1.243	0.84	0.77	557.1	YES	NO	db	bb	9.423
4	Total-tetradioxins	25.46	5.003e4	6.062e4	1.129	0.83	0.77	586.5	YES	NO	bd	bb	15.297
5	Total-tetradioxins	24.97	1.665e4	1.948e4	1.129	0.85	0.77	278.4	YES	NO	bd	bb	4.994
6	12389-PECDD	31.28	1.628e5	1.051e5	1.326	1.55	1.55	1481.5	YES	NO	bb	bb	50.000
7	12378-PeCDD	30.88	1.444e5	9.272e4	1.150	1.56	1.55	1355.0	YES	NO	bb	bb	51.023
8	12479-PECDD	28.18	2.672e5	1.705e5	2.166	1.57	1.55	1692.5	YES	NO	bb	bb	50.000
9	123789-HxCDD	35.94	1.075e5	9.200e4	0.804	1.17	1.24	706.7	YES	NO	bb	bd	52.545
10	123678-HxCDD	35.53	1.368e5	1.058e5	0.883	1.29	1.24	836.6	YES	NO	db	db	52.231
11	123478-HxCDD	35.42	1.045e5	8.370e4	0.960	1.25	1.24	794.5	YES	NO	bd	bd	46.802
12	124679-HXCDD	33.38	1.240e5	1.119e5	1.127	1.11	1.24	829.1	YES	NO	bb	bd	50.000
13	1234679-HPCDD	38.67	8.959e4	9.414e4	1.303	0.95	1.05	833.2	YES	NO	bb	MM	50.000
14	1234678-HpCDD	39.67	8.606e4	8.097e4	1.200	1.06	1.05	679.9	YES	NO	bd	bd	49.362
15	OCDD	44.24	1.310e5	1.474e5	1.059	0.89	0.89	533.8	YES	NO	bd	bd	93.510

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	27.02	9.270e1	1.173e2	0.973	0.79	0.77	2.6	NO	NO	bb	bb	0.022
2	Total-tetrafurans	26.83	7.458e1	1.106e2	0.973	0.67	0.77	2.7	NO	NO	bb	bb	0.019
3	1289-TCDF	26.64	3.514e4	4.772e4	0.847	0.74	0.77	565.8	YES	NO	db	db	10.000
4	Total-tetrafurans	26.54	3.122e2	4.768e2	0.973	0.65	0.77	4.2	YES	NO	bd	bd	0.083
5	2378-TCDF	25.15	3.950e4	4.814e4	0.903	0.82	0.77	660.2	YES	NO	bb	bb	9.917
6	1368-TCDF	21.66	4.983e4	6.469e4	1.170	0.77	0.77	904.1	YES	NO	bb	bb	10.000
7	12378-PeCDF	29.30	2.038e5	1.306e5	0.923	1.56	1.55	1052.5	YES	NO	bb	bb	50.247
8	Total-pentafurans	28.15	3.570e4	2.180e4	0.931	1.64	1.55	186.8	YES	NO	bb	bb	8.746
9	123468-HXCDF	32.59	1.625e5	1.297e5	1.206	1.25	1.24	1039.7	YES	NO	bb	bb	50.000
10	12389-PECDF	31.66	1.897e5	1.273e5	0.880	1.49	1.55	916.9	YES	NO	bb	bb	50.000
11	23478-PeCDF	30.63	2.084e5	1.355e5	0.991	1.54	1.55	1090.3	YES	NO	bb	bb	50.195
12	123789-HxCDF	36.35	1.152e5	9.214e4	0.988	1.25	1.24	720.9	YES	NO	bb	bb	49.981
13	234678-HxCDF	35.31	1.397e5	1.124e5	1.081	1.24	1.24	909.5	YES	NO	bb	bb	48.560
14	123678-HxCDF	34.42	1.708e5	1.326e5	1.032	1.29	1.24	1031.8	YES	NO	db	db	49.502
15	123478-HxCDF	34.29	1.471e5	1.155e5	1.128	1.27	1.24	999.7	YES	NO	bd	bd	48.019
16	1234789-HpCDF	40.38	9.773e4	8.439e4	1.104	1.16	1.05	527.4	YES	NO	bd	bb	51.965
17	1234678-HpCDF	38.22	1.266e5	1.232e5	1.164	1.03	1.05	772.6	YES	NO	bd	bd	48.307
18	OCDF	44.46	1.439e5	1.668e5	1.130	0.86	0.89	496.2	YES	NO	bd	bd	97.728
19	13468-PECDF	26.49	2.671e5	1.802e5	1.241	1.48	1.55	5321.4	YES	NO	bb	bb	50.000
20	1368-TCDD	22.94	3.442e4	4.124e4	1.181	0.83	0.77	623.2	YES	NO	bb	bb	10.000
21	1289-TCDD	26.38	2.831e4	3.339e4	0.963	0.85	0.77	442.0	YES	NO	bb	bb	10.000
22	2378-TCDD	25.79	3.416e4	4.089e4	1.243	0.84	0.77	557.1	YES	NO	db	bb	9.423
23	Total-tetradioxins	25.46	5.003e4	6.062e4	1.129	0.83	0.77	586.5	YES	NO	bd	bb	15.297
24	Total-tetradioxins	24.97	1.665e4	1.948e4	1.129	0.85	0.77	278.4	YES	NO	bd	bb	4.994
25	12389-PECDD	31.28	1.628e5	1.051e5	1.326	1.55	1.55	1481.5	YES	NO	bb	bb	50.000
26	12378-PeCDD	30.88	1.444e5	9.272e4	1.150	1.56	1.55	1355.0	YES	NO	bb	bb	51.023
27	12479-PECDD	28.18	2.672e5	1.705e5	2.166	1.57	1.55	1692.5	YES	NO	bb	bb	50.000
28	123789-HxCDD	35.94	1.075e5	9.200e4	0.804	1.17	1.24	706.7	YES	NO	bb	bd	52.545
29	123678-HxCDD	35.53	1.368e5	1.058e5	0.883	1.29	1.24	836.6	YES	NO	db	db	52.231
30	123478-HxCDD	35.42	1.045e5	8.370e4	0.960	1.25	1.24	794.5	YES	NO	bd	bd	46.802
31	124679-HXCDD	33.38	1.240e5	1.119e5	1.127	1.11	1.24	829.1	YES	NO	bb	bd	50.000
32	1234679-HPCDD	38.67	8.959e4	9.414e4	1.303	0.95	1.05	833.2	YES	NO	bb	MM	50.000
33	1234678-HpCDD	39.67	8.606e4	8.097e4	1.200	1.06	1.05	679.9	YES	NO	bd	bd	49.362
34	OCDD	44.24	1.310e5	1.474e5	1.059	0.89	0.89	533.8	YES	NO	bd	bd	93.510

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.88	2.287e4					1.1	NO		bb		
2	FUNCTION1 PFK	21.21	1.199e5					3.0	YES		db		
3	FUNCTION1 PFK	21.11	2.695e5					5.2	YES		bd		
4	FUNCTION1 PFK	24.73	3.950e4					1.7	NO		bb		
5	FUNCTION1 PFK	24.47	6.758e4					1.8	NO		bb		
6	FUNCTION1 PFK	24.01	3.389e4					1.4	NO		db		
7	FUNCTION1 PFK	23.95	6.931e4					2.0	NO		dd		
8	FUNCTION1 PFK	23.88	1.455e4					0.7	NO		bd		
9	FUNCTION1 PFK	23.68	2.296e4					1.0	NO		bb		
10	FUNCTION1 PFK	23.49	7.036e3					0.5	NO		bb		
11	FUNCTION1 PFK	23.43	2.558e4					1.1	NO		bb		
12	FUNCTION1 PFK	23.32	2.769e4					1.1	NO		bb		
13	FUNCTION1 PFK	23.08	4.539e4					1.3	NO		bb		
14	FUNCTION1 PFK	22.99	3.202e4					1.0	NO		bb		
15	FUNCTION1 PFK	22.84	2.617e4					0.9	NO		bb		
16	FUNCTION1 PFK	22.67	3.895e3					0.5	NO		bb		
17	FUNCTION1 PFK	22.53	5.474e4					1.0	NO		bb		
18	FUNCTION1 PFK	22.16	1.513e5					2.3	NO		bb		
19	FUNCTION1 PFK	21.95	2.770e4					1.0	NO		bb		
20	FUNCTION1 PFK	27.07	9.015e3					0.4	NO		bb		
21	FUNCTION1 PFK	26.93	4.581e4					1.0	NO		db		
22	FUNCTION1 PFK	26.85	1.433e4					0.8	NO		dd		
23	FUNCTION1 PFK	26.78	1.200e5					2.0	NO		bd		
24	FUNCTION1 PFK	26.28	1.708e4					0.9	NO		bb		
25	FUNCTION1 PFK	26.17	1.425e4					0.8	NO		bb		
26	FUNCTION1 PFK	25.97	8.325e4					1.9	NO		db		
27	FUNCTION1 PFK	25.89	5.720e4					1.6	NO		dd		
28	FUNCTION1 PFK	25.80	3.276e4					1.4	NO		dd		
29	FUNCTION1 PFK	25.76	1.712e4					1.1	NO		bd		
30	FUNCTION1 PFK	25.58	2.001e4					1.1	NO		bb		
31	FUNCTION1 PFK	25.00	8.396e4					1.9	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.20	6.101e3					0.9	NO		bb		0.000
2	FUNCTION2 PFK	27.72	7.538e3					1.2	NO		bb		0.000
3	FUNCTION2 PFK	27.56	7.896e3					1.5	NO		bb		0.000
4	FUNCTION2 PFK	31.61	1.118e4					1.8	NO		bb		0.000
5	FUNCTION2 PFK	31.49	2.001e3					0.6	NO		bb		0.000
6	FUNCTION2 PFK	31.33	4.573e3					0.8	NO		bb		0.000
7	FUNCTION2 PFK	30.61	3.430e3					0.7	NO		bb		0.000
8	FUNCTION2 PFK	30.38	1.955e4					1.9	NO		db		0.000
9	FUNCTION2 PFK	30.32	2.856e4					2.4	NO		dd		0.000
10	FUNCTION2 PFK	30.25	4.260e4					2.7	NO		bd		0.000
11	FUNCTION2 PFK	30.02	6.437e3					1.2	NO		bb		0.000
12	FUNCTION2 PFK	29.72	8.785e3					1.2	NO		bb		0.000
13	FUNCTION2 PFK	29.64	1.359e4					1.3	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	34.03	6.816e4					4.9	YES		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.55	4.035e5					9.6	YES		dd		
2	FUNCTION4 PFK	37.43	4.089e5					13.1	YES		dd		
3	FUNCTION4 PFK	37.37	3.953e5					15.9	YES		bd		
4	FUNCTION4 PFK	41.72	1.671e4					1.8	NO		bb		
5	FUNCTION4 PFK	41.06	1.961e3					0.5	NO		bb		
6	FUNCTION4 PFK	40.73	2.014e4					1.4	NO		db		
7	FUNCTION4 PFK	40.63	3.971e4					1.5	NO		bd		
8	FUNCTION4 PFK	40.28	1.671e4					1.7	NO		db		
9	FUNCTION4 PFK	40.24	7.359e3					0.8	NO		bd		
10	FUNCTION4 PFK	40.11	1.431e4					0.8	NO		bb		
11	FUNCTION4 PFK	39.76	1.218e4					1.3	NO		db		
12	FUNCTION4 PFK	39.71	1.469e4					1.6	NO		bd		
13	FUNCTION4 PFK	39.47	2.072e3					0.5	NO		bb		
14	FUNCTION4 PFK	39.26	3.995e3					0.7	NO		bb		
15	FUNCTION4 PFK	38.96	1.705e4					1.3	NO		bb		
16	FUNCTION4 PFK	38.87	1.236e4					1.6	NO		bb		
17	FUNCTION4 PFK	38.20	7.116e3					1.0	NO		bb		
18	FUNCTION4 PFK	38.14	9.317e3					1.1	NO		bb		
19	FUNCTION4 PFK	37.73	8.009e4					3.6	YES		db		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.08	6.313e3					2.2	NO		dd		
2	FUNCTION5 PFK	44.05	1.663e4					2.5	NO		dd		
3	FUNCTION5 PFK	43.97	7.549e3					1.6	NO		dd		
4	FUNCTION5 PFK	43.91	1.172e4					1.7	NO		bd		
5	FUNCTION5 PFK	43.73	5.981e3					1.8	NO		db		
6	FUNCTION5 PFK	43.68	8.401e3					1.9	NO		bd		
7	FUNCTION5 PFK	43.60	6.754e3					1.2	NO		db		
8	FUNCTION5 PFK	43.57	5.515e3					1.5	NO		dd		
9	FUNCTION5 PFK	43.53	3.330e3					1.0	NO		bd		
10	FUNCTION5 PFK	43.39	8.995e3					1.6	NO		db		
11	FUNCTION5 PFK	43.31	1.183e4					2.8	NO		bd		
12	FUNCTION5 PFK	43.26	7.475e3					1.3	NO		bb		
13	FUNCTION5 PFK	43.01	6.561e3					1.5	NO		bb		
14	FUNCTION5 PFK	42.95	1.254e4					3.2	YES		bb		
15	FUNCTION5 PFK	42.88	1.024e4					2.9	NO		bb		
16	FUNCTION5 PFK	45.78	4.070e3					1.1	NO		bb		
17	FUNCTION5 PFK	45.48	1.651e4					1.8	NO		bb		
18	FUNCTION5 PFK	45.43	2.652e3					1.0	NO		bb		
19	FUNCTION5 PFK	45.35	1.162e4					2.3	NO		db		
20	FUNCTION5 PFK	45.27	1.211e3					0.5	NO		bd		
21	FUNCTION5 PFK	45.02	1.216e3					0.5	NO		bb		
22	FUNCTION5 PFK	44.98	5.040e3					1.1	NO		db		
23	FUNCTION5 PFK	44.92	3.169e3					1.2	NO		bd		
24	FUNCTION5 PFK	44.74	8.901e3					1.7	NO		bb		
25	FUNCTION5 PFK	44.64	2.230e3					0.8	NO		bb		
26	FUNCTION5 PFK	44.39	4.221e3					1.4	NO		bb		
27	FUNCTION5 PFK	44.35	6.245e3					2.1	NO		db		
28	FUNCTION5 PFK	44.31	1.675e3					0.8	NO		bd		
29	FUNCTION5 PFK	44.27	3.130e3					1.3	NO		bb		
30	FUNCTION5 PFK	44.17	6.199e3					1.1	NO		db		
31	FUNCTION5 PFK	44.12	7.116e3					1.8	NO		dd		
32	FUNCTION5 PFK	45.96	6.001e3					1.3	NO		bb		
33	FUNCTION5 PFK	45.89	2.093e3					0.9	NO		bb		

ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.30	7.466e1					1.0	NO		bb		0.000
2	FUNCTION1 HXCD...	26.07	1.160e2					3.2	YES		db		0.000
3	FUNCTION1 HXCD...	26.03	8.861e1					3.1	YES		dd		0.000
4	FUNCTION1 HXCD...	25.93	1.189e2					2.9	NO		bd		0.000
5	FUNCTION1 HXCD...	25.77	1.258e2					2.8	NO		bb		0.000
6	FUNCTION1 HXCD...	25.10	1.754e2					3.6	YES		bb		0.000
7	FUNCTION1 HXCD...	24.57	7.378e1					2.0	NO		bb		0.000
8	FUNCTION1 HXCD...	23.85	1.002e2					2.1	NO		bb		0.000
9	FUNCTION1 HXCD...	21.59	1.003e2					2.5	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.18	7.496e1					2.3	NO		db		0.000
2	FUNCTION2 HPCD...	30.08	1.084e2					1.9	NO		bd		0.000
3	FUNCTION2 HPCD...	29.33	7.147e1					2.3	NO		bb		0.000
4	FUNCTION2 HPCD...	31.57	8.584e1					1.8	NO		bb		0.000
5	FUNCTION2 HPCD...	30.48	1.977e2					6.2	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.04	1.580e2					4.1	YES		db		0.000
2	FUNCTION3 OCDPE	35.91	2.583e2					6.6	YES		bd		0.000
3	FUNCTION3 OCDPE	35.41	1.273e2					4.3	YES		bb		0.000
4	FUNCTION3 OCDPE	35.18	1.247e2					3.1	YES		bb		0.000
5	FUNCTION3 OCDPE	34.94	1.056e2					10.5	YES		bb		0.000
6	FUNCTION3 OCDPE	34.43	8.328e1					3.7	YES		bb		0.000

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ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	39.67	2.033e2					2.8	NO		bb		0.000
2	FUNCTION4 NCDPE	38.63	1.180e2					2.2	NO		bb		0.000

ETHERS6

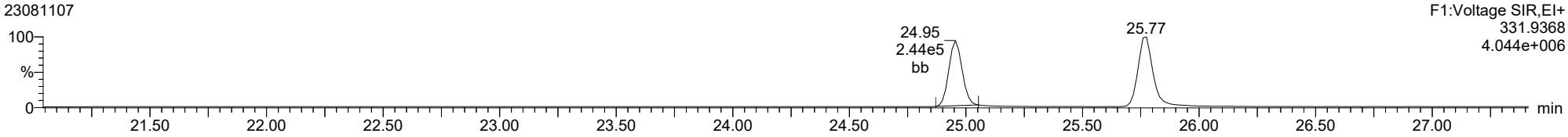
	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	43.93	1.396e2					3.3	YES		bb		0.000

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Printed: Tuesday, August 15, 2023 12:24:35 Pacific Daylight Time

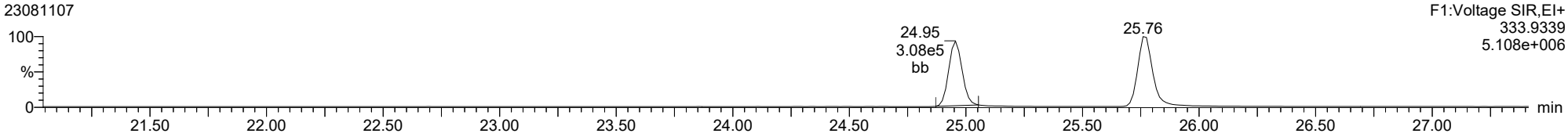
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Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

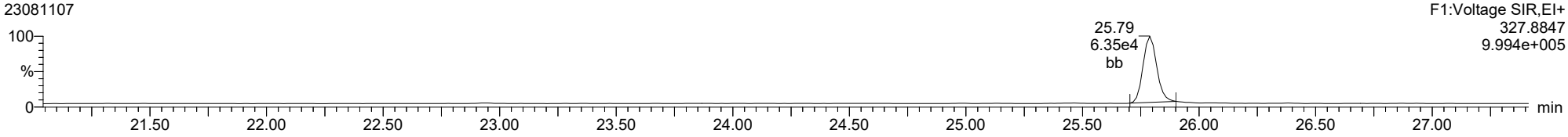
13C-1234-TCDD



13C-1234-TCDD

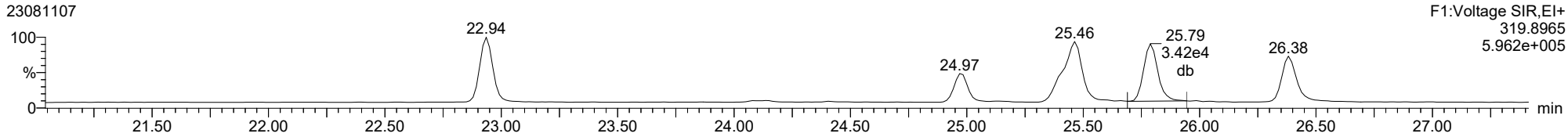


37CL-2378-TCDD

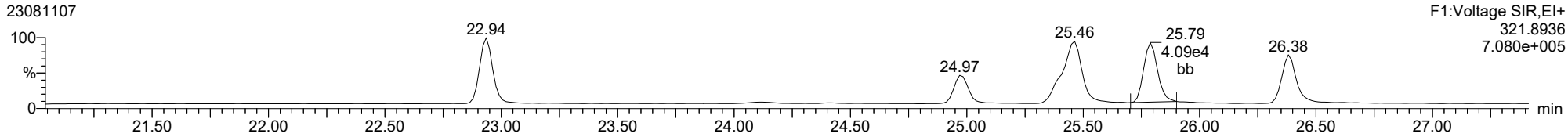


ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

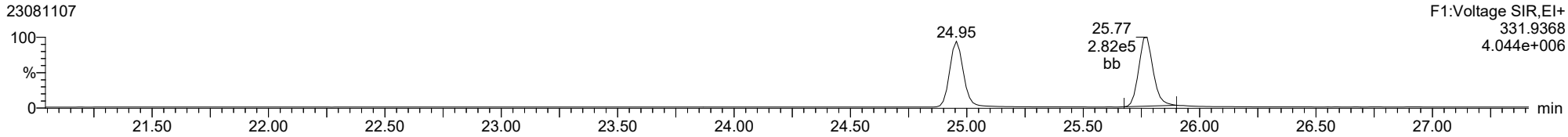
2378-TCDD



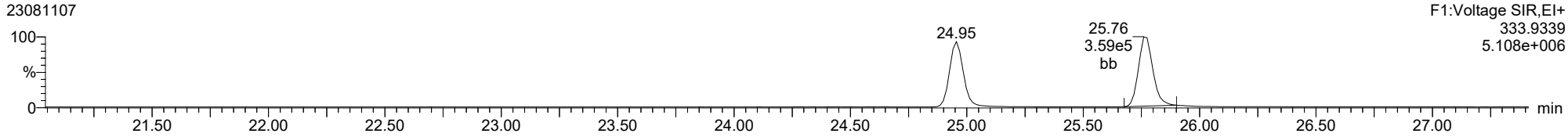
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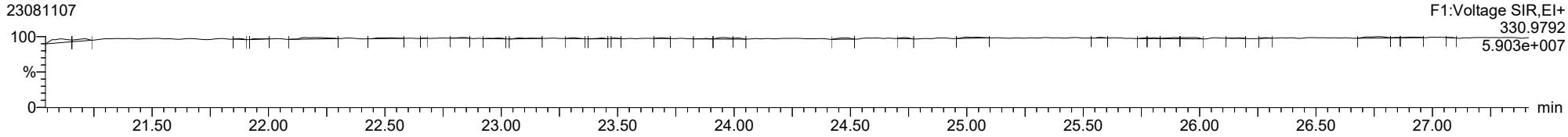
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13C-2378-TCDD

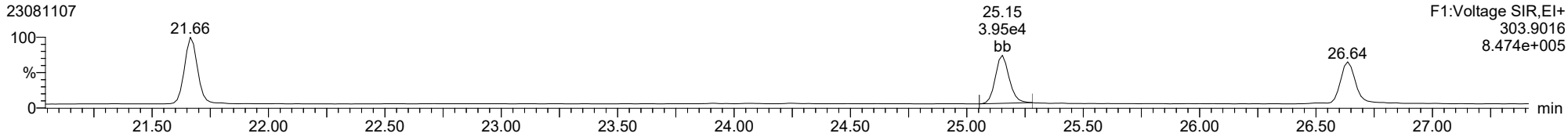


FUNCTION1 PFK

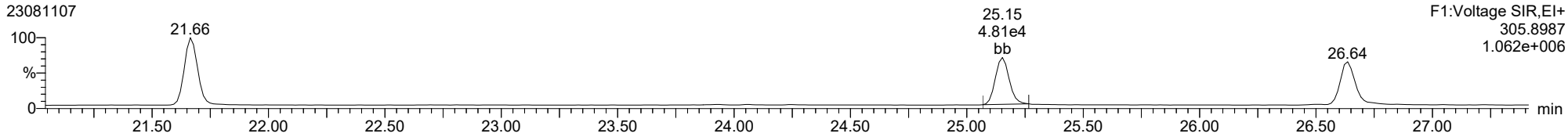


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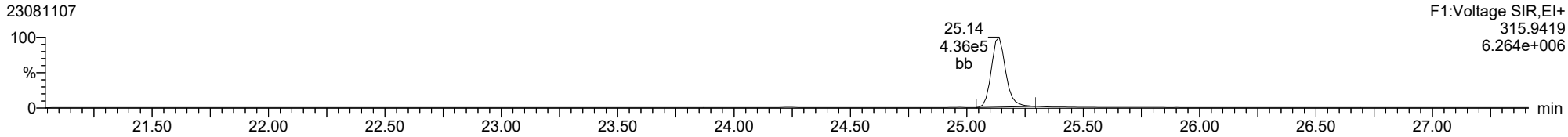
2378-TCDF



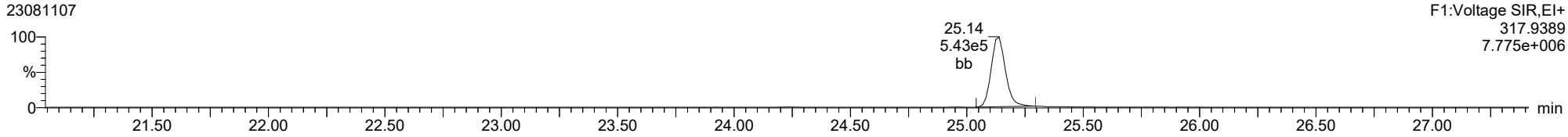
2378-TCDF



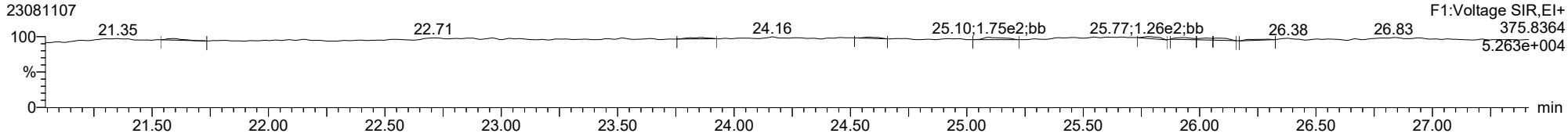
13C-2378-TCDF



13C-2378-TCDF

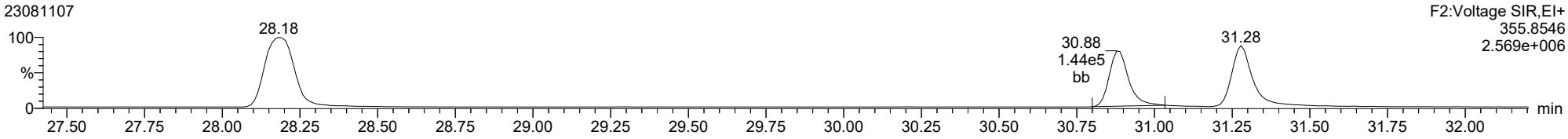


FUNCTION1 HXCDPE

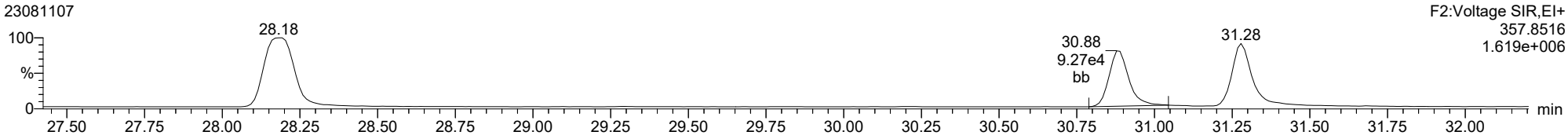


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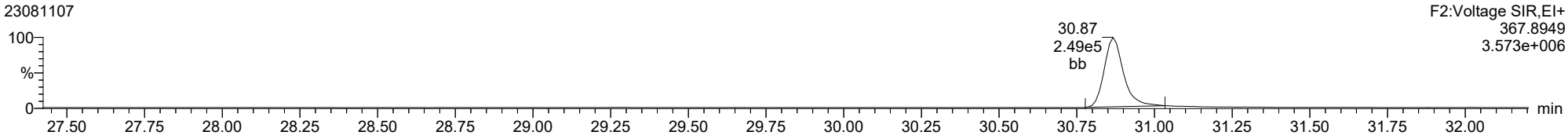
12378-PeCDD



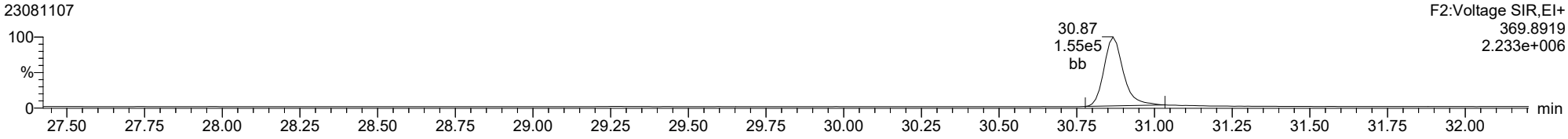
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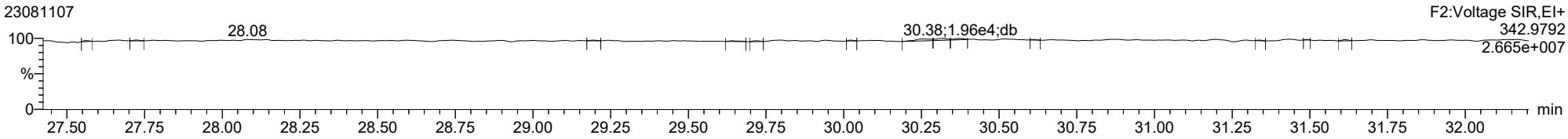
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13C-12378-PeCDD

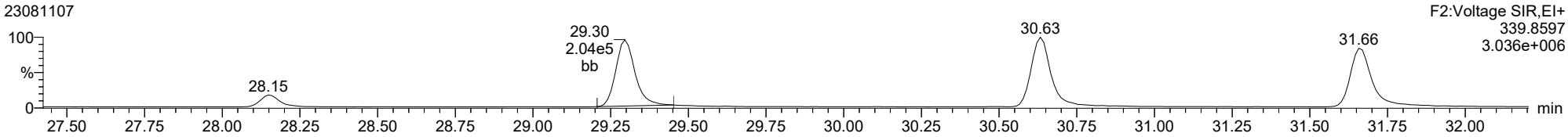


FUNCTION2 PFK

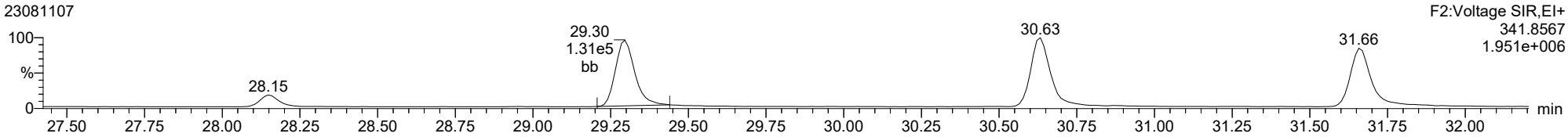


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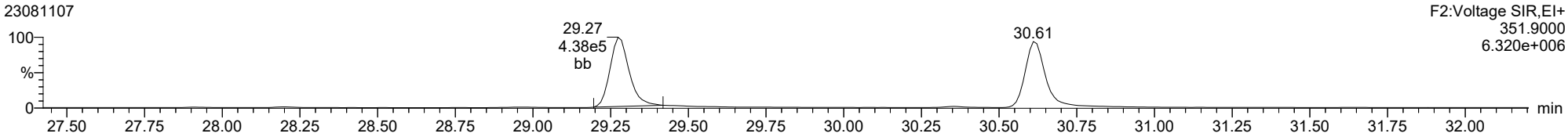
12378-PeCDF



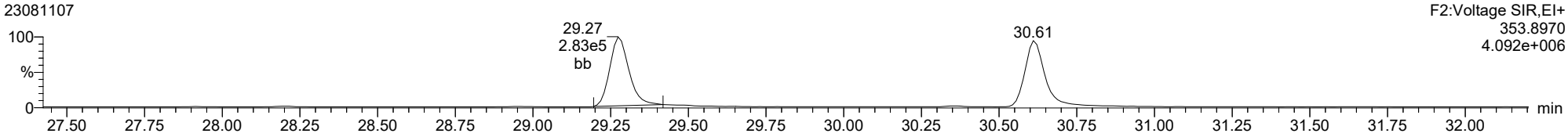
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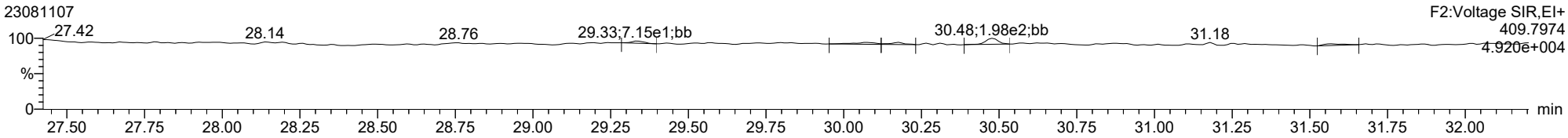
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13C-12378-PeCDF

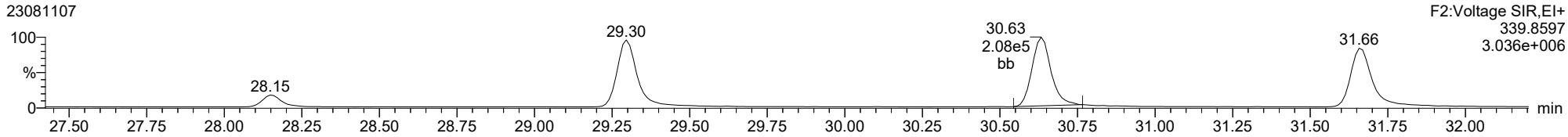


FUNCTION2 HPCDPE

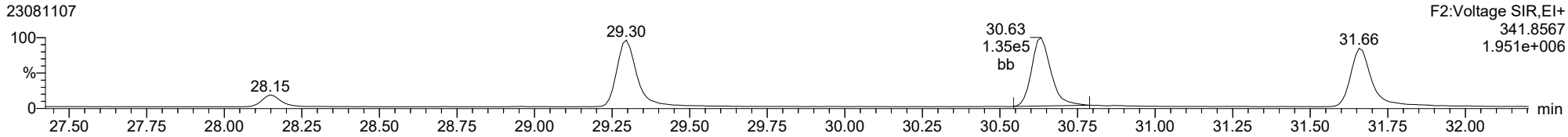


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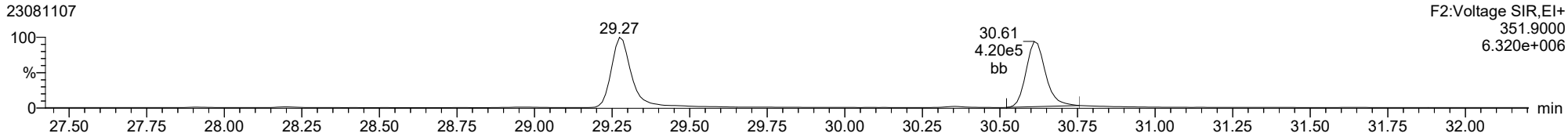
23478-PeCDF



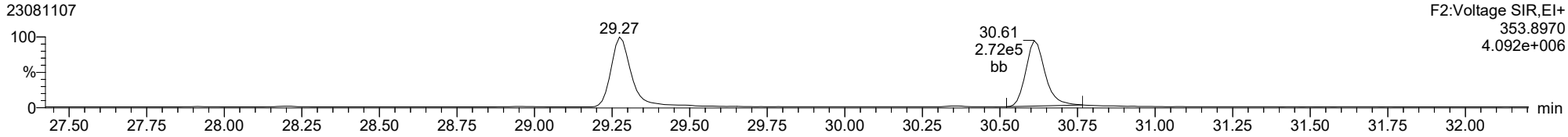
23478-PeCDF



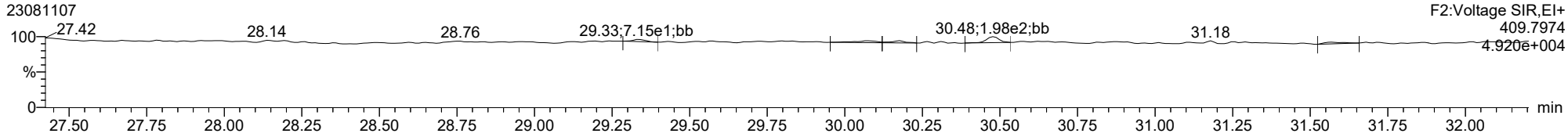
13C-23478-PeCDF



13C-23478-PeCDF

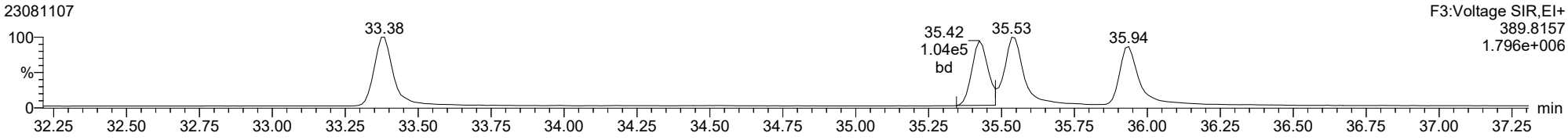


FUNCTION2 HPCDPE

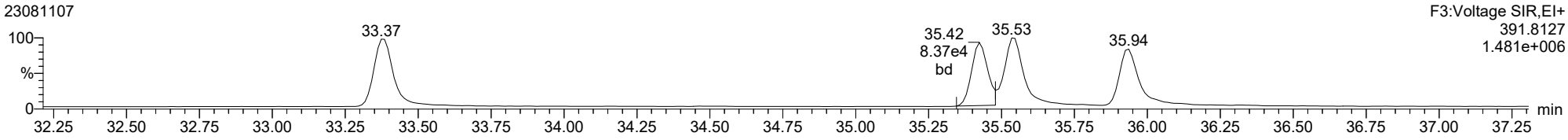


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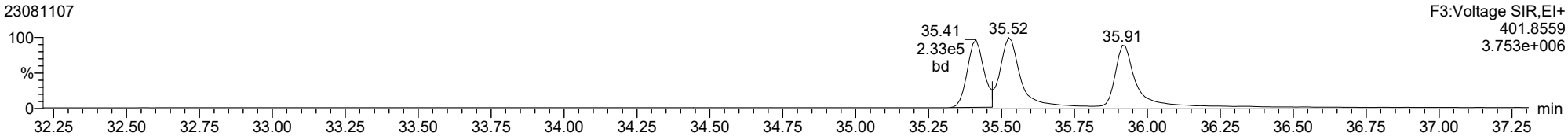
123478-HxCDD



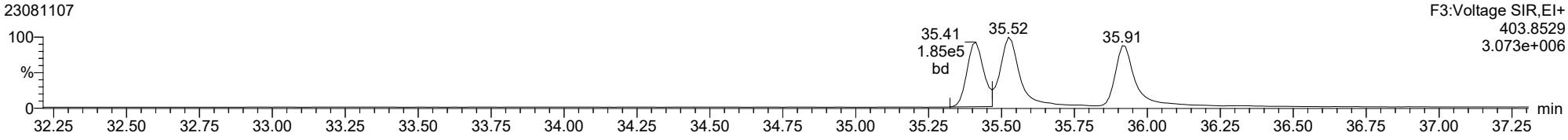
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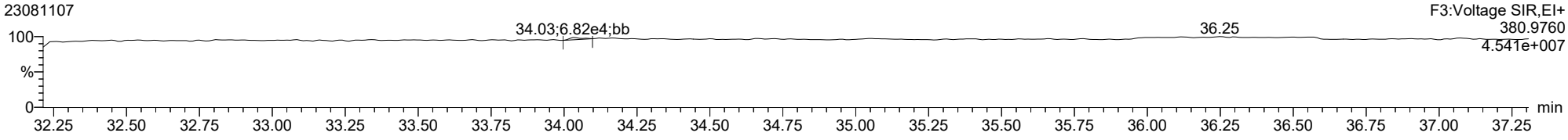
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13C-123478-HxCDD

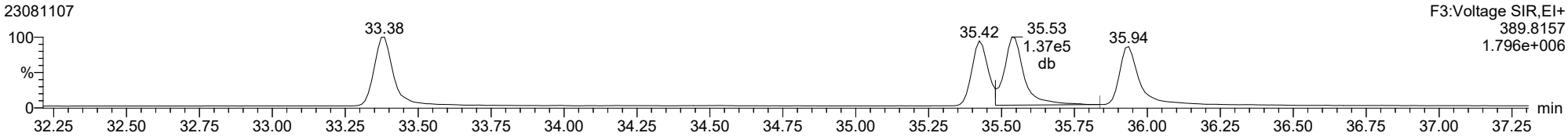


FUNCTION3 PFK

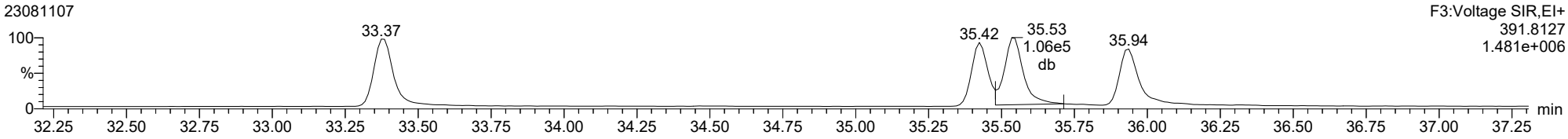


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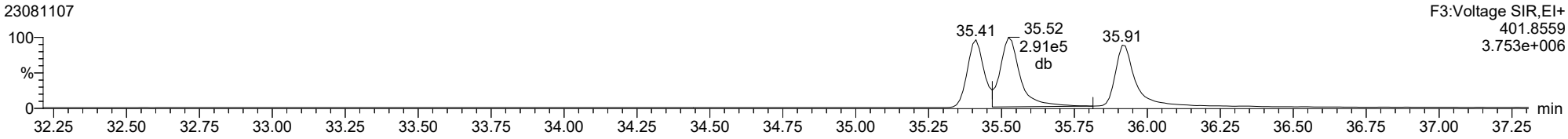
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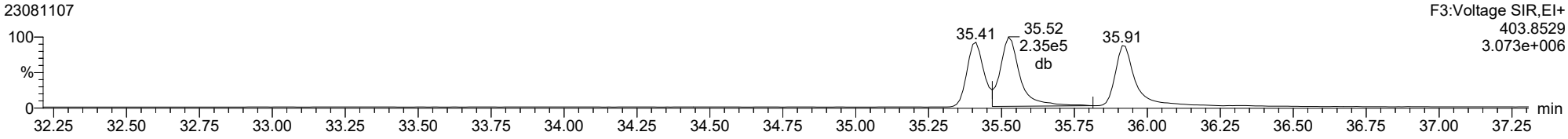
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13C-123678-HxCDD

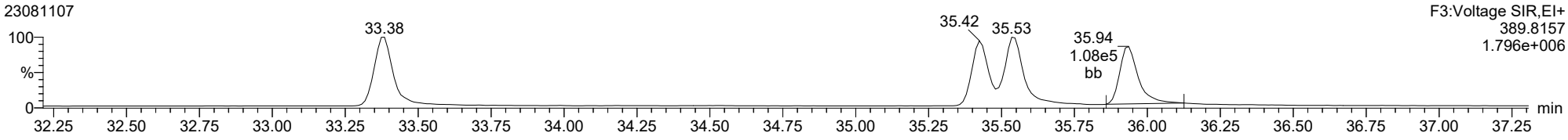


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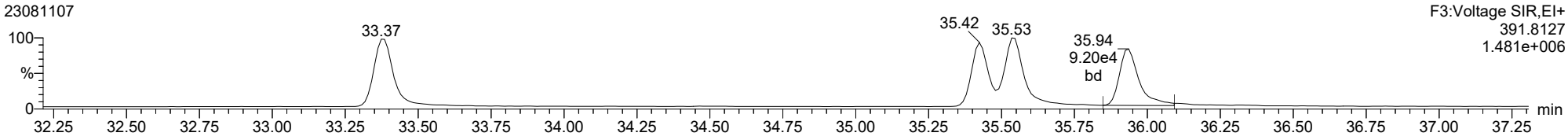


ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

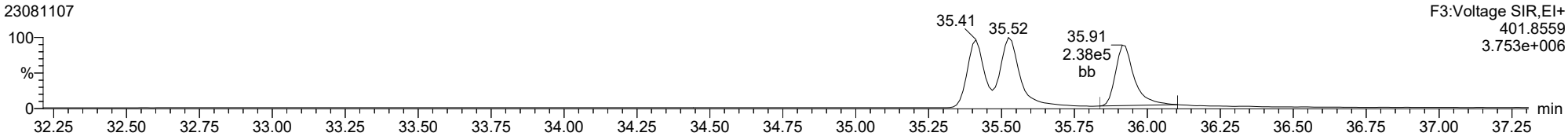
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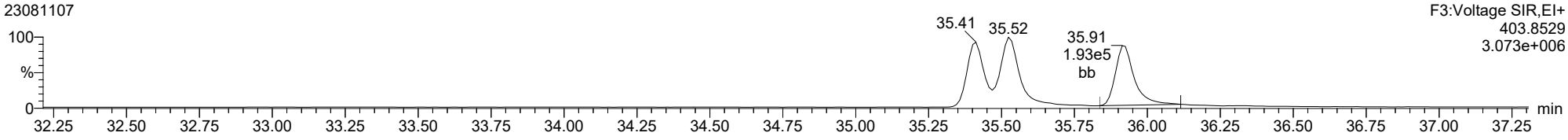
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13C-123789-HxCDD

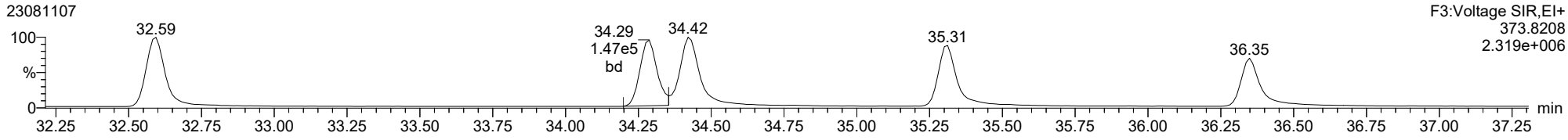


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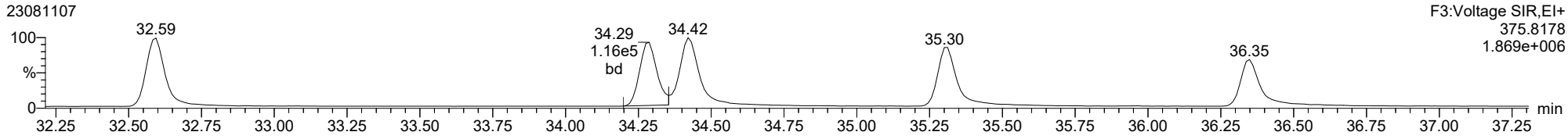


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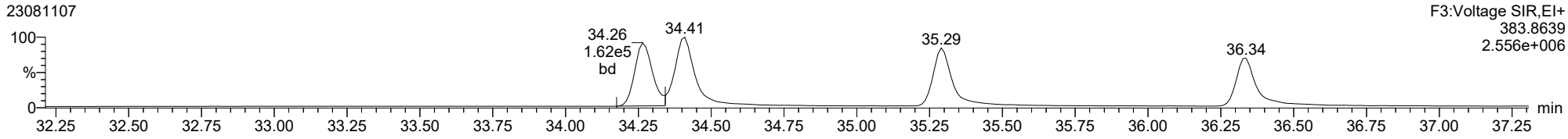
123478-HxCDF



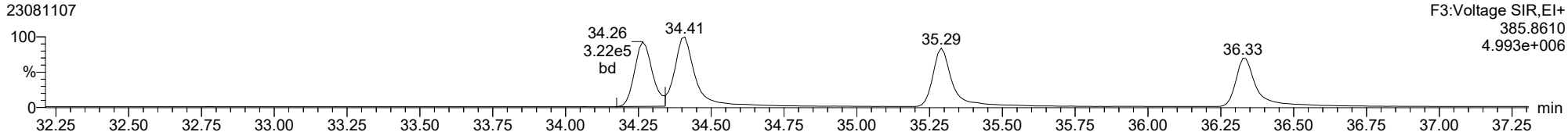
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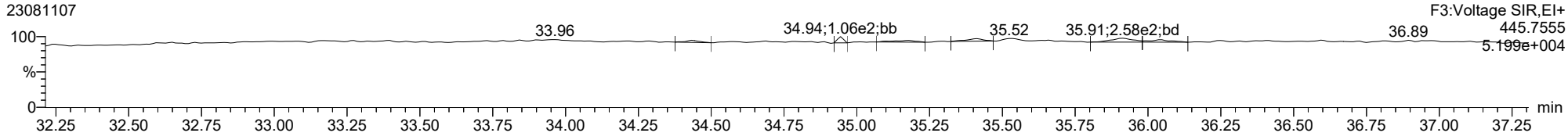
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13C-123478-HxCDF

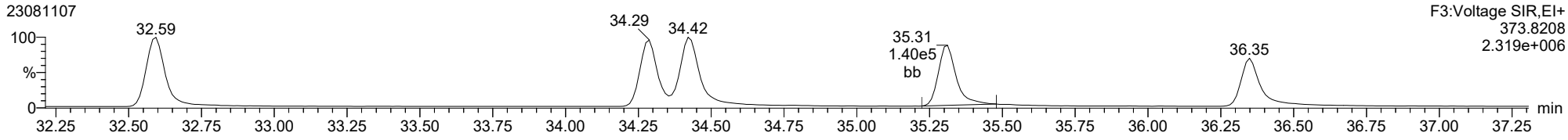


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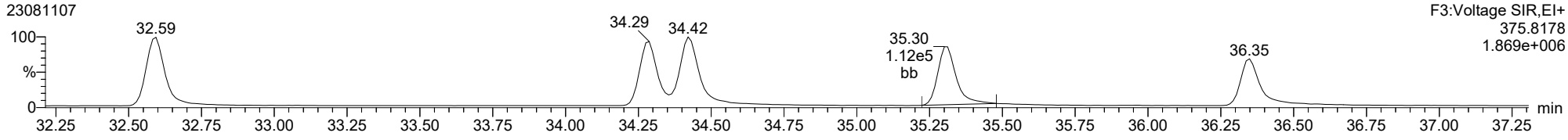


ID: CS3CF, Name: 23081107, Date: 11-Aug-2023, Time: 14:52:57, Conditions: AUTOSPEC01, User: pk

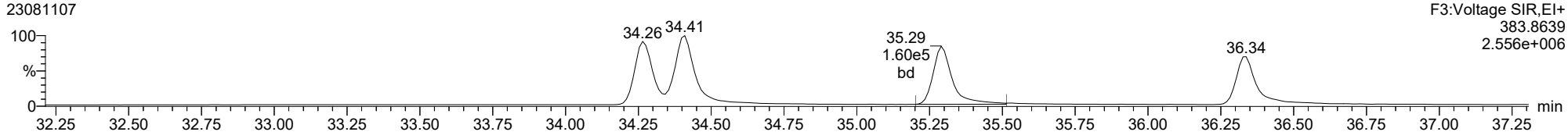
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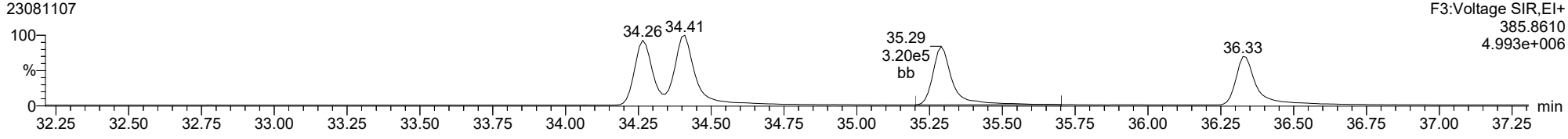
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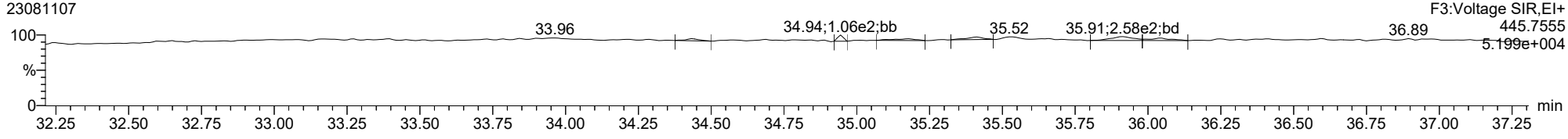
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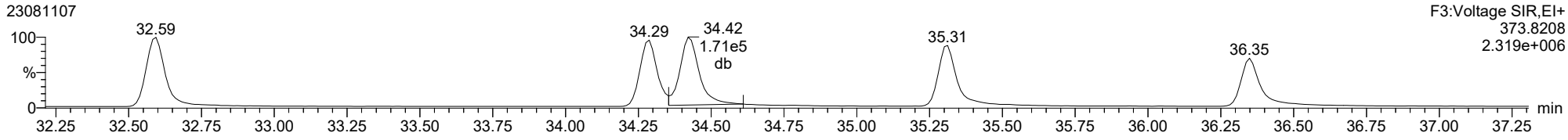


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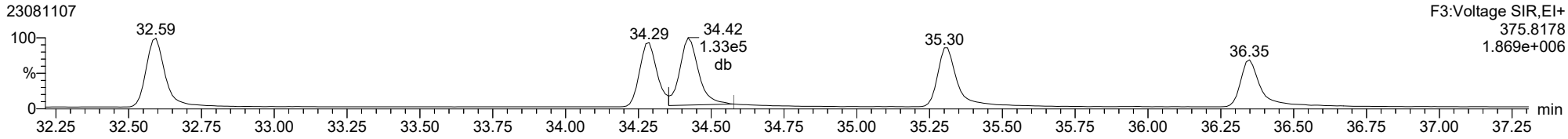


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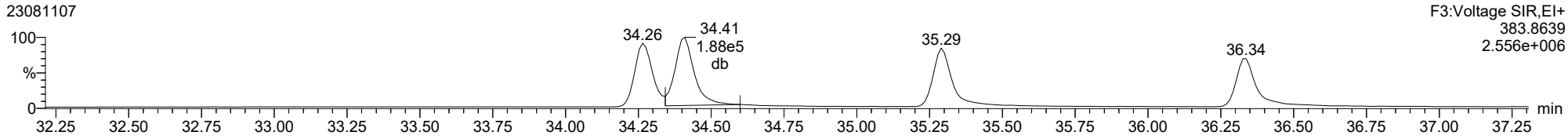
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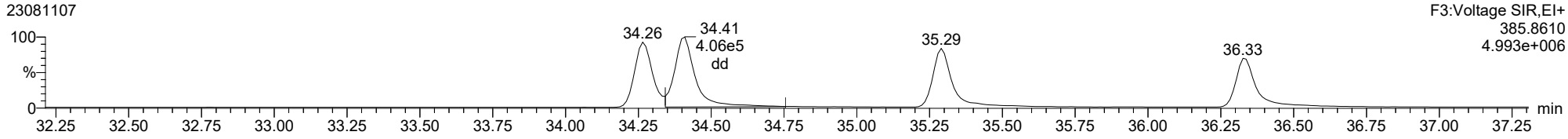
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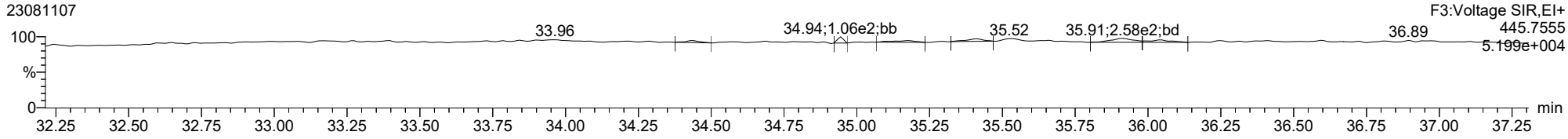
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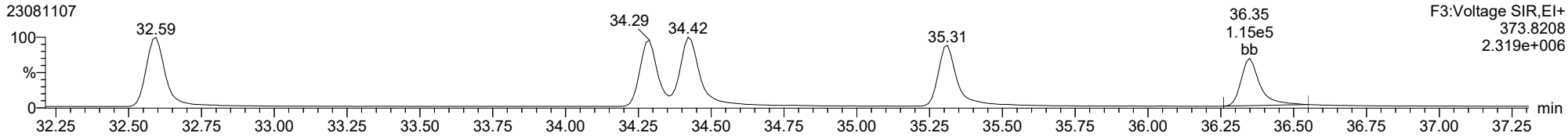


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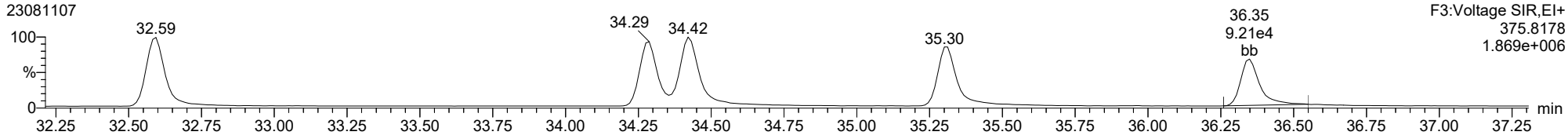


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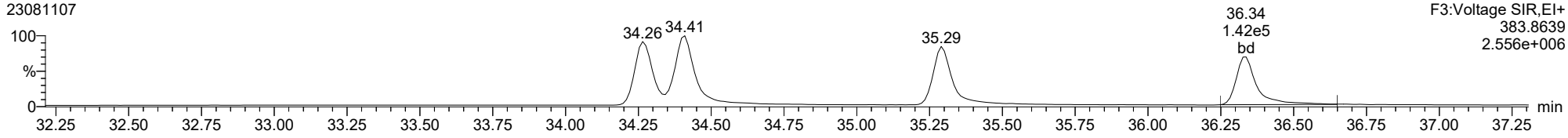
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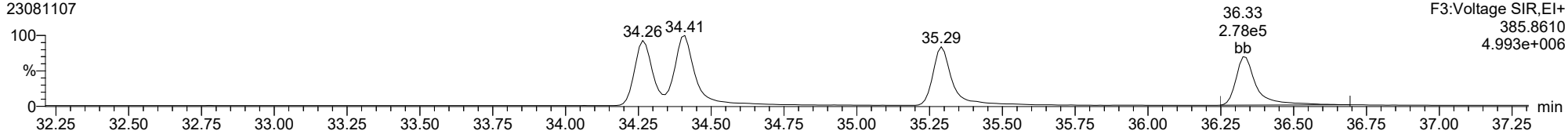
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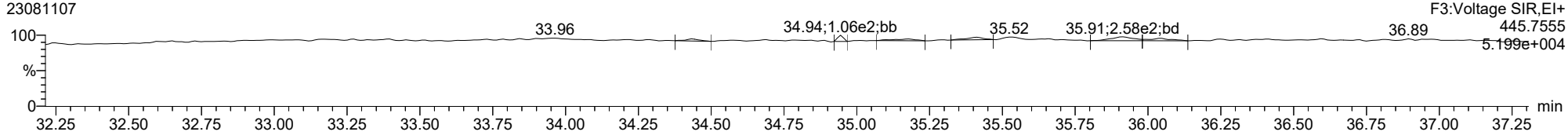
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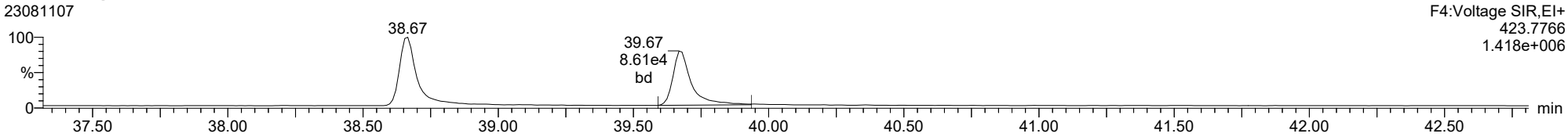


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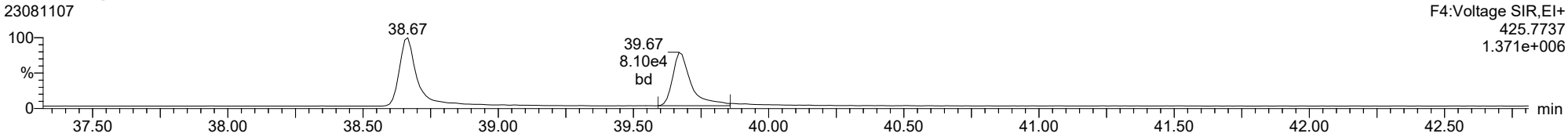


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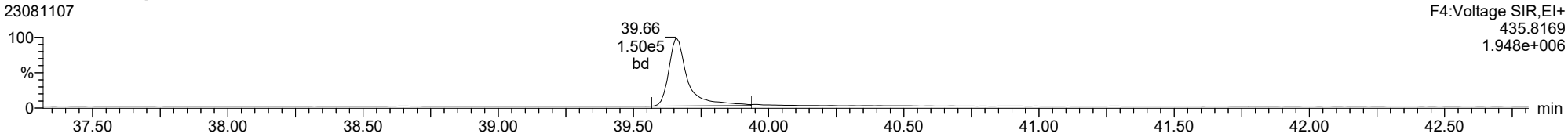
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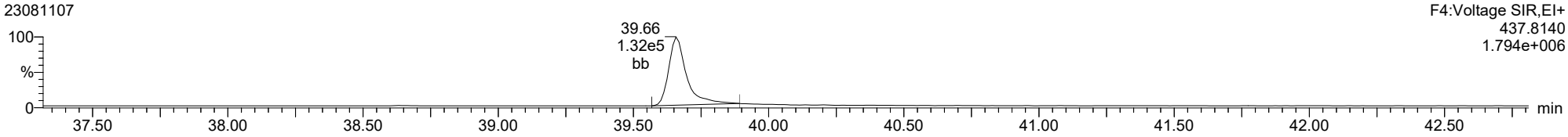
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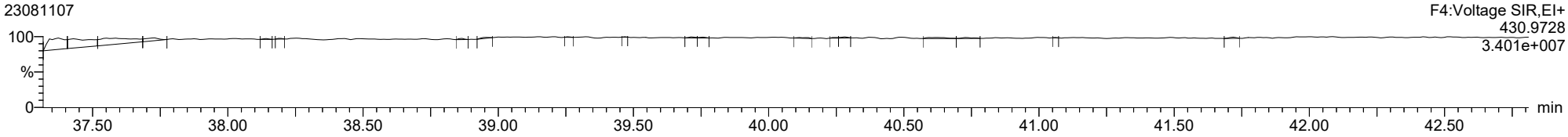
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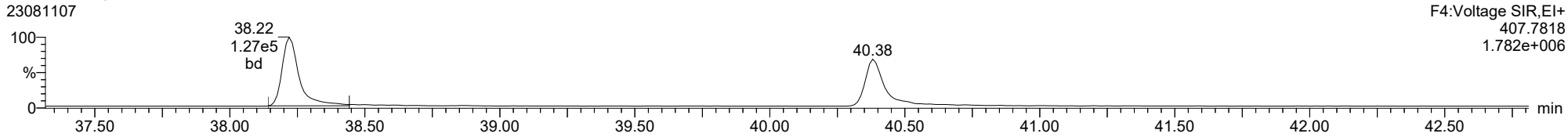


FUNCTION4 PFK

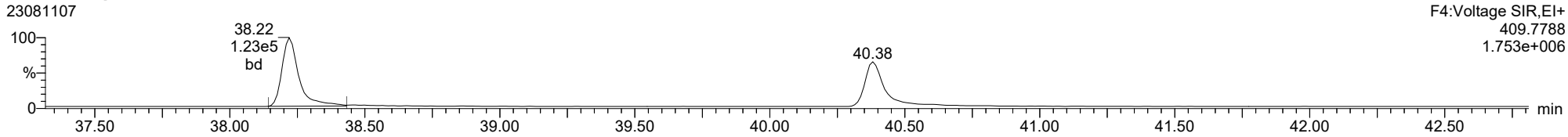


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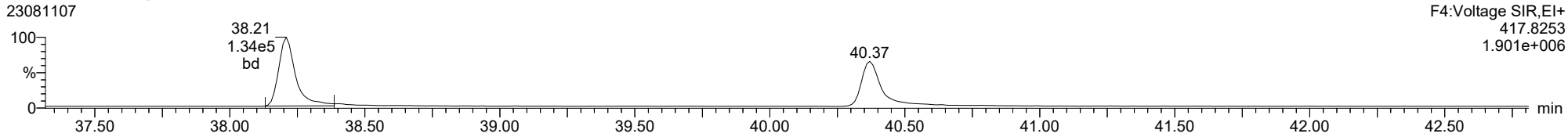
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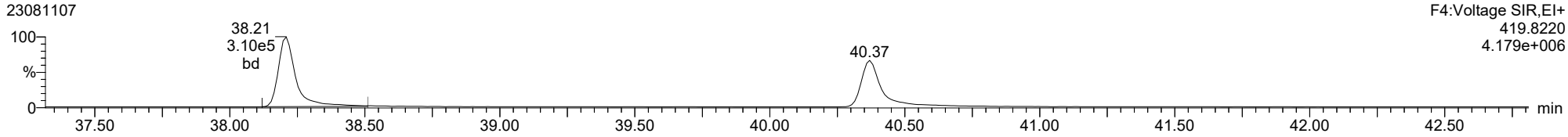
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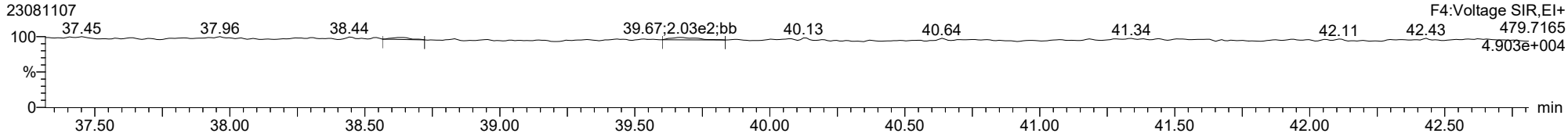
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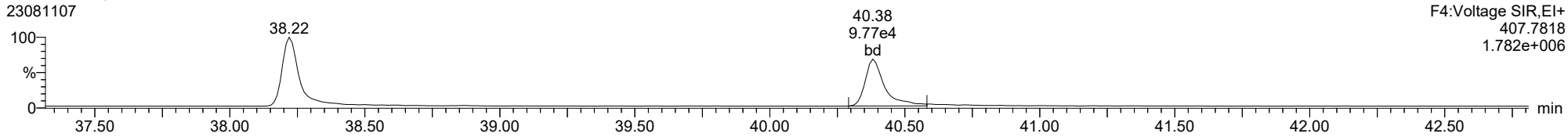


FUNCTION4 NCDPE

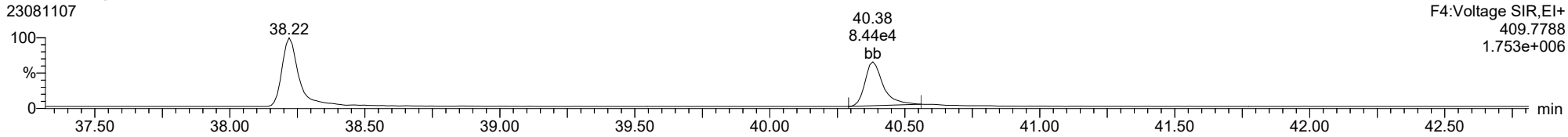


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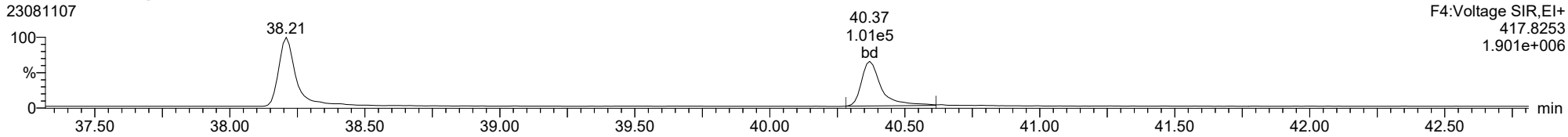
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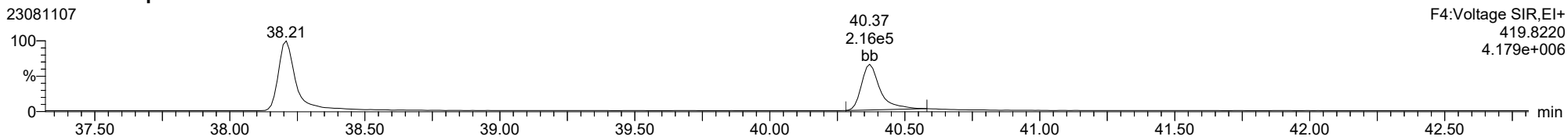
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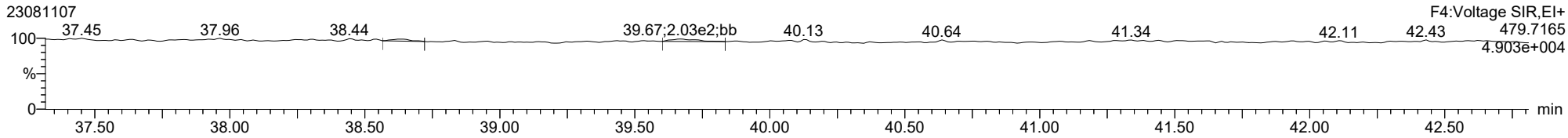
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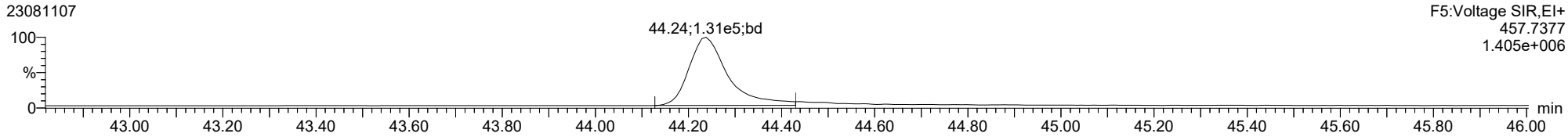


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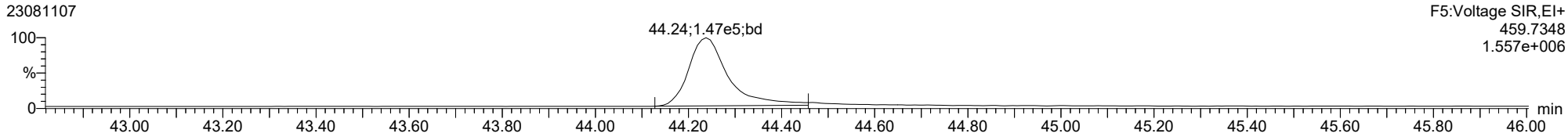


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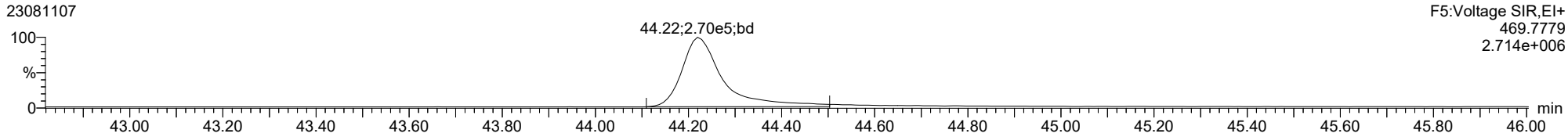
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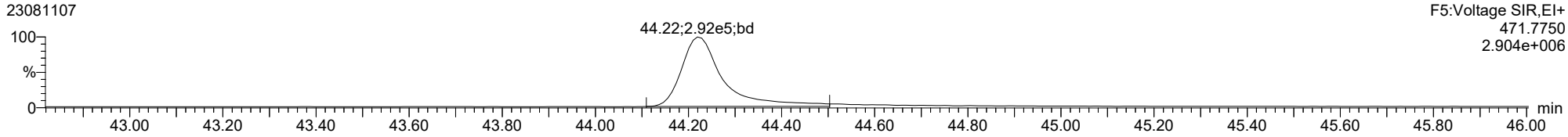
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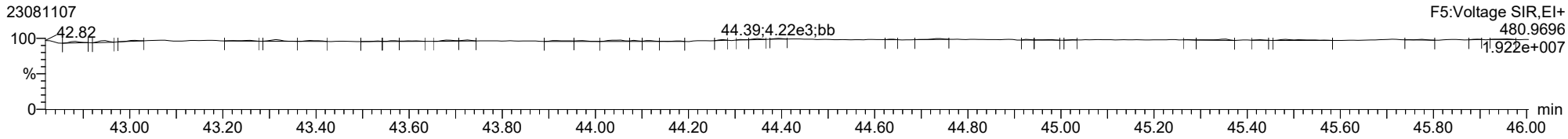
13C-OCDD



13C-OCDD

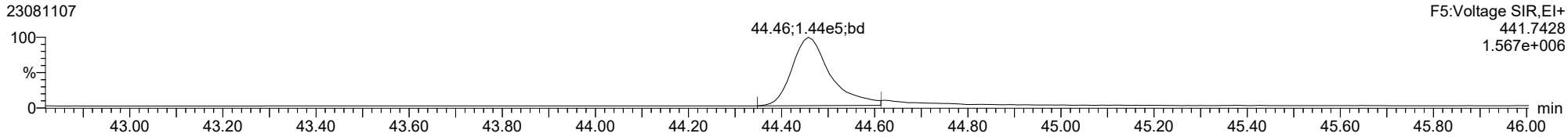


FUNCTION5 PFK

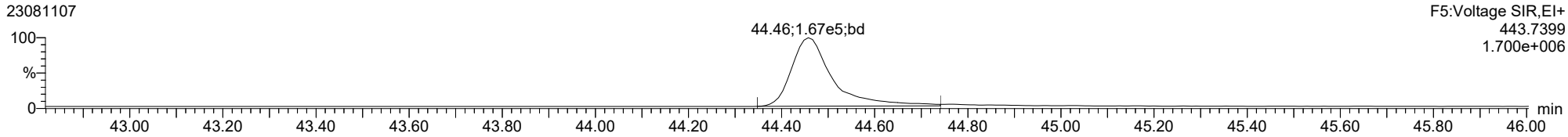


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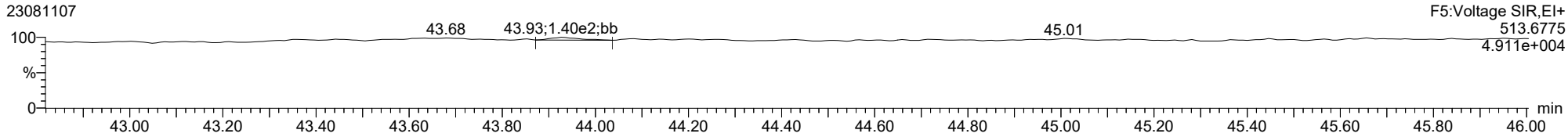
OCDF



OCDF

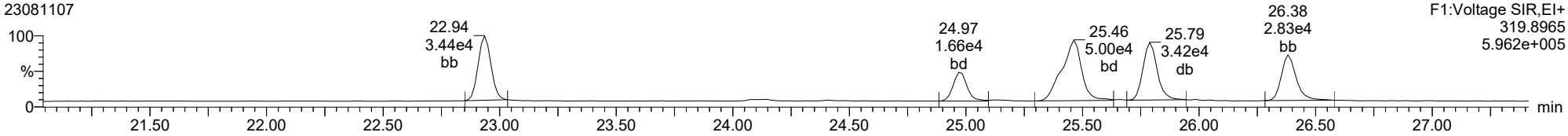


FUNCTION5 DCDPE

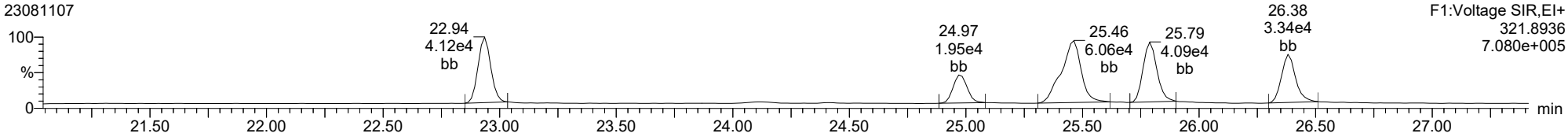


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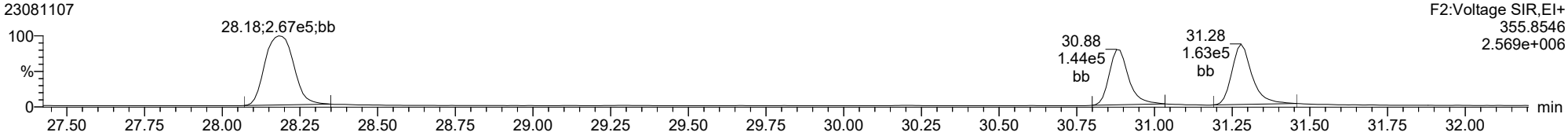
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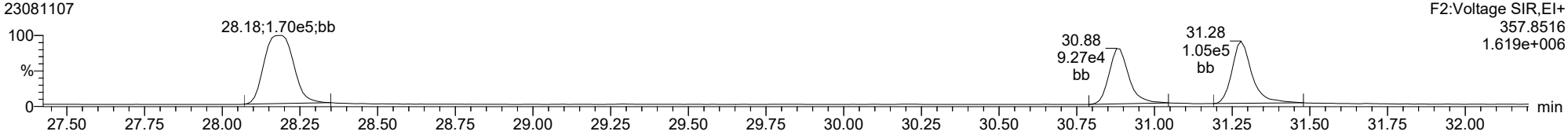
Total-tetradioxins



Total-pentadioxins

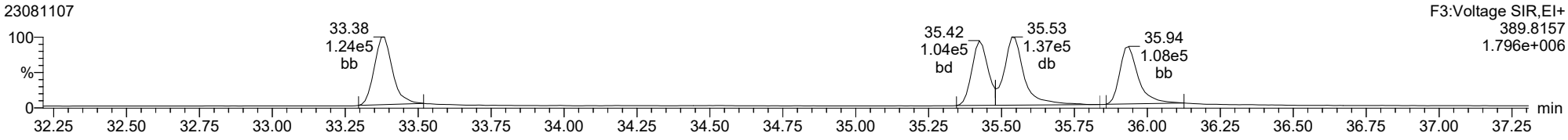


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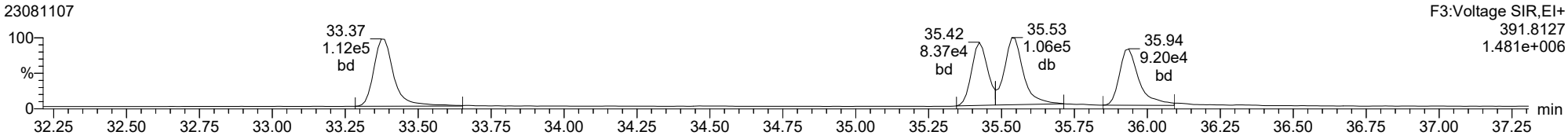


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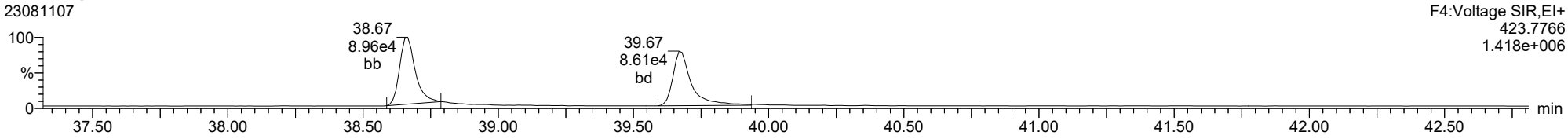
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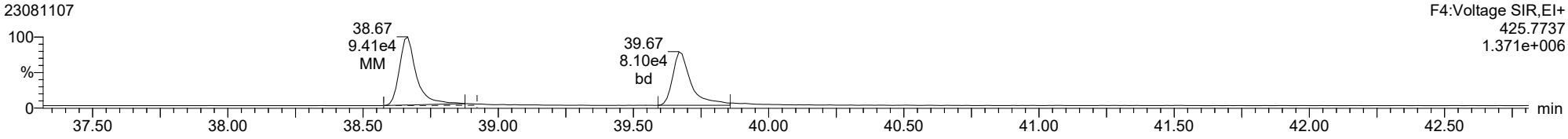
Total-hexadioxins



Total-heptadioxins

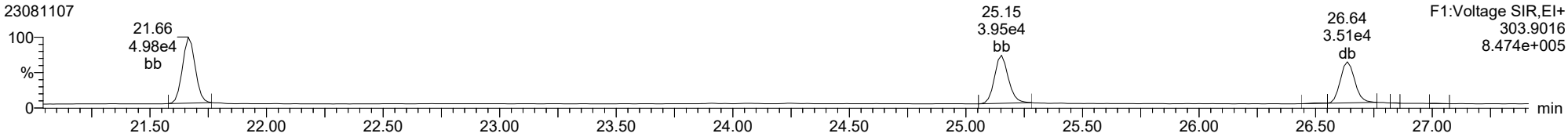


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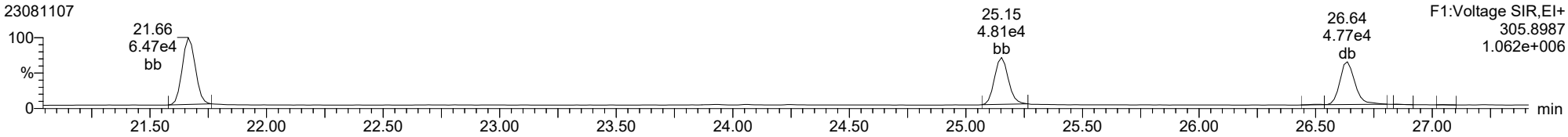


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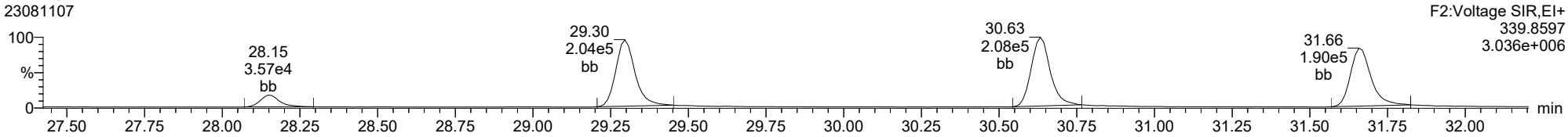
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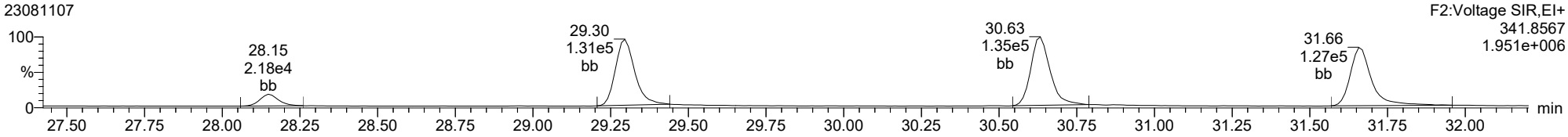
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Total-pentafurans

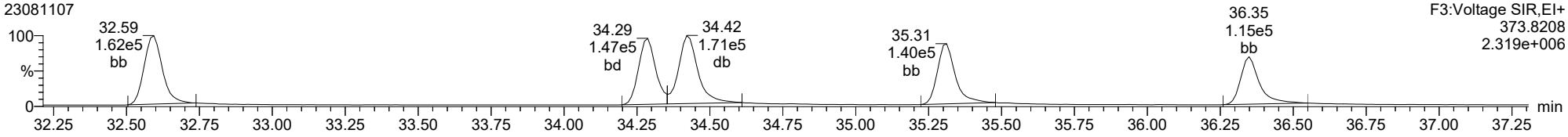


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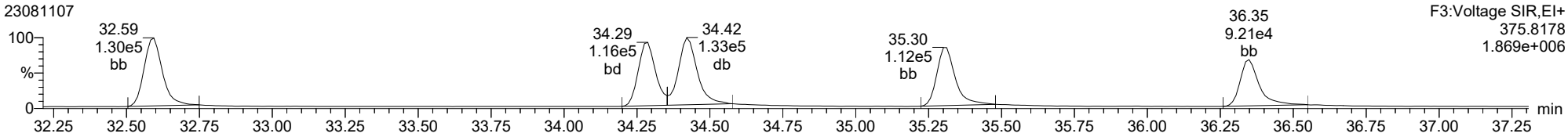


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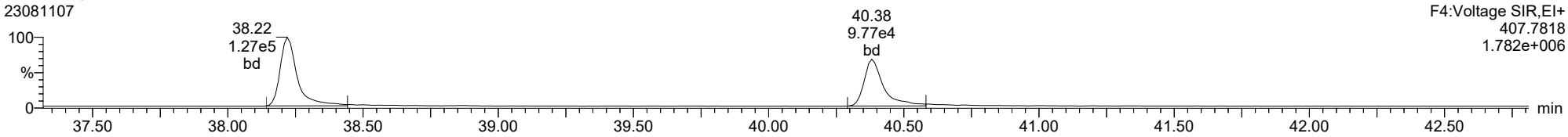
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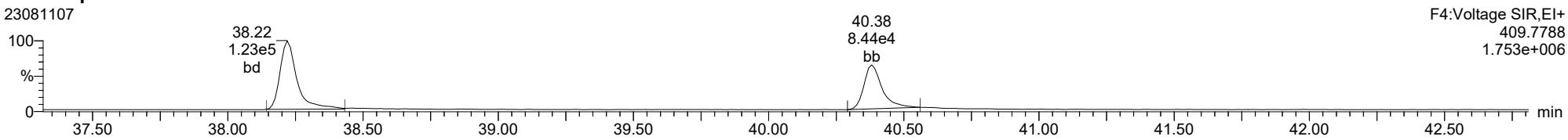
Total-hexafurans



Total-heptafurans



Total-heptafurans



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Printed: Tuesday, August 15, 2023 12:24:49 Pacific Daylight Time

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ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.139	1.001	2.069e5	2.669e5	0.903	0.775	0.770	910	1408	2.99e6	3.87e6	3292.7	2749.1	NO	bb	bb	40.180
12378-PeCDF	29.285	1.001	1.012e6	6.469e5	0.923	1.564	1.550	3352	3597	1.46e7	9.36e6	4348.1	2602.0	NO	bb	bb	201.316
23478-PeCDF	30.622	1.000	1.053e6	6.665e5	0.991	1.580	1.550	3352	3597	1.49e7	9.38e6	4430.7	2608.4	NO	bb	bb	201.599
123478-HxCDF	34.276	1.000	7.120e5	5.688e5	1.128	1.252	1.240	2738	1665	1.05e7	8.28e6	3820.4	4974.4	NO	bd	bd	199.881
234678-HxCDF	35.301	1.000	6.633e5	5.283e5	1.081	1.255	1.240	2738	1665	9.44e6	7.56e6	3445.5	4543.2	NO	bb	bb	200.898
123678-HxCDF	34.421	1.001	7.823e5	6.275e5	1.032	1.247	1.240	2738	1665	1.03e7	8.32e6	3779.2	4995.7	NO	db	db	200.326
123789-HxCDF	36.337	1.000	5.937e5	4.227e5	0.988	1.404	1.240	2738	1665	7.36e6	5.84e6	2686.0	3510.6	NO	bd	bb	210.789
1234678-HpCDF	38.220	1.001	5.646e5	5.569e5	1.164	1.014	1.050	3806	3830	8.41e6	8.15e6	2209.9	2127.1	NO	bb	bb	199.621
1234789-HpCDF	40.381	1.001	4.624e5	4.643e5	1.104	0.996	1.050	3806	3830	5.85e6	5.57e6	1537.3	1455.3	NO	bb	bd	228.686
OCDF	44.457	1.005	6.808e5	7.439e5	1.130	0.915	0.890	3171	3847	7.41e6	7.99e6	2338.5	2077.7	NO	bb	bb	442.738
2378-TCDD	25.774	1.001	1.635e5	2.012e5	1.243	0.813	0.770	819	809	2.31e6	2.92e6	2817.9	3604.6	NO	bb	bb	39.976
12378-PeCDD	30.878	1.001	6.628e5	4.228e5	1.150	1.568	1.550	1616	1186	9.41e6	5.90e6	5824.4	4972.0	NO	bb	bb	202.257
123478-HxCDD	35.423	1.001	4.819e5	4.023e5	0.960	1.198	1.240	1711	1300	7.12e6	5.95e6	4159.0	4578.3	NO	bd	bd	194.509
123678-HxCDD	35.535	1.000	5.301e5	4.575e5	0.883	1.159	1.240	1711	1300	7.35e6	5.95e6	4295.5	4579.4	NO	db	db	202.344
123789-HxCDD	35.925	1.011	4.672e5	3.844e5	0.804	1.215	1.240	1711	1300	6.62e6	5.45e6	3870.9	4194.9	NO	bb	bb	206.440
1234678-HpCDD	39.668	1.000	3.489e5	3.316e5	1.200	1.052	1.050	3116	2211	5.04e6	4.70e6	1615.6	2124.9	NO	bb	bb	189.168
OCDD	44.229	1.000	6.082e5	6.853e5	1.059	0.888	0.890	1979	2870	6.17e6	6.99e6	3119.0	2435.1	NO	bd	bd	429.120
13C-2378-TCDF	25.125	1.007	5.832e5	7.224e5	1.835	0.807	0.770	2017	1746	8.33e6	1.05e7	4130.6	5989.0	NO	bb	bb	96.462
13C-12378-PeCDF	29.262	1.173	5.419e5	3.506e5	1.377	1.546	1.550	3777	2446	7.61e6	5.02e6	2013.6	2052.1	NO	bb	bb	87.917
13C-23478-PeCDF	30.610	1.227	5.239e5	3.372e5	1.301	1.554	1.550	3777	2446	7.19e6	4.70e6	1903.1	1920.3	NO	bb	bb	89.739
13C-123478-HxCDF	34.265	0.954	1.917e5	3.763e5	1.091	0.510	0.510	2847	1804	2.78e6	5.41e6	977.0	3000.2	NO	bd	bd	106.075
13C-123678-HxCDF	34.398	0.958	2.197e5	4.620e5	1.340	0.475	0.510	2847	1804	2.97e6	5.79e6	1044.1	3210.7	NO	db	dd	103.609
13C-234678-HxCDF	35.290	0.983	1.810e5	3.675e5	1.093	0.492	0.510	2847	1804	2.45e6	4.85e6	861.0	2686.1	NO	bb	bd	102.175
13C-123789-HxCDF	36.326	1.012	1.604e5	3.278e5	0.952	0.489	0.510	2847	1804	2.09e6	4.12e6	733.8	2283.2	NO	bb	bd	104.504
13C-1234678-HpCDF	38.197	1.064	1.579e5	3.249e5	0.985	0.486	0.440	2570	2841	2.12e6	4.70e6	824.9	1653.5	NO	bd	bb	99.843
13C-1234789-HpCDF	40.359	1.124	1.178e5	2.494e5	0.756	0.472	0.440	2570	2841	1.48e6	3.21e6	576.0	1129.9	NO	bd	bb	98.962
13C-1234-TCDD	24.941	0.000	3.250e5	4.124e5	1.000	0.788	0.770	1552	1233	4.97e6	6.31e6	3202.9	5112.0	NO	bb	bb	100.000
13C-2378-TCDD	25.760	1.033	3.273e5	4.068e5	1.110	0.804	0.770	1552	1233	4.73e6	5.93e6	3049.2	4804.6	NO	bb	bb	89.718
13C-12378-PeCDD	30.855	1.237	2.877e5	1.791e5	0.754	1.607	1.550	770	1010	4.08e6	2.49e6	5300.6	2467.8	NO	bb	bb	83.973
13C-123478-HxCDD	35.401	0.986	2.677e5	2.058e5	0.960	1.301	1.240	1608	1432	3.86e6	3.11e6	2400.4	2172.8	NO	bd	bd	100.482
13C-123678-HxCDD	35.523	0.989	3.023e5	2.506e5	1.159	1.206	1.240	1608	1432	3.93e6	3.13e6	2445.3	2184.5	NO	db	db	97.162
13C-1234678-HpCDD	39.657	1.104	1.557e5	1.442e5	0.629	1.080	1.050	2177	1424	2.06e6	1.90e6	946.2	1335.4	NO	bb	bb	97.070
13C-OCDD	44.219	1.231	2.717e5	2.978e5	0.635	0.912	0.890	2982	2292	2.88e6	3.17e6	966.9	1381.3	NO	bd	bd	182.623
13C-123789-HxCDD	35.914	0.000	2.757e5	2.153e5	1.000	1.281	1.240	1608	1432	3.82e6	3.03e6	2373.7	2113.6	NO	bb	bb	100.000
37CL-2378-TCDD	25.774	1.033	3.106e5		1.157			1063		4.48e6		4212.1			bb		36.391

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:49 Pacific Daylight Time

ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.170		0.770	910	1408								
1289-TCDF					0.847		0.770	910	1408								
13468-PECDF					1.241		1.550	619	771								
12389-PECDF					0.880		1.550	3352	3597								
123468-HXCDF					1.206		1.240	2738	1665								
1368-TCDD					1.181		0.770	819	809								
1289-TCDD					0.963		0.770	819	809								
12479-PECDD					2.166		1.550	1616	1186								
12389-PECDD					1.326		1.550	1616	1186								
124679-HXCDD					1.127		1.240	1711	1300								
1234679-HPCDD					1.303		1.050	3116	2211								
Total-tetrafurans			2.089e5		0.973			910		3.02e6							40.558
Total-penta1			0.000e0					619		0.00e0							
Total-pentafurans			2.066e6		0.931			3352		2.95e7							403.174
Total-hexafurans			2.752e6		1.087			2738		3.76e7							811.982
Total-heptafurans			1.027e6		1.134			3806		1.43e7							428.307
Total-Furans			6.735e6		1.053			910		9.18e7							2126.759
Total-tetradioxins			1.677e5		1.129			819		2.35e6							41.113
Total-pentadioxins			6.628e5		1.548			1616		9.41e6							202.257
Total-hexadioxins			1.479e6		0.943			1711		2.11e7							603.293
Total-heptadioxins			3.489e5		1.251			3116		5.04e6							189.168
Total-Dioxins			3.267e6		1.182			819		4.41e7							1464.951
Total-TEQ			1.000e7					819		1.36e8							3591.710
FUNCTION1 PFK			1.203e6					375179		2.06e7							
FUNCTION2 PFK			7.156e5					281683		1.61e7							0.000
FUNCTION3 PFK			1.654e5					367932		5.05e6							0.000
FUNCTION4 PFK			0.000e0					301298		0.00e0							
FUNCTION5 PFK			9.039e4					207920		4.37e6							
FUNCTION1 HXCD...			2.747e2					499		5.63e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			8.897e2					444		1.57e4							0.000
FUNCTION3 OCDPE			0.000e0					373		0.00e0							
FUNCTION4 NCDPE			3.465e2					497		5.37e3							0.000
FUNCTION5 DCDPE			8.374e1					445		7.84e2							0.000

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.14	2.069e5	2.669e5	0.903	0.78	0.77	3292.7	YES	NO	bb	bb	40.180
2	Total-tetrafurans	23.91	2.011e3	2.792e3	0.973	0.72	0.77	32.7	YES	NO	bb	bb	0.378

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.28	1.012e6	6.469e5	0.923	1.56	1.55	4348.1	YES	NO	bb	bb	201.316
2	23478-PeCDF	30.62	1.053e6	6.665e5	0.991	1.58	1.55	4430.7	YES	NO	bb	bb	201.599
3	Total-pentafurans	30.49	1.202e3	9.050e2	0.931	1.33	1.55	8.8	YES	NO	bb	bb	0.258

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDF	34.42	7.823e5	6.275e5	1.032	1.25	1.24	3779.2	YES	NO	db	db	200.326
2	123478-HxCDF	34.28	7.120e5	5.688e5	1.128	1.25	1.24	3820.4	YES	NO	bd	bd	199.881
3	123789-HxCDF	36.34	5.937e5	4.227e5	0.988	1.40	1.24	2686.0	YES	NO	bd	bb	210.789
4	234678-HxCDF	35.30	6.633e5	5.283e5	1.081	1.26	1.24	3445.5	YES	NO	bb	bb	200.898
5	Total-hexafurans	34.77	2.884e2	2.632e2	1.087	1.10	1.24	0.0	NO	NO	bb	bb	0.089

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.22	5.646e5	5.569e5	1.164	1.01	1.05	2209.9	YES	NO	bb	bb	199.621
2	1234789-HpCDF	40.38	4.624e5	4.643e5	1.104	1.00	1.05	1537.3	YES	NO	bb	bd	228.686

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.14	2.069e5	2.669e5	0.903	0.78	0.77	3292.7	YES	NO	bb	bb	40.180
2	Total-tetrafurans	23.91	2.011e3	2.792e3	0.973	0.72	0.77	32.7	YES	NO	bb	bb	0.378
3	12378-PeCDF	29.28	1.012e6	6.469e5	0.923	1.56	1.55	4348.1	YES	NO	bb	bb	201.316
4	23478-PeCDF	30.62	1.053e6	6.665e5	0.991	1.58	1.55	4430.7	YES	NO	bb	bb	201.599
5	Total-pentafurans	30.49	1.202e3	9.050e2	0.931	1.33	1.55	8.8	YES	NO	bb	bb	0.258
6	123678-HxCDF	34.42	7.823e5	6.275e5	1.032	1.25	1.24	3779.2	YES	NO	db	db	200.326
7	123478-HxCDF	34.28	7.120e5	5.688e5	1.128	1.25	1.24	3820.4	YES	NO	bd	bd	199.881
8	123789-HxCDF	36.34	5.937e5	4.227e5	0.988	1.40	1.24	2686.0	YES	NO	bd	bb	210.789
9	234678-HxCDF	35.30	6.633e5	5.283e5	1.081	1.26	1.24	3445.5	YES	NO	bb	bb	200.898
10	Total-hexafurans	34.77	2.884e2	2.632e2	1.087	1.10	1.24	0.0	NO	NO	bb	bb	0.089
11	1234678-HpCDF	38.22	5.646e5	5.569e5	1.164	1.01	1.05	2209.9	YES	NO	bb	bb	199.621
12	1234789-HpCDF	40.38	4.624e5	4.643e5	1.104	1.00	1.05	1537.3	YES	NO	bb	bd	228.686
13	OCDF	44.46	6.808e5	7.439e5	1.130	0.92	0.89	2338.5	YES	NO	bb	bb	442.738

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.77	1.635e5	2.012e5	1.243	0.81	0.77	2817.9	YES	NO	bb	bb	39.976
2	Total-tetradioxins	25.39	4.211e3	5.212e3	1.129	0.81	0.77	54.6	YES	NO	bb	bd	1.137

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.88	6.628e5	4.228e5	1.150	1.57	1.55	5824.4	YES	NO	bb	bb	202.257

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.92	4.672e5	3.844e5	0.804	1.22	1.24	3870.9	YES	NO	bb	bb	206.440
2	123678-HxCDD	35.53	5.301e5	4.575e5	0.883	1.16	1.24	4295.5	YES	NO	db	db	202.344
3	123478-HxCDD	35.42	4.819e5	4.023e5	0.960	1.20	1.24	4159.0	YES	NO	bd	bd	194.509

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.67	3.489e5	3.316e5	1.200	1.05	1.05	1615.6	YES	NO	bb	bb	189.168

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.77	1.635e5	2.012e5	1.243	0.81	0.77	2817.9	YES	NO	bb	bb	39.976
2	Total-tetradioxins	25.39	4.211e3	5.212e3	1.129	0.81	0.77	54.6	YES	NO	bb	bd	1.137
3	12378-PeCDD	30.88	6.628e5	4.228e5	1.150	1.57	1.55	5824.4	YES	NO	bb	bb	202.257
4	123789-HxCDD	35.92	4.672e5	3.844e5	0.804	1.22	1.24	3870.9	YES	NO	bb	bb	206.440
5	123678-HxCDD	35.53	5.301e5	4.575e5	0.883	1.16	1.24	4295.5	YES	NO	db	db	202.344
6	123478-HxCDD	35.42	4.819e5	4.023e5	0.960	1.20	1.24	4159.0	YES	NO	bd	bd	194.509
7	1234678-HpCDD	39.67	3.489e5	3.316e5	1.200	1.05	1.05	1615.6	YES	NO	bb	bb	189.168
8	OCDD	44.23	6.082e5	6.853e5	1.059	0.89	0.89	3119.0	YES	NO	bd	bd	429.120

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.14	2.069e5	2.669e5	0.903	0.78	0.77	3292.7	YES	NO	bb	bb	40.180
2	Total-tetrafurans	23.91	2.011e3	2.792e3	0.973	0.72	0.77	32.7	YES	NO	bb	bb	0.378
3	12378-PeCDF	29.28	1.012e6	6.469e5	0.923	1.56	1.55	4348.1	YES	NO	bb	bb	201.316
4	23478-PeCDF	30.62	1.053e6	6.665e5	0.991	1.58	1.55	4430.7	YES	NO	bb	bb	201.599
5	Total-pentafurans	30.49	1.202e3	9.050e2	0.931	1.33	1.55	8.8	YES	NO	bb	bb	0.258
6	123678-HxCDF	34.42	7.823e5	6.275e5	1.032	1.25	1.24	3779.2	YES	NO	db	db	200.326
7	123478-HxCDF	34.28	7.120e5	5.688e5	1.128	1.25	1.24	3820.4	YES	NO	bd	bd	199.881
8	123789-HxCDF	36.34	5.937e5	4.227e5	0.988	1.40	1.24	2686.0	YES	NO	bd	bb	210.789
9	234678-HxCDF	35.30	6.633e5	5.283e5	1.081	1.26	1.24	3445.5	YES	NO	bb	bb	200.898
10	Total-hexafurans	34.77	2.884e2	2.632e2	1.087	1.10	1.24	0.0	NO	NO	bb	bb	0.089
11	1234678-HpCDF	38.22	5.646e5	5.569e5	1.164	1.01	1.05	2209.9	YES	NO	bb	bb	199.621
12	1234789-HpCDF	40.38	4.624e5	4.643e5	1.104	1.00	1.05	1537.3	YES	NO	bb	bd	228.686
13	OCDF	44.46	6.808e5	7.439e5	1.130	0.92	0.89	2338.5	YES	NO	bb	bb	442.738
14	2378-TCDD	25.77	1.635e5	2.012e5	1.243	0.81	0.77	2817.9	YES	NO	bb	bb	39.976
15	Total-tetradioxins	25.39	4.211e3	5.212e3	1.129	0.81	0.77	54.6	YES	NO	bb	bd	1.137
16	12378-PeCDD	30.88	6.628e5	4.228e5	1.150	1.57	1.55	5824.4	YES	NO	bb	bb	202.257
17	123789-HxCDD	35.92	4.672e5	3.844e5	0.804	1.22	1.24	3870.9	YES	NO	bb	bb	206.440
18	123678-HxCDD	35.53	5.301e5	4.575e5	0.883	1.16	1.24	4295.5	YES	NO	db	db	202.344
19	123478-HxCDD	35.42	4.819e5	4.023e5	0.960	1.20	1.24	4159.0	YES	NO	bd	bd	194.509
20	1234678-HpCDD	39.67	3.489e5	3.316e5	1.200	1.05	1.05	1615.6	YES	NO	bb	bb	189.168
21	OCDD	44.23	6.082e5	6.853e5	1.059	0.89	0.89	3119.0	YES	NO	bd	bd	429.120

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:49 Pacific Daylight Time

ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	23.51	1.636e5					3.1	YES		db		
2	FUNCTION1 PFK	23.40	8.885e4					3.5	YES		bd		
3	FUNCTION1 PFK	23.33	1.891e4					1.1	NO		bb		
4	FUNCTION1 PFK	23.19	1.938e4					1.6	NO		bb		
5	FUNCTION1 PFK	22.98	1.917e4					1.4	NO		bb		
6	FUNCTION1 PFK	22.00	9.703e3					1.0	NO		bb		
7	FUNCTION1 PFK	21.31	8.846e4					2.9	NO		db		
8	FUNCTION1 PFK	21.23	3.851e4					2.3	NO		bd		
9	FUNCTION1 PFK	21.16	6.724e3					0.8	NO		db		
10	FUNCTION1 PFK	21.11	3.691e3					0.6	NO		bd		
11	FUNCTION1 PFK	26.66	4.734e4					2.0	NO		db		
12	FUNCTION1 PFK	26.55	4.965e4					1.9	NO		bd		
13	FUNCTION1 PFK	26.24	1.589e4					1.3	NO		bb		
14	FUNCTION1 PFK	26.17	3.041e3					0.6	NO		bb		
15	FUNCTION1 PFK	26.11	9.923e3					1.2	NO		bb		
16	FUNCTION1 PFK	25.93	5.875e4					2.4	NO		bb		
17	FUNCTION1 PFK	25.79	1.786e4					1.6	NO		db		
18	FUNCTION1 PFK	25.65	8.200e4					2.7	NO		bd		
19	FUNCTION1 PFK	25.51	2.446e4					1.6	NO		db		
20	FUNCTION1 PFK	25.46	1.440e4					1.5	NO		bd		
21	FUNCTION1 PFK	25.07	2.849e4					1.4	NO		bb		
22	FUNCTION1 PFK	24.98	2.022e4					1.6	NO		db		
23	FUNCTION1 PFK	24.93	2.482e4					1.8	NO		bd		
24	FUNCTION1 PFK	24.74	1.501e4					1.3	NO		bb		
25	FUNCTION1 PFK	24.01	1.207e5					2.8	NO		db		
26	FUNCTION1 PFK	23.91	5.369e4					2.7	NO		bd		
27	FUNCTION1 PFK	27.36	1.150e4					1.0	NO		bb		
28	FUNCTION1 PFK	27.26	7.166e4					2.0	NO		db		
29	FUNCTION1 PFK	27.17	1.653e4					1.5	NO		bd		
30	FUNCTION1 PFK	26.93	3.058e4					2.2	NO		bb		
31	FUNCTION1 PFK	26.81	2.970e4					1.8	NO		bb		

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:24:49 Pacific Daylight Time

ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.42	2.186e4					1.5	NO		bb		0.000
2	FUNCTION2 PFK	28.26	1.100e4					1.1	NO		bb		0.000
3	FUNCTION2 PFK	28.16	1.275e4					1.4	NO		db		0.000
4	FUNCTION2 PFK	28.07	2.498e4					2.4	NO		dd		0.000
5	FUNCTION2 PFK	28.03	1.292e4					1.7	NO		dd		0.000
6	FUNCTION2 PFK	27.99	3.293e3					0.8	NO		bd		0.000
7	FUNCTION2 PFK	27.91	2.012e4					1.4	NO		bb		0.000
8	FUNCTION2 PFK	27.77	1.349e5					4.5	YES		db		0.000
9	FUNCTION2 PFK	27.66	5.363e4					3.5	YES		bd		0.000
10	FUNCTION2 PFK	27.55	5.898e3					0.9	NO		bb		0.000
11	FUNCTION2 PFK	30.48	6.417e3					0.8	NO		bb		0.000
12	FUNCTION2 PFK	30.15	1.146e3					0.4	NO		bb		0.000
13	FUNCTION2 PFK	29.76	4.847e3					0.6	NO		bb		0.000
14	FUNCTION2 PFK	29.69	6.176e3					0.9	NO		db		0.000
15	FUNCTION2 PFK	29.64	7.786e3					1.1	NO		bd		0.000
16	FUNCTION2 PFK	29.49	2.327e3					0.5	NO		bb		0.000
17	FUNCTION2 PFK	29.41	2.450e3					0.5	NO		bb		0.000
18	FUNCTION2 PFK	29.31	8.292e3					0.7	NO		db		0.000
19	FUNCTION2 PFK	29.24	1.380e4					1.4	NO		dd		0.000
20	FUNCTION2 PFK	29.18	7.722e3					0.9	NO		bd		0.000
21	FUNCTION2 PFK	29.07	4.359e3					0.7	NO		bb		0.000
22	FUNCTION2 PFK	28.81	3.084e4					1.8	NO		db		0.000
23	FUNCTION2 PFK	28.77	3.219e4					2.1	NO		dd		0.000
24	FUNCTION2 PFK	28.71	2.791e4					2.6	NO		dd		0.000
25	FUNCTION2 PFK	28.66	3.309e4					3.2	YES		bd		0.000
26	FUNCTION2 PFK	28.52	1.009e4					1.1	NO		bb		0.000
27	FUNCTION2 PFK	32.06	2.803e4					1.6	NO		bb		0.000
28	FUNCTION2 PFK	31.91	4.698e3					0.8	NO		bb		0.000
29	FUNCTION2 PFK	31.74	2.099e4					2.1	NO		bb		0.000
30	FUNCTION2 PFK	31.67	1.618e4					1.5	NO		db		0.000
31	FUNCTION2 PFK	31.60	1.530e4					1.3	NO		bd		0.000
32	FUNCTION2 PFK	31.35	1.245e4					1.5	NO		bb		0.000
33	FUNCTION2 PFK	31.21	3.091e3					0.5	NO		bb		0.000
34	FUNCTION2 PFK	31.03	8.164e3					0.7	NO		db		0.000
35	FUNCTION2 PFK	31.00	6.957e3					1.1	NO		dd		0.000
36	FUNCTION2 PFK	30.97	3.081e4					1.4	NO		dd		0.000
37	FUNCTION2 PFK	30.80	3.887e4					2.2	NO		bd		0.000

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION2 PFK	30.74	9.249e3					1.3	NO		db		0.000
39	FUNCTION2 PFK	30.70	3.630e3					0.7	NO		bd		0.000
40	FUNCTION2 PFK	30.65	1.637e4					1.8	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	32.71	4.437e4					2.7	NO		bb		0.000
2	FUNCTION3 PFK	36.41	1.073e4					1.5	NO		bb		0.000
3	FUNCTION3 PFK	34.51	3.351e4					2.4	NO		bb		0.000
4	FUNCTION3 PFK	34.21	2.868e4					2.6	NO		db		0.000
5	FUNCTION3 PFK	34.16	3.198e4					2.9	NO		bd		0.000
6	FUNCTION3 PFK	34.00	1.616e4					1.7	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.61	3.745e3					1.1	NO		bb		
2	FUNCTION5 PFK	44.19	2.102e3					0.7	NO		bb		
3	FUNCTION5 PFK	44.14	3.396e3					1.0	NO		bb		
4	FUNCTION5 PFK	44.07	7.141e3					1.3	NO		bb		
5	FUNCTION5 PFK	43.48	1.067e3					0.6	NO		bb		
6	FUNCTION5 PFK	43.23	7.864e3					1.0	NO		bb		
7	FUNCTION5 PFK	43.17	8.845e3					1.9	NO		bb		
8	FUNCTION5 PFK	43.11	7.866e3					1.8	NO		bb		
9	FUNCTION5 PFK	42.93	5.675e3					1.4	NO		bb		
10	FUNCTION5 PFK	45.81	4.972e3					1.2	NO		bb		
11	FUNCTION5 PFK	45.70	3.072e3					0.9	NO		bb		
12	FUNCTION5 PFK	45.65	5.917e3					1.4	NO		bb		
13	FUNCTION5 PFK	45.47	1.270e3					0.7	NO		bb		
14	FUNCTION5 PFK	45.44	1.475e3					0.7	NO		db		
15	FUNCTION5 PFK	45.41	1.740e3					0.6	NO		bd		
16	FUNCTION5 PFK	45.35	8.796e3					1.3	NO		db		
17	FUNCTION5 PFK	45.32	1.011e4					1.8	NO		bd		
18	FUNCTION5 PFK	45.26	2.404e3					0.8	NO		bb		
19	FUNCTION5 PFK	44.77	2.934e3					0.9	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.47	1.117e2					4.4	YES		bb		0.000
2	FUNCTION1 HXCD...	25.94	8.128e1					3.8	YES		bb		0.000
3	FUNCTION1 HXCD...	24.96	8.177e1					3.1	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.48	8.897e2					35.4	YES		bb		0.000

ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.83	8.627e1					2.7	NO		bb		0.000
2	FUNCTION4 NCDPE	38.90	7.457e1					2.1	NO		db		0.000
3	FUNCTION4 NCDPE	38.72	1.037e2					2.9	NO		dd		0.000
4	FUNCTION4 NCDPE	38.65	8.197e1					3.1	YES		bd		0.000

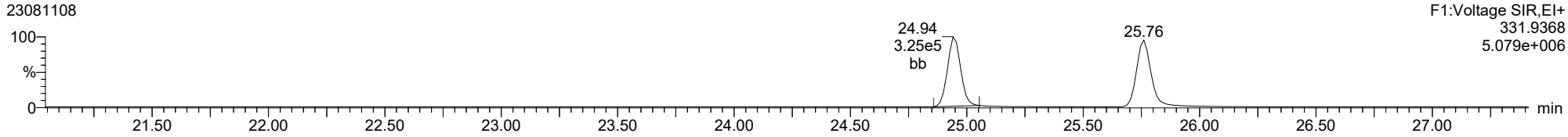
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	45.64	8.374e1					1.8	NO		bb		0.000

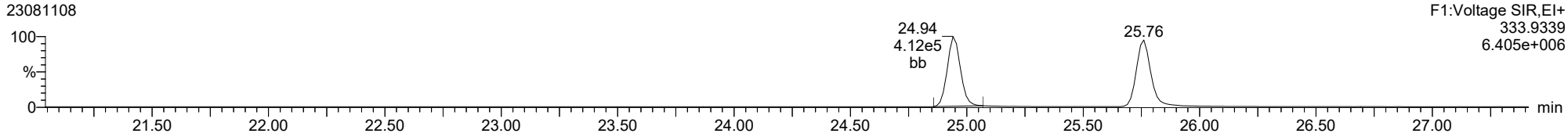
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ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

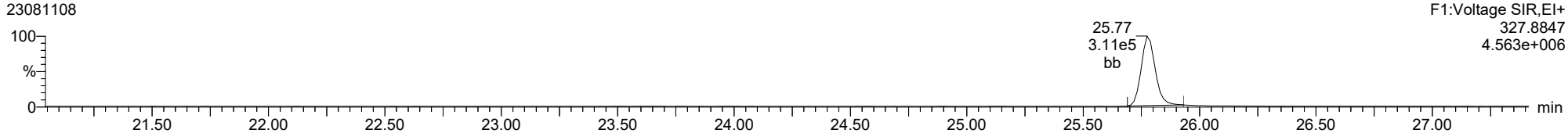
13C-1234-TCDD



13C-1234-TCDD

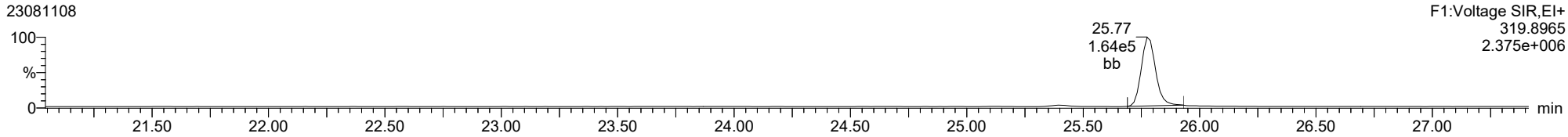


37CL-2378-TCDD

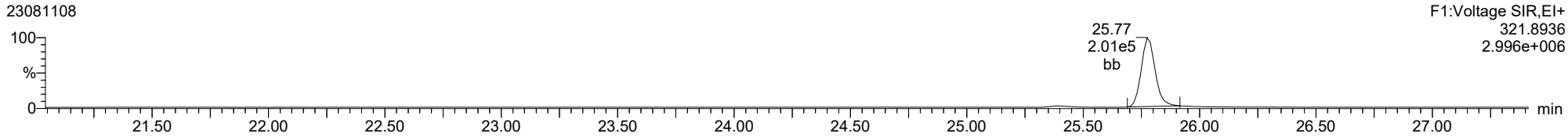


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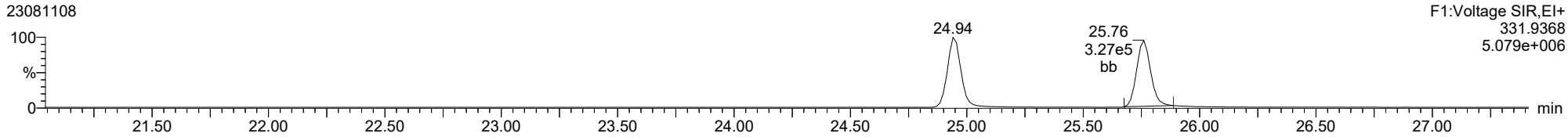
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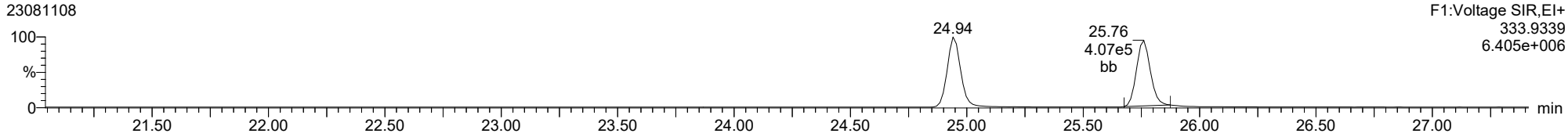
2378-TCDD



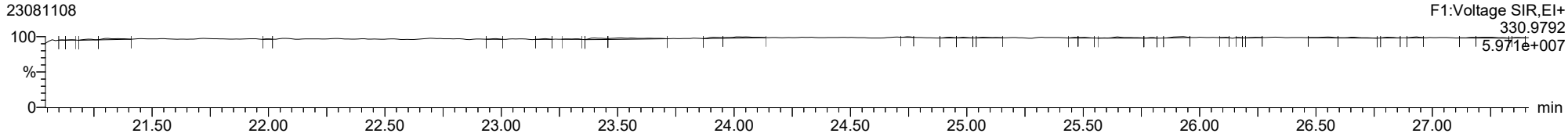
13C-2378-TCDD



13C-2378-TCDD

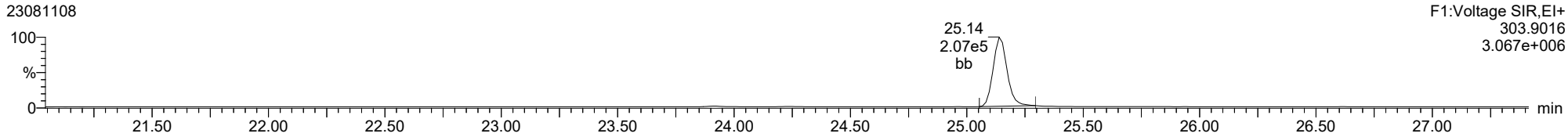


FUNCTION1 PFK

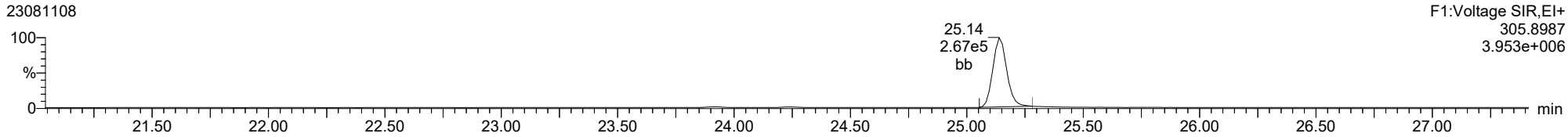


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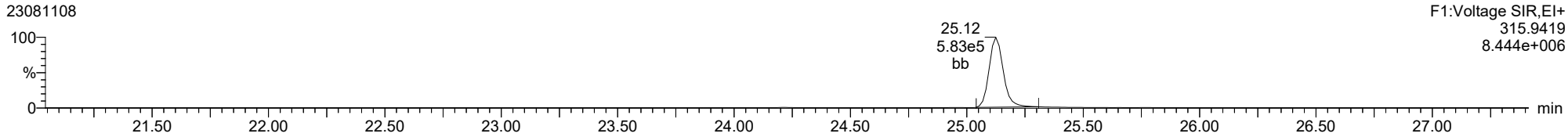
2378-TCDF



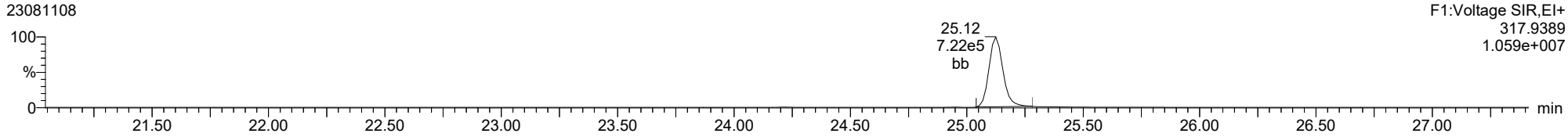
2378-TCDF



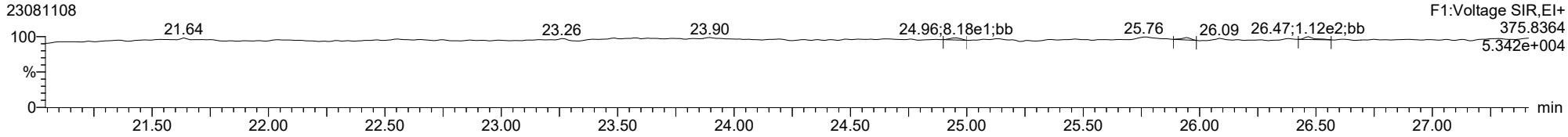
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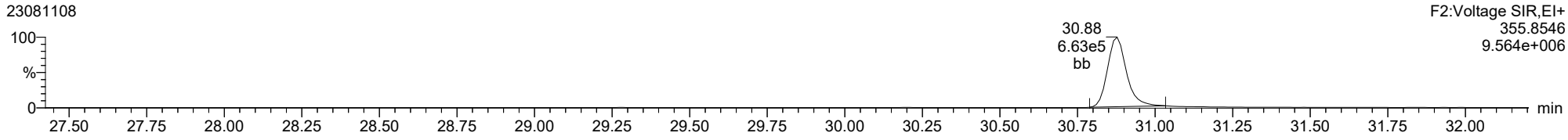


FUNCTION1 HXCDPE

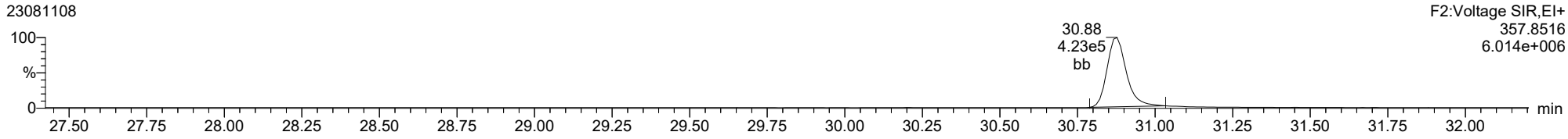


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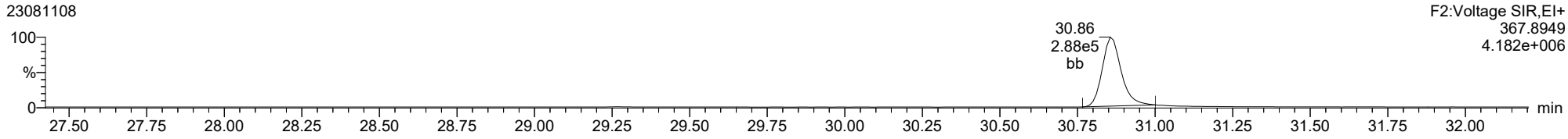
12378-PeCDD



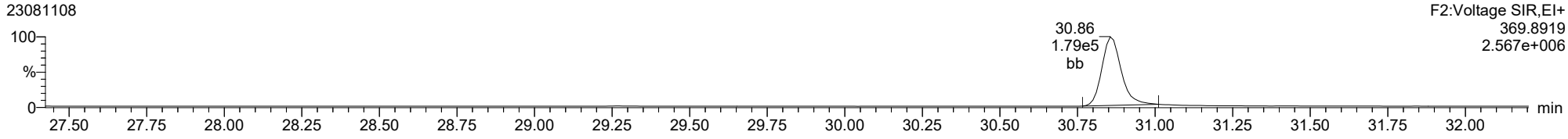
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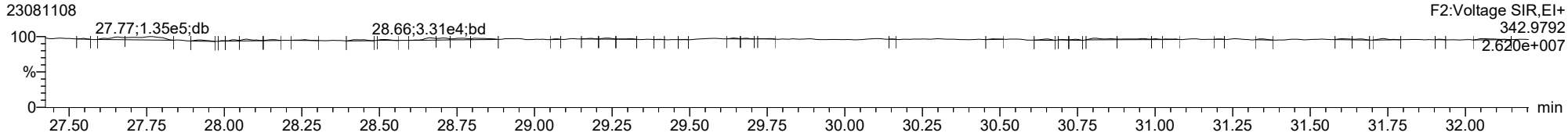
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13C-12378-PeCDD

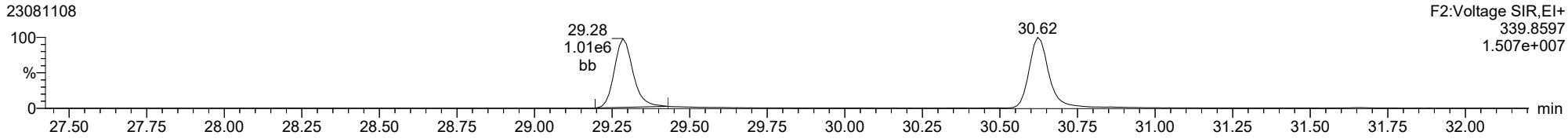


FUNCTION2 PFK

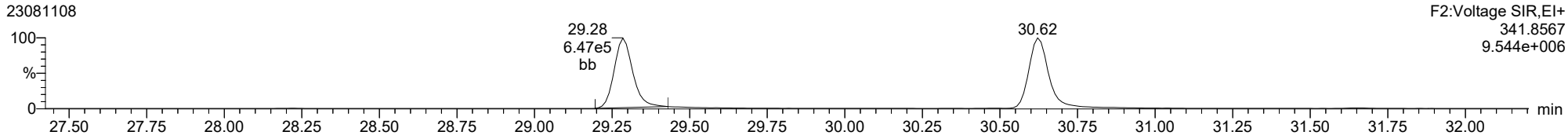


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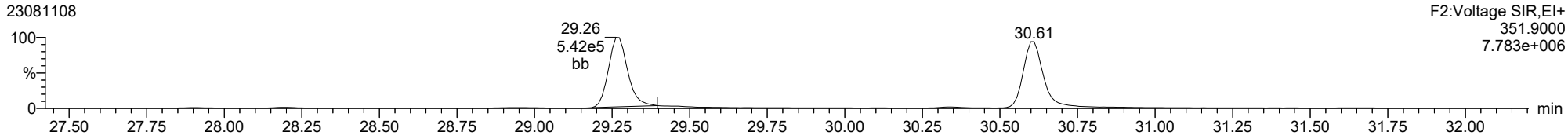
12378-PeCDF



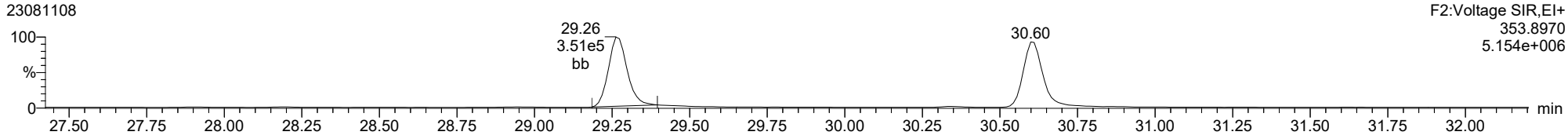
12378-PeCDF



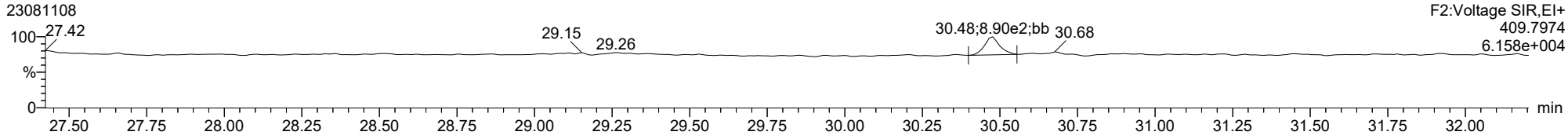
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13C-12378-PeCDF

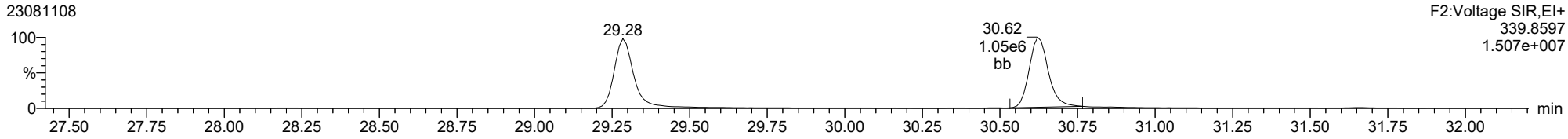


FUNCTION2 HPCDPE

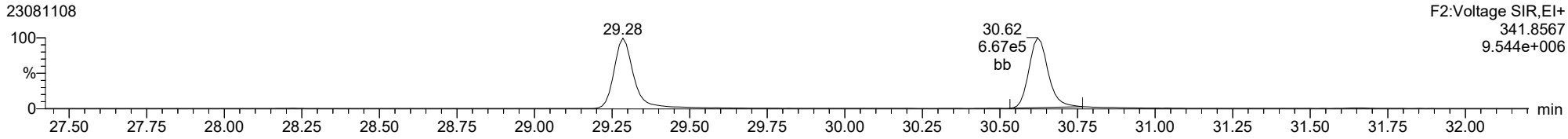


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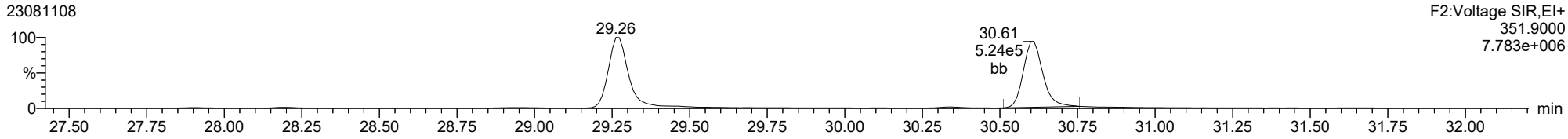
23478-PeCDF



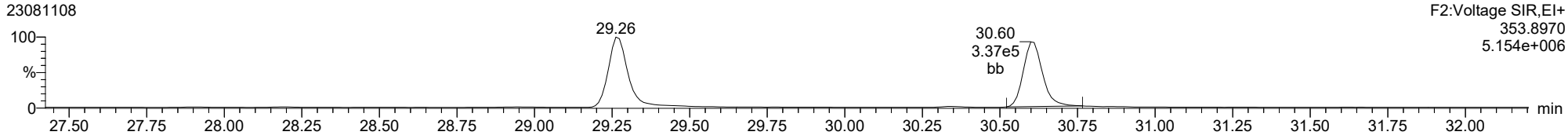
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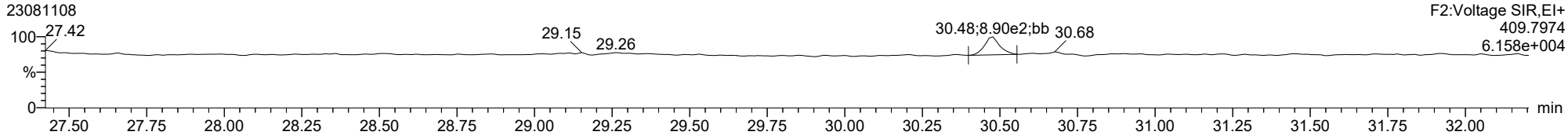
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13C-23478-PeCDF



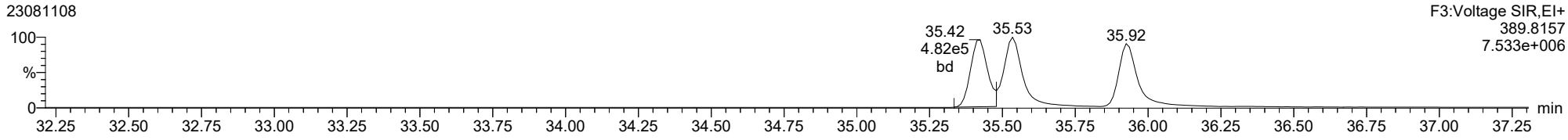
FUNCTION2 HPCDPE



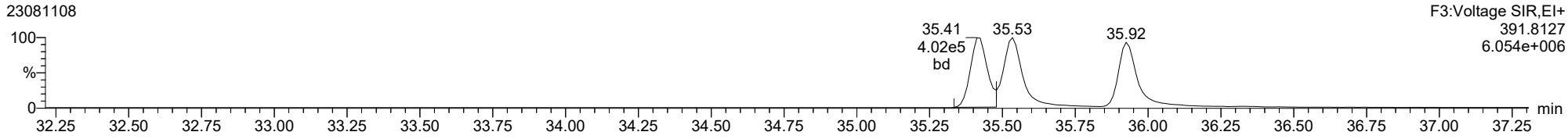
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ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

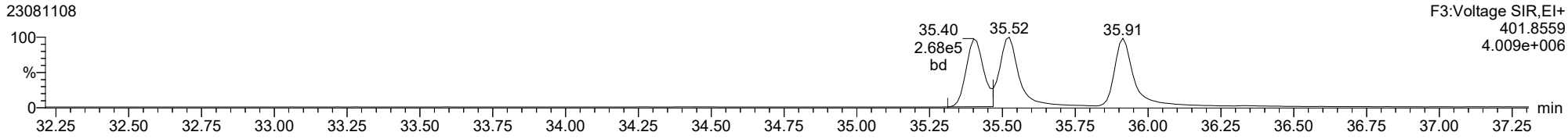
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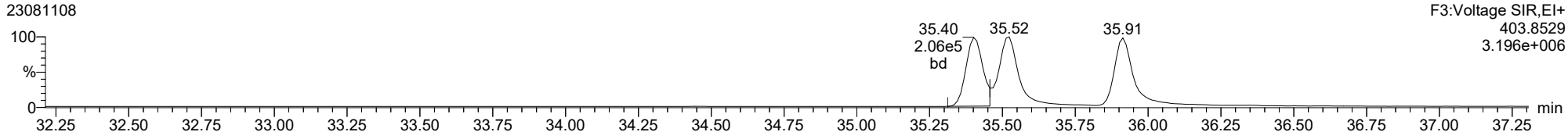
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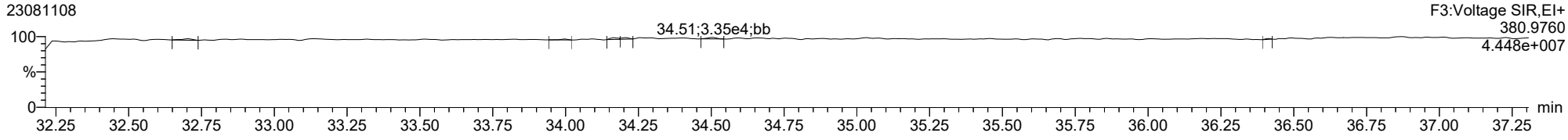
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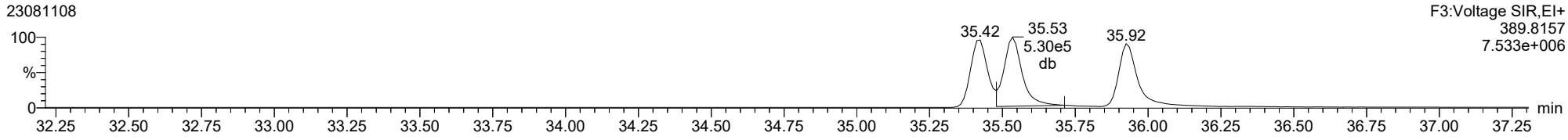
FUNCTION3 PFK



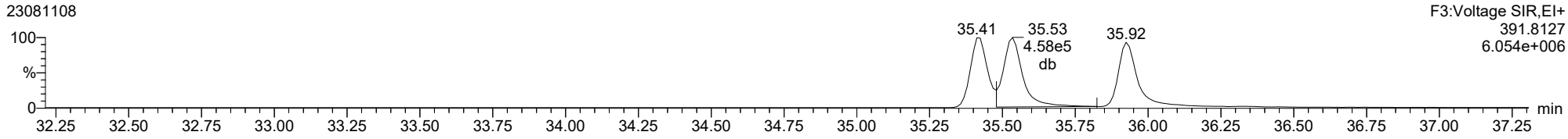
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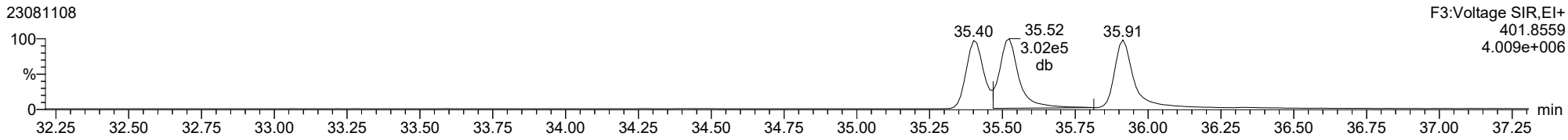
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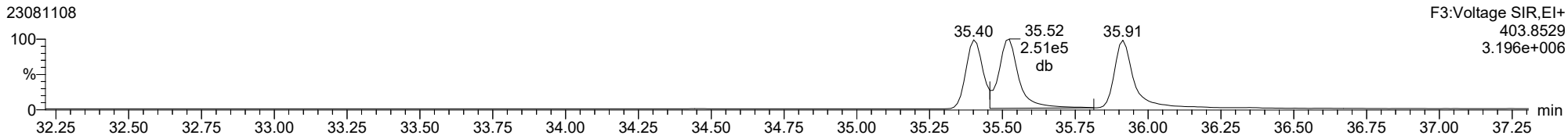
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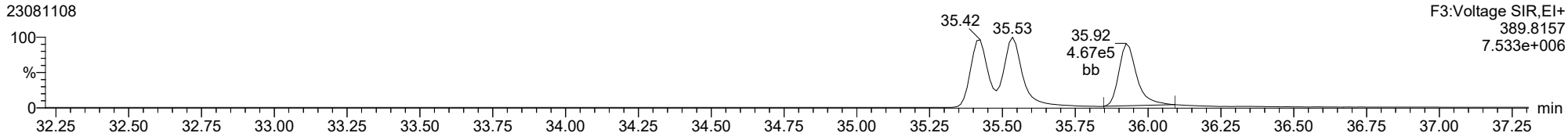


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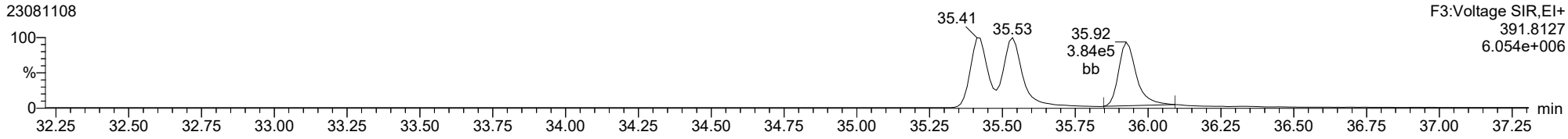


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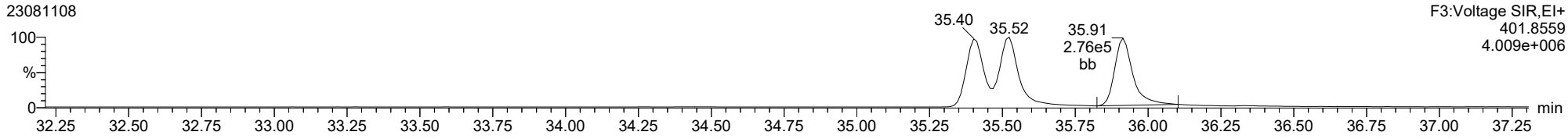
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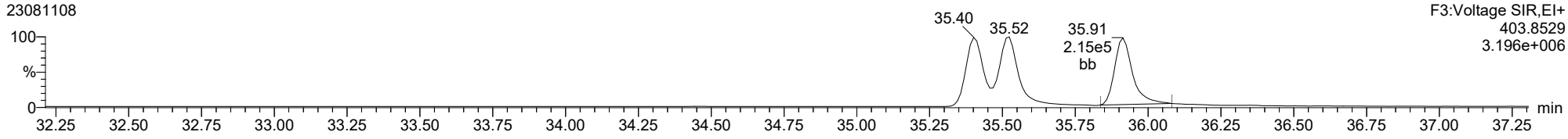
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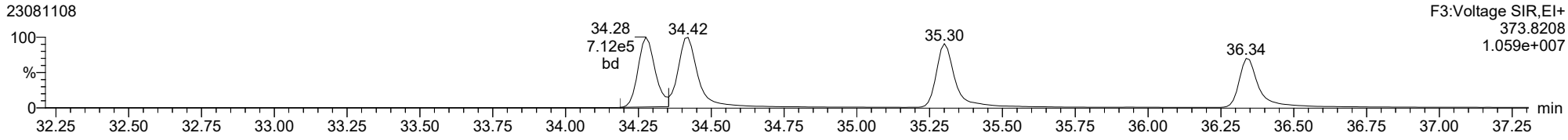


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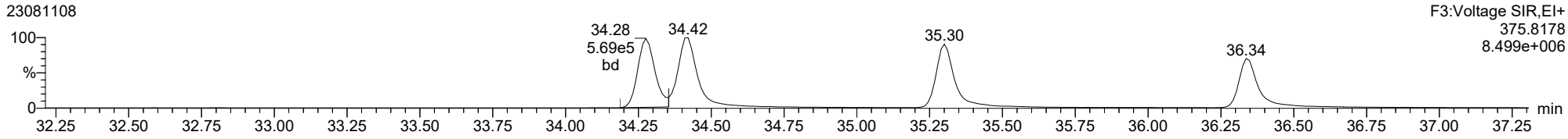


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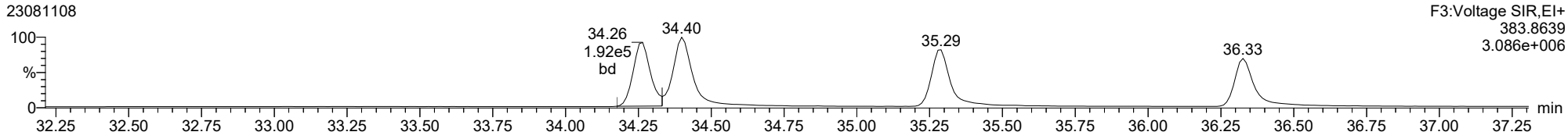
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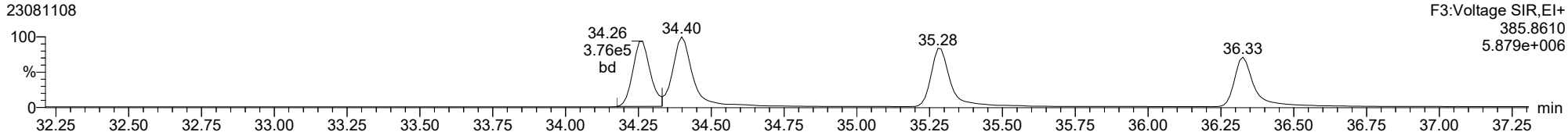
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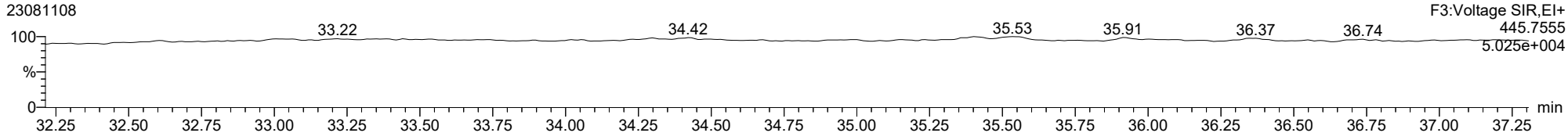
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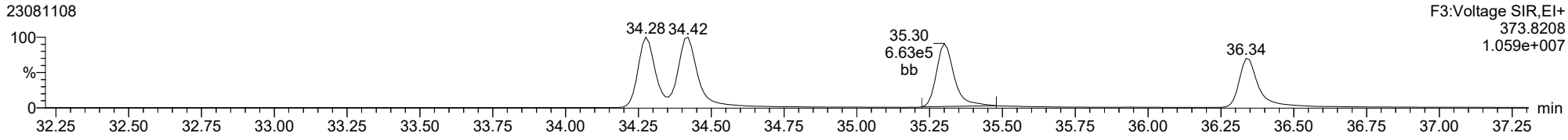


FUNCTION3 OCDPE

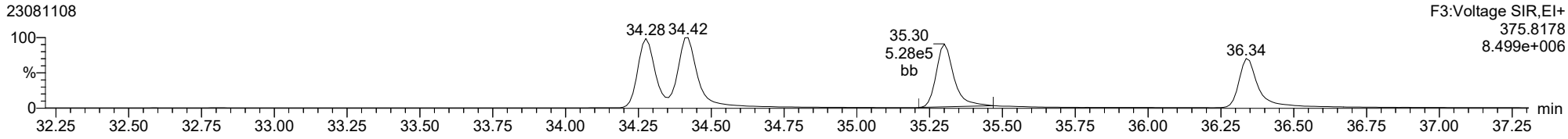


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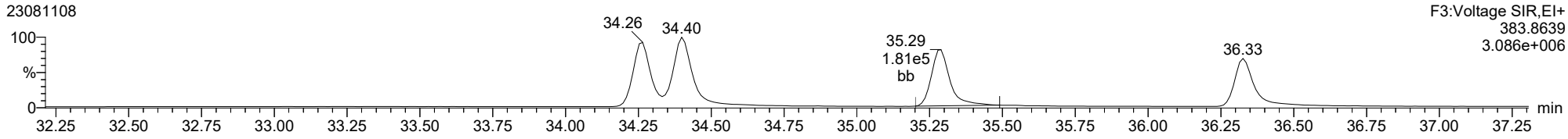
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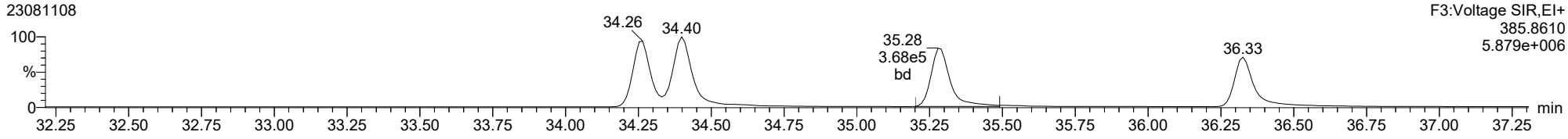
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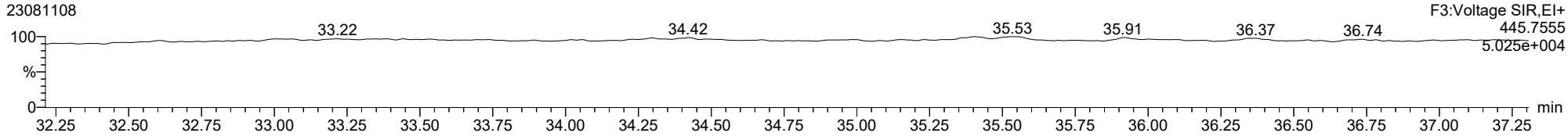
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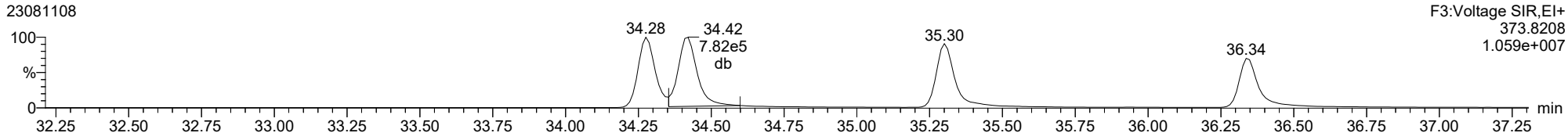


FUNCTION3 OCDPE

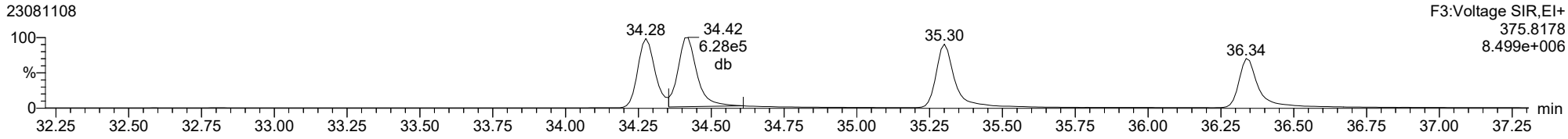


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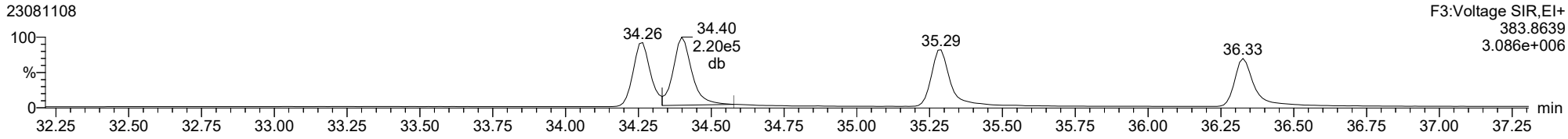
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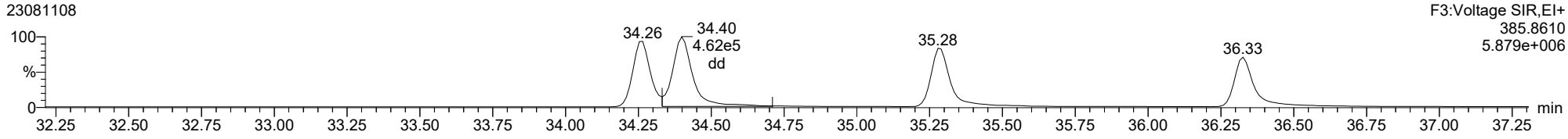
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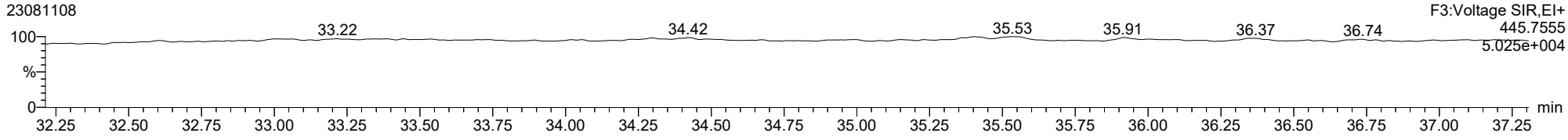
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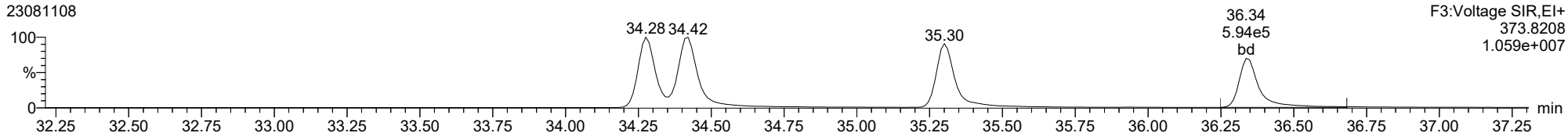


FUNCTION3 OCDPE

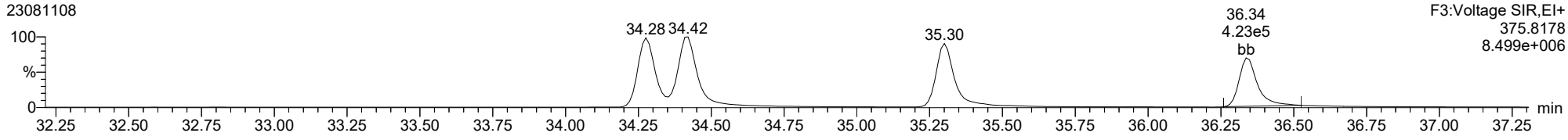


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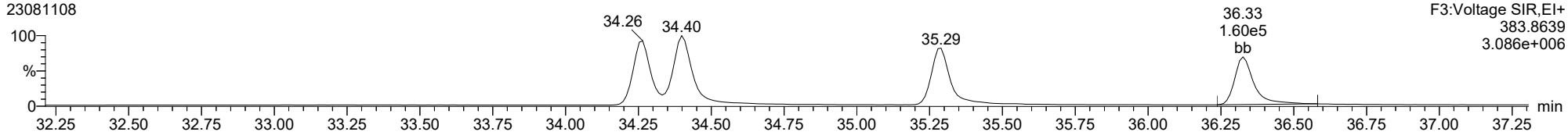
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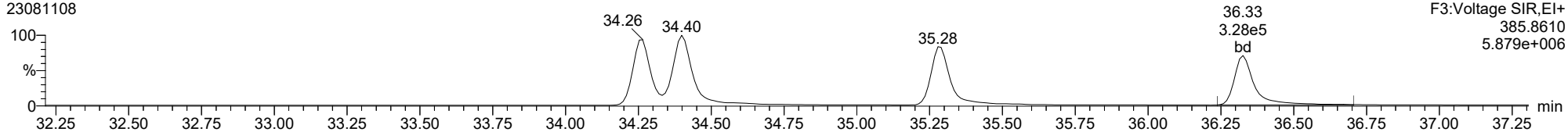
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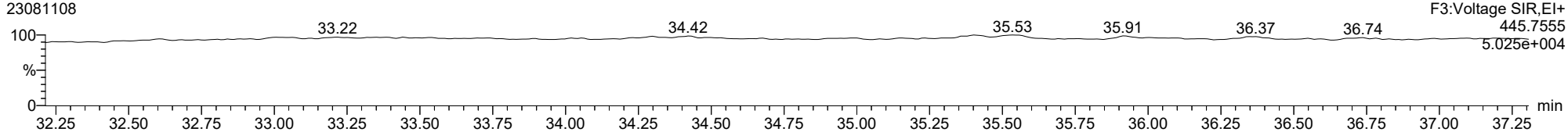
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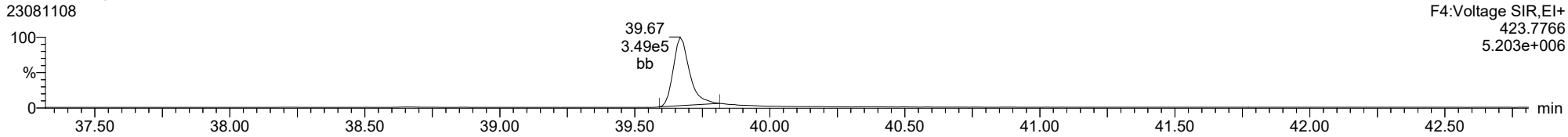


FUNCTION3 OCDPE

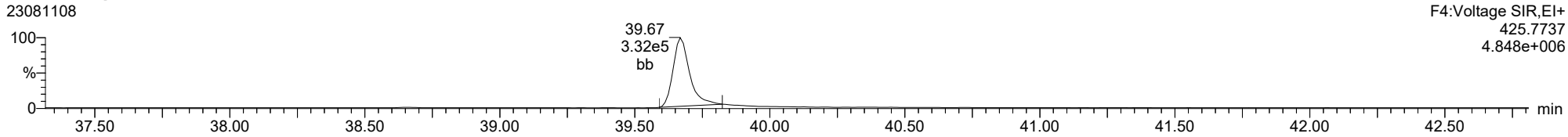


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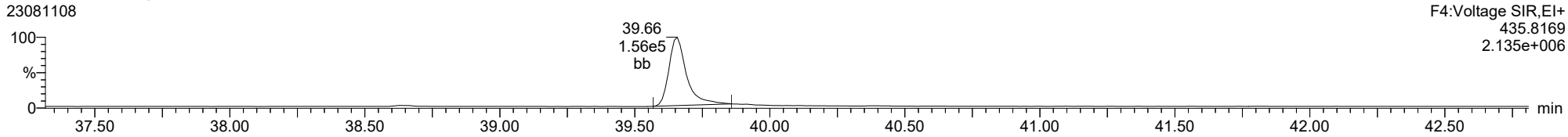
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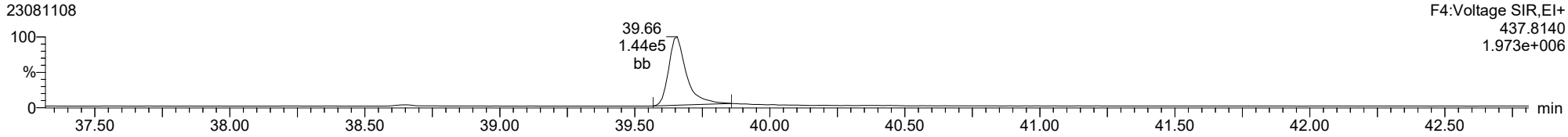
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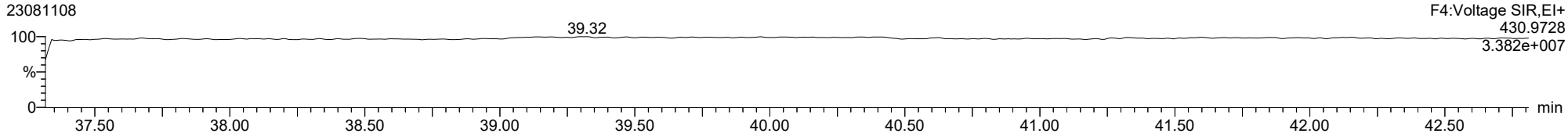
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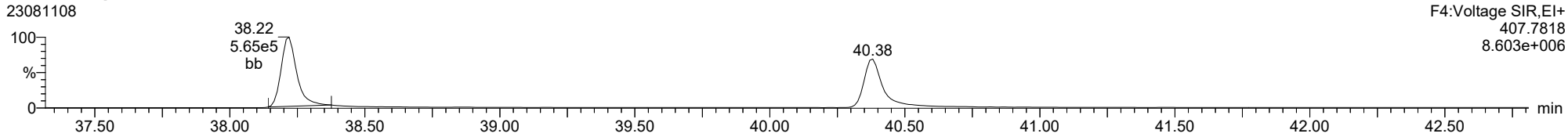


FUNCTION4 PFK

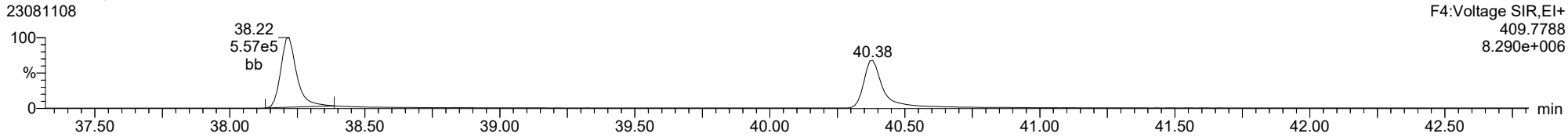


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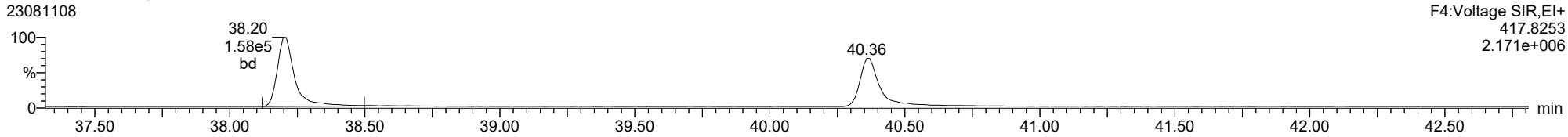
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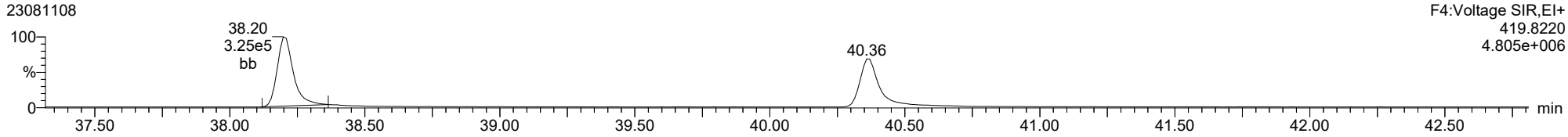
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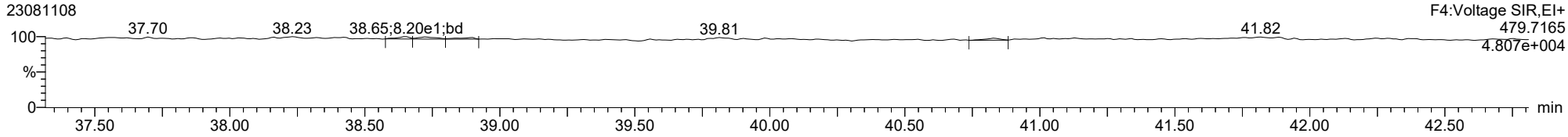
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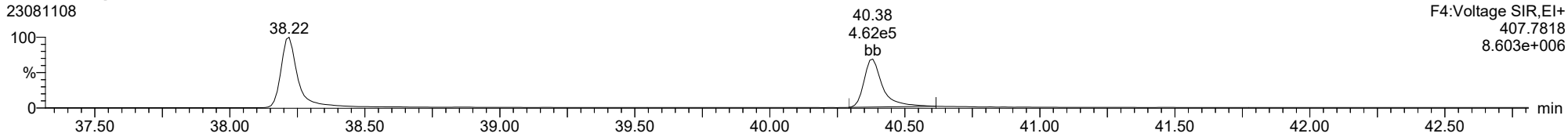


FUNCTION4 NCDPE

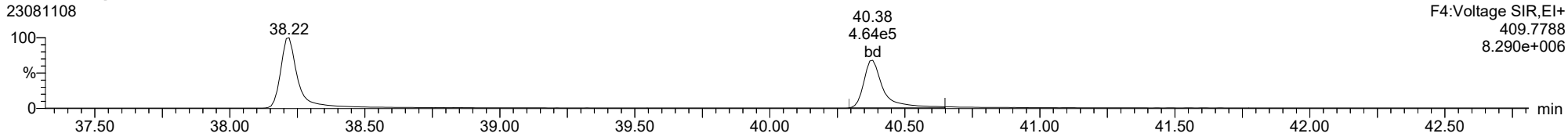


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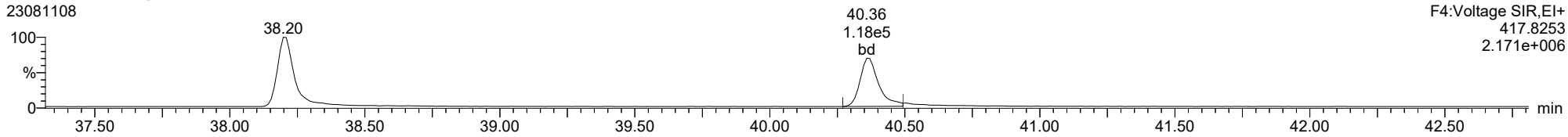
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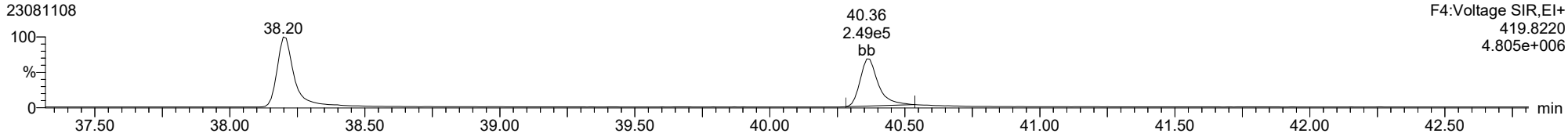
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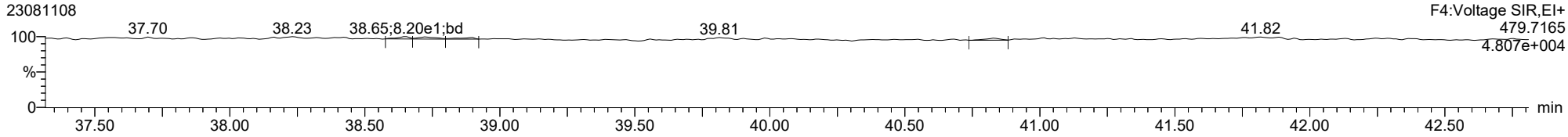
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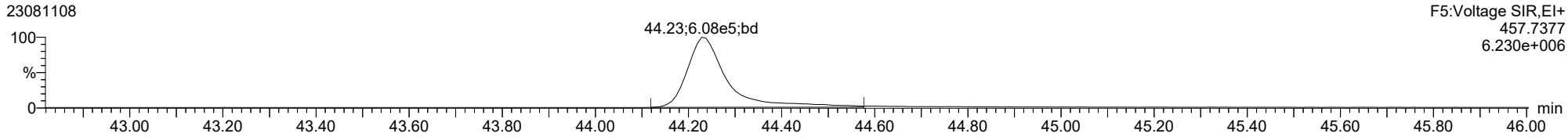


FUNCTION4 NCDPE

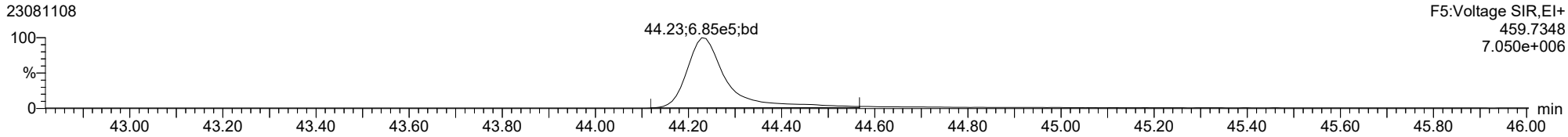


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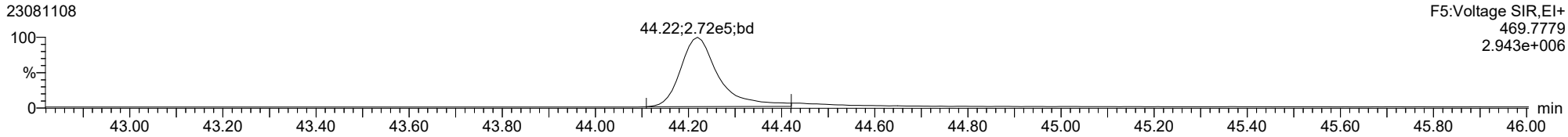
OCDD



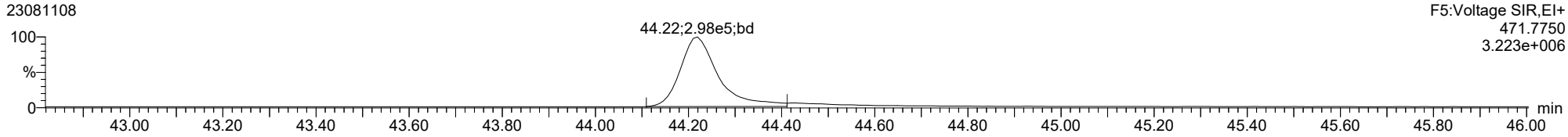
OCDD



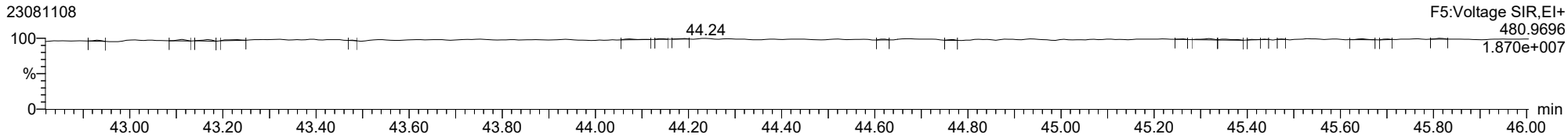
13C-OCDD



13C-OCDD

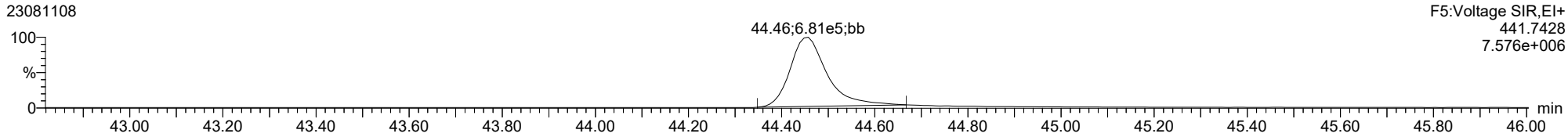


FUNCTION5 PFK

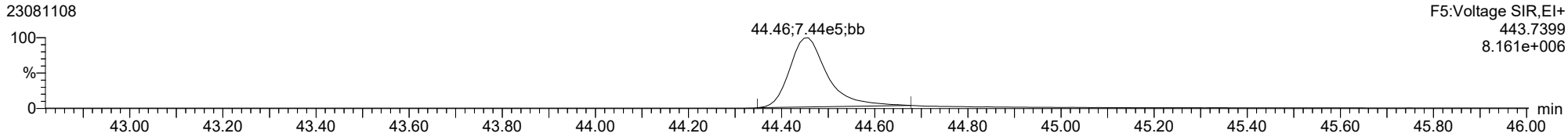


ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

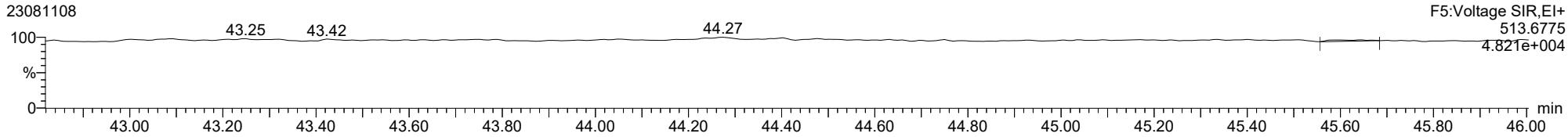
OCDF



OCDF

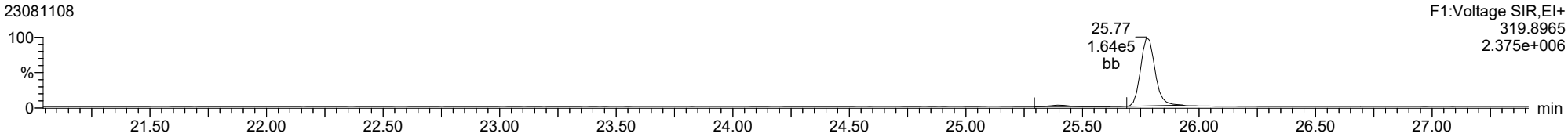


FUNCTION5 DCDPE

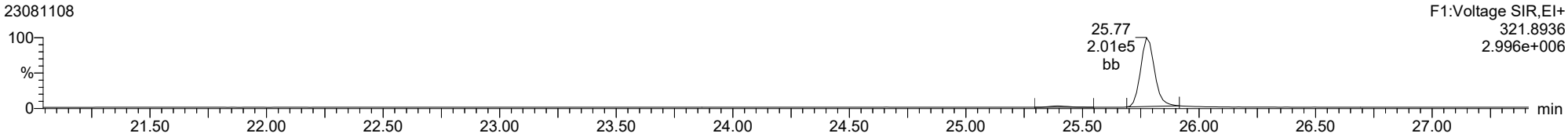


ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

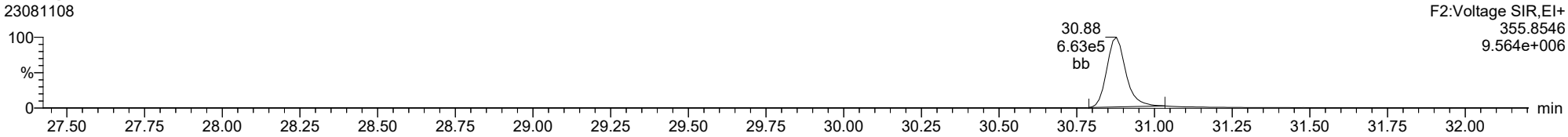
Total-tetradioxins



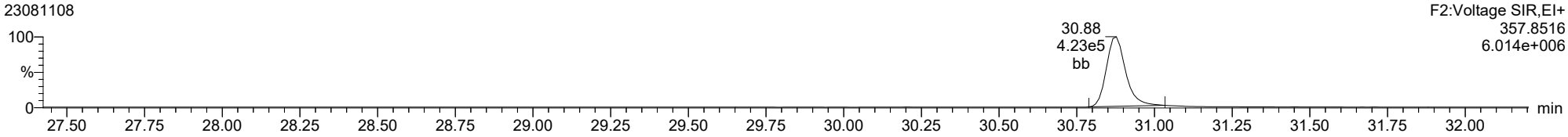
Total-tetradioxins



Total-pentadioxins

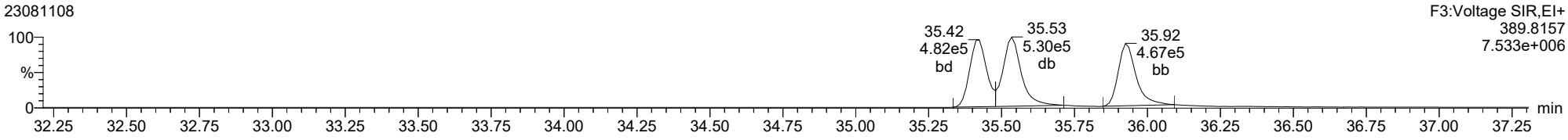


Total-pentadioxins

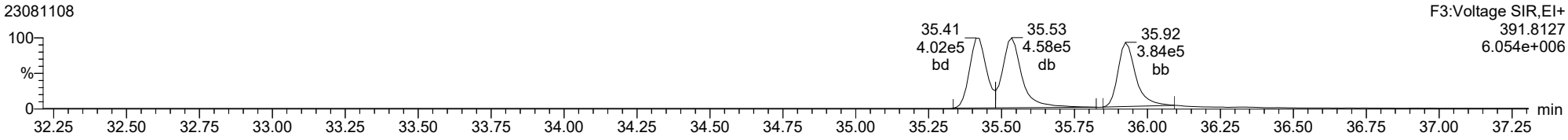


ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

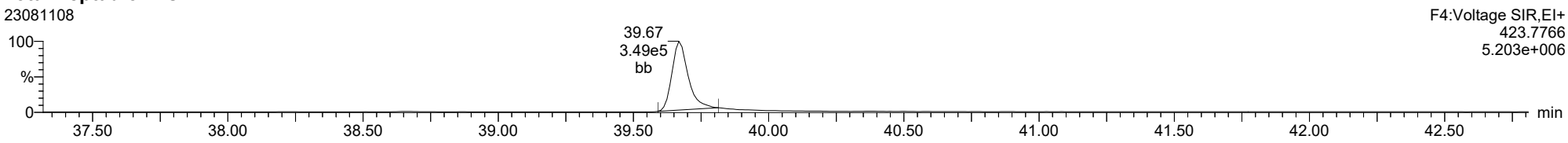
Total-hexadioxins



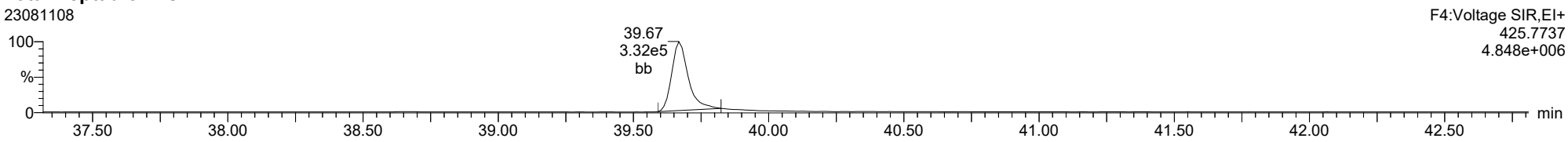
Total-hexadioxins



Total-heptadioxins

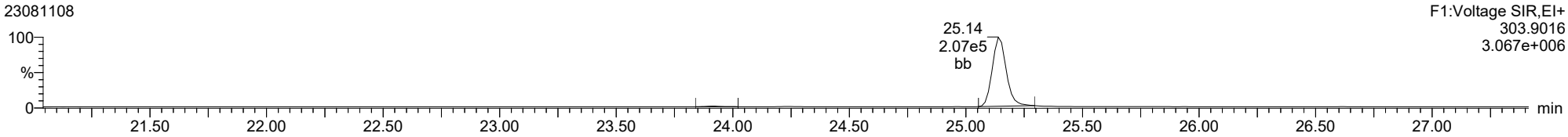


Total-heptadioxins

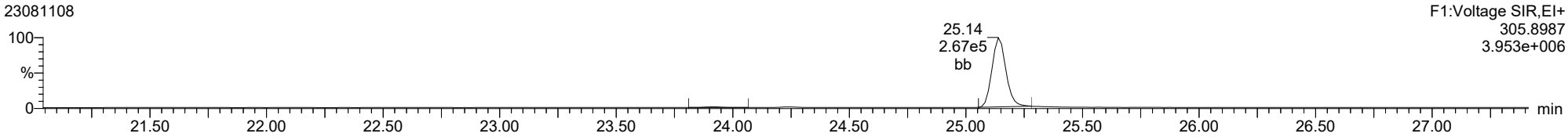


ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

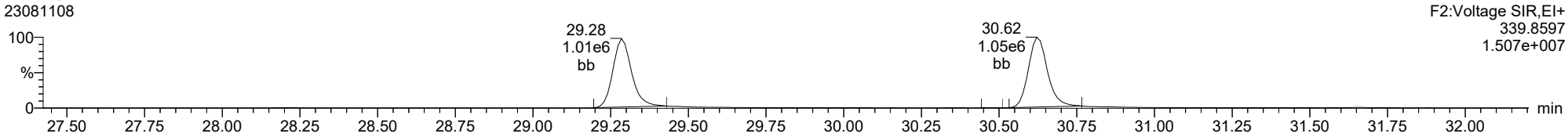
Total-tetrafurans



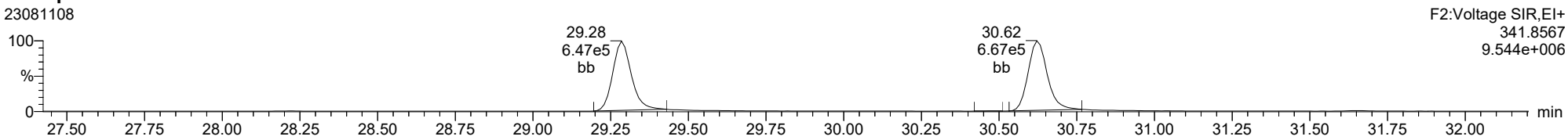
Total-tetrafurans



Total-pentafurans

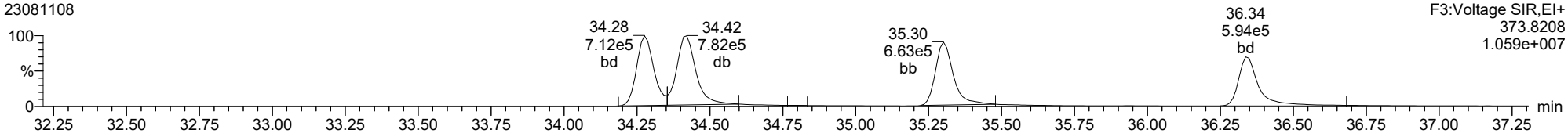


Total-pentafurans

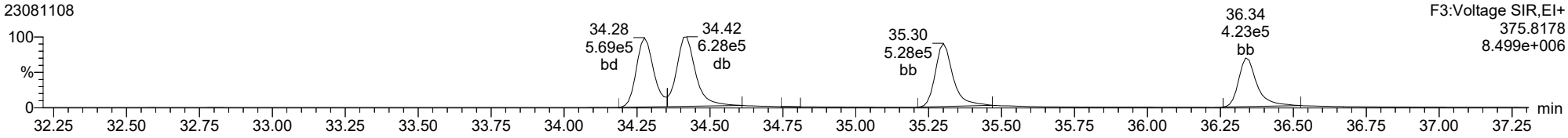


ID: CS4CF, Name: 23081108, Date: 11-Aug-2023, Time: 15:40:53, Conditions: AUTOSPEC01, User: pk

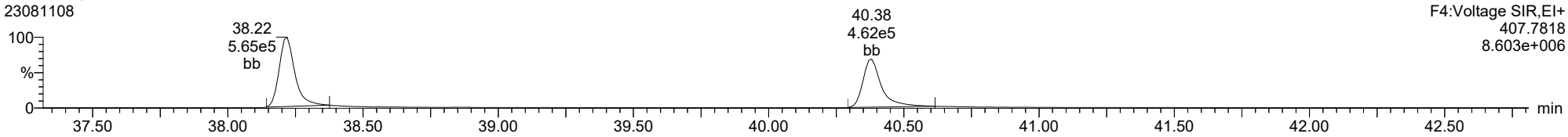
Total-hexafurans



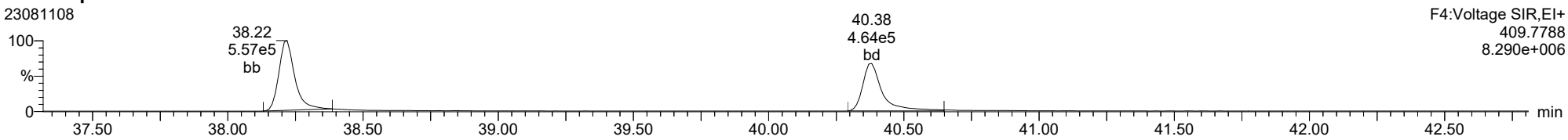
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:25:02 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.139	1.001	1.176e6	1.517e6	0.903	0.775	0.770	1838	1596	1.74e7	2.24e7	9439.9	14021.2	NO	bb	bb	200.683
12378-PeCDF	29.285	1.000	6.873e6	4.363e6	0.923	1.575	1.550	6342	5190	1.05e8	6.61e7	16593.6	12739.4	NO	bb	bb	1003.746
23478-PeCDF	30.622	1.000	7.218e6	4.643e6	0.991	1.555	1.550	6342	5190	1.13e8	7.21e7	17800.7	13902.4	NO	bb	bb	1020.400
123478-HxCDF	34.276	1.000	5.150e6	4.112e6	1.128	1.252	1.240	5119	1953	8.00e7	6.38e7	15621.4	32656.0	NO	bd	bd	1008.590
234678-HxCDF	35.301	1.000	5.220e6	4.187e6	1.081	1.247	1.240	5119	1953	7.99e7	6.42e7	15612.0	32865.0	NO	bb	bb	1036.310
123678-HxCDF	34.421	1.001	5.565e6	4.427e6	1.032	1.257	1.240	5119	1953	8.17e7	6.50e7	15950.5	33289.4	NO	db	db	1022.236
123789-HxCDF	36.337	1.000	4.314e6	3.419e6	0.988	1.262	1.240	5119	1953	6.39e7	5.10e7	12485.9	26087.4	NO	bb	bb	1056.656
1234678-HpCDF	38.220	1.000	4.651e6	4.483e6	1.164	1.037	1.050	6069	7386	7.66e7	7.36e7	12629.8	9967.1	NO	bb	bb	1032.094
1234789-HpCDF	40.381	1.000	3.737e6	3.616e6	1.104	1.033	1.050	6069	7386	5.31e7	5.10e7	8752.5	6907.0	NO	bb	bb	1044.743
OCDF	44.458	1.005	6.691e6	7.348e6	1.130	0.911	0.890	3831	4231	8.23e7	8.95e7	21469.5	21141.7	NO	bb	bb	2176.298
2378-TCDD	25.774	1.000	1.061e6	1.307e6	1.243	0.812	0.770	1257	1421	1.58e7	1.96e7	12528.1	13766.3	NO	bb	bb	205.454
12378-PeCDD	30.878	1.001	5.066e6	3.250e6	1.150	1.559	1.550	1999	1551	7.64e7	4.87e7	38189.0	31421.9	NO	bb	bb	1013.746
123478-HxCDD	35.423	1.001	4.057e6	3.319e6	0.960	1.223	1.240	1937	4756	6.49e7	5.26e7	33525.8	11070.6	NO	bd	bd	967.641
123678-HxCDD	35.535	1.000	4.425e6	3.631e6	0.883	1.219	1.240	1937	4756	6.67e7	5.48e7	34440.8	11527.4	NO	db	db	1048.787
123789-HxCDD	35.925	1.011	3.986e6	3.292e6	0.804	1.211	1.240	1937	4756	6.01e7	5.01e7	31052.7	10540.7	NO	bb	bb	1088.283
1234678-HpCDD	39.668	1.000	3.162e6	2.947e6	1.200	1.073	1.050	4823	2878	4.86e7	4.59e7	10069.1	15933.8	NO	bb	bb	982.937
OCDD	44.238	1.000	5.800e6	6.537e6	1.059	0.887	0.890	4770	6875	7.05e7	7.95e7	14784.9	11558.8	NO	bd	bd	2041.622
13C-2378-TCDF	25.125	1.007	6.605e5	8.257e5	1.835	0.800	0.770	1355	1418	9.81e6	1.21e7	7236.3	8550.4	NO	bb	bb	104.767
13C-12378-PeCDF	29.273	1.174	7.389e5	4.736e5	1.377	1.560	1.550	3865	1916	1.10e7	7.07e6	2852.7	3691.6	NO	bb	bb	113.971
13C-23478-PeCDF	30.610	1.227	7.158e5	4.576e5	1.301	1.564	1.550	3865	1916	1.08e7	6.76e6	2790.1	3529.9	NO	bb	bb	116.672
13C-123478-HxCDF	34.265	0.954	2.757e5	5.383e5	1.091	0.512	0.510	1842	2385	4.22e6	8.27e6	2289.0	3466.7	NO	bd	bd	92.231
13C-123678-HxCDF	34.398	0.958	3.323e5	6.146e5	1.340	0.541	0.510	1842	2385	4.54e6	8.80e6	2464.6	3688.5	NO	dd	db	87.307
13C-234678-HxCDF	35.290	0.983	2.846e5	5.548e5	1.093	0.513	0.510	1842	2385	4.19e6	8.16e6	2275.5	3420.3	NO	bb	bb	94.861
13C-123789-HxCDF	36.326	1.012	2.509e5	4.901e5	0.952	0.512	0.510	1842	2385	3.70e6	7.18e6	2007.2	3011.1	NO	bb	bb	96.229
13C-1234678-HpCDF	38.209	1.064	2.383e5	5.222e5	0.985	0.456	0.440	2249	3500	3.88e6	8.42e6	1723.2	2405.2	NO	bb	bb	95.414
13C-1234789-HpCDF	40.370	1.124	2.063e5	4.313e5	0.756	0.478	0.440	2249	3500	2.71e6	5.94e6	1204.3	1698.2	NO	bd	bb	104.262
13C-1234-TCDD	24.941	0.000	3.426e5	4.302e5	1.000	0.796	0.770	1437	1188	5.12e6	6.56e6	3565.4	5522.3	NO	bb	bb	100.000
13C-2378-TCDD	25.760	1.033	4.096e5	5.176e5	1.110	0.791	0.770	1437	1188	6.14e6	7.70e6	4273.1	6482.2	NO	bb	bb	108.126
13C-12378-PeCDD	30.855	1.237	4.434e5	2.699e5	0.754	1.642	1.550	1010	988	6.57e6	4.04e6	6507.7	4088.0	NO	bb	bb	122.457
13C-123478-HxCDD	35.401	0.986	4.416e5	3.523e5	0.960	1.253	1.240	1408	1550	6.91e6	5.52e6	4909.6	3563.7	NO	bd	bd	102.212
13C-123678-HxCDD	35.524	0.989	4.826e5	3.876e5	1.159	1.245	1.240	1408	1550	7.11e6	5.68e6	5046.4	3668.2	NO	db	db	92.771
13C-1234678-HpCDD	39.657	1.104	2.704e5	2.477e5	0.629	1.092	1.050	1453	1582	4.01e6	3.70e6	2762.1	2340.5	NO	bb	bb	101.737
13C-OCDD	44.229	1.232	5.451e5	5.964e5	0.635	0.914	0.890	1912	2392	6.54e6	7.08e6	3421.6	2960.5	NO	bd	bd	222.103
13C-123789-HxCDD	35.914	0.000	4.468e5	3.624e5	1.000	1.233	1.240	1408	1550	6.84e6	5.48e6	4854.1	3538.7	NO	bb	bb	100.000
37CL-2378-TCDD	25.774	1.033	2.011e6		1.157			1496		3.00e7		20074.5			bb		224.818

Dataset: T:\Autospec\Processed Data Batch\230811ICIH.qld
Last Altered: Saturday, August 12, 2023 10:45:18 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:25:02 Pacific Daylight Time

ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.170		0.770	1838	1596								
1289-TCDF					0.847		0.770	1838	1596								
13468-PECDF					1.241		1.550	461	712								
12389-PECDF					0.880		1.550	6342	5190								
123468-HXCDF					1.206		1.240	5119	1953								
1368-TCDD					1.181		0.770	1257	1421								
1289-TCDD					0.963		0.770	1257	1421								
12479-PECDD					2.166		1.550	1999	1551								
12389-PECDD					1.326		1.550	1999	1551								
124679-HXCDD					1.127		1.240	1937	4756								
1234679-HPCDD					1.303		1.050	4823	2878								
Total-tetrafurans			1.194e6		0.973			1838		1.76e7							203.639
Total-penta1			0.000e0					461		0.00e0							
Total-pentafurans			1.413e7		0.931			6342		2.19e8							2029.440
Total-hexafurans			2.026e7		1.087			5119		3.06e8							4125.241
Total-heptafurans			8.398e6		1.134			6069		1.30e8							2079.518
Total-Furans			5.067e7		1.053			1838		7.54e8							10614.136
Total-tetradioxins			1.084e6		1.129			1257		1.60e7							210.516
Total-pentadioxins			5.077e6		1.548			1999		7.65e7							1015.359
Total-hexadioxins			1.249e7		0.943			1937		1.92e8							3110.180
Total-heptadioxins			3.162e6		1.251			4823		4.86e7							982.937
Total-Dioxins			2.762e7		1.182			1257		4.04e8							7360.637
Total-TEQ			7.828e7					1257		1.16e9							17974.773
FUNCTION1 PFK			3.429e4					454273		8.54e5							
FUNCTION2 PFK			8.951e5					279755		2.13e7							0.000
FUNCTION3 PFK			1.396e5					359621		2.61e6							0.000
FUNCTION4 PFK			2.686e4					287176		8.56e5							
FUNCTION5 PFK			1.797e5					200045		5.77e6							
FUNCTION1 HXCD...			7.815e2					458		1.11e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			7.618e3					592		1.15e5							0.000
FUNCTION3 OCDPE			4.956e3					644		5.21e4							0.000
FUNCTION4 NCDPE			1.915e3					637		2.00e4							0.000
FUNCTION5 DCDPE			2.784e3					452		2.35e4							0.000

Method: T:\Autospec\Methods\Dioxin230810.mdb 11 Aug 2023 22:18:32
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.14	1.176e6	1.517e6	0.903	0.78	0.77	9439.9	YES	NO	bb	bb	200.683
2	Total-tetrafurans	24.23	7.022e3	1.030e4	0.973	0.68	0.77	53.2	YES	NO	bb	db	1.197
3	Total-tetrafurans	23.91	1.051e4	1.448e4	0.973	0.73	0.77	86.3	YES	NO	bd	bd	1.727
4	Total-tetrafurans	22.68	1.913e2	2.601e2	0.973	0.74	0.77	1.9	NO	NO	bb	bb	0.031

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.28	6.873e6	4.363e6	0.923	1.58	1.55	16593.6	YES	NO	bb	bb	1003.7...
2	Total-pentafurans	29.01	5.252e3	3.709e3	0.931	1.42	1.55	11.1	YES	NO	dd	db	0.807
3	Total-pentafurans	28.93	2.668e3	1.651e3	0.931	1.62	1.55	8.0	YES	NO	bd	bd	0.389
4	Total-pentafurans	28.22	2.093e4	1.283e4	0.931	1.63	1.55	39.4	YES	NO	bb	bb	3.039
5	Total-pentafurans	31.87	1.086e3	7.873e2	0.931	1.38	1.55	3.1	NO	NO	dd	db	0.169
6	23478-PeCDF	30.62	7.218e6	4.643e6	0.991	1.55	1.55	17800.7	YES	NO	bb	bb	1020.4...
7	Total-pentafurans	30.49	5.363e3	4.052e3	0.931	1.32	1.55	17.9	YES	NO	bb	bb	0.848
8	Total-pentafurans	30.20	2.868e2	1.979e2	0.931	1.45	1.55	1.7	NO	NO	bb	bb	0.044

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexafurans	35.82	2.293e2	1.911e2	1.087	1.20	1.24	1.9	NO	NO	bb	db	0.046
2	234678-HxCDF	35.30	5.220e6	4.187e6	1.081	1.25	1.24	15612.0	YES	NO	bb	bb	1036.3...
3	123678-HxCDF	34.42	5.565e6	4.427e6	1.032	1.26	1.24	15950.5	YES	NO	db	db	1022.2...
4	123478-HxCDF	34.28	5.150e6	4.112e6	1.128	1.25	1.24	15621.4	YES	NO	bd	bd	1008.5...
5	Total-hexafurans	34.12	3.378e3	3.099e3	1.087	1.09	1.24	11.9	YES	NO	bb	bb	0.713
6	Total-hexafurans	32.79	3.542e3	2.725e3	1.087	1.30	1.24	9.2	YES	NO	db	bb	0.690
7	123789-HxCDF	36.34	4.314e6	3.419e6	0.988	1.26	1.24	12485.9	YES	NO	bb	bb	1056.6...

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HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.38	3.737e6	3.616e6	1.104	1.03	1.05	8752.5	YES	NO	bb	bb	1044.7...
2	Total-heptafurans	39.67	4.922e3	4.388e3	1.134	1.12	1.05	9.6	YES	NO	bb	bb	1.175
3	Total-heptafurans	38.85	6.140e3	5.800e3	1.134	1.06	1.05	14.7	YES	NO	bb	bb	1.507
4	1234678-HpCDF	38.22	4.651e6	4.483e6	1.164	1.04	1.05	12629.8	YES	NO	bb	bb	1032.0...

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.14	1.176e6	1.517e6	0.903	0.78	0.77	9439.9	YES	NO	bb	bb	200.683
2	Total-tetrafurans	24.23	7.022e3	1.030e4	0.973	0.68	0.77	53.2	YES	NO	bb	db	1.197
3	Total-tetrafurans	23.91	1.051e4	1.448e4	0.973	0.73	0.77	86.3	YES	NO	bd	bd	1.727
4	Total-tetrafurans	22.68	1.913e2	2.601e2	0.973	0.74	0.77	1.9	NO	NO	bb	bb	0.031
5	12378-PeCDF	29.28	6.873e6	4.363e6	0.923	1.58	1.55	16593.6	YES	NO	bb	bb	1003.7...
6	Total-pentafurans	29.01	5.252e3	3.709e3	0.931	1.42	1.55	11.1	YES	NO	dd	db	0.807
7	Total-pentafurans	28.93	2.668e3	1.651e3	0.931	1.62	1.55	8.0	YES	NO	bd	bd	0.389
8	Total-pentafurans	28.22	2.093e4	1.283e4	0.931	1.63	1.55	39.4	YES	NO	bb	bb	3.039
9	Total-pentafurans	31.87	1.086e3	7.873e2	0.931	1.38	1.55	3.1	NO	NO	dd	db	0.169
10	23478-PeCDF	30.62	7.218e6	4.643e6	0.991	1.55	1.55	17800.7	YES	NO	bb	bb	1020.4...
11	Total-pentafurans	30.49	5.363e3	4.052e3	0.931	1.32	1.55	17.9	YES	NO	bb	bb	0.848
12	Total-pentafurans	30.20	2.868e2	1.979e2	0.931	1.45	1.55	1.7	NO	NO	bb	bb	0.044
13	Total-hexafurans	35.82	2.293e2	1.911e2	1.087	1.20	1.24	1.9	NO	NO	bb	db	0.046
14	234678-HxCDF	35.30	5.220e6	4.187e6	1.081	1.25	1.24	15612.0	YES	NO	bb	bb	1036.3...
15	123678-HxCDF	34.42	5.565e6	4.427e6	1.032	1.26	1.24	15950.5	YES	NO	db	db	1022.2...
16	123478-HxCDF	34.28	5.150e6	4.112e6	1.128	1.25	1.24	15621.4	YES	NO	bd	bd	1008.5...
17	Total-hexafurans	34.12	3.378e3	3.099e3	1.087	1.09	1.24	11.9	YES	NO	bb	bb	0.713
18	Total-hexafurans	32.79	3.542e3	2.725e3	1.087	1.30	1.24	9.2	YES	NO	db	bb	0.690
19	123789-HxCDF	36.34	4.314e6	3.419e6	0.988	1.26	1.24	12485.9	YES	NO	bb	bb	1056.6...
20	1234789-HpCDF	40.38	3.737e6	3.616e6	1.104	1.03	1.05	8752.5	YES	NO	bb	bb	1044.7...
21	Total-heptafurans	39.67	4.922e3	4.388e3	1.134	1.12	1.05	9.6	YES	NO	bb	bb	1.175
22	Total-heptafurans	38.85	6.140e3	5.800e3	1.134	1.06	1.05	14.7	YES	NO	bb	bb	1.507
23	1234678-HpCDF	38.22	4.651e6	4.483e6	1.164	1.04	1.05	12629.8	YES	NO	bb	bb	1032.0...
24	OCDF	44.46	6.691e6	7.348e6	1.130	0.91	0.89	21469.5	YES	NO	bb	bb	2176.2...

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TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.77	1.061e6	1.307e6	1.243	0.81	0.77	12528.1	YES	NO	bb	bb	205.454
2	Total-tetradioxins	25.39	2.251e4	2.836e4	1.129	0.79	0.77	203.9	YES	NO	bd	bb	4.860
3	Total-tetradioxins	24.64	9.094e2	1.193e3	1.129	0.76	0.77	10.6	YES	NO	bb	bb	0.201

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	30.88	5.066e6	3.250e6	1.150	1.56	1.55	38189.0	YES	NO	bb	bb	1013.7...
2	Total-pentadioxins	30.20	5.265e3	3.663e3	1.548	1.44	1.55	36.0	YES	NO	bb	bb	0.809
3	Total-pentadioxins	29.49	8.899e2	6.316e2	1.548	1.41	1.55	6.0	YES	NO	dd	db	0.138
4	Total-pentadioxins	29.30	4.194e3	3.163e3	1.548	1.33	1.55	26.2	YES	NO	bd	bd	0.667

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDD	35.42	4.057e6	3.319e6	0.960	1.22	1.24	33525.8	YES	NO	bd	bd	967.641
2	Total-hexadioxins	34.42	1.376e3	1.250e3	0.943	1.10	1.24	6.9	NO	NO	dd	dd	0.335
3	Total-hexadioxins	36.55	2.181e2	1.928e2	0.943	1.13	1.24	4.6	NO	NO	bb	bb	0.052
4	Total-hexadioxins	36.33	2.192e4	1.798e4	0.943	1.22	1.24	137.8	YES	NO	bb	bb	5.083
5	123789-HxCDD	35.92	3.986e6	3.292e6	0.804	1.21	1.24	31052.7	YES	NO	bb	bb	1088.2...
6	123678-HxCDD	35.53	4.425e6	3.631e6	0.883	1.22	1.24	34440.8	YES	NO	db	db	1048.7...

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.67	3.162e6	2.947e6	1.200	1.07	1.05	10069.1	YES	NO	bb	bb	982.937

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.77	1.061e6	1.307e6	1.243	0.81	0.77	12528.1	YES	NO	bb	bb	205.454
2	Total-tetradioxins	25.39	2.251e4	2.836e4	1.129	0.79	0.77	203.9	YES	NO	bd	bb	4.860
3	Total-tetradioxins	24.64	9.094e2	1.193e3	1.129	0.76	0.77	10.6	YES	NO	bb	bb	0.201
4	Total-Dioxins	27.06	1.144e2	1.336e2	1.182	0.86	0.77	2.6	NO	NO	bb	db	0.023
5	12378-PeCDD	30.88	5.066e6	3.250e6	1.150	1.56	1.55	38189.0	YES	NO	bb	bb	1013.7...
6	Total-pentadioxins	30.20	5.265e3	3.663e3	1.548	1.44	1.55	36.0	YES	NO	bb	bb	0.809
7	Total-pentadioxins	29.49	8.899e2	6.316e2	1.548	1.41	1.55	6.0	YES	NO	dd	db	0.138
8	Total-pentadioxins	29.30	4.194e3	3.163e3	1.548	1.33	1.55	26.2	YES	NO	bd	bd	0.667
9	123478-HxCDD	35.42	4.057e6	3.319e6	0.960	1.22	1.24	33525.8	YES	NO	bd	bd	967.641
10	Total-hexadioxins	34.42	1.376e3	1.250e3	0.943	1.10	1.24	6.9	NO	NO	dd	dd	0.335
11	Total-hexadioxins	36.55	2.181e2	1.928e2	0.943	1.13	1.24	4.6	NO	NO	bb	bb	0.052
12	Total-hexadioxins	36.33	2.192e4	1.798e4	0.943	1.22	1.24	137.8	YES	NO	bb	bb	5.083
13	123789-HxCDD	35.92	3.986e6	3.292e6	0.804	1.21	1.24	31052.7	YES	NO	bb	bb	1088.2...
14	123678-HxCDD	35.53	4.425e6	3.631e6	0.883	1.22	1.24	34440.8	YES	NO	db	db	1048.7...
15	1234678-HpCDD	39.67	3.162e6	2.947e6	1.200	1.07	1.05	10069.1	YES	NO	bb	bb	982.937
16	OCDD	44.24	5.800e6	6.537e6	1.059	0.89	0.89	14784.9	YES	NO	bd	bd	2041.6...

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.14	1.176e6	1.517e6	0.903	0.78	0.77	9439.9	YES	NO	bb	bb	200.683
2	Total-tetrafurans	24.23	7.022e3	1.030e4	0.973	0.68	0.77	53.2	YES	NO	bb	db	1.197
3	Total-tetrafurans	23.91	1.051e4	1.448e4	0.973	0.73	0.77	86.3	YES	NO	bd	bd	1.727
4	Total-tetrafurans	22.68	1.913e2	2.601e2	0.973	0.74	0.77	1.9	NO	NO	bb	bb	0.031
5	12378-PeCDF	29.28	6.873e6	4.363e6	0.923	1.58	1.55	16593.6	YES	NO	bb	bb	1003.7...
6	Total-pentafurans	29.01	5.252e3	3.709e3	0.931	1.42	1.55	11.1	YES	NO	dd	db	0.807
7	Total-pentafurans	28.93	2.668e3	1.651e3	0.931	1.62	1.55	8.0	YES	NO	bd	bd	0.389
8	Total-pentafurans	28.22	2.093e4	1.283e4	0.931	1.63	1.55	39.4	YES	NO	bb	bb	3.039
9	Total-pentafurans	31.87	1.086e3	7.873e2	0.931	1.38	1.55	3.1	NO	NO	dd	db	0.169
10	23478-PeCDF	30.62	7.218e6	4.643e6	0.991	1.55	1.55	17800.7	YES	NO	bb	bb	1020.4...
11	Total-pentafurans	30.49	5.363e3	4.052e3	0.931	1.32	1.55	17.9	YES	NO	bb	bb	0.848
12	Total-pentafurans	30.20	2.868e2	1.979e2	0.931	1.45	1.55	1.7	NO	NO	bb	bb	0.044
13	Total-hexafurans	35.82	2.293e2	1.911e2	1.087	1.20	1.24	1.9	NO	NO	bb	db	0.046
14	234678-HxCDF	35.30	5.220e6	4.187e6	1.081	1.25	1.24	15612.0	YES	NO	bb	bb	1036.3...
15	123678-HxCDF	34.42	5.565e6	4.427e6	1.032	1.26	1.24	15950.5	YES	NO	db	db	1022.2...
16	123478-HxCDF	34.28	5.150e6	4.112e6	1.128	1.25	1.24	15621.4	YES	NO	bd	bd	1008.5...
17	Total-hexafurans	34.12	3.378e3	3.099e3	1.087	1.09	1.24	11.9	YES	NO	bb	bb	0.713
18	Total-hexafurans	32.79	3.542e3	2.725e3	1.087	1.30	1.24	9.2	YES	NO	db	bb	0.690
19	123789-HxCDF	36.34	4.314e6	3.419e6	0.988	1.26	1.24	12485.9	YES	NO	bb	bb	1056.6...
20	1234789-HpCDF	40.38	3.737e6	3.616e6	1.104	1.03	1.05	8752.5	YES	NO	bb	bb	1044.7...
21	Total-heptafurans	39.67	4.922e3	4.388e3	1.134	1.12	1.05	9.6	YES	NO	bb	bb	1.175
22	Total-heptafurans	38.85	6.140e3	5.800e3	1.134	1.06	1.05	14.7	YES	NO	bb	bb	1.507
23	1234678-HpCDF	38.22	4.651e6	4.483e6	1.164	1.04	1.05	12629.8	YES	NO	bb	bb	1032.0...
24	OCDF	44.46	6.691e6	7.348e6	1.130	0.91	0.89	21469.5	YES	NO	bb	bb	2176.2...
25	2378-TCDD	25.77	1.061e6	1.307e6	1.243	0.81	0.77	12528.1	YES	NO	bb	bb	205.454
26	Total-tetradioxins	25.39	2.251e4	2.836e4	1.129	0.79	0.77	203.9	YES	NO	bd	bb	4.860
27	Total-tetradioxins	24.64	9.094e2	1.193e3	1.129	0.76	0.77	10.6	YES	NO	bb	bb	0.201
28	Total-Dioxins	27.06	1.144e2	1.336e2	1.182	0.86	0.77	2.6	NO	NO	bb	db	0.023
29	12378-PeCDD	30.88	5.066e6	3.250e6	1.150	1.56	1.55	38189.0	YES	NO	bb	bb	1013.7...
30	Total-pentadioxins	30.20	5.265e3	3.663e3	1.548	1.44	1.55	36.0	YES	NO	bb	bb	0.809
31	Total-pentadioxins	29.49	8.899e2	6.316e2	1.548	1.41	1.55	6.0	YES	NO	dd	db	0.138
32	Total-pentadioxins	29.30	4.194e3	3.163e3	1.548	1.33	1.55	26.2	YES	NO	bd	bd	0.667
33	123478-HxCDD	35.42	4.057e6	3.319e6	0.960	1.22	1.24	33525.8	YES	NO	bd	bd	967.641
34	Total-hexadioxins	34.42	1.376e3	1.250e3	0.943	1.10	1.24	6.9	NO	NO	dd	dd	0.335
35	Total-hexadioxins	36.55	2.181e2	1.928e2	0.943	1.13	1.24	4.6	NO	NO	bb	bb	0.052
36	Total-hexadioxins	36.33	2.192e4	1.798e4	0.943	1.22	1.24	137.8	YES	NO	bb	bb	5.083
37	123789-HxCDD	35.92	3.986e6	3.292e6	0.804	1.21	1.24	31052.7	YES	NO	bb	bb	1088.2...

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	123678-HxCDD	35.53	4.425e6	3.631e6	0.883	1.22	1.24	34440.8	YES	NO	db	db	1048.7...
39	1234678-HpCDD	39.67	3.162e6	2.947e6	1.200	1.07	1.05	10069.1	YES	NO	bb	bb	982.937
40	OCDD	44.24	5.800e6	6.537e6	1.059	0.89	0.89	14784.9	YES	NO	bd	bd	2041.6...

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.34	3.429e4					1.9	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	27.50	1.980e4					1.9	NO		bd		0.000
2	FUNCTION2 PFK	28.88	9.545e3					1.5	NO		db		0.000
3	FUNCTION2 PFK	28.85	1.548e4					1.5	NO		dd		0.000
4	FUNCTION2 PFK	28.78	2.633e4					1.9	NO		dd		0.000
5	FUNCTION2 PFK	28.73	2.421e4					1.5	NO		bd		0.000
6	FUNCTION2 PFK	28.58	1.529e4					1.5	NO		bb		0.000
7	FUNCTION2 PFK	28.37	3.510e4					1.6	NO		bb		0.000
8	FUNCTION2 PFK	28.26	2.659e4					1.8	NO		bb		0.000
9	FUNCTION2 PFK	28.18	1.012e4					1.4	NO		bb		0.000
10	FUNCTION2 PFK	28.10	3.736e3					0.7	NO		db		0.000
11	FUNCTION2 PFK	28.05	1.176e4					1.3	NO		bd		0.000
12	FUNCTION2 PFK	27.96	7.873e3					0.8	NO		bb		0.000
13	FUNCTION2 PFK	27.91	5.680e3					1.0	NO		bb		0.000
14	FUNCTION2 PFK	27.79	7.217e3					1.0	NO		bb		0.000
15	FUNCTION2 PFK	27.72	3.615e4					2.3	NO		db		0.000
16	FUNCTION2 PFK	27.65	1.224e4					1.7	NO		bd		0.000
17	FUNCTION2 PFK	27.58	1.907e4					1.4	NO		db		0.000
18	FUNCTION2 PFK	30.25	1.111e4					1.6	NO		dd		0.000
19	FUNCTION2 PFK	30.21	4.748e4					3.3	YES		bd		0.000
20	FUNCTION2 PFK	30.12	1.251e4					1.0	NO		db		0.000
21	FUNCTION2 PFK	30.06	2.456e4					2.2	NO		dd		0.000
22	FUNCTION2 PFK	30.02	2.395e4					2.6	NO		dd		0.000
23	FUNCTION2 PFK	29.98	2.592e4					2.3	NO		dd		0.000
24	FUNCTION2 PFK	29.92	1.037e4					1.4	NO		dd		0.000
25	FUNCTION2 PFK	29.89	1.685e4					1.7	NO		dd		0.000
26	FUNCTION2 PFK	29.82	1.201e4					1.4	NO		dd		0.000
27	FUNCTION2 PFK	29.77	2.300e4					1.9	NO		bd		0.000
28	FUNCTION2 PFK	29.61	5.897e3					0.9	NO		bb		0.000
29	FUNCTION2 PFK	29.37	2.118e4					1.1	NO		bb		0.000
30	FUNCTION2 PFK	29.30	1.346e3					0.4	NO		bb		0.000
31	FUNCTION2 PFK	29.23	2.365e4					1.9	NO		db		0.000
32	FUNCTION2 PFK	29.20	3.160e4					1.9	NO		bd		0.000
33	FUNCTION2 PFK	28.98	1.286e4					1.1	NO		bb		0.000
34	FUNCTION2 PFK	31.76	1.305e4					1.3	NO		dd		0.000
35	FUNCTION2 PFK	31.69	2.733e4					1.7	NO		dd		0.000
36	FUNCTION2 PFK	31.66	2.111e4					1.5	NO		bd		0.000
37	FUNCTION2 PFK	31.56	1.095e3					0.4	NO		bb		0.000

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION2 PFK	31.41	8.409e3					1.2	NO		bb		0.000
39	FUNCTION2 PFK	31.22	1.297e4					1.1	NO		bb		0.000
40	FUNCTION2 PFK	31.17	3.323e3					0.7	NO		db		0.000
41	FUNCTION2 PFK	31.12	1.285e4					1.3	NO		dd		0.000
42	FUNCTION2 PFK	31.07	1.346e4					1.6	NO		dd		0.000
43	FUNCTION2 PFK	31.02	7.621e3					0.9	NO		bd		0.000
44	FUNCTION2 PFK	30.83	1.401e4					1.5	NO		db		0.000
45	FUNCTION2 PFK	30.73	5.731e4					2.9	NO		dd		0.000
46	FUNCTION2 PFK	30.68	4.117e4					2.0	NO		bd		0.000
47	FUNCTION2 PFK	30.53	1.020e4					0.7	NO		bb		0.000
48	FUNCTION2 PFK	30.34	4.679e3					0.7	NO		db		0.000
49	FUNCTION2 PFK	30.30	9.864e3					1.1	NO		dd		0.000
50	FUNCTION2 PFK	32.06	7.490e3					1.0	NO		bb		0.000
51	FUNCTION2 PFK	31.92	2.087e4					1.3	NO		db		0.000
52	FUNCTION2 PFK	31.82	1.776e4					1.5	NO		dd		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	36.72	3.336e4					2.4	NO		bb		0.000
2	FUNCTION3 PFK	34.54	1.062e5					4.9	YES		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.47	2.686e4					3.0	NO		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.16	1.278e4					2.4	NO		bb		
2	FUNCTION5 PFK	44.11	9.338e3					2.0	NO		db		
3	FUNCTION5 PFK	44.08	5.897e3					1.6	NO		bd		
4	FUNCTION5 PFK	43.56	8.573e3					2.1	NO		db		
5	FUNCTION5 PFK	43.51	7.267e3					1.7	NO		bd		
6	FUNCTION5 PFK	43.32	5.670e3					1.4	NO		bb		
7	FUNCTION5 PFK	42.88	4.903e3					1.1	NO		bb		
8	FUNCTION5 PFK	45.82	1.022e4					1.6	NO		bb		
9	FUNCTION5 PFK	45.72	1.632e4					1.6	NO		bb		
10	FUNCTION5 PFK	45.61	7.173e3					1.1	NO		bb		
11	FUNCTION5 PFK	45.44	4.649e3					1.2	NO		bb		
12	FUNCTION5 PFK	45.20	1.793e4					2.2	NO		bb		
13	FUNCTION5 PFK	45.08	2.833e4					2.2	NO		db		
14	FUNCTION5 PFK	44.97	2.164e4					2.6	NO		bd		
15	FUNCTION5 PFK	44.84	7.975e3					1.7	NO		db		
16	FUNCTION5 PFK	44.81	6.372e3					1.4	NO		bd		
17	FUNCTION5 PFK	44.20	4.690e3					1.0	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	25.15	1.614e2					3.9	YES		bb		0.000
2	FUNCTION1 HXCD...	24.66	8.600e1					3.2	YES		bb		0.000
3	FUNCTION1 HXCD...	22.13	8.877e1					5.5	YES		db		0.000
4	FUNCTION1 HXCD...	22.07	9.027e1					3.1	YES		dd		0.000
5	FUNCTION1 HXCD...	21.95	7.917e1					2.1	NO		bd		0.000
6	FUNCTION1 HXCD...	25.77	2.758e2					6.3	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.88	6.520e2					15.4	YES		bb		0.000
2	FUNCTION2 HPCD...	30.62	5.795e2					11.8	YES		bb		0.000
3	FUNCTION2 HPCD...	30.48	5.784e3					156.4	YES		bb		0.000
4	FUNCTION2 HPCD...	29.30	6.029e2					10.9	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.35	5.376e2					7.3	YES		bb		0.000
2	FUNCTION3 OCDPE	35.94	9.866e2					15.2	YES		bb		0.000
3	FUNCTION3 OCDPE	35.69	7.171e1					2.6	NO		db		0.000
4	FUNCTION3 OCDPE	35.53	1.024e3					16.7	YES		dd		0.000
5	FUNCTION3 OCDPE	35.42	8.579e2					15.4	YES		dd		0.000
6	FUNCTION3 OCDPE	35.32	4.169e2					8.2	YES		bd		0.000
7	FUNCTION3 OCDPE	34.43	5.647e2					8.6	YES		db		0.000
8	FUNCTION3 OCDPE	34.29	4.974e2					7.0	YES		bd		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.39	5.944e2					9.3	YES		bb		0.000
2	FUNCTION4 NCDPE	39.69	6.266e2					10.8	YES		bb		0.000
3	FUNCTION4 NCDPE	38.23	6.938e2					11.2	YES		bb		0.000

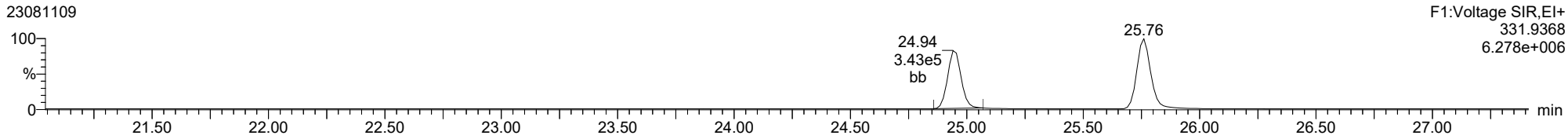
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.47	1.356e3					23.6	YES		db		0.000
2	FUNCTION5 DCDPE	44.25	1.261e3					23.3	YES		bd		0.000
3	FUNCTION5 DCDPE	43.36	1.677e2					4.9	YES		bb		0.000

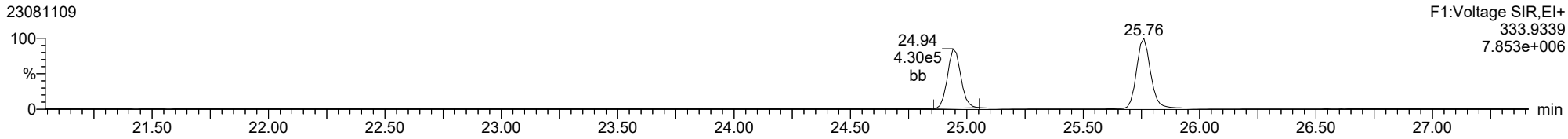
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ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

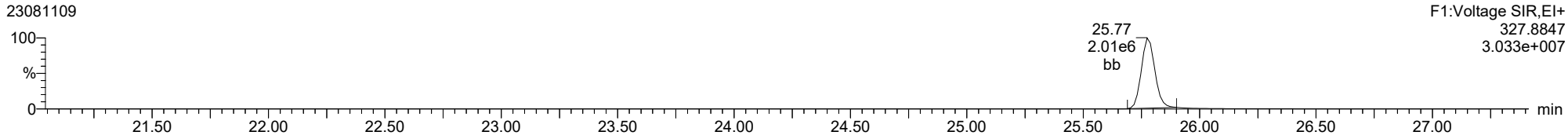
13C-1234-TCDD



13C-1234-TCDD

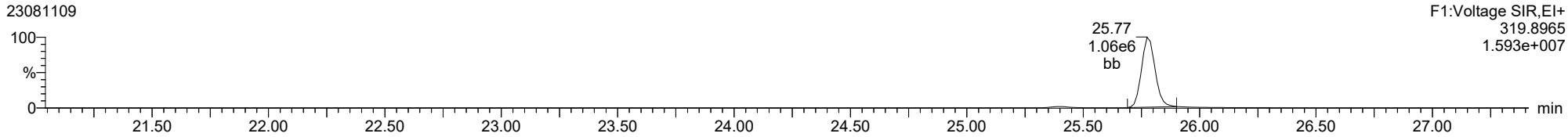


37CL-2378-TCDD

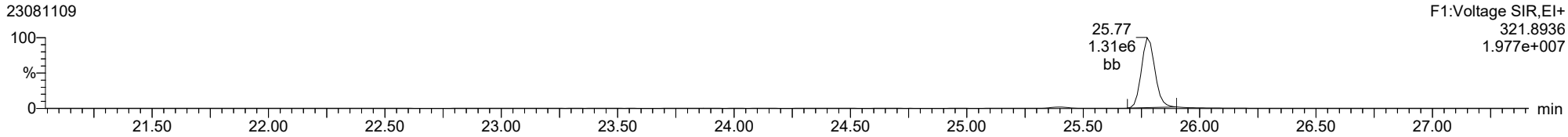


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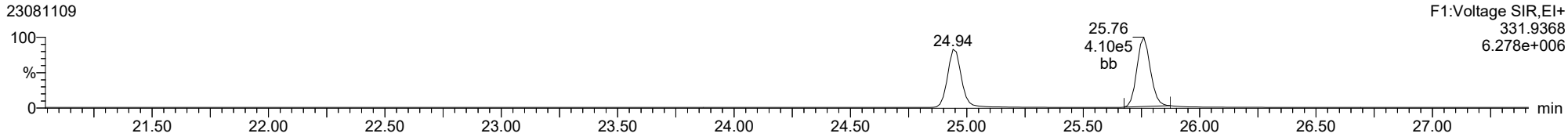
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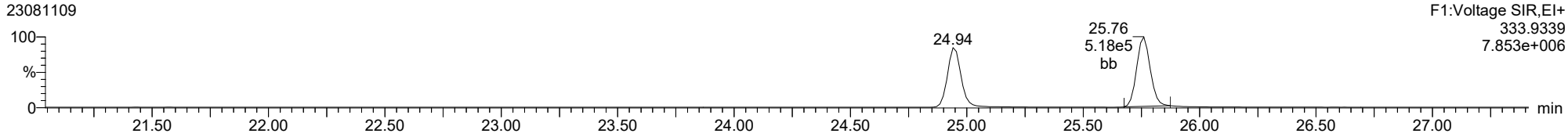
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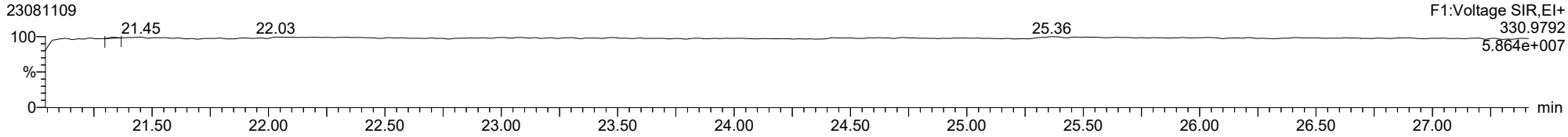
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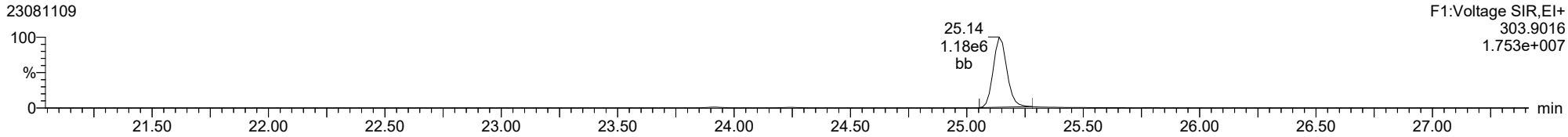


FUNCTION1 PFK

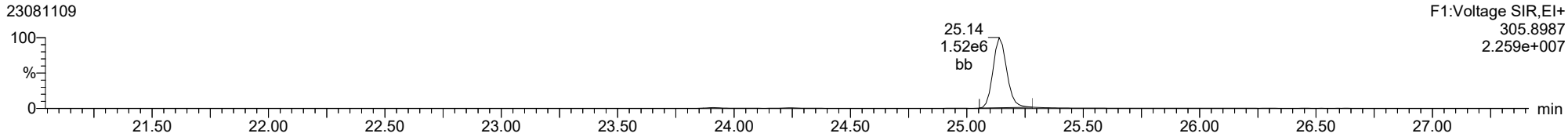


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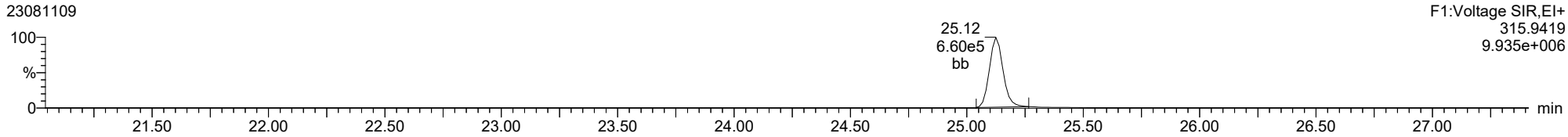
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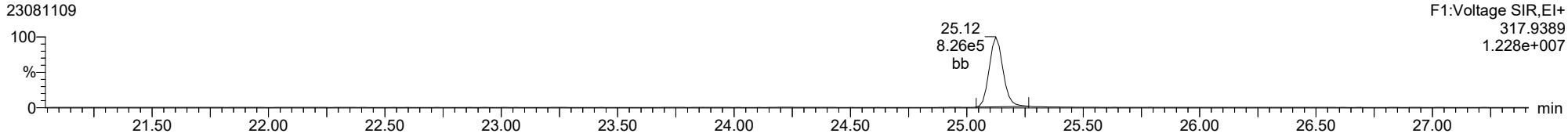
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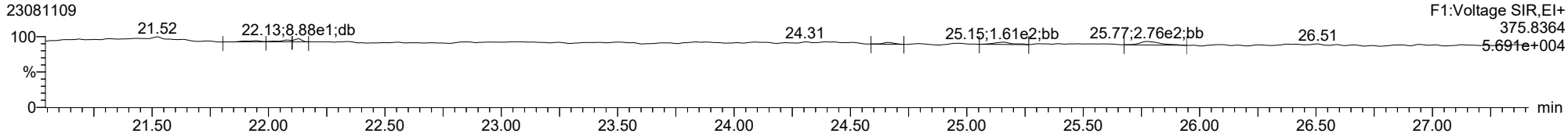
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13C-2378-TCDF

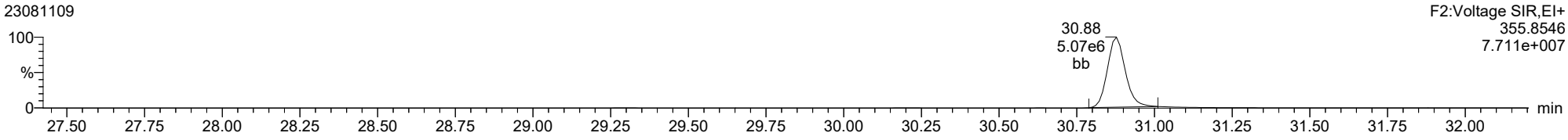


FUNCTION1 HXCDPE

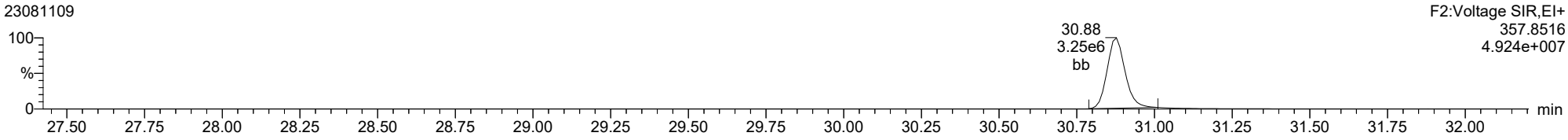


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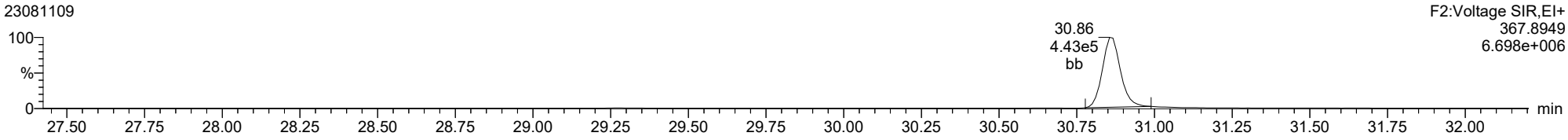
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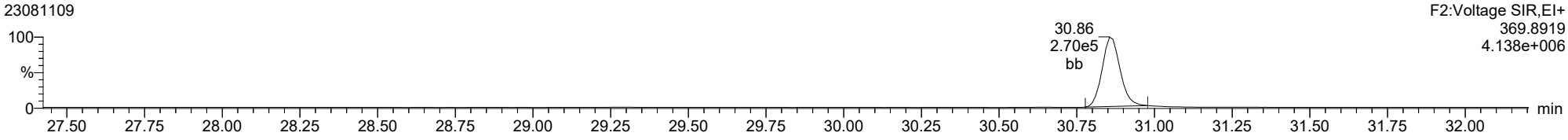
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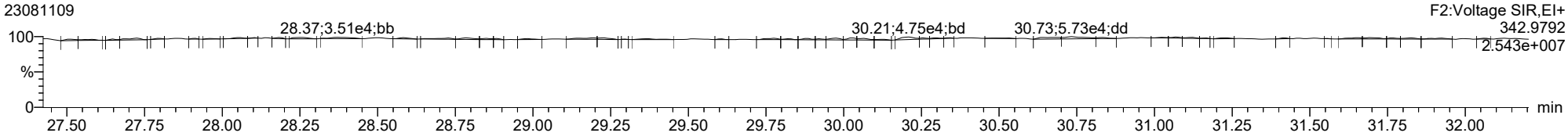
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13C-12378-PeCDD

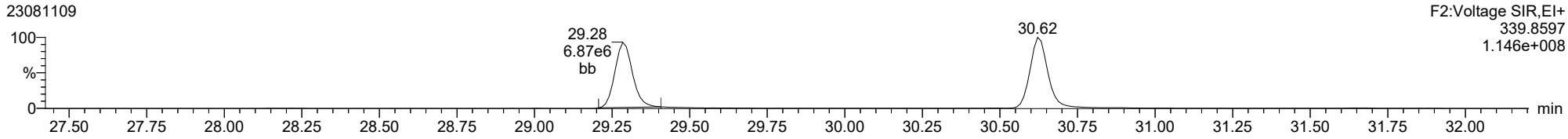


FUNCTION2 PFK

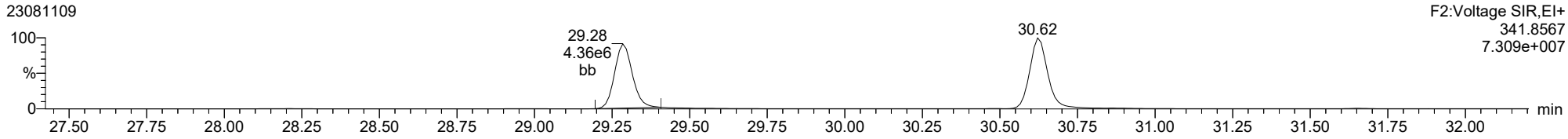


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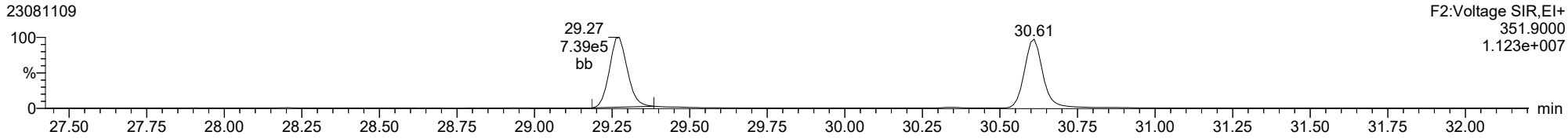
12378-PeCDF



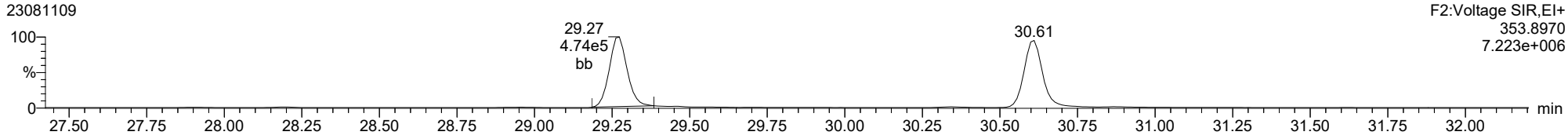
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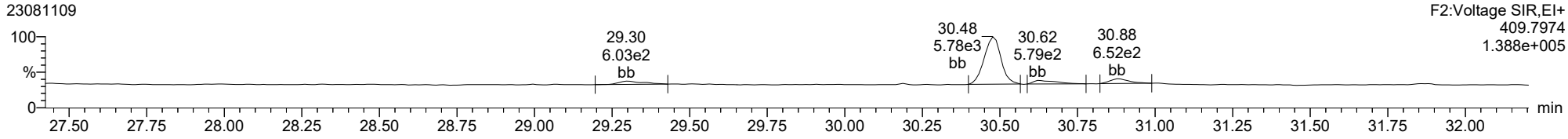
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13C-12378-PeCDF

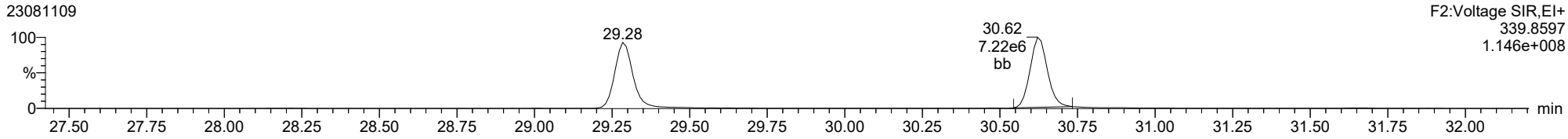


FUNCTION2 HPCDPE

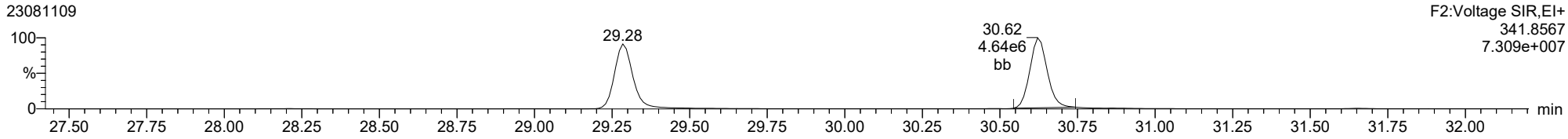


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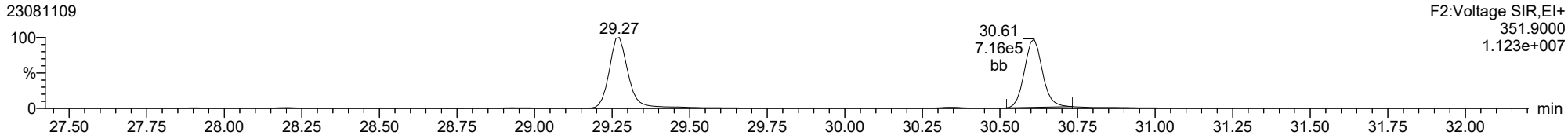
23478-PeCDF



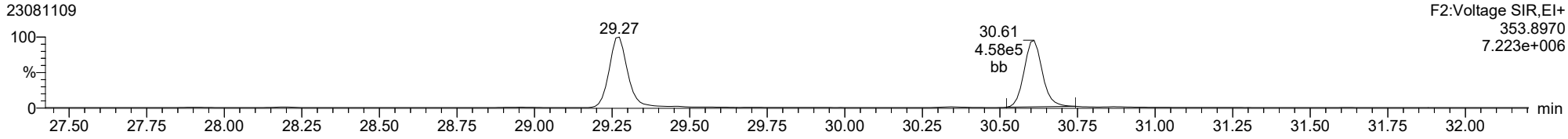
23478-PeCDF



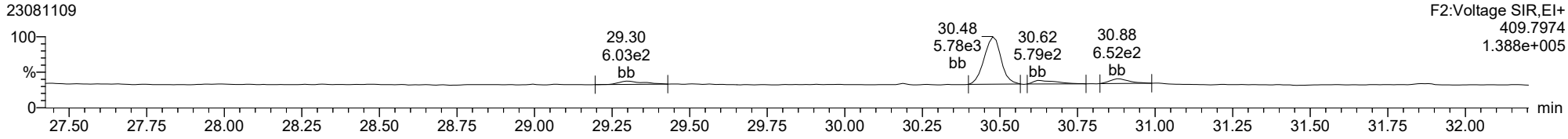
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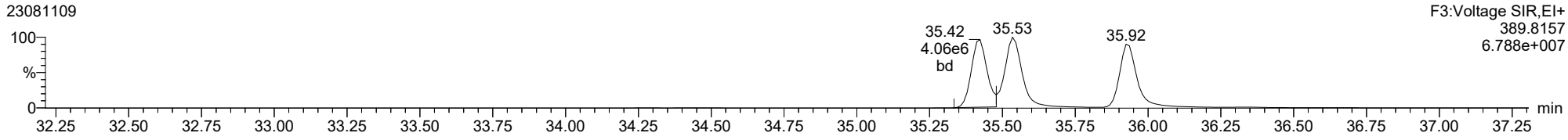


FUNCTION2 HPCDPE

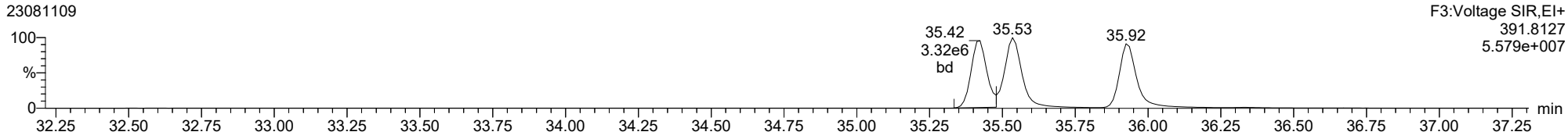


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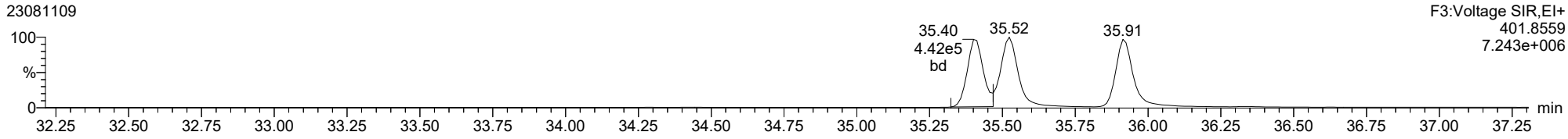
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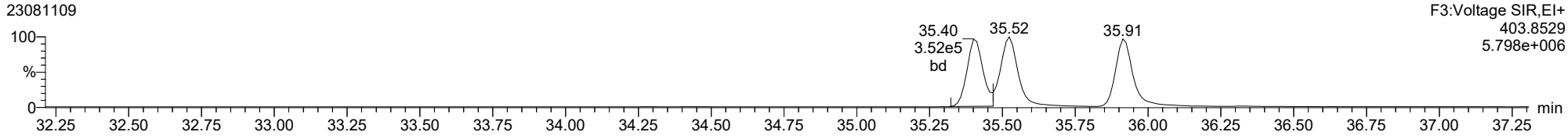
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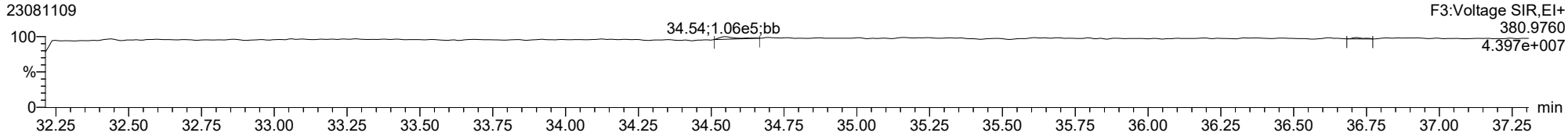
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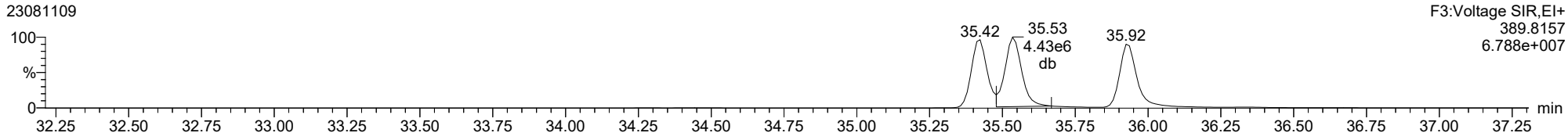


FUNCTION3 PFK

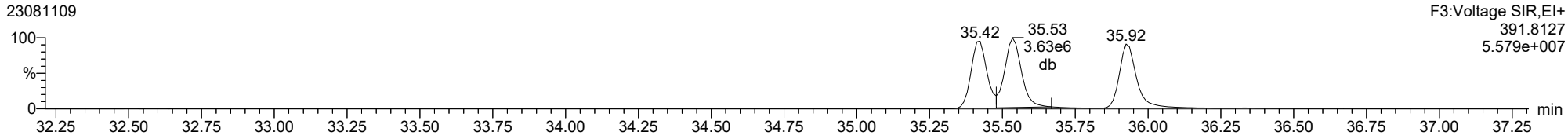


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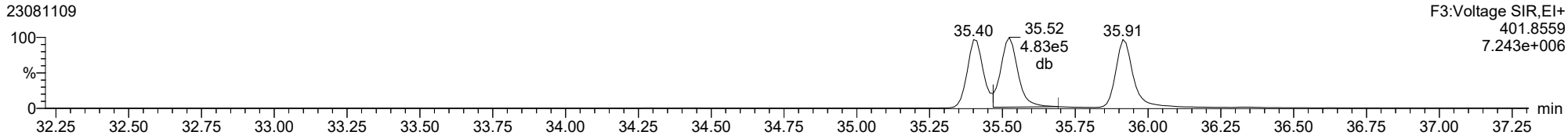
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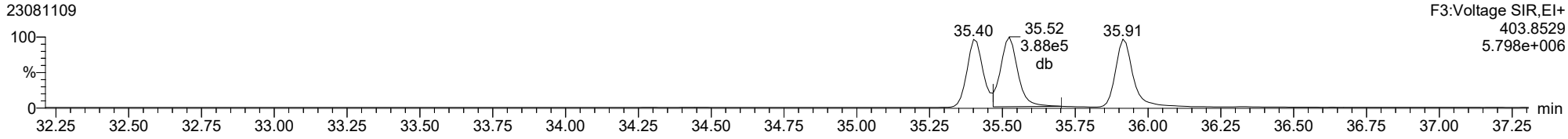
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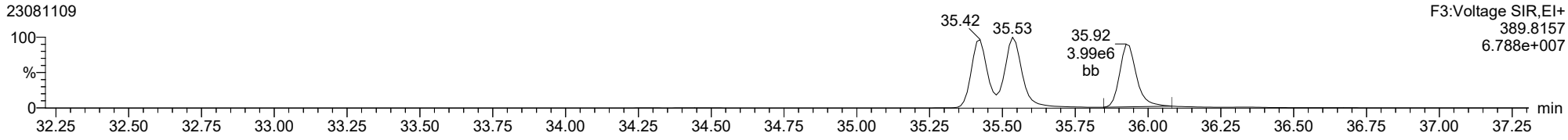
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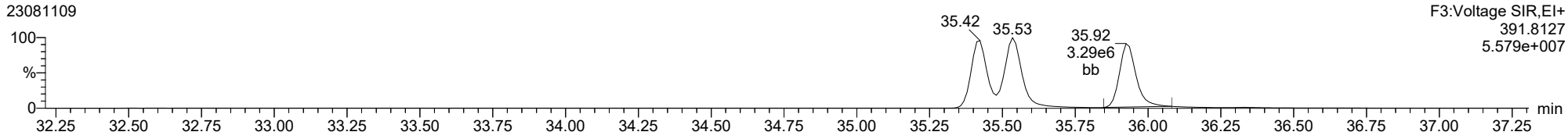
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ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

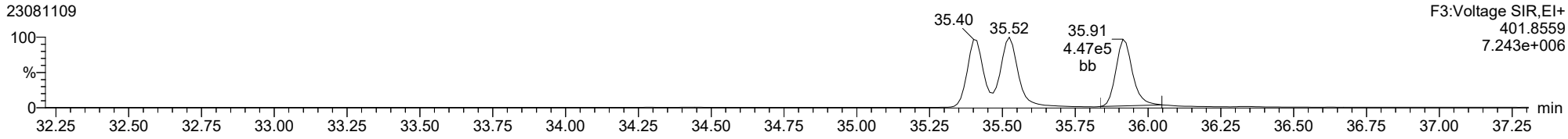
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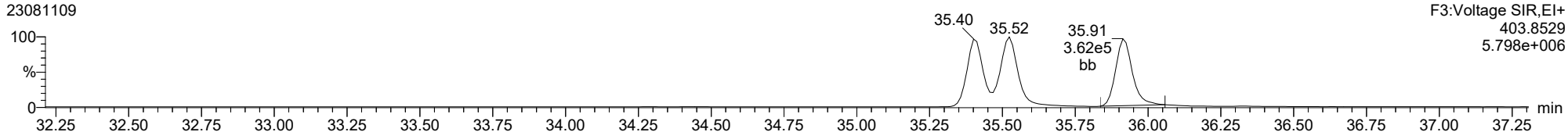
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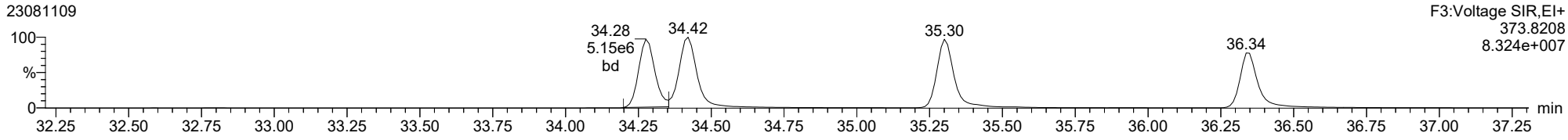


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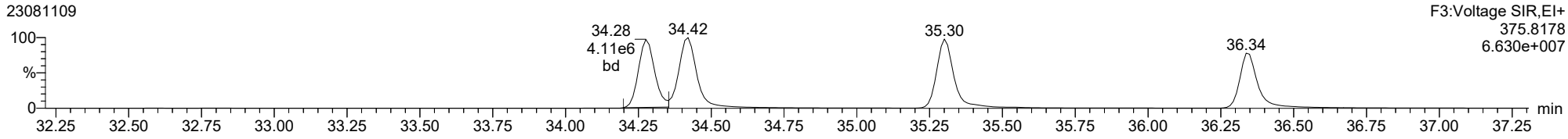


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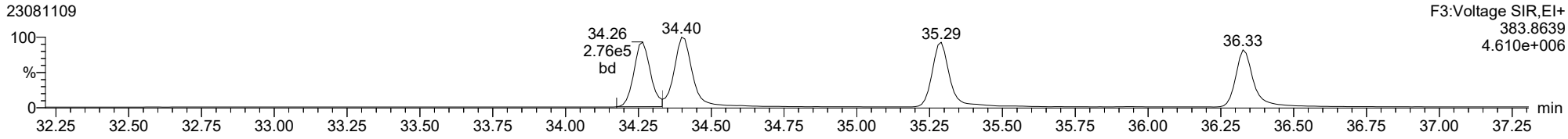
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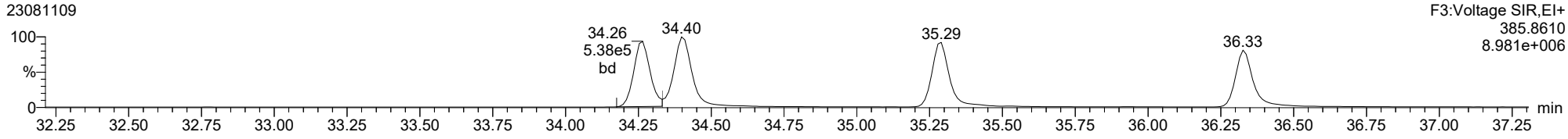
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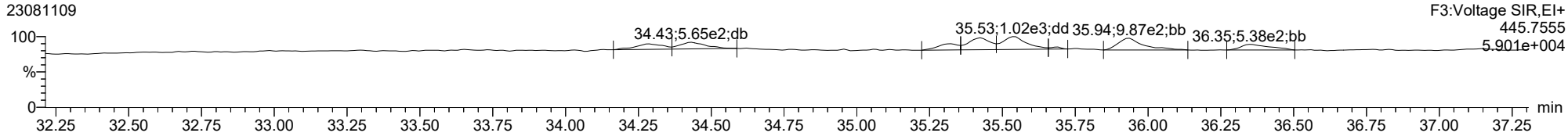
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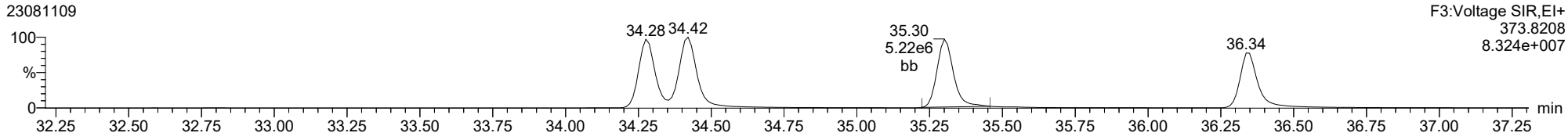


FUNCTION3 OCDPE

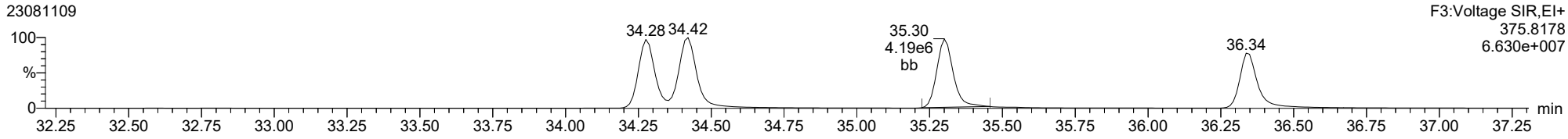


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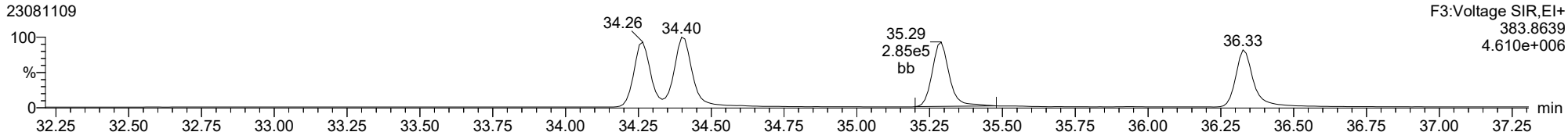
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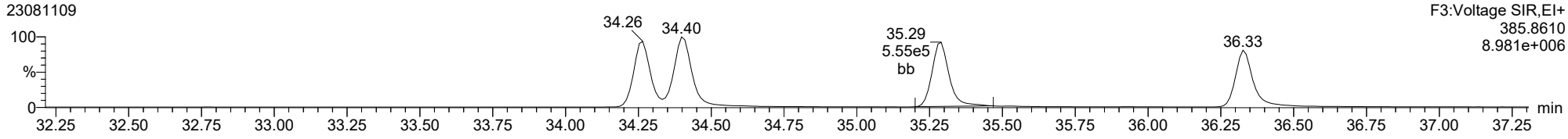
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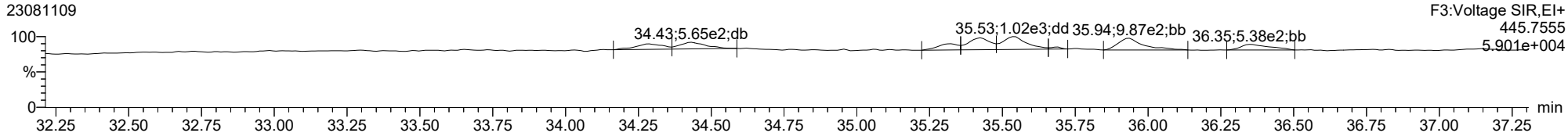
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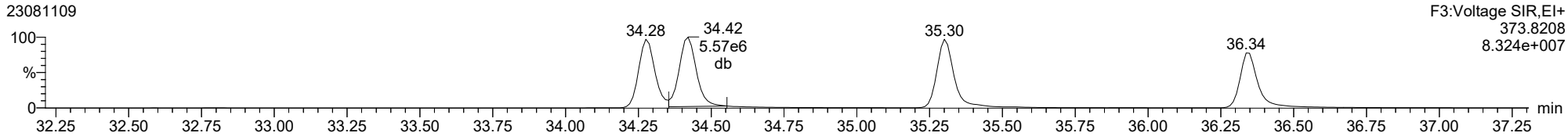


FUNCTION3 OCDPE

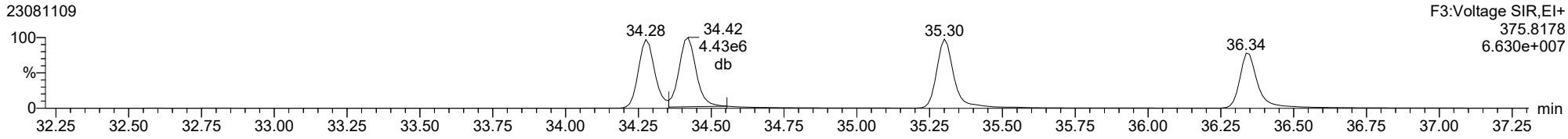


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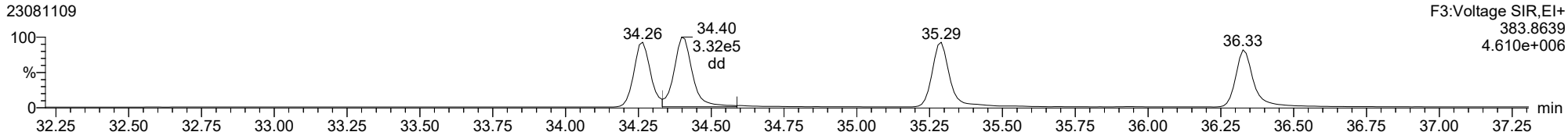
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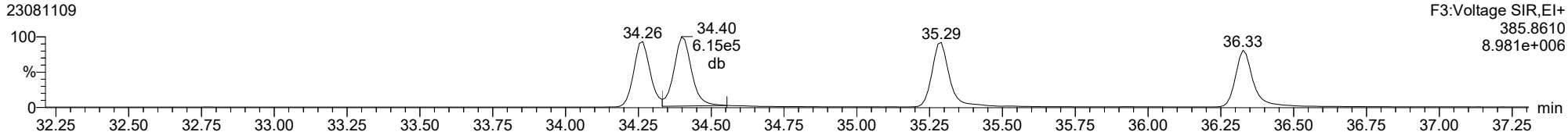
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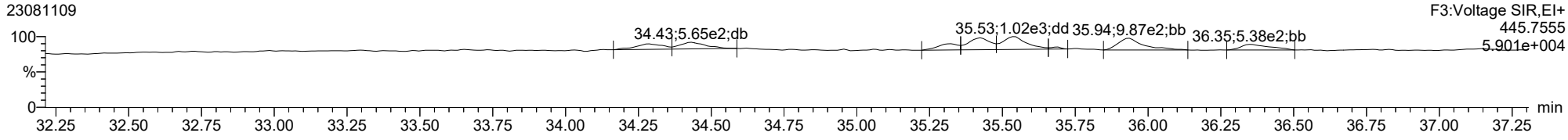
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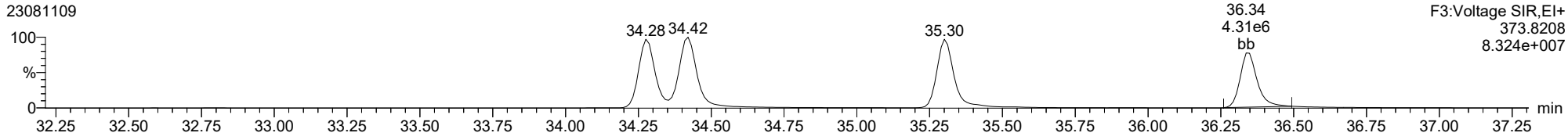


FUNCTION3 OCDPE

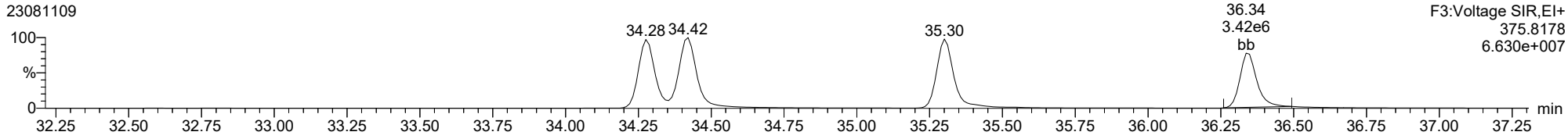


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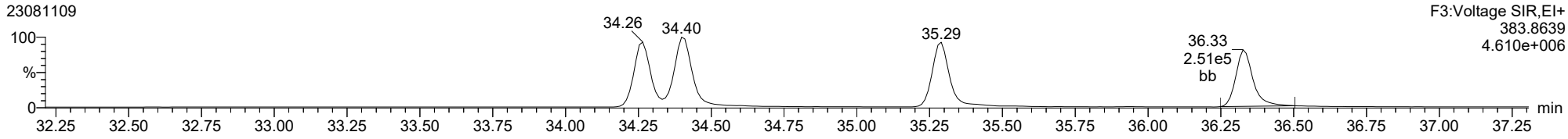
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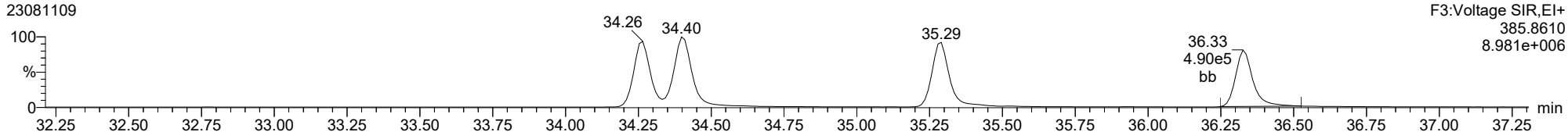
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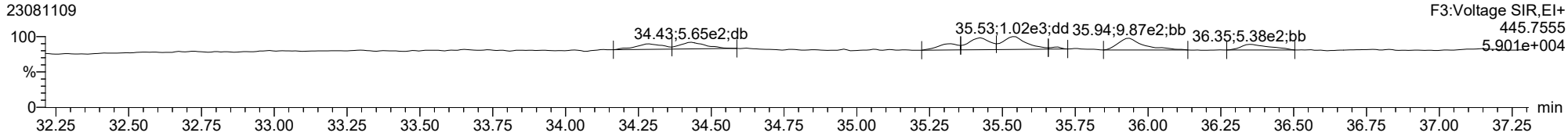
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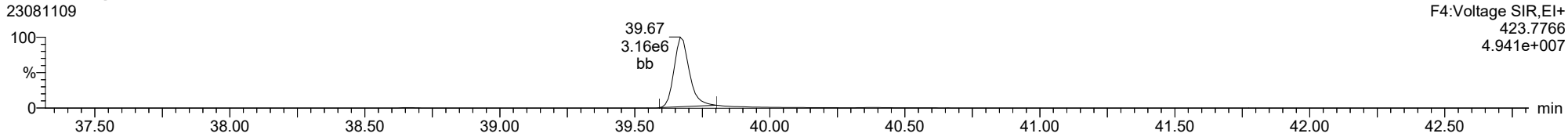


FUNCTION3 OCDPE

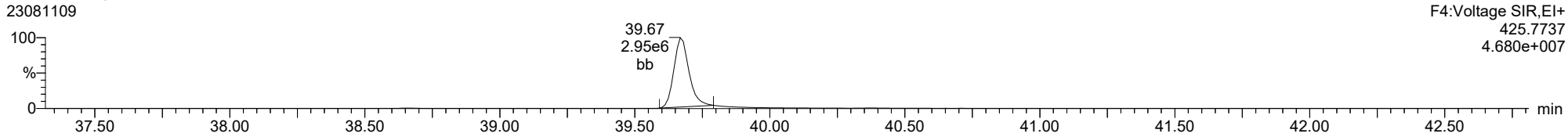


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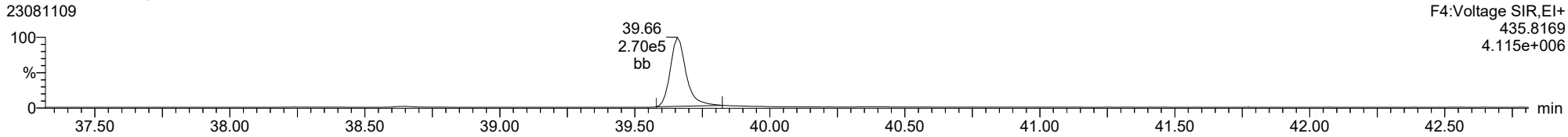
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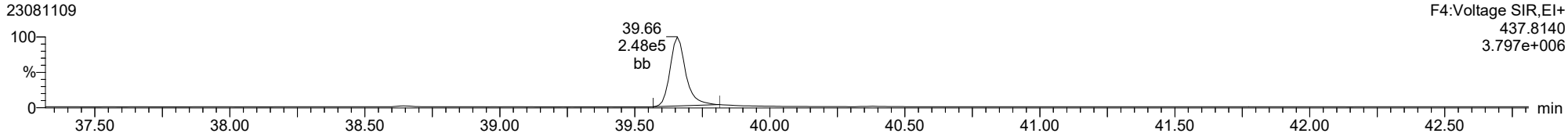
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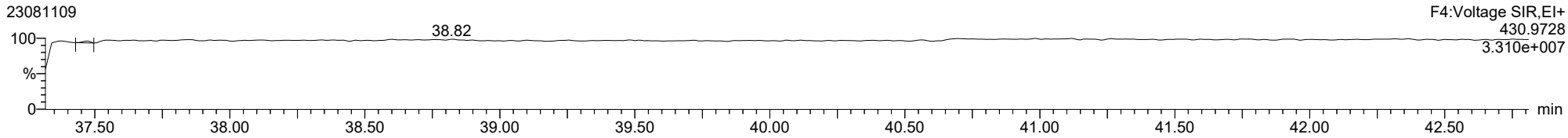
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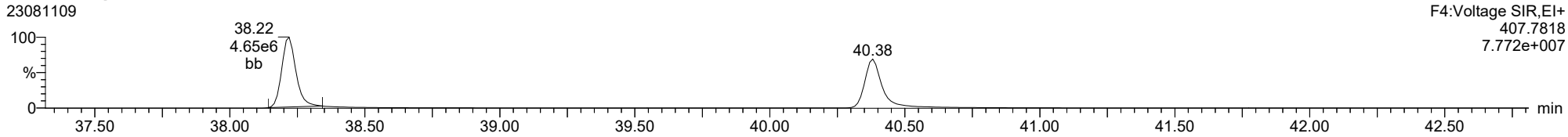


FUNCTION4 PFK

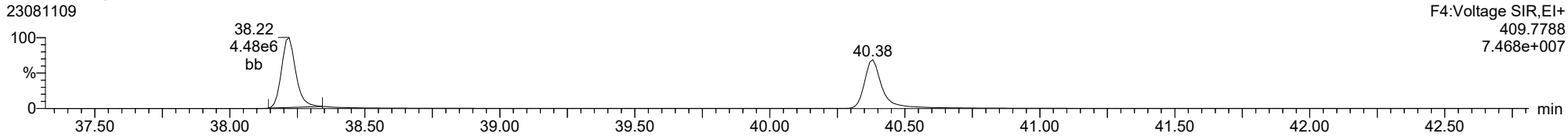


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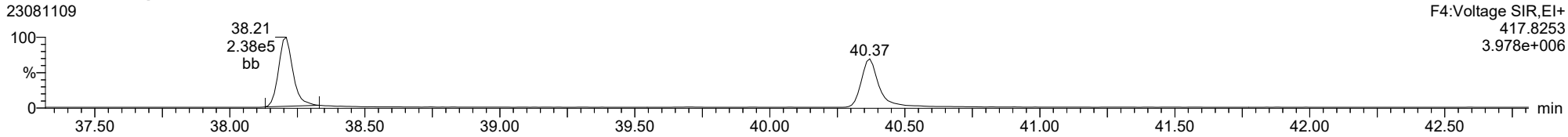
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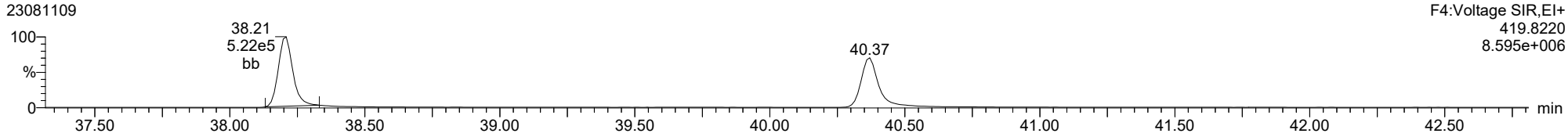
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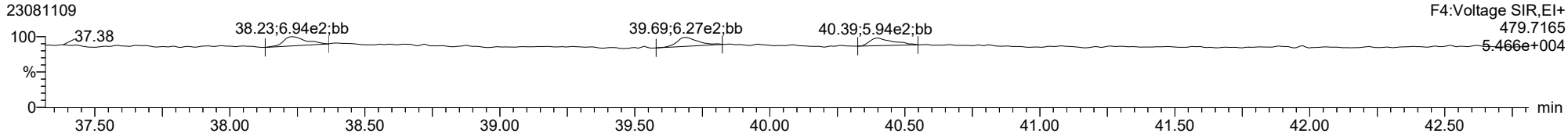
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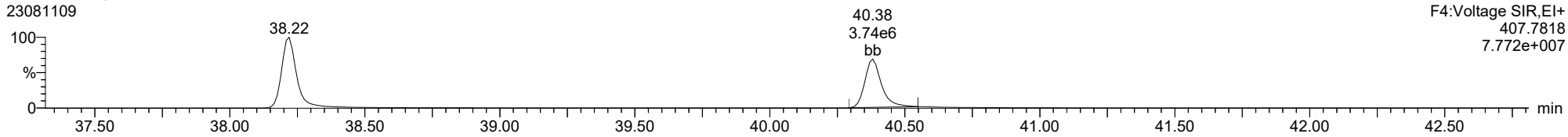


FUNCTION4 NCDPE

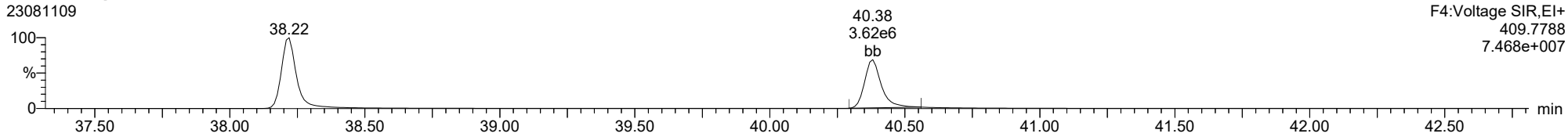


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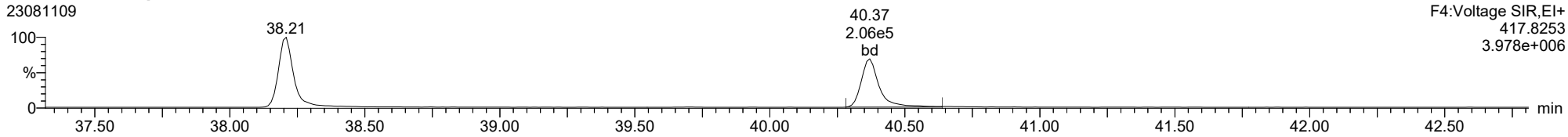
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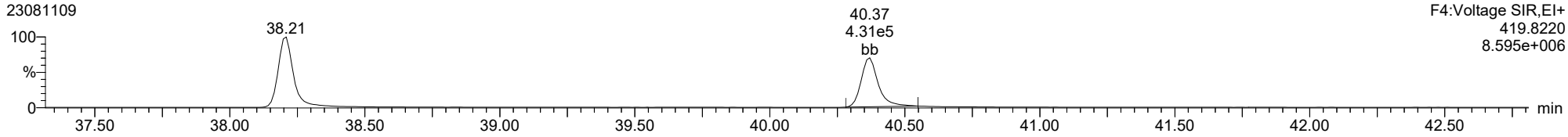
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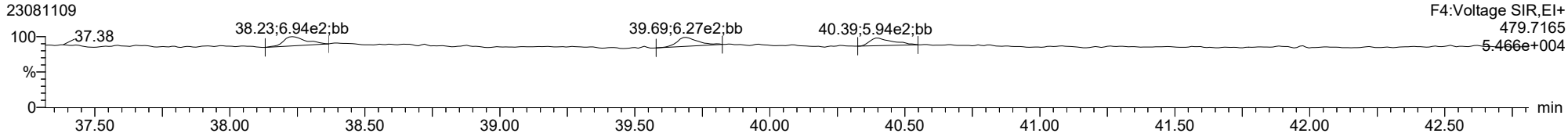
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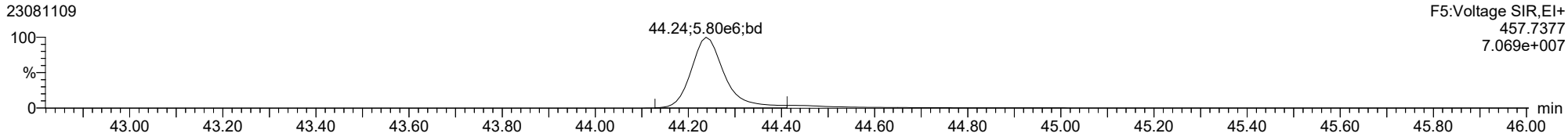


FUNCTION4 NCDPE

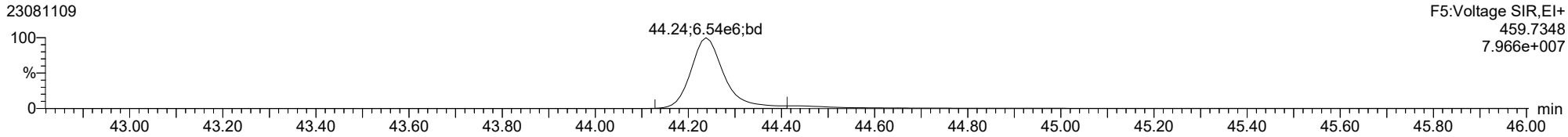


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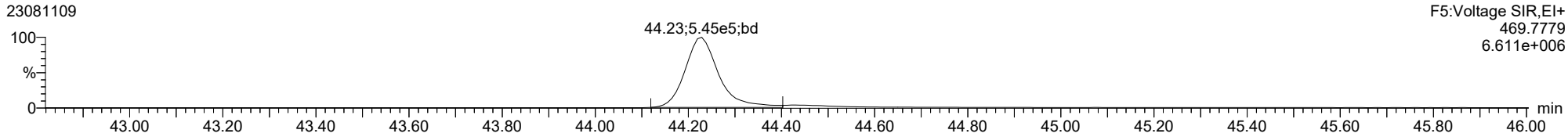
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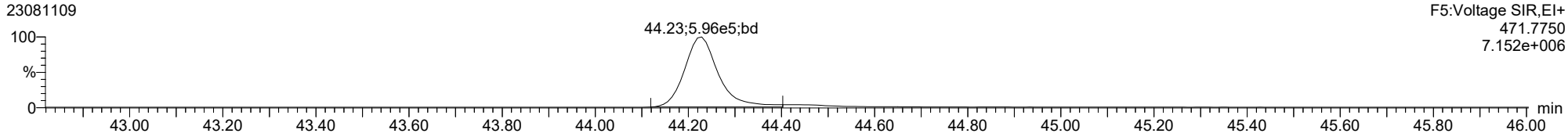
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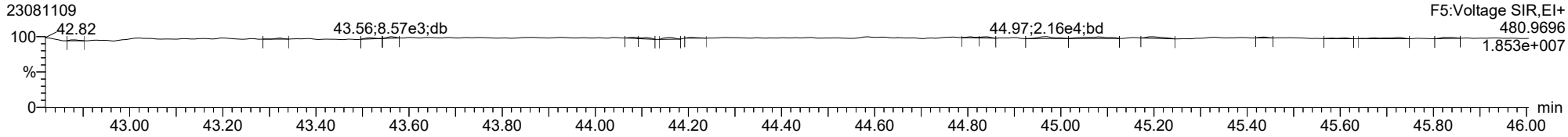
13C-OCDD



13C-OCDD

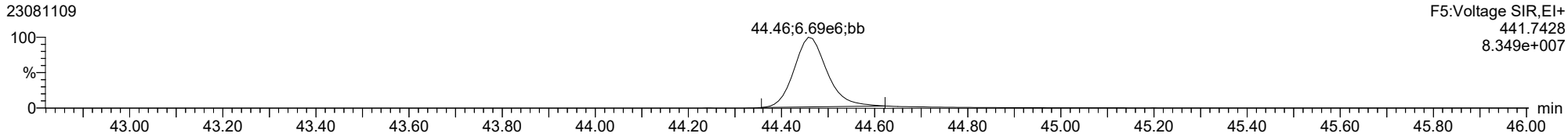


FUNCTION5 PFK

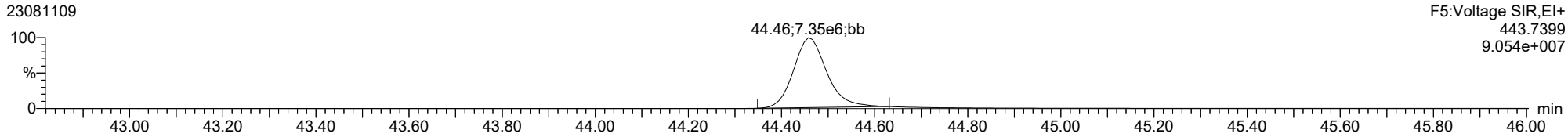


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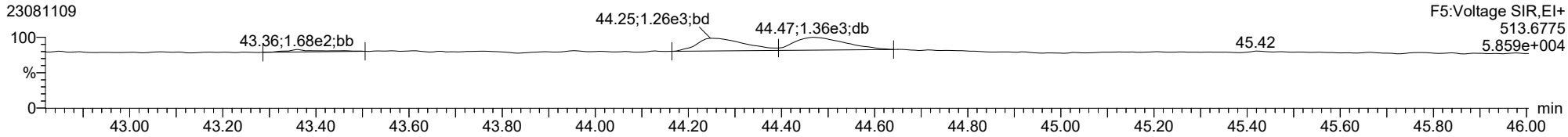
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OCDF

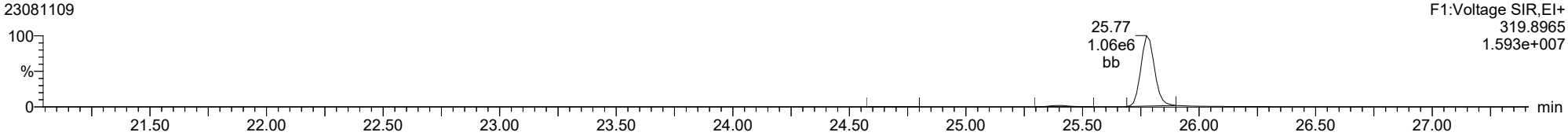


FUNCTION5 DCDPE

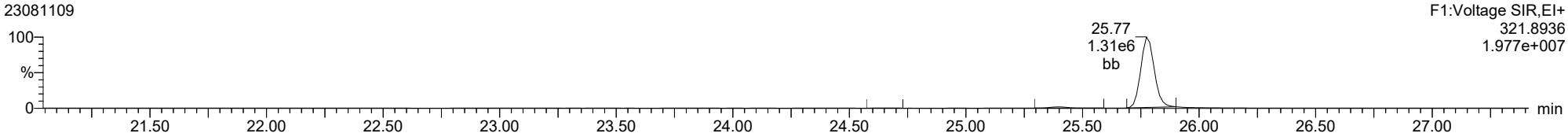


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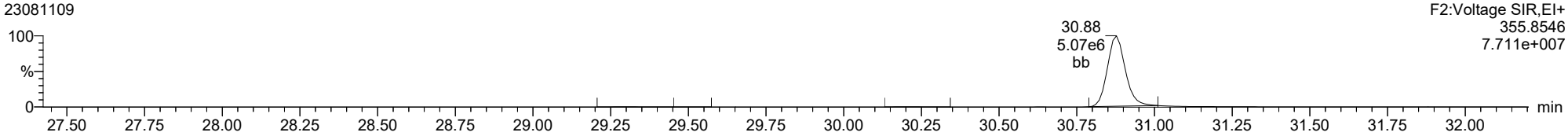
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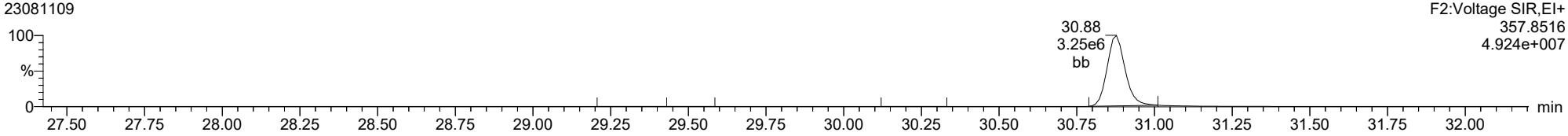
Total-tetradioxins



Total-pentadioxins



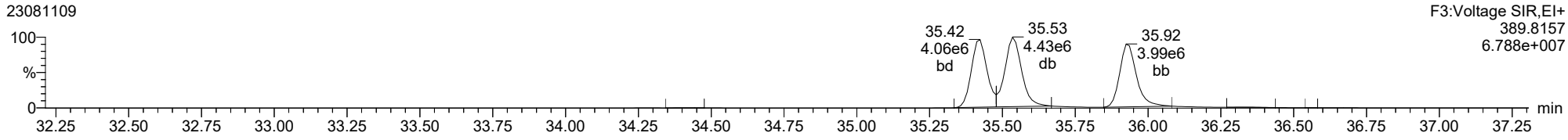
Total-pentadioxins



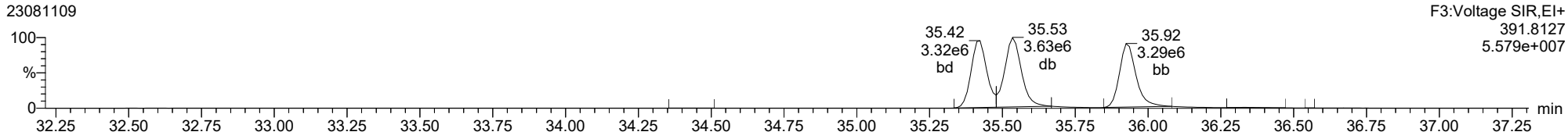
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Printed: Tuesday, August 15, 2023 12:25:02 Pacific Daylight Time

ID: CS5CF, Name: 23081109, Date: 11-Aug-2023, Time: 16:29:22, Conditions: AUTOSPEC01, User: pk

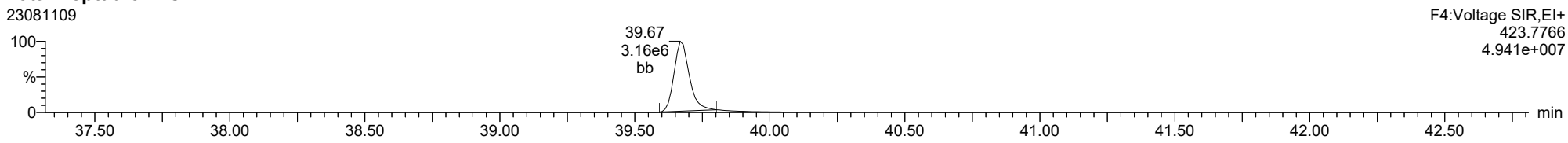
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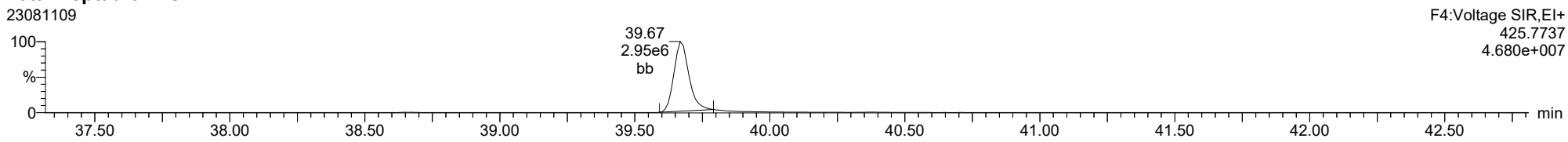
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Total-heptadioxins

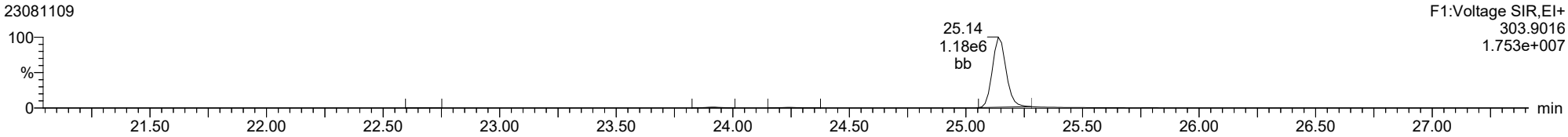


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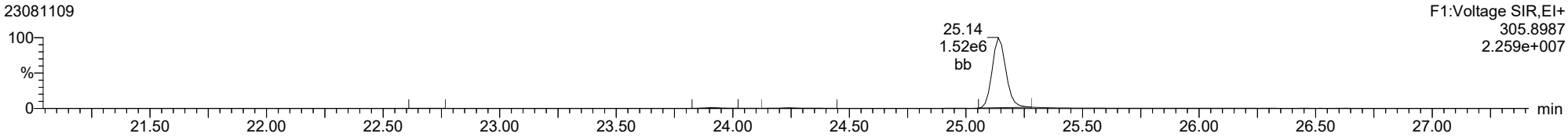


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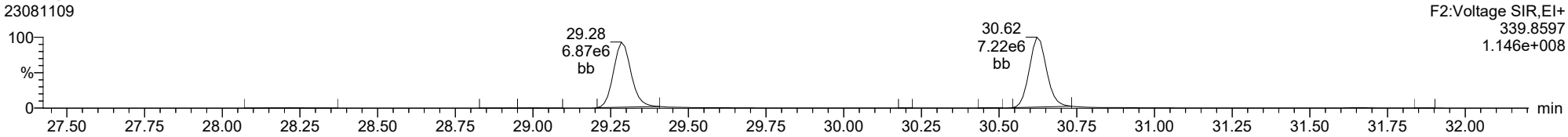
Total-tetrafurans



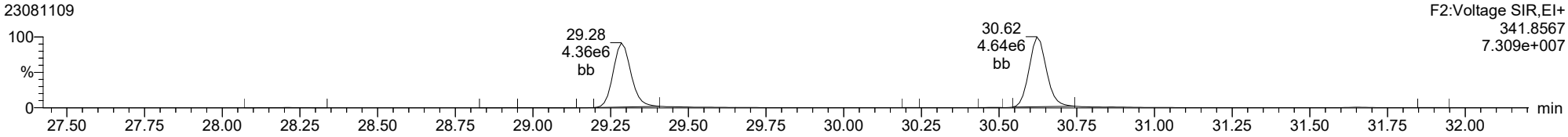
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Total-pentafurans

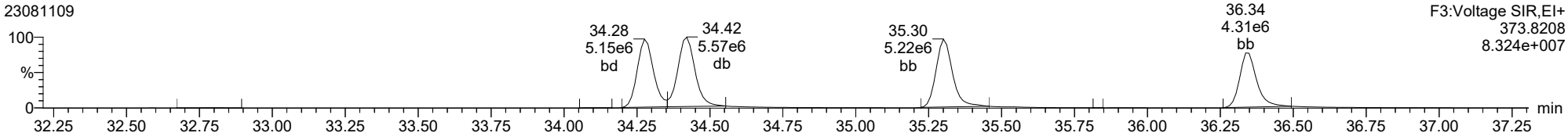


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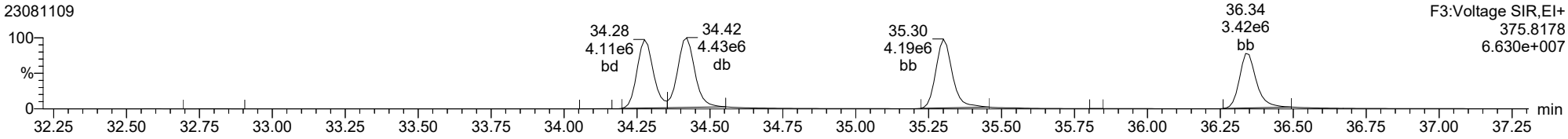


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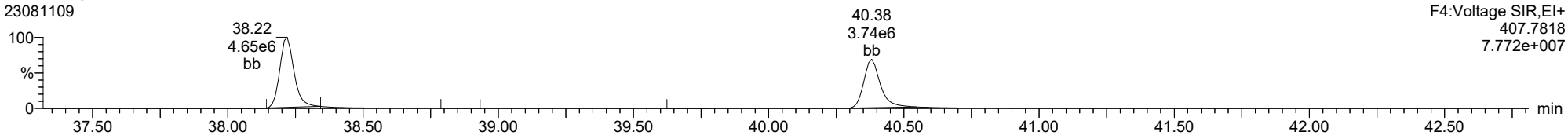
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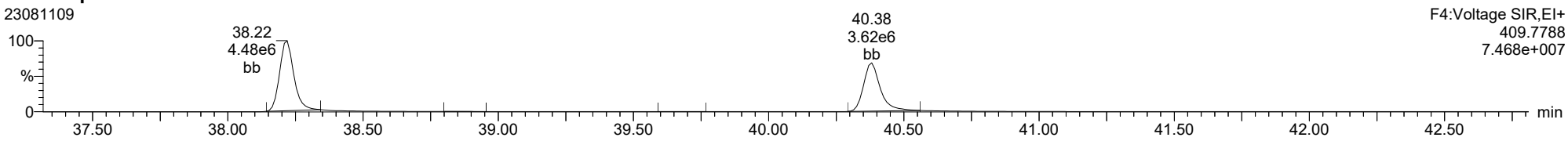
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230811CCVIH.qld
Last Altered: Tuesday, August 15, 2023 12:26:06 Pacific Daylight Time
Printed: Tuesday, August 15, 2023 12:27:04 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 12 Aug 2023 10:54:09
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.139	1.001	7.423e4	9.642e4	0.903	0.770	0.770	1316	1323	1.10e6	1.40e6	835.9	1058.4	NO	bb	bb	9.781
12378-PeCDF	29.285	1.000	3.963e5	2.779e5	0.923	1.426	1.550	3241	2842	5.71e6	3.77e6	1762.0	1327.2	NO	bb	bb	49.295
23478-PeCDF	30.622	1.000	4.105e5	2.654e5	0.991	1.546	1.550	3241	2842	5.92e6	3.77e6	1825.5	1327.5	NO	bb	bb	50.524
123478-HxCDF	34.276	1.000	2.923e5	2.345e5	1.128	1.246	1.240	2958	2746	4.27e6	3.49e6	1442.8	1272.0	NO	bd	bd	50.046
234678-HxCDF	35.301	1.000	2.850e5	2.420e5	1.081	1.178	1.240	2958	2746	4.13e6	3.29e6	1395.6	1199.7	NO	bb	bd	52.928
123678-HxCDF	34.421	1.001	3.263e5	2.646e5	1.032	1.233	1.240	2958	2746	4.61e6	3.73e6	1557.6	1359.8	NO	db	db	50.926
123789-HxCDF	36.348	1.001	2.398e5	1.932e5	0.988	1.242	1.240	2958	2746	3.27e6	2.65e6	1106.6	965.1	NO	bb	bb	53.421
1234678-HpCDF	38.220	1.000	2.680e5	2.533e5	1.164	1.058	1.050	2121	2525	4.11e6	3.90e6	1936.6	1543.7	NO	bb	bb	51.933
1234789-HpCDF	40.381	1.000	2.267e5	1.989e5	1.104	1.140	1.050	2121	2525	2.82e6	2.56e6	1329.2	1014.9	NO	bd	bb	56.722
OCDF	44.458	1.005	3.318e5	3.955e5	1.130	0.839	0.890	2049	2908	3.61e6	4.04e6	1762.4	1389.6	NO	bb	bd	100.341
2378-TCDD	25.788	1.001	6.359e4	7.771e4	1.243	0.818	0.770	1854	1473	9.15e5	1.10e6	493.4	748.3	NO	bb	bb	9.852
12378-PeCDD	30.878	1.001	2.960e5	1.806e5	1.150	1.639	1.550	2737	2510	4.05e6	2.54e6	1479.9	1012.5	NO	bd	bb	52.791
123478-HxCDD	35.424	1.001	2.141e5	1.779e5	0.960	1.204	1.240	2122	2186	3.33e6	2.73e6	1570.0	1248.1	NO	bd	bd	47.771
123678-HxCDD	35.535	1.000	2.527e5	2.090e5	0.883	1.209	1.240	2122	2186	3.42e6	2.81e6	1612.0	1287.4	NO	db	db	50.765
123789-HxCDD	35.925	1.011	2.356e5	1.782e5	0.804	1.322	1.240	2122	2186	3.10e6	2.53e6	1463.2	1157.3	NO	bd	bb	54.634
1234678-HpCDD	39.668	1.000	1.732e5	1.629e5	1.200	1.063	1.050	2111	2786	2.44e6	2.37e6	1157.1	850.7	NO	bb	bb	48.260
OCDD	44.229	1.000	3.183e5	3.503e5	1.059	0.909	0.890	4632	2511	3.35e6	3.71e6	723.0	1476.0	NO	bd	bd	98.465
13C-2378-TCDF	25.125	1.007	8.531e5	1.079e6	1.835	0.791	0.770	1734	1865	1.24e7	1.58e7	7147.1	8470.2	NO	bb	bb	101.247
13C-12378-PeCDF	29.274	1.174	9.269e5	5.545e5	1.377	1.672	1.550	2784	3824	1.23e7	7.86e6	4432.1	2055.6	NO	bb	bb	103.526
13C-23478-PeCDF	30.611	1.227	8.254e5	5.250e5	1.301	1.572	1.550	2784	3824	1.18e7	7.52e6	4227.8	1966.9	NO	bb	bb	99.839
13C-123478-HxCDF	34.265	0.954	3.145e5	6.185e5	1.091	0.508	0.510	2630	3620	4.61e6	9.02e6	1752.2	2492.5	NO	bd	bd	95.308
13C-123678-HxCDF	34.398	0.958	4.041e5	7.199e5	1.340	0.561	0.510	2630	3620	5.11e6	9.77e6	1944.6	2698.4	NO	dd	db	93.428
13C-234678-HxCDF	35.290	0.983	3.107e5	6.101e5	1.093	0.509	0.510	2630	3620	4.39e6	8.59e6	1669.9	2373.8	NO	bb	bb	93.815
13C-123789-HxCDF	36.326	1.011	2.796e5	5.411e5	0.952	0.517	0.510	2630	3620	3.70e6	7.29e6	1405.3	2013.9	NO	bb	bb	96.081
13C-1234678-HpCDF	38.209	1.064	2.670e5	5.956e5	0.985	0.448	0.440	3962	3758	3.99e6	8.90e6	1008.0	2367.0	NO	bb	bb	97.565
13C-1234789-HpCDF	40.370	1.124	2.132e5	4.666e5	0.756	0.457	0.440	3962	3758	2.79e6	6.08e6	702.9	1616.6	NO	bb	bb	100.207
13C-1234-TCDD	24.941	0.000	4.631e5	5.764e5	1.000	0.803	0.770	1709	1577	6.86e6	8.64e6	4013.1	5475.2	NO	bb	bb	100.000
13C-2378-TCDD	25.760	1.033	5.173e5	6.367e5	1.110	0.812	0.770	1709	1577	7.53e6	9.46e6	4405.6	5997.8	NO	bb	bb	100.045
13C-12378-PeCDD	30.855	1.237	4.863e5	2.988e5	0.754	1.628	1.550	1036	1090	6.82e6	4.17e6	6584.7	3824.7	NO	bb	bb	100.204
13C-123478-HxCDD	35.401	0.986	4.756e5	3.789e5	0.960	1.255	1.240	1331	1854	6.97e6	5.62e6	5236.7	3029.1	NO	bd	bd	99.178
13C-123678-HxCDD	35.524	0.989	5.763e5	4.540e5	1.159	1.269	1.240	1331	1854	7.56e6	6.04e6	5683.5	3256.1	NO	db	db	99.014
13C-1234678-HpCDD	39.657	1.104	3.002e5	2.803e5	0.629	1.071	1.050	1654	2361	4.12e6	3.81e6	2488.1	1614.7	NO	bb	bb	102.767
13C-OCDD	44.220	1.231	6.178e5	6.649e5	0.635	0.929	0.890	3963	2769	6.36e6	6.86e6	1605.4	2476.0	NO	bd	bd	224.998
13C-123789-HxCDD	35.914	0.000	4.983e5	3.993e5	1.000	1.248	1.240	1331	1854	6.97e6	5.63e6	5241.4	3033.7	NO	bb	bb	100.000
37CL-2378-TCDD	25.774	1.033	1.166e5		1.157			1488		1.68e6		1126.4			bb		9.694

Dataset: T:\Autospec\Processed Data Batch\230811CCVIH.qld
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Printed: Tuesday, August 15, 2023 12:27:04 Pacific Daylight Time

ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.664	0.862	9.752e4	1.225e5	1.170	0.796	0.770	1316	1323	1.51e6	1.89e6	1144.8	1427.5	NO	bb	bb	9.732
1289-TCDF	26.636	1.060	6.770e4	8.840e4	0.847	0.766	0.770	1316	1323	9.36e5	1.22e6	710.9	924.9	NO	db	bb	9.543
13468-PECDF	26.495	0.905	4.921e5	3.243e5	1.241	1.518	1.550	812	936	7.49e6	4.93e6	9225.9	5269.7	NO	bb	bb	44.409
12389-PECDF	31.658	1.081	3.855e5	2.595e5	0.880	1.486	1.550	3241	2842	5.21e6	3.30e6	1607.8	1162.2	NO	bb	bb	49.498
123468-HXCDF	32.583	0.951	3.185e5	2.569e5	1.206	1.240	1.240	2958	2746	4.47e6	3.54e6	1512.4	1287.4	NO	bb	bb	51.156
1368-TCDD	22.921	0.890	6.370e4	7.877e4	1.181	0.809	0.770	1854	1473	9.95e5	1.24e6	537.0	842.9	NO	bb	bb	10.456
1289-TCDD	26.382	1.024	5.199e4	6.302e4	0.963	0.825	0.770	1854	1473	7.14e5	8.77e5	385.3	595.0	NO	bb	bb	10.352
12479-PECDD	28.170	0.913	5.112e5	3.251e5	2.166	1.572	1.550	2737	2510	4.87e6	3.05e6	1779.7	1215.0	NO	bb	bb	49.173
12389-PECDD	31.279	1.014	3.184e5	2.148e5	1.326	1.482	1.550	2737	2510	4.32e6	2.75e6	1579.5	1093.9	NO	bb	bd	51.214
124679-HXCDD	33.374	0.943	2.500e5	2.168e5	1.127	1.153	1.240	2122	2186	3.56e6	2.93e6	1679.9	1340.1	NO	bb	bd	48.490
1234679-HPCDD	38.654	0.975	1.961e5	1.871e5	1.303	1.048	1.050	2111	2786	2.89e6	2.79e6	1368.8	999.6	NO	bb	bb	50.665
Total-tetrafurans			2.407e5		0.973			1316		3.56e6							29.212
Total-penta1			4.921e5					812		7.49e6							44.409
Total-pentafurans			1.261e6		0.931			3241		1.78e7							157.799
Total-hexafurans			1.462e6		1.087			2958		2.08e7							258.476
Total-heptafurans			4.947e5		1.134			2121		6.93e6							108.655
Total-Furans			4.282e6		1.053			1316		6.01e7							698.892
Total-tetradioxins			3.051e5		1.129			1854		4.05e6							52.353
Total-pentadioxins			1.128e6		1.548			2737		1.33e7							153.490
Total-hexadioxins			9.524e5		0.943			2122		1.34e7							201.659
Total-heptadioxins			3.692e5		1.251			2111		5.33e6							98.925
Total-Dioxins			3.073e6		1.182			1854		3.94e7							604.892
Total-TEQ			7.355e6					1854		9.96e7							1303.783
FUNCTION1 PFK			7.808e5					486759		1.68e7							
FUNCTION2 PFK			7.449e5					276212		1.82e7							0.000
FUNCTION3 PFK			8.836e5					361131		2.05e7							0.000
FUNCTION4 PFK			6.975e6					270910		2.31e7							
FUNCTION5 PFK			1.157e5					191309		4.19e6							
FUNCTION1 HXCD...			1.143e2					591		2.28e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			6.533e2					947		1.28e4							0.000
FUNCTION3 OCDPE			7.108e2					608		9.70e3							0.000
FUNCTION4 NCDPE			1.803e2					753		2.86e3							0.000
FUNCTION5 DCDPE			8.904e1					515		1.37e3							0.000

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Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	6.770e4	8.840e4	0.847	0.77	0.77	710.9	YES	NO	db	bb	9.543
2	2378-TCDF	25.14	7.423e4	9.642e4	0.903	0.77	0.77	835.9	YES	NO	bb	bb	9.781
3	Total-tetrafurans	24.07	5.766e2	7.507e2	0.973	0.77	0.77	6.9	YES	NO	db	dd	0.071
4	Total-tetrafurans	23.92	6.836e2	9.178e2	0.973	0.74	0.77	8.0	YES	NO	bd	bd	0.085
5	1368-TCDF	21.66	9.752e4	1.225e5	1.170	0.80	0.77	1144.8	YES	NO	bb	bb	9.732

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.49	4.921e5	3.243e5	1.241	1.52	1.55	9225.9	YES	NO	bb	bb	44.409

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	31.66	3.855e5	2.595e5	0.880	1.49	1.55	1607.8	YES	NO	bb	bb	49.498
2	23478-PeCDF	30.62	4.105e5	2.654e5	0.991	1.55	1.55	1825.5	YES	NO	bb	bb	50.524
3	12378-PeCDF	29.28	3.963e5	2.779e5	0.923	1.43	1.55	1762.0	YES	NO	bb	bb	49.295
4	Total-pentafurans	28.15	6.847e4	4.336e4	0.931	1.58	1.55	295.6	YES	NO	bb	bb	8.482

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.35	2.398e5	1.932e5	0.988	1.24	1.24	1106.6	YES	NO	bb	bb	53.421
2	234678-HxCDF	35.30	2.850e5	2.420e5	1.081	1.18	1.24	1395.6	YES	NO	bb	bd	52.928
3	123678-HxCDF	34.42	3.263e5	2.646e5	1.032	1.23	1.24	1557.6	YES	NO	db	db	50.926
4	123478-HxCDF	34.28	2.923e5	2.345e5	1.128	1.25	1.24	1442.8	YES	NO	bd	bd	50.046
5	123468-HXCDF	32.58	3.185e5	2.569e5	1.206	1.24	1.24	1512.4	YES	NO	bb	bb	51.156

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.38	2.267e5	1.989e5	1.104	1.14	1.05	1329.2	YES	NO	bd	bb	56.722
2	1234678-HpCDF	38.22	2.680e5	2.533e5	1.164	1.06	1.05	1936.6	YES	NO	bb	bb	51.933

ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	6.770e4	8.840e4	0.847	0.77	0.77	710.9	YES	NO	db	bb	9.543
2	2378-TCDF	25.14	7.423e4	9.642e4	0.903	0.77	0.77	835.9	YES	NO	bb	bb	9.781
3	Total-tetrafurans	24.07	5.766e2	7.507e2	0.973	0.77	0.77	6.9	YES	NO	db	dd	0.071
4	Total-tetrafurans	23.92	6.836e2	9.178e2	0.973	0.74	0.77	8.0	YES	NO	bd	bd	0.085
5	1368-TCDF	21.66	9.752e4	1.225e5	1.170	0.80	0.77	1144.8	YES	NO	bb	bb	9.732
6	12389-PECDF	31.66	3.855e5	2.595e5	0.880	1.49	1.55	1607.8	YES	NO	bb	bb	49.498
7	23478-PeCDF	30.62	4.105e5	2.654e5	0.991	1.55	1.55	1825.5	YES	NO	bb	bb	50.524
8	12378-PeCDF	29.28	3.963e5	2.779e5	0.923	1.43	1.55	1762.0	YES	NO	bb	bb	49.295
9	Total-pentafurans	28.15	6.847e4	4.336e4	0.931	1.58	1.55	295.6	YES	NO	bb	bb	8.482
10	123789-HxCDF	36.35	2.398e5	1.932e5	0.988	1.24	1.24	1106.6	YES	NO	bb	bb	53.421
11	234678-HxCDF	35.30	2.850e5	2.420e5	1.081	1.18	1.24	1395.6	YES	NO	bb	bd	52.928
12	123678-HxCDF	34.42	3.263e5	2.646e5	1.032	1.23	1.24	1557.6	YES	NO	db	db	50.926
13	123478-HxCDF	34.28	2.923e5	2.345e5	1.128	1.25	1.24	1442.8	YES	NO	bd	bd	50.046
14	123468-HXCDF	32.58	3.185e5	2.569e5	1.206	1.24	1.24	1512.4	YES	NO	bb	bb	51.156
15	1234789-HpCDF	40.38	2.267e5	1.989e5	1.104	1.14	1.05	1329.2	YES	NO	bd	bb	56.722
16	1234678-HpCDF	38.22	2.680e5	2.533e5	1.164	1.06	1.05	1936.6	YES	NO	bb	bb	51.933
17	OCDF	44.46	3.318e5	3.955e5	1.130	0.84	0.89	1762.4	YES	NO	bb	bd	100.341
18	13468-PECDF	26.49	4.921e5	3.243e5	1.241	1.52	1.55	9225.9	YES	NO	bb	bb	44.409

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.38	5.199e4	6.302e4	0.963	0.82	0.77	385.3	YES	NO	bb	bb	10.352
2	2378-TCDD	25.79	6.359e4	7.771e4	1.243	0.82	0.77	493.4	YES	NO	bb	bb	9.852
3	Total-tetradioxins	25.45	9.235e4	1.156e5	1.129	0.80	0.77	502.7	YES	NO	bb	bb	15.965
4	Total-tetradioxins	24.97	3.090e4	3.807e4	1.129	0.81	0.77	253.5	YES	NO	bb	bb	5.294
5	Total-tetradioxins	24.12	2.526e3	3.134e3	1.129	0.81	0.77	12.9	YES	NO	bb	bb	0.435
6	1368-TCDD	22.92	6.370e4	7.877e4	1.181	0.81	0.77	537.0	YES	NO	bb	bb	10.456

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12479-PECDD	28.17	5.112e5	3.251e5	2.166	1.57	1.55	1779.7	YES	NO	bb	bb	49.173
2	12389-PECDD	31.28	3.184e5	2.148e5	1.326	1.48	1.55	1579.5	YES	NO	bb	bd	51.214
3	12378-PeCDD	30.88	2.960e5	1.806e5	1.150	1.64	1.55	1479.9	YES	NO	bd	bb	52.791
4	Total-pentadioxins	30.21	1.196e3	8.873e2	1.548	1.35	1.55	5.6	YES	NO	bb	bb	0.172
5	Total-pentadioxins	29.28	9.733e2	7.308e2	1.548	1.33	1.55	4.7	YES	NO	bb	bb	0.140

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDD	35.42	2.141e5	1.779e5	0.960	1.20	1.24	1570.0	YES	NO	bd	bd	47.771
2	124679-HXCDD	33.37	2.500e5	2.168e5	1.127	1.15	1.24	1679.9	YES	NO	bb	bd	48.490
3	123789-HxCDD	35.92	2.356e5	1.782e5	0.804	1.32	1.24	1463.2	YES	NO	bd	bb	54.634
4	123678-HxCDD	35.53	2.527e5	2.090e5	0.883	1.21	1.24	1612.0	YES	NO	db	db	50.765

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234679-HPCDD	38.65	1.961e5	1.871e5	1.303	1.05	1.05	1368.8	YES	NO	bb	bb	50.665
2	1234678-HpCDD	39.67	1.732e5	1.629e5	1.200	1.06	1.05	1157.1	YES	NO	bb	bb	48.260

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.38	5.199e4	6.302e4	0.963	0.82	0.77	385.3	YES	NO	bb	bb	10.352
2	2378-TCDD	25.79	6.359e4	7.771e4	1.243	0.82	0.77	493.4	YES	NO	bb	bb	9.852
3	Total-tetradioxins	25.45	9.235e4	1.156e5	1.129	0.80	0.77	502.7	YES	NO	bb	bb	15.965
4	Total-tetradioxins	24.97	3.090e4	3.807e4	1.129	0.81	0.77	253.5	YES	NO	bb	bb	5.294
5	Total-tetradioxins	24.12	2.526e3	3.134e3	1.129	0.81	0.77	12.9	YES	NO	bb	bb	0.435
6	1368-TCDD	22.92	6.370e4	7.877e4	1.181	0.81	0.77	537.0	YES	NO	bb	bb	10.456
7	12479-PECDD	28.17	5.112e5	3.251e5	2.166	1.57	1.55	1779.7	YES	NO	bb	bb	49.173
8	12389-PECDD	31.28	3.184e5	2.148e5	1.326	1.48	1.55	1579.5	YES	NO	bb	bd	51.214
9	12378-PeCDD	30.88	2.960e5	1.806e5	1.150	1.64	1.55	1479.9	YES	NO	bd	bb	52.791
10	Total-pentadioxins	30.21	1.196e3	8.873e2	1.548	1.35	1.55	5.6	YES	NO	bb	bb	0.172
11	Total-pentadioxins	29.28	9.733e2	7.308e2	1.548	1.33	1.55	4.7	YES	NO	bb	bb	0.140
12	123478-HxCDD	35.42	2.141e5	1.779e5	0.960	1.20	1.24	1570.0	YES	NO	bd	bd	47.771
13	124679-HXCDD	33.37	2.500e5	2.168e5	1.127	1.15	1.24	1679.9	YES	NO	bb	bd	48.490
14	123789-HxCDD	35.92	2.356e5	1.782e5	0.804	1.32	1.24	1463.2	YES	NO	bd	bb	54.634
15	123678-HxCDD	35.53	2.527e5	2.090e5	0.883	1.21	1.24	1612.0	YES	NO	db	db	50.765
16	1234679-HPCDD	38.65	1.961e5	1.871e5	1.303	1.05	1.05	1368.8	YES	NO	bb	bb	50.665
17	1234678-HpCDD	39.67	1.732e5	1.629e5	1.200	1.06	1.05	1157.1	YES	NO	bb	bb	48.260
18	OCDD	44.23	3.183e5	3.503e5	1.059	0.91	0.89	723.0	YES	NO	bd	bd	98.465

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	6.770e4	8.840e4	0.847	0.77	0.77	710.9	YES	NO	db	bb	9.543
2	2378-TCDF	25.14	7.423e4	9.642e4	0.903	0.77	0.77	835.9	YES	NO	bb	bb	9.781
3	Total-tetrafurans	24.07	5.766e2	7.507e2	0.973	0.77	0.77	6.9	YES	NO	db	dd	0.071
4	Total-tetrafurans	23.92	6.836e2	9.178e2	0.973	0.74	0.77	8.0	YES	NO	bd	bd	0.085
5	1368-TCDF	21.66	9.752e4	1.225e5	1.170	0.80	0.77	1144.8	YES	NO	bb	bb	9.732
6	12389-PECDF	31.66	3.855e5	2.595e5	0.880	1.49	1.55	1607.8	YES	NO	bb	bb	49.498
7	23478-PeCDF	30.62	4.105e5	2.654e5	0.991	1.55	1.55	1825.5	YES	NO	bb	bb	50.524
8	12378-PeCDF	29.28	3.963e5	2.779e5	0.923	1.43	1.55	1762.0	YES	NO	bb	bb	49.295
9	Total-pentafurans	28.15	6.847e4	4.336e4	0.931	1.58	1.55	295.6	YES	NO	bb	bb	8.482
10	123789-HxCDF	36.35	2.398e5	1.932e5	0.988	1.24	1.24	1106.6	YES	NO	bb	bb	53.421
11	234678-HxCDF	35.30	2.850e5	2.420e5	1.081	1.18	1.24	1395.6	YES	NO	bb	bd	52.928
12	123678-HxCDF	34.42	3.263e5	2.646e5	1.032	1.23	1.24	1557.6	YES	NO	db	db	50.926
13	123478-HxCDF	34.28	2.923e5	2.345e5	1.128	1.25	1.24	1442.8	YES	NO	bd	bd	50.046
14	123468-HXCDF	32.58	3.185e5	2.569e5	1.206	1.24	1.24	1512.4	YES	NO	bb	bb	51.156
15	1234789-HpCDF	40.38	2.267e5	1.989e5	1.104	1.14	1.05	1329.2	YES	NO	bd	bb	56.722
16	1234678-HpCDF	38.22	2.680e5	2.533e5	1.164	1.06	1.05	1936.6	YES	NO	bb	bb	51.933
17	OCDF	44.46	3.318e5	3.955e5	1.130	0.84	0.89	1762.4	YES	NO	bb	bd	100.341
18	13468-PECDF	26.49	4.921e5	3.243e5	1.241	1.52	1.55	9225.9	YES	NO	bb	bb	44.409
19	1289-TCDD	26.38	5.199e4	6.302e4	0.963	0.82	0.77	385.3	YES	NO	bb	bb	10.352
20	2378-TCDD	25.79	6.359e4	7.771e4	1.243	0.82	0.77	493.4	YES	NO	bb	bb	9.852
21	Total-tetradioxins	25.45	9.235e4	1.156e5	1.129	0.80	0.77	502.7	YES	NO	bb	bb	15.965
22	Total-tetradioxins	24.97	3.090e4	3.807e4	1.129	0.81	0.77	253.5	YES	NO	bb	bb	5.294
23	Total-tetradioxins	24.12	2.526e3	3.134e3	1.129	0.81	0.77	12.9	YES	NO	bb	bb	0.435
24	1368-TCDD	22.92	6.370e4	7.877e4	1.181	0.81	0.77	537.0	YES	NO	bb	bb	10.456
25	12479-PECDD	28.17	5.112e5	3.251e5	2.166	1.57	1.55	1779.7	YES	NO	bb	bb	49.173
26	12389-PECDD	31.28	3.184e5	2.148e5	1.326	1.48	1.55	1579.5	YES	NO	bb	bd	51.214
27	12378-PeCDD	30.88	2.960e5	1.806e5	1.150	1.64	1.55	1479.9	YES	NO	bd	bb	52.791
28	Total-pentadioxins	30.21	1.196e3	8.873e2	1.548	1.35	1.55	5.6	YES	NO	bb	bb	0.172
29	Total-pentadioxins	29.28	9.733e2	7.308e2	1.548	1.33	1.55	4.7	YES	NO	bb	bb	0.140
30	123478-HxCDD	35.42	2.141e5	1.779e5	0.960	1.20	1.24	1570.0	YES	NO	bd	bd	47.771
31	124679-HXCDD	33.37	2.500e5	2.168e5	1.127	1.15	1.24	1679.9	YES	NO	bb	bd	48.490
32	123789-HxCDD	35.92	2.356e5	1.782e5	0.804	1.32	1.24	1463.2	YES	NO	bd	bb	54.634
33	123678-HxCDD	35.53	2.527e5	2.090e5	0.883	1.21	1.24	1612.0	YES	NO	db	db	50.765
34	1234679-HPCDD	38.65	1.961e5	1.871e5	1.303	1.05	1.05	1368.8	YES	NO	bb	bb	50.665
35	1234678-HpCDD	39.67	1.732e5	1.629e5	1.200	1.06	1.05	1157.1	YES	NO	bb	bb	48.260
36	OCDD	44.23	3.183e5	3.503e5	1.059	0.91	0.89	723.0	YES	NO	bd	bd	98.465

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.68	1.767e4					1.1	NO		dd		
2	FUNCTION1 PFK	21.64	3.920e4					1.3	NO		bd		
3	FUNCTION1 PFK	21.35	2.555e4					1.4	NO		db		
4	FUNCTION1 PFK	21.31	1.859e4					1.2	NO		bd		
5	FUNCTION1 PFK	21.24	4.622e4					1.6	NO		db		
6	FUNCTION1 PFK	21.13	2.882e4					1.2	NO		bd		
7	FUNCTION1 PFK	26.01	2.106e4					1.1	NO		bb		
8	FUNCTION1 PFK	25.73	1.039e4					0.8	NO		bb		
9	FUNCTION1 PFK	25.51	1.076e4					0.7	NO		bb		
10	FUNCTION1 PFK	24.96	2.260e4					1.4	NO		db		
11	FUNCTION1 PFK	24.86	4.840e4					1.6	NO		bd		
12	FUNCTION1 PFK	24.46	4.994e3					0.7	NO		bb		
13	FUNCTION1 PFK	23.90	2.884e4					1.5	NO		bb		
14	FUNCTION1 PFK	23.75	1.059e4					1.0	NO		bb		
15	FUNCTION1 PFK	23.57	2.495e4					1.3	NO		bb		
16	FUNCTION1 PFK	22.55	8.571e4					1.9	NO		bb		
17	FUNCTION1 PFK	22.47	5.005e4					1.1	NO		bb		
18	FUNCTION1 PFK	22.19	9.994e3					0.8	NO		bb		
19	FUNCTION1 PFK	21.97	5.856e4					1.4	NO		bb		
20	FUNCTION1 PFK	21.83	2.649e4					1.6	NO		db		
21	FUNCTION1 PFK	21.78	2.302e4					1.3	NO		dd		
22	FUNCTION1 PFK	21.73	6.341e3					0.7	NO		dd		
23	FUNCTION1 PFK	27.24	2.681e4					1.2	NO		bb		
24	FUNCTION1 PFK	27.19	3.113e3					0.5	NO		bb		
25	FUNCTION1 PFK	27.06	7.590e3					0.6	NO		bb		
26	FUNCTION1 PFK	26.78	4.486e4					1.7	NO		bb		
27	FUNCTION1 PFK	26.66	3.174e4					1.2	NO		db		
28	FUNCTION1 PFK	26.57	3.642e4					1.7	NO		bd		
29	FUNCTION1 PFK	26.18	1.151e4					0.9	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.29	2.732e3					0.7	NO		db		0.000
2	FUNCTION2 PFK	28.26	6.938e3					1.0	NO		bd		0.000
3	FUNCTION2 PFK	28.20	9.092e3					1.2	NO		db		0.000
4	FUNCTION2 PFK	28.16	1.377e4					1.4	NO		bd		0.000
5	FUNCTION2 PFK	28.06	3.165e3					0.6	NO		bb		0.000
6	FUNCTION2 PFK	27.87	9.196e3					1.5	NO		bb		0.000
7	FUNCTION2 PFK	27.67	2.199e4					1.4	NO		bb		0.000
8	FUNCTION2 PFK	27.55	2.497e4					1.8	NO		bb		0.000
9	FUNCTION2 PFK	30.21	3.416e4					2.3	NO		db		0.000
10	FUNCTION2 PFK	30.12	2.705e4					1.9	NO		dd		0.000
11	FUNCTION2 PFK	30.06	1.914e4					1.9	NO		bd		0.000
12	FUNCTION2 PFK	29.99	8.490e3					1.3	NO		db		0.000
13	FUNCTION2 PFK	29.96	9.023e3					1.1	NO		bd		0.000
14	FUNCTION2 PFK	29.62	1.941e4					1.6	NO		db		0.000
15	FUNCTION2 PFK	29.50	2.598e4					1.4	NO		dd		0.000
16	FUNCTION2 PFK	29.43	1.158e4					1.2	NO		dd		0.000
17	FUNCTION2 PFK	29.36	1.815e4					1.7	NO		bd		0.000
18	FUNCTION2 PFK	29.32	1.971e4					1.0	NO		db		0.000
19	FUNCTION2 PFK	29.20	2.466e3					0.4	NO		bd		0.000
20	FUNCTION2 PFK	29.15	7.869e3					0.9	NO		bb		0.000
21	FUNCTION2 PFK	28.95	1.003e4					0.9	NO		bb		0.000
22	FUNCTION2 PFK	28.74	8.429e3					1.2	NO		bb		0.000
23	FUNCTION2 PFK	28.68	6.948e3					1.0	NO		bb		0.000
24	FUNCTION2 PFK	28.44	1.258e4					1.2	NO		bb		0.000
25	FUNCTION2 PFK	31.72	1.268e4					1.3	NO		db		0.000
26	FUNCTION2 PFK	31.68	2.085e4					1.9	NO		dd		0.000
27	FUNCTION2 PFK	31.58	2.676e4					1.9	NO		dd		0.000
28	FUNCTION2 PFK	31.50	3.605e4					2.3	NO		bd		0.000
29	FUNCTION2 PFK	31.45	1.724e4					1.1	NO		bb		0.000
30	FUNCTION2 PFK	31.31	1.869e4					2.0	NO		bb		0.000
31	FUNCTION2 PFK	31.21	1.453e4					1.0	NO		bb		0.000
32	FUNCTION2 PFK	31.09	1.215e4					1.1	NO		bb		0.000
33	FUNCTION2 PFK	30.96	2.108e4					1.4	NO		bb		0.000
34	FUNCTION2 PFK	30.69	1.684e4					1.1	NO		bb		0.000
35	FUNCTION2 PFK	30.61	2.085e3					0.5	NO		bb		0.000
36	FUNCTION2 PFK	30.53	1.995e4					1.4	NO		db		0.000
37	FUNCTION2 PFK	30.47	1.901e4					1.5	NO		dd		0.000

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION2 PFK	30.41	1.962e4					2.2	NO		dd		0.000
39	FUNCTION2 PFK	30.37	1.451e4					1.5	NO		dd		0.000
40	FUNCTION2 PFK	30.30	1.968e4					1.6	NO		bd		0.000
41	FUNCTION2 PFK	32.09	4.284e3					0.7	NO		bb		0.000
42	FUNCTION2 PFK	32.05	5.676e3					1.0	NO		bb		0.000
43	FUNCTION2 PFK	32.00	1.141e4					1.7	NO		db		0.000
44	FUNCTION2 PFK	31.96	1.965e4					2.7	NO		dd		0.000
45	FUNCTION2 PFK	31.90	4.123e4					2.9	NO		dd		0.000
46	FUNCTION2 PFK	31.82	3.802e4					2.4	NO		bd		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	33.24	2.228e4					2.1	NO		dd		0.000
2	FUNCTION3 PFK	33.20	3.060e4					2.0	NO		bd		0.000
3	FUNCTION3 PFK	33.12	9.100e3					1.1	NO		db		0.000
4	FUNCTION3 PFK	33.05	4.780e4					2.3	NO		bd		0.000
5	FUNCTION3 PFK	32.88	2.988e4					1.6	NO		bb		0.000
6	FUNCTION3 PFK	32.72	3.441e4					2.1	NO		bb		0.000
7	FUNCTION3 PFK	32.65	2.616e4					2.0	NO		db		0.000
8	FUNCTION3 PFK	32.55	2.560e4					1.0	NO		bd		0.000
9	FUNCTION3 PFK	32.43	2.575e4					1.7	NO		bb		0.000
10	FUNCTION3 PFK	35.61	3.327e3					0.8	NO		bb		0.000
11	FUNCTION3 PFK	35.33	6.250e3					0.8	NO		bb		0.000
12	FUNCTION3 PFK	35.17	3.885e4					2.3	NO		bb		0.000
13	FUNCTION3 PFK	35.09	1.757e4					1.6	NO		bb		0.000
14	FUNCTION3 PFK	34.63	4.442e4					2.3	NO		db		0.000
15	FUNCTION3 PFK	34.55	4.151e3					0.5	NO		bd		0.000
16	FUNCTION3 PFK	34.51	2.328e4					2.2	NO		bb		0.000
17	FUNCTION3 PFK	34.31	2.039e4					1.5	NO		bb		0.000
18	FUNCTION3 PFK	34.24	1.334e4					1.4	NO		bb		0.000
19	FUNCTION3 PFK	34.12	1.911e4					1.6	NO		bb		0.000
20	FUNCTION3 PFK	33.92	2.773e4					1.7	NO		bb		0.000
21	FUNCTION3 PFK	33.69	1.095e4					1.2	NO		bb		0.000
22	FUNCTION3 PFK	33.60	1.130e4					1.4	NO		db		0.000
23	FUNCTION3 PFK	33.51	4.163e4					2.1	NO		dd		0.000
24	FUNCTION3 PFK	33.41	7.814e4					2.3	NO		dd		0.000
25	FUNCTION3 PFK	33.31	2.554e4					1.7	NO		dd		0.000
26	FUNCTION3 PFK	37.26	1.448e3					0.4	NO		bb		0.000
27	FUNCTION3 PFK	36.98	1.246e4					1.1	NO		db		0.000
28	FUNCTION3 PFK	36.88	2.700e4					1.6	NO		dd		0.000
29	FUNCTION3 PFK	36.84	2.160e4					2.2	NO		dd		0.000
30	FUNCTION3 PFK	36.79	1.778e4					1.9	NO		dd		0.000
31	FUNCTION3 PFK	36.69	9.048e4					3.0	NO		bd		0.000
32	FUNCTION3 PFK	36.60	3.859e4					1.9	NO		bb		0.000
33	FUNCTION3 PFK	36.40	5.770e3					0.7	NO		bb		0.000
34	FUNCTION3 PFK	36.11	1.316e4					1.1	NO		bb		0.000
35	FUNCTION3 PFK	35.82	1.595e4					1.2	NO		bb		0.000
36	FUNCTION3 PFK	35.66	1.792e3					0.4	NO		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.38	2.098e3					0.7	NO		bb		
2	FUNCTION4 PFK	38.02	6.654e5					16.6	YES		db		
3	FUNCTION4 PFK	38.01	4.385e5					16.5	YES		dd		
4	FUNCTION4 PFK	37.55	5.756e6					41.2	YES		bd		
5	FUNCTION4 PFK	42.41	8.804e3					1.1	NO		bb		
6	FUNCTION4 PFK	41.94	1.287e4					0.9	NO		bb		
7	FUNCTION4 PFK	41.29	1.609e4					2.0	NO		bb		
8	FUNCTION4 PFK	41.14	3.746e4					0.8	NO		bb		
9	FUNCTION4 PFK	40.23	6.251e3					1.1	NO		bb		
10	FUNCTION4 PFK	39.90	9.302e3					1.5	NO		bb		
11	FUNCTION4 PFK	39.84	6.715e3					1.1	NO		bb		
12	FUNCTION4 PFK	38.57	1.544e4					1.6	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.68	6.792e3					1.8	NO		bb		
2	FUNCTION5 PFK	43.56	4.605e3					1.0	NO		bb		
3	FUNCTION5 PFK	43.41	3.203e3					1.2	NO		bb		
4	FUNCTION5 PFK	43.17	1.090e4					1.2	NO		bb		
5	FUNCTION5 PFK	43.08	6.047e3					1.2	NO		bb		
6	FUNCTION5 PFK	43.01	1.597e4					2.4	NO		bb		
7	FUNCTION5 PFK	42.88	7.377e3					1.3	NO		bb		
8	FUNCTION5 PFK	45.80	2.543e3					0.8	NO		bb		
9	FUNCTION5 PFK	45.67	1.019e4					1.6	NO		bb		
10	FUNCTION5 PFK	45.61	1.682e4					2.4	NO		bb		
11	FUNCTION5 PFK	45.38	4.750e3					1.2	NO		bb		
12	FUNCTION5 PFK	45.35	8.909e2					0.5	NO		bb		
13	FUNCTION5 PFK	45.23	1.909e3					0.7	NO		bb		
14	FUNCTION5 PFK	44.85	8.853e3					1.5	NO		bb		
15	FUNCTION5 PFK	44.81	6.957e2					0.4	NO		bb		
16	FUNCTION5 PFK	44.59	2.188e3					0.7	NO		bb		
17	FUNCTION5 PFK	44.47	9.128e3					1.3	NO		bb		
18	FUNCTION5 PFK	43.99	2.872e3					0.8	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.02	1.143e2					3.9	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.48	4.003e2					7.5	YES		bb		0.000
2	FUNCTION2 HPCD...	28.56	7.715e1					2.2	NO		bb		0.000
3	FUNCTION2 HPCD...	31.32	8.806e1					2.4	NO		bb		0.000
4	FUNCTION2 HPCD...	30.88	8.789e1					1.4	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.90	1.900e2					3.9	YES		bb		0.000
2	FUNCTION3 OCDPE	35.52	2.386e2					5.5	YES		db		0.000
3	FUNCTION3 OCDPE	35.40	1.857e2					4.4	YES		bd		0.000
4	FUNCTION3 OCDPE	34.29	9.642e1					2.1	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	39.09	1.090e2					1.9	NO		bb		0.000
2	FUNCTION4 NCDPE	38.45	7.125e1					1.9	NO		bb		0.000

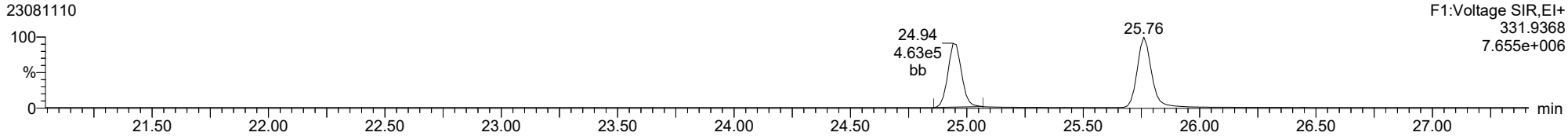
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.77	8.904e1					2.7	NO		bb		0.000

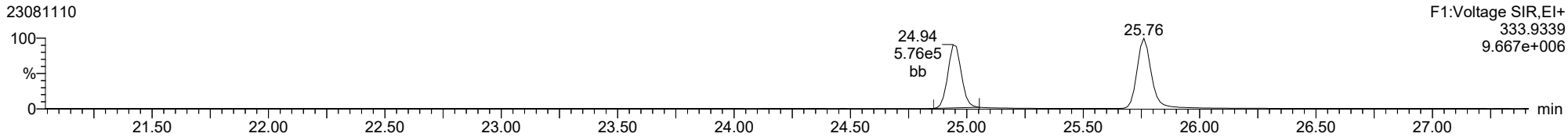
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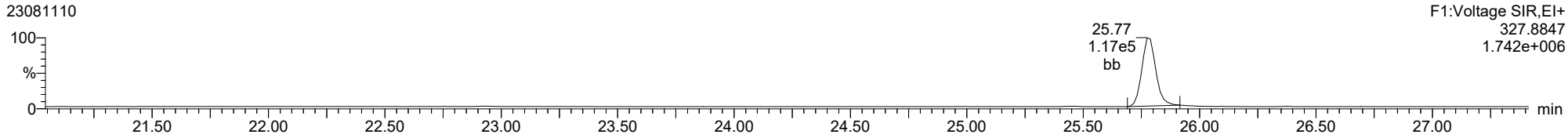
13C-1234-TCDD



13C-1234-TCDD

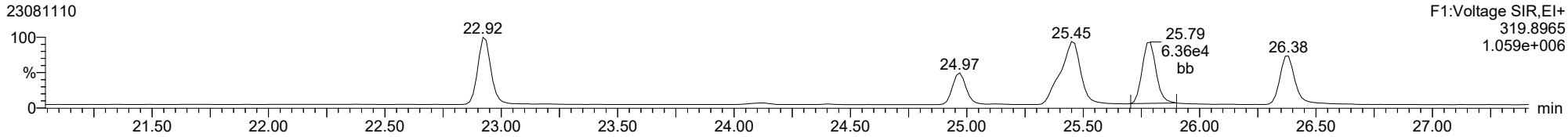


37CL-2378-TCDD

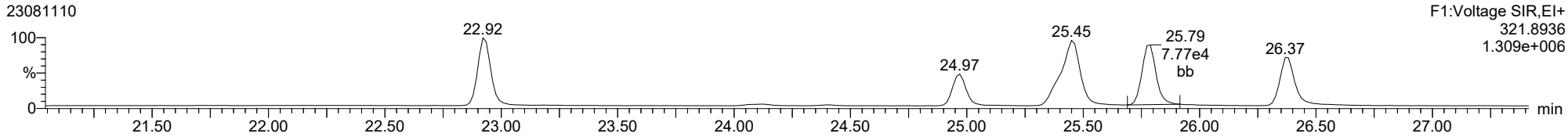


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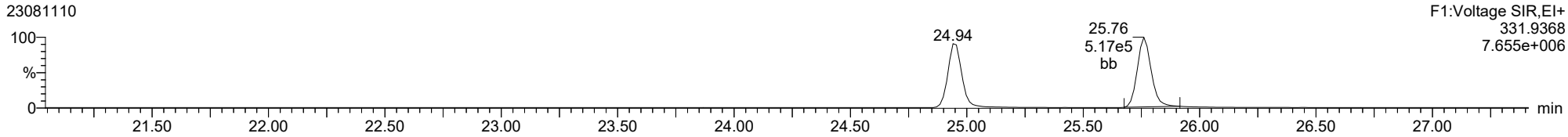
2378-TCDD



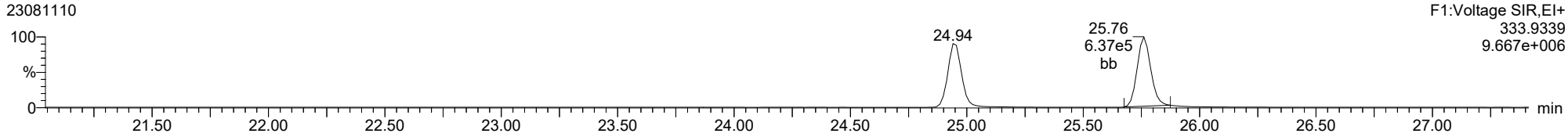
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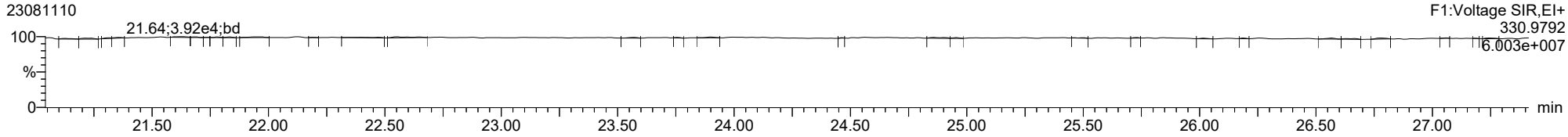
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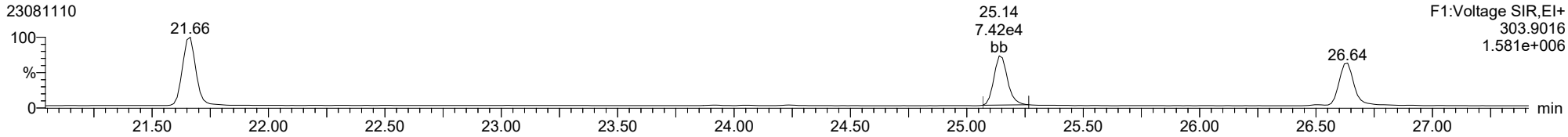


FUNCTION1 PFK

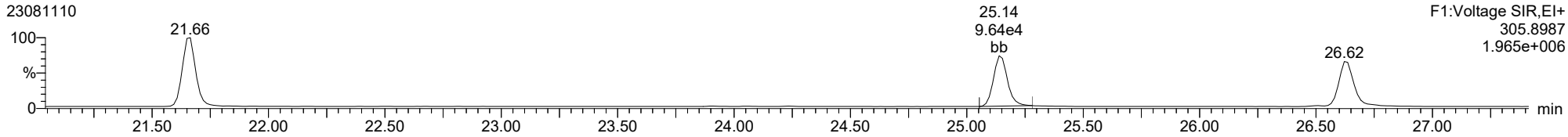


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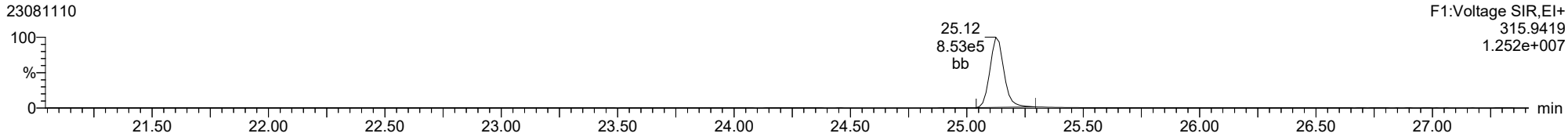
2378-TCDF



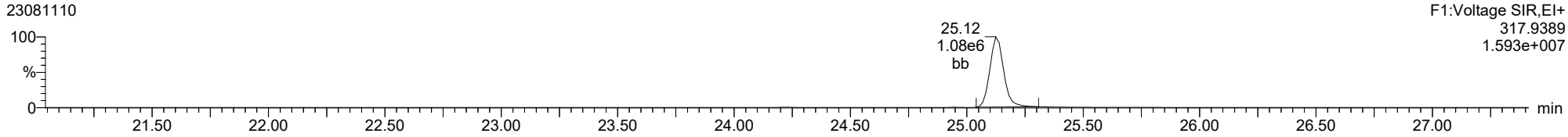
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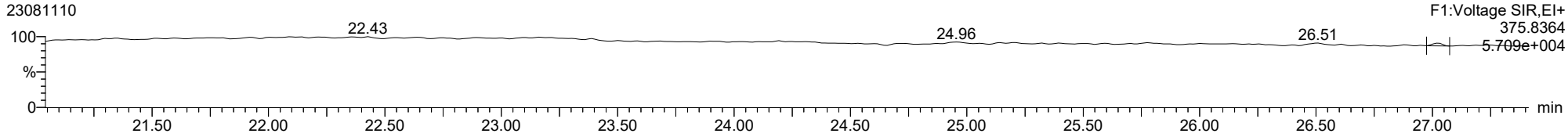
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13C-2378-TCDF

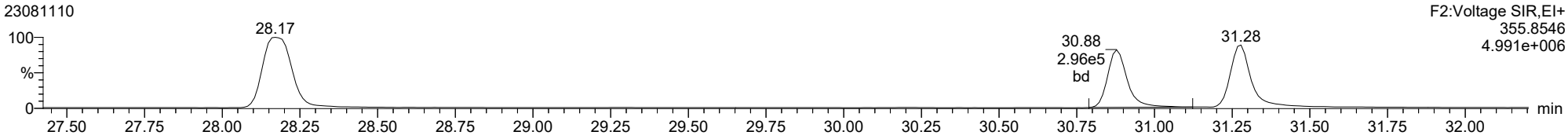


FUNCTION1 HXCDPE

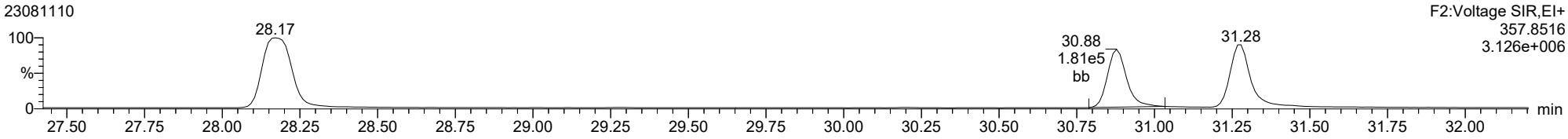


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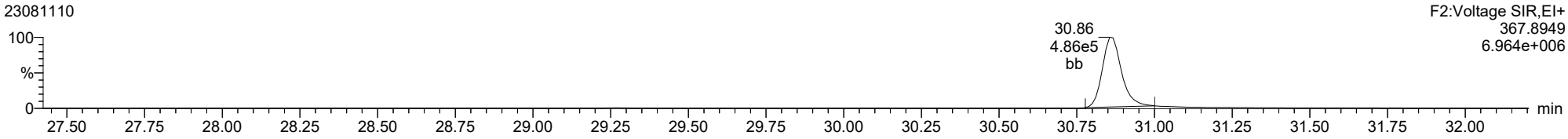
12378-PeCDD



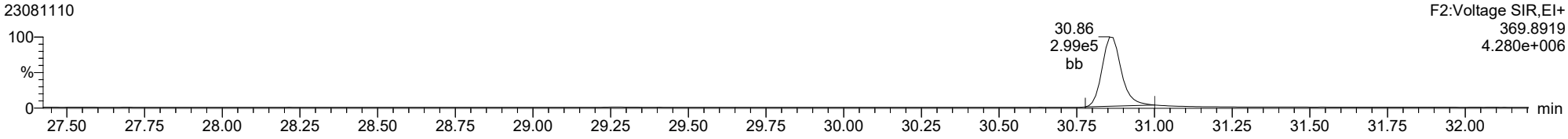
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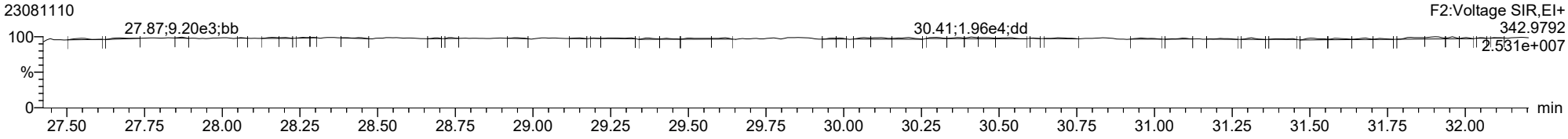
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13C-12378-PeCDD

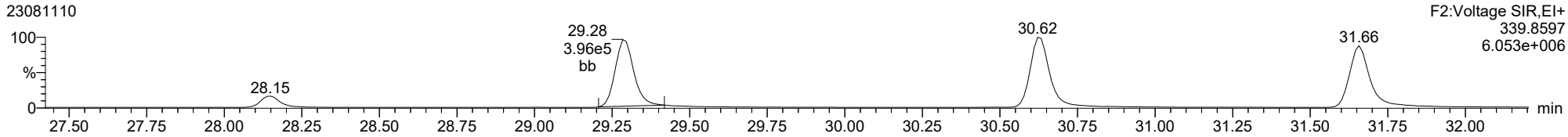


FUNCTION2 PFK

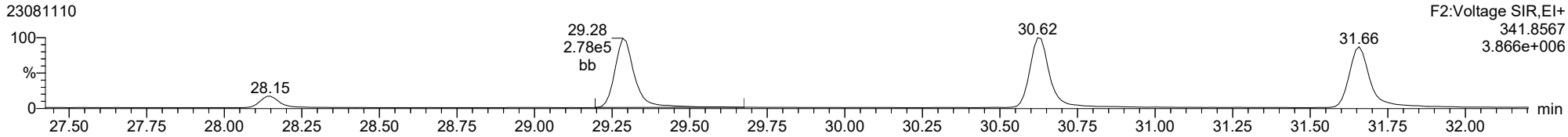


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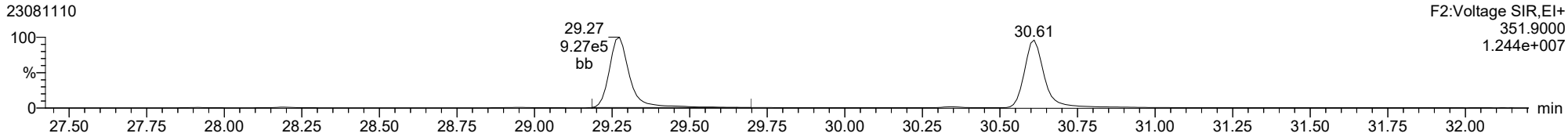
12378-PeCDF



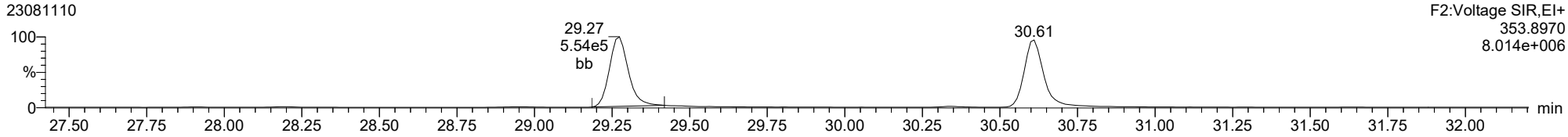
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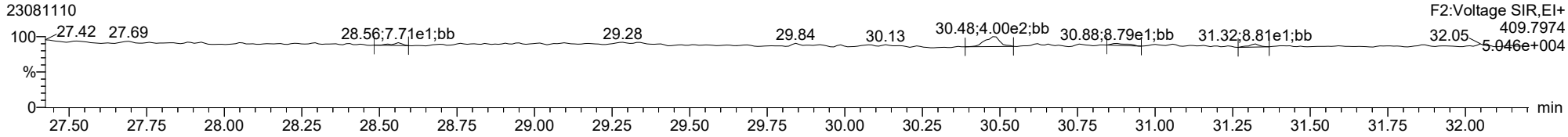
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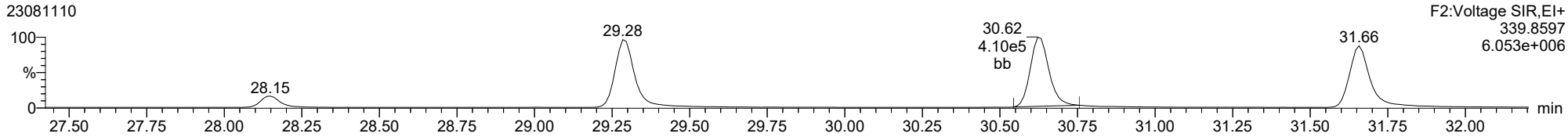


FUNCTION2 HPCDPE

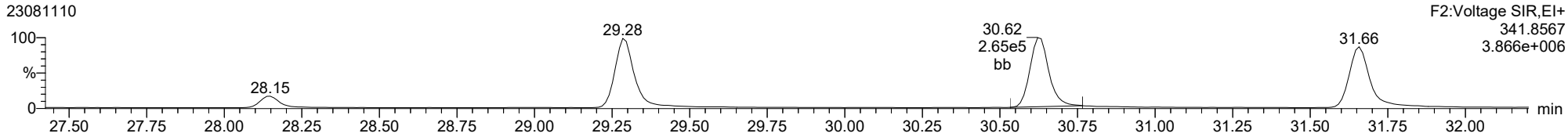


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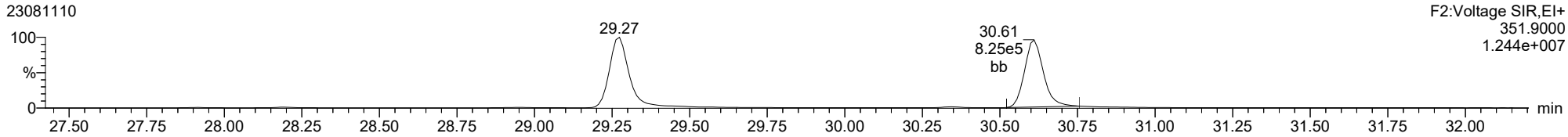
23478-PeCDF



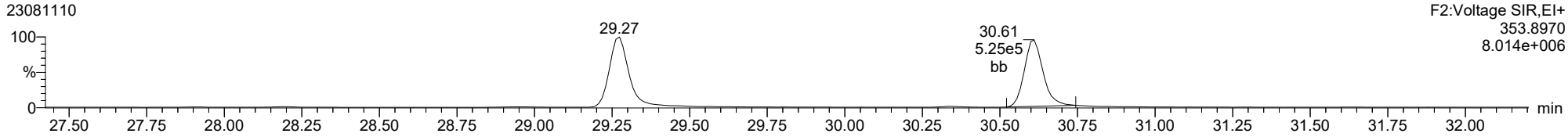
23478-PeCDF



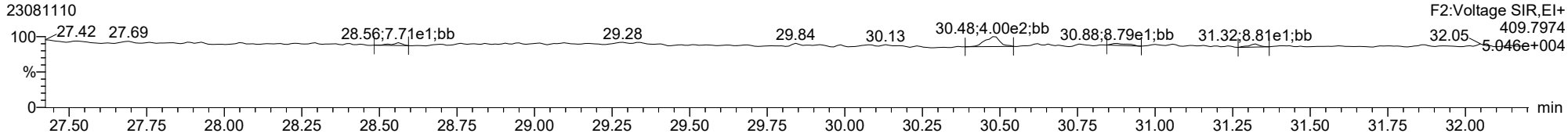
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13C-23478-PeCDF

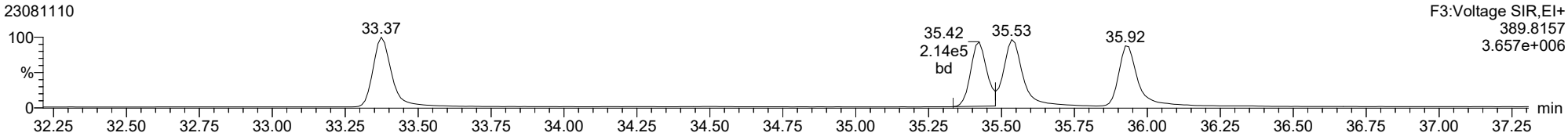


FUNCTION2 HPCDPE

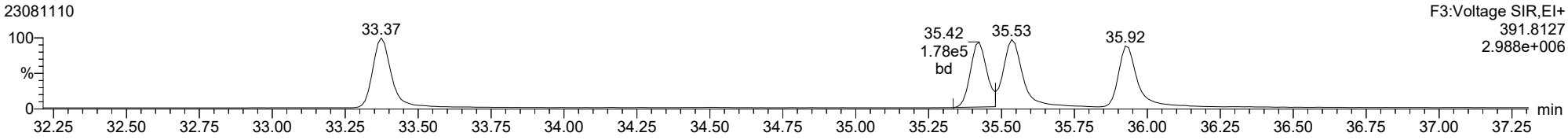


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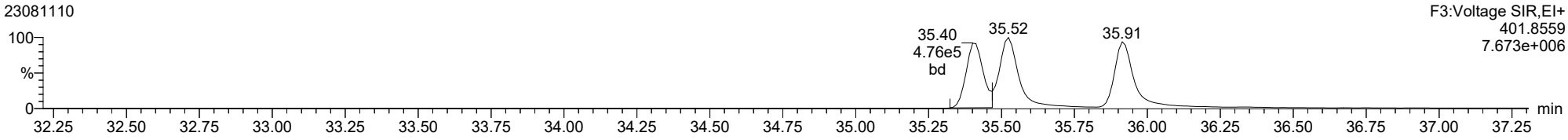
123478-HxCDD



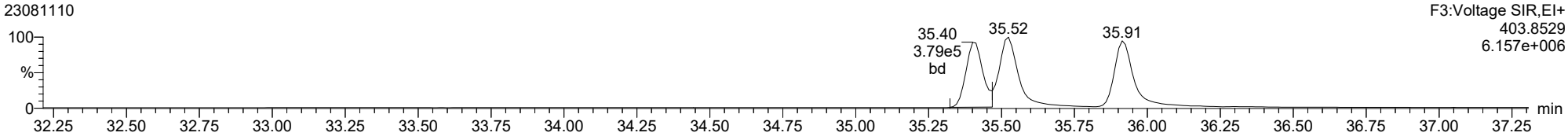
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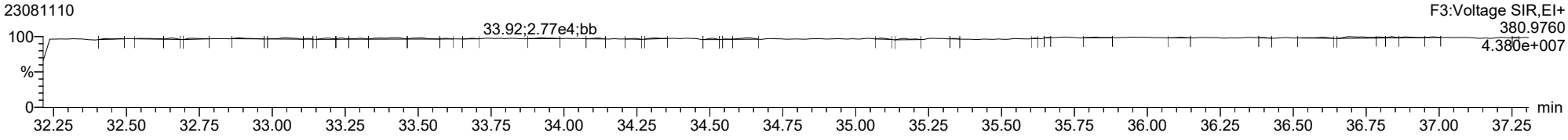
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13C-123478-HxCDD



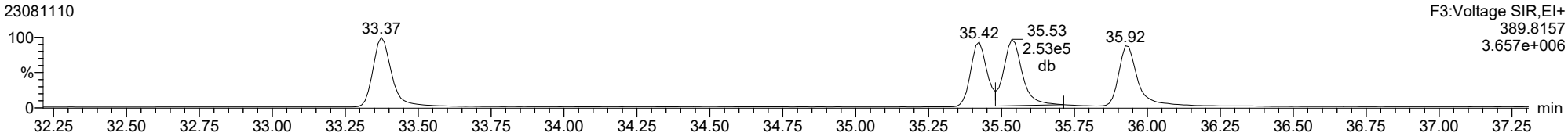
FUNCTION3 PFK



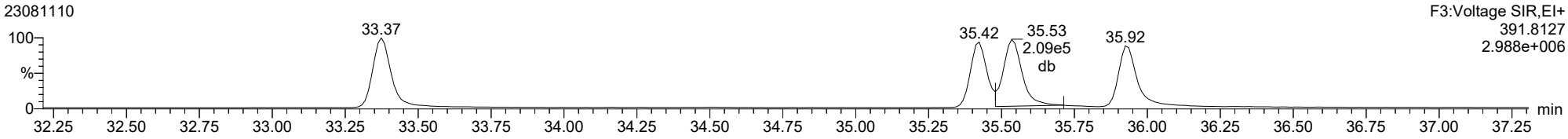
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Printed: Tuesday, August 15, 2023 12:27:04 Pacific Daylight Time

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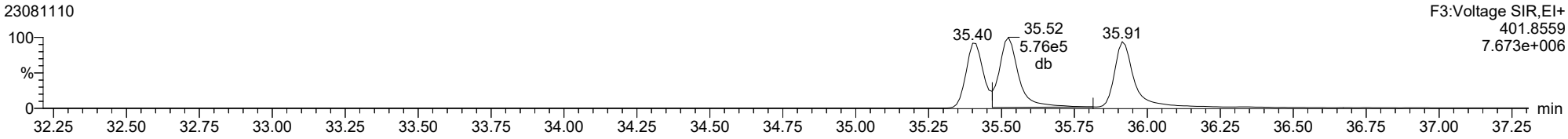
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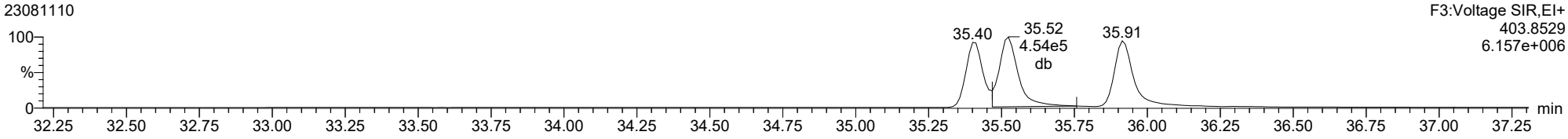
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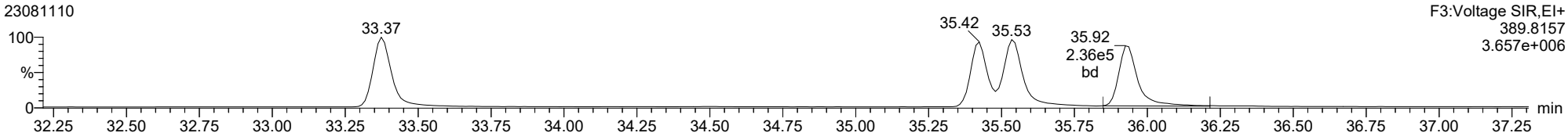


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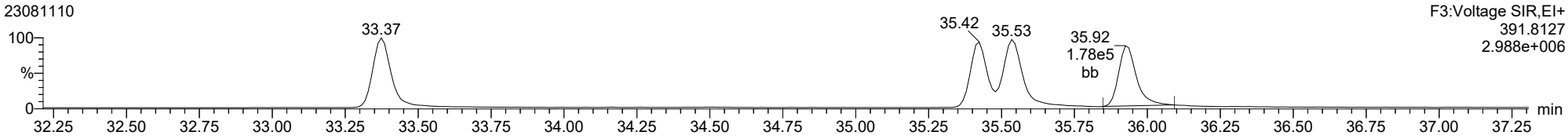


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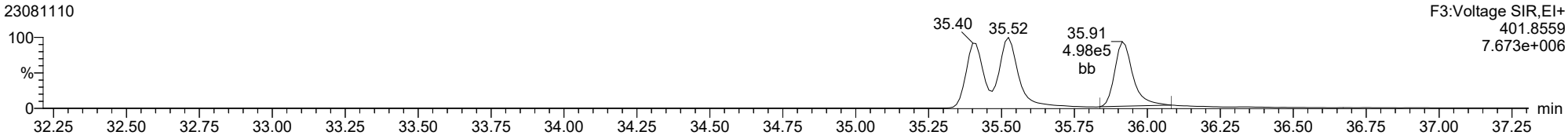
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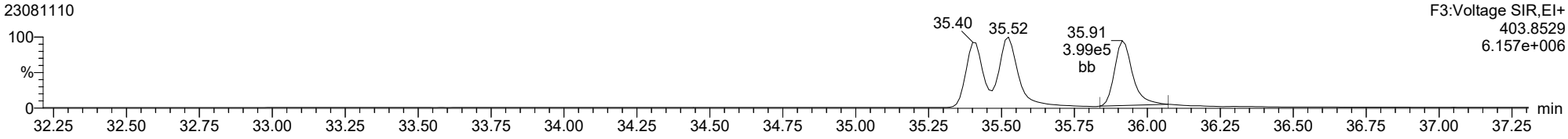
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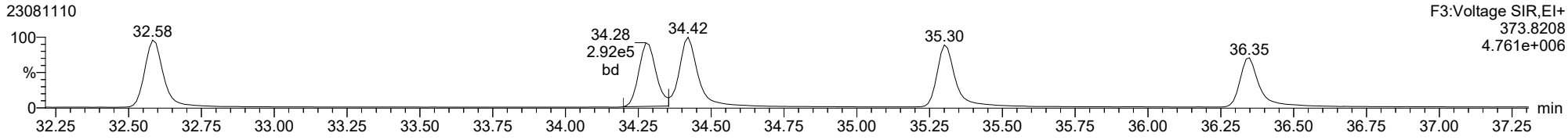


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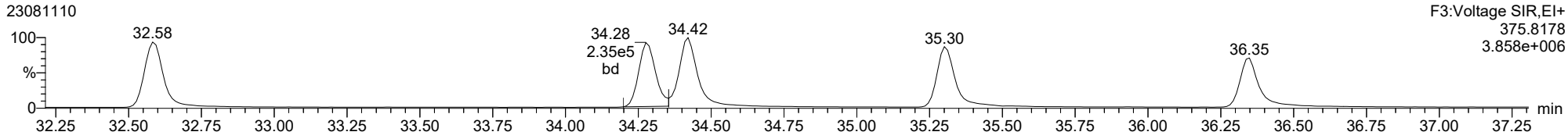


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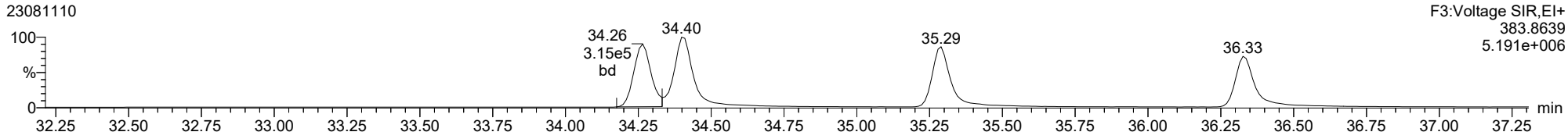
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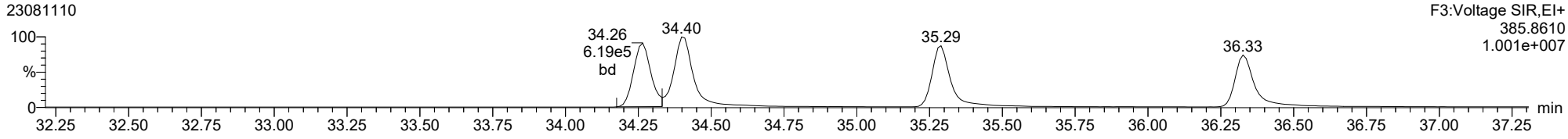
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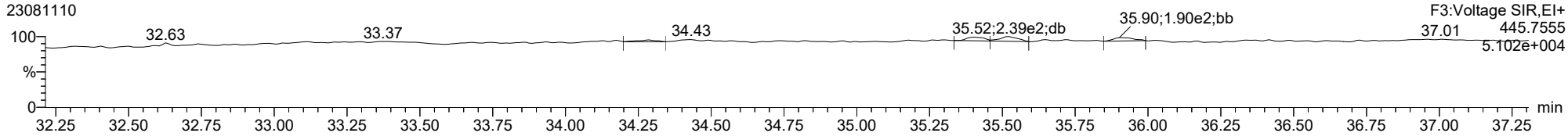
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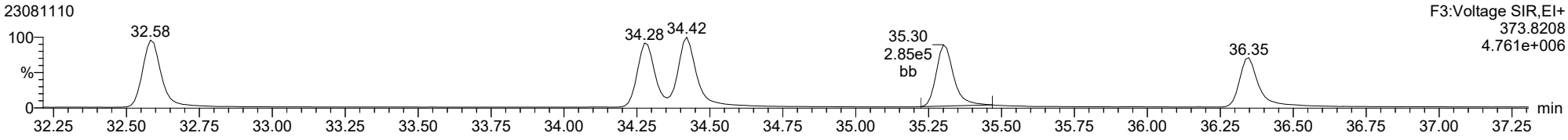


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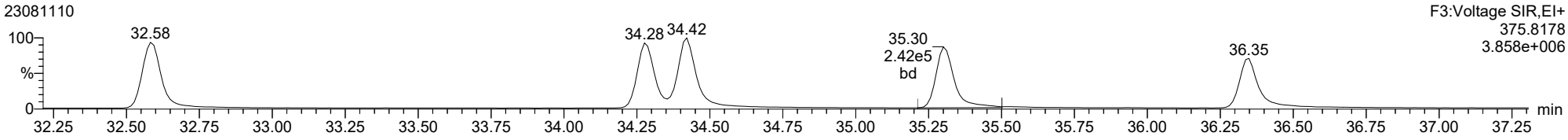


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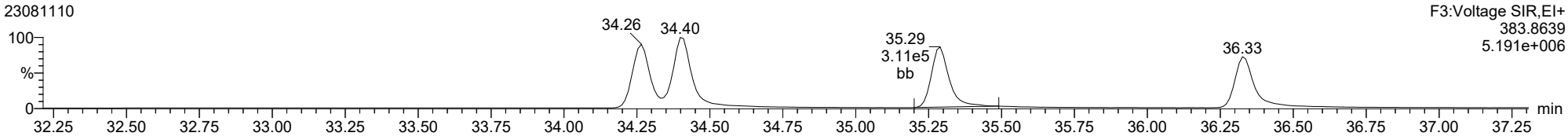
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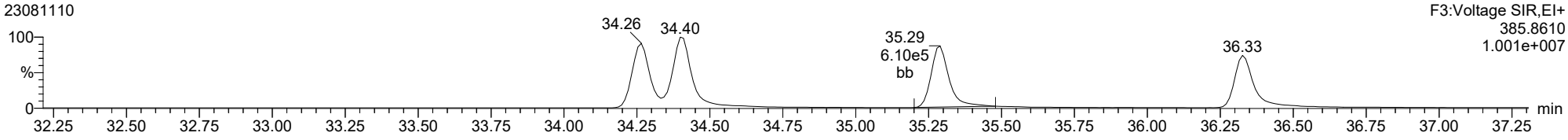
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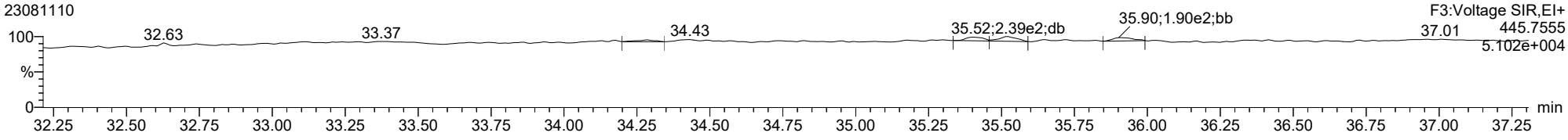
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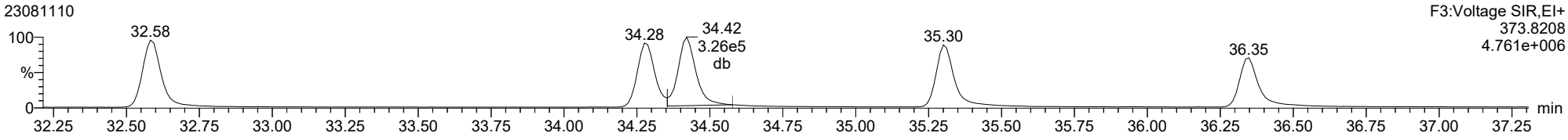


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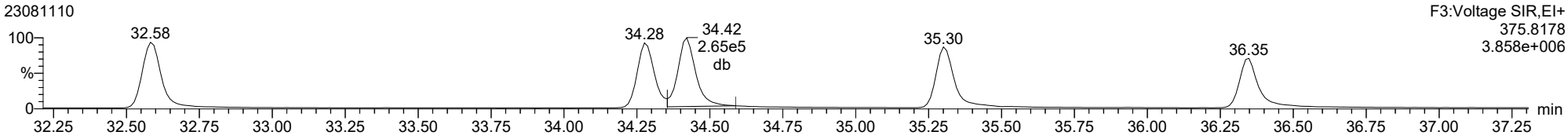


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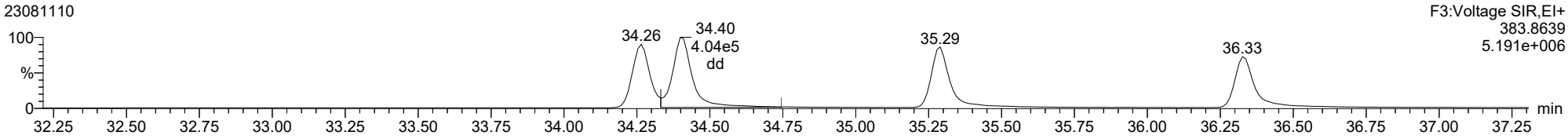
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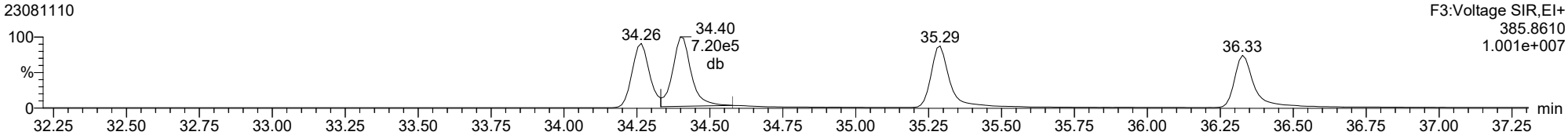
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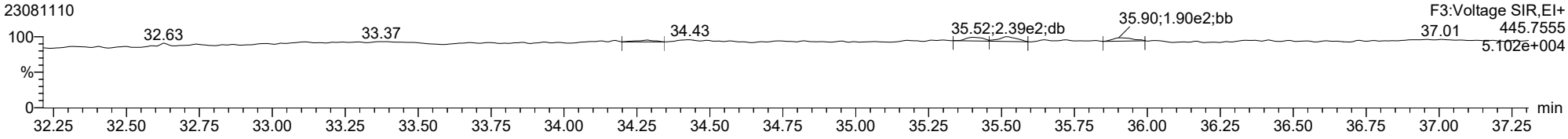
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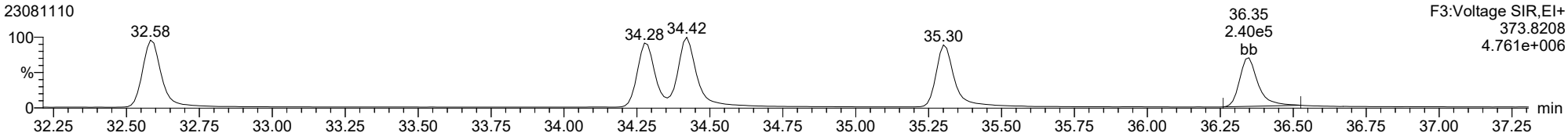


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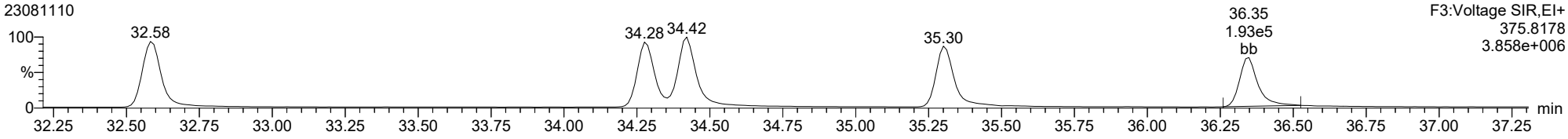


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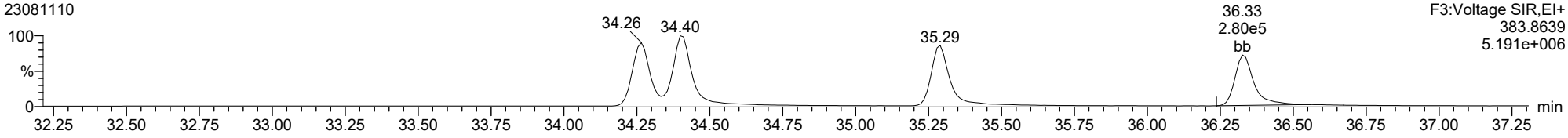
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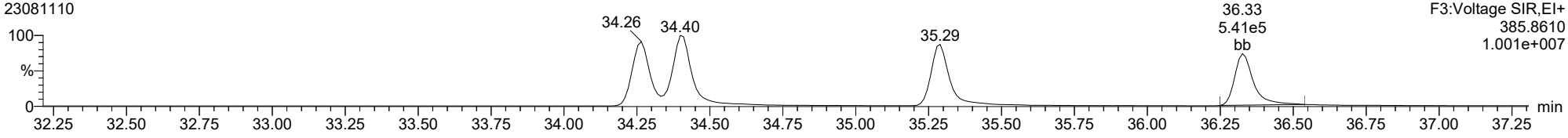
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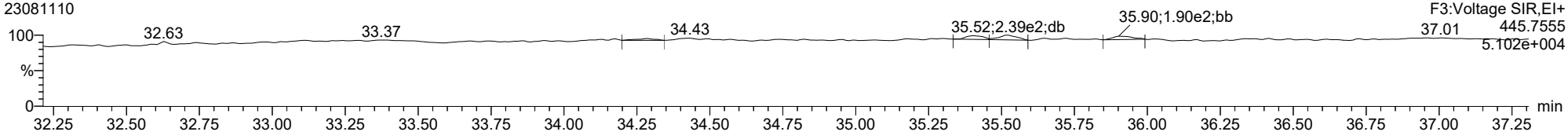
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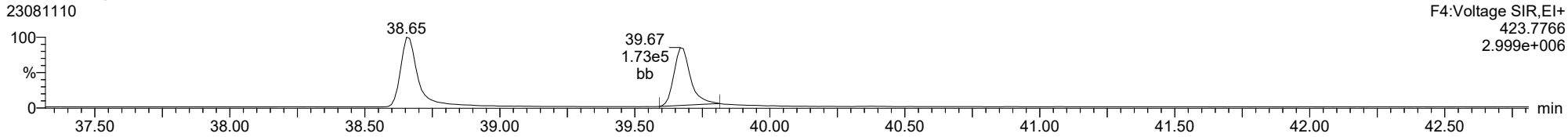


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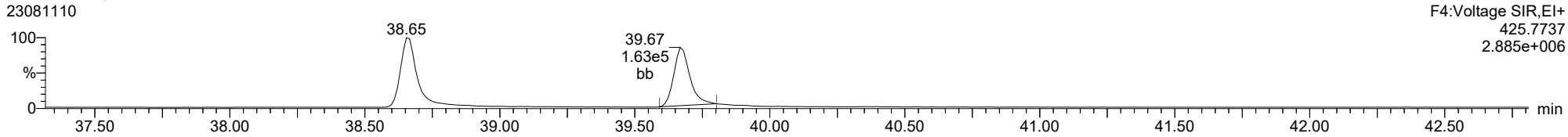


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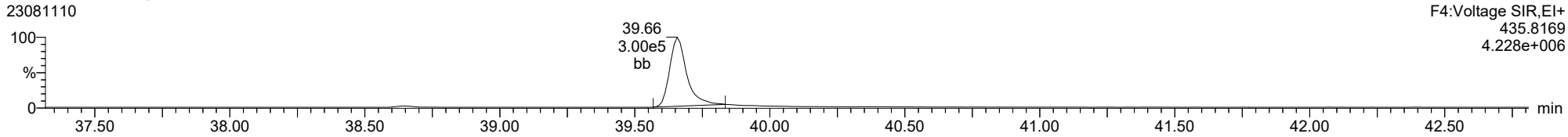
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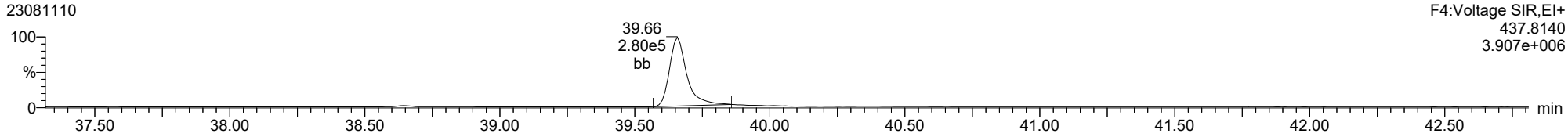
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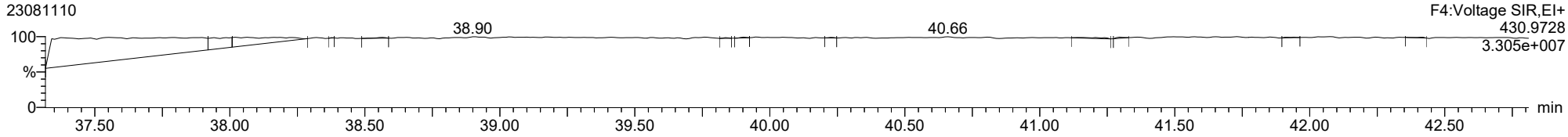
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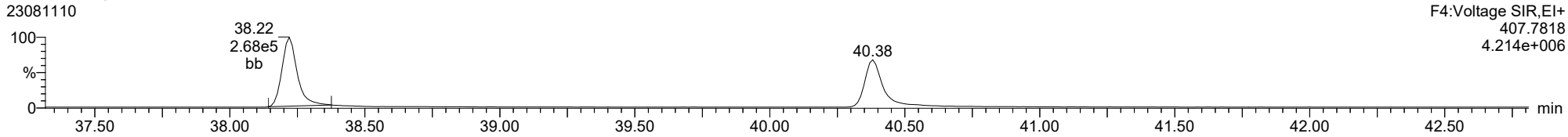


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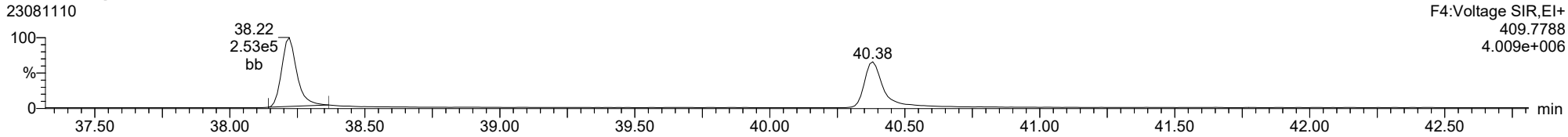


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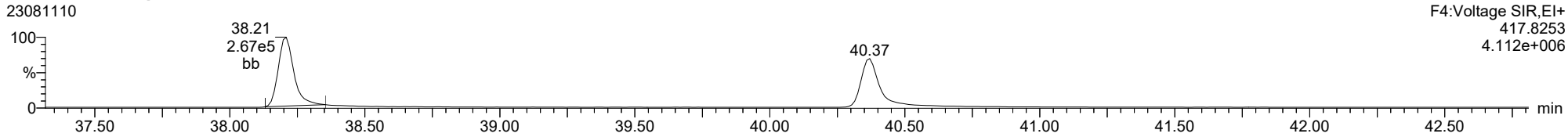
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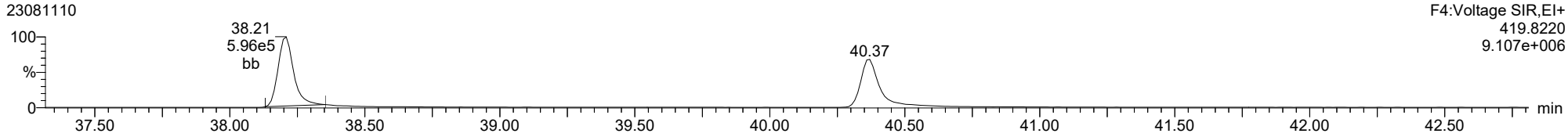
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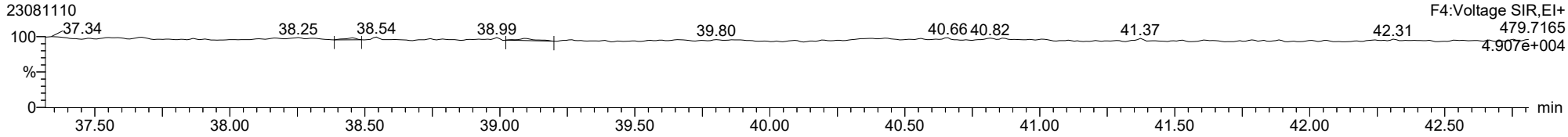
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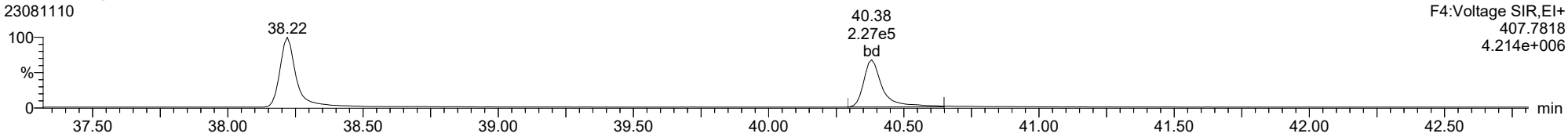


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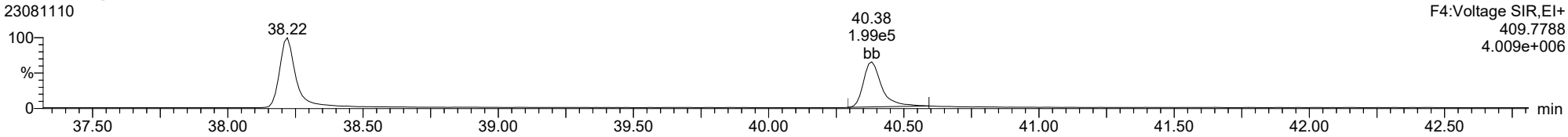


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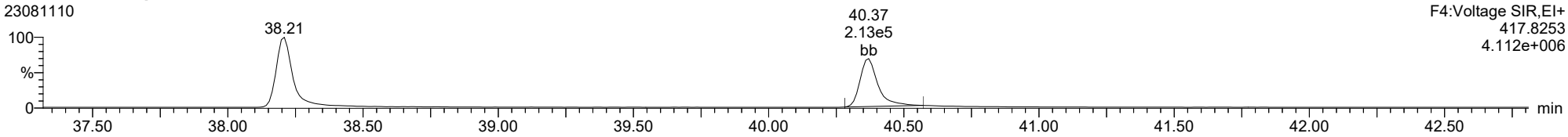
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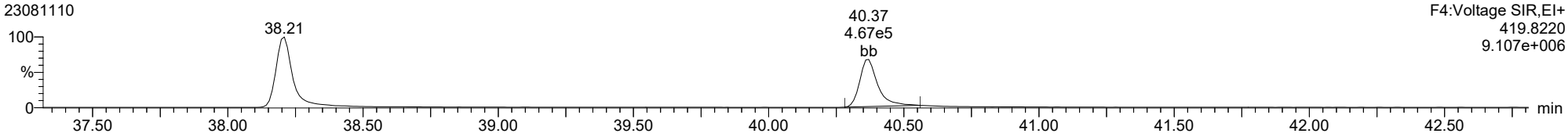
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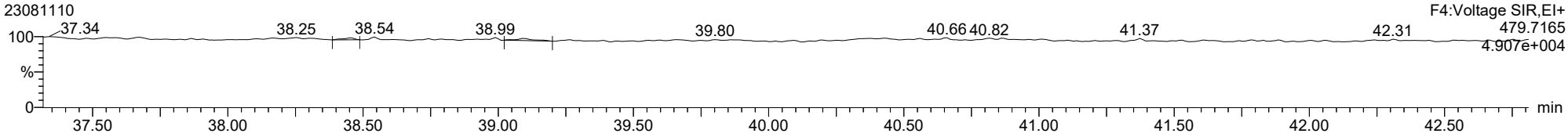
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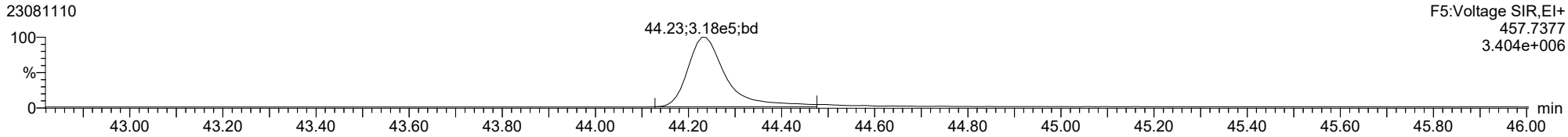


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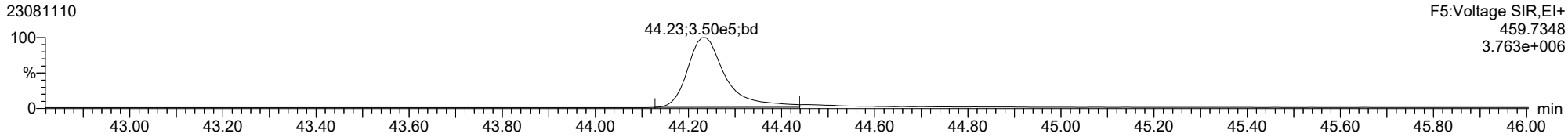


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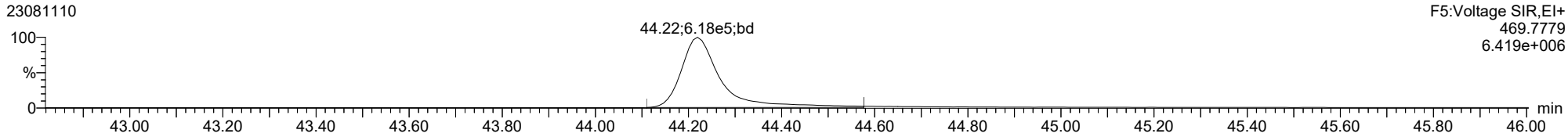
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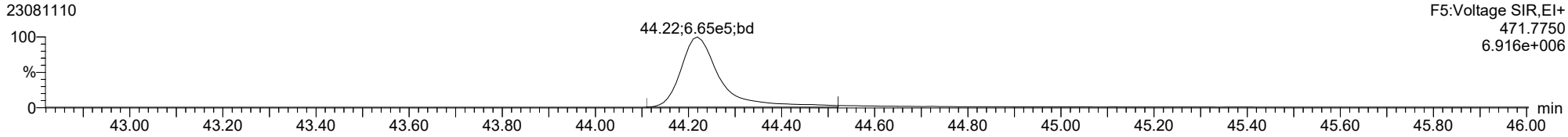
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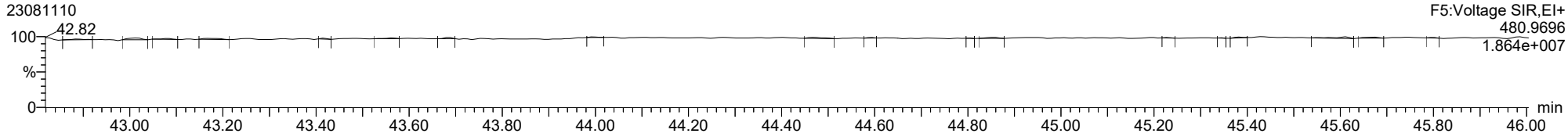
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13C-OCDD

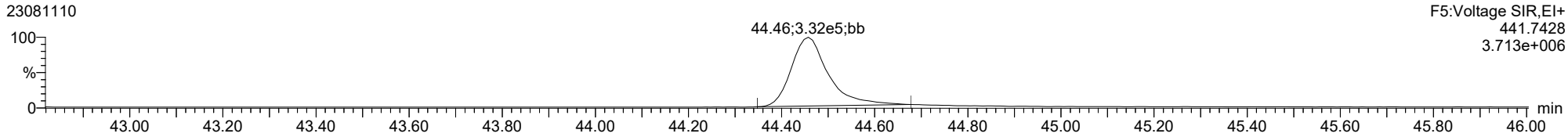


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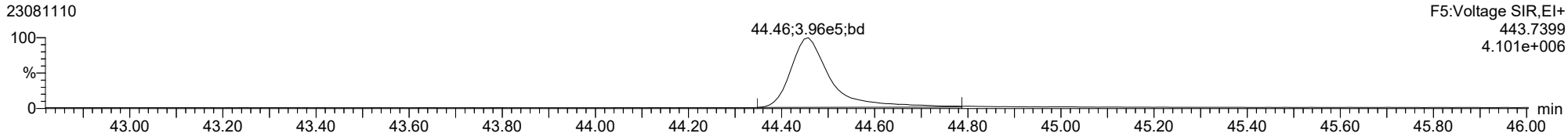


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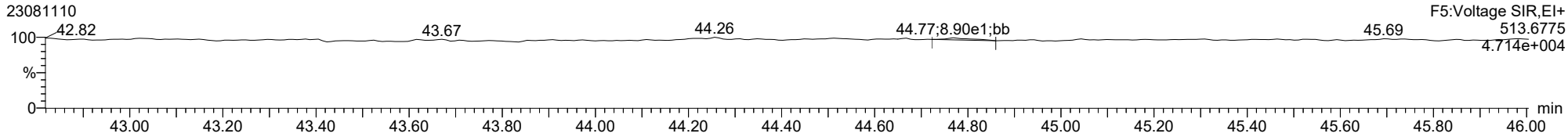
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OCDF

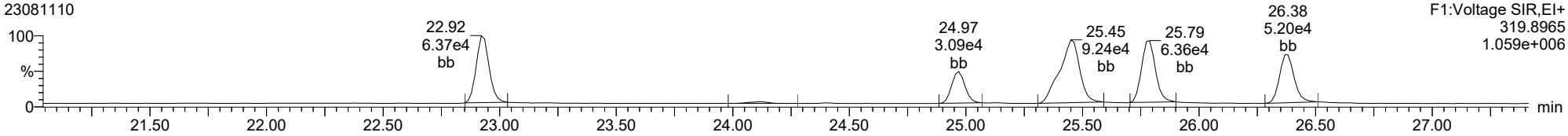


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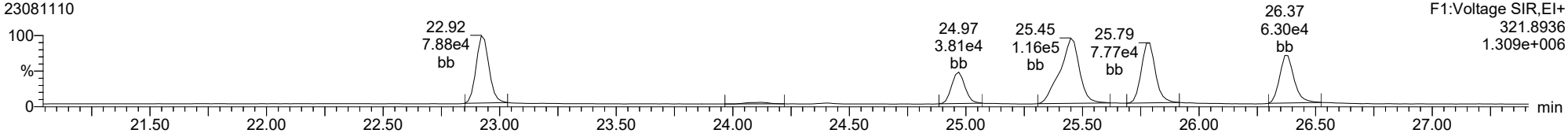


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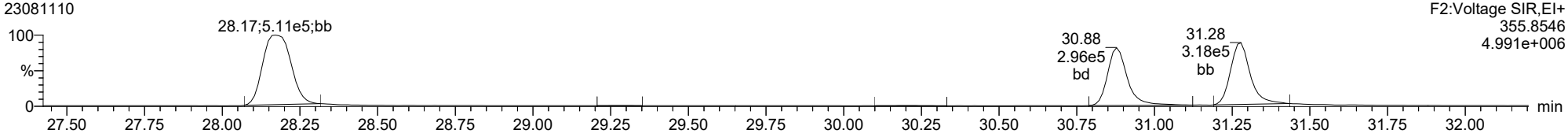
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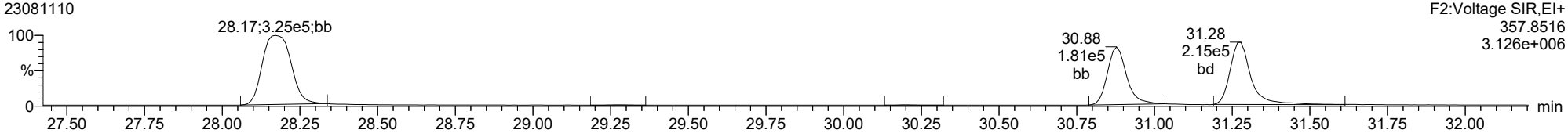
Total-tetradioxins



Total-pentadioxins

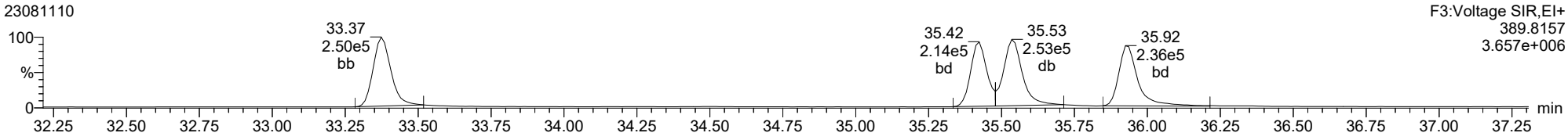


Total-pentadioxins

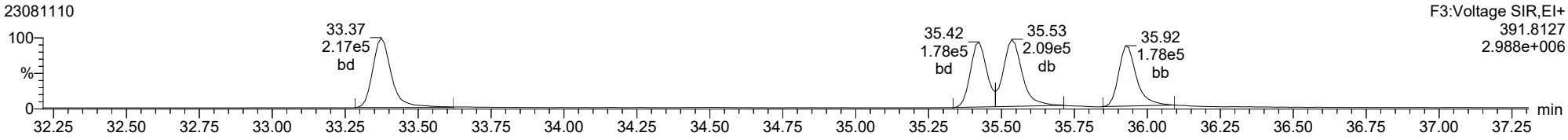


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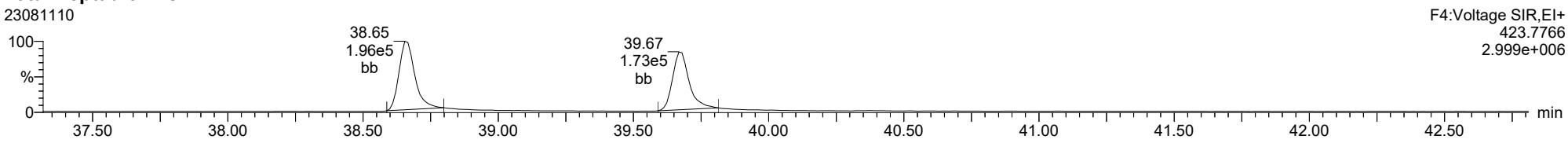
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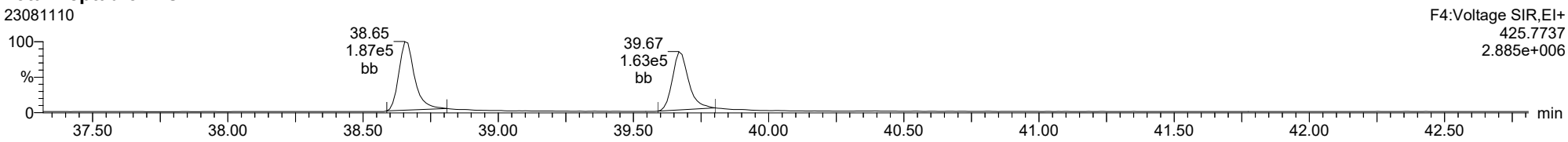
Total-hexadioxins



Total-heptadioxins



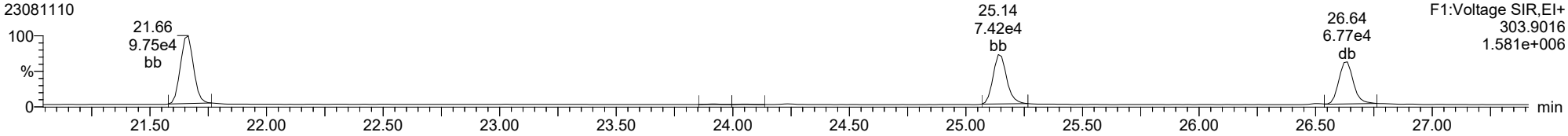
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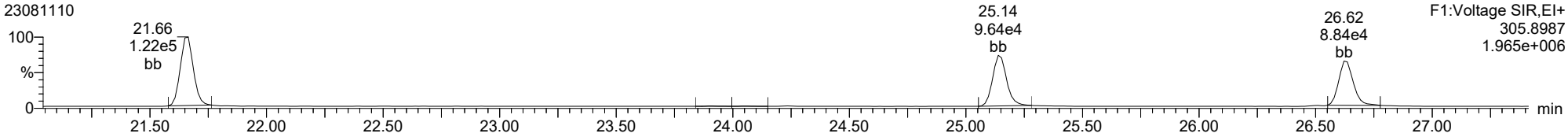
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ID: ICVCF, Name: 23081110, Date: 11-Aug-2023, Time: 17:18:02, Conditions: AUTOSPEC01, User: pk

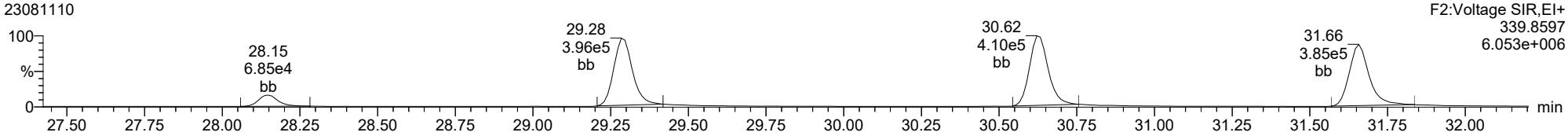
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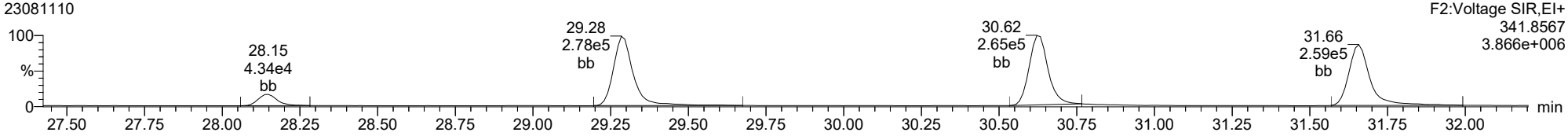
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Total-pentafurans

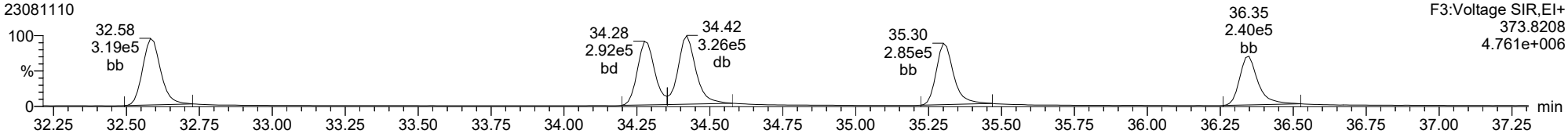


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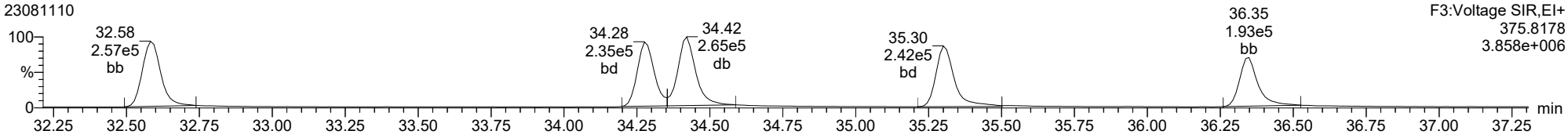


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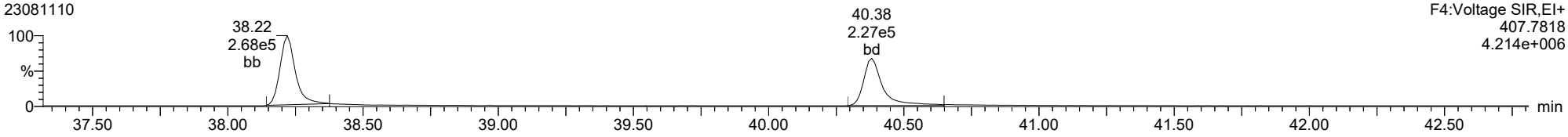
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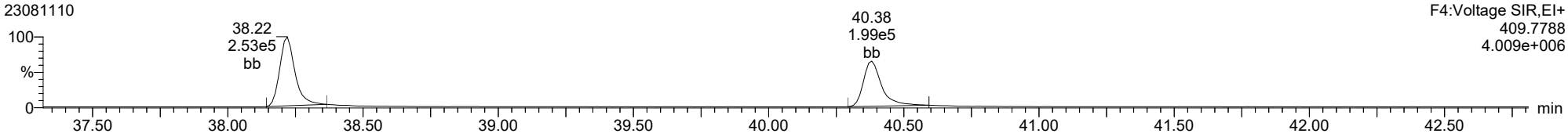
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Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230811CCVIH.qld
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Printed: Tuesday, August 15, 2023 12:27:19 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230810.mdb 12 Aug 2023 10:54:09
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.153	1.001	4.331e4	5.635e4	0.903	0.769	0.770	1171	1364	6.11e5	7.81e5	521.7	572.2	NO	bb	bb	9.996
12378-PeCDF	29.296	1.001	2.300e5	1.467e5	0.923	1.568	1.550	3401	1936	3.27e6	2.10e6	960.4	1084.6	NO	bb	bb	49.821
23478-PeCDF	30.632	1.001	2.358e5	1.589e5	0.991	1.484	1.550	3401	1936	3.17e6	2.12e6	932.7	1095.3	NO	bb	bd	51.473
123478-HxCDF	34.276	1.000	1.642e5	1.293e5	1.128	1.271	1.240	2851	1900	2.31e6	1.85e6	809.4	974.2	NO	bd	bd	49.185
234678-HxCDF	35.301	1.000	1.599e5	1.364e5	1.081	1.172	1.240	2851	1900	2.25e6	1.77e6	788.4	931.0	NO	bb	bd	51.332
123678-HxCDF	34.421	1.001	1.857e5	1.474e5	1.032	1.260	1.240	2851	1900	2.46e6	1.94e6	863.3	1019.3	NO	db	db	50.681
123789-HxCDF	36.348	1.001	1.261e5	1.132e5	0.988	1.114	1.240	2851	1900	1.72e6	1.35e6	603.7	712.4	NO	bb	bb	52.524
1234678-HpCDF	38.220	1.000	1.371e5	1.434e5	1.164	0.956	1.050	2040	2251	2.02e6	1.97e6	992.2	876.4	NO	bb	bd	52.328
1234789-HpCDF	40.381	1.000	1.159e5	1.068e5	1.104	1.085	1.050	2040	2251	1.40e6	1.33e6	684.8	590.1	NO	bd	bd	52.933
OCDF	44.457	1.005	1.780e5	1.904e5	1.130	0.935	0.890	2815	2741	1.73e6	1.97e6	616.0	718.6	NO	bd	bd	100.657
2378-TCDD	25.788	1.001	3.895e4	4.595e4	1.243	0.848	0.770	1258	1191	5.44e5	6.56e5	432.3	550.5	NO	bd	bb	9.467
12378-PeCDD	30.878	1.000	1.623e5	1.061e5	1.150	1.529	1.550	2088	1452	2.21e6	1.40e6	1060.9	967.0	NO	bb	bd	51.961
123478-HxCDD	35.423	1.000	1.187e5	9.517e4	0.960	1.247	1.240	1570	2286	1.79e6	1.44e6	1140.2	631.8	NO	bd	bd	47.435
123678-HxCDD	35.535	1.000	1.604e5	1.248e5	0.883	1.285	1.240	1570	2286	1.96e6	1.60e6	1245.8	698.3	NO	dd	dd	54.545
123789-HxCDD	35.936	1.012	1.323e5	9.665e4	0.804	1.369	1.240	1570	2286	1.70e6	1.32e6	1083.8	579.5	NO	dd	bb	53.651
1234678-HpCDD	39.668	1.000	1.024e5	9.440e4	1.200	1.084	1.050	1868	1943	1.23e6	1.16e6	659.7	596.5	NO	bd	bd	50.710
OCDD	44.237	1.000	1.567e5	1.831e5	1.059	0.856	0.890	3012	2068	1.61e6	1.84e6	534.1	892.0	NO	bd	bd	99.090
13C-2378-TCDF	25.125	1.007	4.876e5	6.164e5	1.835	0.791	0.770	1728	1924	6.85e6	8.67e6	3961.1	4508.9	NO	bb	bb	98.121
13C-12378-PeCDF	29.273	1.173	4.998e5	3.192e5	1.377	1.566	1.550	3166	4107	7.06e6	4.51e6	2229.7	1096.9	NO	bb	bb	97.057
13C-23478-PeCDF	30.610	1.227	4.680e5	3.061e5	1.301	1.529	1.550	3166	4107	6.60e6	4.21e6	2084.2	1024.0	NO	bb	bb	97.039
13C-123478-HxCDF	34.265	0.954	1.804e5	3.486e5	1.091	0.517	0.510	1761	2790	2.59e6	4.96e6	1471.6	1778.9	NO	bd	bd	101.993
13C-123678-HxCDF	34.398	0.958	2.248e5	4.119e5	1.340	0.546	0.510	1761	2790	2.78e6	5.32e6	1581.4	1908.5	NO	db	db	99.908
13C-234678-HxCDF	35.290	0.983	1.679e5	3.659e5	1.093	0.459	0.510	1761	2790	2.34e6	4.72e6	1329.7	1691.9	NO	bb	bb	102.658
13C-123789-HxCDF	36.326	1.011	1.540e5	3.073e5	0.952	0.501	0.510	1761	2790	1.96e6	3.85e6	1115.2	1378.3	NO	bb	bd	101.953
13C-1234678-HpCDF	38.209	1.064	1.439e5	3.165e5	0.985	0.455	0.440	2093	3817	2.12e6	4.75e6	1011.4	1244.4	NO	bb	bb	98.323
13C-1234789-HpCDF	40.370	1.124	1.103e5	2.710e5	0.756	0.407	0.440	2093	3817	1.42e6	3.20e6	676.5	837.6	NO	bb	bb	106.094
13C-1234-TCDD	24.955	0.000	2.683e5	3.447e5	1.000	0.779	0.770	1875	1074	4.01e6	5.09e6	2141.0	4737.3	NO	bb	bb	100.000
13C-2378-TCDD	25.760	1.032	3.172e5	4.043e5	1.110	0.785	0.770	1875	1074	4.57e6	5.80e6	2440.5	5394.6	NO	bb	bb	106.068
13C-12378-PeCDD	30.867	1.237	2.730e5	1.761e5	0.754	1.550	1.550	870	984	3.71e6	2.33e6	4270.3	2363.3	NO	bb	bd	97.218
13C-123478-HxCDD	35.412	0.986	2.639e5	2.057e5	0.960	1.283	1.240	1990	2235	3.83e6	3.01e6	1927.1	1344.5	NO	bd	bd	102.882
13C-123678-HxCDD	35.523	0.989	3.306e5	2.617e5	1.159	1.264	1.240	1990	2235	4.19e6	3.34e6	2104.2	1493.8	NO	db	db	107.448
13C-1234678-HpCDD	39.657	1.104	1.755e5	1.480e5	0.629	1.186	1.050	1329	1459	2.14e6	1.98e6	1613.3	1358.5	NO	bb	bb	108.104
13C-OCDD	44.219	1.231	3.081e5	3.396e5	0.635	0.907	0.890	2918	1892	3.11e6	3.46e6	1067.4	1826.4	NO	bd	bd	214.485
13C-123789-HxCDD	35.914	0.000	2.618e5	2.137e5	1.000	1.225	1.240	1990	2235	3.52e6	2.85e6	1768.8	1273.4	NO	bb	bb	100.000
37CL-2378-TCDD	25.788	1.033	7.197e4		1.157			956		1.03e6		1082.1			bb		10.144

Dataset: T:\Autospec\Processed Data Batch\230811CCVIH.qld
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Printed: Tuesday, August 15, 2023 12:27:19 Pacific Daylight Time

ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.664	0.862	5.587e4	7.239e4	1.170	0.772	0.770	1171	1364	8.88e5	1.11e6	758.3	815.1	NO	bb	bd	9.927
1289-TCDF	26.636	1.060	4.034e4	5.528e4	0.847	0.730	0.770	1171	1364	5.63e5	7.36e5	480.7	539.5	NO	db	db	10.229
13468-PECDF	26.495	0.905	2.957e5	1.928e5	1.241	1.534	1.550	874	914	4.38e6	2.89e6	5017.4	3159.3	NO	bb	bb	48.064
12389-PECDF	31.657	1.081	2.152e5	1.509e5	0.880	1.426	1.550	3401	1936	2.88e6	1.91e6	847.6	988.4	NO	bb	bd	50.811
123468-HXCDF	32.582	0.951	1.856e5	1.442e5	1.206	1.287	1.240	2851	1900	2.57e6	2.03e6	901.0	1070.2	NO	bb	bb	51.712
1368-TCDD	22.921	0.890	3.755e4	4.802e4	1.181	0.782	0.770	1258	1191	5.66e5	7.25e5	450.1	608.8	NO	bb	bb	10.046
1289-TCDD	26.382	1.024	2.982e4	3.935e4	0.963	0.758	0.770	1258	1191	4.24e5	5.11e5	337.3	429.0	NO	bb	bd	9.958
12479-PECDD	28.170	0.913	2.948e5	1.865e5	2.166	1.580	1.550	2088	1452	2.74e6	1.73e6	1310.2	1194.8	NO	bb	bb	49.462
12389-PECDD	31.279	1.013	1.853e5	1.220e5	1.326	1.519	1.550	2088	1452	2.47e6	1.60e6	1184.3	1101.7	NO	bb	bd	51.590
124679-HXCDD	33.373	0.942	1.421e5	1.193e5	1.127	1.191	1.240	1570	2286	2.01e6	1.64e6	1280.1	719.5	NO	bb	bb	49.407
1234679-HPCDD	38.665	0.975	1.054e5	1.006e5	1.303	1.048	1.050	1868	1943	1.56e6	1.49e6	836.7	766.1	NO	bb	bb	48.873
Total-tetrafurans			1.395e5		0.973			1171		2.06e6							30.152
Total-penta1			2.957e5					874		4.38e6							48.064
Total-pentafurans			7.213e5		0.931			3401		9.89e6							161.015
Total-hexafurans			8.216e5		1.087			2851		1.13e7							255.434
Total-heptafurans			2.571e5		1.134			2040		3.48e6							106.883
Total-Furans			2.413e6		1.053			1171		3.29e7							702.205
Total-tetradioxins			1.808e5		1.129			1258		2.36e6							49.895
Total-pentadioxins			6.424e5		1.548			2088		7.42e6							153.014
Total-hexadioxins			5.534e5		0.943			1570		7.46e6							205.039
Total-heptadioxins			2.077e5		1.251			1868		2.79e6							99.583
Total-Dioxins			1.741e6		1.182			1258		2.16e7							606.622
Total-TEQ			4.154e6					1258		5.45e7							1308.826
FUNCTION1 PFK			0.000e0					481142		0.00e0							
FUNCTION2 PFK			4.874e5					229819		1.22e7							0.000
FUNCTION3 PFK			3.763e5					413268		3.62e6							0.000
FUNCTION4 PFK			5.619e6					286001		6.99e7							
FUNCTION5 PFK			7.251e4					183835		3.22e6							
FUNCTION1 HXCD...			8.350e2					627		1.16e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			6.582e2					812		1.25e4							0.000
FUNCTION3 OCDPE			3.234e2					512		5.07e3							0.000
FUNCTION4 NCDPE			1.681e2					714		2.55e3							0.000
FUNCTION5 DCDPE			0.000e0					517		0.00e0							

Method: T:\Autospec\Methods\Dioxin230810.mdb 12 Aug 2023 10:54:09
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 10:45:18

ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	4.034e4	5.528e4	0.847	0.73	0.77	480.7	YES	NO	db	db	10.229
2	2378-TCDF	25.15	4.331e4	5.635e4	0.903	0.77	0.77	521.7	YES	NO	bb	bb	9.996
3	1368-TCDF	21.66	5.587e4	7.239e4	1.170	0.77	0.77	758.3	YES	NO	bb	bd	9.927

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.49	2.957e5	1.928e5	1.241	1.53	1.55	5017.4	YES	NO	bb	bb	48.064

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.30	2.300e5	1.467e5	0.923	1.57	1.55	960.4	YES	NO	bb	bb	49.821
2	Total-pentafurans	28.15	4.032e4	2.576e4	0.931	1.57	1.55	166.0	YES	NO	bb	bb	8.910
3	12389-PECDF	31.66	2.152e5	1.509e5	0.880	1.43	1.55	847.6	YES	NO	bb	bd	50.811
4	23478-PeCDF	30.63	2.358e5	1.589e5	0.991	1.48	1.55	932.7	YES	NO	bb	bd	51.473

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.35	1.261e5	1.132e5	0.988	1.11	1.24	603.7	YES	NO	bb	bb	52.524
2	234678-HxCDF	35.30	1.599e5	1.364e5	1.081	1.17	1.24	788.4	YES	NO	bb	bd	51.332
3	123678-HxCDF	34.42	1.857e5	1.474e5	1.032	1.26	1.24	863.3	YES	NO	db	db	50.681
4	123478-HxCDF	34.28	1.642e5	1.293e5	1.128	1.27	1.24	809.4	YES	NO	bd	bd	49.185
5	123468-HXCDF	32.58	1.856e5	1.442e5	1.206	1.29	1.24	901.0	YES	NO	bb	bb	51.712

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.38	1.159e5	1.068e5	1.104	1.09	1.05	684.8	YES	NO	bd	bd	52.933
2	1234678-HpCDF	38.22	1.371e5	1.434e5	1.164	0.96	1.05	992.2	YES	NO	bb	bd	52.328
3	Total-heptafurans	41.14	2.445e2	2.274e2	1.134	1.08	1.05	3.8	NO	NO	bd	bb	0.099
4	Total-heptafurans	40.89	3.939e2	3.374e2	1.134	1.17	1.05	4.1	YES	NO	dd	dd	0.153
5	Total-heptafurans	40.65	3.498e3	3.037e3	1.134	1.15	1.05	20.1	YES	NO	dd	dd	1.370

ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	4.034e4	5.528e4	0.847	0.73	0.77	480.7	YES	NO	db	db	10.229
2	2378-TCDF	25.15	4.331e4	5.635e4	0.903	0.77	0.77	521.7	YES	NO	bb	bb	9.996
3	1368-TCDF	21.66	5.587e4	7.239e4	1.170	0.77	0.77	758.3	YES	NO	bb	bd	9.927
4	12378-PeCDF	29.30	2.300e5	1.467e5	0.923	1.57	1.55	960.4	YES	NO	bb	bb	49.821
5	Total-pentafurans	28.15	4.032e4	2.576e4	0.931	1.57	1.55	166.0	YES	NO	bb	bb	8.910
6	12389-PECDF	31.66	2.152e5	1.509e5	0.880	1.43	1.55	847.6	YES	NO	bb	bd	50.811
7	23478-PeCDF	30.63	2.358e5	1.589e5	0.991	1.48	1.55	932.7	YES	NO	bb	bd	51.473
8	123789-HxCDF	36.35	1.261e5	1.132e5	0.988	1.11	1.24	603.7	YES	NO	bb	bb	52.524
9	234678-HxCDF	35.30	1.599e5	1.364e5	1.081	1.17	1.24	788.4	YES	NO	bb	bd	51.332
10	123678-HxCDF	34.42	1.857e5	1.474e5	1.032	1.26	1.24	863.3	YES	NO	db	db	50.681
11	123478-HxCDF	34.28	1.642e5	1.293e5	1.128	1.27	1.24	809.4	YES	NO	bd	bd	49.185
12	123468-HXCDF	32.58	1.856e5	1.442e5	1.206	1.29	1.24	901.0	YES	NO	bb	bb	51.712
13	1234789-HpCDF	40.38	1.159e5	1.068e5	1.104	1.09	1.05	684.8	YES	NO	bd	bd	52.933
14	1234678-HpCDF	38.22	1.371e5	1.434e5	1.164	0.96	1.05	992.2	YES	NO	bb	bd	52.328
15	Total-heptafurans	41.14	2.445e2	2.274e2	1.134	1.08	1.05	3.8	NO	NO	bd	bb	0.099
16	Total-heptafurans	40.89	3.939e2	3.374e2	1.134	1.17	1.05	4.1	YES	NO	dd	dd	0.153
17	Total-heptafurans	40.65	3.498e3	3.037e3	1.134	1.15	1.05	20.1	YES	NO	dd	dd	1.370
18	OCDF	44.46	1.780e5	1.904e5	1.130	0.93	0.89	616.0	YES	NO	bd	bd	100.657
19	13468-PECDF	26.49	2.957e5	1.928e5	1.241	1.53	1.55	5017.4	YES	NO	bb	bb	48.064

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.46	5.650e4	6.995e4	1.129	0.81	0.77	438.0	YES	NO	bb	bb	15.526
2	Total-tetradioxins	24.97	1.801e4	2.188e4	1.129	0.82	0.77	222.5	YES	NO	bb	bb	4.898
3	1368-TCDD	22.92	3.755e4	4.802e4	1.181	0.78	0.77	450.1	YES	NO	bb	bb	10.046
4	1289-TCDD	26.38	2.982e4	3.935e4	0.963	0.76	0.77	337.3	YES	NO	bb	bd	9.958
5	2378-TCDD	25.79	3.895e4	4.595e4	1.243	0.85	0.77	432.3	YES	NO	bd	bb	9.467

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.28	1.853e5	1.220e5	1.326	1.52	1.55	1184.3	YES	NO	bb	bd	51.590
2	12378-PeCDD	30.88	1.623e5	1.061e5	1.150	1.53	1.55	1060.9	YES	NO	bb	bd	51.961
3	12479-PECDD	28.17	2.948e5	1.865e5	2.166	1.58	1.55	1310.2	YES	NO	bb	bb	49.462

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	35.94	1.323e5	9.665e4	0.804	1.37	1.24	1083.8	YES	NO	dd	bb	53.651
2	123678-HxCDD	35.53	1.604e5	1.248e5	0.883	1.28	1.24	1245.8	YES	NO	dd	dd	54.545
3	123478-HxCDD	35.42	1.187e5	9.517e4	0.960	1.25	1.24	1140.2	YES	NO	bd	bd	47.435
4	124679-HXCDD	33.37	1.421e5	1.193e5	1.127	1.19	1.24	1280.1	YES	NO	bb	bb	49.407

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.67	1.024e5	9.440e4	1.200	1.08	1.05	659.7	YES	NO	bd	bd	50.710
2	1234679-HPCDD	38.67	1.054e5	1.006e5	1.303	1.05	1.05	836.7	YES	NO	bb	bb	48.873

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.46	5.650e4	6.995e4	1.129	0.81	0.77	438.0	YES	NO	bb	bb	15.526
2	Total-tetradioxins	24.97	1.801e4	2.188e4	1.129	0.82	0.77	222.5	YES	NO	bb	bb	4.898
3	1368-TCDD	22.92	3.755e4	4.802e4	1.181	0.78	0.77	450.1	YES	NO	bb	bb	10.046
4	1289-TCDD	26.38	2.982e4	3.935e4	0.963	0.76	0.77	337.3	YES	NO	bb	bd	9.958
5	2378-TCDD	25.79	3.895e4	4.595e4	1.243	0.85	0.77	432.3	YES	NO	bd	bb	9.467
6	12389-PECDD	31.28	1.853e5	1.220e5	1.326	1.52	1.55	1184.3	YES	NO	bb	bd	51.590
7	12378-PeCDD	30.88	1.623e5	1.061e5	1.150	1.53	1.55	1060.9	YES	NO	bb	bd	51.961
8	12479-PECDD	28.17	2.948e5	1.865e5	2.166	1.58	1.55	1310.2	YES	NO	bb	bb	49.462
9	123789-HxCDD	35.94	1.323e5	9.665e4	0.804	1.37	1.24	1083.8	YES	NO	dd	bb	53.651
10	123678-HxCDD	35.53	1.604e5	1.248e5	0.883	1.28	1.24	1245.8	YES	NO	dd	dd	54.545
11	123478-HxCDD	35.42	1.187e5	9.517e4	0.960	1.25	1.24	1140.2	YES	NO	bd	bd	47.435
12	124679-HXCDD	33.37	1.421e5	1.193e5	1.127	1.19	1.24	1280.1	YES	NO	bb	bb	49.407
13	1234678-HpCDD	39.67	1.024e5	9.440e4	1.200	1.08	1.05	659.7	YES	NO	bd	bd	50.710
14	1234679-HPCDD	38.67	1.054e5	1.006e5	1.303	1.05	1.05	836.7	YES	NO	bb	bb	48.873
15	OCDD	44.24	1.567e5	1.831e5	1.059	0.86	0.89	534.1	YES	NO	bd	bd	99.090

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.64	4.034e4	5.528e4	0.847	0.73	0.77	480.7	YES	NO	db	db	10.229
2	2378-TCDF	25.15	4.331e4	5.635e4	0.903	0.77	0.77	521.7	YES	NO	bb	bb	9.996
3	1368-TCDF	21.66	5.587e4	7.239e4	1.170	0.77	0.77	758.3	YES	NO	bb	bd	9.927
4	12378-PeCDF	29.30	2.300e5	1.467e5	0.923	1.57	1.55	960.4	YES	NO	bb	bb	49.821
5	Total-pentafurans	28.15	4.032e4	2.576e4	0.931	1.57	1.55	166.0	YES	NO	bb	bb	8.910
6	12389-PECDF	31.66	2.152e5	1.509e5	0.880	1.43	1.55	847.6	YES	NO	bb	bd	50.811
7	23478-PeCDF	30.63	2.358e5	1.589e5	0.991	1.48	1.55	932.7	YES	NO	bb	bd	51.473
8	123789-HxCDF	36.35	1.261e5	1.132e5	0.988	1.11	1.24	603.7	YES	NO	bb	bb	52.524
9	234678-HxCDF	35.30	1.599e5	1.364e5	1.081	1.17	1.24	788.4	YES	NO	bb	bd	51.332
10	123678-HxCDF	34.42	1.857e5	1.474e5	1.032	1.26	1.24	863.3	YES	NO	db	db	50.681
11	123478-HxCDF	34.28	1.642e5	1.293e5	1.128	1.27	1.24	809.4	YES	NO	bd	bd	49.185
12	123468-HXCDF	32.58	1.856e5	1.442e5	1.206	1.29	1.24	901.0	YES	NO	bb	bb	51.712
13	1234789-HpCDF	40.38	1.159e5	1.068e5	1.104	1.09	1.05	684.8	YES	NO	bd	bd	52.933
14	1234678-HpCDF	38.22	1.371e5	1.434e5	1.164	0.96	1.05	992.2	YES	NO	bb	bd	52.328
15	Total-heptafurans	41.14	2.445e2	2.274e2	1.134	1.08	1.05	3.8	NO	NO	bd	bb	0.099
16	Total-heptafurans	40.89	3.939e2	3.374e2	1.134	1.17	1.05	4.1	YES	NO	dd	dd	0.153
17	Total-heptafurans	40.65	3.498e3	3.037e3	1.134	1.15	1.05	20.1	YES	NO	dd	dd	1.370
18	OCDF	44.46	1.780e5	1.904e5	1.130	0.93	0.89	616.0	YES	NO	bd	bd	100.657
19	13468-PECDF	26.49	2.957e5	1.928e5	1.241	1.53	1.55	5017.4	YES	NO	bb	bb	48.064
20	Total-tetradioxins	25.46	5.650e4	6.995e4	1.129	0.81	0.77	438.0	YES	NO	bb	bb	15.526
21	Total-tetradioxins	24.97	1.801e4	2.188e4	1.129	0.82	0.77	222.5	YES	NO	bb	bb	4.898
22	1368-TCDD	22.92	3.755e4	4.802e4	1.181	0.78	0.77	450.1	YES	NO	bb	bb	10.046
23	1289-TCDD	26.38	2.982e4	3.935e4	0.963	0.76	0.77	337.3	YES	NO	bb	bd	9.958
24	2378-TCDD	25.79	3.895e4	4.595e4	1.243	0.85	0.77	432.3	YES	NO	bd	bb	9.467
25	12389-PECDD	31.28	1.853e5	1.220e5	1.326	1.52	1.55	1184.3	YES	NO	bb	bd	51.590
26	12378-PeCDD	30.88	1.623e5	1.061e5	1.150	1.53	1.55	1060.9	YES	NO	bb	bd	51.961
27	12479-PECDD	28.17	2.948e5	1.865e5	2.166	1.58	1.55	1310.2	YES	NO	bb	bb	49.462
28	123789-HxCDD	35.94	1.323e5	9.665e4	0.804	1.37	1.24	1083.8	YES	NO	dd	bb	53.651
29	123678-HxCDD	35.53	1.604e5	1.248e5	0.883	1.28	1.24	1245.8	YES	NO	dd	dd	54.545
30	123478-HxCDD	35.42	1.187e5	9.517e4	0.960	1.25	1.24	1140.2	YES	NO	bd	bd	47.435
31	124679-HXCDD	33.37	1.421e5	1.193e5	1.127	1.19	1.24	1280.1	YES	NO	bb	bb	49.407
32	1234678-HpCDD	39.67	1.024e5	9.440e4	1.200	1.08	1.05	659.7	YES	NO	bd	bd	50.710
33	1234679-HPCDD	38.67	1.054e5	1.006e5	1.303	1.05	1.05	836.7	YES	NO	bb	bb	48.873
34	OCDD	44.24	1.567e5	1.831e5	1.059	0.86	0.89	534.1	YES	NO	bd	bd	99.090

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.97	5.006e3					0.8	NO		bb		0.000
2	FUNCTION2 PFK	28.64	1.227e3					0.5	NO		bb		0.000
3	FUNCTION2 PFK	28.59	9.247e3					1.7	NO		db		0.000
4	FUNCTION2 PFK	28.55	1.616e4					1.5	NO		dd		0.000
5	FUNCTION2 PFK	28.48	1.220e4					1.7	NO		dd		0.000
6	FUNCTION2 PFK	28.44	1.402e4					1.8	NO		bd		0.000
7	FUNCTION2 PFK	28.35	2.228e3					0.9	NO		bb		0.000
8	FUNCTION2 PFK	28.30	4.845e3					1.1	NO		bb		0.000
9	FUNCTION2 PFK	28.08	1.896e4					2.0	NO		bb		0.000
10	FUNCTION2 PFK	28.00	4.249e4					2.6	NO		db		0.000
11	FUNCTION2 PFK	27.89	2.054e4					2.4	NO		dd		0.000
12	FUNCTION2 PFK	27.84	3.689e4					4.5	YES		dd		0.000
13	FUNCTION2 PFK	27.80	5.492e4					5.0	YES		dd		0.000
14	FUNCTION2 PFK	27.72	4.091e4					2.8	NO		dd		0.000
15	FUNCTION2 PFK	27.64	1.167e4					1.8	NO		bd		0.000
16	FUNCTION2 PFK	27.57	8.795e3					1.6	NO		bb		0.000
17	FUNCTION2 PFK	31.89	9.658e3					1.4	NO		bb		0.000
18	FUNCTION2 PFK	31.40	3.647e3					0.8	NO		bb		0.000
19	FUNCTION2 PFK	31.35	4.747e4					2.1	NO		db		0.000
20	FUNCTION2 PFK	31.18	1.696e4					1.9	NO		bd		0.000
21	FUNCTION2 PFK	31.06	1.879e4					2.3	NO		bb		0.000
22	FUNCTION2 PFK	30.73	3.629e3					0.7	NO		bb		0.000
23	FUNCTION2 PFK	30.39	1.190e4					1.3	NO		bb		0.000
24	FUNCTION2 PFK	30.21	1.249e3					0.5	NO		bb		0.000
25	FUNCTION2 PFK	30.03	9.791e2					0.4	NO		bb		0.000
26	FUNCTION2 PFK	29.98	4.183e3					0.9	NO		bb		0.000
27	FUNCTION2 PFK	29.89	3.617e3					1.0	NO		bb		0.000
28	FUNCTION2 PFK	29.77	2.797e3					0.6	NO		bb		0.000
29	FUNCTION2 PFK	29.69	7.735e3					1.2	NO		bb		0.000
30	FUNCTION2 PFK	29.62	1.303e4					1.3	NO		bb		0.000
31	FUNCTION2 PFK	29.37	3.649e4					2.9	NO		bb		0.000
32	FUNCTION2 PFK	29.18	5.105e3					0.9	NO		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	32.26	3.763e5					8.8	YES		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.99	1.135e4					1.3	NO		bd		
2	FUNCTION4 PFK	38.88	5.579e3					1.1	NO		bb		
3	FUNCTION4 PFK	38.80	1.168e4					1.6	NO		bb		
4	FUNCTION4 PFK	38.69	9.737e3					1.3	NO		bb		
5	FUNCTION4 PFK	38.25	1.166e5					5.2	YES		db		
6	FUNCTION4 PFK	37.91	1.120e6					16.6	YES		dd		
7	FUNCTION4 PFK	37.84	2.215e5					18.5	YES		dd		
8	FUNCTION4 PFK	37.81	6.404e5					19.7	YES		dd		
9	FUNCTION4 PFK	37.70	2.057e5					22.0	YES		dd		
10	FUNCTION4 PFK	37.60	1.227e6					26.8	YES		dd		
11	FUNCTION4 PFK	37.48	5.511e5					29.6	YES		dd		
12	FUNCTION4 PFK	37.43	3.867e5					31.1	YES		dd		
13	FUNCTION4 PFK	37.36	7.118e5					32.6	YES		bd		
14	FUNCTION4 PFK	41.89	1.929e4					1.3	NO		bb		
15	FUNCTION4 PFK	41.74	3.622e4					1.9	NO		bb		
16	FUNCTION4 PFK	41.60	1.168e4					1.3	NO		db		
17	FUNCTION4 PFK	41.55	5.316e3					0.8	NO		bd		
18	FUNCTION4 PFK	41.50	1.097e4					1.6	NO		bb		
19	FUNCTION4 PFK	40.96	3.761e3					0.6	NO		bb		
20	FUNCTION4 PFK	40.85	1.359e3					0.4	NO		bb		
21	FUNCTION4 PFK	40.80	8.617e3					0.9	NO		bb		
22	FUNCTION4 PFK	40.60	1.895e4					1.8	NO		db		
23	FUNCTION4 PFK	40.55	2.765e4					2.2	NO		dd		
24	FUNCTION4 PFK	40.49	2.015e4					2.0	NO		dd		
25	FUNCTION4 PFK	40.45	2.099e4					2.3	NO		bd		
26	FUNCTION4 PFK	40.23	1.769e4					2.1	NO		bb		
27	FUNCTION4 PFK	39.60	3.578e4					2.8	NO		db		
28	FUNCTION4 PFK	39.55	1.128e4					1.7	NO		bd		
29	FUNCTION4 PFK	39.07	2.212e4					1.8	NO		db		
30	FUNCTION4 PFK	42.75	3.285e3					0.6	NO		bb		
31	FUNCTION4 PFK	42.70	2.754e4					1.5	NO		db		
32	FUNCTION4 PFK	42.58	1.807e4					1.7	NO		dd		
33	FUNCTION4 PFK	42.53	1.476e4					1.7	NO		dd		
34	FUNCTION4 PFK	42.46	2.480e4					2.1	NO		bd		
35	FUNCTION4 PFK	42.03	2.481e4					1.9	NO		db		
36	FUNCTION4 PFK	41.99	1.512e4					1.7	NO		bd		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.12	2.768e3					0.9	NO		bb		
2	FUNCTION5 PFK	43.91	6.915e3					1.3	NO		db		
3	FUNCTION5 PFK	43.87	7.246e3					1.9	NO		bd		
4	FUNCTION5 PFK	43.73	4.916e3					1.3	NO		bb		
5	FUNCTION5 PFK	43.40	4.518e3					1.3	NO		bb		
6	FUNCTION5 PFK	43.15	1.986e3					0.8	NO		bb		
7	FUNCTION5 PFK	43.00	1.071e4					1.7	NO		bb		
8	FUNCTION5 PFK	42.86	3.711e3					1.2	NO		bb		
9	FUNCTION5 PFK	45.91	1.126e4					2.2	NO		bb		
10	FUNCTION5 PFK	45.79	4.830e3					1.2	NO		bb		
11	FUNCTION5 PFK	45.73	1.131e3					0.7	NO		bb		
12	FUNCTION5 PFK	45.62	5.239e3					1.4	NO		bb		
13	FUNCTION5 PFK	45.12	4.609e3					1.0	NO		bb		
14	FUNCTION5 PFK	44.21	2.676e3					0.7	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.49	1.225e2					2.9	NO		bb		0.000
2	FUNCTION1 HXCD...	25.56	8.311e1					2.6	NO		bb		0.000
3	FUNCTION1 HXCD...	25.24	1.010e2					2.0	NO		db		0.000
4	FUNCTION1 HXCD...	25.14	1.579e2					2.7	NO		dd		0.000
5	FUNCTION1 HXCD...	25.04	1.523e2					4.4	YES		bd		0.000
6	FUNCTION1 HXCD...	24.11	1.289e2					2.1	NO		bb		0.000
7	FUNCTION1 HXCD...	21.37	8.930e1					1.9	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.49	3.116e2					7.1	YES		bb		0.000
2	FUNCTION2 HPCD...	32.15	1.442e2					3.3	YES		bb		0.000
3	FUNCTION2 HPCD...	31.01	8.310e1					3.1	YES		db		0.000
4	FUNCTION2 HPCD...	30.88	1.193e2					2.0	NO		bd		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.95	1.152e2					3.0	NO		bb		0.000
2	FUNCTION3 OCDPE	35.41	1.159e2					4.5	YES		bb		0.000
3	FUNCTION3 OCDPE	34.62	9.236e1					2.5	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.66	8.194e1					2.0	NO		bb		0.000
2	FUNCTION4 NCDPE	39.66	8.616e1					1.6	NO		bb		0.000

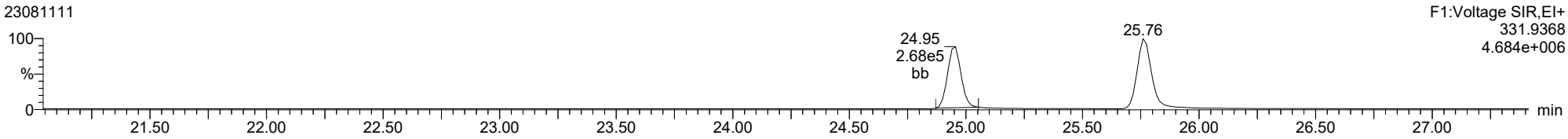
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

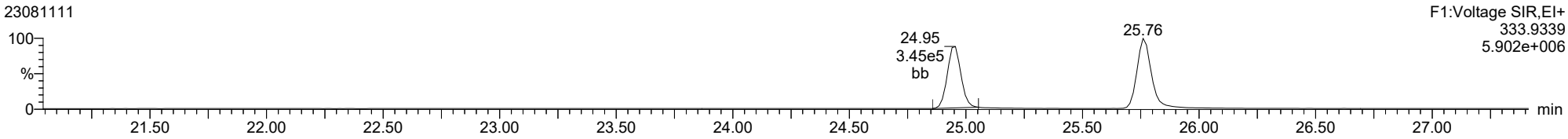
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ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

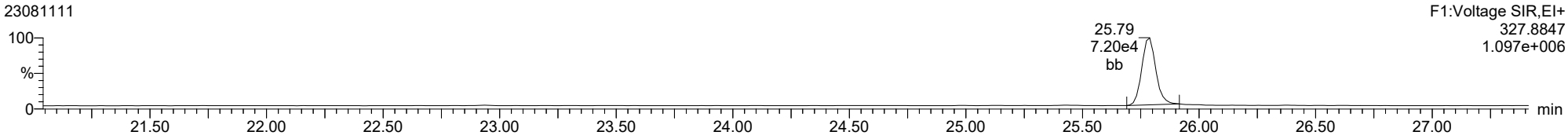
13C-1234-TCDD



13C-1234-TCDD

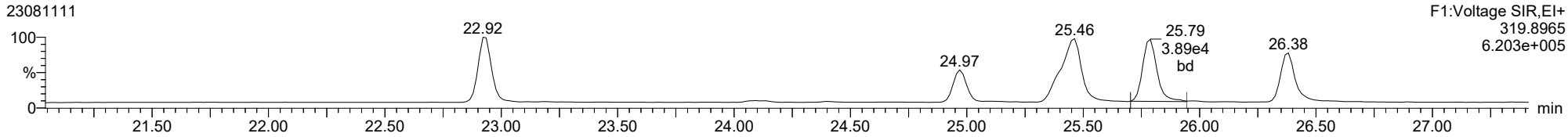


37CL-2378-TCDD

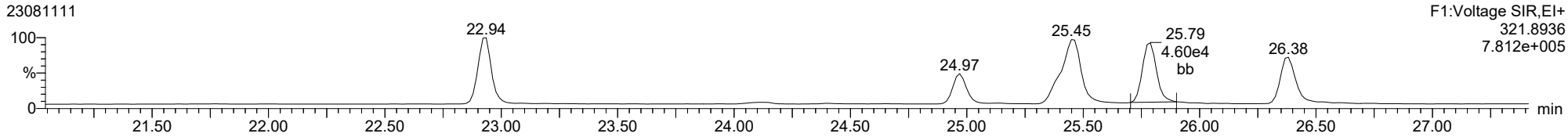


ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

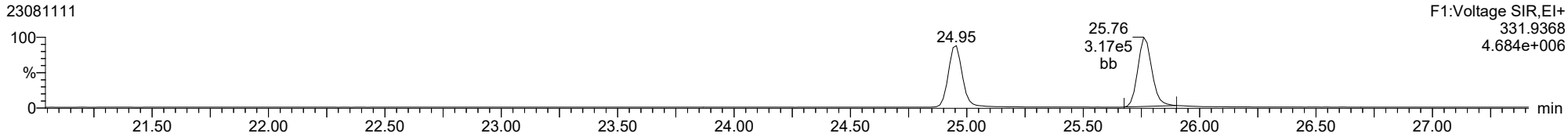
2378-TCDD



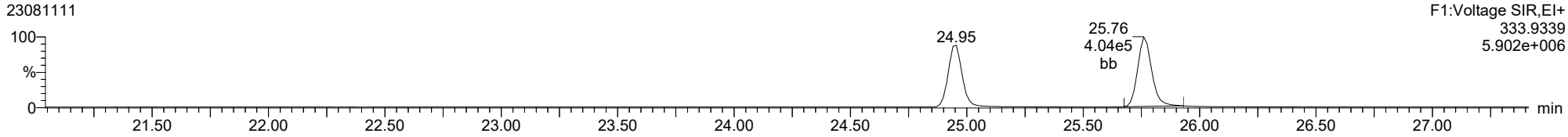
2378-TCDD



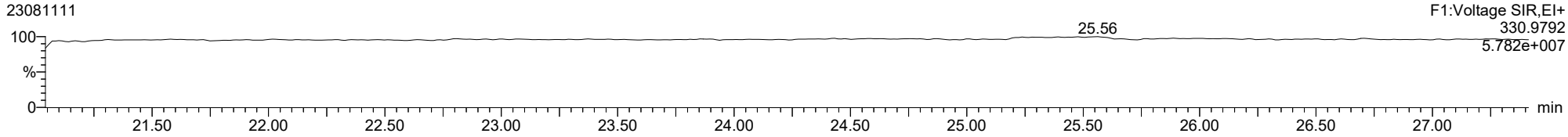
13C-2378-TCDD



13C-2378-TCDD

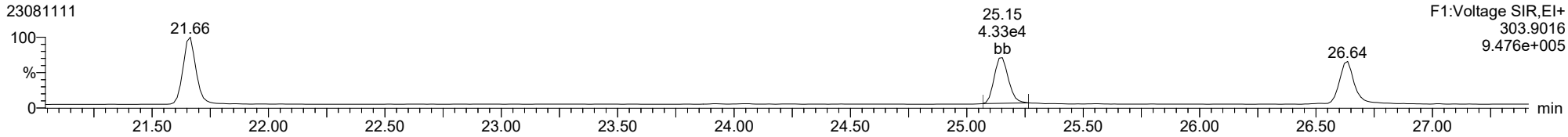


FUNCTION1 PFK

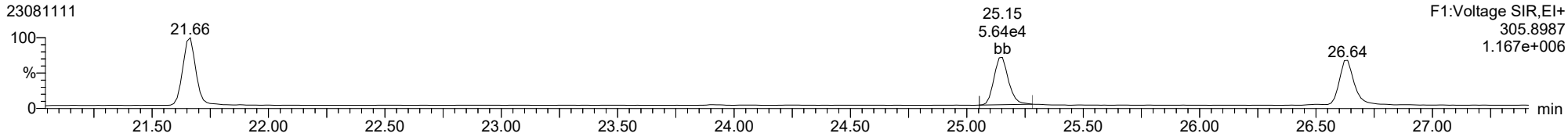


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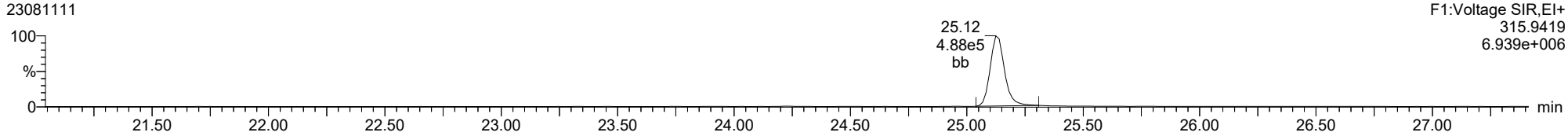
2378-TCDF



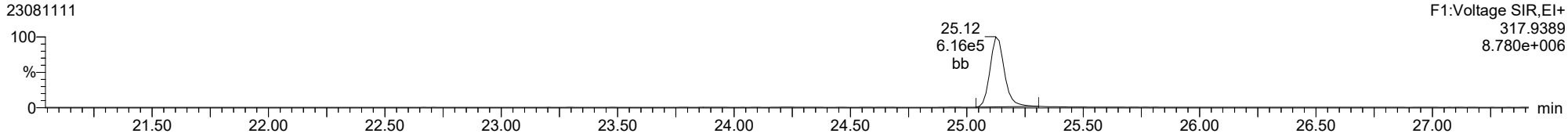
2378-TCDF



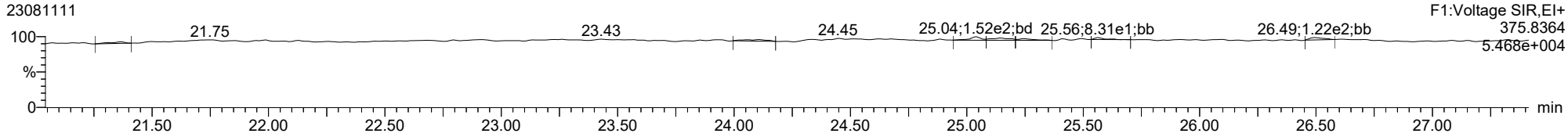
13C-2378-TCDF



13C-2378-TCDF

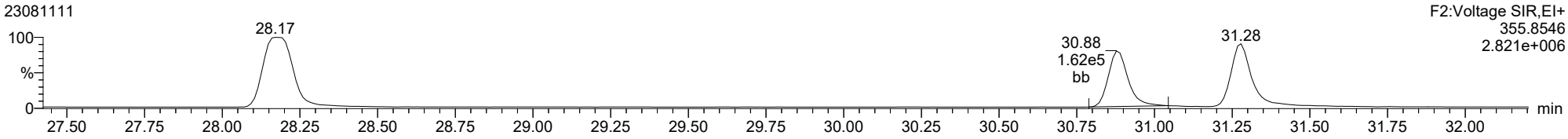


FUNCTION1 HXCDPE

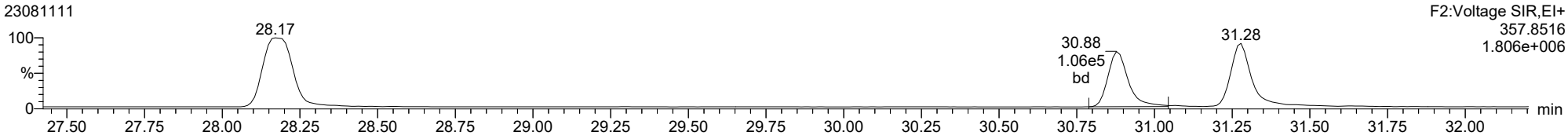


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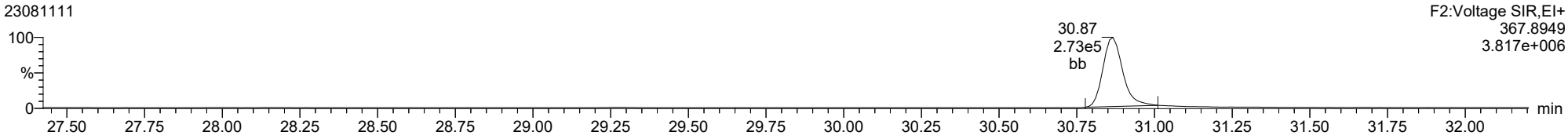
12378-PeCDD



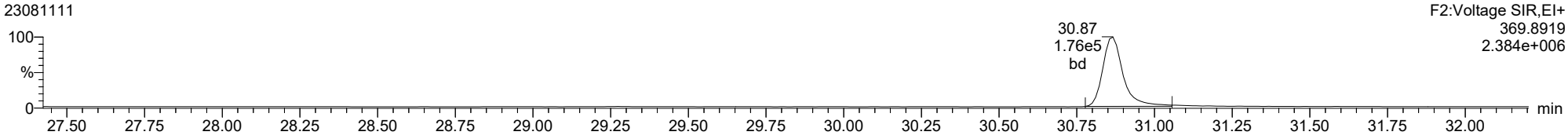
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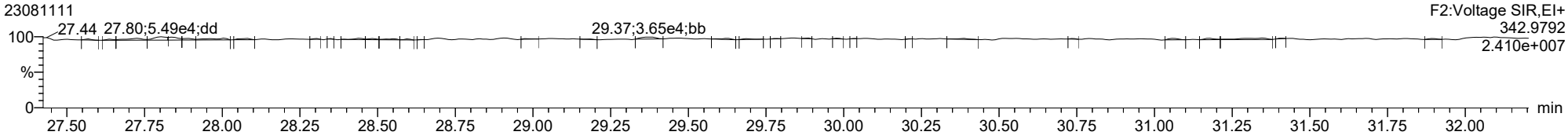
13C-12378-PeCDD



13C-12378-PeCDD

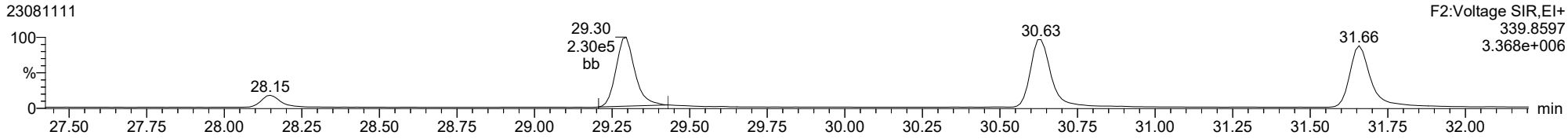


FUNCTION2 PFK

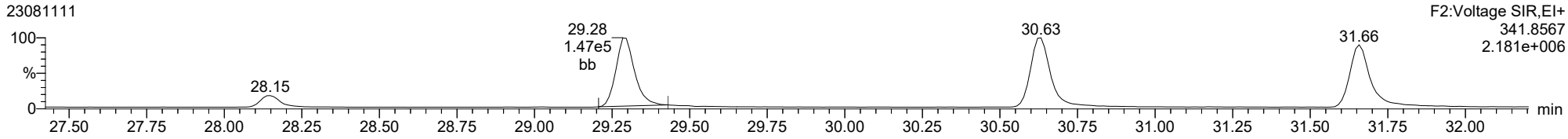


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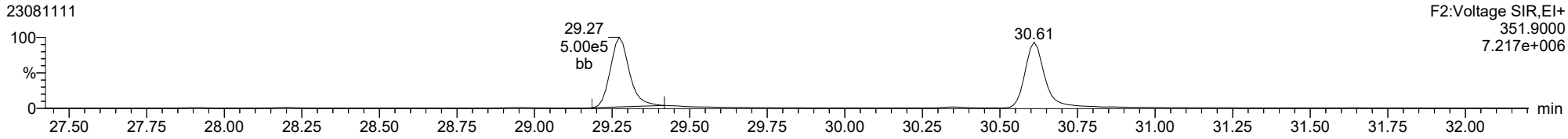
12378-PeCDF



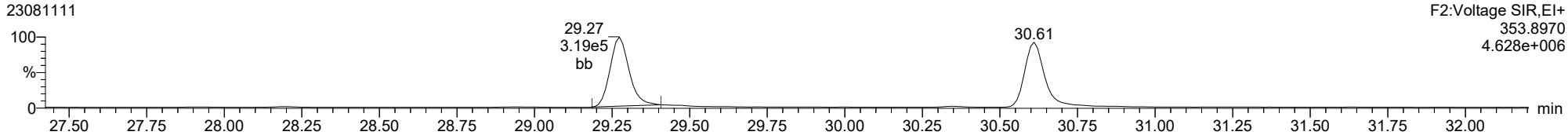
12378-PeCDF



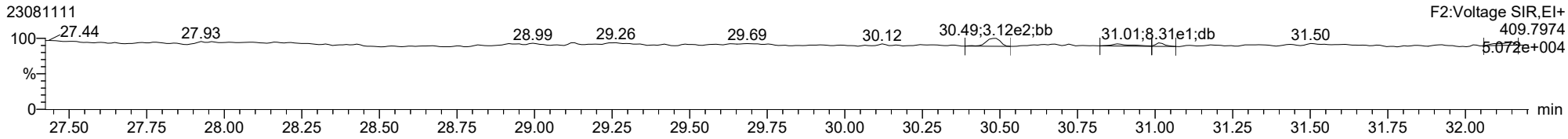
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13C-12378-PeCDF

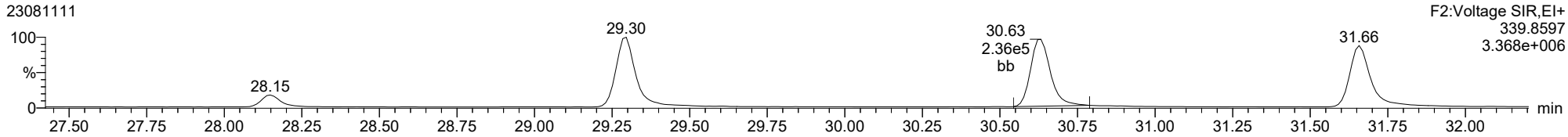


FUNCTION2 HPCDPE

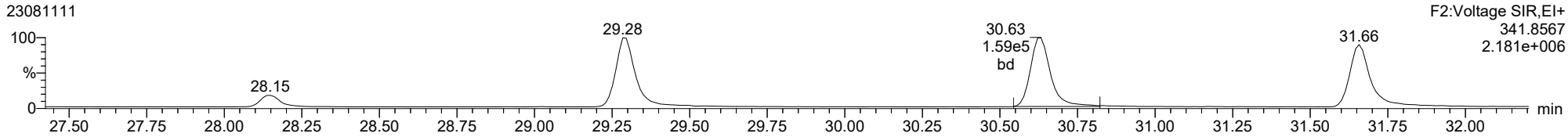


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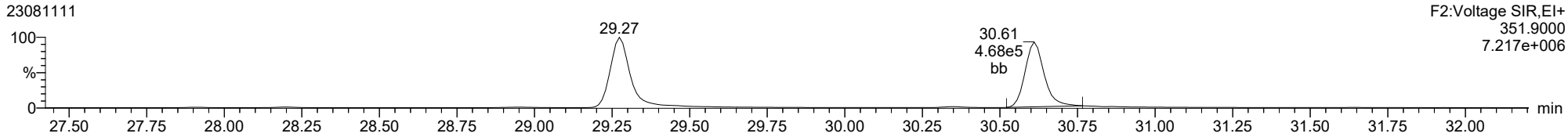
23478-PeCDF



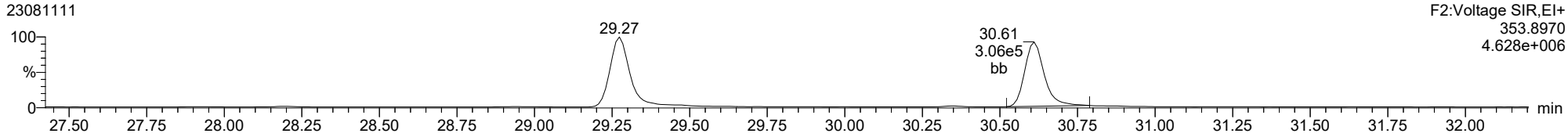
23478-PeCDF



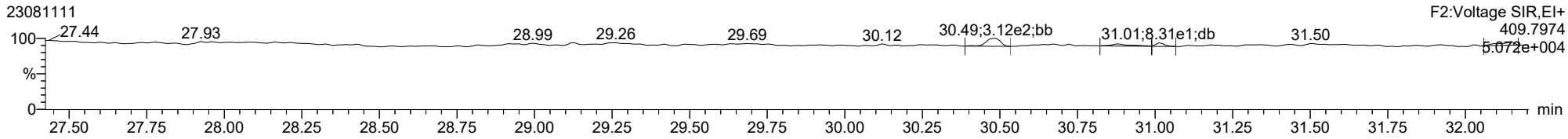
13C-23478-PeCDF



13C-23478-PeCDF

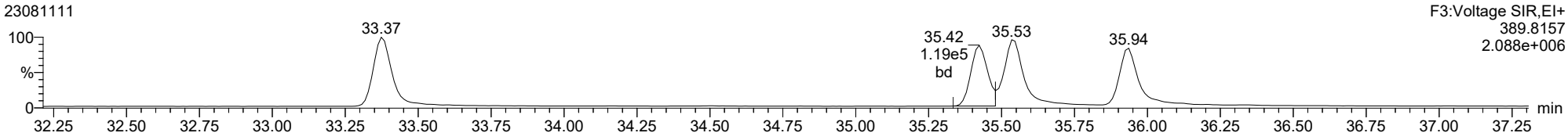


FUNCTION2 HPCDPE

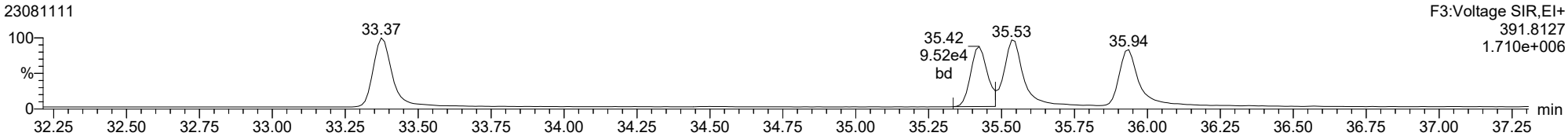


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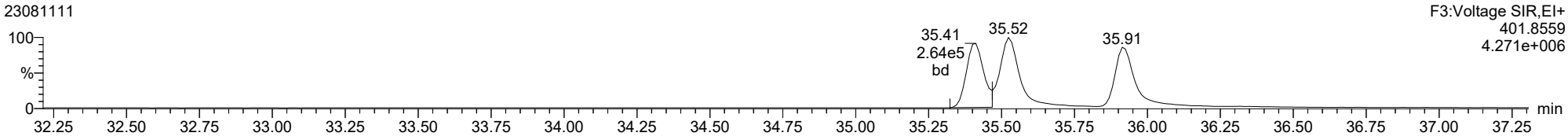
123478-HxCDD



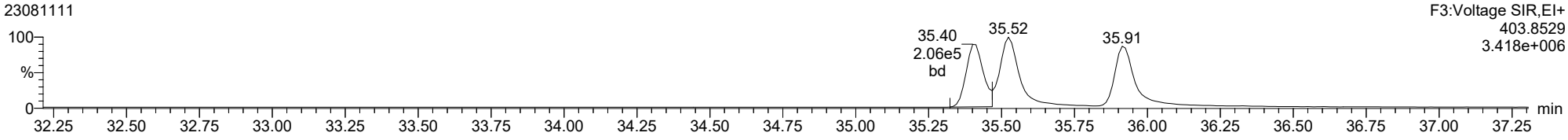
123478-HxCDD



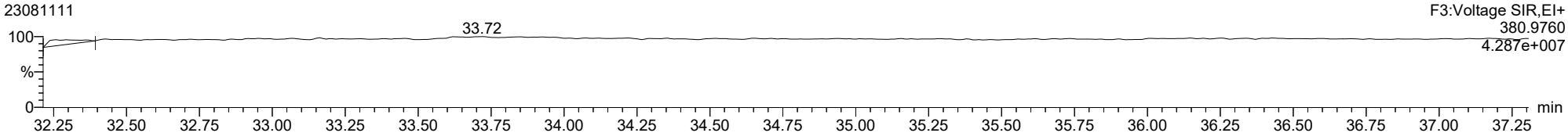
13C-123478-HxCDD



13C-123478-HxCDD



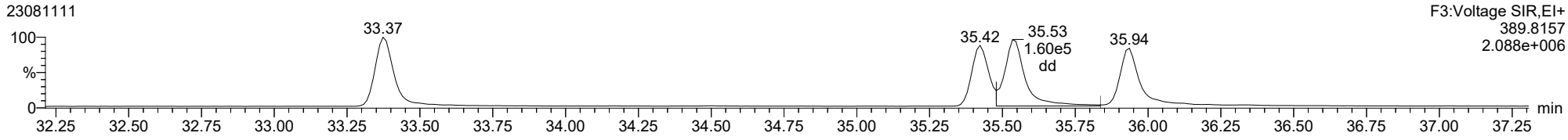
FUNCTION3 PFK



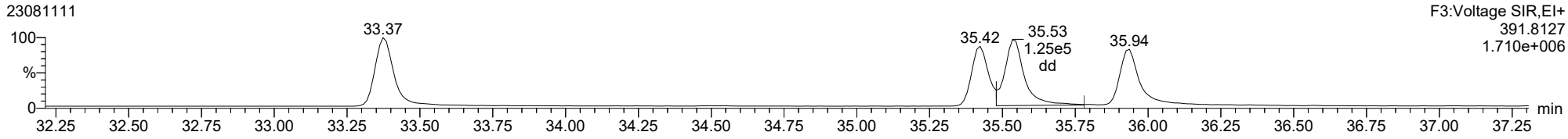
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ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

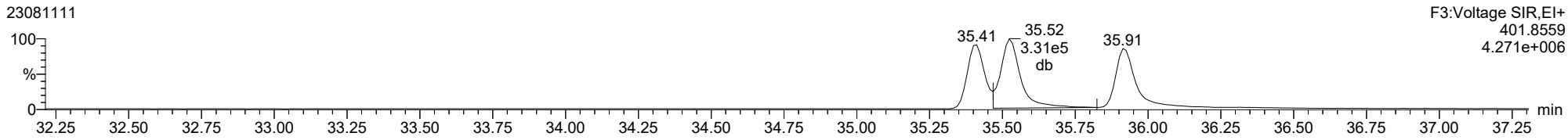
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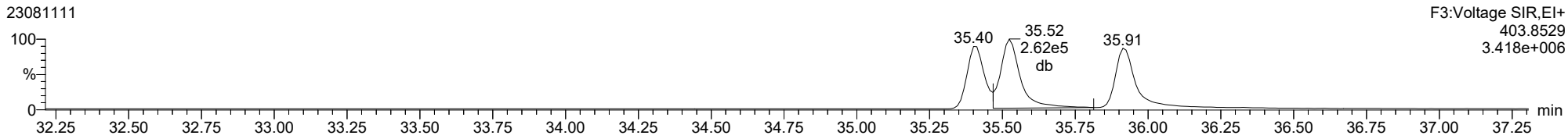
123678-HxCDD



13C-123678-HxCDD

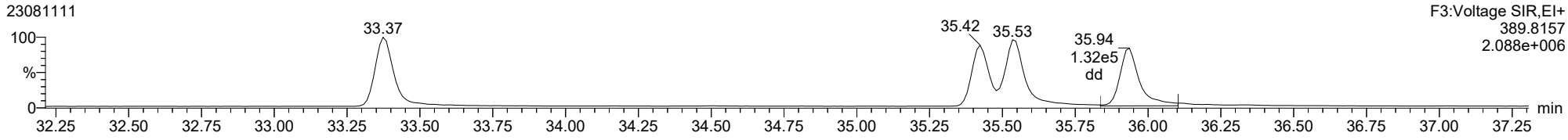


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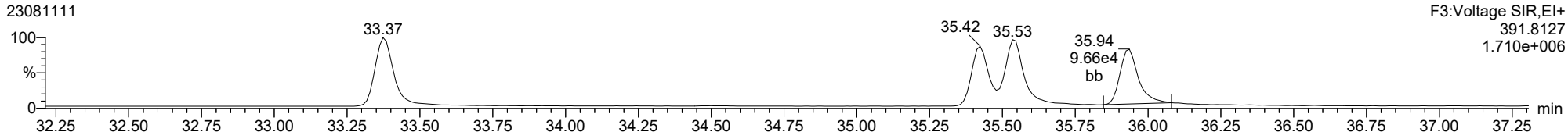


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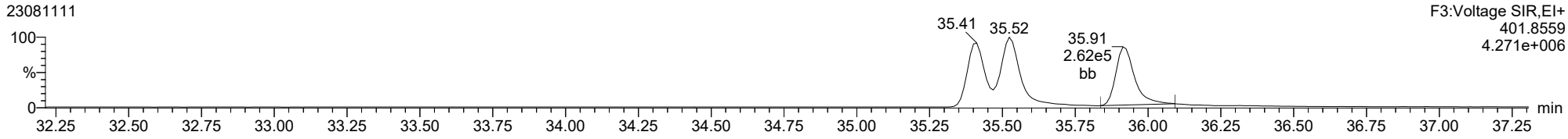
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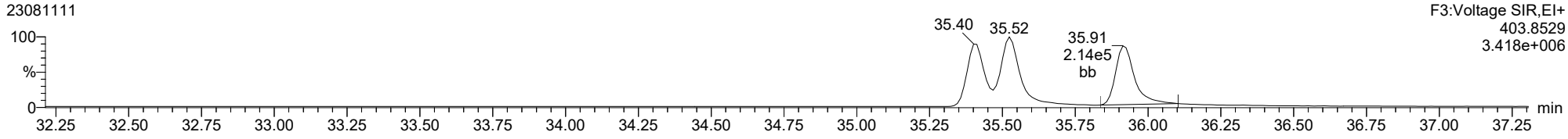
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13C-123789-HxCDD



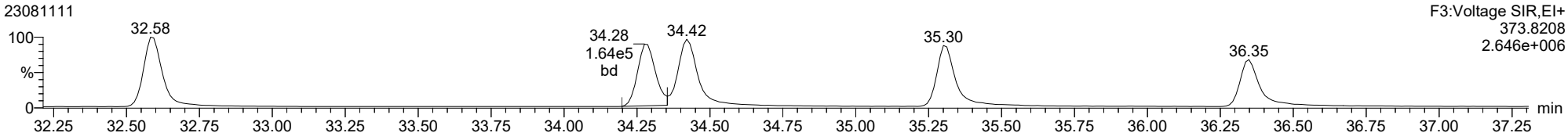
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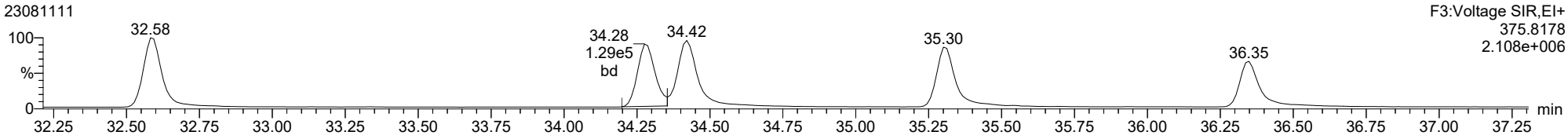
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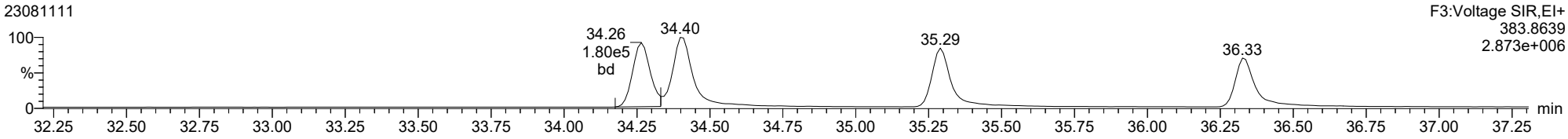
123478-HxCDF



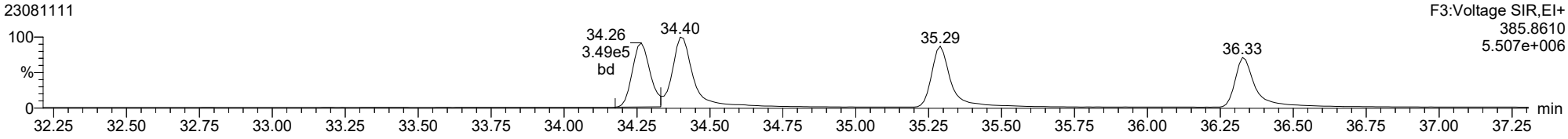
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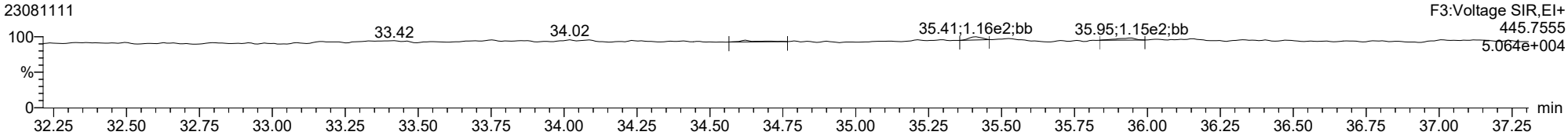
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13C-123478-HxCDF

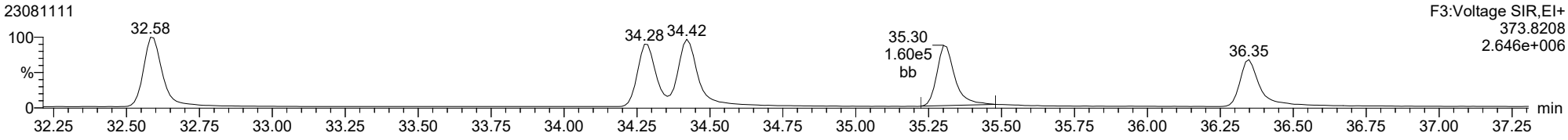


FUNCTION3 OCDPE

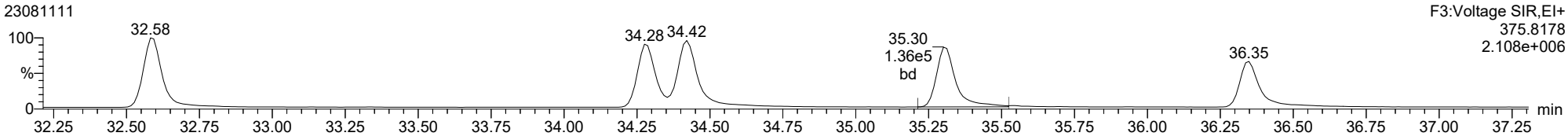


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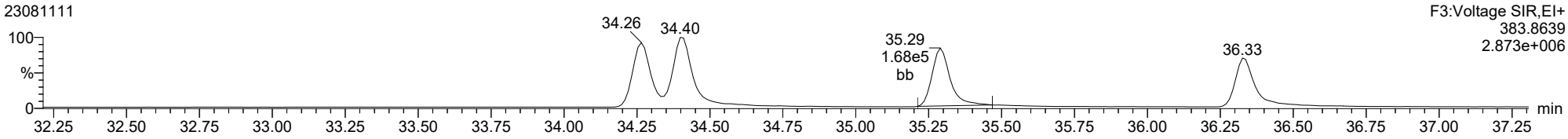
234678-HxCDF



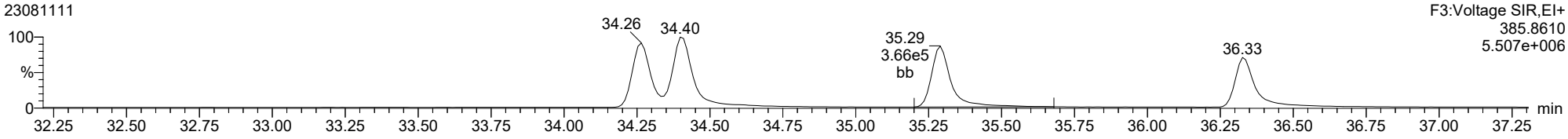
234678-HxCDF



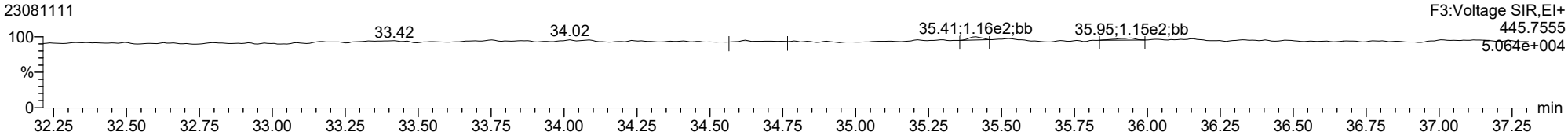
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13C-234678-HxCDF

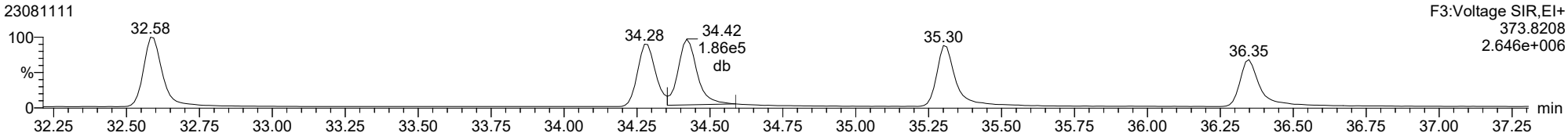


FUNCTION3 OCDPE

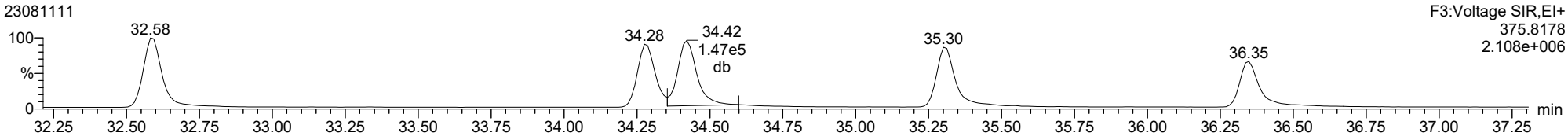


ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

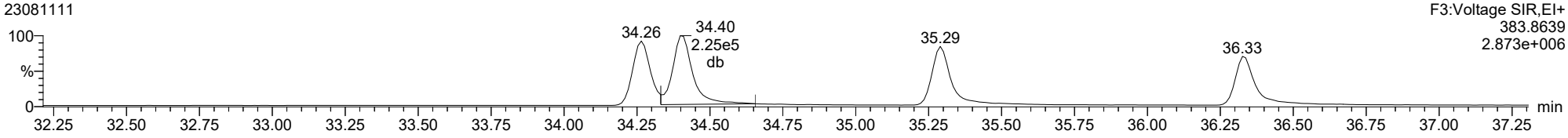
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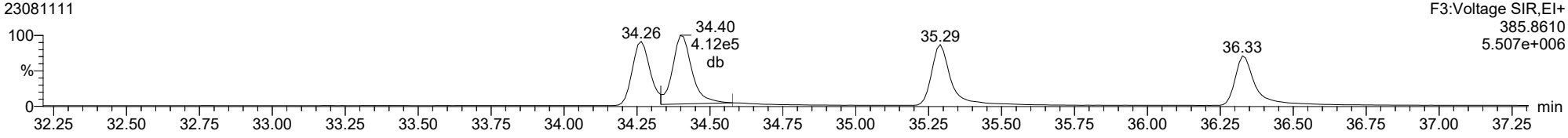
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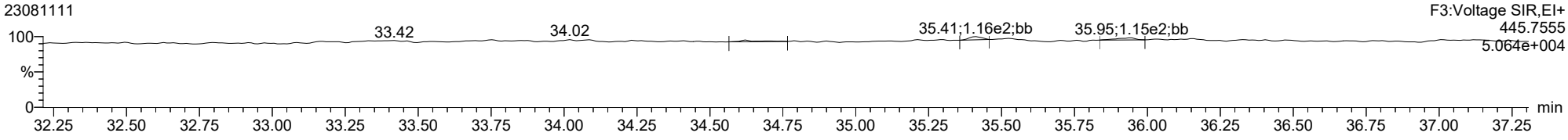
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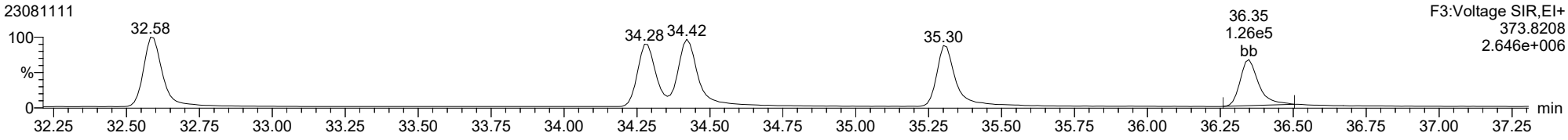


FUNCTION3 OCDPE

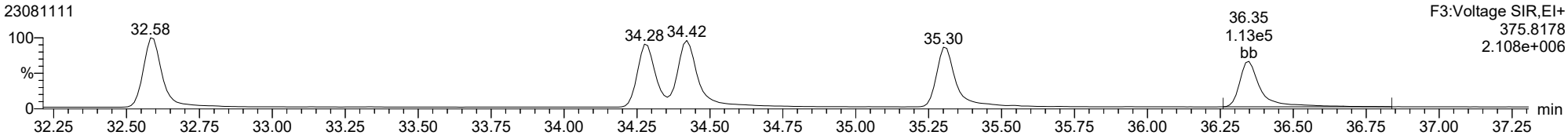


ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

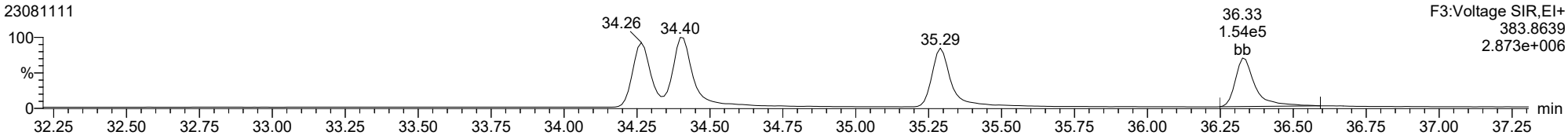
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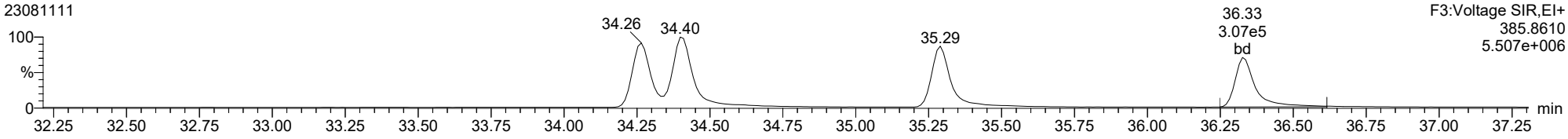
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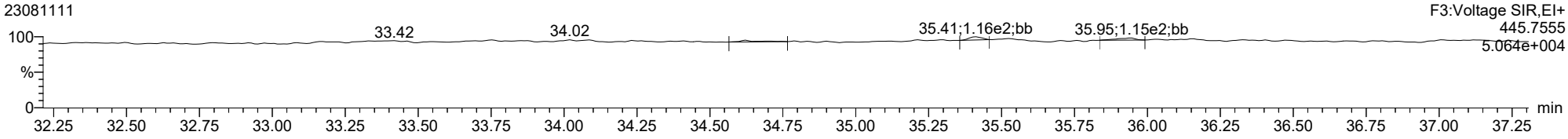
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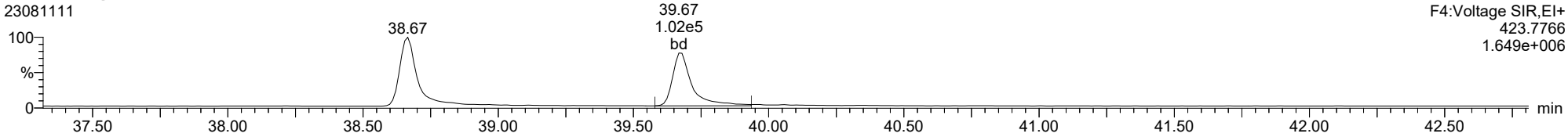


FUNCTION3 OCDPE

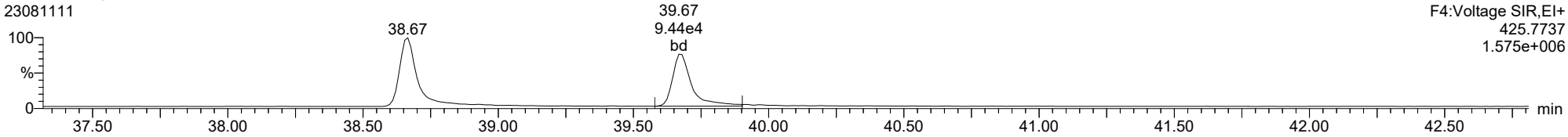


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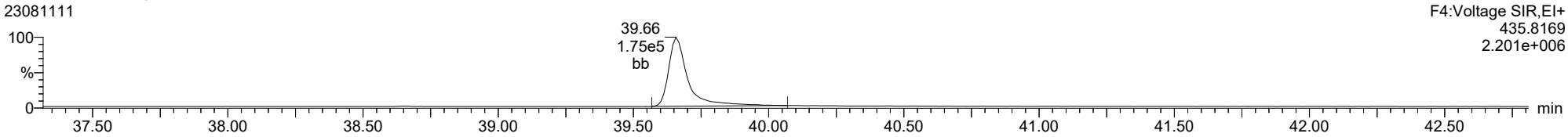
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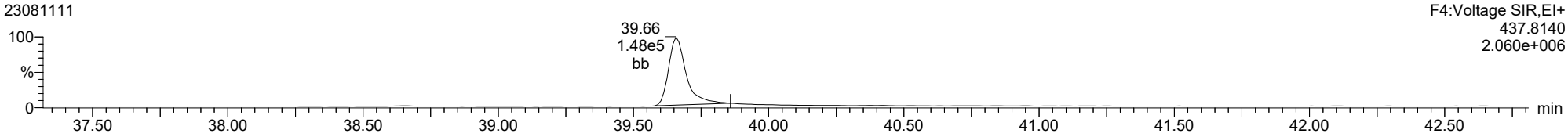
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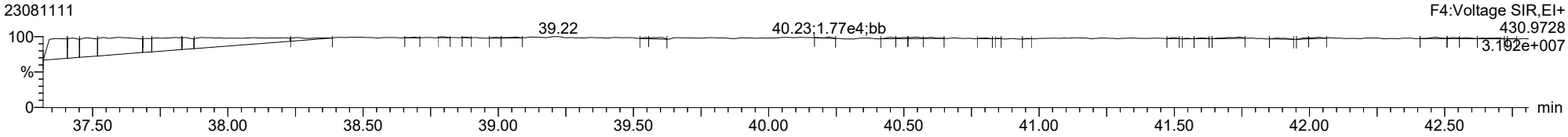
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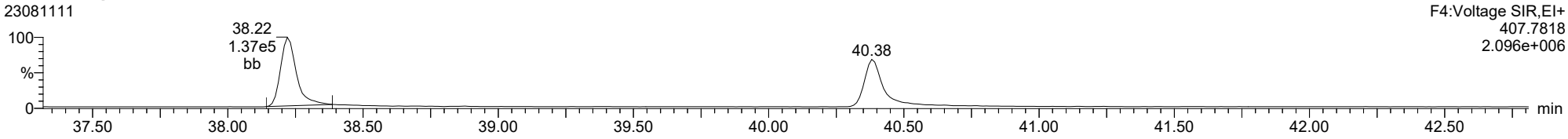


FUNCTION4 PFK

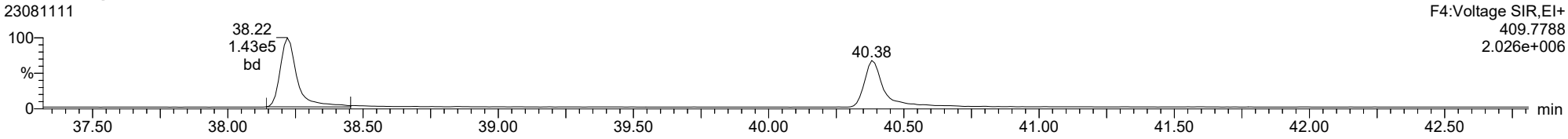


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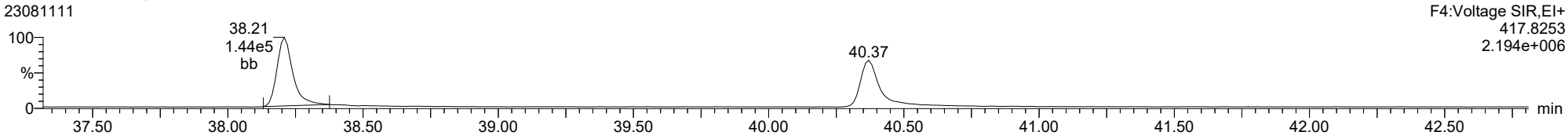
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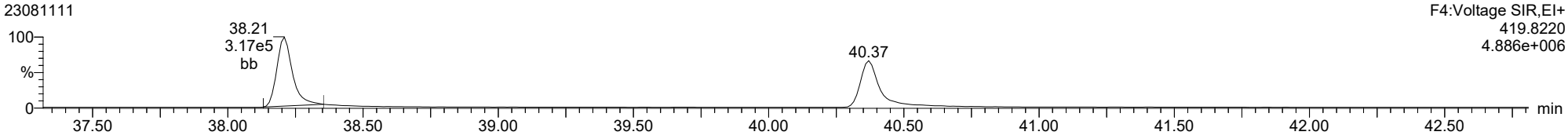
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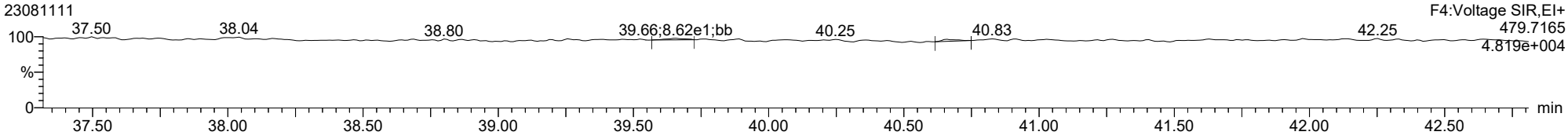
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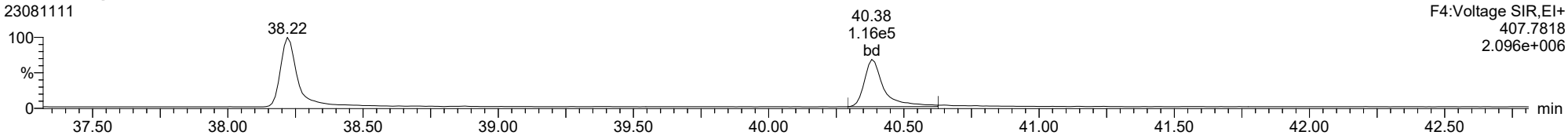


FUNCTION4 NCDPE

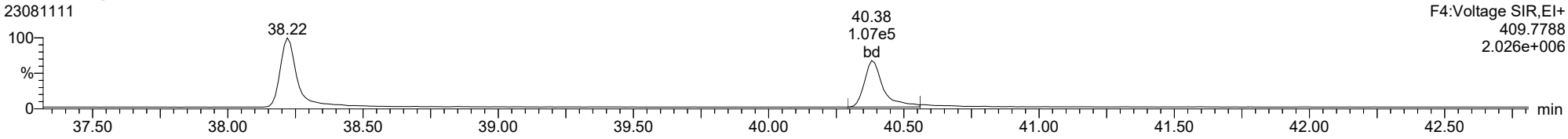


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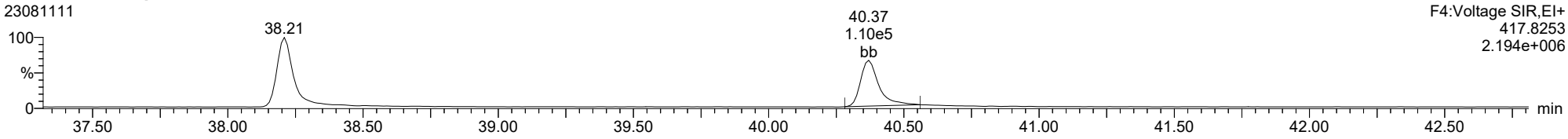
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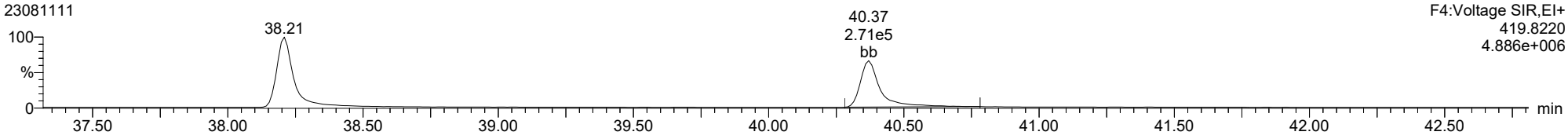
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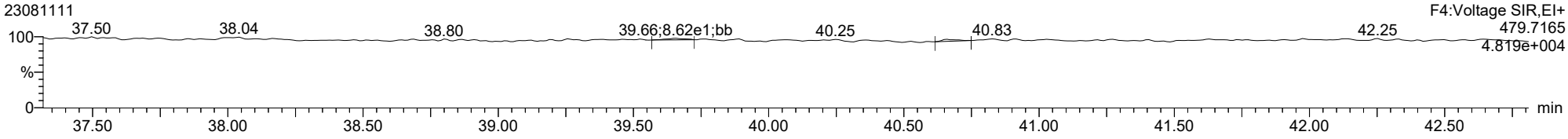
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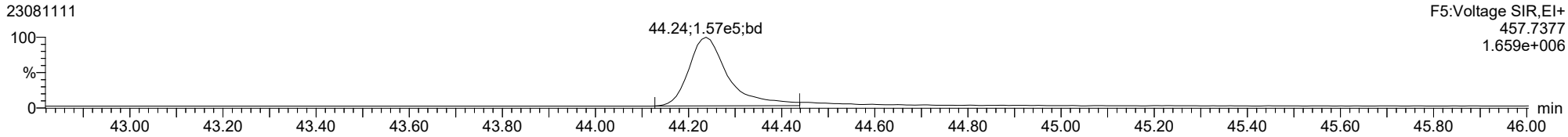


FUNCTION4 NCDPE

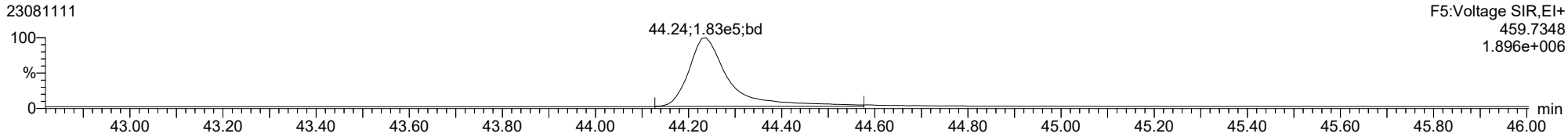


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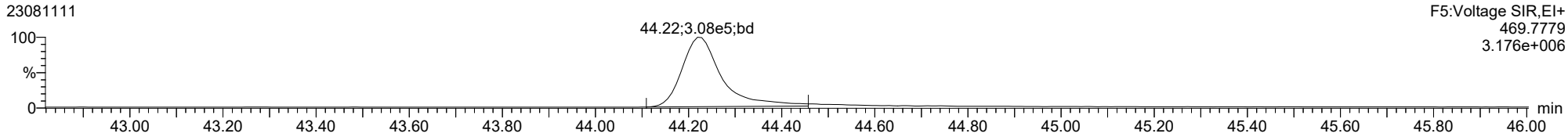
OCDD



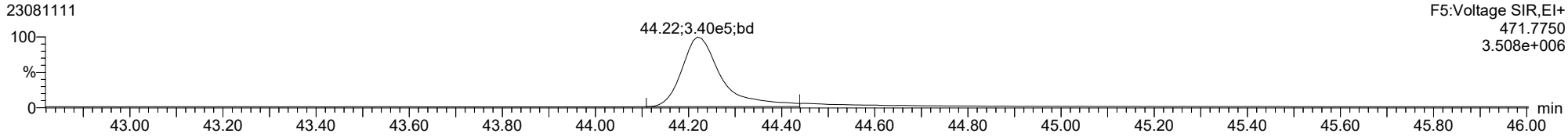
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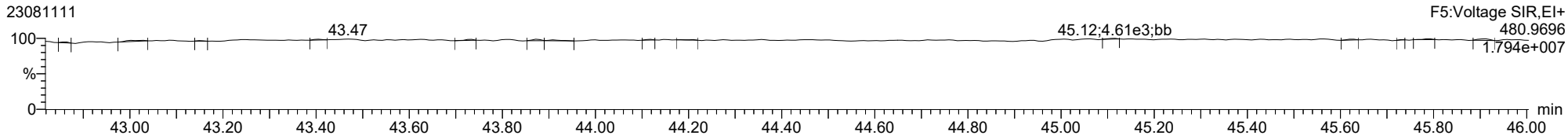
13C-OCDD



13C-OCDD

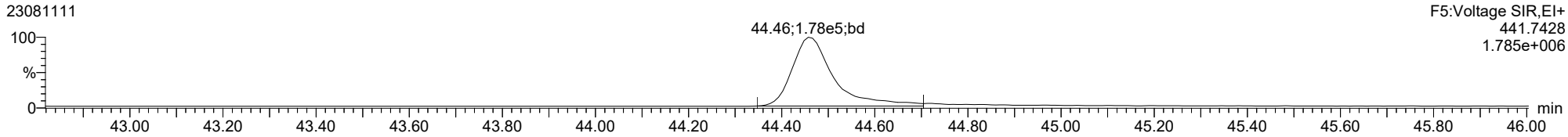


FUNCTION5 PFK

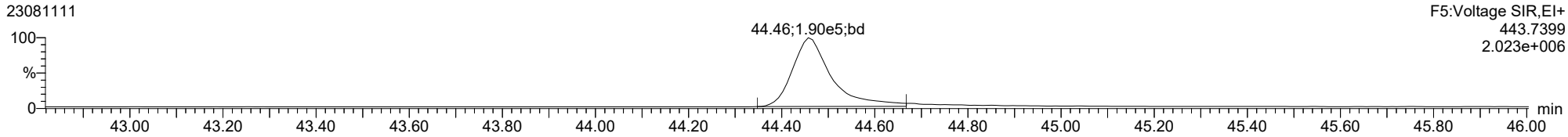


ID: CS3F2, Name: 23081111, Date: 11-Aug-2023, Time: 18:06:32, Conditions: AUTOSPEC01, User: pk

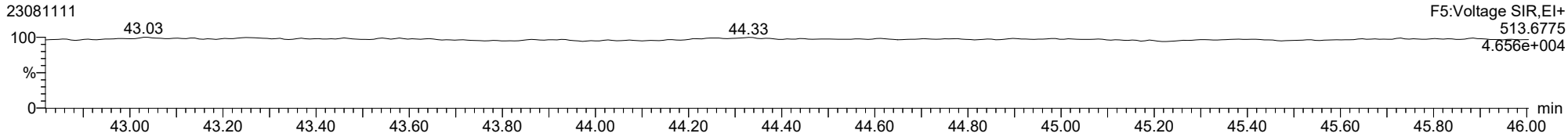
OCDF



OCDF

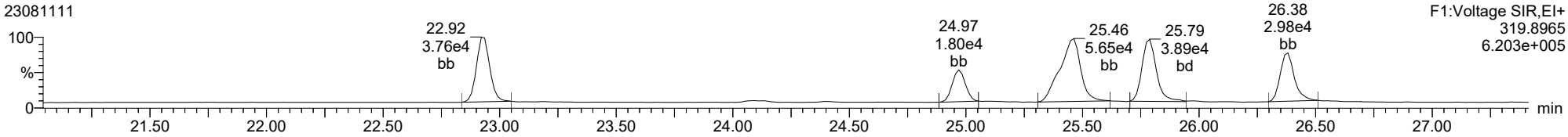


FUNCTION5 DCDPE

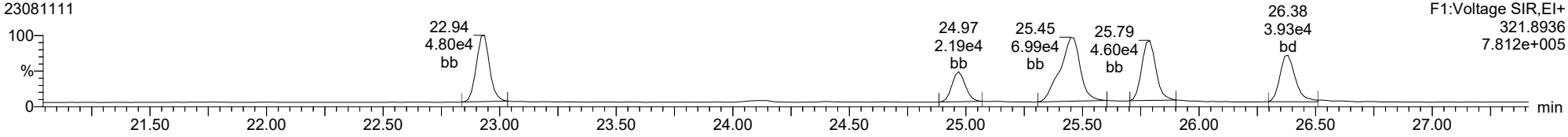


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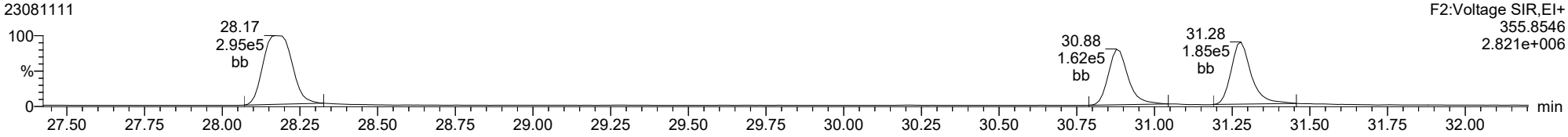
Total-tetradioxins



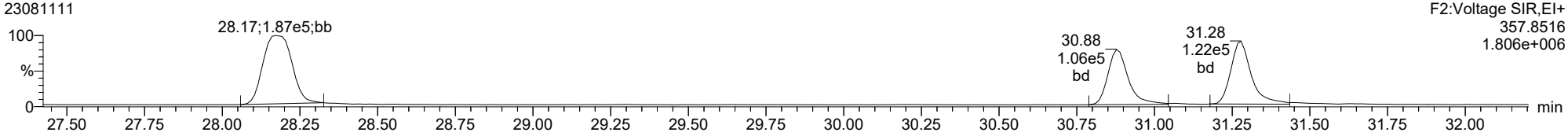
Total-tetradioxins



Total-pentadioxins

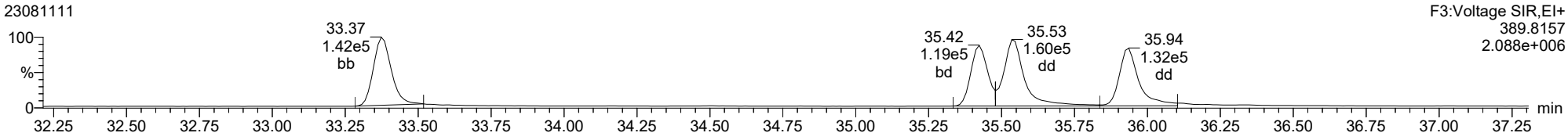


Total-pentadioxins

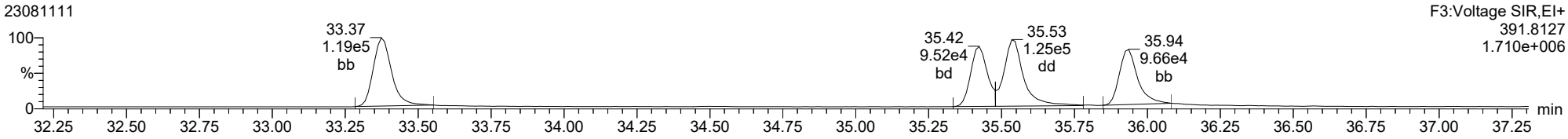


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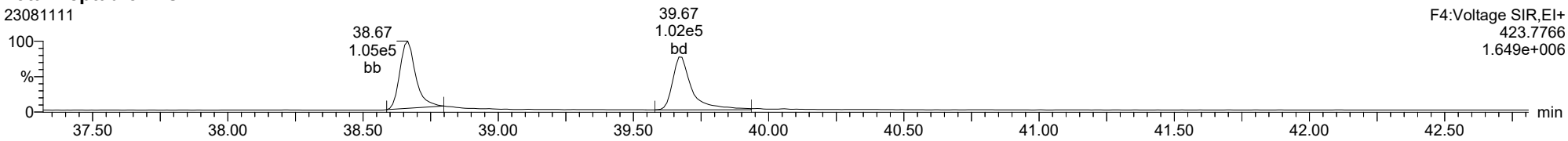
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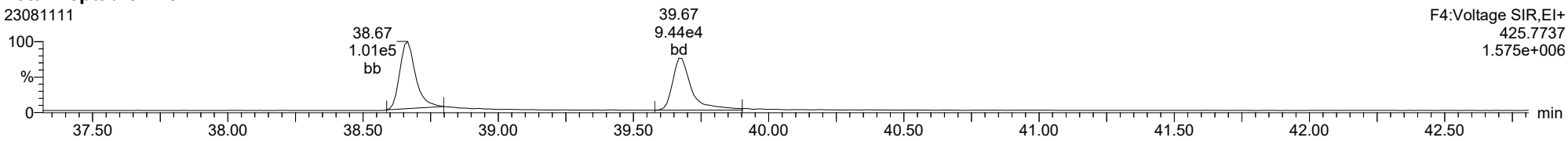
Total-hexadioxins



Total-heptadioxins

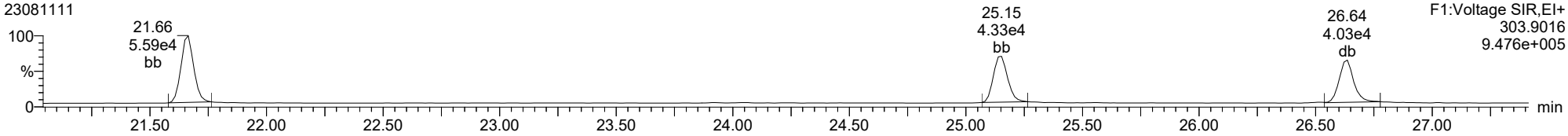


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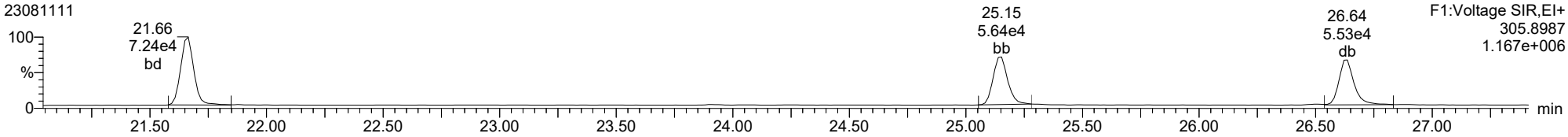


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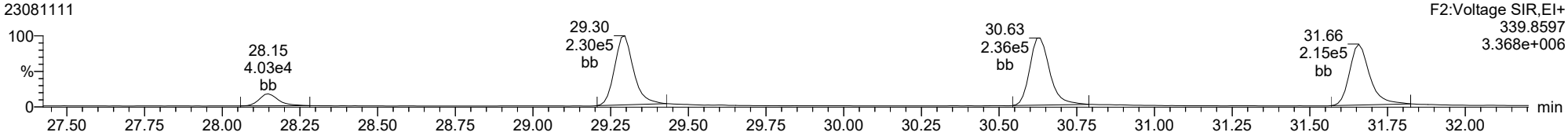
Total-tetrafurans



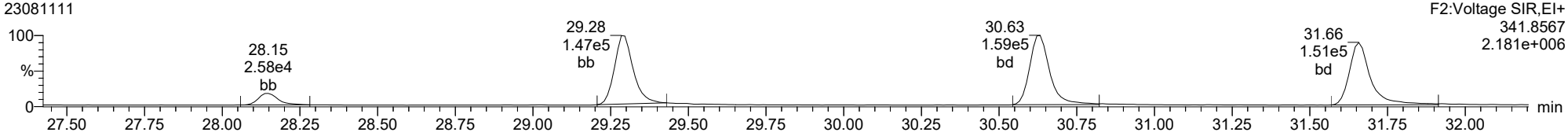
Total-tetrafurans



Total-pentafurans

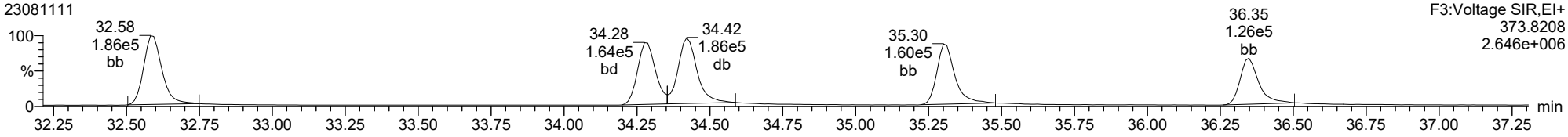


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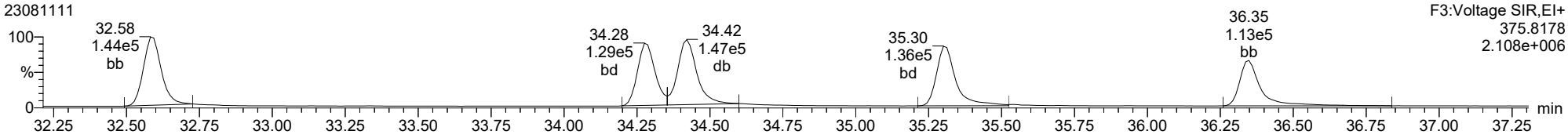


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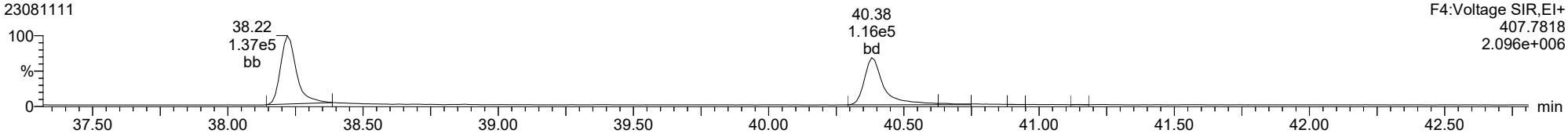
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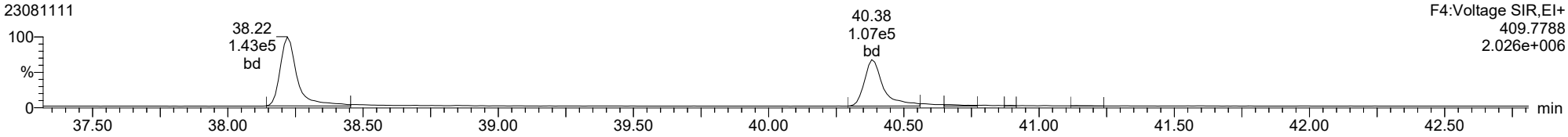
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23I0156
Client: Floyd - Snider
Project: Smith-Kem
Calibration: GH00041
Laboratory ID: SLH0135-SCV1
Sequence: SLH0135
Sequence Name: ICVCF
Standard ID: H008219

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
2,3,7,8-TCDF	10.000	9.78	-2.2	
2,3,7,8-TCDD	10.000	9.85	-1.5	
1,2,3,7,8-PeCDF	50.000	49.3	-1.4	
2,3,4,7,8-PeCDF	50.000	50.5	1.0	
1,2,3,7,8-PeCDD	50.000	52.8	5.6	
1,2,3,4,7,8-HxCDF	50.000	50.0	0.09	
1,2,3,6,7,8-HxCDF	50.000	50.9	1.9	
2,3,4,6,7,8-HxCDF	50.000	52.9	5.9	
1,2,3,7,8,9-HxCDF	50.000	53.4	6.8	
1,2,3,4,7,8-HxCDD	50.000	47.8	-4.5	
1,2,3,6,7,8-HxCDD	50.000	50.8	1.5	
1,2,3,7,8,9-HxCDD	50.000	54.6	9.3	
1,2,3,4,6,7,8-HpCDF	50.000	51.9	3.9	
1,2,3,4,7,8,9-HpCDF	50.000	56.7	13.4	
1,2,3,4,6,7,8-HpCDD	50.000	48.3	-3.5	
OCDF	100.00	100	0.3	
OCDD	100.00	98.5	-1.5	
13C12-2,3,7,8-TCDF	100.00	101	1.2	
13C12-2,3,7,8-TCDD	100.00	100	0.05	
13C12-1,2,3,7,8-PeCDF	100.00	104	3.5	
13C12-2,3,4,7,8-PeCDF	100.00	99.8	-0.2	
13C12-1,2,3,7,8-PeCDD	100.00	100	0.2	
13C12-1,2,3,4,7,8-HxCDF	100.00	95.3	-4.7	
13C12-1,2,3,6,7,8-HxCDF	100.00	93.4	-6.6	
13C12-2,3,4,6,7,8-HxCDF	100.00	93.8	-6.2	
13C12-1,2,3,7,8,9-HxCDF	100.00	96.1	-3.9	
13C12-1,2,3,4,7,8-HxCDD	100.00	99.2	-0.8	
13C12-1,2,3,6,7,8-HxCDD	100.00	99.0	-1.0	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	97.6	-2.4	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	100	0.2	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	103	2.8	
13C12-OCDD	200.00	225	12.5	
37Cl4-2,3,7,8-TCDD	10.000	9.69	-3.1	

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1613B

Laboratory:	Analytical Resources, LLC	**SDG:**	23I0156
Client:	Floyd - Snider	**Project:**	Smith-Kem
Calibration:	GH00041	**Laboratory ID:**	SLH0135-SCV1
Sequence:	SLH0135	**Sequence Name:**	ICVCF
		Standard ID:	H008219

* Indicates values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23I0156
Client: Floyd - Snider
Project: Smith-Kem
Calibration: GH00041
Laboratory ID: SLH0135-SCV1
Sequence: SLH0135
Standard ID: H008219

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
OCDF	100.00	100	0.3	
OCDD	100.00	98.5	-1.5	
13C12-2,3,7,8-TCDF	100.00	101	1.2	
13C12-2,3,7,8-TCDD	100.00	100	0.05	
13C12-1,2,3,7,8-PeCDF	100.00	104	3.5	
13C12-2,3,4,7,8-PeCDF	100.00	99.8	-0.2	
13C12-1,2,3,7,8-PeCDD	100.00	100	0.2	
13C12-1,2,3,4,7,8-HxCDF	100.00	95.3	-4.7	
13C12-1,2,3,6,7,8-HxCDF	100.00	93.4	-6.6	
13C12-2,3,4,6,7,8-HxCDF	100.00	93.8	-6.2	
13C12-1,2,3,7,8,9-HxCDF	100.00	96.1	-3.9	
13C12-1,2,3,4,7,8-HxCDD	100.00	99.2	-0.8	
13C12-1,2,3,6,7,8-HxCDD	100.00	99.0	-1.0	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	97.6	-2.4	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	100	0.2	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	103	2.8	
13C12-OCDD	200.00	225	12.5	
37Cl4-2,3,7,8-TCDD	10.000	9.69	-3.1	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	AUTOSPEC01	Calibration:	GH00041
Lab File ID:	23121419A	Calibration Date:	08/11/2023
Sequence:	SLL0222	Injection Date:	12/15/23
Lab Sample ID:	SLL0222-ICV1	Injection Time:	00:35
Sequence Name:	CS3J3		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF		
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT	
2,3,7,8-TCDF	A	10.000	9.60	0.9031472	0.8673636		-4.0	+/-16	
2,3,7,8-TCDD	A	10.000	9.16	1.2429820	1.1391550		-8.4	+/-22	
1,2,3,7,8-PeCDF	A	50.000	48.1	0.9232368	0.8878188		-3.8	+/-18	
2,3,4,7,8-PeCDF	A	50.000	52.4	0.9906617	1.0383580		4.8	+/-18	
1,2,3,7,8-PeCDD	A	50.000	46.3	1.1500860	1.0643950		-7.5	+/-22	
1,2,3,4,7,8-HxCDF	A	50.000	49.2	1.1281700	1.1110910		-1.5	+/-10	
1,2,3,6,7,8-HxCDF	A	50.000	50.2	1.0323580	1.0359630		0.3	+/-12	
2,3,4,6,7,8-HxCDF	A	50.000	54.3	1.0814700	1.1743690		8.6	+/-12	
1,2,3,7,8,9-HxCDF	A	50.000	49.3	0.9876148	0.9742539		-1.4	+/-10	
1,2,3,4,7,8-HxCDD	A	50.000	41.5	0.9600870	0.7973583		-16.9	+/-22	
1,2,3,6,7,8-HxCDD	A	50.000	48.1	0.8826935	0.8486134		-3.9	+/-22	
1,2,3,7,8,9-HxCDD	A	50.000	48.4	0.8037436	0.7777929		-3.2	+/-18	
1,2,3,4,6,7,8-HpCDF	A	50.000	49.9	1.1637090	1.1625200		-0.1	+/-10	
1,2,3,4,7,8,9-HpCDF	A	50.000	56.3	1.1036300	1.2436230		12.7	+/-14	
1,2,3,4,6,7,8-HpCDD	A	50.000	45.8	1.1996030	1.0988720		-8.4	+/-14	
OCDF	A	100.00	97.2	1.1302050	1.0988850		-2.8	+/-37	
OCDD	A	100.00	87.3	1.0586660	0.9242797		-12.7	+/-21	
13C12-2,3,7,8-TCDF	A	100.00	88.6	1.8353850	1.6258781		-11.4	+/-29	
13C12-2,3,7,8-TCDD	A	100.00	102	1.1095460	1.1290466		1.8	+/-18	
13C12-1,2,3,7,8-PeCDF	A	100.00	86.5	1.3765480	1.1905489		-13.5	+/-24	
13C12-2,3,4,7,8-PeCDF	A	100.00	84.2	1.3012340	1.0955524		-15.8	+/-23	
13C12-1,2,3,7,8-PeCDD	A	100.00	102	0.7536802	0.7690030		2.0	+/-38	
13C12-1,2,3,4,7,8-HxCDF	A	100.00	90.4	1.0906500	0.9855614		-9.6	+/-24	
13C12-1,2,3,6,7,8-HxCDF	A	100.00	87.0	1.3402290	1.1654679		-13.0	+/-30	
13C12-2,3,4,6,7,8-HxCDF	A	100.00	85.0	1.0934470	0.9294073		-15.0	+/-27	
13C12-1,2,3,7,8,9-HxCDF	A	100.00	87.0	0.9516050	0.8275265		-13.0	+/-26	
13C12-1,2,3,4,7,8-HxCDD	A	100.00	105	0.9598962	1.0117857		5.4	+/-15	
13C12-1,2,3,6,7,8-HxCDD	A	100.00	101	1.1592550	1.1706946		1.0	+/-15	
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	79.1	0.9849488	0.7795568		-20.9	+/-22	
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	74.0	0.7558011	0.5590656		-26.0	+/-23	*

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	AUTOSPEC01	Calibration:	GH00041
Lab File ID:	23121419A	Calibration Date:	08/11/2023
Sequence:	SLL0222	Injection Date:	12/15/23
Lab Sample ID:	SLL0222-ICV1	Injection Time:	00:35
Sequence Name:	CS3J3		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	93.9	0.6292861	0.5906368		-6.1	+/-28
13C12-OCDD	A	200.00	154	0.6351422	0.4875327		-23.2	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	10.5	1.1573510	1.2198308		5.4	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
Printed: Friday, December 15, 2023 13:54:43 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin231215.mdb 15 Dec 2023 13:28:43
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: CS3J3, Name: 23121419, Date: 15-Dec-2023, Time: 00:35:35, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.379	1.001	2.272e4	2.919e4	0.903	0.778	0.770	857	1088	3.11e5	3.90e5	362.6	358.2	NO	bb	bd	9.604
12378-PeCDF	29.515	1.000	1.189e5	7.561e4	0.923	1.573	1.550	1811	1478	1.76e6	1.09e6	971.8	738.8	NO	bb	bb	48.082
23478-PeCDF	30.864	1.001	1.283e5	8.109e4	0.991	1.582	1.550	1811	1478	1.82e6	1.14e6	1003.3	768.9	NO	bb	bb	52.407
123478-HxCDF	34.496	1.001	1.029e5	8.158e4	1.128	1.262	1.240	1967	1594	1.56e6	1.23e6	795.0	771.1	NO	bd	bd	49.243
234678-HxCDF	35.509	1.001	1.068e5	7.714e4	1.081	1.384	1.240	1967	1594	1.51e6	1.17e6	767.9	733.3	NO	bd	bb	54.295
123678-HxCDF	34.630	1.000	1.140e5	8.938e4	1.032	1.276	1.240	1967	1594	1.62e6	1.26e6	822.8	789.6	NO	db	db	50.175
123789-HxCDF	36.546	1.000	7.514e4	6.069e4	0.988	1.238	1.240	1967	1594	1.12e6	8.97e5	570.5	562.3	NO	bb	bb	49.324
1234678-HpCDF	38.395	1.000	7.790e4	7.478e4	1.164	1.042	1.050	1730	1511	1.23e6	1.14e6	708.2	755.9	NO	bb	bb	49.949
1234789-HpCDF	40.579	1.000	5.828e4	5.886e4	1.104	0.990	1.050	1730	1511	7.83e5	7.55e5	452.6	499.2	NO	bb	bd	56.342
OCDF	44.682	1.006	8.351e4	9.701e4	1.130	0.861	0.890	1205	2238	8.85e5	1.03e6	734.9	461.0	NO	bd	bd	97.229
2378-TCDD	26.014	1.001	2.098e4	2.636e4	1.243	0.796	0.770	1065	1372	2.97e5	3.66e5	279.2	266.7	NO	dd	bd	9.165
12378-PeCDD	31.109	1.000	9.035e4	6.030e4	1.150	1.498	1.550	1465	1450	1.23e6	8.43e5	840.8	581.8	NO	bd	bd	46.275
123478-HxCDD	35.632	1.001	7.457e4	6.135e4	0.960	1.215	1.240	996	1300	1.15e6	9.31e5	1157.6	715.7	NO	bd	bd	41.525
123678-HxCDD	35.743	1.000	9.245e4	7.493e4	0.883	1.234	1.240	996	1300	1.27e6	1.03e6	1273.2	794.6	NO	dd	db	48.070
123789-HxCDD	36.133	1.011	7.824e4	6.476e4	0.804	1.208	1.240	996	1300	1.08e6	8.80e5	1079.6	676.5	NO	bd	bd	48.386
1234678-HpCDD	39.854	1.000	5.471e4	5.464e4	1.200	1.001	1.050	1136	1566	7.28e5	7.02e5	640.7	448.3	NO	bd	bd	45.801
OCDD	44.444	1.000	7.274e4	7.910e4	1.059	0.920	0.890	1230	1699	7.87e5	8.92e5	639.8	525.3	NO	bd	bd	87.306
13C-2378-TCDF	25.365	1.007	2.572e5	3.413e5	1.835	0.754	0.770	846	831	3.40e6	4.49e6	4022.0	5401.9	NO	bb	bb	88.585
13C-12378-PeCDF	29.504	1.171	2.631e5	1.752e5	1.377	1.502	1.550	1795	1125	3.53e6	2.26e6	1963.8	2013.0	NO	bd	bb	86.488
13C-23478-PeCDF	30.841	1.224	2.415e5	1.618e5	1.301	1.492	1.550	1795	1125	3.31e6	2.16e6	1841.4	1916.6	NO	bb	bd	84.193
13C-123478-HxCDF	34.473	0.955	1.149e5	2.172e5	1.091	0.529	0.510	2379	1333	1.70e6	3.31e6	715.2	2481.6	NO	bd	bd	90.365
13C-123678-HxCDF	34.618	0.959	1.430e5	2.497e5	1.340	0.573	0.510	2379	1333	1.80e6	3.41e6	755.0	2560.7	NO	db	db	86.960
13C-234678-HxCDF	35.487	0.983	1.082e5	2.050e5	1.093	0.528	0.510	2379	1333	1.58e6	3.01e6	665.2	2256.5	NO	bb	bb	84.998
13C-123789-HxCDF	36.535	1.012	9.259e4	1.863e5	0.952	0.497	0.510	2379	1333	1.27e6	2.43e6	535.0	1824.5	NO	bd	bb	86.961
13C-1234678-HpCDF	38.384	1.063	7.841e4	1.843e5	0.985	0.426	0.440	1143	2241	1.18e6	2.67e6	1029.5	1190.5	NO	bb	bd	79.147
13C-1234789-HpCDF	40.568	1.123	5.786e4	1.305e5	0.756	0.443	0.440	1143	2241	7.46e5	1.65e6	652.6	738.0	NO	bb	bb	73.970
13C-1234-TCDD	25.195	0.000	1.618e5	2.063e5	1.000	0.785	0.770	1389	738	2.45e6	3.08e6	1761.4	4172.3	NO	bb	bb	100.000
13C-2378-TCDD	26.000	1.032	1.829e5	2.328e5	1.110	0.786	0.770	1389	738	2.61e6	3.29e6	1881.0	4457.2	NO	bb	bb	101.758
13C-12378-PeCDD	31.097	1.234	1.763e5	1.067e5	0.754	1.652	1.550	1316	813	2.51e6	1.52e6	1906.0	1869.2	NO	bb	bb	102.033
13C-123478-HxCDD	35.610	0.986	1.924e5	1.485e5	0.960	1.296	1.240	1106	1196	2.94e6	2.36e6	2662.5	1975.2	NO	bd	bd	105.406
13C-123678-HxCDD	35.732	0.990	2.184e5	1.760e5	1.159	1.241	1.240	1106	1196	3.09e6	2.49e6	2792.2	2082.6	NO	db	db	100.987
13C-1234678-HpCDD	39.843	1.103	1.046e5	9.447e4	0.629	1.107	1.050	1158	1170	1.56e6	1.41e6	1350.3	1209.6	NO	bb	bb	93.858
13C-OCDD	44.435	1.231	1.555e5	1.730e5	0.635	0.899	0.890	2295	1742	1.75e6	1.97e6	761.7	1130.4	NO	bb	bb	153.519
13C-123789-HxCDD	36.111	0.000	1.836e5	1.534e5	1.000	1.197	1.240	1106	1196	2.73e6	2.29e6	2469.9	1911.5	NO	bb	bb	100.000
37CL-2378-TCDD	26.014	1.033	4.490e4		1.157			945		6.21e5		657.0			bb		10.540

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
Printed: Friday, December 15, 2023 13:54:43 Pacific Standard Time

ID: CS3J3, Name: 23121419, Date: 15-Dec-2023, Time: 00:35:35, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.890	0.863	2.825e4	3.621e4	1.170	0.780	0.770	857	1088	4.37e5	5.51e5	510.2	506.2	NO	bb	bb	9.202
1289-TCDF	26.876	1.060	2.154e4	2.520e4	0.847	0.855	0.770	857	1088	2.92e5	3.50e5	341.0	322.2	NO	dd	bb	9.224
13468-PECDF	26.721	0.906	1.846e5	1.242e5	1.241	1.486	1.550	508	617	2.67e6	1.74e6	5263.8	2817.8	NO	bb	bb	56.768
12389-PECDF	31.900	1.081	1.143e5	7.219e4	0.880	1.583	1.550	1811	1478	1.57e6	9.93e5	864.8	672.0	NO	bb	bb	48.371
123468-HXCDF	32.802	0.952	1.146e5	9.083e4	1.206	1.262	1.240	1967	1594	1.72e6	1.35e6	875.8	845.5	NO	bb	bb	51.314
1368-TCDD	23.161	0.891	2.020e4	2.701e4	1.181	0.748	0.770	1065	1372	2.97e5	3.86e5	278.7	281.5	NO	bd	bd	9.619
1289-TCDD	26.608	1.023	1.810e4	2.317e4	0.963	0.781	0.770	1065	1372	2.23e5	2.97e5	209.3	216.4	NO	bb	bd	10.312
12479-PECDD	28.413	0.914	1.667e5	1.083e5	2.166	1.539	1.550	1465	1450	1.51e6	1.00e6	1031.0	690.7	NO	bd	bd	44.839
12389-PECDD	31.510	1.013	1.092e5	7.245e4	1.326	1.508	1.550	1465	1450	1.46e6	9.47e5	995.5	653.0	NO	bb	dd	48.396
124679-HXCDD	33.593	0.943	9.579e4	8.077e4	1.127	1.186	1.240	996	1300	1.35e6	1.14e6	1353.0	880.2	NO	bd	bb	45.967
1234679-HPCDD	38.841	0.975	7.152e4	6.905e4	1.303	1.036	1.050	1136	1566	1.03e6	1.01e6	904.8	646.2	NO	bd	bd	54.221
Total-tetrafurans			7.275e4		0.973			857		1.04e6							28.127
Total-penta1			1.846e5					508		2.67e6							56.768
Total-pentafurans			3.815e5		0.931			1811		5.45e6							157.426
Total-hexafurans			5.135e5		1.087			1967		7.54e6							254.350
Total-heptafurans			1.364e5		1.134			1730		2.01e6							106.448
Total-Furans			1.372e6		1.053			857		1.96e7							700.347
Total-tetradioxins			1.012e5		1.129			1065		1.28e6							49.229
Total-pentadioxins			3.662e5		1.548			1465		4.20e6							139.510
Total-hexadioxins			3.413e5		0.943			996		4.85e6							184.078
Total-heptadioxins			1.268e5		1.251			1136		1.77e6							100.465
Total-Dioxins			1.008e6		1.182			1065		1.29e7							560.589
Total-TEQ			2.380e6					1065		3.25e7							1260.936
FUNCTION1 PFK			4.766e5					347074		1.10e7							
FUNCTION2 PFK			1.832e5					130730		4.94e6							0.000
FUNCTION3 PFK			3.135e5					250367		7.78e6							0.000
FUNCTION4 PFK			4.563e5					200419		1.13e7							
FUNCTION5 PFK			7.257e4					126886		2.40e6							
FUNCTION1 HXCD...			2.229e2					442		3.35e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			7.379e1					576		2.15e3							0.000
FUNCTION3 OCDPE			0.000e0					391		0.00e0							
FUNCTION4 NCDPE			7.869e1					384		1.20e3							0.000
FUNCTION5 DCDPE			0.000e0					281		0.00e0							

Method: T:\Autospec\Methods\Dioxin231215.mdb 15 Dec 2023 13:28:43
Calibration: T:\Autospec\Curves\230811IClH.cdb 12 Aug 2023 09:45:18

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.88	2.154e4	2.520e4	0.847	0.85	0.77	341.0	YES	NO	dd	bb	9.224
2	2378-TCDF	25.38	2.272e4	2.919e4	0.903	0.78	0.77	362.6	YES	NO	bb	bd	9.604
3	Total-tetrafurans	24.15	2.388e2	3.247e2	0.973	0.74	0.77	3.3	YES	NO	bd	bb	0.097
4	1368-TCDF	21.89	2.825e4	3.621e4	1.170	0.78	0.77	510.2	YES	NO	bb	bb	9.202

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.72	1.846e5	1.242e5	1.241	1.49	1.55	5263.8	YES	NO	bb	bb	56.768

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	31.90	1.143e5	7.219e4	0.880	1.58	1.55	864.8	YES	NO	bb	bb	48.371
2	23478-PeCDF	30.86	1.283e5	8.109e4	0.991	1.58	1.55	1003.3	YES	NO	bb	bb	52.407
3	12378-PeCDF	29.52	1.189e5	7.561e4	0.923	1.57	1.55	971.8	YES	NO	bb	bb	48.082
4	Total-pentafurans	28.38	2.003e4	1.353e4	0.931	1.48	1.55	166.6	YES	NO	bb	bb	8.566

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDF	34.63	1.140e5	8.938e4	1.032	1.28	1.24	822.8	YES	NO	db	db	50.175
2	123478-HxCDF	34.50	1.029e5	8.158e4	1.128	1.26	1.24	795.0	YES	NO	bd	bd	49.243
3	123468-HXCDF	32.80	1.146e5	9.083e4	1.206	1.26	1.24	875.8	YES	NO	bb	bb	51.314
4	123789-HxCDF	36.55	7.514e4	6.069e4	0.988	1.24	1.24	570.5	YES	NO	bb	bb	49.324
5	234678-HxCDF	35.51	1.068e5	7.714e4	1.081	1.38	1.24	767.9	YES	NO	bd	bb	54.295

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.58	5.828e4	5.886e4	1.104	0.99	1.05	452.6	YES	NO	bb	bd	56.342
2	Total-heptafurans	39.03	1.903e2	2.092e2	1.134	0.91	1.05	3.2	YES	NO	bd	bb	0.156
3	1234678-HpCDF	38.40	7.790e4	7.478e4	1.164	1.04	1.05	708.2	YES	NO	bb	bb	49.949

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.88	2.154e4	2.520e4	0.847	0.85	0.77	341.0	YES	NO	dd	bb	9.224
2	2378-TCDF	25.38	2.272e4	2.919e4	0.903	0.78	0.77	362.6	YES	NO	bb	bd	9.604
3	Total-tetrafurans	24.15	2.388e2	3.247e2	0.973	0.74	0.77	3.3	YES	NO	bd	bb	0.097
4	1368-TCDF	21.89	2.825e4	3.621e4	1.170	0.78	0.77	510.2	YES	NO	bb	bb	9.202
5	12389-PECDF	31.90	1.143e5	7.219e4	0.880	1.58	1.55	864.8	YES	NO	bb	bb	48.371
6	23478-PeCDF	30.86	1.283e5	8.109e4	0.991	1.58	1.55	1003.3	YES	NO	bb	bb	52.407
7	12378-PeCDF	29.52	1.189e5	7.561e4	0.923	1.57	1.55	971.8	YES	NO	bb	bb	48.082
8	Total-pentafurans	28.38	2.003e4	1.353e4	0.931	1.48	1.55	166.6	YES	NO	bb	bb	8.566
9	123678-HxCDF	34.63	1.140e5	8.938e4	1.032	1.28	1.24	822.8	YES	NO	db	db	50.175
10	123478-HxCDF	34.50	1.029e5	8.158e4	1.128	1.26	1.24	795.0	YES	NO	bd	bd	49.243
11	123468-HXCDF	32.80	1.146e5	9.083e4	1.206	1.26	1.24	875.8	YES	NO	bb	bb	51.314
12	123789-HxCDF	36.55	7.514e4	6.069e4	0.988	1.24	1.24	570.5	YES	NO	bb	bb	49.324
13	234678-HxCDF	35.51	1.068e5	7.714e4	1.081	1.38	1.24	767.9	YES	NO	bd	bb	54.295
14	1234789-HpCDF	40.58	5.828e4	5.886e4	1.104	0.99	1.05	452.6	YES	NO	bb	bd	56.342
15	Total-heptafurans	39.03	1.903e2	2.092e2	1.134	0.91	1.05	3.2	YES	NO	bd	bb	0.156
16	1234678-HpCDF	38.40	7.790e4	7.478e4	1.164	1.04	1.05	708.2	YES	NO	bb	bb	49.949
17	OCDF	44.68	8.351e4	9.701e4	1.130	0.86	0.89	734.9	YES	NO	bd	bd	97.229
18	13468-PECDF	26.72	1.846e5	1.242e5	1.241	1.49	1.55	5263.8	YES	NO	bb	bb	56.768

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.16	2.020e4	2.701e4	1.181	0.75	0.77	278.7	YES	NO	bd	bd	9.619
2	1289-TCDD	26.61	1.810e4	2.317e4	0.963	0.78	0.77	209.3	YES	NO	bb	bd	10.312
3	2378-TCDD	26.01	2.098e4	2.636e4	1.243	0.80	0.77	279.2	YES	NO	dd	bd	9.165
4	Total-tetradioxins	25.69	3.204e4	4.003e4	1.129	0.80	0.77	293.6	YES	NO	bd	bb	15.361
5	Total-tetradioxins	25.21	9.835e3	1.256e4	1.129	0.78	0.77	138.6	YES	NO	bb	bb	4.773

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.11	9.035e4	6.030e4	1.150	1.50	1.55	840.8	YES	NO	bd	bd	46.275
2	12479-PECDD	28.41	1.667e5	1.083e5	2.166	1.54	1.55	1031.0	YES	NO	bd	bd	44.839
3	12389-PECDD	31.51	1.092e5	7.245e4	1.326	1.51	1.55	995.5	YES	NO	bb	dd	48.396

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexadioxins	36.40	2.520e2	2.008e2	0.943	1.26	1.24	8.8	YES	NO	db	dd	0.131
2	123789-HxCDD	36.13	7.824e4	6.476e4	0.804	1.21	1.24	1079.6	YES	NO	bd	bd	48.386
3	123678-HxCDD	35.74	9.245e4	7.493e4	0.883	1.23	1.24	1273.2	YES	NO	dd	db	48.070
4	123478-HxCDD	35.63	7.457e4	6.135e4	0.960	1.22	1.24	1157.6	YES	NO	bd	bd	41.525
5	124679-HXCDD	33.59	9.579e4	8.077e4	1.127	1.19	1.24	1353.0	YES	NO	bd	bb	45.967

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234679-HPCDD	38.84	7.152e4	6.905e4	1.303	1.04	1.05	904.8	YES	NO	bd	bd	54.221
2	Total-heptadioxins	40.28	4.878e2	4.511e2	1.251	1.08	1.05	8.5	YES	NO	dd	dd	0.377
3	1234678-HpCDD	39.85	5.471e4	5.464e4	1.200	1.00	1.05	640.7	YES	NO	bd	bd	45.801
4	Total-heptadioxins	39.40	8.681e1	7.551e1	1.251	1.15	1.05	2.0	NO	NO	bb	dd	0.065

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.16	2.020e4	2.701e4	1.181	0.75	0.77	278.7	YES	NO	bd	bd	9.619
2	1289-TCDD	26.61	1.810e4	2.317e4	0.963	0.78	0.77	209.3	YES	NO	bb	bd	10.312
3	2378-TCDD	26.01	2.098e4	2.636e4	1.243	0.80	0.77	279.2	YES	NO	dd	bd	9.165
4	Total-tetradioxins	25.69	3.204e4	4.003e4	1.129	0.80	0.77	293.6	YES	NO	bd	bb	15.361
5	Total-tetradioxins	25.21	9.835e3	1.256e4	1.129	0.78	0.77	138.6	YES	NO	bb	bb	4.773
6	12378-PeCDD	31.11	9.035e4	6.030e4	1.150	1.50	1.55	840.8	YES	NO	bd	bd	46.275
7	12479-PECDD	28.41	1.667e5	1.083e5	2.166	1.54	1.55	1031.0	YES	NO	bd	bd	44.839
8	12389-PECDD	31.51	1.092e5	7.245e4	1.326	1.51	1.55	995.5	YES	NO	bb	dd	48.396
9	Total-hexadioxins	36.40	2.520e2	2.008e2	0.943	1.26	1.24	8.8	YES	NO	db	dd	0.131
10	123789-HxCDD	36.13	7.824e4	6.476e4	0.804	1.21	1.24	1079.6	YES	NO	bd	bd	48.386
11	123678-HxCDD	35.74	9.245e4	7.493e4	0.883	1.23	1.24	1273.2	YES	NO	dd	db	48.070
12	123478-HxCDD	35.63	7.457e4	6.135e4	0.960	1.22	1.24	1157.6	YES	NO	bd	bd	41.525
13	124679-HXCDD	33.59	9.579e4	8.077e4	1.127	1.19	1.24	1353.0	YES	NO	bd	bb	45.967
14	1234679-HPCDD	38.84	7.152e4	6.905e4	1.303	1.04	1.05	904.8	YES	NO	bd	bd	54.221
15	Total-heptadioxins	40.28	4.878e2	4.511e2	1.251	1.08	1.05	8.5	YES	NO	dd	dd	0.377
16	1234678-HpCDD	39.85	5.471e4	5.464e4	1.200	1.00	1.05	640.7	YES	NO	bd	bd	45.801
17	Total-heptadioxins	39.40	8.681e1	7.551e1	1.251	1.15	1.05	2.0	NO	NO	bb	dd	0.065
18	OCDD	44.44	7.274e4	7.910e4	1.059	0.92	0.89	639.8	YES	NO	bd	bd	87.306

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.88	2.154e4	2.520e4	0.847	0.85	0.77	341.0	YES	NO	dd	bb	9.224
2	2378-TCDF	25.38	2.272e4	2.919e4	0.903	0.78	0.77	362.6	YES	NO	bb	bd	9.604
3	Total-tetrafurans	24.15	2.388e2	3.247e2	0.973	0.74	0.77	3.3	YES	NO	bd	bb	0.097
4	1368-TCDF	21.89	2.825e4	3.621e4	1.170	0.78	0.77	510.2	YES	NO	bb	bb	9.202
5	12389-PECDF	31.90	1.143e5	7.219e4	0.880	1.58	1.55	864.8	YES	NO	bb	bb	48.371
6	23478-PeCDF	30.86	1.283e5	8.109e4	0.991	1.58	1.55	1003.3	YES	NO	bb	bb	52.407
7	12378-PeCDF	29.52	1.189e5	7.561e4	0.923	1.57	1.55	971.8	YES	NO	bb	bb	48.082
8	Total-pentafurans	28.38	2.003e4	1.353e4	0.931	1.48	1.55	166.6	YES	NO	bb	bb	8.566
9	123678-HxCDF	34.63	1.140e5	8.938e4	1.032	1.28	1.24	822.8	YES	NO	db	db	50.175
10	123478-HxCDF	34.50	1.029e5	8.158e4	1.128	1.26	1.24	795.0	YES	NO	bd	bd	49.243
11	123468-HXCDF	32.80	1.146e5	9.083e4	1.206	1.26	1.24	875.8	YES	NO	bb	bb	51.314
12	123789-HxCDF	36.55	7.514e4	6.069e4	0.988	1.24	1.24	570.5	YES	NO	bb	bb	49.324
13	234678-HxCDF	35.51	1.068e5	7.714e4	1.081	1.38	1.24	767.9	YES	NO	bd	bb	54.295
14	1234789-HpCDF	40.58	5.828e4	5.886e4	1.104	0.99	1.05	452.6	YES	NO	bb	bd	56.342
15	Total-heptafurans	39.03	1.903e2	2.092e2	1.134	0.91	1.05	3.2	YES	NO	bd	bb	0.156
16	1234678-HpCDF	38.40	7.790e4	7.478e4	1.164	1.04	1.05	708.2	YES	NO	bb	bb	49.949
17	OCDF	44.68	8.351e4	9.701e4	1.130	0.86	0.89	734.9	YES	NO	bd	bd	97.229
18	13468-PECDF	26.72	1.846e5	1.242e5	1.241	1.49	1.55	5263.8	YES	NO	bb	bb	56.768
19	1368-TCDD	23.16	2.020e4	2.701e4	1.181	0.75	0.77	278.7	YES	NO	bd	bd	9.619
20	1289-TCDD	26.61	1.810e4	2.317e4	0.963	0.78	0.77	209.3	YES	NO	bb	bd	10.312
21	2378-TCDD	26.01	2.098e4	2.636e4	1.243	0.80	0.77	279.2	YES	NO	dd	bd	9.165
22	Total-tetradioxins	25.69	3.204e4	4.003e4	1.129	0.80	0.77	293.6	YES	NO	bd	bb	15.361
23	Total-tetradioxins	25.21	9.835e3	1.256e4	1.129	0.78	0.77	138.6	YES	NO	bb	bb	4.773
24	12378-PeCDD	31.11	9.035e4	6.030e4	1.150	1.50	1.55	840.8	YES	NO	bd	bd	46.275
25	12479-PECDD	28.41	1.667e5	1.083e5	2.166	1.54	1.55	1031.0	YES	NO	bd	bd	44.839
26	12389-PECDD	31.51	1.092e5	7.245e4	1.326	1.51	1.55	995.5	YES	NO	bb	dd	48.396
27	Total-hexadioxins	36.40	2.520e2	2.008e2	0.943	1.26	1.24	8.8	YES	NO	db	dd	0.131
28	123789-HxCDD	36.13	7.824e4	6.476e4	0.804	1.21	1.24	1079.6	YES	NO	bd	bd	48.386
29	123678-HxCDD	35.74	9.245e4	7.493e4	0.883	1.23	1.24	1273.2	YES	NO	dd	db	48.070
30	123478-HxCDD	35.63	7.457e4	6.135e4	0.960	1.22	1.24	1157.6	YES	NO	bd	bd	41.525
31	124679-HXCDD	33.59	9.579e4	8.077e4	1.127	1.19	1.24	1353.0	YES	NO	bd	bb	45.967
32	1234679-HPCDD	38.84	7.152e4	6.905e4	1.303	1.04	1.05	904.8	YES	NO	bd	bd	54.221
33	Total-heptadioxins	40.28	4.878e2	4.511e2	1.251	1.08	1.05	8.5	YES	NO	dd	dd	0.377
34	1234678-HpCDD	39.85	5.471e4	5.464e4	1.200	1.00	1.05	640.7	YES	NO	bd	bd	45.801
35	Total-heptadioxins	39.40	8.681e1	7.551e1	1.251	1.15	1.05	2.0	NO	NO	bb	dd	0.065
36	OCDD	44.44	7.274e4	7.910e4	1.059	0.92	0.89	639.8	YES	NO	bd	bd	87.306

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.96	5.463e3					0.7	NO		bb		
2	FUNCTION1 PFK	21.82	9.568e3					0.9	NO		bb		
3	FUNCTION1 PFK	21.38	1.232e4					1.0	NO		db		
4	FUNCTION1 PFK	21.32	2.258e4					1.2	NO		bd		
5	FUNCTION1 PFK	21.24	5.661e3					1.2	NO		bb		
6	FUNCTION1 PFK	21.18	2.315e4					1.3	NO		bb		
7	FUNCTION1 PFK	25.41	7.008e3					0.7	NO		bd		
8	FUNCTION1 PFK	25.22	1.542e4					0.9	NO		bb		
9	FUNCTION1 PFK	24.79	7.605e3					0.7	NO		bb		
10	FUNCTION1 PFK	24.55	1.270e4					1.2	NO		db		
11	FUNCTION1 PFK	24.49	1.937e4					1.5	NO		bd		
12	FUNCTION1 PFK	24.21	7.494e3					0.7	NO		db		
13	FUNCTION1 PFK	24.15	1.347e4					1.1	NO		bd		
14	FUNCTION1 PFK	23.40	1.668e4					1.4	NO		bb		
15	FUNCTION1 PFK	23.12	3.608e4					1.4	NO		bb		
16	FUNCTION1 PFK	23.03	1.118e4					1.2	NO		db		
17	FUNCTION1 PFK	22.95	3.045e4					1.3	NO		bd		
18	FUNCTION1 PFK	22.81	6.497e3					0.6	NO		bb		
19	FUNCTION1 PFK	22.75	7.902e3					0.6	NO		bb		
20	FUNCTION1 PFK	22.58	1.924e4					1.3	NO		bb		
21	FUNCTION1 PFK	22.53	1.839e3					0.4	NO		bb		
22	FUNCTION1 PFK	22.21	1.883e4					1.2	NO		bb		
23	FUNCTION1 PFK	27.44	1.440e4					1.2	NO		bb		
24	FUNCTION1 PFK	27.17	1.749e4					1.3	NO		bb		
25	FUNCTION1 PFK	26.92	2.940e4					1.5	NO		bb		
26	FUNCTION1 PFK	26.68	3.569e3					0.7	NO		bb		
27	FUNCTION1 PFK	26.62	2.920e3					0.6	NO		bb		
28	FUNCTION1 PFK	26.45	6.462e3					0.6	NO		bb		
29	FUNCTION1 PFK	26.11	5.974e3					0.6	NO		bb		
30	FUNCTION1 PFK	25.60	6.755e4					1.7	NO		bb		
31	FUNCTION1 PFK	25.49	1.832e4					1.0	NO		db		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	27.96	1.375e4					2.2	NO		dd		0.000
2	FUNCTION2 PFK	27.91	1.141e4					2.5	NO		dd		0.000
3	FUNCTION2 PFK	27.86	1.520e4					2.8	NO		dd		0.000
4	FUNCTION2 PFK	27.82	6.007e3					2.0	NO		bd		0.000
5	FUNCTION2 PFK	27.77	6.931e3					2.0	NO		db		0.000
6	FUNCTION2 PFK	27.72	7.121e3					0.9	NO		bd		0.000
7	FUNCTION2 PFK	31.22	1.100e4					1.9	NO		bd		0.000
8	FUNCTION2 PFK	30.95	5.359e3					1.5	NO		db		0.000
9	FUNCTION2 PFK	30.85	6.743e3					1.3	NO		bd		0.000
10	FUNCTION2 PFK	30.71	4.294e3					1.4	NO		bb		0.000
11	FUNCTION2 PFK	30.31	6.294e3					0.9	NO		bb		0.000
12	FUNCTION2 PFK	30.08	1.044e4					1.2	NO		bb		0.000
13	FUNCTION2 PFK	29.98	9.818e3					1.8	NO		bb		0.000
14	FUNCTION2 PFK	29.79	3.421e3					1.2	NO		bb		0.000
15	FUNCTION2 PFK	29.13	1.987e3					0.6	NO		bb		0.000
16	FUNCTION2 PFK	29.04	9.165e3					1.5	NO		bb		0.000
17	FUNCTION2 PFK	28.95	3.546e3					1.2	NO		bb		0.000
18	FUNCTION2 PFK	28.64	1.030e4					1.2	NO		bb		0.000
19	FUNCTION2 PFK	28.52	1.984e3					0.8	NO		bb		0.000
20	FUNCTION2 PFK	28.36	1.684e3					0.8	NO		db		0.000
21	FUNCTION2 PFK	28.32	8.550e3					1.7	NO		bd		0.000
22	FUNCTION2 PFK	28.06	5.831e3					1.6	NO		db		0.000
23	FUNCTION2 PFK	32.26	3.384e3					0.8	NO		bb		0.000
24	FUNCTION2 PFK	31.63	6.346e2					0.4	NO		bb		0.000
25	FUNCTION2 PFK	31.54	5.967e3					1.0	NO		bb		0.000
26	FUNCTION2 PFK	31.45	1.976e3					0.9	NO		bb		0.000
27	FUNCTION2 PFK	31.35	1.036e4					1.8	NO		db		0.000

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
Last Altered: Friday, December 15, 2023 13:51:44 Pacific Standard Time
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ID: CS3J3, Name: 23121419, Date: 15-Dec-2023, Time: 00:35:35, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	34.04	4.052e3					0.7	NO		bb		0.000
2	FUNCTION3 PFK	33.99	1.187e3					0.4	NO		bb		0.000
3	FUNCTION3 PFK	33.92	9.878e3					1.1	NO		bb		0.000
4	FUNCTION3 PFK	33.59	4.192e3					0.8	NO		bb		0.000
5	FUNCTION3 PFK	33.20	1.855e4					1.3	NO		bb		0.000
6	FUNCTION3 PFK	32.95	1.327e4					1.5	NO		bb		0.000
7	FUNCTION3 PFK	32.71	8.984e3					1.2	NO		db		0.000
8	FUNCTION3 PFK	32.64	4.295e4					1.9	NO		bd		0.000
9	FUNCTION3 PFK	32.53	1.411e4					1.9	NO		db		0.000
10	FUNCTION3 PFK	32.49	2.297e3					0.6	NO		bd		0.000
11	FUNCTION3 PFK	37.10	1.347e4					1.4	NO		bb		0.000
12	FUNCTION3 PFK	36.84	1.007e4					1.2	NO		bb		0.000
13	FUNCTION3 PFK	36.60	1.768e4					2.0	NO		bb		0.000
14	FUNCTION3 PFK	36.42	1.073e3					0.4	NO		bb		0.000
15	FUNCTION3 PFK	36.23	9.150e3					1.3	NO		db		0.000
16	FUNCTION3 PFK	36.17	1.599e4					1.4	NO		dd		0.000
17	FUNCTION3 PFK	36.11	1.540e4					1.3	NO		bd		0.000
18	FUNCTION3 PFK	36.03	1.258e3					0.5	NO		bb		0.000
19	FUNCTION3 PFK	35.99	1.881e3					0.5	NO		bb		0.000
20	FUNCTION3 PFK	35.84	2.705e4					2.3	NO		bb		0.000
21	FUNCTION3 PFK	35.70	2.080e4					1.2	NO		bb		0.000
22	FUNCTION3 PFK	35.58	2.643e3					0.5	NO		bb		0.000
23	FUNCTION3 PFK	35.35	1.332e4					1.2	NO		bb		0.000
24	FUNCTION3 PFK	34.75	6.496e3					1.1	NO		bb		0.000
25	FUNCTION3 PFK	34.27	2.188e4					1.9	NO		bb		0.000
26	FUNCTION3 PFK	34.15	1.591e4					1.6	NO		bb		0.000

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
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ID: CS3J3, Name: 23121419, Date: 15-Dec-2023, Time: 00:35:35, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.84	6.130e3					1.4	NO		db		
2	FUNCTION4 PFK	38.80	5.624e3					1.3	NO		dd		
3	FUNCTION4 PFK	38.76	5.537e3					1.1	NO		dd		
4	FUNCTION4 PFK	38.64	1.661e4					1.4	NO		dd		
5	FUNCTION4 PFK	38.61	7.219e3					1.4	NO		dd		
6	FUNCTION4 PFK	38.55	9.179e3					1.4	NO		bd		
7	FUNCTION4 PFK	38.48	7.317e3					0.9	NO		bb		
8	FUNCTION4 PFK	38.08	5.791e2					0.3	NO		bb		
9	FUNCTION4 PFK	38.02	8.734e3					1.2	NO		db		
10	FUNCTION4 PFK	37.96	1.188e4					2.0	NO		dd		
11	FUNCTION4 PFK	37.90	1.358e4					1.6	NO		bd		
12	FUNCTION4 PFK	37.80	2.772e4					2.1	NO		db		
13	FUNCTION4 PFK	37.73	5.361e3					1.2	NO		bd		
14	FUNCTION4 PFK	37.68	2.177e3					1.0	NO		bb		
15	FUNCTION4 PFK	37.64	5.122e3					1.0	NO		bb		
16	FUNCTION4 PFK	40.61	2.217e4					1.8	NO		bb		
17	FUNCTION4 PFK	40.42	1.805e3					0.5	NO		bb		
18	FUNCTION4 PFK	40.38	4.916e3					1.1	NO		db		
19	FUNCTION4 PFK	40.34	1.076e4					1.4	NO		dd		
20	FUNCTION4 PFK	40.24	1.632e4					1.3	NO		bd		
21	FUNCTION4 PFK	40.12	3.406e3					0.4	NO		bb		
22	FUNCTION4 PFK	40.03	7.440e3					1.2	NO		db		
23	FUNCTION4 PFK	39.95	9.004e3					1.2	NO		bd		
24	FUNCTION4 PFK	39.90	5.753e3					0.9	NO		bb		
25	FUNCTION4 PFK	39.74	6.011e3					0.6	NO		db		
26	FUNCTION4 PFK	39.63	1.261e4					1.5	NO		bd		
27	FUNCTION4 PFK	39.54	4.582e3					0.6	NO		bb		
28	FUNCTION4 PFK	39.36	1.664e4					1.4	NO		db		
29	FUNCTION4 PFK	39.29	1.485e4					1.6	NO		bd		
30	FUNCTION4 PFK	39.16	9.363e3					1.1	NO		bb		
31	FUNCTION4 PFK	39.02	1.069e4					1.5	NO		bb		
32	FUNCTION4 PFK	42.81	2.081e4					1.8	NO		dd		
33	FUNCTION4 PFK	42.73	1.839e4					1.6	NO		bd		
34	FUNCTION4 PFK	42.67	1.130e3					0.5	NO		bb		
35	FUNCTION4 PFK	42.54	1.144e4					1.5	NO		bb		
36	FUNCTION4 PFK	42.42	3.876e3					0.7	NO		bb		
37	FUNCTION4 PFK	42.33	5.336e3					0.9	NO		bb		

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION4 PFK	42.23	1.005e4					1.4	NO		db		
39	FUNCTION4 PFK	42.18	3.640e3					0.7	NO		bd		
40	FUNCTION4 PFK	42.06	4.293e3					0.8	NO		bb		
41	FUNCTION4 PFK	41.85	1.744e4					1.6	NO		bb		
42	FUNCTION4 PFK	41.51	1.002e4					1.4	NO		db		
43	FUNCTION4 PFK	41.47	4.622e3					0.8	NO		bd		
44	FUNCTION4 PFK	41.31	8.041e3					0.9	NO		bb		
45	FUNCTION4 PFK	41.22	9.502e3					1.1	NO		bb		
46	FUNCTION4 PFK	40.91	2.989e4					1.6	NO		bb		
47	FUNCTION4 PFK	40.83	9.109e2					0.3	NO		bb		
48	FUNCTION4 PFK	42.92	7.800e3					1.2	NO		db		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.26	4.304e3					1.8	NO		bb		
2	FUNCTION5 PFK	45.14	8.438e2					0.5	NO		bb		
3	FUNCTION5 PFK	45.01	9.267e3					1.9	NO		bb		
4	FUNCTION5 PFK	44.96	7.328e3					2.1	NO		db		
5	FUNCTION5 PFK	44.90	4.087e3					1.2	NO		bd		
6	FUNCTION5 PFK	44.84	3.737e3					0.9	NO		bb		
7	FUNCTION5 PFK	44.62	5.129e3					0.8	NO		bb		
8	FUNCTION5 PFK	44.44	2.457e3					1.0	NO		bb		
9	FUNCTION5 PFK	44.37	1.179e3					0.6	NO		bb		
10	FUNCTION5 PFK	44.33	1.083e3					0.6	NO		bb		
11	FUNCTION5 PFK	43.62	4.075e3					1.2	NO		bb		
12	FUNCTION5 PFK	43.54	6.875e3					1.2	NO		bb		
13	FUNCTION5 PFK	43.43	8.007e3					2.3	NO		bb		
14	FUNCTION5 PFK	43.25	1.974e3					0.6	NO		bb		
15	FUNCTION5 PFK	45.73	7.939e3					1.3	NO		bb		
16	FUNCTION5 PFK	45.40	4.286e3					1.0	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	24.35	7.414e1					2.0	NO		db		0.000
2	FUNCTION1 HXCD...	24.21	7.478e1					2.6	NO		bd		0.000
3	FUNCTION1 HXCD...	21.85	7.401e1					3.0	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.73	7.379e1					3.7	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	42.02	7.869e1					3.1	YES		bb		0.000

ETHERS6

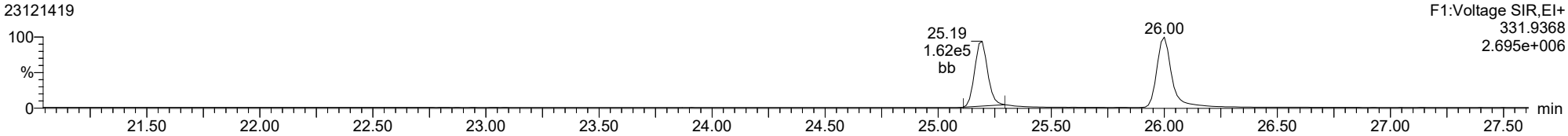
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1													

Dataset: T:\Autospec\Processed Data Batch\231214IH1.qld
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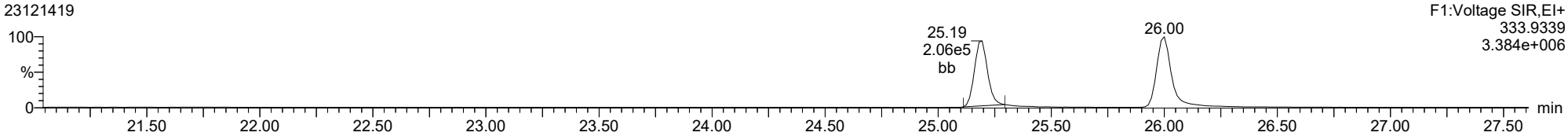
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ID: CS3J3, Name: 23121419, Date: 15-Dec-2023, Time: 00:35:35, Conditions: AUTOSPEC01, User: pk

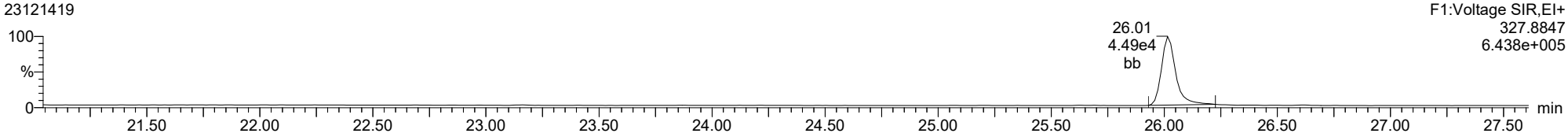
13C-1234-TCDD



13C-1234-TCDD

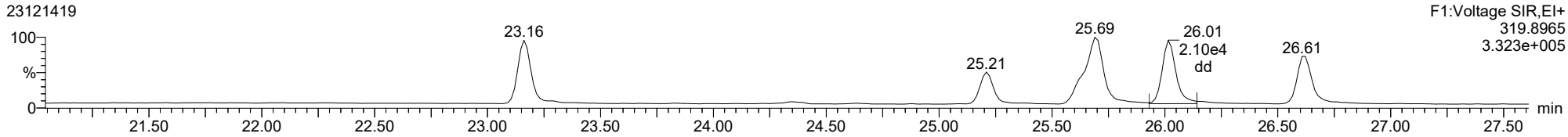


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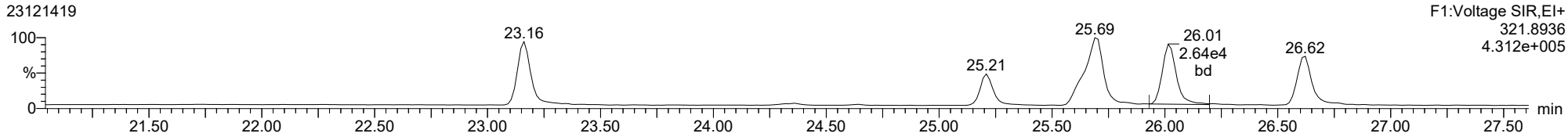


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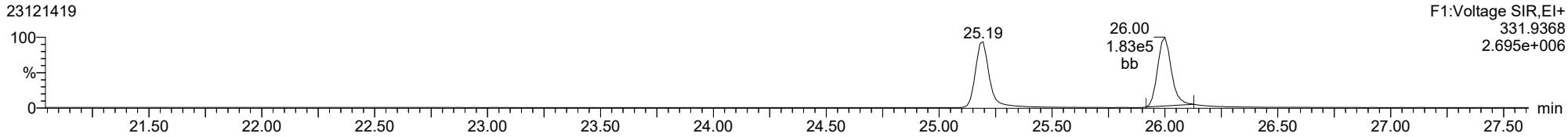
2378-TCDD



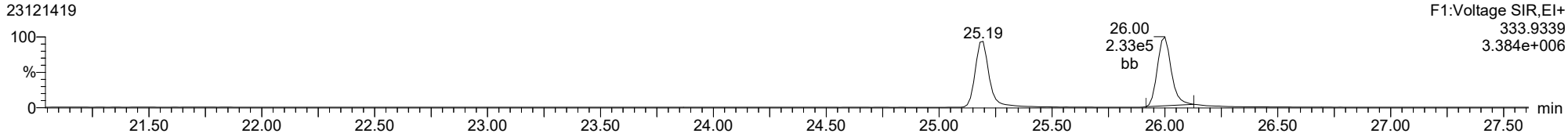
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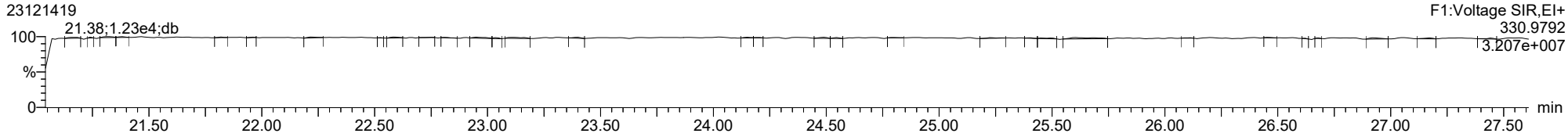
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13C-2378-TCDD

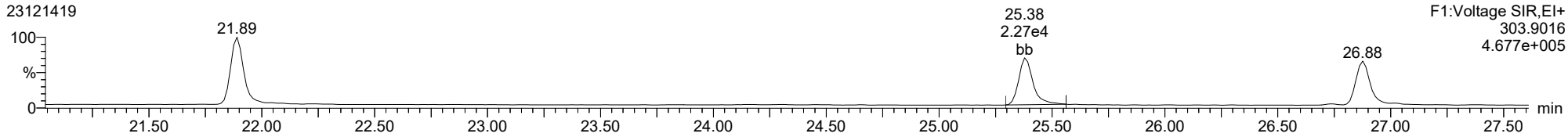


FUNCTION1 PFK

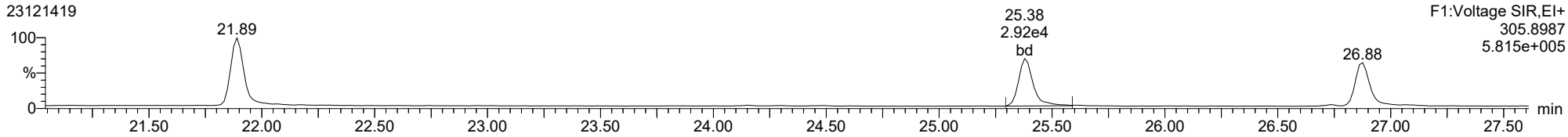


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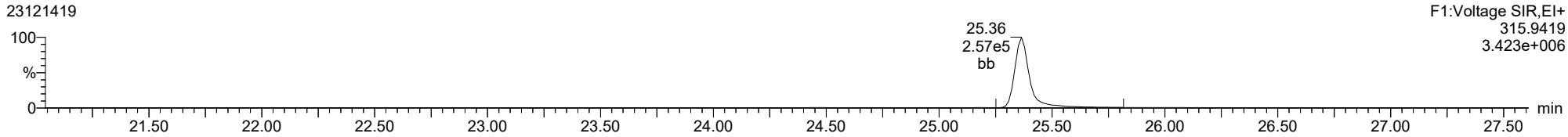
2378-TCDF



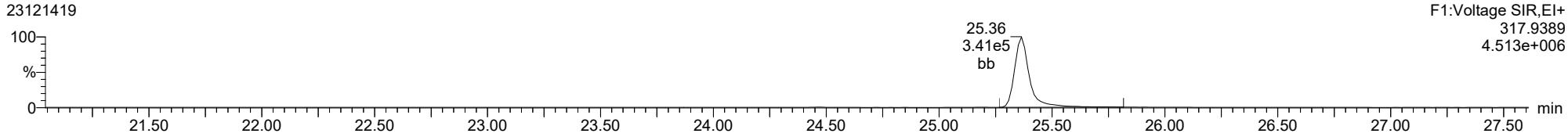
2378-TCDF



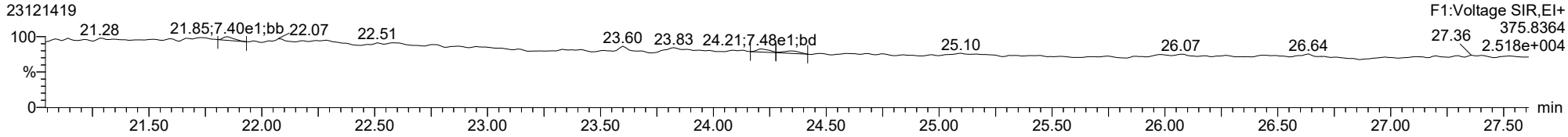
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13C-2378-TCDF

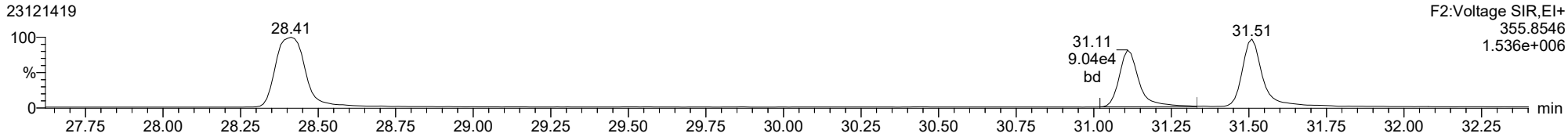


FUNCTION1 HXCDPE

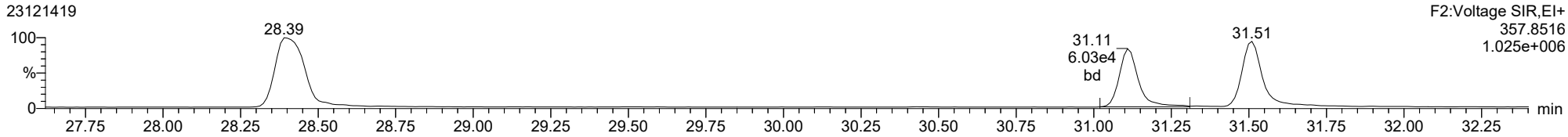


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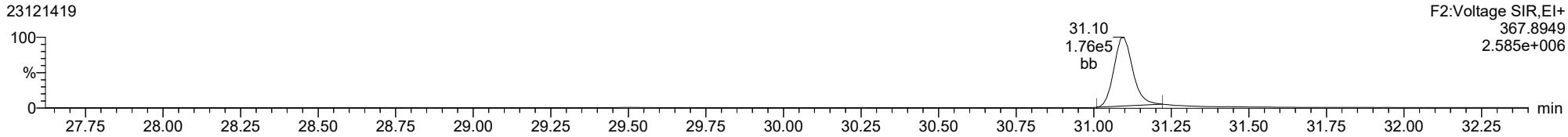
12378-PeCDD



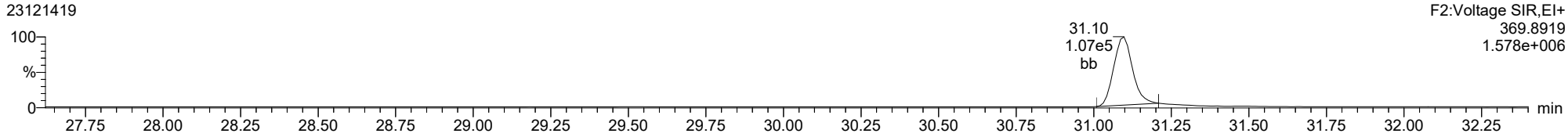
12378-PeCDD



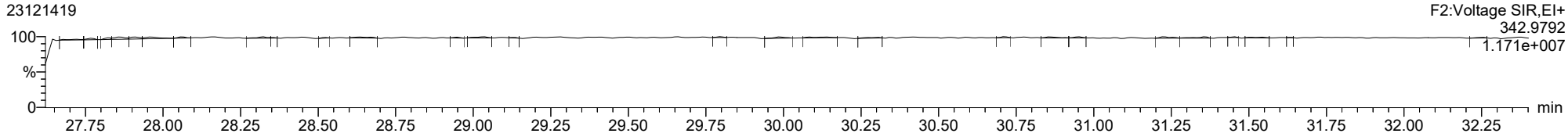
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13C-12378-PeCDD

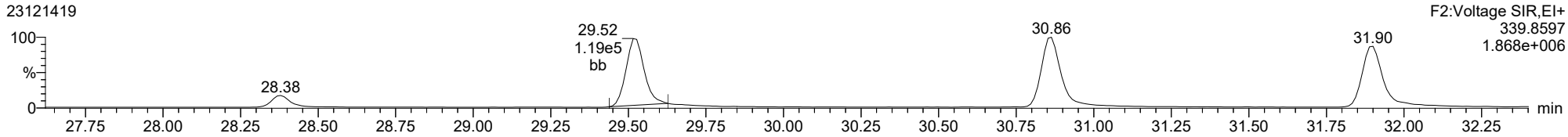


FUNCTION2 PFK

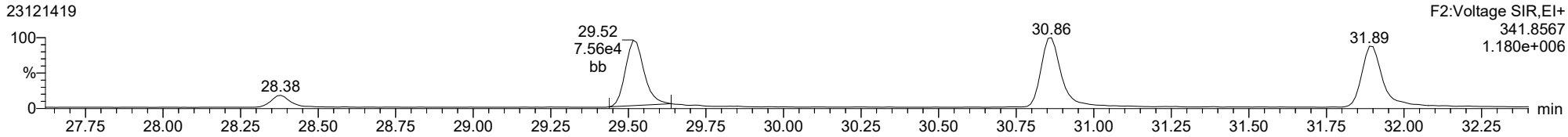


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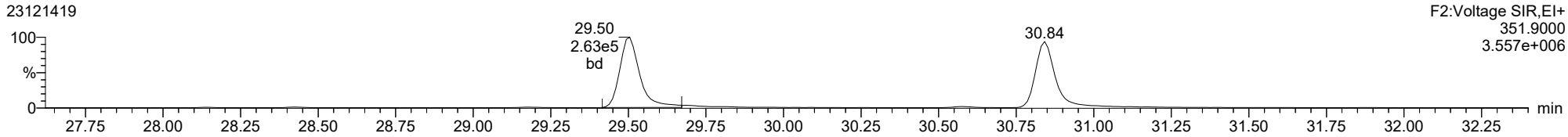
12378-PeCDF



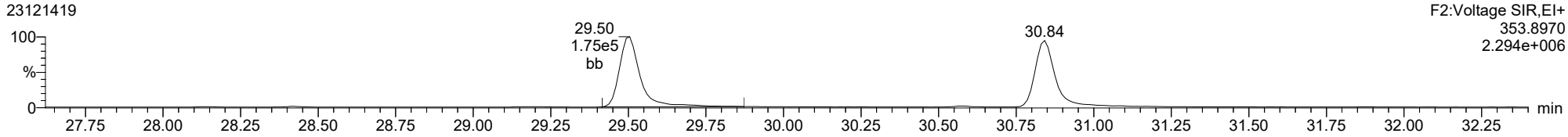
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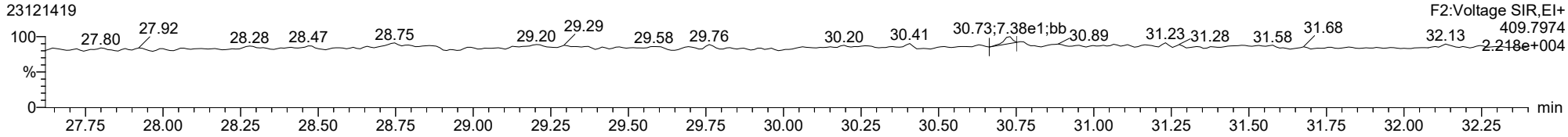
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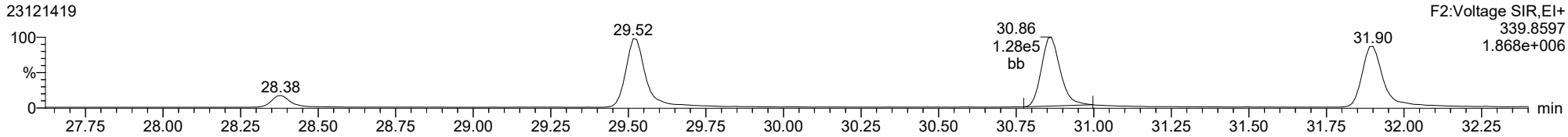


FUNCTION2 HPCDPE

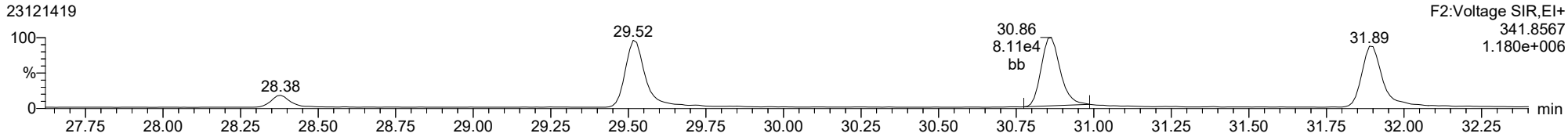


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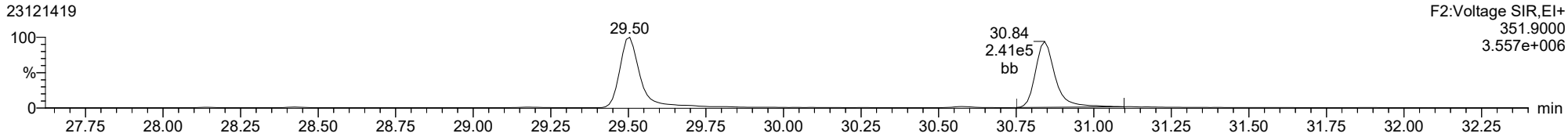
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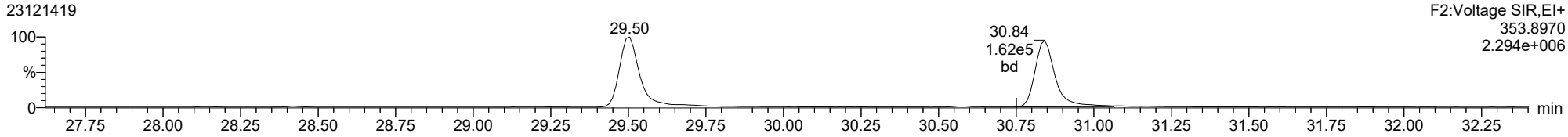
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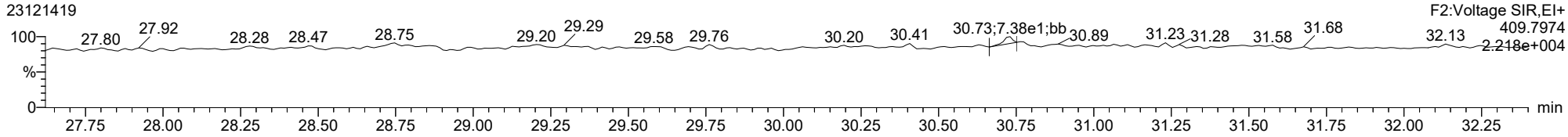
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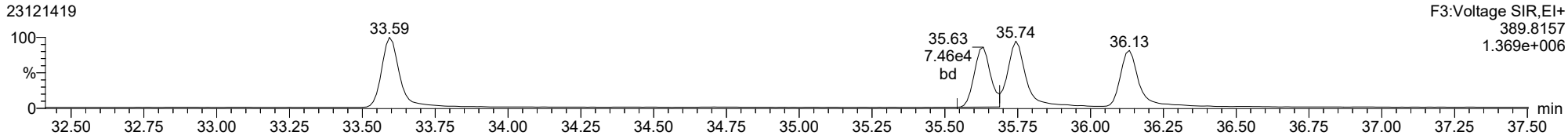


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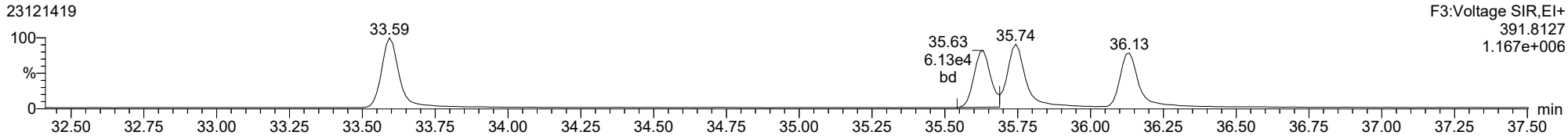


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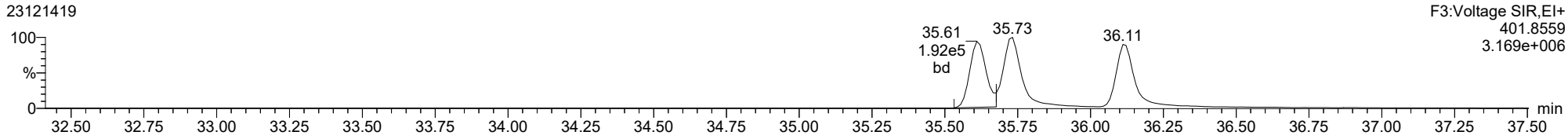
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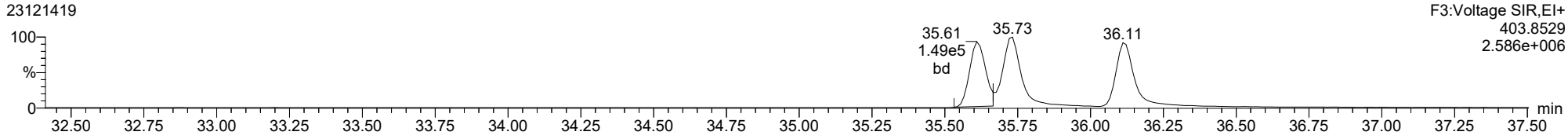
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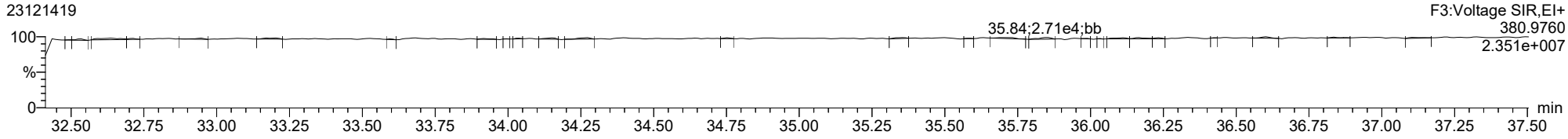
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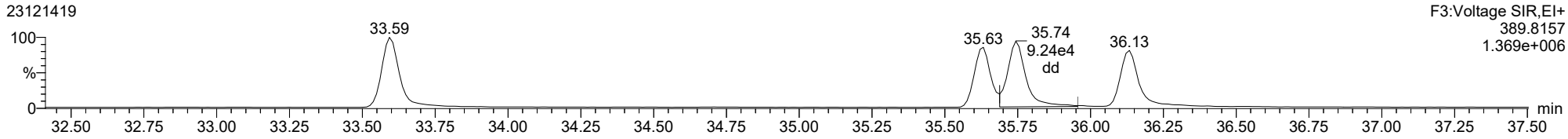
FUNCTION3 PFK



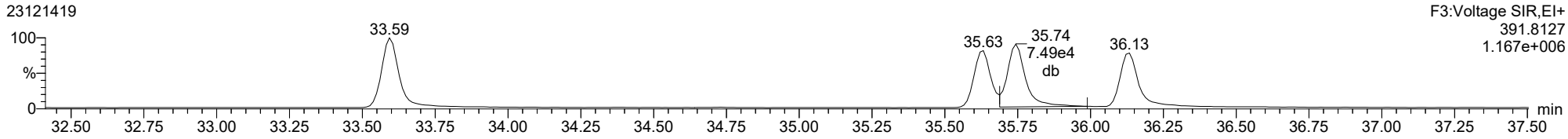
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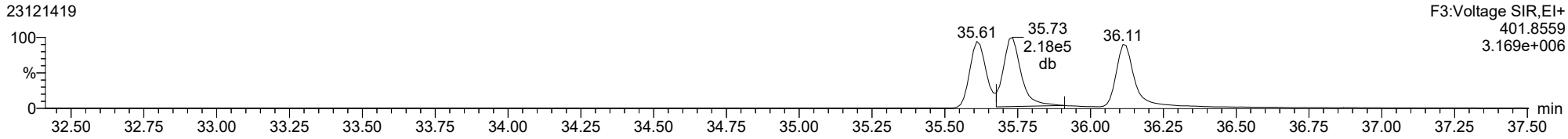
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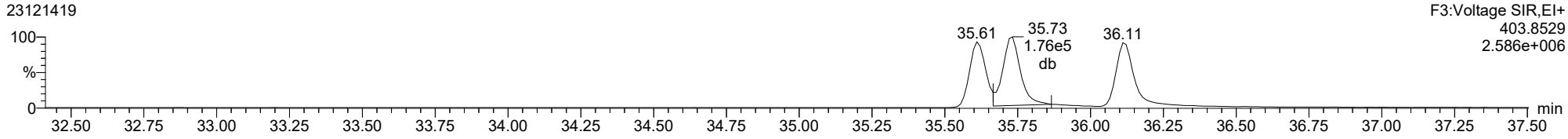
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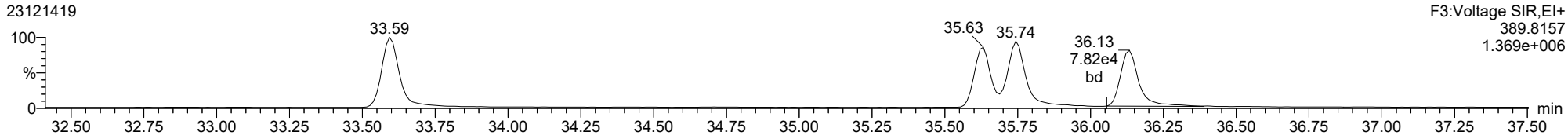
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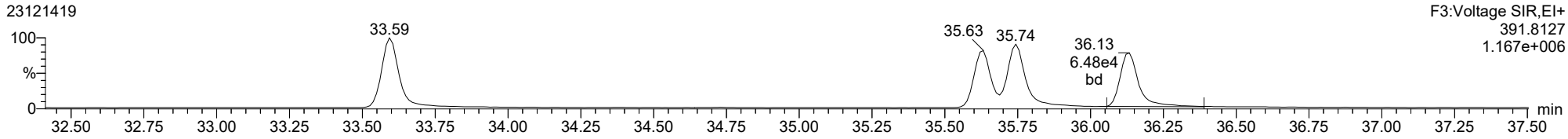
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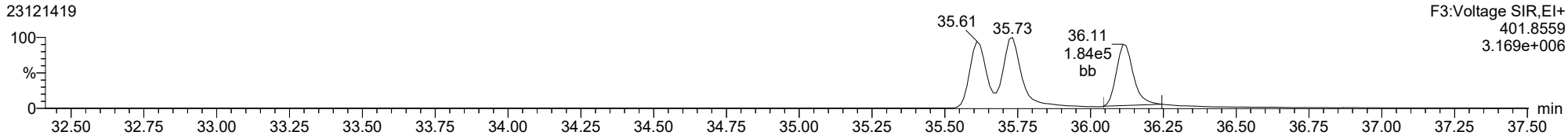
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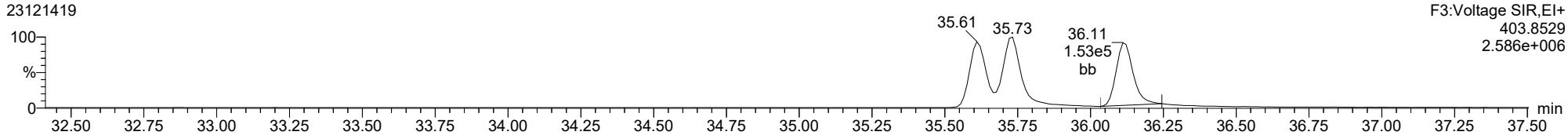
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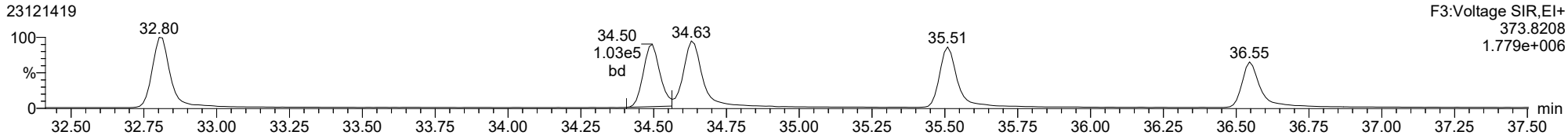


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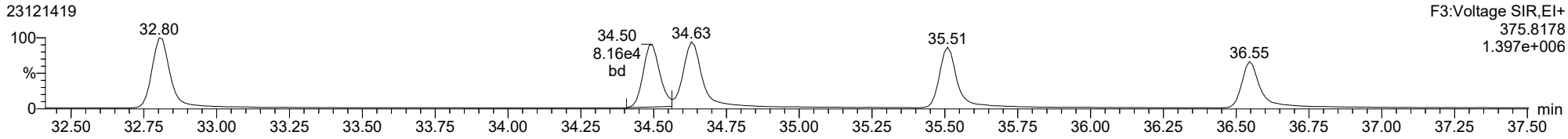


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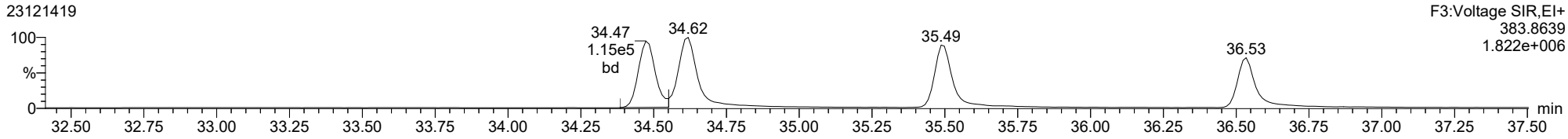
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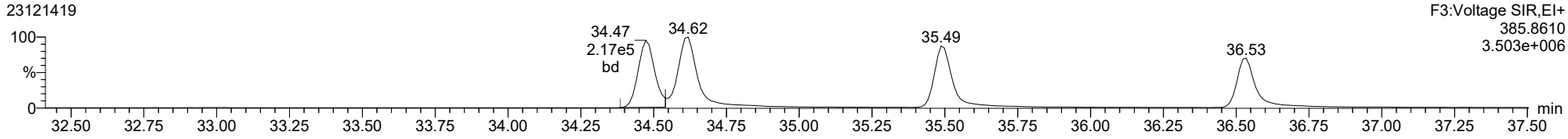
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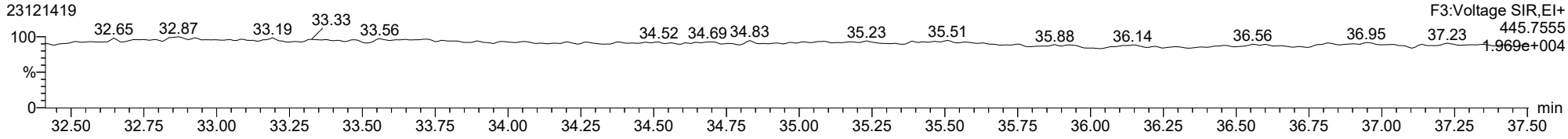
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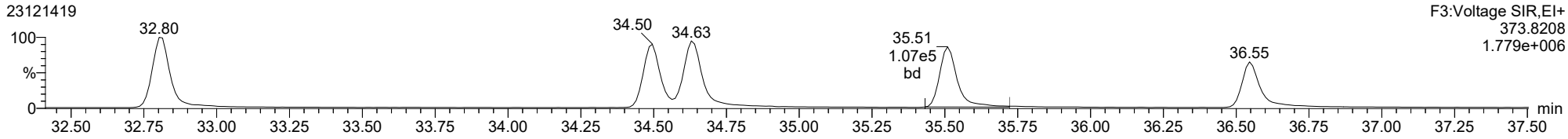


FUNCTION3 OCDPE

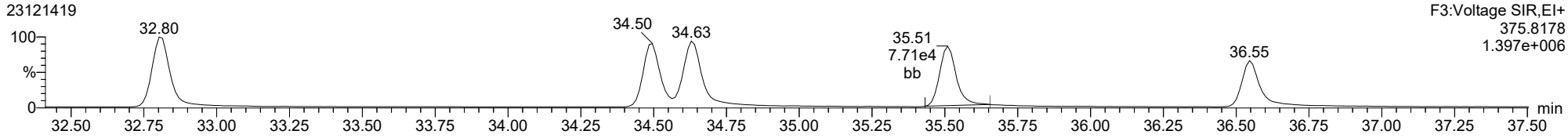


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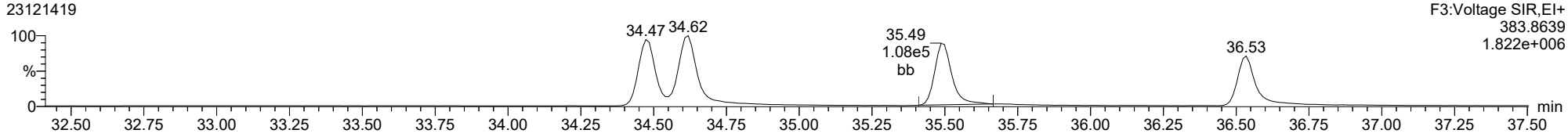
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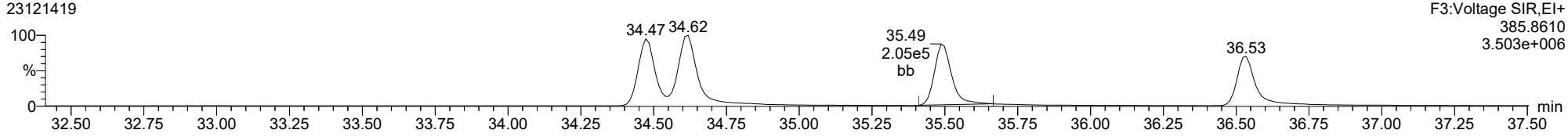
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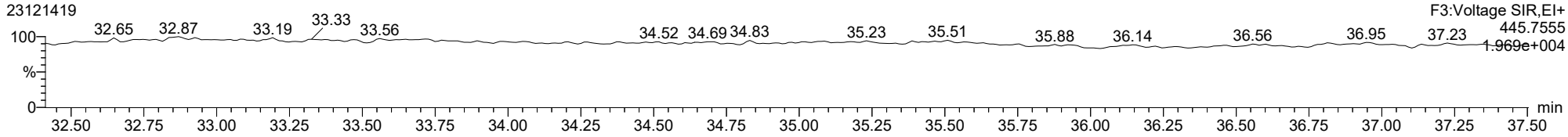
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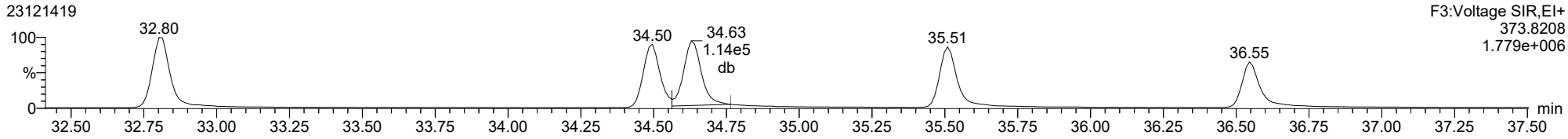


FUNCTION3 OCDPE

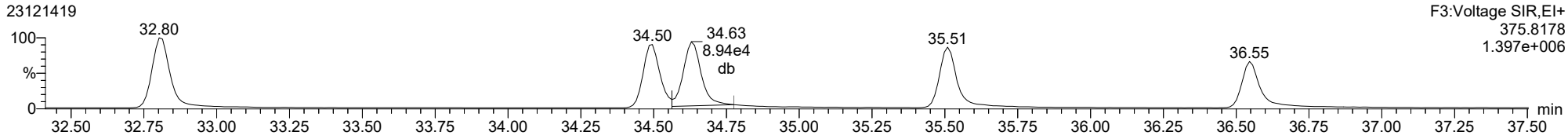


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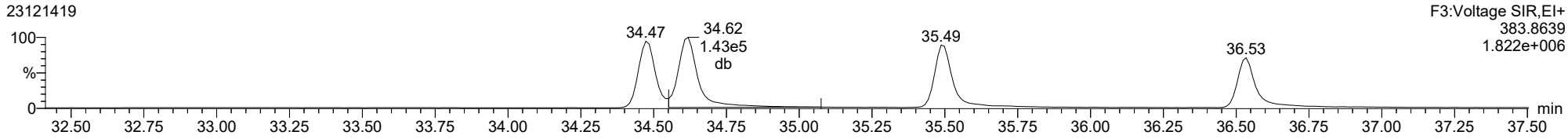
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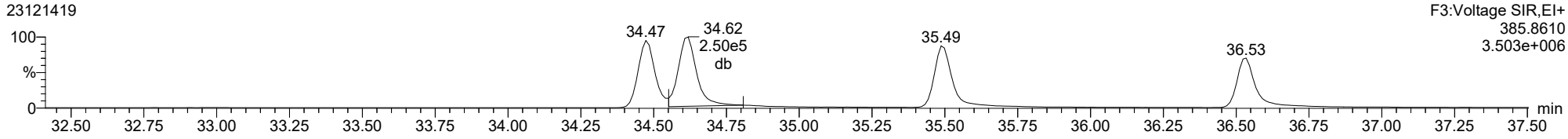
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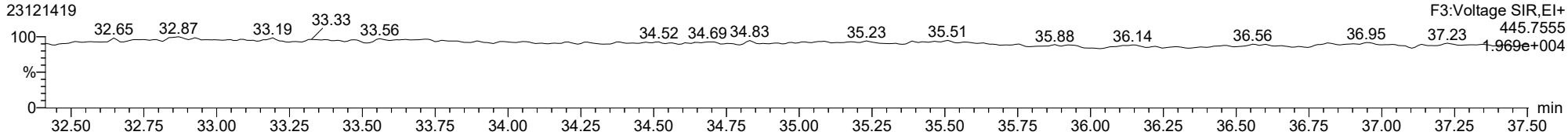
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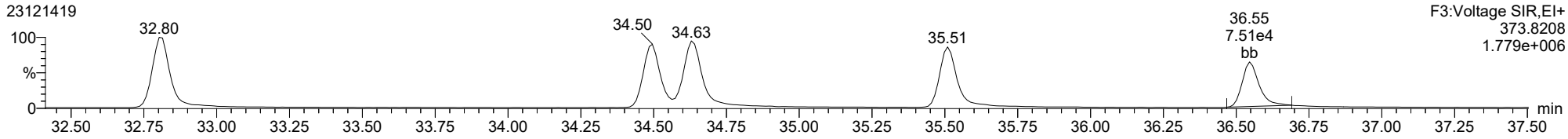


FUNCTION3 OCDPE

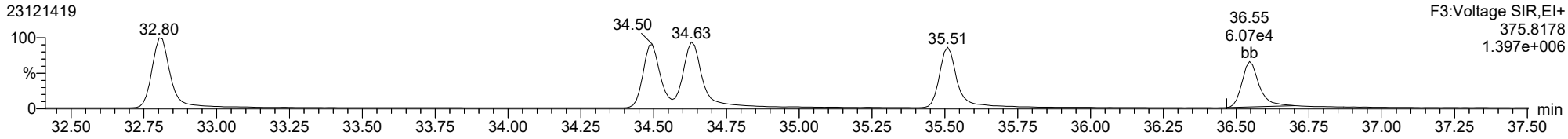


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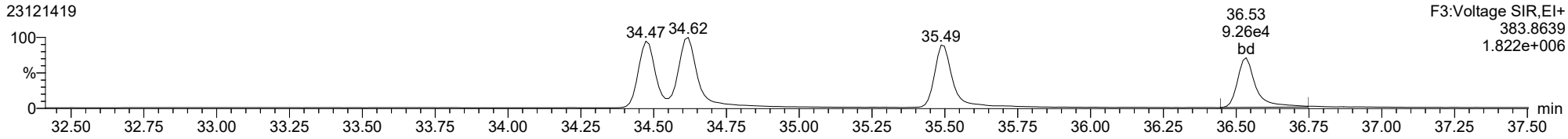
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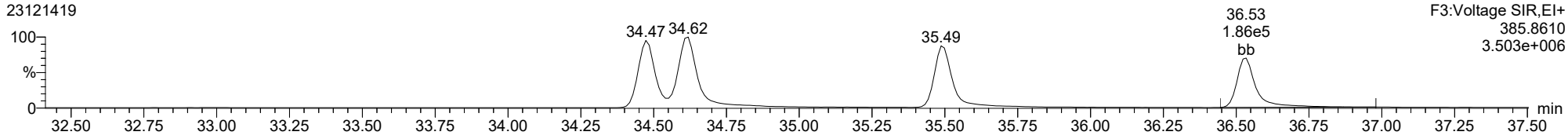
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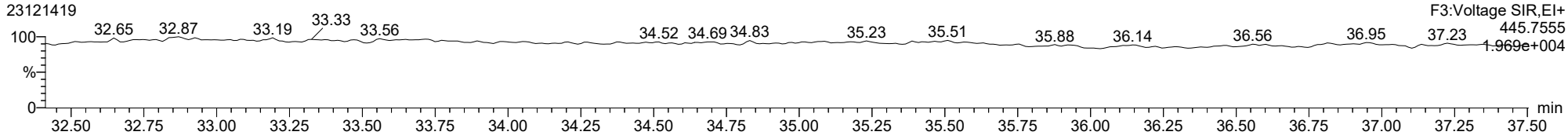
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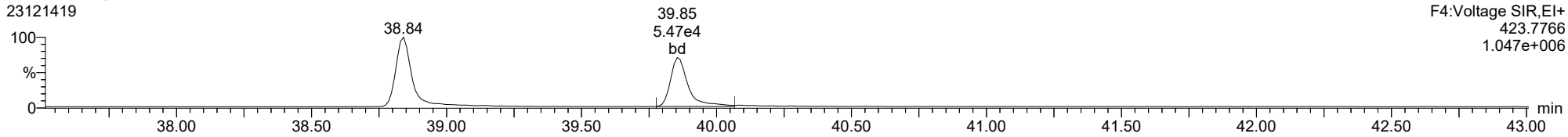


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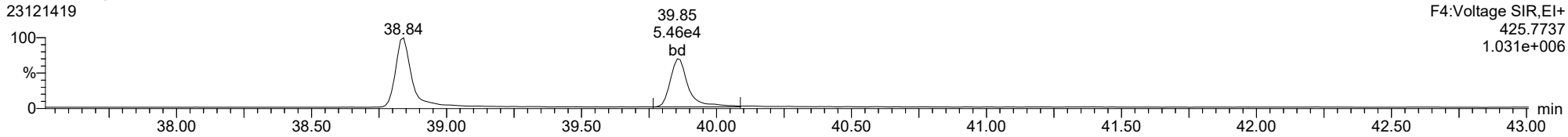


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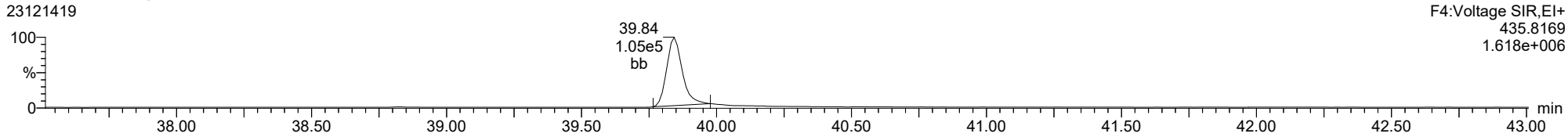
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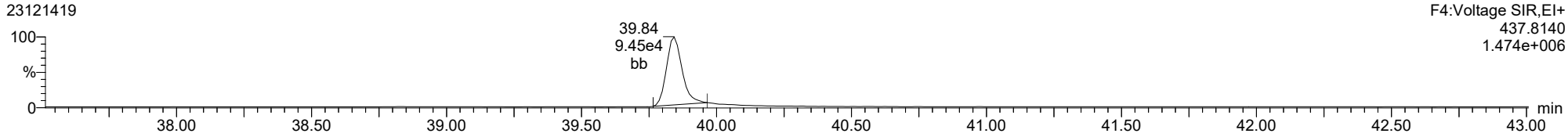
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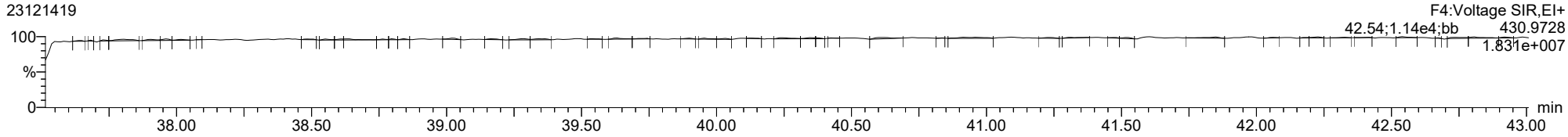
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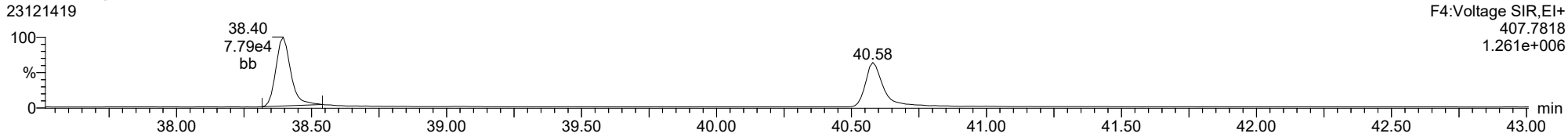


FUNCTION4 PFK

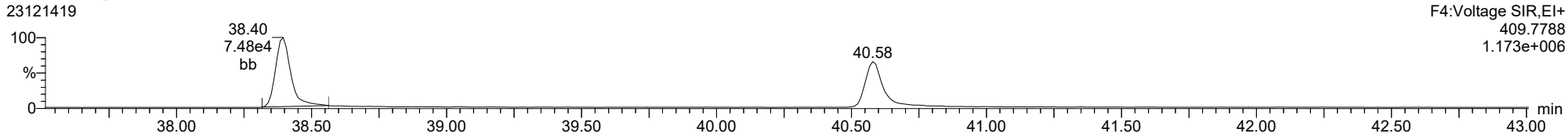


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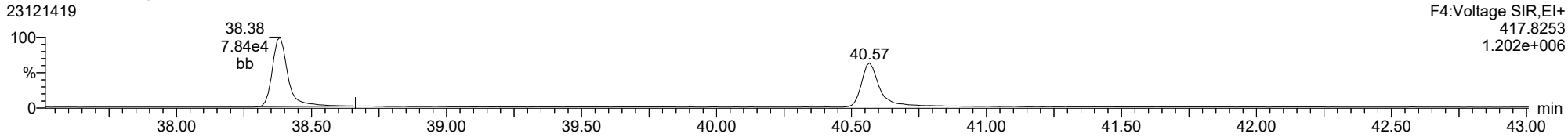
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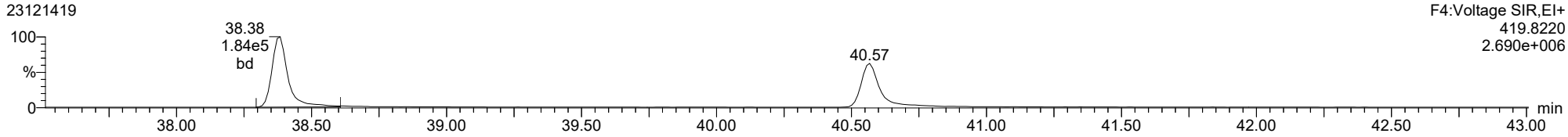
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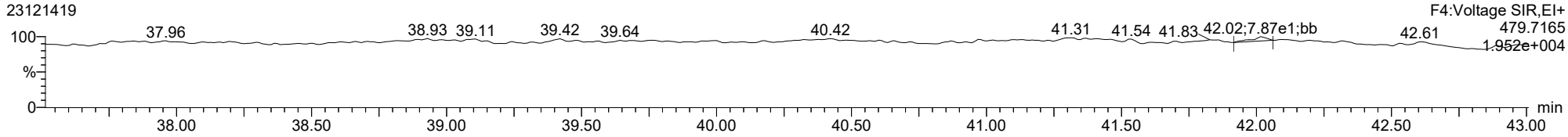
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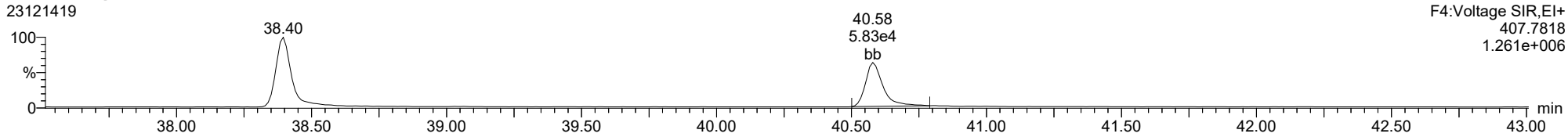
FUNCTION4 NCDPE



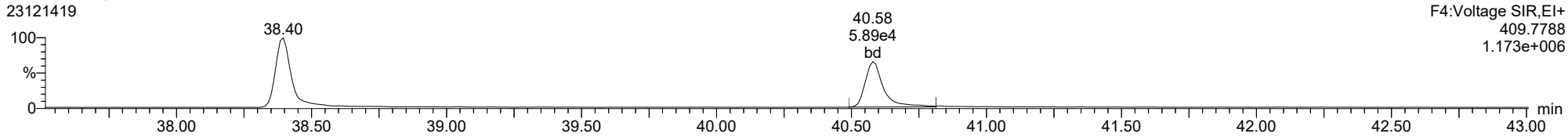
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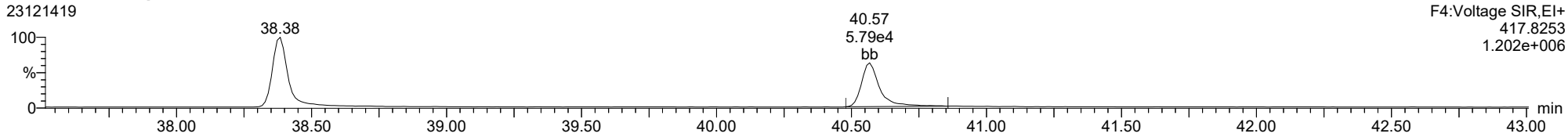
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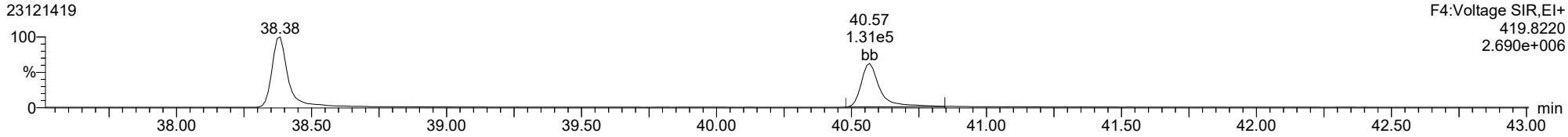
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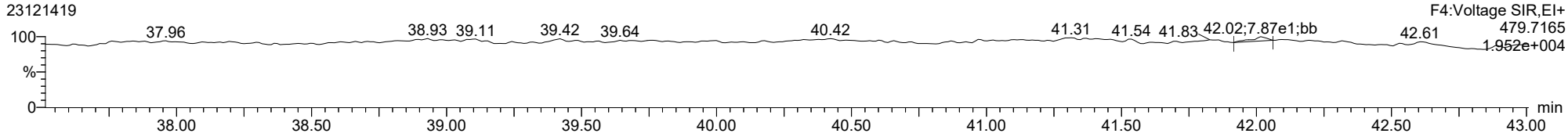
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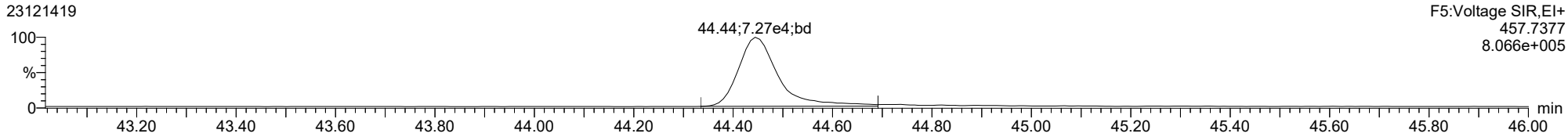


FUNCTION4 NCDPE

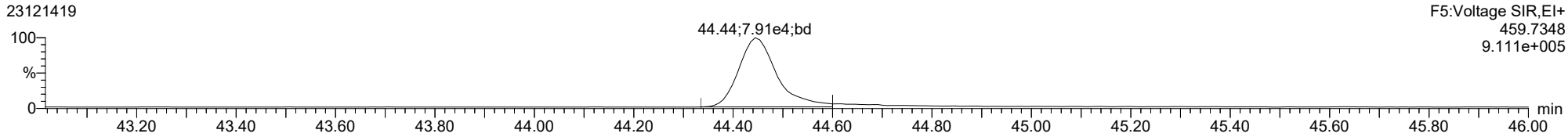


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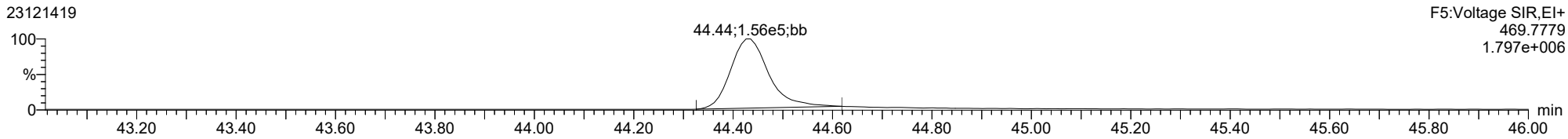
OCDD



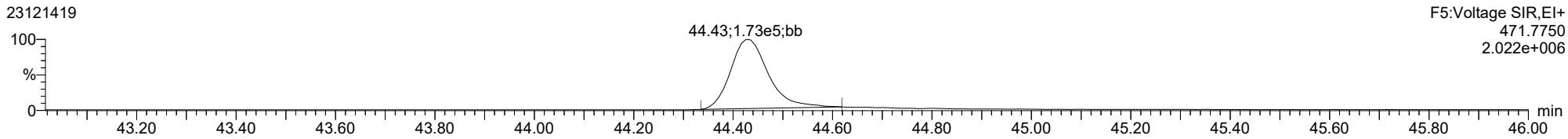
OCDD



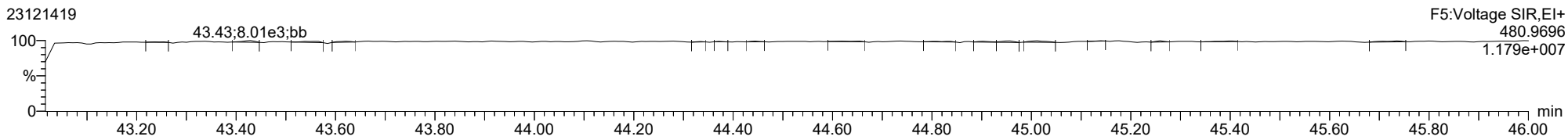
13C-OCDD



13C-OCDD



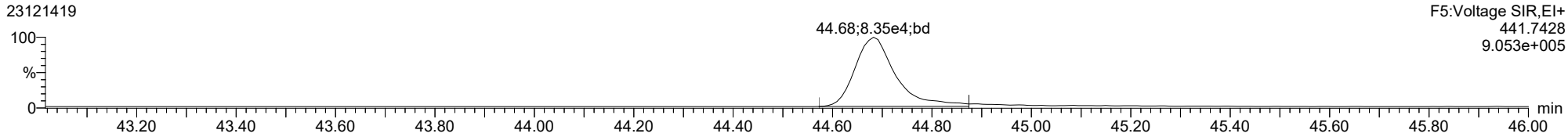
FUNCTION5 PFK



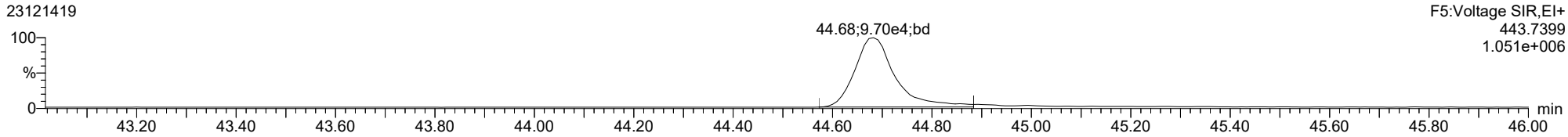
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Printed: Friday, December 15, 2023 13:54:43 Pacific Standard Time

ID: CS3J3, Name: 23121419, Date: 15-Dec-2023, Time: 00:35:35, Conditions: AUTOSPEC01, User: pk

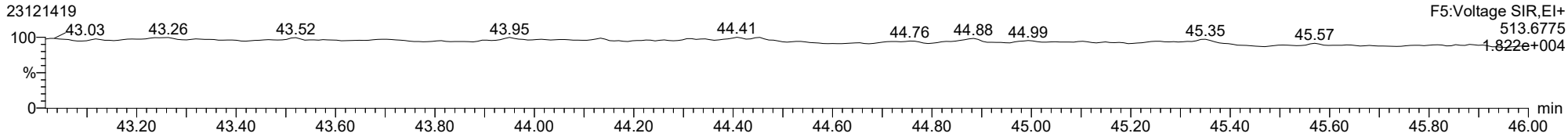
OCDF



OCDF

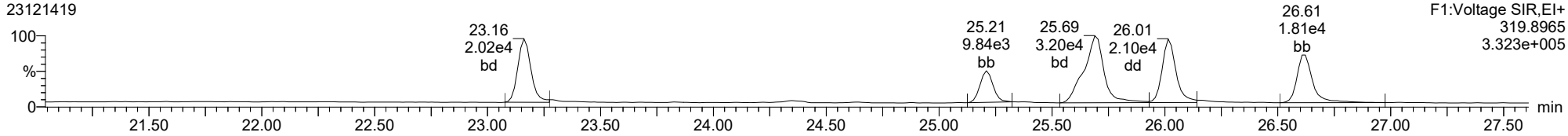


FUNCTION5 DCDPE

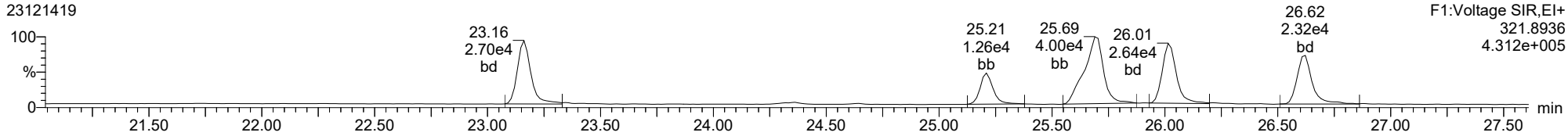


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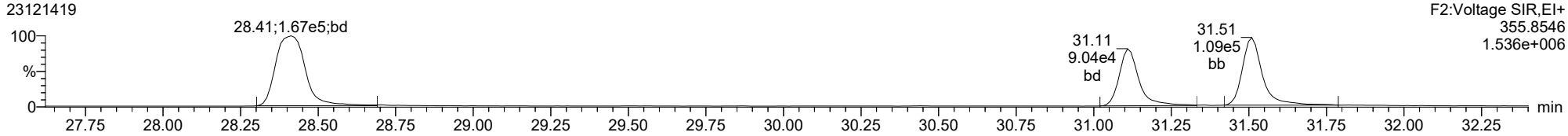
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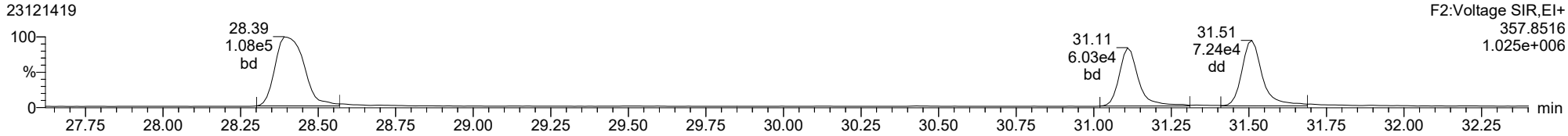
Total-tetradioxins



Total-pentadioxins

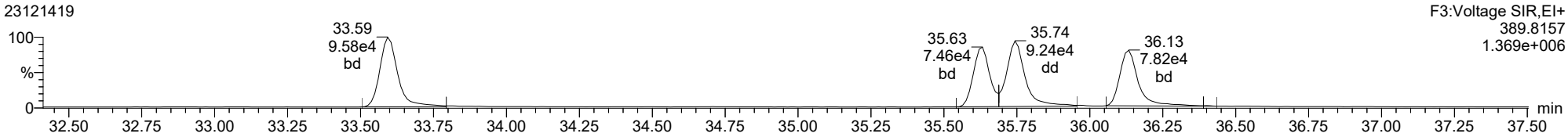


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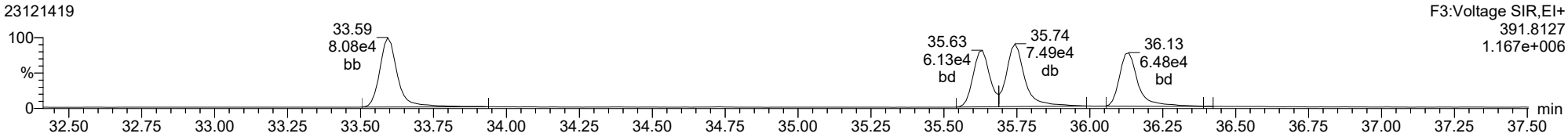


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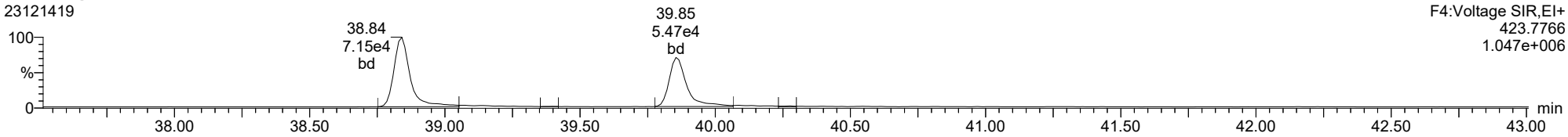
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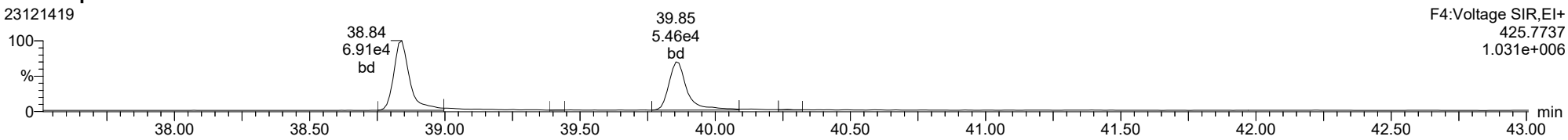
Total-hexadioxins



Total-heptadioxins



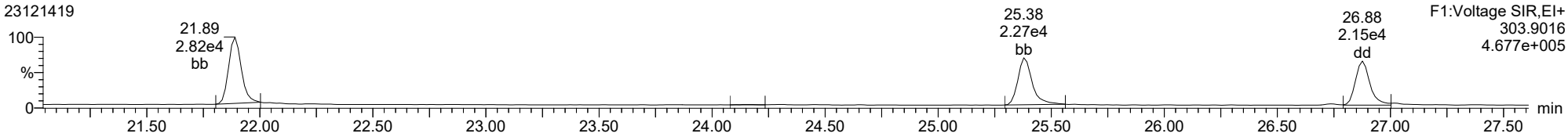
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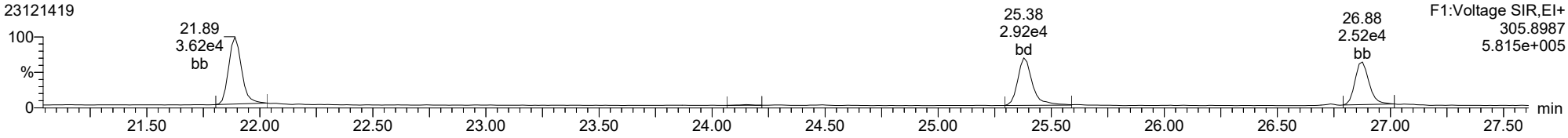
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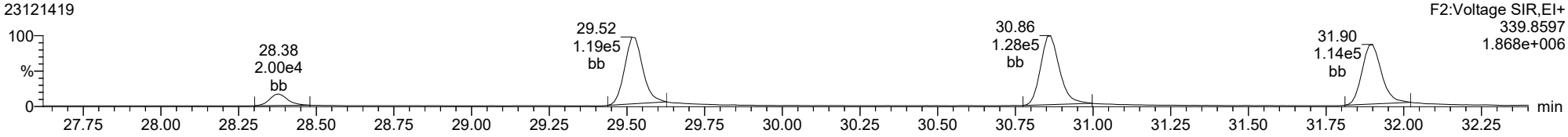
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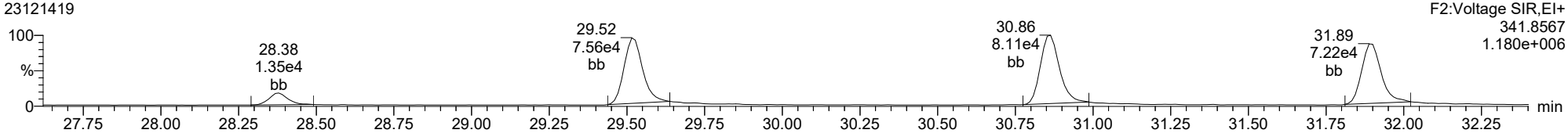
Total-tetrafurans



Total-pentafurans



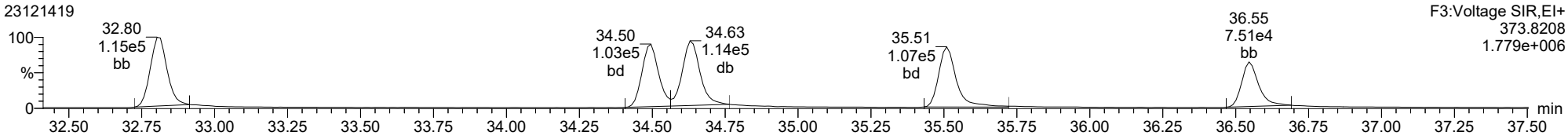
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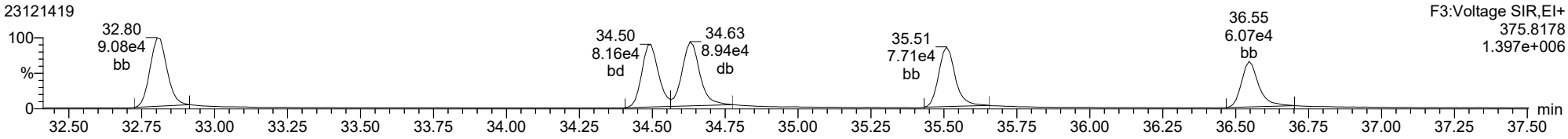
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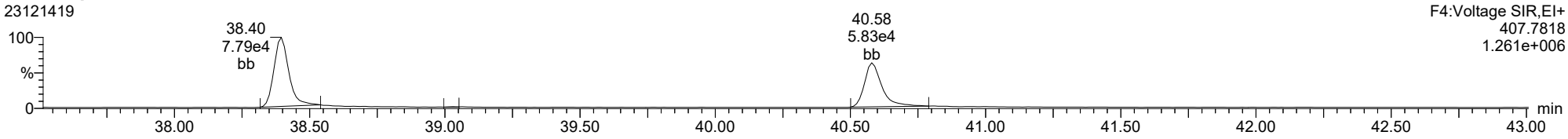
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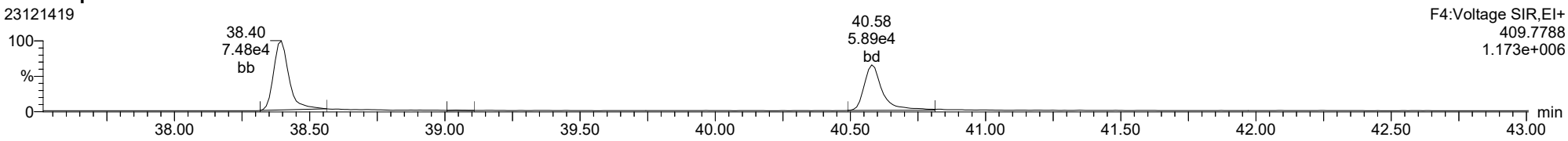
Total-hexafurans



Total-heptafurans

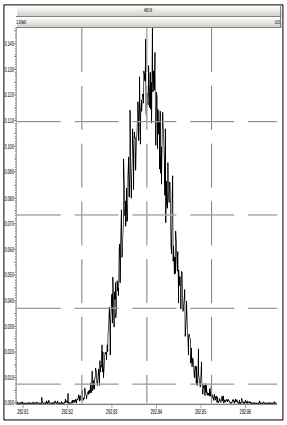


Total-heptafurans

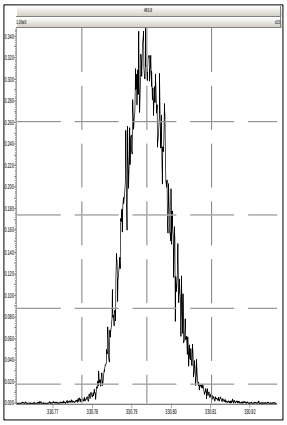


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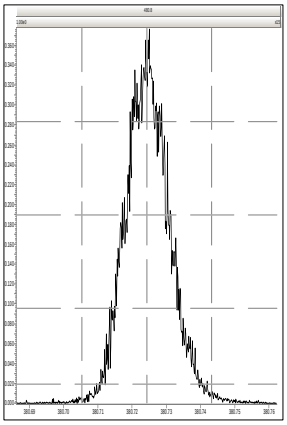
M 292.9824 R 12259



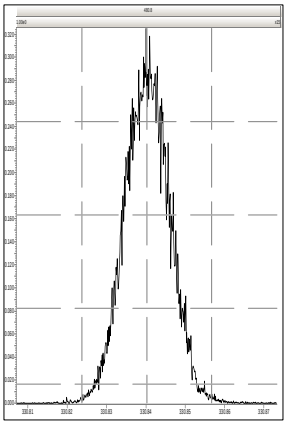
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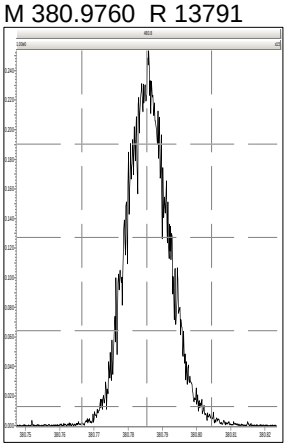
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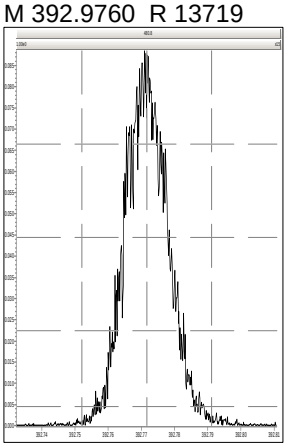
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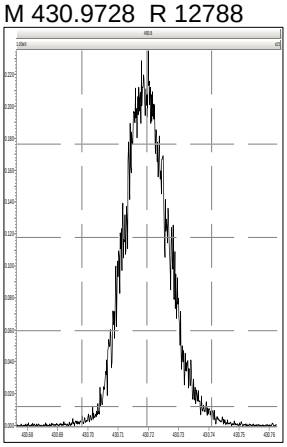
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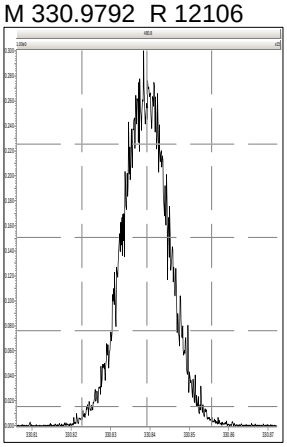
M 392.9760 R 13719



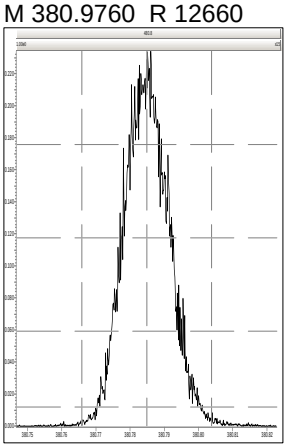
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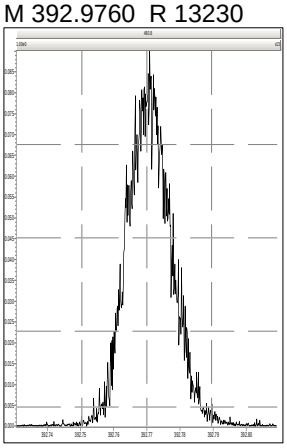
M 330.9792 R 12106



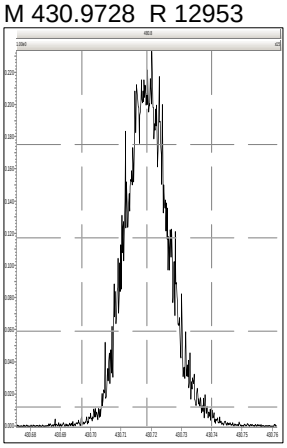
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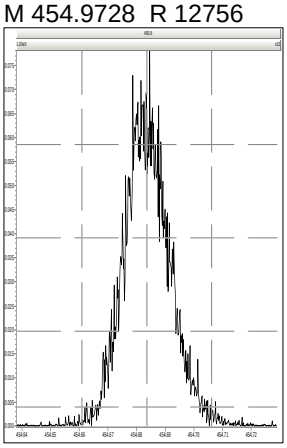
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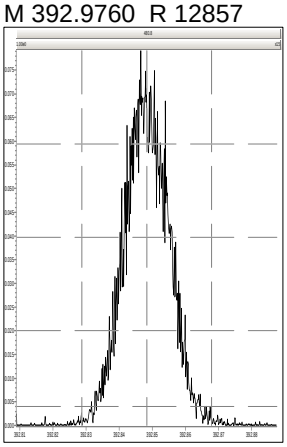
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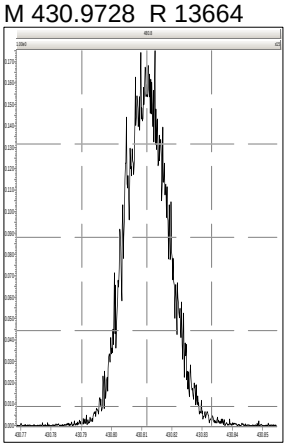
M 454.9728 R 12756



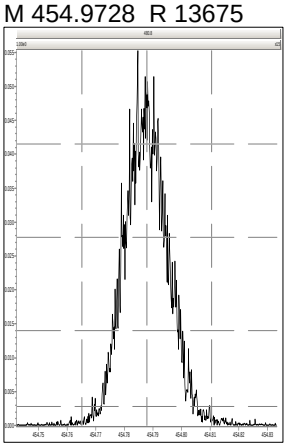
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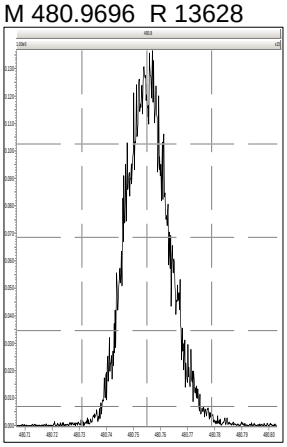
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M 454.9728 R 13675

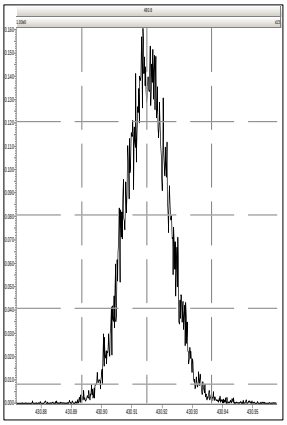


M 480.9696 R 13628

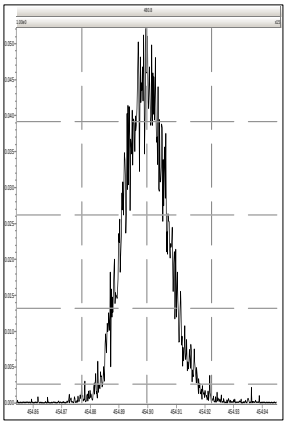


Printed: Friday, December 15, 2023 01:28:25 Pacific Standard Time

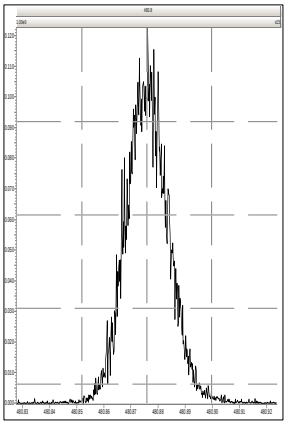
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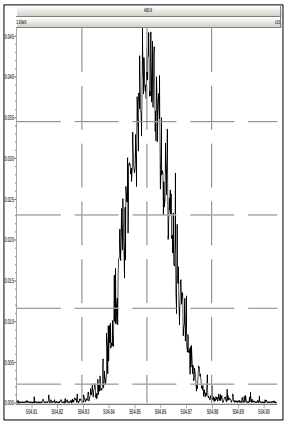
M 454.9728 R 13606



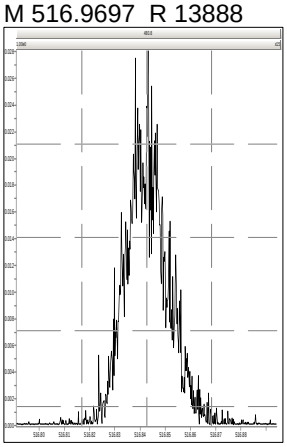
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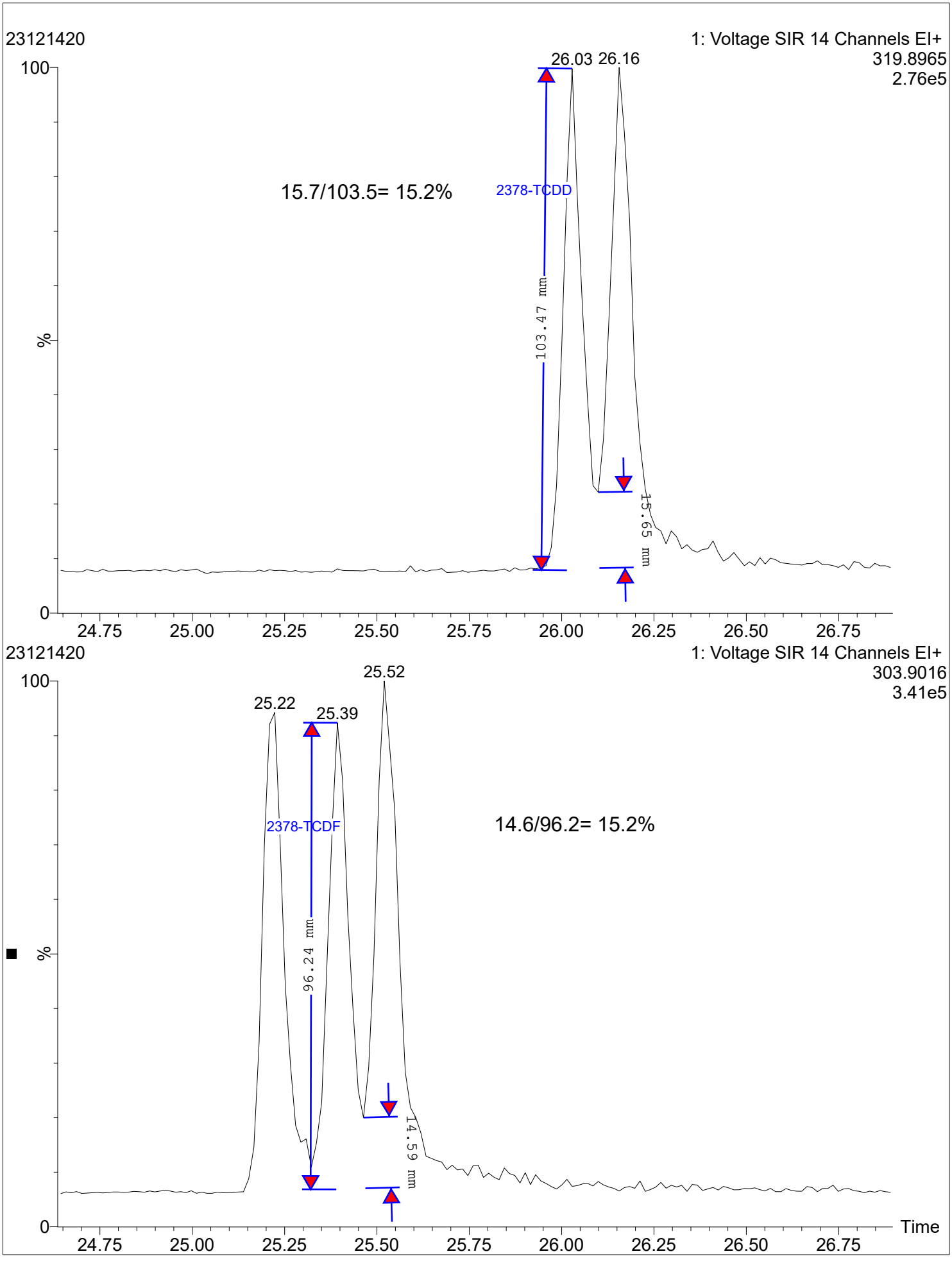


M 504.9696 R 14164



M 516.9697 R 13888




23121420
1: Voltage SIR 14 Channels EI+
319.8965
2.76e5
26.03 26.16
100
%
0
15.7/103.5= 15.2%
2378-TCDD
103.47 mm
15.65 mm
24.75
25.00
25.25
25.50
25.75
26.00
26.25
26.50
26.75
23121420
1: Voltage SIR 14 Channels EI+
303.9016
3.41e5
25.52
25.22
25.39
100
%
0
2378-TCDF
14.6/96.2= 15.2%
96.24 mm
14.59 mm
Time
24.75
25.00
25.25
25.50
25.75
26.00
26.25
26.50
26.75

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	AUTOSPEC01	Calibration:	GH00041
Lab File ID:	23121431	Calibration Date:	08/11/2023
Sequence:	SLL0222	Injection Date:	12/15/23
Lab Sample ID:	SLL0222-CCV1	Injection Time:	15:28
Sequence Name:	CS3J4		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
2,3,7,8-TCDF	A	10.000	9.39	0.9031472	0.8476850		-6.1	+/-16
2,3,7,8-TCDD	A	10.000	9.08	1.2429820	1.1285040		-9.2	+/-22
1,2,3,7,8-PeCDF	A	50.000	50.7	0.9232368	0.9359087		1.4	+/-18
2,3,4,7,8-PeCDF	A	50.000	52.2	0.9906617	1.0341650		4.4	+/-18
1,2,3,7,8-PeCDD	A	50.000	45.5	1.1500860	1.0458440		-9.1	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	50.0	1.1281700	1.1278240		-0.03	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	52.5	1.0323580	1.0837470		5.0	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	51.9	1.0814700	1.1236350		3.9	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	50.7	0.9876148	1.0015060		1.4	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	40.9	0.9600870	0.7858600		-18.1	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	48.4	0.8826935	0.8551177		-3.1	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	51.4	0.8037436	0.8260300		2.8	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	49.6	1.1637090	1.1546160		-0.8	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	54.0	1.1036300	1.1921440		8.0	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	44.3	1.1996030	1.0620610		-11.5	+/-14
OCDF	A	100.00	95.6	1.1302050	1.0807330		-4.4	+/-37
OCDD	A	100.00	87.4	1.0586660	0.9252061		-12.6	+/-21
13C12-2,3,7,8-TCDF	A	100.00	86.3	1.8353850	1.5836615		-13.7	+/-29
13C12-2,3,7,8-TCDD	A	100.00	105	1.1095460	1.1678214		5.3	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	89.6	1.3765480	1.2333030		-10.4	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	89.7	1.3012340	1.1675814		-10.3	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	111	0.7536802	0.8343501		10.7	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	85.9	1.0906500	0.9364914		-14.1	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	72.0	1.3402290	0.9643564		-28.0	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	79.7	1.0934470	0.8712097		-20.3	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	81.9	0.9516050	0.7793589		-18.1	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	103	0.9598962	0.9859687		2.7	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	88.1	1.1592550	1.0210472		-11.9	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	72.7	0.9849488	0.7158440		-27.3	+/-22 *
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	71.7	0.7558011	0.5419980		-28.3	+/-23 *
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	95.4	0.6292861	0.6001891		-4.6	+/-28
13C12-OCDD	A	200.00	144	0.6351422	0.4588442		-27.8	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	10.4	1.1573510	1.2074754		4.3	

* Values outside of QC limits

* Values outside of QC limits

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\231214IH2.qld
Last Altered: Saturday, December 16, 2023 10:26:00 Pacific Standard Time
Printed: Saturday, December 16, 2023 10:37:54 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin231215.mdb 15 Dec 2023 13:28:43
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: CS3J4, Name: 23121431, Date: 15-Dec-2023, Time: 15:28:36, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.379	1.001	2.665e4	3.566e4	0.903	0.747	0.770	752	1513	4.09e5	5.35e5	543.0	353.8	NO	bb	bb	9.386
12378-PeCDF	29.516	1.001	1.650e5	1.029e5	0.923	1.604	1.550	1780	1538	2.55e6	1.59e6	1432.7	1035.9	NO	bb	bb	50.686
23478-PeCDF	30.853	1.000	1.711e5	1.091e5	0.991	1.567	1.550	1780	1538	2.67e6	1.73e6	1497.7	1125.0	NO	bb	bb	52.196
123478-HxCDF	34.485	1.000	1.527e5	1.215e5	1.128	1.257	1.240	1200	1266	2.37e6	1.88e6	1972.4	1481.4	NO	bd	bd	49.985
234678-HxCDF	35.499	1.000	1.430e5	1.111e5	1.081	1.286	1.240	1200	1266	2.28e6	1.82e6	1903.2	1437.3	NO	bb	bb	51.949
123678-HxCDF	34.630	1.001	1.507e5	1.206e5	1.032	1.250	1.240	1200	1266	2.38e6	1.89e6	1981.7	1491.4	NO	db	db	52.489
123789-HxCDF	36.546	1.001	1.138e5	8.877e4	0.988	1.282	1.240	1200	1266	1.79e6	1.43e6	1490.0	1130.9	NO	bb	bb	50.703
1234678-HpCDF	38.384	1.000	1.104e5	1.042e5	1.164	1.059	1.050	1328	1221	1.84e6	1.81e6	1385.1	1484.1	NO	bb	bb	49.609
1234789-HpCDF	40.579	1.000	8.903e4	7.868e4	1.104	1.132	1.050	1328	1221	1.29e6	1.18e6	970.0	965.9	NO	bd	bb	54.010
OCDF	44.682	1.006	1.204e5	1.370e5	1.130	0.878	0.890	1604	1471	1.43e6	1.61e6	890.9	1096.1	NO	bd	bd	95.623
2378-TCDD	26.014	1.001	2.666e4	3.452e4	1.243	0.772	0.770	1017	1117	3.96e5	5.03e5	389.0	450.4	NO	bb	bb	9.079
12378-PeCDD	31.109	1.001	1.216e5	8.091e4	1.150	1.503	1.550	1789	1333	1.76e6	1.17e6	986.2	881.0	NO	bd	bb	45.468
123478-HxCDD	35.621	1.000	1.110e5	9.009e4	0.960	1.232	1.240	877	791	1.89e6	1.48e6	2150.8	1876.3	NO	bd	bd	40.926
123678-HxCDD	35.743	1.001	1.254e5	1.012e5	0.883	1.239	1.240	877	791	1.88e6	1.52e6	2141.0	1923.5	NO	db	dd	48.438
123789-HxCDD	36.122	1.011	1.183e5	9.680e4	0.804	1.222	1.240	877	791	1.80e6	1.50e6	2052.2	1897.1	NO	bd	bd	51.386
1234678-HpCDD	39.855	1.000	8.505e4	8.040e4	1.200	1.058	1.050	1001	1015	1.29e6	1.24e6	1286.7	1216.7	NO	bd	bd	44.267
OCDD	44.435	1.000	1.020e5	1.184e5	1.059	0.862	0.890	1356	1078	1.19e6	1.40e6	879.3	1297.5	NO	bd	bd	87.394
13C-2378-TCDF	25.365	1.007	3.152e5	4.199e5	1.835	0.751	0.770	967	1435	4.38e6	5.83e6	4532.4	4063.8	NO	bb	bb	86.285
13C-12378-PeCDF	29.493	1.171	3.448e5	2.277e5	1.377	1.514	1.550	2470	1538	5.08e6	3.34e6	2058.2	2173.7	NO	bd	bd	89.594
13C-23478-PeCDF	30.842	1.225	3.253e5	2.166e5	1.301	1.502	1.550	2470	1538	4.77e6	3.19e6	1930.7	2074.9	NO	bb	bb	89.729
13C-123478-HxCDF	34.473	0.955	1.660e5	3.201e5	1.091	0.519	0.510	1245	1527	2.55e6	4.85e6	2044.5	3178.4	NO	bd	bd	85.865
13C-123678-HxCDF	34.607	0.958	1.713e5	3.293e5	1.340	0.520	0.510	1245	1527	2.59e6	5.06e6	2081.2	3315.7	NO	db	db	71.955
13C-234678-HxCDF	35.487	0.983	1.549e5	2.974e5	1.093	0.521	0.510	1245	1527	2.53e6	4.76e6	2031.0	3118.4	NO	bb	bb	79.676
13C-123789-HxCDF	36.523	1.011	1.375e5	2.671e5	0.952	0.515	0.510	1245	1527	2.06e6	4.04e6	1656.0	2649.0	NO	bb	bb	81.899
13C-1234678-HpCDF	38.373	1.063	1.145e5	2.571e5	0.985	0.445	0.440	1063	1234	1.86e6	4.12e6	1753.5	3337.1	NO	bb	bd	72.678
13C-1234789-HpCDF	40.556	1.123	8.654e4	1.948e5	0.756	0.444	0.440	1063	1234	1.20e6	2.70e6	1127.1	2189.3	NO	bb	bb	71.712
13C-1234-TCDD	25.181	0.000	2.054e5	2.588e5	1.000	0.794	0.770	1207	894	3.17e6	4.02e6	2627.2	4493.7	NO	bb	bb	100.000
13C-2378-TCDD	25.986	1.032	2.365e5	3.055e5	1.110	0.774	0.770	1207	894	3.60e6	4.57e6	2983.2	5112.8	NO	bb	bb	105.252
13C-12378-PeCDD	31.087	1.235	2.391e5	1.482e5	0.754	1.614	1.550	845	974	3.73e6	2.35e6	4417.0	2414.5	NO	bb	bb	110.703
13C-123478-HxCDD	35.610	0.986	2.800e5	2.318e5	0.960	1.208	1.240	1173	1136	4.67e6	3.77e6	3978.7	3320.8	NO	bd	bd	102.716
13C-123678-HxCDD	35.721	0.989	2.917e5	2.383e5	1.159	1.224	1.240	1173	1136	4.65e6	3.84e6	3968.4	3376.9	NO	db	db	88.078
13C-1234678-HpCDD	39.843	1.103	1.612e5	1.504e5	0.629	1.072	1.050	985	972	2.52e6	2.39e6	2559.6	2462.5	NO	bb	bb	95.376
13C-OCDD	44.426	1.230	2.222e5	2.542e5	0.635	0.874	0.890	1144	1673	2.78e6	3.16e6	2427.5	1891.9	NO	bb	bb	144.486
13C-123789-HxCDD	36.111	0.000	2.863e5	2.328e5	1.000	1.230	1.240	1173	1136	4.61e6	3.76e6	3934.9	3305.1	NO	bb	bb	100.000
37CL-2378-TCDD	26.014	1.033	5.605e4		1.157			808		8.36e5		1034.8			bb		10.433

Dataset: T:\Autospec\Processed Data Batch\231214IH2.qld
Last Altered: Saturday, December 16, 2023 10:26:00 Pacific Standard Time
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ID: CS3J4, Name: 23121431, Date: 15-Dec-2023, Time: 15:28:36, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.890	0.863	3.262e4	4.290e4	1.170	0.760	0.770	752	1513	5.08e5	6.71e5	675.5	443.7	NO	bb	bb	8.778
1289-TCDF	26.862	1.059	2.911e4	3.419e4	0.847	0.851	0.770	752	1513	4.01e5	4.86e5	532.8	321.4	NO	dd	db	10.169
13468-PECDF	26.721	0.906	2.199e5	1.438e5	1.241	1.529	1.550	554	628	3.46e6	2.26e6	6254.3	3596.5	NO	bb	bb	51.203
12389-PECDF	31.889	1.081	1.728e5	1.094e5	0.880	1.579	1.550	1780	1538	2.60e6	1.66e6	1460.3	1082.2	NO	bb	bb	56.057
123468-HXCDF	32.803	0.951	1.593e5	1.290e5	1.206	1.235	1.240	1200	1266	2.44e6	1.99e6	2036.3	1569.4	NO	bb	bb	49.197
1368-TCDD	23.161	0.891	2.489e4	3.161e4	1.181	0.787	0.770	1017	1117	3.71e5	4.78e5	364.9	428.3	NO	bd	bb	8.826
1289-TCDD	26.608	1.024	2.327e4	3.031e4	0.963	0.768	0.770	1017	1117	3.41e5	4.34e5	335.6	388.5	NO	bb	bd	10.266
12479-PECDD	28.390	0.913	2.144e5	1.419e5	2.166	1.511	1.550	1789	1333	1.99e6	1.31e6	1110.9	984.2	NO	bd	bd	42.478
12389-PECDD	31.499	1.013	1.515e5	9.919e4	1.326	1.527	1.550	1789	1333	2.17e6	1.44e6	1215.3	1080.0	NO	bd	bd	48.810
124679-HXCDD	33.593	0.943	1.302e5	1.065e5	1.127	1.222	1.240	877	791	1.98e6	1.59e6	2255.4	2015.1	NO	bd	bd	41.038
1234679-HPCDD	38.830	0.975	1.008e5	1.004e5	1.303	1.004	1.050	1001	1015	1.62e6	1.58e6	1618.1	1558.8	NO	bb	bd	49.591
Total-tetrafurans			8.863e4		0.973			752		1.32e6							28.413
Total-penta1			2.199e5					554		3.46e6							51.203
Total-pentafurans			5.360e5		0.931			1780		8.25e6							167.574
Total-hexafurans			7.195e5		1.087			1200		1.13e7							254.323
Total-heptafurans			1.999e5		1.134			1328		3.14e6							103.906
Total-Furans			1.884e6		1.053			752		2.89e7							701.041
Total-tetradioxins			1.281e5		1.129			1017		1.72e6							47.885
Total-pentadioxins			4.882e5		1.548			1789		5.93e6							136.933
Total-hexadioxins			4.851e5		0.943			877		7.54e6							181.862
Total-heptadioxins			1.859e5		1.251			1001		2.91e6							93.858
Total-Dioxins			1.389e6		1.182			1017		1.93e7							547.932
Total-TEQ			3.274e6					1017		4.82e7							1248.973
FUNCTION1 PFK			0.000e0					323820		0.00e0							
FUNCTION2 PFK			1.733e5					134633		5.49e6							0.000
FUNCTION3 PFK			4.559e4					212881		8.80e5							0.000
FUNCTION4 PFK			2.174e5					161457		5.53e6							
FUNCTION5 PFK			0.000e0					94280		0.00e0							
FUNCTION1 HXCD...			2.373e2					492		2.81e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			3.155e2					742		5.28e3							0.000
FUNCTION3 OCDPE			3.597e2					499		5.85e3							0.000
FUNCTION4 NCDPE			0.000e0					615		0.00e0							
FUNCTION5 DCDPE			1.041e2					590		2.67e3							0.000

Dataset: T:\Autospec\Processed Data Batch\231214IH2.qld
Last Altered: Saturday, December 16, 2023 10:26:00 Pacific Standard Time
Printed: Saturday, December 16, 2023 10:37:54 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin231215.mdb 15 Dec 2023 13:28:43
Calibration: T:\Autospec\Curves\230811IClH.cdb 12 Aug 2023 09:45:18

ID: CS3J4, Name: 23121431, Date: 15-Dec-2023, Time: 15:28:36, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	27.19	2.469e2	3.168e2	0.973	0.78	0.77	5.0	NO	NO	db	bb	0.079
2	1289-TCDF	26.86	2.911e4	3.419e4	0.847	0.85	0.77	532.8	YES	NO	dd	db	10.169
3	2378-TCDF	25.38	2.665e4	3.566e4	0.903	0.75	0.77	543.0	YES	NO	bb	bb	9.386
4	1368-TCDF	21.89	3.262e4	4.290e4	1.170	0.76	0.77	675.5	YES	NO	bb	bb	8.778

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.72	2.199e5	1.438e5	1.241	1.53	1.55	6254.3	YES	NO	bb	bb	51.203

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	31.89	1.728e5	1.094e5	0.880	1.58	1.55	1460.3	YES	NO	bb	bb	56.057
2	23478-PeCDF	30.85	1.711e5	1.091e5	0.991	1.57	1.55	1497.7	YES	NO	bb	bb	52.196
3	12378-PeCDF	29.52	1.650e5	1.029e5	0.923	1.60	1.55	1432.7	YES	NO	bb	bb	50.686
4	Total-pentafurans	28.37	2.704e4	1.776e4	0.931	1.52	1.55	245.4	YES	NO	bb	bb	8.635

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDF	34.63	1.507e5	1.206e5	1.032	1.25	1.24	1981.7	YES	NO	db	db	52.489
2	123478-HxCDF	34.48	1.527e5	1.215e5	1.128	1.26	1.24	1972.4	YES	NO	bd	bd	49.985
3	123468-HXCDF	32.80	1.593e5	1.290e5	1.206	1.24	1.24	2036.3	YES	NO	bb	bb	49.197
4	123789-HxCDF	36.55	1.138e5	8.877e4	0.988	1.28	1.24	1490.0	YES	NO	bb	bb	50.703
5	234678-HxCDF	35.50	1.430e5	1.111e5	1.081	1.29	1.24	1903.2	YES	NO	bb	bb	51.949

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.58	8.903e4	7.868e4	1.104	1.13	1.05	970.0	YES	NO	bd	bb	54.010
2	Total-heptafurans	39.03	5.640e2	4.952e2	1.134	1.14	1.05	7.5	YES	NO	db	bb	0.286
3	1234678-HpCDF	38.38	1.104e5	1.042e5	1.164	1.06	1.05	1385.1	YES	NO	bb	bb	49.609

Dataset: T:\Autospec\Processed Data Batch\231214IH2.qld
Last Altered: Saturday, December 16, 2023 10:26:00 Pacific Standard Time
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ID: CS3J4, Name: 23121431, Date: 15-Dec-2023, Time: 15:28:36, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	27.19	2.469e2	3.168e2	0.973	0.78	0.77	5.0	NO	NO	db	bb	0.079
2	1289-TCDF	26.86	2.911e4	3.419e4	0.847	0.85	0.77	532.8	YES	NO	dd	db	10.169
3	2378-TCDF	25.38	2.665e4	3.566e4	0.903	0.75	0.77	543.0	YES	NO	bb	bb	9.386
4	1368-TCDF	21.89	3.262e4	4.290e4	1.170	0.76	0.77	675.5	YES	NO	bb	bb	8.778
5	12389-PECDF	31.89	1.728e5	1.094e5	0.880	1.58	1.55	1460.3	YES	NO	bb	bb	56.057
6	23478-PeCDF	30.85	1.711e5	1.091e5	0.991	1.57	1.55	1497.7	YES	NO	bb	bb	52.196
7	12378-PeCDF	29.52	1.650e5	1.029e5	0.923	1.60	1.55	1432.7	YES	NO	bb	bb	50.686
8	Total-pentafurans	28.37	2.704e4	1.776e4	0.931	1.52	1.55	245.4	YES	NO	bb	bb	8.635
9	123678-HxCDF	34.63	1.507e5	1.206e5	1.032	1.25	1.24	1981.7	YES	NO	db	db	52.489
10	123478-HxCDF	34.48	1.527e5	1.215e5	1.128	1.26	1.24	1972.4	YES	NO	bd	bd	49.985
11	123468-HXCDF	32.80	1.593e5	1.290e5	1.206	1.24	1.24	2036.3	YES	NO	bb	bb	49.197
12	123789-HxCDF	36.55	1.138e5	8.877e4	0.988	1.28	1.24	1490.0	YES	NO	bb	bb	50.703
13	234678-HxCDF	35.50	1.430e5	1.111e5	1.081	1.29	1.24	1903.2	YES	NO	bb	bb	51.949
14	1234789-HpCDF	40.58	8.903e4	7.868e4	1.104	1.13	1.05	970.0	YES	NO	bd	bb	54.010
15	Total-heptafurans	39.03	5.640e2	4.952e2	1.134	1.14	1.05	7.5	YES	NO	db	bb	0.286
16	1234678-HpCDF	38.38	1.104e5	1.042e5	1.164	1.06	1.05	1385.1	YES	NO	bb	bb	49.609
17	OCDF	44.68	1.204e5	1.370e5	1.130	0.88	0.89	890.9	YES	NO	bd	bd	95.623
18	13468-PECDF	26.72	2.199e5	1.438e5	1.241	1.53	1.55	6254.3	YES	NO	bb	bb	51.203

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.16	2.489e4	3.161e4	1.181	0.79	0.77	364.9	YES	NO	bd	bb	8.826
2	1289-TCDD	26.61	2.327e4	3.031e4	0.963	0.77	0.77	335.6	YES	NO	bb	bd	10.266
3	2378-TCDD	26.01	2.666e4	3.452e4	1.243	0.77	0.77	389.0	YES	NO	bb	bb	9.079
4	Total-tetradioxins	25.69	4.058e4	5.104e4	1.129	0.80	0.77	410.3	YES	NO	bd	bb	14.972
5	Total-tetradioxins	25.21	1.241e4	1.594e4	1.129	0.78	0.77	188.8	YES	NO	bb	bb	4.634
6	Total-tetradioxins	24.62	2.713e2	3.923e2	1.129	0.69	0.77	4.5	YES	NO	bb	bb	0.108

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.11	1.216e5	8.091e4	1.150	1.50	1.55	986.2	YES	NO	bd	bb	45.468
2	Total-pentadioxins	30.43	6.679e2	3.880e2	1.548	1.72	1.55	5.0	YES	NO	bb	bb	0.176
3	12479-PECDD	28.39	2.144e5	1.419e5	2.166	1.51	1.55	1110.9	YES	NO	bd	bd	42.478
4	12389-PECDD	31.50	1.515e5	9.919e4	1.326	1.53	1.55	1215.3	YES	NO	bd	bd	48.810

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDD	35.62	1.110e5	9.009e4	0.960	1.23	1.24	2150.8	YES	NO	bd	bd	40.926
2	124679-HXCDD	33.59	1.302e5	1.065e5	1.127	1.22	1.24	2255.4	YES	NO	bd	bd	41.038
3	Total-hexadioxins	36.43	2.050e2	1.530e2	0.943	1.34	1.24	5.5	YES	NO	db	db	0.073
4	123789-HxCDD	36.12	1.183e5	9.680e4	0.804	1.22	1.24	2052.2	YES	NO	bd	bd	51.386
5	123678-HxCDD	35.74	1.254e5	1.012e5	0.883	1.24	1.24	2141.0	YES	NO	db	dd	48.438

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.85	8.505e4	8.040e4	1.200	1.06	1.05	1286.7	YES	NO	bd	bd	44.267
2	1234679-HPCDD	38.83	1.008e5	1.004e5	1.303	1.00	1.05	1618.1	YES	NO	bb	bd	49.591

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.16	2.489e4	3.161e4	1.181	0.79	0.77	364.9	YES	NO	bd	bb	8.826
2	1289-TCDD	26.61	2.327e4	3.031e4	0.963	0.77	0.77	335.6	YES	NO	bb	bd	10.266
3	2378-TCDD	26.01	2.666e4	3.452e4	1.243	0.77	0.77	389.0	YES	NO	bb	bb	9.079
4	Total-tetradioxins	25.69	4.058e4	5.104e4	1.129	0.80	0.77	410.3	YES	NO	bd	bb	14.972
5	Total-tetradioxins	25.21	1.241e4	1.594e4	1.129	0.78	0.77	188.8	YES	NO	bb	bb	4.634
6	Total-tetradioxins	24.62	2.713e2	3.923e2	1.129	0.69	0.77	4.5	YES	NO	bb	bb	0.108
7	12378-PeCDD	31.11	1.216e5	8.091e4	1.150	1.50	1.55	986.2	YES	NO	bd	bb	45.468
8	Total-pentadioxins	30.43	6.679e2	3.880e2	1.548	1.72	1.55	5.0	YES	NO	bb	bb	0.176
9	12479-PECDD	28.39	2.144e5	1.419e5	2.166	1.51	1.55	1110.9	YES	NO	bd	bd	42.478
10	123478-HxCDD	35.62	1.110e5	9.009e4	0.960	1.23	1.24	2150.8	YES	NO	bd	bd	40.926
11	124679-HXCDD	33.59	1.302e5	1.065e5	1.127	1.22	1.24	2255.4	YES	NO	bd	bd	41.038
12	12389-PECDD	31.50	1.515e5	9.919e4	1.326	1.53	1.55	1215.3	YES	NO	bd	bd	48.810
13	Total-hexadioxins	36.43	2.050e2	1.530e2	0.943	1.34	1.24	5.5	YES	NO	db	db	0.073
14	123789-HxCDD	36.12	1.183e5	9.680e4	0.804	1.22	1.24	2052.2	YES	NO	bd	bd	51.386
15	123678-HxCDD	35.74	1.254e5	1.012e5	0.883	1.24	1.24	2141.0	YES	NO	db	dd	48.438
16	1234678-HpCDD	39.85	8.505e4	8.040e4	1.200	1.06	1.05	1286.7	YES	NO	bd	bd	44.267
17	1234679-HPCDD	38.83	1.008e5	1.004e5	1.303	1.00	1.05	1618.1	YES	NO	bb	bd	49.591
18	OCDD	44.44	1.020e5	1.184e5	1.059	0.86	0.89	879.3	YES	NO	bd	bd	87.394

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	27.19	2.469e2	3.168e2	0.973	0.78	0.77	5.0	NO	NO	db	bb	0.079
2	1289-TCDF	26.86	2.911e4	3.419e4	0.847	0.85	0.77	532.8	YES	NO	dd	db	10.169
3	2378-TCDF	25.38	2.665e4	3.566e4	0.903	0.75	0.77	543.0	YES	NO	bb	bb	9.386
4	1368-TCDF	21.89	3.262e4	4.290e4	1.170	0.76	0.77	675.5	YES	NO	bb	bb	8.778
5	12389-PECDF	31.89	1.728e5	1.094e5	0.880	1.58	1.55	1460.3	YES	NO	bb	bb	56.057
6	23478-PeCDF	30.85	1.711e5	1.091e5	0.991	1.57	1.55	1497.7	YES	NO	bb	bb	52.196
7	12378-PeCDF	29.52	1.650e5	1.029e5	0.923	1.60	1.55	1432.7	YES	NO	bb	bb	50.686
8	Total-pentafurans	28.37	2.704e4	1.776e4	0.931	1.52	1.55	245.4	YES	NO	bb	bb	8.635
9	123678-HxCDF	34.63	1.507e5	1.206e5	1.032	1.25	1.24	1981.7	YES	NO	db	db	52.489
10	123478-HxCDF	34.48	1.527e5	1.215e5	1.128	1.26	1.24	1972.4	YES	NO	bd	bd	49.985
11	123468-HXCDF	32.80	1.593e5	1.290e5	1.206	1.24	1.24	2036.3	YES	NO	bb	bb	49.197
12	123789-HxCDF	36.55	1.138e5	8.877e4	0.988	1.28	1.24	1490.0	YES	NO	bb	bb	50.703
13	234678-HxCDF	35.50	1.430e5	1.111e5	1.081	1.29	1.24	1903.2	YES	NO	bb	bb	51.949
14	1234789-HpCDF	40.58	8.903e4	7.868e4	1.104	1.13	1.05	970.0	YES	NO	bd	bb	54.010
15	Total-heptafurans	39.03	5.640e2	4.952e2	1.134	1.14	1.05	7.5	YES	NO	db	bb	0.286
16	1234678-HpCDF	38.38	1.104e5	1.042e5	1.164	1.06	1.05	1385.1	YES	NO	bb	bb	49.609
17	OCDF	44.68	1.204e5	1.370e5	1.130	0.88	0.89	890.9	YES	NO	bd	bd	95.623
18	13468-PECDF	26.72	2.199e5	1.438e5	1.241	1.53	1.55	6254.3	YES	NO	bb	bb	51.203
19	1368-TCDD	23.16	2.489e4	3.161e4	1.181	0.79	0.77	364.9	YES	NO	bd	bb	8.826
20	1289-TCDD	26.61	2.327e4	3.031e4	0.963	0.77	0.77	335.6	YES	NO	bb	bd	10.266
21	2378-TCDD	26.01	2.666e4	3.452e4	1.243	0.77	0.77	389.0	YES	NO	bb	bb	9.079
22	Total-tetradioxins	25.69	4.058e4	5.104e4	1.129	0.80	0.77	410.3	YES	NO	bd	bb	14.972
23	Total-tetradioxins	25.21	1.241e4	1.594e4	1.129	0.78	0.77	188.8	YES	NO	bb	bb	4.634
24	Total-tetradioxins	24.62	2.713e2	3.923e2	1.129	0.69	0.77	4.5	YES	NO	bb	bb	0.108
25	12378-PeCDD	31.11	1.216e5	8.091e4	1.150	1.50	1.55	986.2	YES	NO	bd	bb	45.468
26	Total-pentadioxins	30.43	6.679e2	3.880e2	1.548	1.72	1.55	5.0	YES	NO	bb	bb	0.176
27	12479-PECDD	28.39	2.144e5	1.419e5	2.166	1.51	1.55	1110.9	YES	NO	bd	bd	42.478
28	123478-HxCDD	35.62	1.110e5	9.009e4	0.960	1.23	1.24	2150.8	YES	NO	bd	bd	40.926
29	124679-HXCDD	33.59	1.302e5	1.065e5	1.127	1.22	1.24	2255.4	YES	NO	bd	bd	41.038
30	12389-PECDD	31.50	1.515e5	9.919e4	1.326	1.53	1.55	1215.3	YES	NO	bd	bd	48.810
31	Total-hexadioxins	36.43	2.050e2	1.530e2	0.943	1.34	1.24	5.5	YES	NO	db	db	0.073
32	123789-HxCDD	36.12	1.183e5	9.680e4	0.804	1.22	1.24	2052.2	YES	NO	bd	bd	51.386
33	123678-HxCDD	35.74	1.254e5	1.012e5	0.883	1.24	1.24	2141.0	YES	NO	db	dd	48.438
34	1234678-HpCDD	39.85	8.505e4	8.040e4	1.200	1.06	1.05	1286.7	YES	NO	bd	bd	44.267
35	1234679-HPCDD	38.83	1.008e5	1.004e5	1.303	1.00	1.05	1618.1	YES	NO	bb	bd	49.591
36	OCDD	44.44	1.020e5	1.184e5	1.059	0.86	0.89	879.3	YES	NO	bd	bd	87.394

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Printed: Saturday, December 16, 2023 10:37:54 Pacific Standard Time

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.99	4.094e3					1.3	NO		bd		0.000
2	FUNCTION2 PFK	28.95	6.433e2					0.4	NO		bb		0.000
3	FUNCTION2 PFK	28.52	9.509e3					2.0	NO		db		0.000
4	FUNCTION2 PFK	28.48	8.150e3					1.7	NO		bd		0.000
5	FUNCTION2 PFK	28.08	4.104e3					0.9	NO		bb		0.000
6	FUNCTION2 PFK	27.86	1.891e4					2.7	NO		bb		0.000
7	FUNCTION2 PFK	27.80	3.858e3					1.3	NO		db		0.000
8	FUNCTION2 PFK	27.76	2.806e3					0.8	NO		dd		0.000
9	FUNCTION2 PFK	27.69	1.151e4					2.6	NO		bd		0.000
10	FUNCTION2 PFK	31.83	5.804e3					1.5	NO		db		0.000
11	FUNCTION2 PFK	31.77	1.589e3					0.7	NO		bd		0.000
12	FUNCTION2 PFK	31.72	3.667e3					1.1	NO		db		0.000
13	FUNCTION2 PFK	31.68	7.100e3					2.1	NO		bd		0.000
14	FUNCTION2 PFK	31.41	6.319e3					1.3	NO		bb		0.000
15	FUNCTION2 PFK	31.11	3.609e3					1.1	NO		bb		0.000
16	FUNCTION2 PFK	30.65	6.156e3					1.8	NO		bb		0.000
17	FUNCTION2 PFK	30.49	1.049e4					1.6	NO		bb		0.000
18	FUNCTION2 PFK	29.95	3.566e3					1.1	NO		bb		0.000
19	FUNCTION2 PFK	29.89	1.942e3					0.7	NO		bb		0.000
20	FUNCTION2 PFK	29.72	2.489e3					0.8	NO		bb		0.000
21	FUNCTION2 PFK	29.37	7.995e3					1.9	NO		db		0.000
22	FUNCTION2 PFK	29.33	1.114e4					2.1	NO		dd		0.000
23	FUNCTION2 PFK	29.24	1.196e4					2.1	NO		bd		0.000
24	FUNCTION2 PFK	29.16	1.830e3					0.7	NO		bb		0.000
25	FUNCTION2 PFK	29.06	3.403e3					0.7	NO		db		0.000
26	FUNCTION2 PFK	32.36	5.198e3					1.6	NO		bb		0.000
27	FUNCTION2 PFK	32.19	2.796e3					0.8	NO		bb		0.000
28	FUNCTION2 PFK	32.13	3.516e3					1.2	NO		db		0.000
29	FUNCTION2 PFK	32.10	7.310e3					1.5	NO		bd		0.000
30	FUNCTION2 PFK	31.98	1.879e3					0.7	NO		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	32.47	4.559e4					4.1	YES		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.81	8.459e3					0.8	NO		bd		
2	FUNCTION4 PFK	38.58	6.927e3					1.3	NO		bb		
3	FUNCTION4 PFK	38.25	1.492e3					0.5	NO		bb		
4	FUNCTION4 PFK	37.98	2.350e3					0.8	NO		bb		
5	FUNCTION4 PFK	37.94	2.424e3					0.7	NO		bb		
6	FUNCTION4 PFK	37.87	5.424e3					1.1	NO		db		
7	FUNCTION4 PFK	37.83	3.894e3					0.9	NO		bd		
8	FUNCTION4 PFK	37.59	1.502e4					2.2	NO		bb		
9	FUNCTION4 PFK	42.48	4.804e3					1.2	NO		bb		
10	FUNCTION4 PFK	42.33	8.786e3					1.3	NO		bb		
11	FUNCTION4 PFK	42.27	8.582e3					2.0	NO		db		
12	FUNCTION4 PFK	42.19	2.635e4					2.1	NO		dd		
13	FUNCTION4 PFK	42.07	1.071e4					1.1	NO		bd		
14	FUNCTION4 PFK	41.67	1.908e4					1.7	NO		bb		
15	FUNCTION4 PFK	41.10	1.374e4					1.8	NO		bb		
16	FUNCTION4 PFK	40.56	9.155e2					0.5	NO		bb		
17	FUNCTION4 PFK	40.50	3.823e3					1.1	NO		bb		
18	FUNCTION4 PFK	40.19	5.404e3					1.3	NO		bb		
19	FUNCTION4 PFK	40.12	8.283e3					1.3	NO		bb		
20	FUNCTION4 PFK	40.02	7.510e3					1.7	NO		bb		
21	FUNCTION4 PFK	39.43	3.423e3					0.9	NO		bb		
22	FUNCTION4 PFK	39.10	2.009e3					0.5	NO		bb		
23	FUNCTION4 PFK	38.97	3.216e3					1.0	NO		bb		
24	FUNCTION4 PFK	38.89	2.615e4					2.0	NO		db		
25	FUNCTION4 PFK	42.92	6.731e3					1.7	NO		bb		
26	FUNCTION4 PFK	42.87	1.774e3					0.6	NO		bb		
27	FUNCTION4 PFK	42.78	4.456e3					0.8	NO		bb		
28	FUNCTION4 PFK	42.63	7.901e2					0.4	NO		bb		
29	FUNCTION4 PFK	42.58	4.910e3					0.8	NO		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.72	1.187e2					2.8	NO		bb		0.000
2	FUNCTION1 HXCD...	25.72	1.187e2					2.9	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.71	1.949e2					5.8	YES		bb		0.000
2	FUNCTION2 HPCD...	29.30	1.206e2					1.3	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.78	7.724e1					2.5	NO		db		0.000
2	FUNCTION3 OCDPE	35.68	9.486e1					2.6	NO		dd		0.000
3	FUNCTION3 OCDPE	35.61	9.967e1					3.6	YES		bd		0.000
4	FUNCTION3 OCDPE	37.46	8.794e1					3.0	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

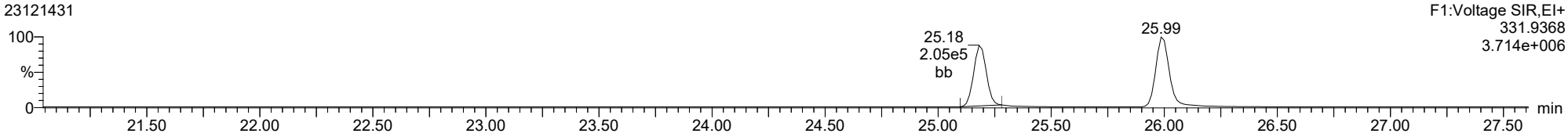
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	43.94	1.041e2					4.5	YES		bb		0.000

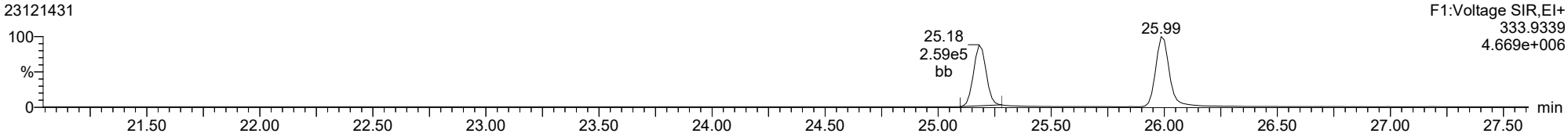
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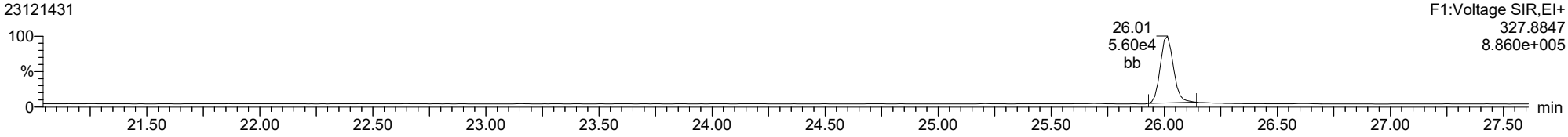
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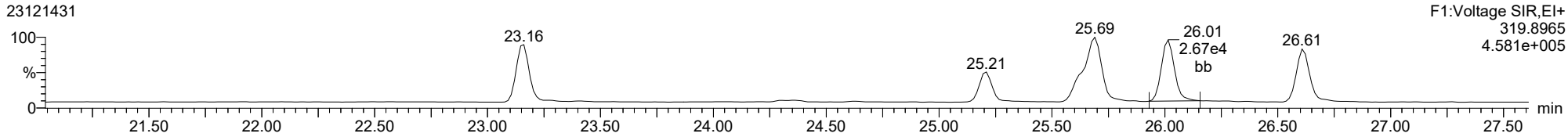


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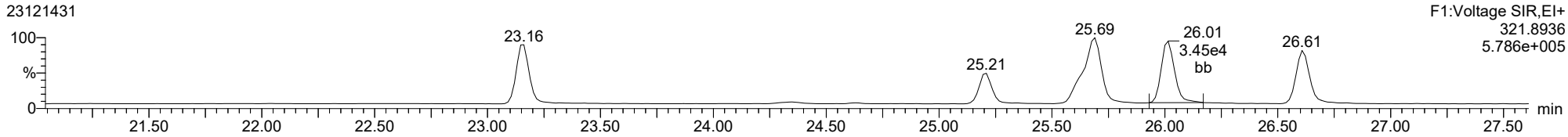


ID: CS3J4, Name: 23121431, Date: 15-Dec-2023, Time: 15:28:36, Conditions: AUTOSPEC01, User: pk

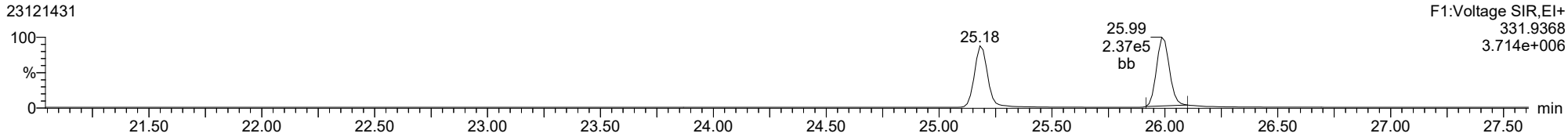
2378-TCDD



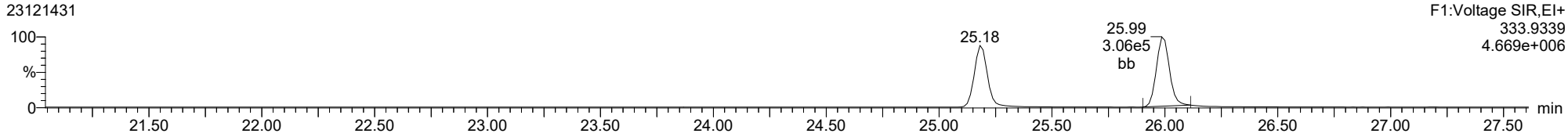
2378-TCDD



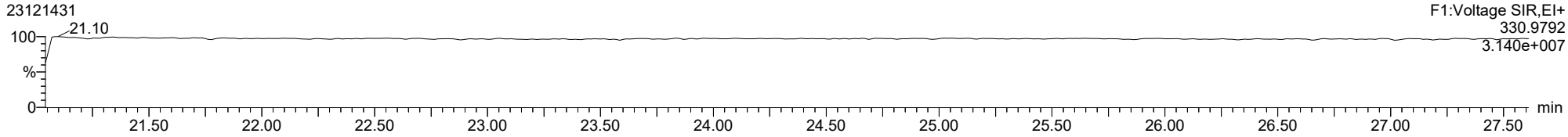
13C-2378-TCDD



13C-2378-TCDD

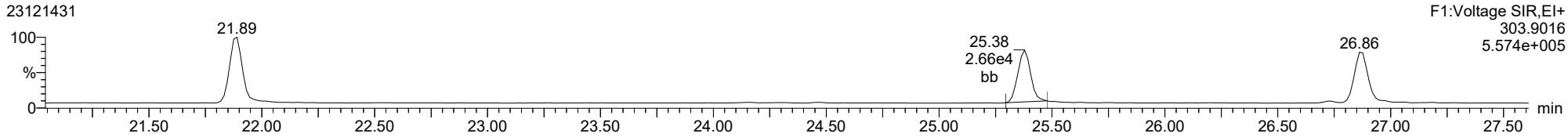


FUNCTION1 PFK

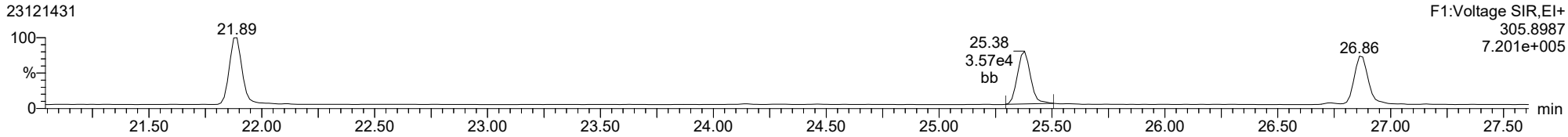


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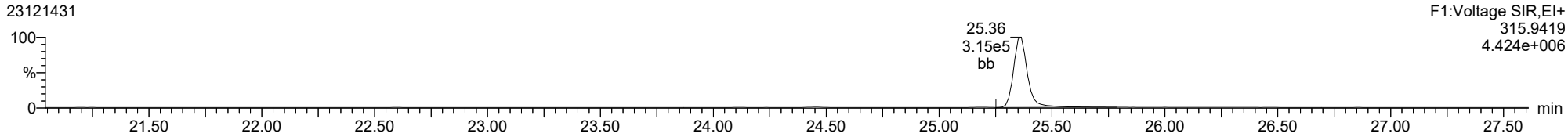
2378-TCDF



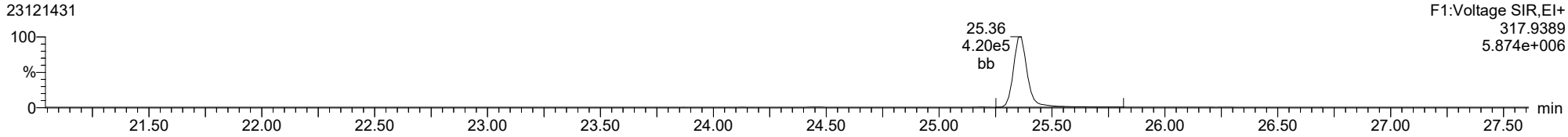
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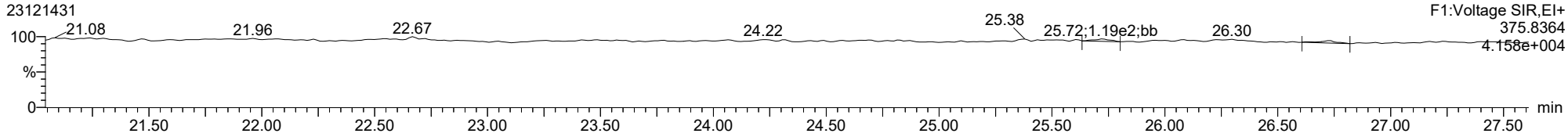
13C-2378-TCDF



13C-2378-TCDF



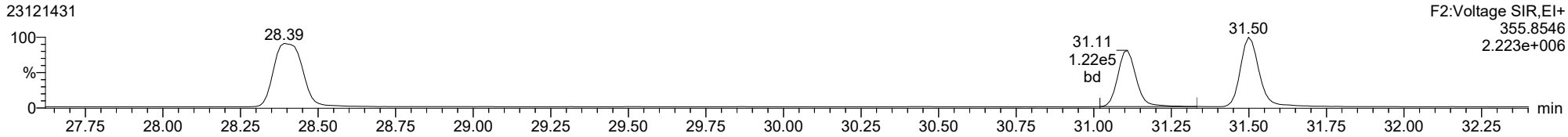
FUNCTION1 HXCDPE



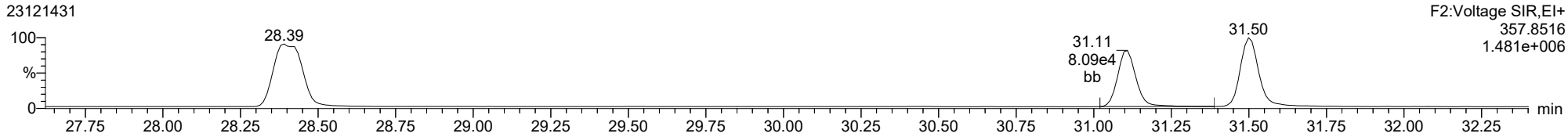
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ID: CS3J4, Name: 23121431, Date: 15-Dec-2023, Time: 15:28:36, Conditions: AUTOSPEC01, User: pk

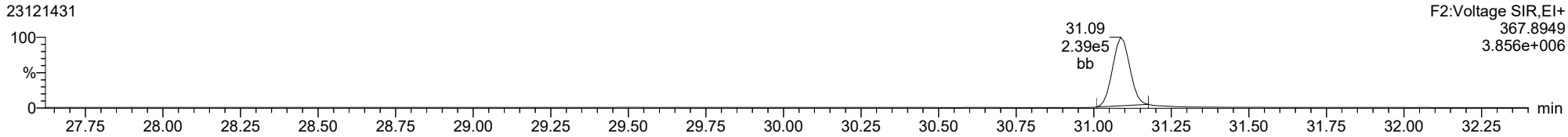
12378-PeCDD



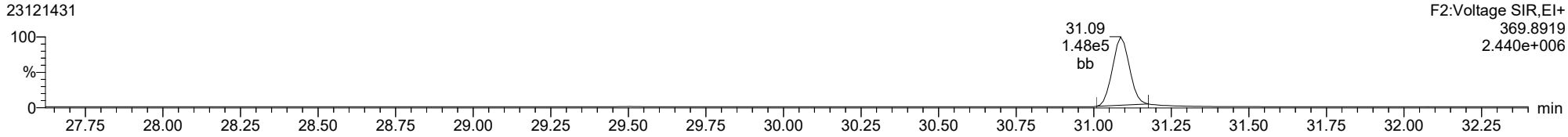
12378-PeCDD



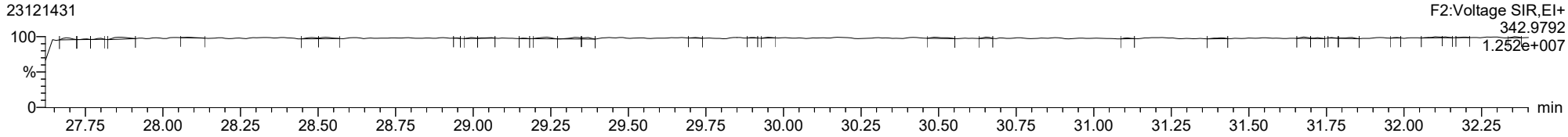
13C-12378-PeCDD



13C-12378-PeCDD

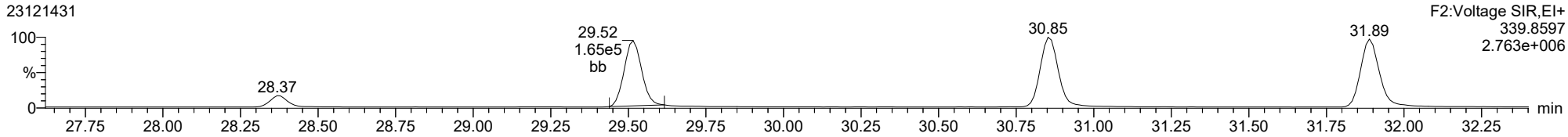


FUNCTION2 PFK

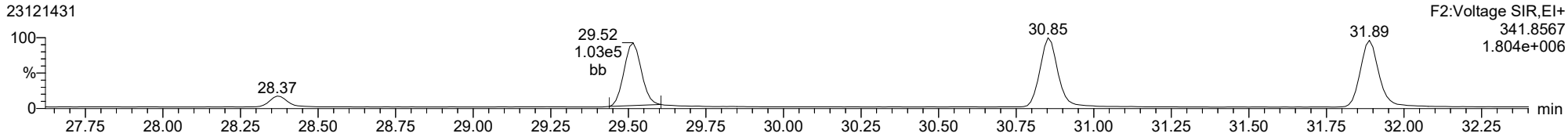


ID: CS3J4, Name: 23121431, Date: 15-Dec-2023, Time: 15:28:36, Conditions: AUTOSPEC01, User: pk

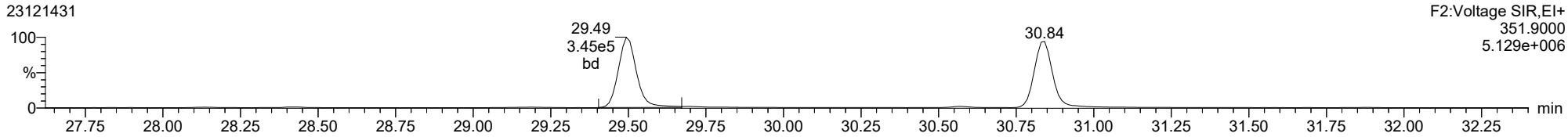
12378-PeCDF



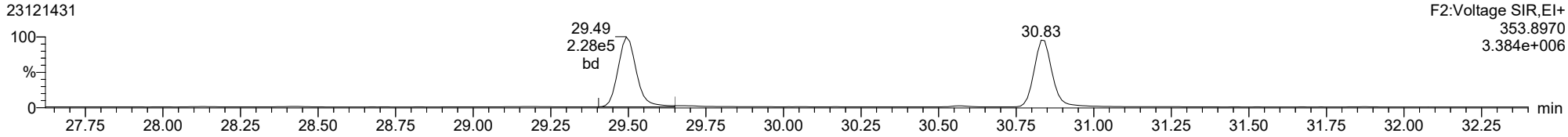
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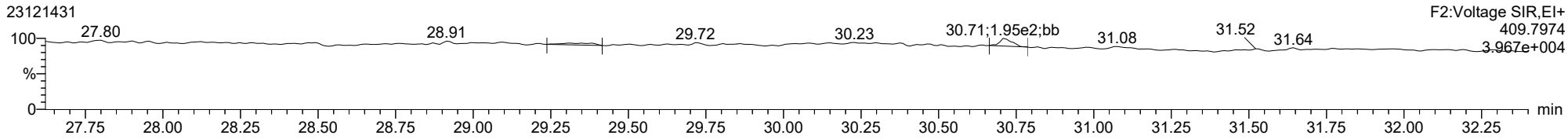
13C-12378-PeCDF



13C-12378-PeCDF

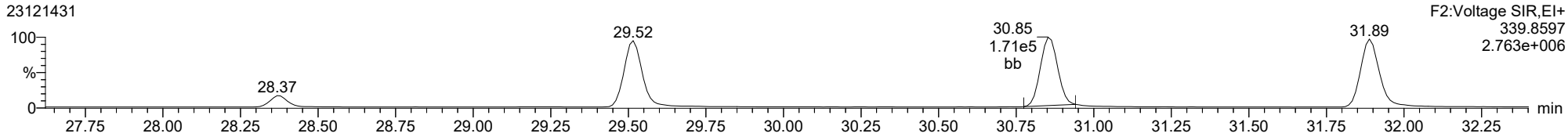


FUNCTION2 HPCDPE

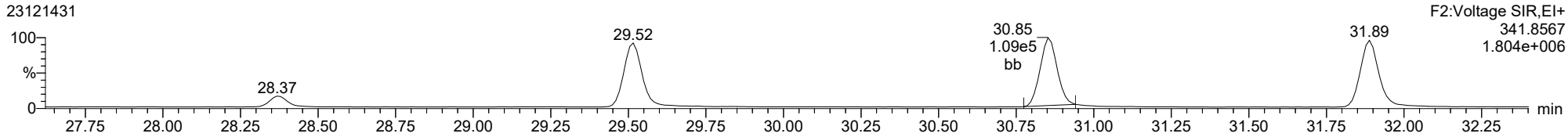


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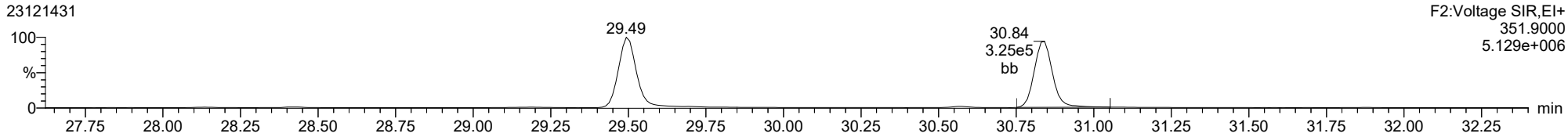
23478-PeCDF



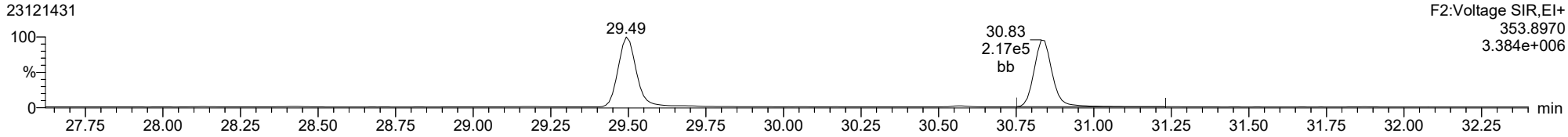
23478-PeCDF



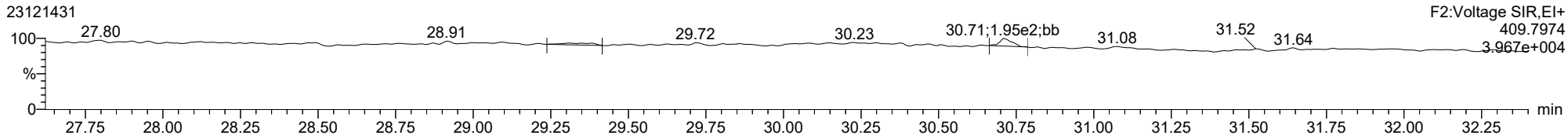
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13C-23478-PeCDF

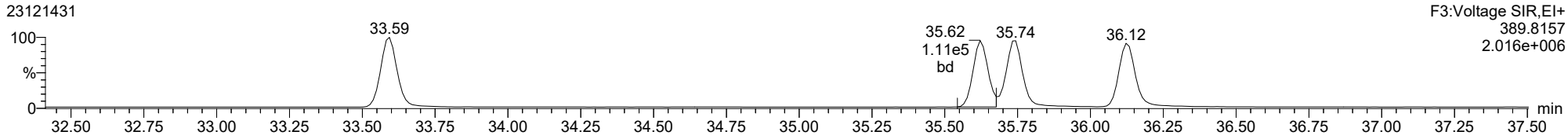


FUNCTION2 HPCDPE

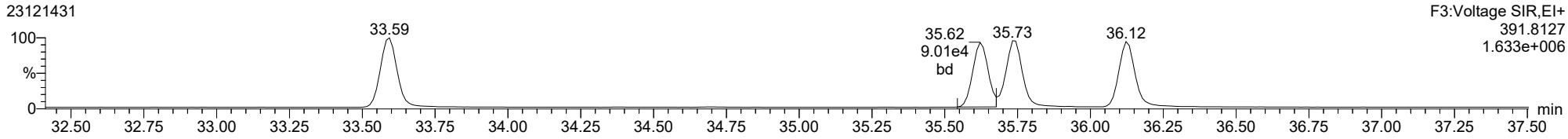


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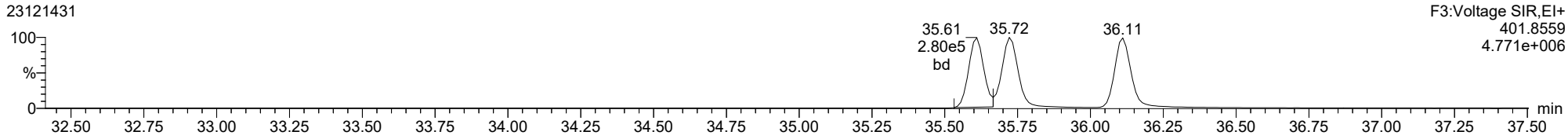
123478-HxCDD



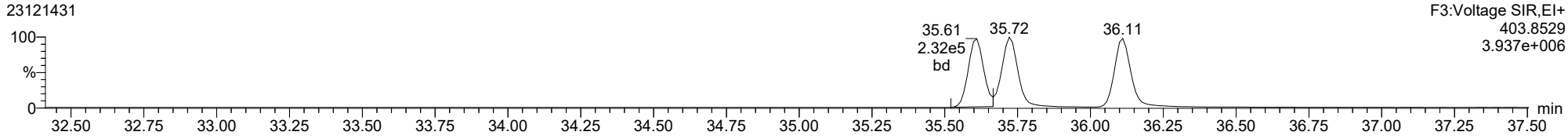
123478-HxCDD



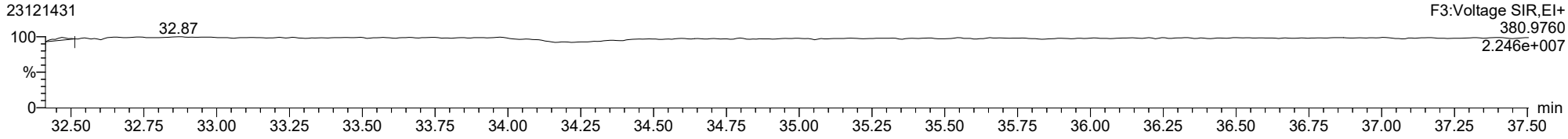
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13C-123478-HxCDD

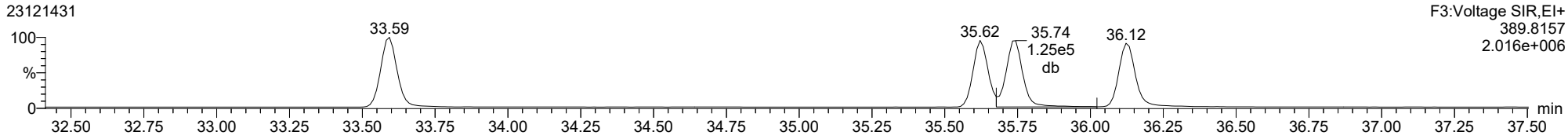


FUNCTION3 PFK

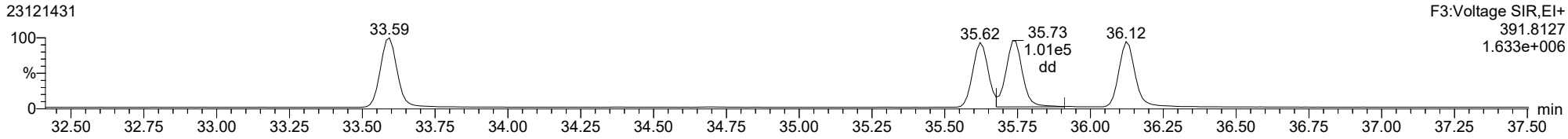


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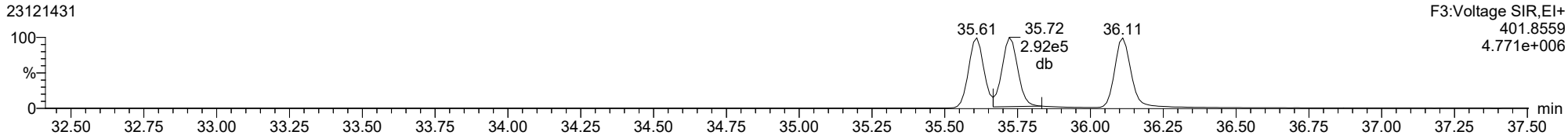
123678-HxCDD



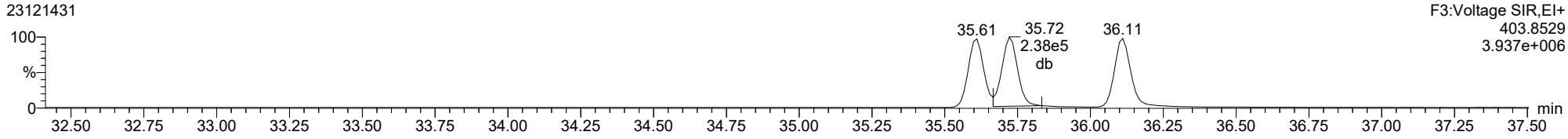
123678-HxCDD



13C-123678-HxCDD

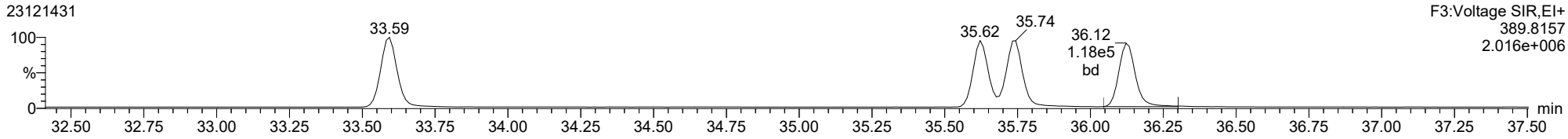


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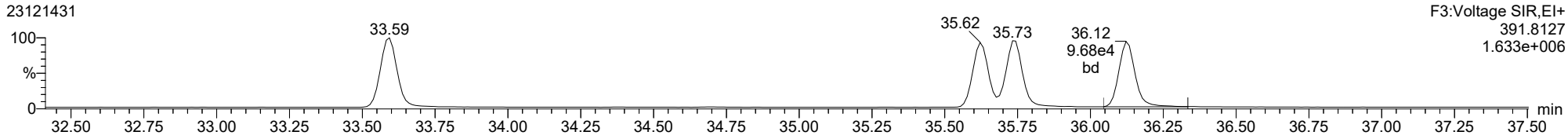


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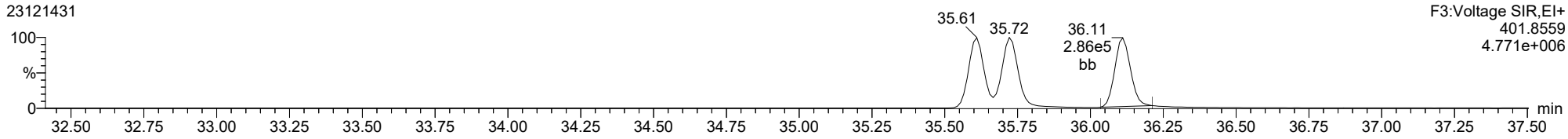
123789-HxCDD



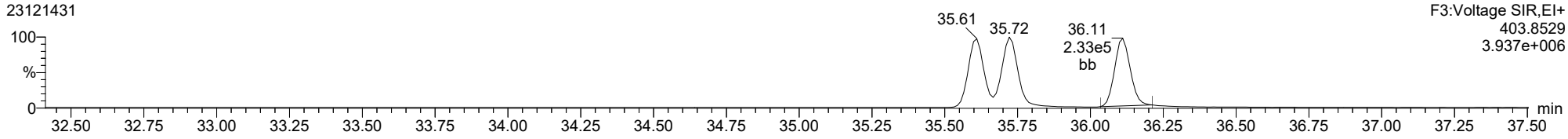
123789-HxCDD



13C-123789-HxCDD

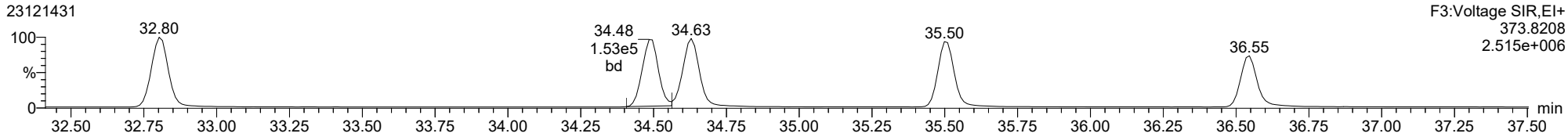


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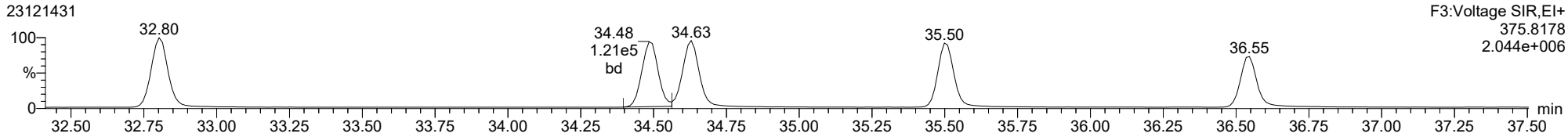


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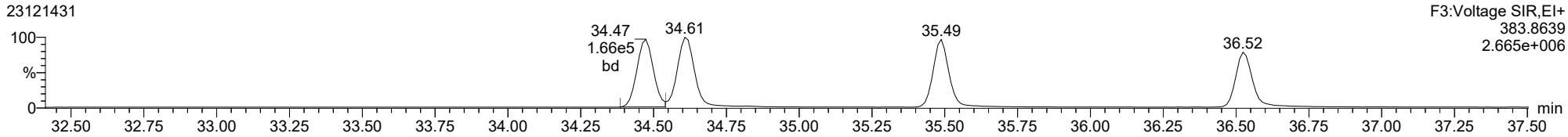
123478-HxCDF



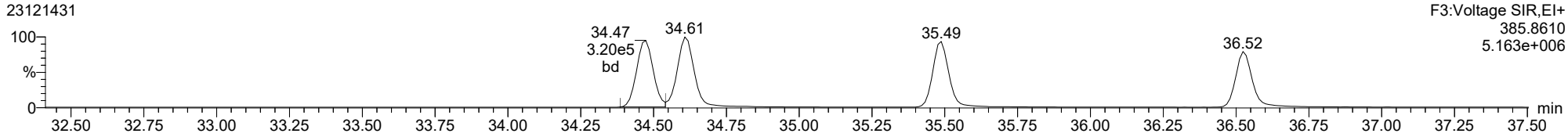
123478-HxCDF



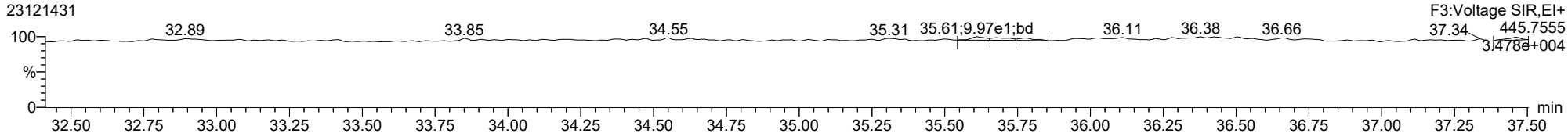
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13C-123478-HxCDF



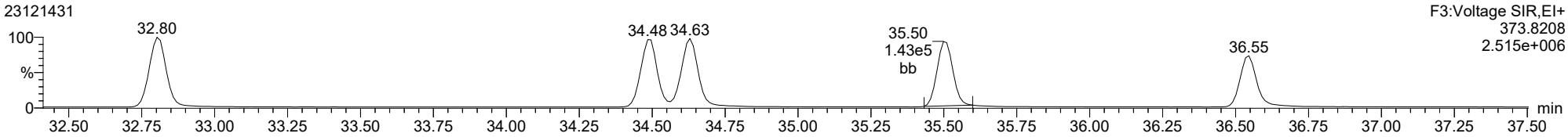
FUNCTION3 OCDPE



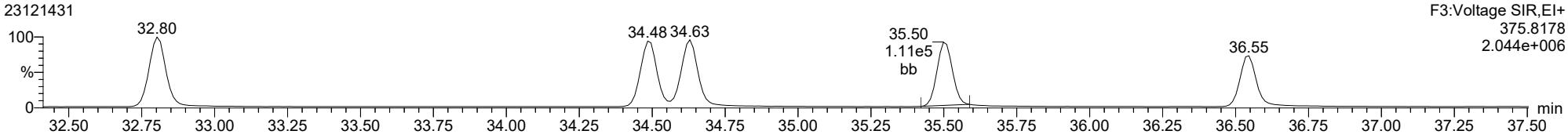
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Printed: Saturday, December 16, 2023 10:37:54 Pacific Standard Time

ID: CS3J4, Name: 23121431, Date: 15-Dec-2023, Time: 15:28:36, Conditions: AUTOSPEC01, User: pk

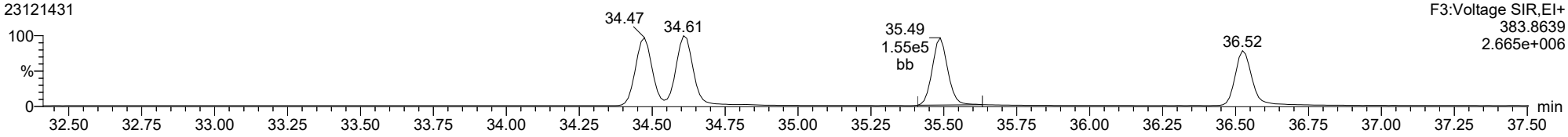
234678-HxCDF



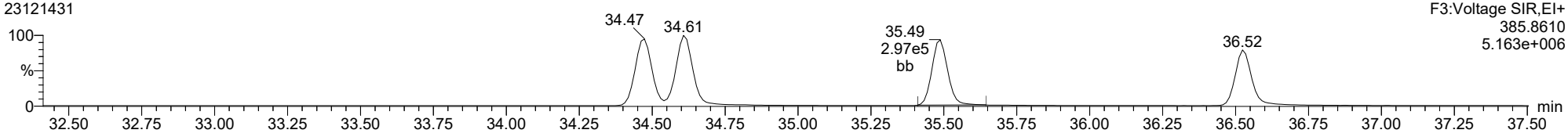
234678-HxCDF



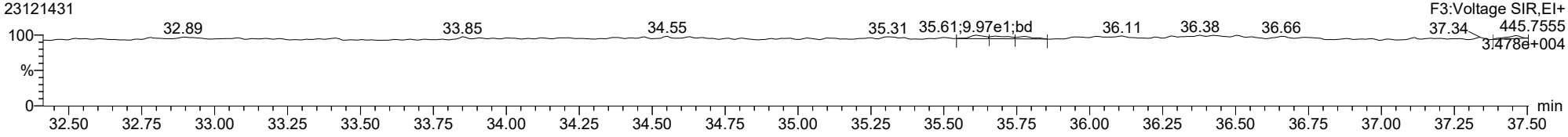
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13C-234678-HxCDF

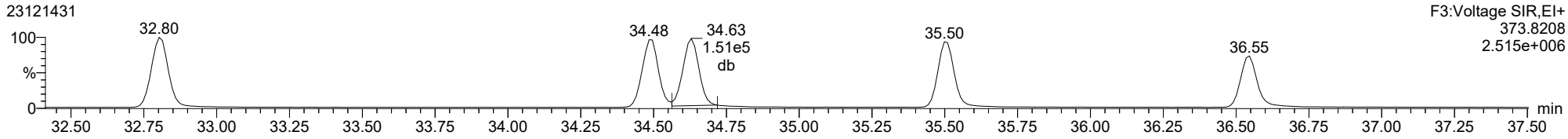


FUNCTION3 OCDPE

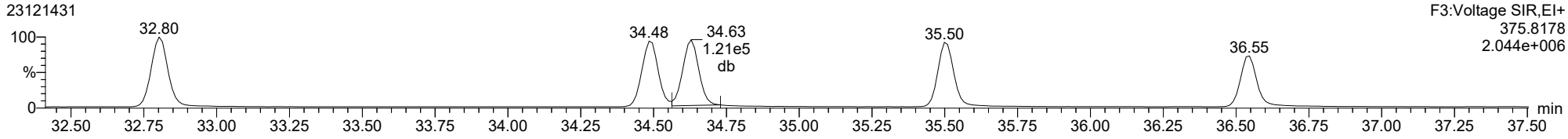


ID: CS3J4, Name: 23121431, Date: 15-Dec-2023, Time: 15:28:36, Conditions: AUTOSPEC01, User: pk

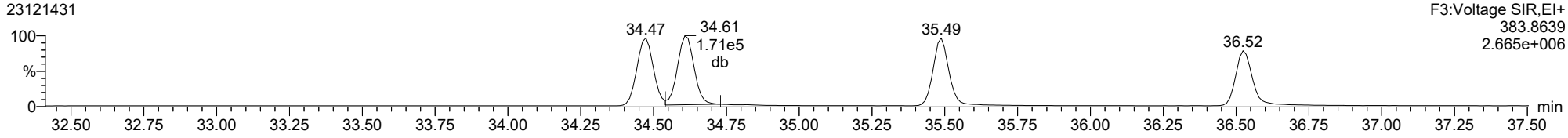
123678-HxCDF



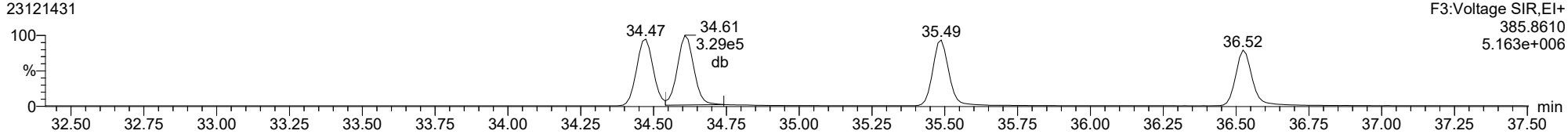
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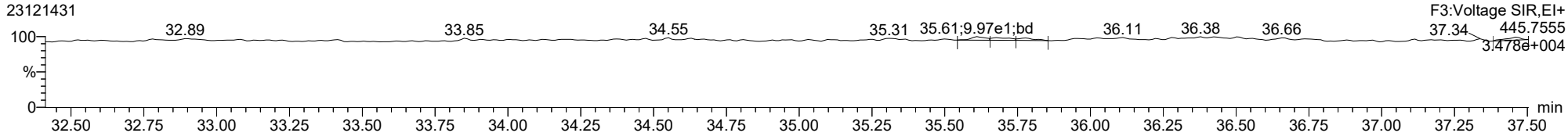
13C-123678-HxCDF



13C-123678-HxCDF

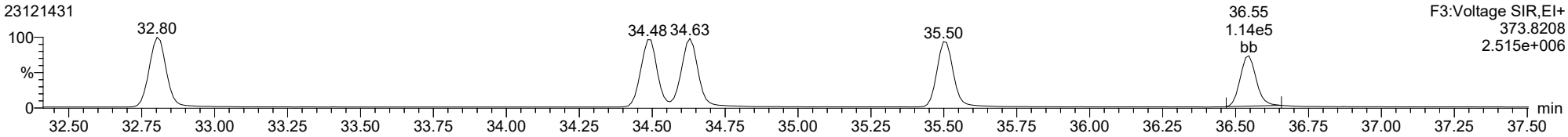


FUNCTION3 OCDPE

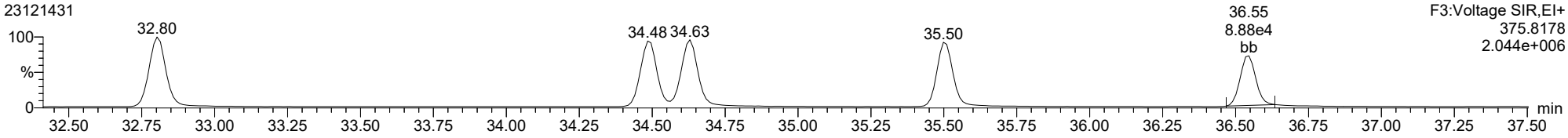


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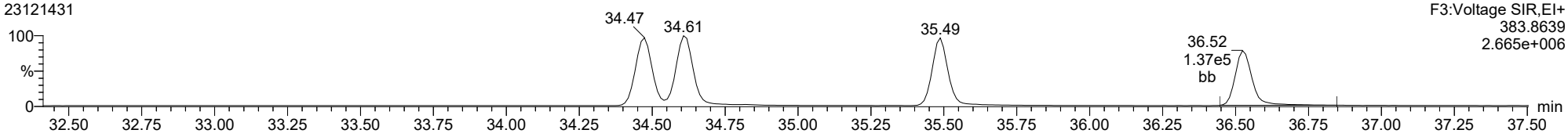
123789-HxCDF



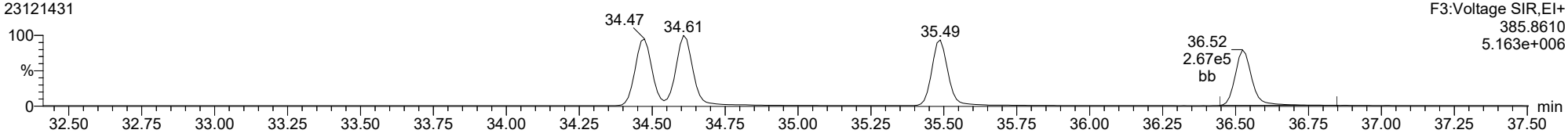
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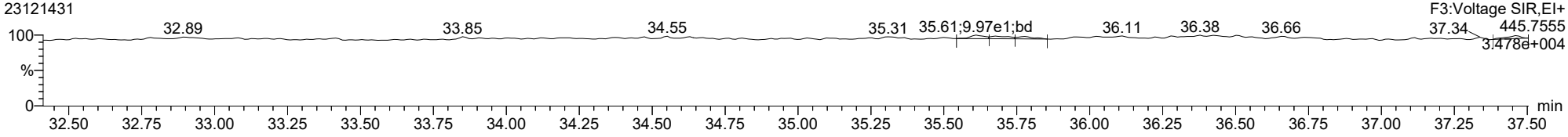
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13C-123789-HxCDF

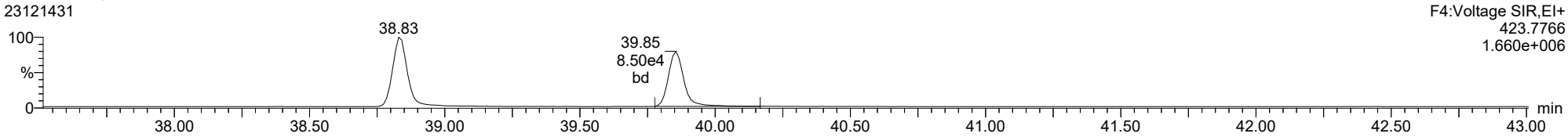


FUNCTION3 OCDPE

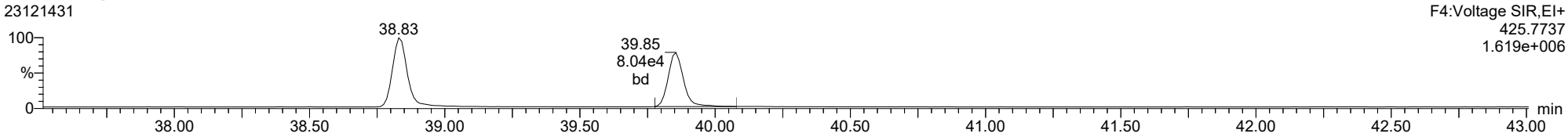


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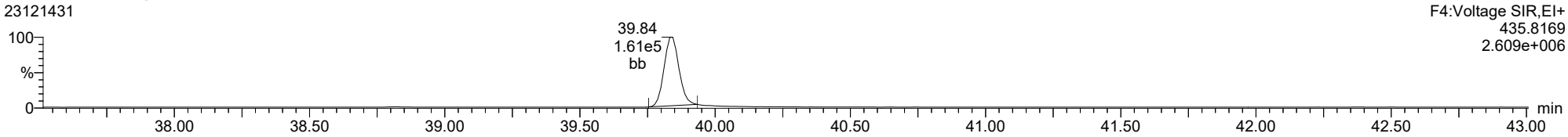
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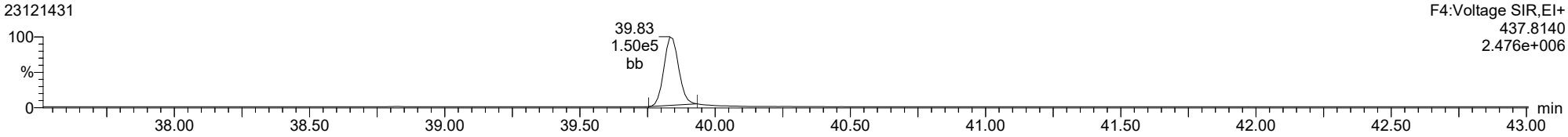
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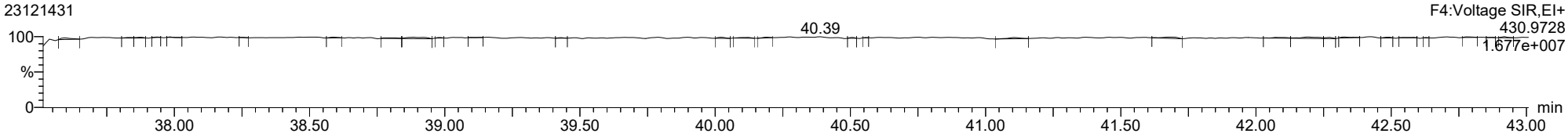
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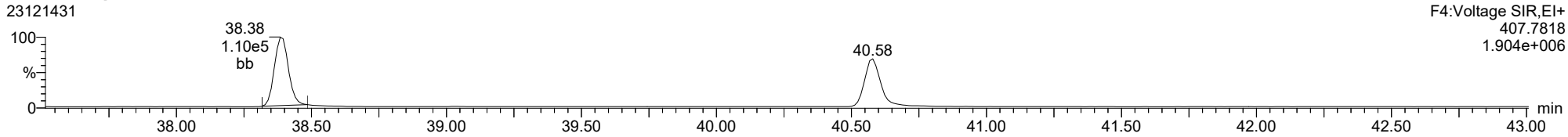


FUNCTION4 PFK

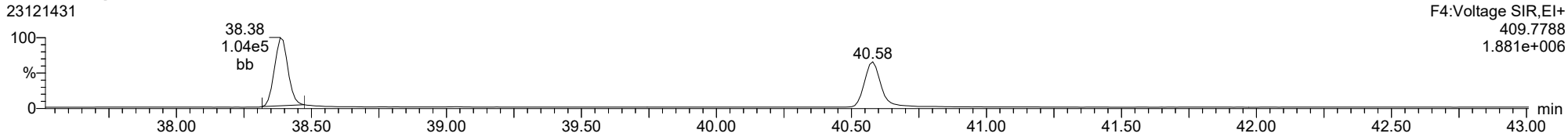


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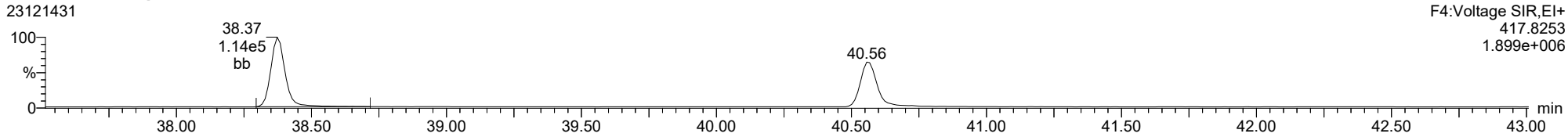
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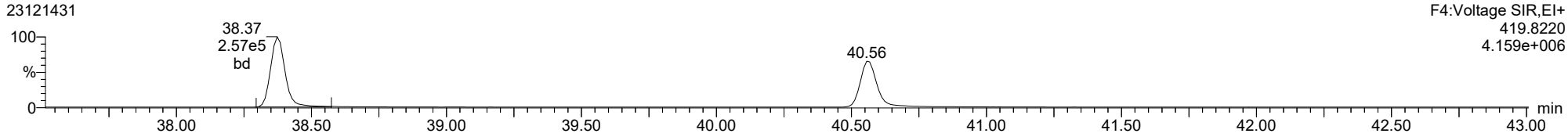
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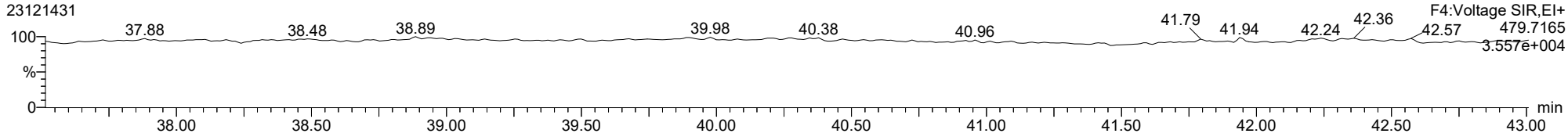
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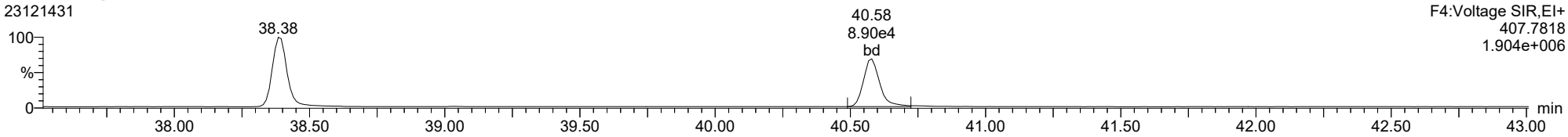
FUNCTION4 NCDPE



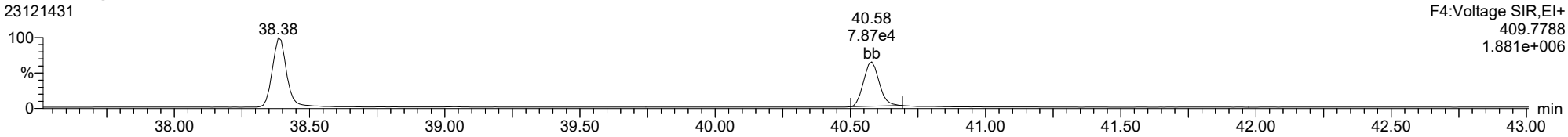
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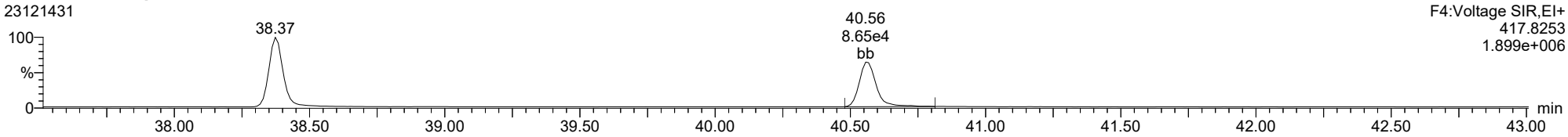
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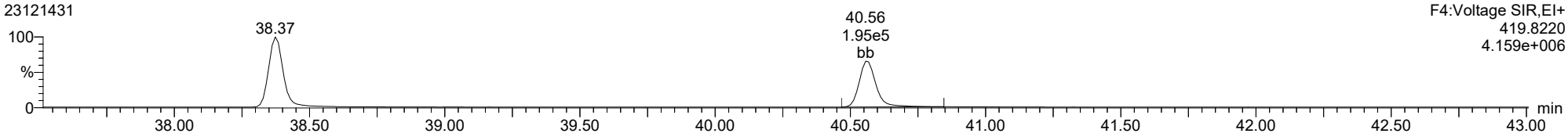
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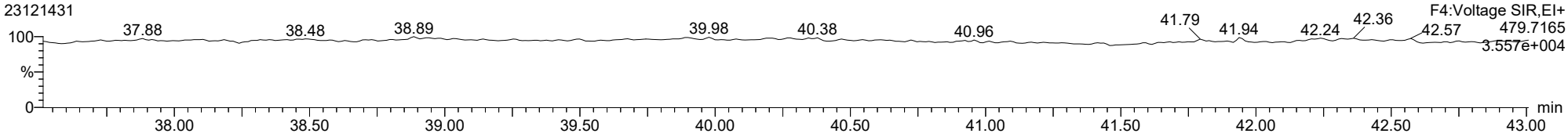
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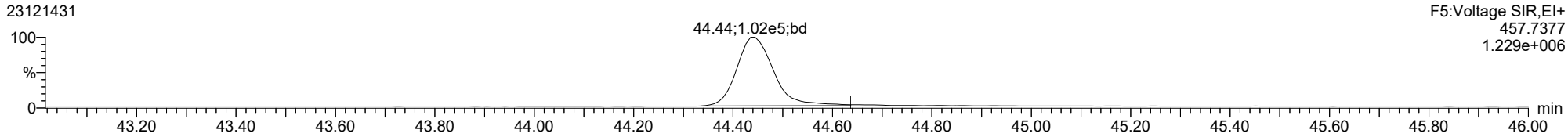


FUNCTION4 NCDPE

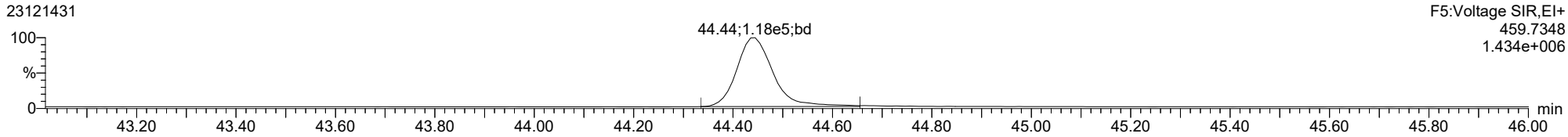


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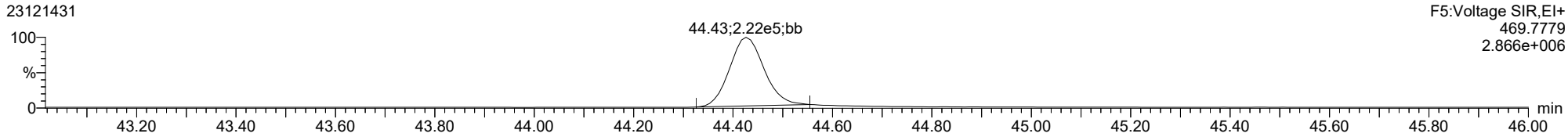
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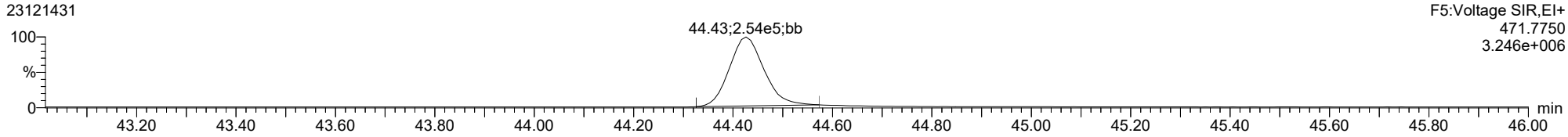
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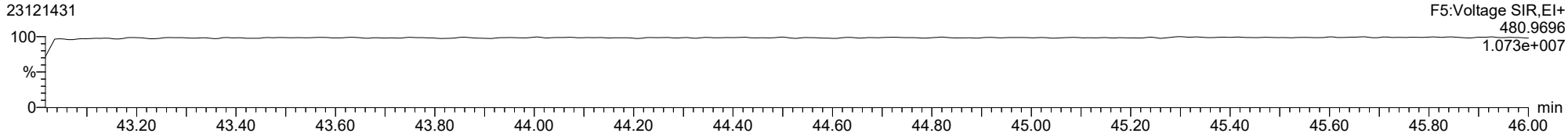
13C-OCDD



13C-OCDD



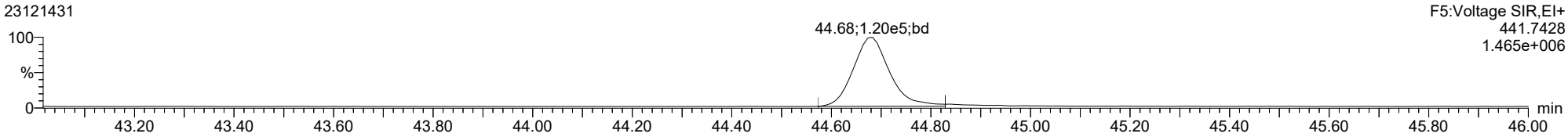
FUNCTION5 PFK



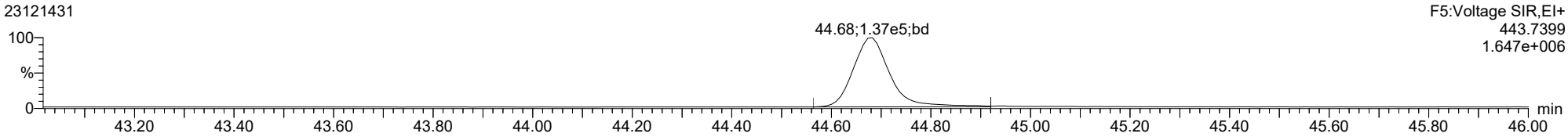
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ID: CS3J4, Name: 23121431, Date: 15-Dec-2023, Time: 15:28:36, Conditions: AUTOSPEC01, User: pk

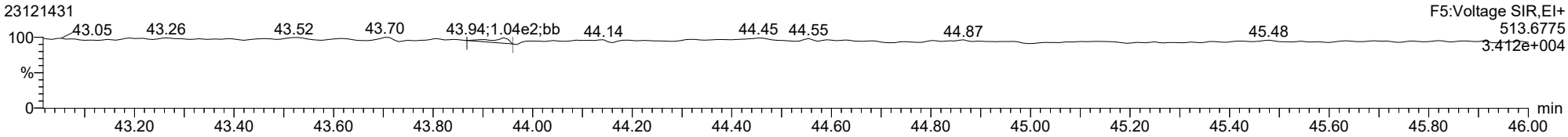
OCDF



OCDF

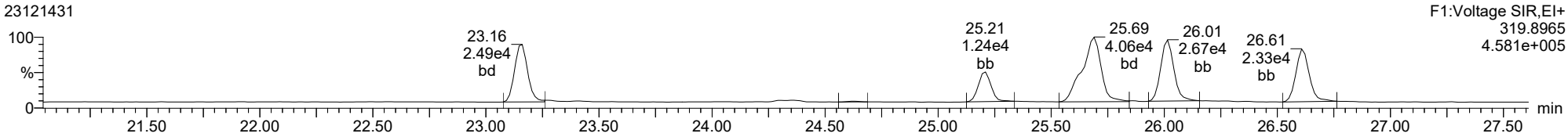


FUNCTION5 DCDPE

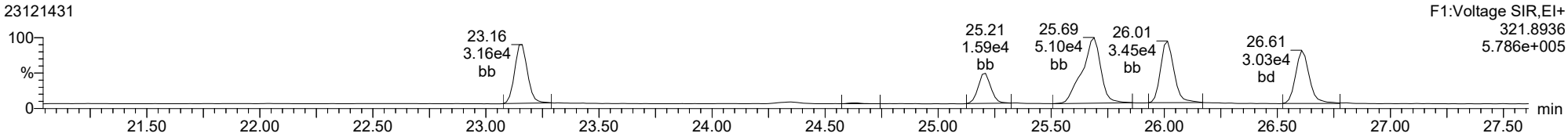


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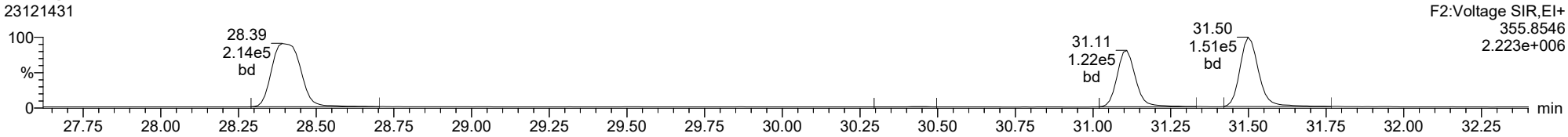
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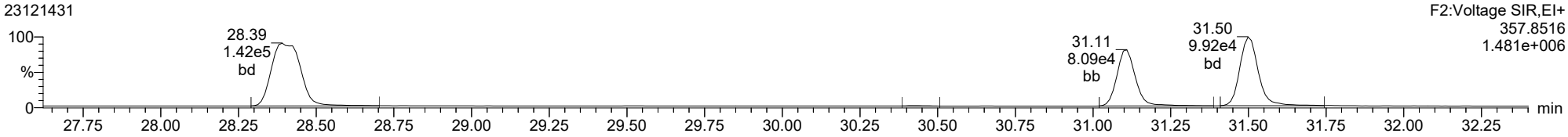
Total-tetradioxins



Total-pentadioxins

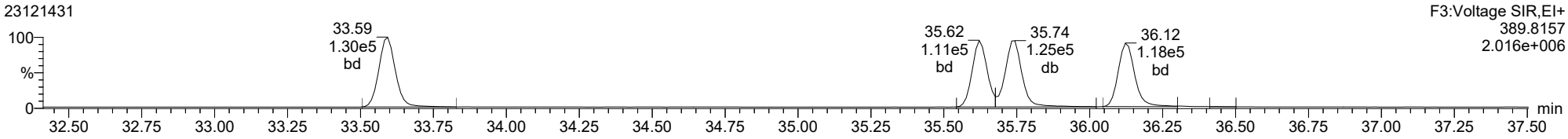


Total-pentadioxins

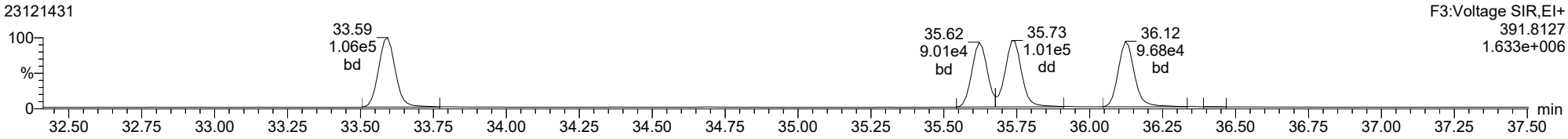


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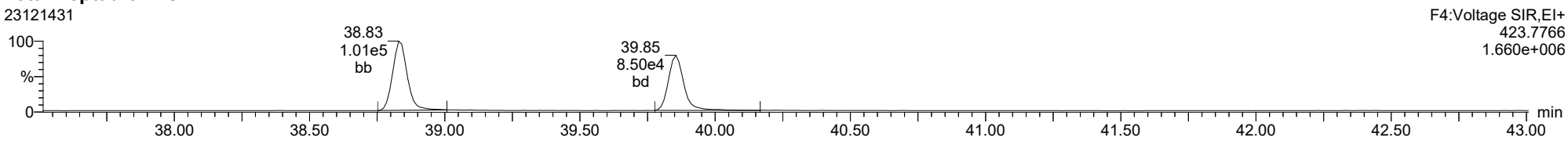
Total-hexadioxins



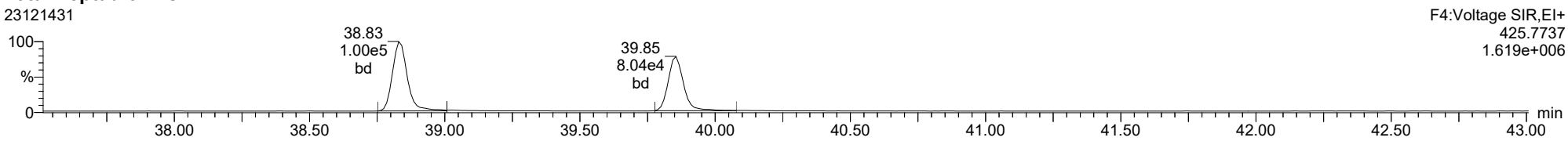
Total-hexadioxins



Total-heptadioxins

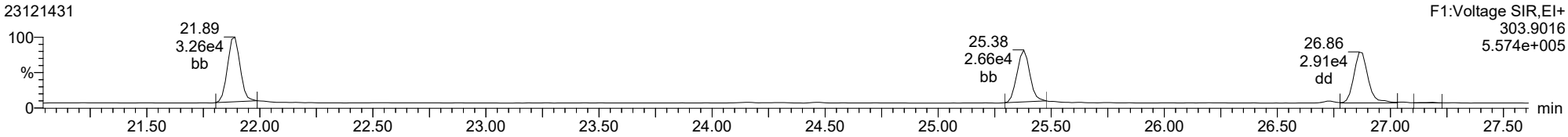


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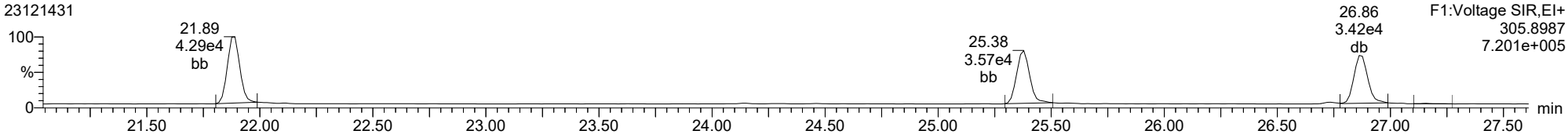


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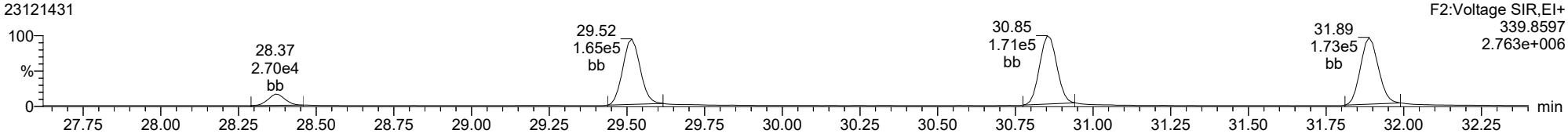
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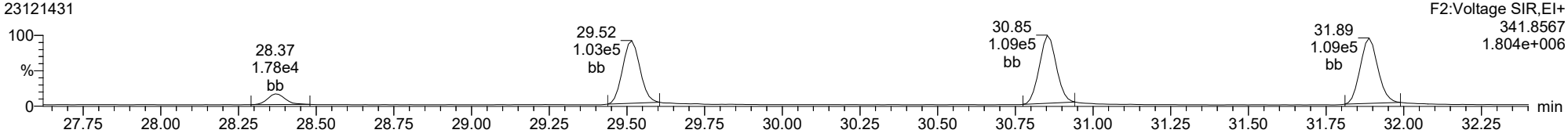
Total-tetrafurans



Total-pentafurans



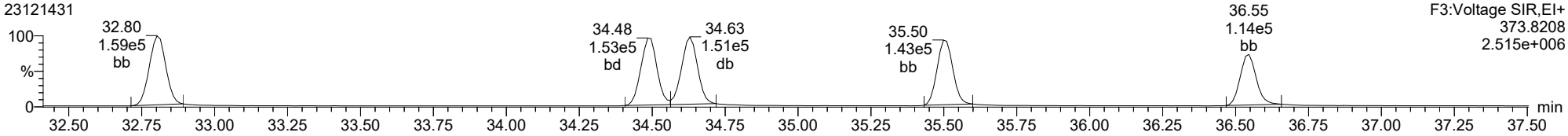
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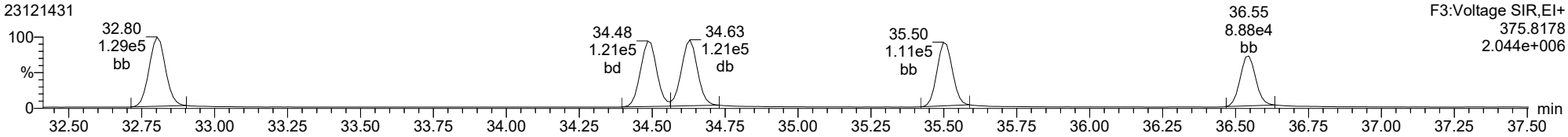
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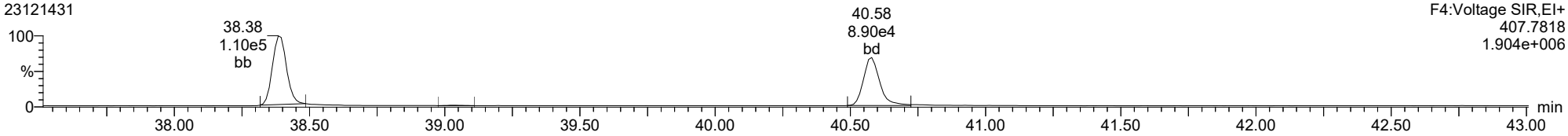
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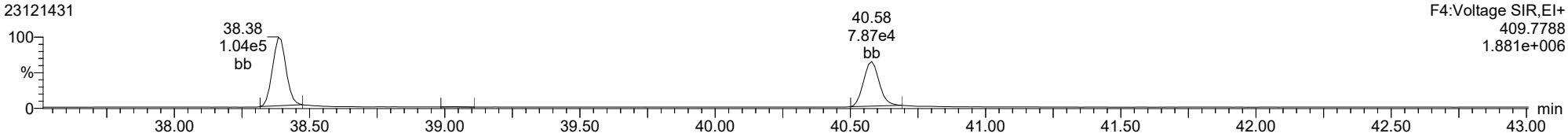
Total-hexafurans



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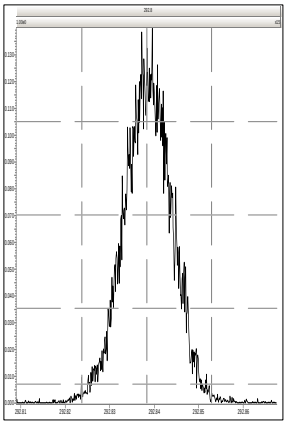


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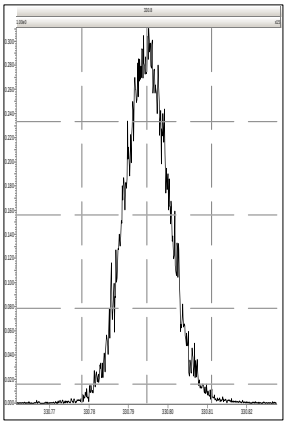


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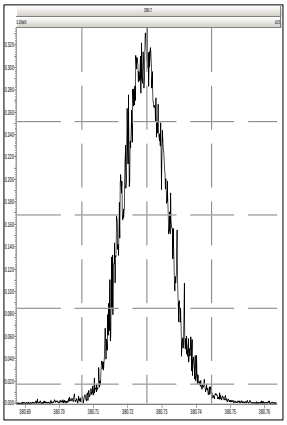
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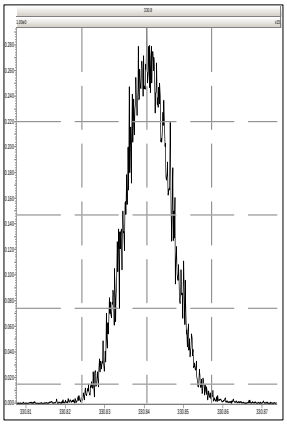
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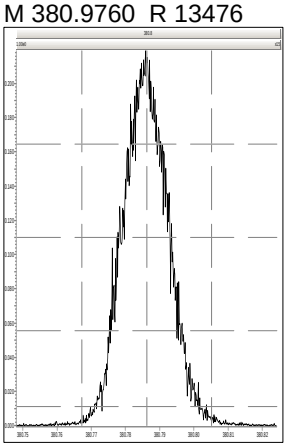
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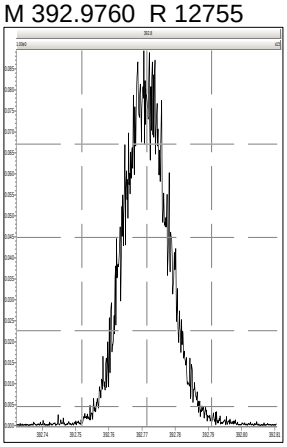
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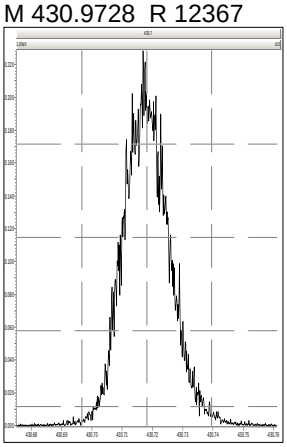
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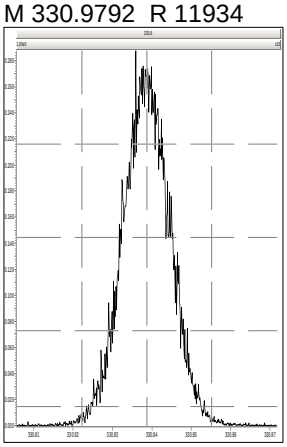
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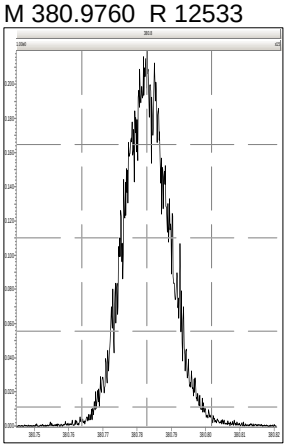
M 430.9728 R 12367



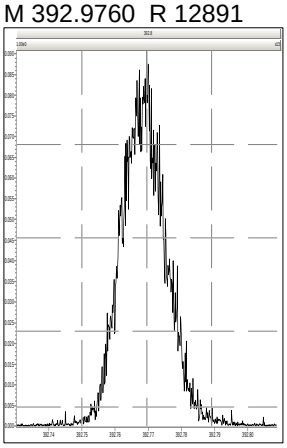
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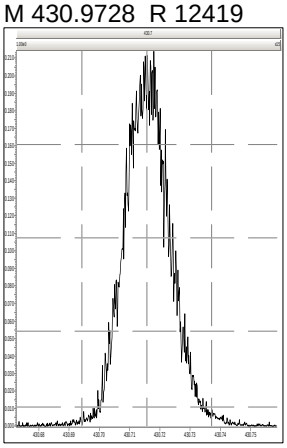
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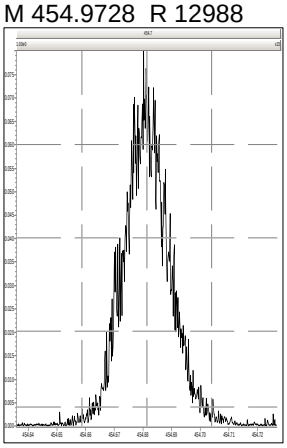
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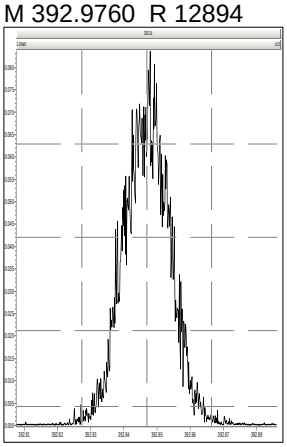
M 430.9728 R 12419



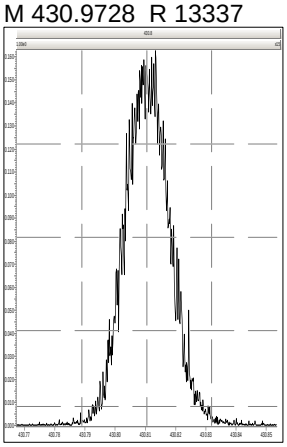
M 454.9728 R 12988



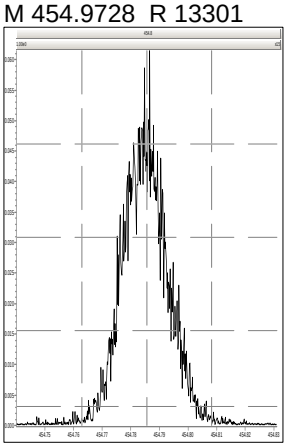
M 392.9760 R 12894



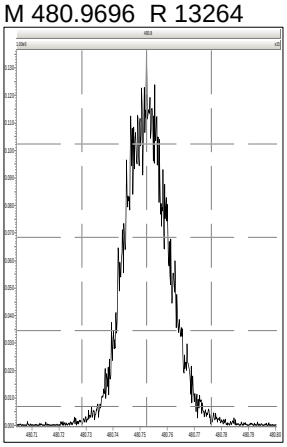
M 430.9728 R 13337



M 454.9728 R 13301

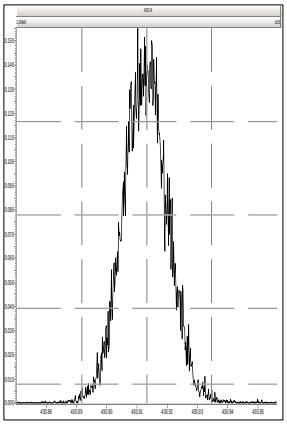


M 480.9696 R 13264

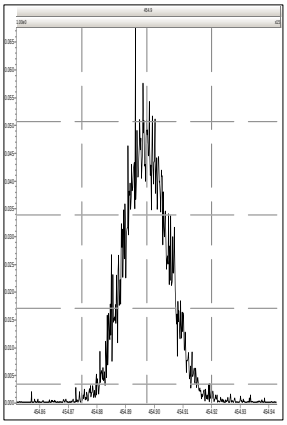


Printed: Friday, December 15, 2023 16:21:26 Pacific Standard Time

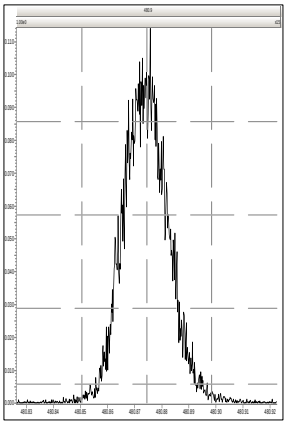
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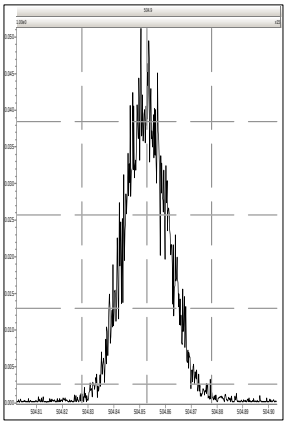
M 454.9728 R 13283



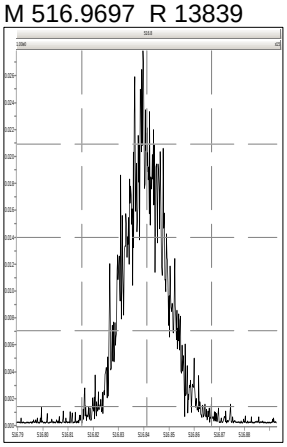
M 480.9696 R 13297

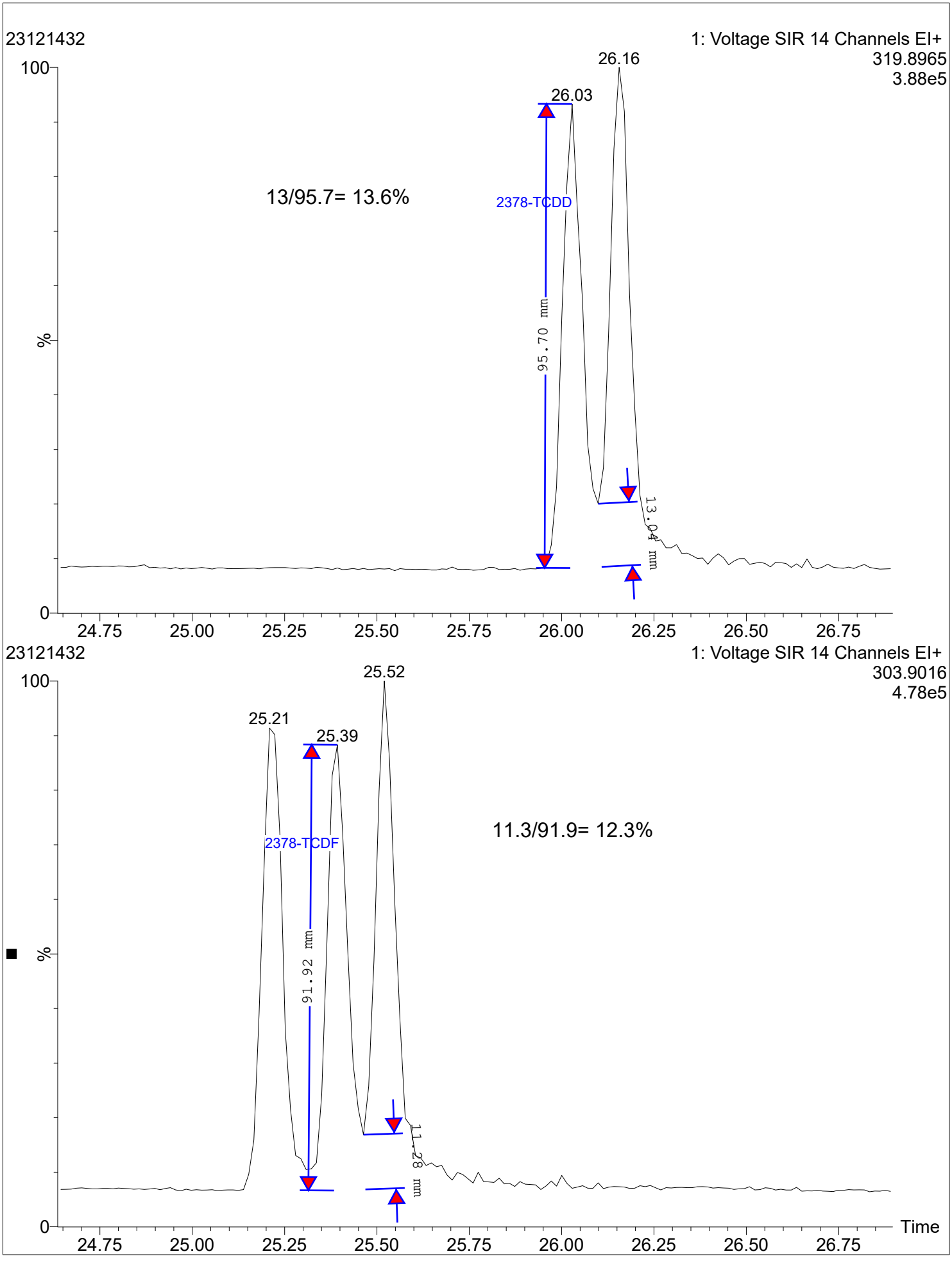


M 504.9696 R 14008



M 516.9697 R 13839




23121432
1: Voltage SIR 14 Channels EI+
319.8965
3.88e5
26.16
26.03
13/95.7= 13.6%
2378-TCDD
95.70 mm
13.04 mm
100
%
0
24.75
25.00
25.25
25.50
25.75
26.00
26.25
26.50
26.75
23121432
1: Voltage SIR 14 Channels EI+
303.9016
4.78e5
25.52
25.21
25.39
11.3/91.9= 12.3%
2378-TCDF
91.92 mm
11.28 mm
100
%
0
Time
24.75
25.00
25.25
25.50
25.75
26.00
26.25
26.50
26.75

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Instrument ID:	AUTOSPEC01	Calibration:	GH00041
Lab File ID:	23121442	Calibration Date:	08/11/2023
Sequence:	SLL0222	Injection Date:	12/16/23
Lab Sample ID:	SLL0222-CCV2	Injection Time:	00:33
Sequence Name:	CS3J5		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF		
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT	
2,3,7,8-TCDF	A	10.000	9.11	0.9031472	0.8223872		-8.9	+/-16	
2,3,7,8-TCDD	A	10.000	9.00	1.2429820	1.1189480		-10.0	+/-22	
1,2,3,7,8-PeCDF	A	50.000	49.3	0.9232368	0.9110750		-1.3	+/-18	
2,3,4,7,8-PeCDF	A	50.000	51.2	0.9906617	1.0143640		2.4	+/-18	
1,2,3,7,8-PeCDD	A	50.000	46.4	1.1500860	1.0662590		-7.3	+/-22	
1,2,3,4,7,8-HxCDF	A	50.000	49.2	1.1281700	1.1104910		-1.6	+/-10	
1,2,3,6,7,8-HxCDF	A	50.000	48.9	1.0323580	1.0092330		-2.2	+/-12	
2,3,4,6,7,8-HxCDF	A	50.000	54.1	1.0814700	1.1704170		8.2	+/-12	
1,2,3,7,8,9-HxCDF	A	50.000	51.1	0.9876148	1.0083560		2.1	+/-10	
1,2,3,4,7,8-HxCDD	A	50.000	42.9	0.9600870	0.8241687		-14.2	+/-22	
1,2,3,6,7,8-HxCDD	A	50.000	48.3	0.8826935	0.8518577		-3.5	+/-22	
1,2,3,7,8,9-HxCDD	A	50.000	50.8	0.8037436	0.8160583		1.5	+/-18	
1,2,3,4,6,7,8-HpCDF	A	50.000	48.4	1.1637090	1.1275170		-3.1	+/-10	
1,2,3,4,7,8,9-HpCDF	A	50.000	53.2	1.1036300	1.1752190		6.5	+/-14	
1,2,3,4,6,7,8-HpCDD	A	50.000	43.6	1.1996030	1.0470130		-12.7	+/-14	
OCDF	A	100.00	83.6	1.1302050	0.9454002		-16.4	+/-37	
OCDD	A	100.00	87.3	1.0586660	0.9244615		-12.7	+/-21	
13C12-2,3,7,8-TCDF	A	100.00	88.8	1.8353850	1.6305527		-11.2	+/-29	
13C12-2,3,7,8-TCDD	A	100.00	105	1.1095460	1.1641778		4.9	+/-18	
13C12-1,2,3,7,8-PeCDF	A	100.00	89.5	1.3765480	1.2316863		-10.5	+/-24	
13C12-2,3,4,7,8-PeCDF	A	100.00	90.2	1.3012340	1.1732374		-9.8	+/-23	
13C12-1,2,3,7,8-PeCDD	A	100.00	107	0.7536802	0.8066359		7.0	+/-38	
13C12-1,2,3,4,7,8-HxCDF	A	100.00	87.3	1.0906500	0.9519206		-12.7	+/-24	
13C12-1,2,3,6,7,8-HxCDF	A	100.00	81.8	1.3402290	1.0964297		-18.2	+/-30	
13C12-2,3,4,6,7,8-HxCDF	A	100.00	83.6	1.0934470	0.9138643		-16.4	+/-27	
13C12-1,2,3,7,8,9-HxCDF	A	100.00	81.5	0.9516050	0.7760155		-18.5	+/-26	
13C12-1,2,3,4,7,8-HxCDD	A	100.00	103	0.9598962	0.9857262		2.7	+/-15	
13C12-1,2,3,6,7,8-HxCDD	A	100.00	95.1	1.1592550	1.1024706		-4.9	+/-15	
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	75.5	0.9849488	0.7438485		-24.5	+/-22	*
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	70.1	0.7558011	0.5300777		-29.9	+/-23	*
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	94.0	0.6292861	0.5914093		-6.0	+/-28	
13C12-OCDD	A	200.00	148	0.6351422	0.4702915		-26.0	+/-52	
37Cl4-2,3,7,8-TCDD	A	10.000	10.0	1.1573510	1.1630174		0.5		

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\231214IH2.qld
Last Altered: Saturday, December 16, 2023 10:26:00 Pacific Standard Time
Printed: Saturday, December 16, 2023 10:41:36 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin231215.mdb 15 Dec 2023 13:28:43
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

ID: CS3J5, Name: 23121442, Date: 16-Dec-2023, Time: 00:33:30, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.379	1.001	2.491e4	3.096e4	0.903	0.805	0.770	1071	851	4.02e5	4.82e5	375.5	566.7	NO	bb	bb	9.106
12378-PeCDF	29.515	1.000	1.424e5	9.139e4	0.923	1.558	1.550	1781	2445	2.17e6	1.37e6	1215.4	561.3	NO	bb	bb	49.341
23478-PeCDF	30.864	1.001	1.523e5	9.564e4	0.991	1.592	1.550	1781	2445	2.35e6	1.43e6	1320.1	584.6	NO	bb	bb	51.196
123478-HxCDF	34.496	1.001	1.293e5	1.024e5	1.128	1.262	1.240	1623	1313	2.00e6	1.57e6	1230.3	1199.3	NO	bd	bd	49.217
234678-HxCDF	35.510	1.001	1.365e5	9.800e4	1.081	1.393	1.240	1623	1313	2.04e6	1.60e6	1255.8	1220.7	NO	bb	bb	54.112
123678-HxCDF	34.630	1.000	1.354e5	1.073e5	1.032	1.262	1.240	1623	1313	2.04e6	1.63e6	1256.1	1237.9	NO	db	db	48.880
123789-HxCDF	36.546	1.000	1.002e5	7.132e4	0.988	1.406	1.240	1623	1313	1.44e6	1.13e6	884.6	859.2	NO	bb	bb	51.050
1234678-HpCDF	38.395	1.000	9.486e4	8.902e4	1.164	1.066	1.050	1165	1674	1.57e6	1.45e6	1347.9	866.7	NO	bb	bb	48.445
1234789-HpCDF	40.579	1.000	6.687e4	6.971e4	1.104	0.959	1.050	1165	1674	9.70e5	9.33e5	833.1	557.1	NO	bb	bd	53.243
OCDF	44.683	1.006	9.090e4	1.041e5	1.130	0.874	0.890	1374	1009	1.07e6	1.22e6	782.1	1208.5	NO	bb	bd	83.649
2378-TCDD	26.014	1.000	2.264e4	3.164e4	1.243	0.716	0.770	881	987	3.47e5	4.43e5	394.1	448.5	NO	bb	dd	9.002
12378-PeCDD	31.109	1.001	1.075e5	7.169e4	1.150	1.499	1.550	1228	1343	1.54e6	1.02e6	1255.1	759.4	NO	bd	bb	46.356
123478-HxCDD	35.632	1.001	9.769e4	8.043e4	0.960	1.215	1.240	1182	1170	1.54e6	1.25e6	1303.7	1065.0	NO	bd	bd	42.922
123678-HxCDD	35.744	1.000	1.126e5	9.328e4	0.883	1.207	1.240	1182	1170	1.65e6	1.33e6	1395.4	1138.3	NO	dd	dd	48.253
123789-HxCDD	36.133	1.011	1.009e5	8.589e4	0.804	1.175	1.240	1182	1170	1.46e6	1.21e6	1238.4	1034.7	NO	bd	dd	50.766
1234678-HpCDD	39.855	1.000	6.724e4	6.852e4	1.200	0.981	1.050	1315	1543	1.02e6	9.94e5	778.4	644.0	NO	bb	bd	43.640
OCDD	44.445	1.000	8.886e4	1.018e5	1.059	0.873	0.890	730	1239	1.04e6	1.16e6	1419.0	937.3	NO	bb	bd	87.323
13C-2378-TCDF	25.365	1.007	2.943e5	3.851e5	1.835	0.764	0.770	913	1215	4.23e6	5.50e6	4635.9	4526.4	NO	bb	bb	88.840
13C-12378-PeCDF	29.504	1.172	3.099e5	2.032e5	1.377	1.525	1.550	1868	1448	4.36e6	2.89e6	2332.7	1998.7	NO	bd	bd	89.476
13C-23478-PeCDF	30.841	1.225	2.958e5	1.931e5	1.301	1.532	1.550	1868	1448	4.26e6	2.82e6	2279.6	1947.7	NO	bd	bd	90.163
13C-123478-HxCDF	34.473	0.955	1.440e5	2.734e5	1.091	0.527	0.510	1394	1809	2.15e6	4.21e6	1543.6	2329.6	NO	bd	bd	87.280
13C-123678-HxCDF	34.618	0.959	1.532e5	3.276e5	1.340	0.468	0.510	1394	1809	2.20e6	4.35e6	1580.8	2403.9	NO	db	db	81.809
13C-234678-HxCDF	35.487	0.983	1.347e5	2.660e5	1.093	0.506	0.510	1394	1809	2.04e6	4.03e6	1462.9	2227.9	NO	bb	bb	83.576
13C-123789-HxCDF	36.535	1.012	1.150e5	2.253e5	0.952	0.510	0.510	1394	1809	1.63e6	3.10e6	1170.9	1714.4	NO	bb	bb	81.548
13C-1234678-HpCDF	38.384	1.063	9.929e4	2.269e5	0.985	0.438	0.440	926	1548	1.53e6	3.46e6	1646.5	2237.9	NO	bb	bd	75.522
13C-1234789-HpCDF	40.568	1.123	7.049e4	1.619e5	0.756	0.435	0.440	926	1548	9.69e5	2.14e6	1046.5	1384.1	NO	bb	bb	70.135
13C-1234-TCDD	25.181	0.000	1.835e5	2.331e5	1.000	0.787	0.770	1123	763	2.80e6	3.61e6	2493.3	4735.7	NO	bb	bb	100.000
13C-2378-TCDD	26.000	1.033	2.150e5	2.700e5	1.110	0.796	0.770	1123	763	3.17e6	4.00e6	2825.1	5244.0	NO	bb	bb	104.924
13C-12378-PeCDD	31.087	1.235	2.071e5	1.290e5	0.754	1.605	1.550	1009	970	3.12e6	1.97e6	3094.3	2031.2	NO	bb	bb	107.026
13C-123478-HxCDD	35.610	0.986	2.393e5	1.930e5	0.960	1.240	1.240	1080	924	3.96e6	3.16e6	3667.3	3423.9	NO	bd	bd	102.691
13C-123678-HxCDD	35.732	0.989	2.682e5	2.153e5	1.159	1.246	1.240	1080	924	3.87e6	3.22e6	3580.7	3484.5	NO	db	db	95.102
13C-1234678-HpCDD	39.844	1.103	1.353e5	1.240e5	0.629	1.091	1.050	1021	978	2.07e6	1.90e6	2032.4	1943.8	NO	bb	bb	93.981
13C-OCDD	44.436	1.230	1.940e5	2.185e5	0.635	0.888	0.890	1340	1492	2.36e6	2.63e6	1759.4	1761.8	NO	bb	bb	148.090
13C-123789-HxCDD	36.111	0.000	2.401e5	1.984e5	1.000	1.210	1.240	1080	924	3.77e6	3.10e6	3487.3	3360.7	NO	bb	bb	100.000
37CL-2378-TCDD	26.014	1.033	4.846e4		1.157			1086		7.28e5		670.1			bb		10.049

Dataset: T:\Autospec\Processed Data Batch\231214IH2.qld
Last Altered: Saturday, December 16, 2023 10:26:00 Pacific Standard Time
Printed: Saturday, December 16, 2023 10:41:36 Pacific Standard Time

ID: CS3J5, Name: 23121442, Date: 16-Dec-2023, Time: 00:33:30, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.890	0.863	3.036e4	3.980e4	1.170	0.763	0.770	1071	851	4.75e5	6.15e5	443.1	723.0	NO	bb	bb	8.823
1289-TCDF	26.876	1.060	2.243e4	2.880e4	0.847	0.779	0.770	1071	851	3.52e5	4.37e5	328.6	513.4	NO	bb	bb	8.906
13468-PECDF	26.721	0.906	2.075e5	1.366e5	1.241	1.518	1.550	623	637	3.18e6	2.08e6	5108.6	3256.4	NO	bb	bb	54.033
12389-PECDF	31.900	1.081	1.378e5	9.049e4	0.880	1.523	1.550	1781	2445	1.96e6	1.29e6	1102.4	528.8	NO	bb	bb	50.583
123468-HXCDF	32.802	0.951	1.382e5	1.113e5	1.206	1.242	1.240	1623	1313	2.04e6	1.63e6	1259.8	1241.3	NO	bb	bb	49.566
1368-TCDD	23.161	0.891	2.235e4	2.851e4	1.181	0.784	0.770	881	987	3.41e5	4.55e5	387.1	460.7	NO	bb	bb	8.879
1289-TCDD	26.608	1.023	2.077e4	2.479e4	0.963	0.838	0.770	881	987	2.90e5	3.58e5	328.6	362.8	NO	bb	bb	9.757
12479-PECDD	28.390	0.913	1.922e5	1.247e5	2.166	1.541	1.550	1228	1343	1.82e6	1.17e6	1482.6	873.6	NO	bb	bd	43.531
12389-PECDD	31.510	1.014	1.284e5	8.463e4	1.326	1.517	1.550	1228	1343	1.81e6	1.18e6	1471.5	880.6	NO	bd	bd	47.792
124679-HXCDD	33.593	0.943	1.145e5	9.469e4	1.127	1.209	1.240	1182	1170	1.73e6	1.44e6	1462.6	1229.2	NO	bd	bd	42.951
1234679-HPCDD	38.841	0.975	8.860e4	8.800e4	1.303	1.007	1.050	1315	1543	1.35e6	1.34e6	1023.5	867.4	NO	bd	bb	52.278
Total-tetrafurans			7.770e4		0.973			1071		1.23e6							26.836
Total-penta1			2.075e5					623		3.18e6							54.033
Total-pentafurans			4.573e5		0.931			1781		6.85e6							159.862
Total-hexafurans			6.396e5		1.087			1623		9.55e6							252.825
Total-heptafurans			1.617e5		1.134			1165		2.54e6							101.688
Total-Furans			1.635e6		1.053			1071		2.44e7							678.893
Total-tetradioxins			1.127e5		1.129			881		1.51e6							47.226
Total-pentadioxins			4.286e5		1.548			1228		5.18e6							137.846
Total-hexadioxins			4.261e5		0.943			1182		6.39e6							185.049
Total-heptadioxins			1.558e5		1.251			1315		2.37e6							95.918
Total-Dioxins			1.212e6		1.182			881		1.65e7							553.362
Total-TEQ			2.847e6					881		4.09e7							1232.255
FUNCTION1 PFK			5.169e4					238849		1.57e6							
FUNCTION2 PFK			8.340e4					79328		2.54e6							0.000
FUNCTION3 PFK			1.064e6					185397		1.88e7							0.000
FUNCTION4 PFK			1.355e5					150237		1.29e5							
FUNCTION5 PFK			2.838e4					90586		1.22e6							
FUNCTION1 HXCD...			0.000e0					464		0.00e0							
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			1.838e2					606		2.92e3							0.000
FUNCTION3 OCDPE			0.000e0					369		0.00e0							
FUNCTION4 NCDPE			0.000e0					499		0.00e0							
FUNCTION5 DCDPE			0.000e0					352		0.00e0							

Method: T:\Autospec\Methods\Dioxin231215.mdb 15 Dec 2023 13:28:43
Calibration: T:\Autospec\Curves\230811ICIH.cdb 12 Aug 2023 09:45:18

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.88	2.243e4	2.880e4	0.847	0.78	0.77	328.6	YES	NO	bb	bb	8.906
2	2378-TCDF	25.38	2.491e4	3.096e4	0.903	0.80	0.77	375.5	YES	NO	bb	bb	9.106
3	1368-TCDF	21.89	3.036e4	3.980e4	1.170	0.76	0.77	443.1	YES	NO	bb	bb	8.823

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.72	2.075e5	1.366e5	1.241	1.52	1.55	5108.6	YES	NO	bb	bb	54.033

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	31.90	1.378e5	9.049e4	0.880	1.52	1.55	1102.4	YES	NO	bb	bb	50.583
2	23478-PeCDF	30.86	1.523e5	9.564e4	0.991	1.59	1.55	1320.1	YES	NO	bb	bb	51.196
3	12378-PeCDF	29.52	1.424e5	9.139e4	0.923	1.56	1.55	1215.4	YES	NO	bb	bb	49.341
4	Total-pentafurans	28.38	2.481e4	1.597e4	0.931	1.55	1.55	209.7	YES	NO	bb	bb	8.741

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.55	1.002e5	7.132e4	0.988	1.41	1.24	884.6	YES	NO	bb	bb	51.050
2	234678-HxCDF	35.51	1.365e5	9.800e4	1.081	1.39	1.24	1255.8	YES	NO	bb	bb	54.112
3	123678-HxCDF	34.63	1.354e5	1.073e5	1.032	1.26	1.24	1256.1	YES	NO	db	db	48.880
4	123478-HxCDF	34.50	1.293e5	1.024e5	1.128	1.26	1.24	1230.3	YES	NO	bd	bd	49.217
5	123468-HXCDF	32.80	1.382e5	1.113e5	1.206	1.24	1.24	1259.8	YES	NO	bb	bb	49.566

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.40	9.486e4	8.902e4	1.164	1.07	1.05	1347.9	YES	NO	bb	bb	48.445
2	1234789-HpCDF	40.58	6.687e4	6.971e4	1.104	0.96	1.05	833.1	YES	NO	bb	bd	53.243

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.88	2.243e4	2.880e4	0.847	0.78	0.77	328.6	YES	NO	bb	bb	8.906
2	2378-TCDF	25.38	2.491e4	3.096e4	0.903	0.80	0.77	375.5	YES	NO	bb	bb	9.106
3	1368-TCDF	21.89	3.036e4	3.980e4	1.170	0.76	0.77	443.1	YES	NO	bb	bb	8.823
4	12389-PECDF	31.90	1.378e5	9.049e4	0.880	1.52	1.55	1102.4	YES	NO	bb	bb	50.583
5	23478-PeCDF	30.86	1.523e5	9.564e4	0.991	1.59	1.55	1320.1	YES	NO	bb	bb	51.196
6	12378-PeCDF	29.52	1.424e5	9.139e4	0.923	1.56	1.55	1215.4	YES	NO	bb	bb	49.341
7	Total-pentafurans	28.38	2.481e4	1.597e4	0.931	1.55	1.55	209.7	YES	NO	bb	bb	8.741
8	123789-HxCDF	36.55	1.002e5	7.132e4	0.988	1.41	1.24	884.6	YES	NO	bb	bb	51.050
9	234678-HxCDF	35.51	1.365e5	9.800e4	1.081	1.39	1.24	1255.8	YES	NO	bb	bb	54.112
10	123678-HxCDF	34.63	1.354e5	1.073e5	1.032	1.26	1.24	1256.1	YES	NO	db	db	48.880
11	123478-HxCDF	34.50	1.293e5	1.024e5	1.128	1.26	1.24	1230.3	YES	NO	bd	bd	49.217
12	123468-HXCDF	32.80	1.382e5	1.113e5	1.206	1.24	1.24	1259.8	YES	NO	bb	bb	49.566
13	1234678-HpCDF	38.40	9.486e4	8.902e4	1.164	1.07	1.05	1347.9	YES	NO	bb	bb	48.445
14	1234789-HpCDF	40.58	6.687e4	6.971e4	1.104	0.96	1.05	833.1	YES	NO	bb	bd	53.243
15	OCDF	44.68	9.090e4	1.041e5	1.130	0.87	0.89	782.1	YES	NO	bb	bd	83.649
16	13468-PECDF	26.72	2.075e5	1.366e5	1.241	1.52	1.55	5108.6	YES	NO	bb	bb	54.033

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.61	2.077e4	2.479e4	0.963	0.84	0.77	328.6	YES	NO	bb	bb	9.757
2	2378-TCDD	26.01	2.264e4	3.164e4	1.243	0.72	0.77	394.1	YES	NO	bb	dd	9.002
3	Total-tetradioxins	25.69	3.522e4	4.562e4	1.129	0.77	0.77	397.2	YES	NO	bb	bd	14.762
4	Total-tetradioxins	25.21	1.169e4	1.474e4	1.129	0.79	0.77	206.5	YES	NO	bd	bd	4.826
5	1368-TCDD	23.16	2.235e4	2.851e4	1.181	0.78	0.77	387.1	YES	NO	bb	bb	8.879

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.51	1.284e5	8.463e4	1.326	1.52	1.55	1471.5	YES	NO	bd	bd	47.792
2	12378-PeCDD	31.11	1.075e5	7.169e4	1.150	1.50	1.55	1255.1	YES	NO	bd	bb	46.356
3	Total-pentadioxins	30.44	5.073e2	3.582e2	1.548	1.42	1.55	6.1	YES	NO	bb	bb	0.166
4	12479-PECDD	28.39	1.922e5	1.247e5	2.166	1.54	1.55	1482.6	YES	NO	bb	bd	43.531

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.13	1.009e5	8.589e4	0.804	1.17	1.24	1238.4	YES	NO	bd	dd	50.766
2	123678-HxCDD	35.74	1.126e5	9.328e4	0.883	1.21	1.24	1395.4	YES	NO	dd	dd	48.253
3	123478-HxCDD	35.63	9.769e4	8.043e4	0.960	1.21	1.24	1303.7	YES	NO	bd	bd	42.922
4	Total-hexadioxins	33.85	3.526e2	3.272e2	0.943	1.08	1.24	7.6	YES	NO	dd	dd	0.157
5	124679-HXCDD	33.59	1.145e5	9.469e4	1.127	1.21	1.24	1462.6	YES	NO	bd	bd	42.951

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.85	6.724e4	6.852e4	1.200	0.98	1.05	778.4	YES	NO	bb	bd	43.640
2	1234679-HPCDD	38.84	8.860e4	8.800e4	1.303	1.01	1.05	1023.5	YES	NO	bd	bb	52.278

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.61	2.077e4	2.479e4	0.963	0.84	0.77	328.6	YES	NO	bb	bb	9.757
2	2378-TCDD	26.01	2.264e4	3.164e4	1.243	0.72	0.77	394.1	YES	NO	bb	dd	9.002
3	Total-tetradioxins	25.69	3.522e4	4.562e4	1.129	0.77	0.77	397.2	YES	NO	bb	bd	14.762
4	Total-tetradioxins	25.21	1.169e4	1.474e4	1.129	0.79	0.77	206.5	YES	NO	bd	bd	4.826
5	1368-TCDD	23.16	2.235e4	2.851e4	1.181	0.78	0.77	387.1	YES	NO	bb	bb	8.879
6	12389-PECDD	31.51	1.284e5	8.463e4	1.326	1.52	1.55	1471.5	YES	NO	bd	bd	47.792
7	12378-PeCDD	31.11	1.075e5	7.169e4	1.150	1.50	1.55	1255.1	YES	NO	bd	bb	46.356
8	Total-pentadioxins	30.44	5.073e2	3.582e2	1.548	1.42	1.55	6.1	YES	NO	bb	bb	0.166
9	12479-PECDD	28.39	1.922e5	1.247e5	2.166	1.54	1.55	1482.6	YES	NO	bb	bd	43.531
10	123789-HxCDD	36.13	1.009e5	8.589e4	0.804	1.17	1.24	1238.4	YES	NO	bd	dd	50.766
11	123678-HxCDD	35.74	1.126e5	9.328e4	0.883	1.21	1.24	1395.4	YES	NO	dd	dd	48.253
12	123478-HxCDD	35.63	9.769e4	8.043e4	0.960	1.21	1.24	1303.7	YES	NO	bd	bd	42.922
13	Total-hexadioxins	33.85	3.526e2	3.272e2	0.943	1.08	1.24	7.6	YES	NO	dd	dd	0.157
14	124679-HXCDD	33.59	1.145e5	9.469e4	1.127	1.21	1.24	1462.6	YES	NO	bd	bd	42.951
15	1234678-HpCDD	39.85	6.724e4	6.852e4	1.200	0.98	1.05	778.4	YES	NO	bb	bd	43.640
16	1234679-HPCDD	38.84	8.860e4	8.800e4	1.303	1.01	1.05	1023.5	YES	NO	bd	bb	52.278
17	OCDD	44.44	8.886e4	1.018e5	1.059	0.87	0.89	1419.0	YES	NO	bb	bd	87.323

Dataset: T:\Autospec\Processed Data Batch\231214IH2.qld
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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.88	2.243e4	2.880e4	0.847	0.78	0.77	328.6	YES	NO	bb	bb	8.906
2	2378-TCDF	25.38	2.491e4	3.096e4	0.903	0.80	0.77	375.5	YES	NO	bb	bb	9.106
3	1368-TCDF	21.89	3.036e4	3.980e4	1.170	0.76	0.77	443.1	YES	NO	bb	bb	8.823
4	12389-PECDF	31.90	1.378e5	9.049e4	0.880	1.52	1.55	1102.4	YES	NO	bb	bb	50.583
5	23478-PeCDF	30.86	1.523e5	9.564e4	0.991	1.59	1.55	1320.1	YES	NO	bb	bb	51.196
6	12378-PeCDF	29.52	1.424e5	9.139e4	0.923	1.56	1.55	1215.4	YES	NO	bb	bb	49.341
7	Total-pentafurans	28.38	2.481e4	1.597e4	0.931	1.55	1.55	209.7	YES	NO	bb	bb	8.741
8	123789-HxCDF	36.55	1.002e5	7.132e4	0.988	1.41	1.24	884.6	YES	NO	bb	bb	51.050
9	234678-HxCDF	35.51	1.365e5	9.800e4	1.081	1.39	1.24	1255.8	YES	NO	bb	bb	54.112
10	123678-HxCDF	34.63	1.354e5	1.073e5	1.032	1.26	1.24	1256.1	YES	NO	db	db	48.880
11	123478-HxCDF	34.50	1.293e5	1.024e5	1.128	1.26	1.24	1230.3	YES	NO	bd	bd	49.217
12	123468-HXCDF	32.80	1.382e5	1.113e5	1.206	1.24	1.24	1259.8	YES	NO	bb	bb	49.566
13	1234678-HpCDF	38.40	9.486e4	8.902e4	1.164	1.07	1.05	1347.9	YES	NO	bb	bb	48.445
14	1234789-HpCDF	40.58	6.687e4	6.971e4	1.104	0.96	1.05	833.1	YES	NO	bb	bd	53.243
15	OCDF	44.68	9.090e4	1.041e5	1.130	0.87	0.89	782.1	YES	NO	bb	bd	83.649
16	13468-PECDF	26.72	2.075e5	1.366e5	1.241	1.52	1.55	5108.6	YES	NO	bb	bb	54.033
17	1289-TCDD	26.61	2.077e4	2.479e4	0.963	0.84	0.77	328.6	YES	NO	bb	bb	9.757
18	2378-TCDD	26.01	2.264e4	3.164e4	1.243	0.72	0.77	394.1	YES	NO	bb	dd	9.002
19	Total-tetradioxins	25.69	3.522e4	4.562e4	1.129	0.77	0.77	397.2	YES	NO	bb	bd	14.762
20	Total-tetradioxins	25.21	1.169e4	1.474e4	1.129	0.79	0.77	206.5	YES	NO	bd	bd	4.826
21	1368-TCDD	23.16	2.235e4	2.851e4	1.181	0.78	0.77	387.1	YES	NO	bb	bb	8.879
22	12389-PECDD	31.51	1.284e5	8.463e4	1.326	1.52	1.55	1471.5	YES	NO	bd	bd	47.792
23	12378-PeCDD	31.11	1.075e5	7.169e4	1.150	1.50	1.55	1255.1	YES	NO	bd	bb	46.356
24	Total-pentadioxins	30.44	5.073e2	3.582e2	1.548	1.42	1.55	6.1	YES	NO	bb	bb	0.166
25	12479-PECDD	28.39	1.922e5	1.247e5	2.166	1.54	1.55	1482.6	YES	NO	bb	bd	43.531
26	123789-HxCDD	36.13	1.009e5	8.589e4	0.804	1.17	1.24	1238.4	YES	NO	bd	dd	50.766
27	123678-HxCDD	35.74	1.126e5	9.328e4	0.883	1.21	1.24	1395.4	YES	NO	dd	dd	48.253
28	123478-HxCDD	35.63	9.769e4	8.043e4	0.960	1.21	1.24	1303.7	YES	NO	bd	bd	42.922
29	Total-hexadioxins	33.85	3.526e2	3.272e2	0.943	1.08	1.24	7.6	YES	NO	dd	dd	0.157
30	124679-HXCDD	33.59	1.145e5	9.469e4	1.127	1.21	1.24	1462.6	YES	NO	bd	bd	42.951
31	1234678-HpCDD	39.85	6.724e4	6.852e4	1.200	0.98	1.05	778.4	YES	NO	bb	bd	43.640
32	1234679-HPCDD	38.84	8.860e4	8.800e4	1.303	1.01	1.05	1023.5	YES	NO	bd	bb	52.278
33	OCDD	44.44	8.886e4	1.018e5	1.059	0.87	0.89	1419.0	YES	NO	bb	bd	87.323

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	25.62	2.077e4					1.7	NO		bb		
2	FUNCTION1 PFK	25.53	5.471e3					1.0	NO		bb		
3	FUNCTION1 PFK	22.69	2.187e3					0.6	NO		bb		
4	FUNCTION1 PFK	21.23	1.188e4					1.8	NO		db		
5	FUNCTION1 PFK	21.18	1.138e4					1.5	NO		bd		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.18	5.212e3					2.1	NO		bb		0.000
2	FUNCTION2 PFK	28.89	4.794e2					0.5	NO		bb		0.000
3	FUNCTION2 PFK	28.85	2.673e3					0.8	NO		db		0.000
4	FUNCTION2 PFK	28.76	1.499e3					0.9	NO		bd		0.000
5	FUNCTION2 PFK	28.32	3.472e3					1.6	NO		bb		0.000
6	FUNCTION2 PFK	28.09	6.947e3					1.7	NO		bb		0.000
7	FUNCTION2 PFK	32.01	2.160e3					1.2	NO		bb		0.000
8	FUNCTION2 PFK	31.81	6.315e2					0.7	NO		bb		0.000
9	FUNCTION2 PFK	31.73	7.018e3					2.6	NO		bb		0.000
10	FUNCTION2 PFK	31.47	4.296e3					1.7	NO		bb		0.000
11	FUNCTION2 PFK	31.18	3.423e3					1.7	NO		bb		0.000
12	FUNCTION2 PFK	31.10	3.799e3					1.0	NO		bb		0.000
13	FUNCTION2 PFK	31.01	3.908e3					1.9	NO		bb		0.000
14	FUNCTION2 PFK	30.63	5.950e3					1.7	NO		db		0.000
15	FUNCTION2 PFK	30.51	1.030e4					2.6	NO		bd		0.000
16	FUNCTION2 PFK	30.43	1.325e3					0.6	NO		bb		0.000
17	FUNCTION2 PFK	29.96	2.969e3					1.4	NO		db		0.000
18	FUNCTION2 PFK	29.92	9.250e3					2.8	NO		bd		0.000
19	FUNCTION2 PFK	29.79	1.821e3					1.1	NO		bb		0.000
20	FUNCTION2 PFK	29.75	1.582e3					1.0	NO		bb		0.000
21	FUNCTION2 PFK	29.68	4.211e3					1.9	NO		bb		0.000
22	FUNCTION2 PFK	29.49	4.793e2					0.5	NO		bb		0.000

Dataset: T:\Autospec\Processed Data Batch\231214IH2.qld
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ID: CS3J5, Name: 23121442, Date: 16-Dec-2023, Time: 00:33:30, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	33.60	1.195e3					0.6	NO		bb		0.000
2	FUNCTION3 PFK	33.56	1.539e4					1.3	NO		db		0.000
3	FUNCTION3 PFK	33.48	1.059e4					1.7	NO		bd		0.000
4	FUNCTION3 PFK	33.42	7.826e3					2.0	NO		db		0.000
5	FUNCTION3 PFK	33.38	1.450e4					2.0	NO		dd		0.000
6	FUNCTION3 PFK	33.34	1.338e4					2.1	NO		dd		0.000
7	FUNCTION3 PFK	33.28	2.140e3					0.5	NO		bd		0.000
8	FUNCTION3 PFK	33.09	1.898e4					2.2	NO		db		0.000
9	FUNCTION3 PFK	33.08	2.282e4					2.2	NO		dd		0.000
10	FUNCTION3 PFK	32.91	8.616e4					3.8	YES		dd		0.000
11	FUNCTION3 PFK	32.70	2.068e5					7.3	YES		dd		0.000
12	FUNCTION3 PFK	32.62	8.589e4					8.0	YES		dd		0.000
13	FUNCTION3 PFK	32.57	7.512e4					8.3	YES		dd		0.000
14	FUNCTION3 PFK	32.52	8.891e4					9.1	YES		dd		0.000
15	FUNCTION3 PFK	32.46	1.212e5					10.3	YES		bd		0.000
16	FUNCTION3 PFK	35.20	7.976e2					0.4	NO		bb		0.000
17	FUNCTION3 PFK	35.13	1.302e4					1.7	NO		db		0.000
18	FUNCTION3 PFK	35.09	3.582e3					0.8	NO		bd		0.000
19	FUNCTION3 PFK	35.00	1.506e4					1.5	NO		db		0.000
20	FUNCTION3 PFK	34.89	8.375e3					1.0	NO		bd		0.000
21	FUNCTION3 PFK	34.84	2.770e3					0.7	NO		bb		0.000
22	FUNCTION3 PFK	34.67	3.990e3					0.9	NO		bb		0.000
23	FUNCTION3 PFK	34.52	2.353e3					0.6	NO		bb		0.000
24	FUNCTION3 PFK	34.47	6.564e2					0.3	NO		bb		0.000
25	FUNCTION3 PFK	34.40	8.850e2					0.4	NO		bb		0.000
26	FUNCTION3 PFK	34.28	4.208e3					0.6	NO		bb		0.000
27	FUNCTION3 PFK	34.04	4.556e3					0.7	NO		db		0.000
28	FUNCTION3 PFK	33.96	1.069e4					1.0	NO		dd		0.000
29	FUNCTION3 PFK	33.86	1.981e4					1.6	NO		bd		0.000
30	FUNCTION3 PFK	33.76	1.438e4					1.7	NO		db		0.000
31	FUNCTION3 PFK	33.68	2.385e4					1.8	NO		bd		0.000
32	FUNCTION3 PFK	36.57	2.874e3					0.7	NO		bb		0.000
33	FUNCTION3 PFK	36.46	4.980e3					0.7	NO		bb		0.000
34	FUNCTION3 PFK	36.38	5.889e3					1.0	NO		db		0.000
35	FUNCTION3 PFK	36.33	9.112e3					1.1	NO		bd		0.000
36	FUNCTION3 PFK	36.20	1.464e4					0.9	NO		bb		0.000
37	FUNCTION3 PFK	36.07	1.002e4					1.2	NO		db		0.000

Dataset: T:\Autospec\Processed Data Batch\231214IH2.qld
Last Altered: Saturday, December 16, 2023 10:26:00 Pacific Standard Time
Printed: Saturday, December 16, 2023 10:41:36 Pacific Standard Time

ID: CS3J5, Name: 23121442, Date: 16-Dec-2023, Time: 00:33:30, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION3 PFK	36.00	8.894e3					1.5	NO		dd		0.000
39	FUNCTION3 PFK	35.93	2.647e3					0.6	NO		bd		0.000
40	FUNCTION3 PFK	35.87	8.727e3					1.1	NO		bb		0.000
41	FUNCTION3 PFK	35.77	6.111e3					1.1	NO		db		0.000
42	FUNCTION3 PFK	35.72	6.853e3					1.1	NO		bd		0.000
43	FUNCTION3 PFK	35.62	9.469e3					1.3	NO		bb		0.000
44	FUNCTION3 PFK	35.53	3.044e3					0.7	NO		bb		0.000
45	FUNCTION3 PFK	35.48	3.295e3					0.7	NO		bb		0.000
46	FUNCTION3 PFK	35.38	1.143e4					1.2	NO		bb		0.000
47	FUNCTION3 PFK	35.32	6.453e2					0.3	NO		bb		0.000
48	FUNCTION3 PFK	37.45	1.008e4					1.3	NO		bb		0.000
49	FUNCTION3 PFK	37.35	5.422e3					1.1	NO		bb		0.000
50	FUNCTION3 PFK	37.23	2.613e3					0.7	NO		bb		0.000
51	FUNCTION3 PFK	37.17	9.836e2					0.4	NO		bb		0.000
52	FUNCTION3 PFK	37.10	4.707e3					0.8	NO		bb		0.000
53	FUNCTION3 PFK	37.06	4.738e3					1.1	NO		bb		0.000
54	FUNCTION3 PFK	36.80	1.572e4					1.4	NO		db		0.000
55	FUNCTION3 PFK	36.77	4.376e3					1.0	NO		bd		0.000
56	FUNCTION3 PFK	36.71	3.333e3					0.9	NO		bb		0.000
57	FUNCTION3 PFK	36.67	3.380e3					0.9	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.72	1.355e5					0.9	NO		bb		

ID: CS3J5, Name: 23121442, Date: 16-Dec-2023, Time: 00:33:30, Conditions: AUTOSPEC01, User: pk

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.27	2.798e3					1.4	NO		bb		
2	FUNCTION5 PFK	44.17	4.579e3					1.9	NO		bb		
3	FUNCTION5 PFK	43.90	3.330e3					1.3	NO		bb		
4	FUNCTION5 PFK	45.69	5.873e3					2.3	NO		bb		
5	FUNCTION5 PFK	45.42	3.184e3					1.4	NO		bb		
6	FUNCTION5 PFK	45.27	1.659e3					1.1	NO		bb		
7	FUNCTION5 PFK	44.96	1.471e3					1.0	NO		bb		
8	FUNCTION5 PFK	44.76	1.688e3					1.0	NO		bb		
9	FUNCTION5 PFK	44.64	3.337e3					1.5	NO		bb		
10	FUNCTION5 PFK	44.54	4.605e2					0.6	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.71	1.838e2					4.8	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

Dataset: T:\Autospec\Processed Data Batch\231214IH2.qld
Last Altered: Saturday, December 16, 2023 10:26:00 Pacific Standard Time
Printed: Saturday, December 16, 2023 10:41:36 Pacific Standard Time

ID: CS3J5, Name: 23121442, Date: 16-Dec-2023, Time: 00:33:30, Conditions: AUTOSPEC01, User: pk

ETHERS6

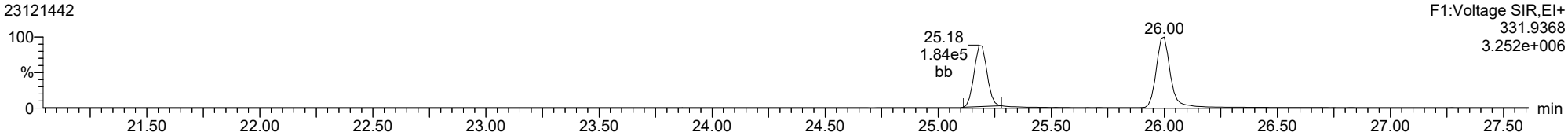
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Dataset: T:\Autospec\Processed Data Batch\231214IH2.qld
Last Altered: Saturday, December 16, 2023 10:26:00 Pacific Standard Time
Printed: Saturday, December 16, 2023 10:41:36 Pacific Standard Time

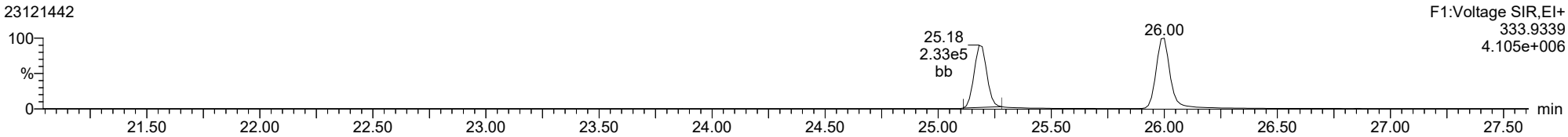
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ID: CS3J5, Name: 23121442, Date: 16-Dec-2023, Time: 00:33:30, Conditions: AUTOSPEC01, User: pk

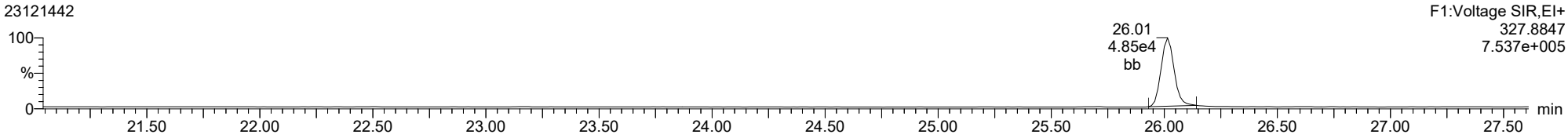
13C-1234-TCDD



13C-1234-TCDD

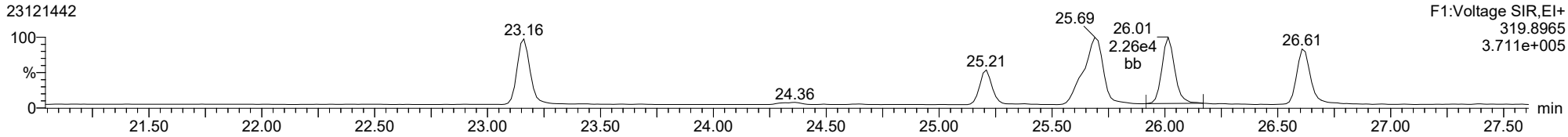


37CL-2378-TCDD

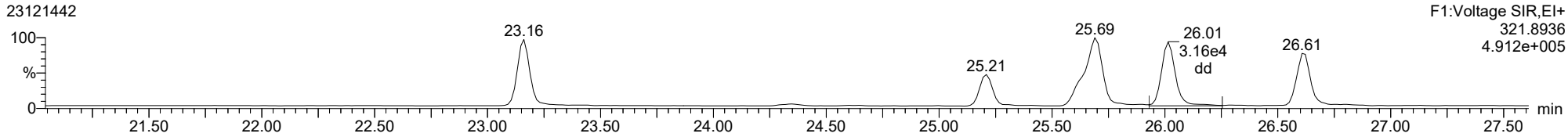


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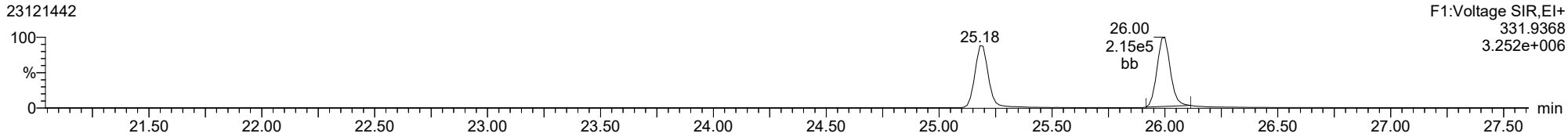
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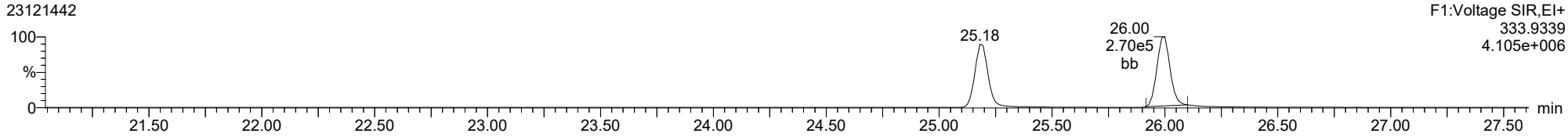
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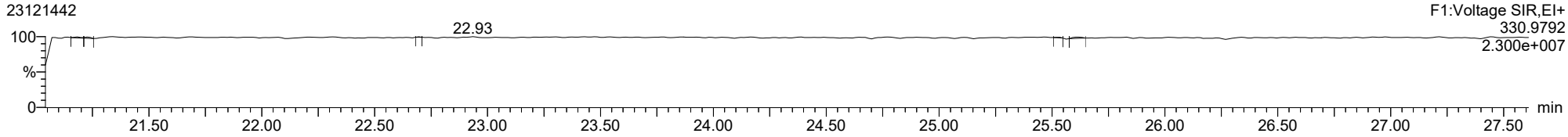
13C-2378-TCDD



13C-2378-TCDD



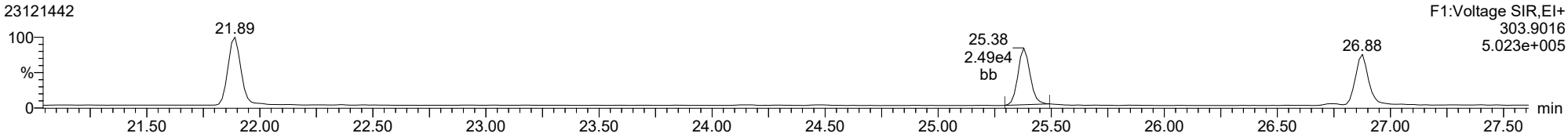
FUNCTION1 PFK



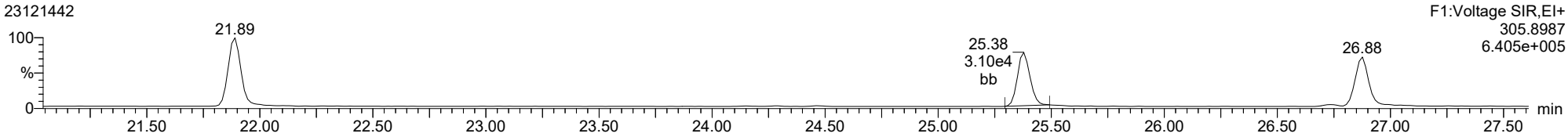
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Last Altered: Saturday, December 16, 2023 10:26:00 Pacific Standard Time
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ID: CS3J5, Name: 23121442, Date: 16-Dec-2023, Time: 00:33:30, Conditions: AUTOSPEC01, User: pk

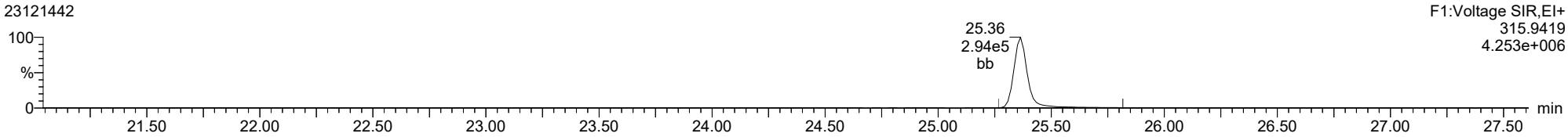
2378-TCDF



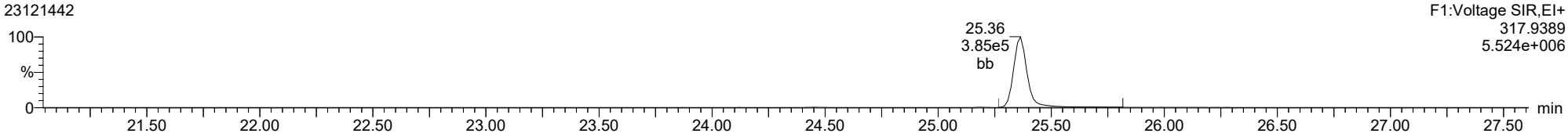
2378-TCDF



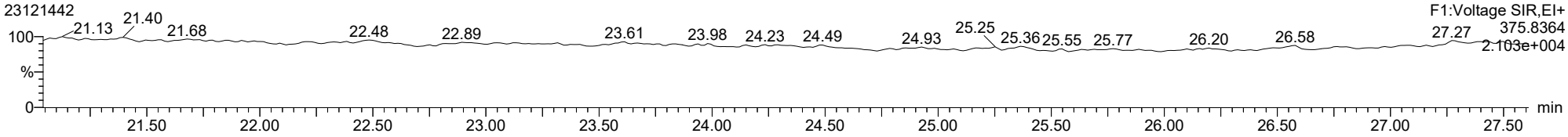
13C-2378-TCDF



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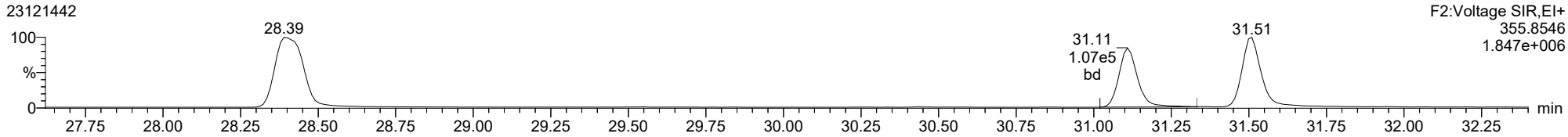


FUNCTION1 HXCDPE

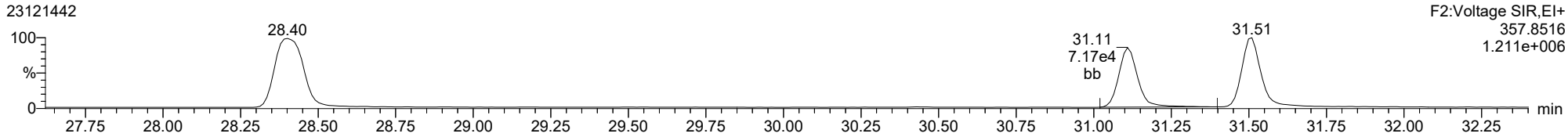


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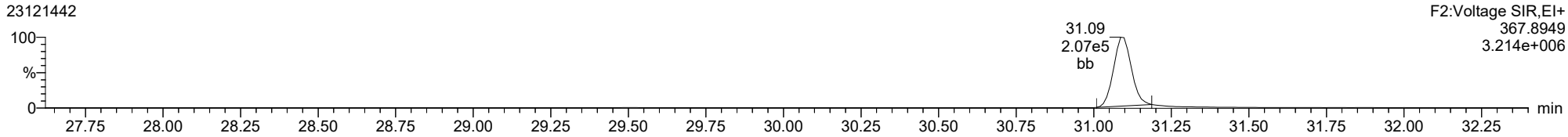
12378-PeCDD



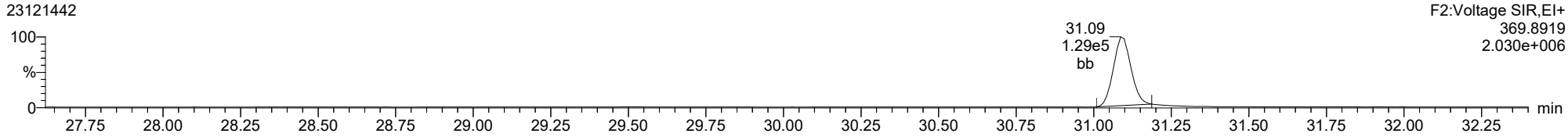
12378-PeCDD



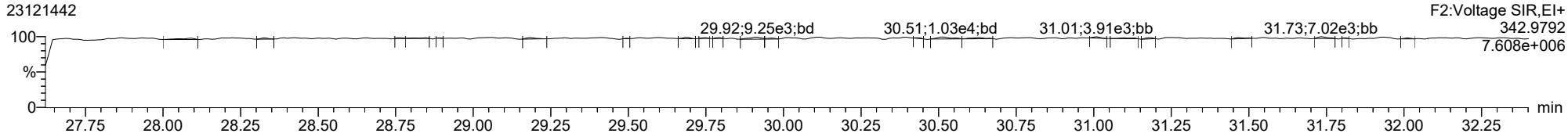
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13C-12378-PeCDD

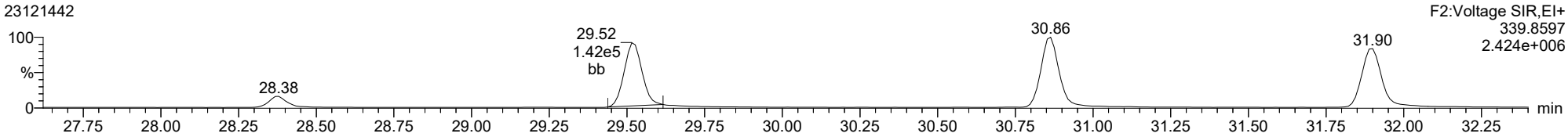


FUNCTION2 PFK

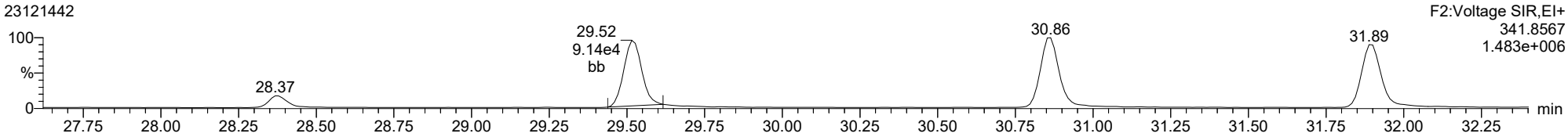


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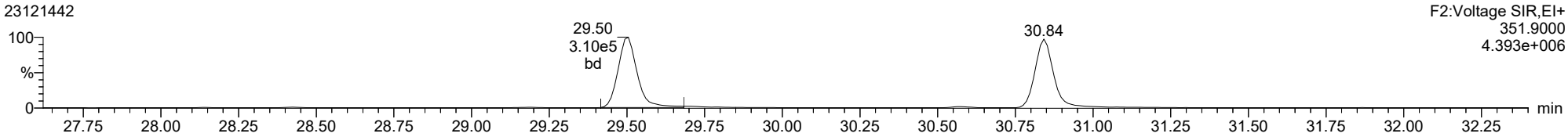
12378-PeCDF



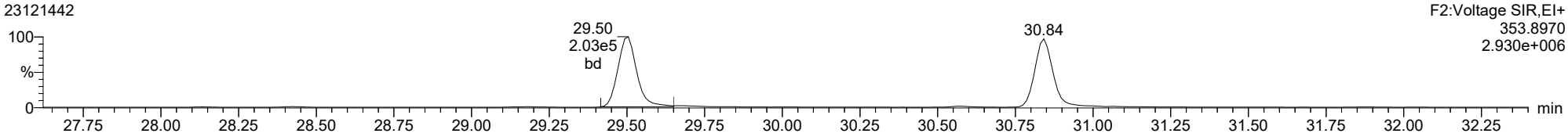
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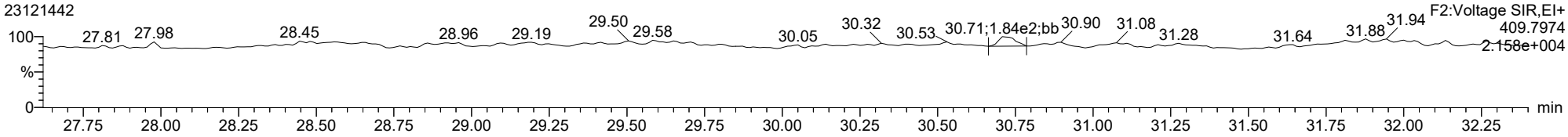
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13C-12378-PeCDF

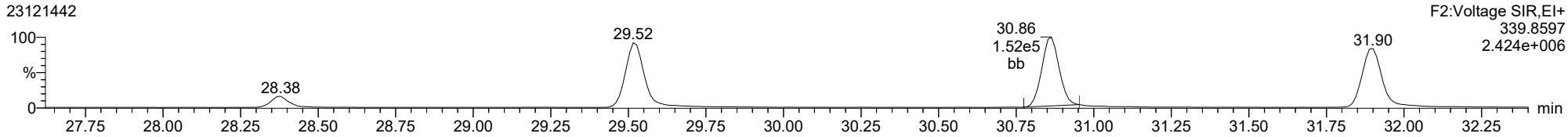


FUNCTION2 HPCDPE

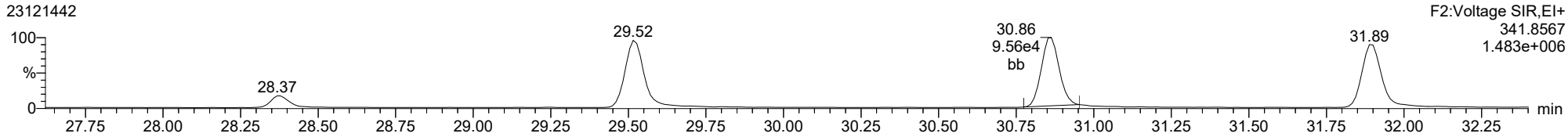


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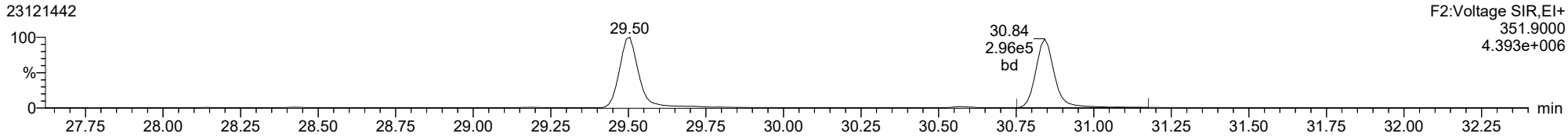
23478-PeCDF



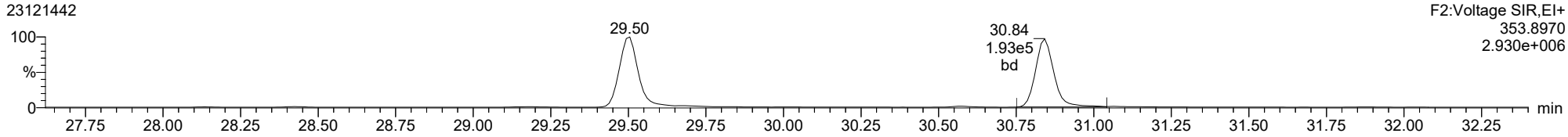
23478-PeCDF



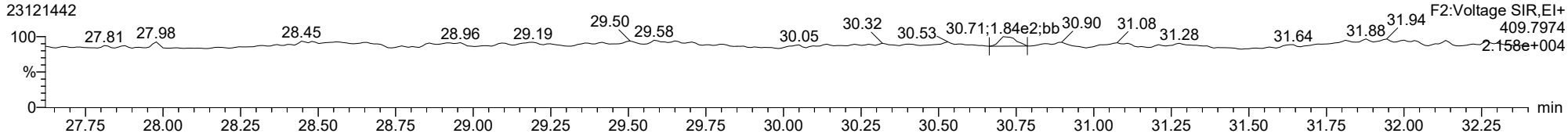
13C-23478-PeCDF



13C-23478-PeCDF

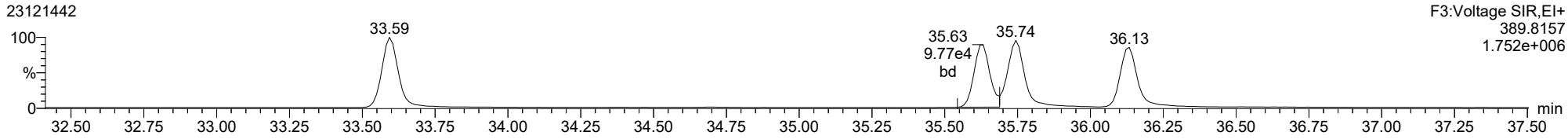


FUNCTION2 HPCDPE

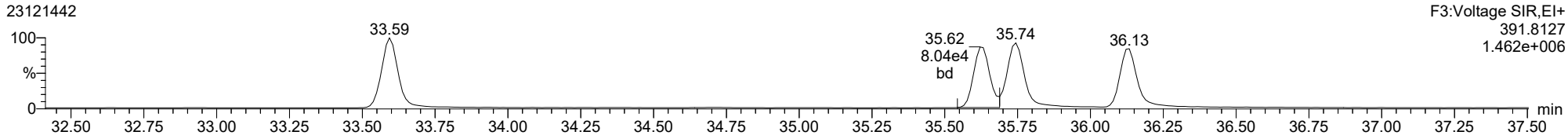


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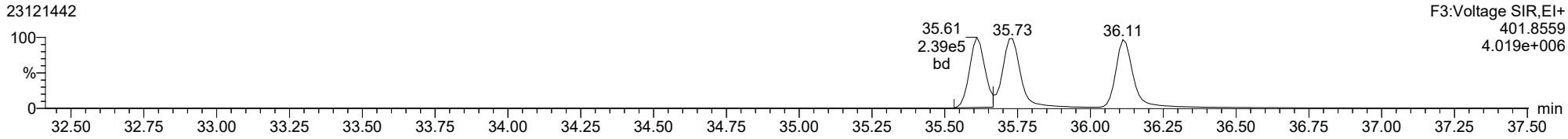
123478-HxCDD



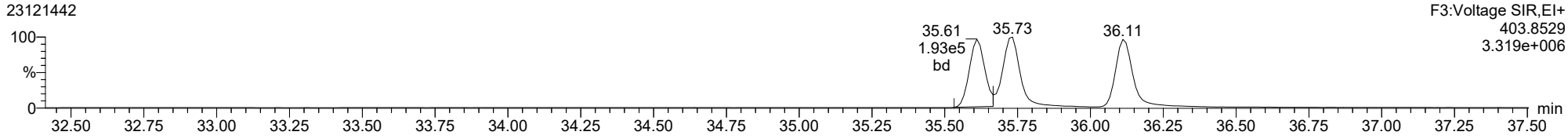
123478-HxCDD



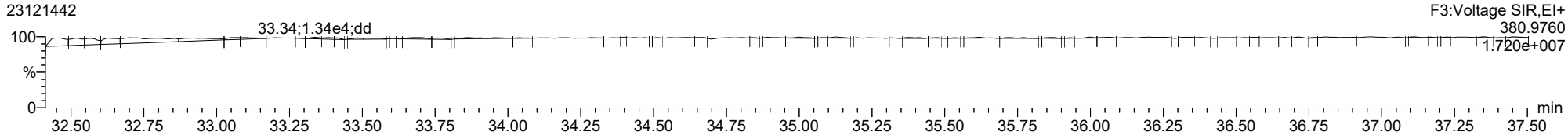
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13C-123478-HxCDD

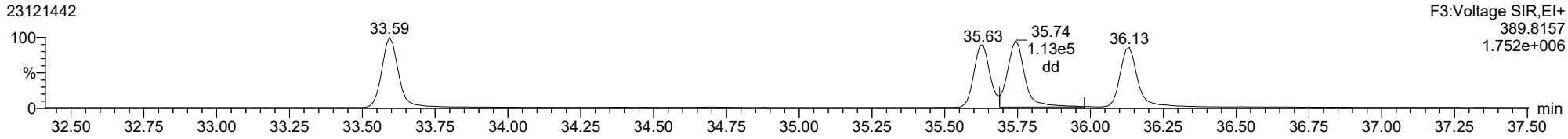


FUNCTION3 PFK

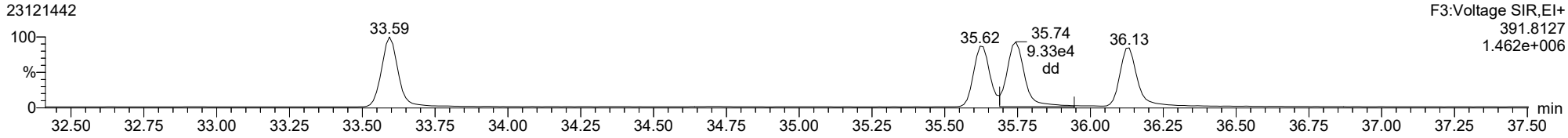


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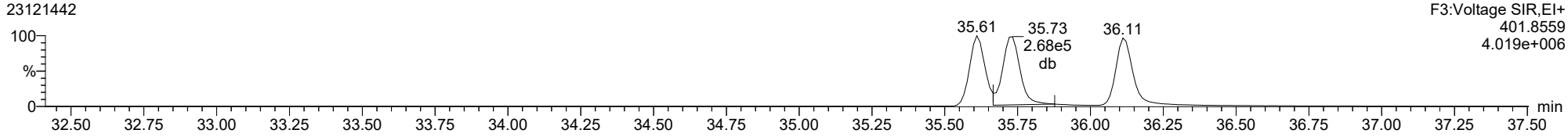
123678-HxCDD



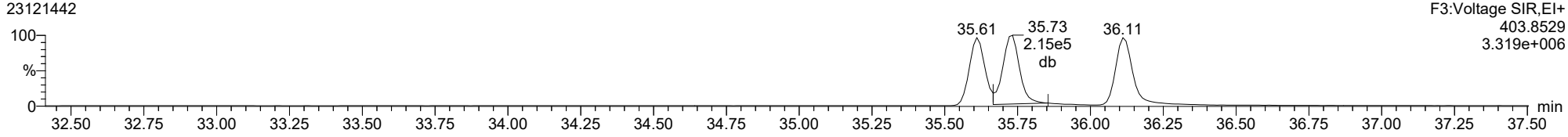
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13C-123678-HxCDD

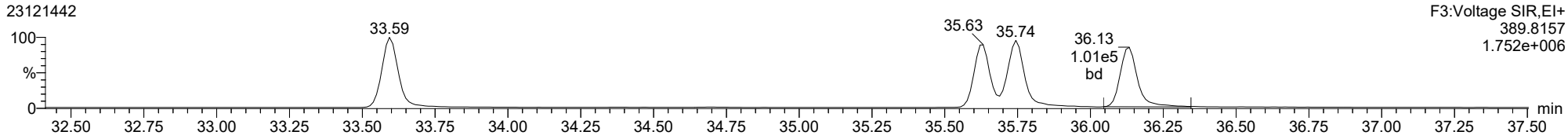


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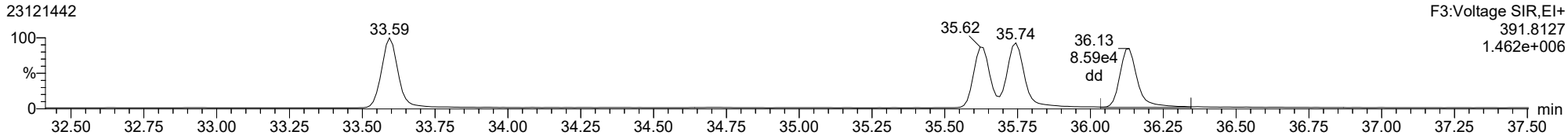


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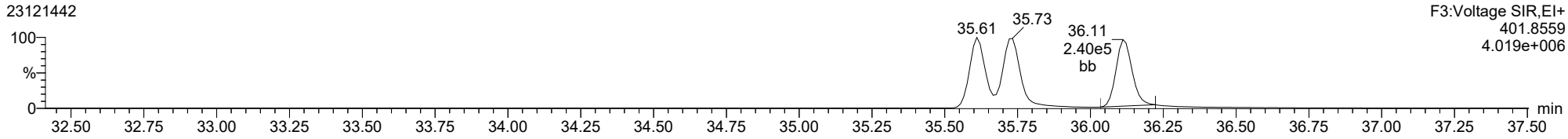
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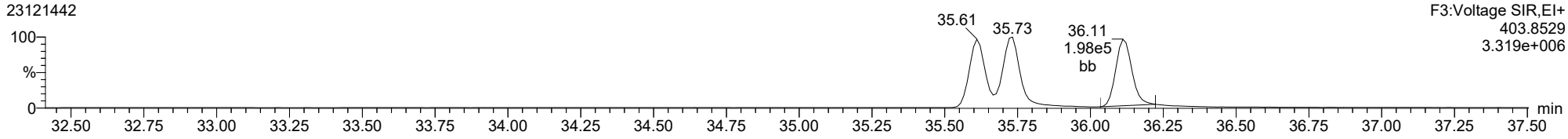
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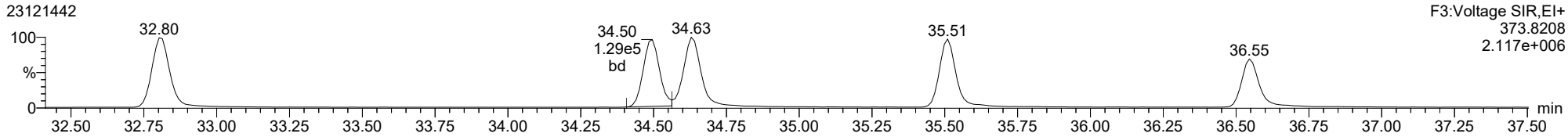


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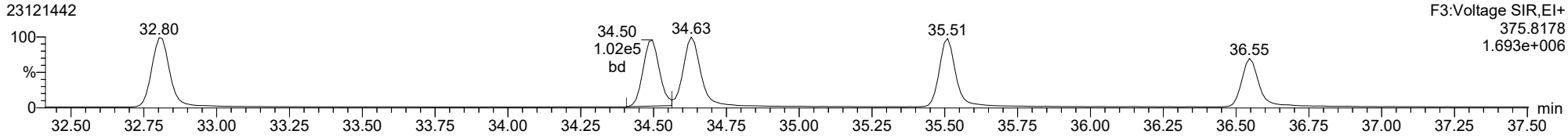


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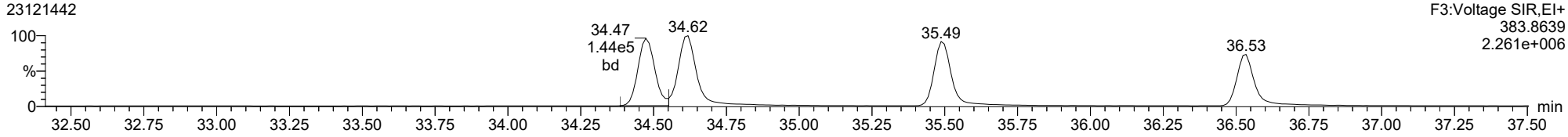
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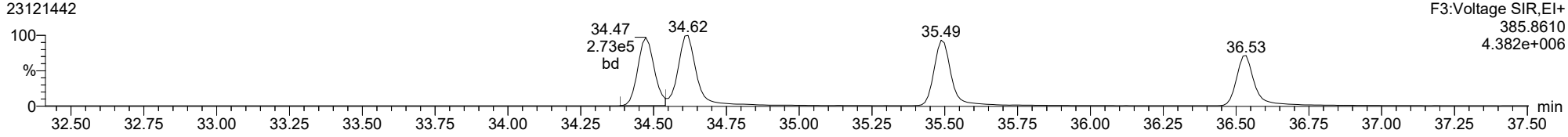
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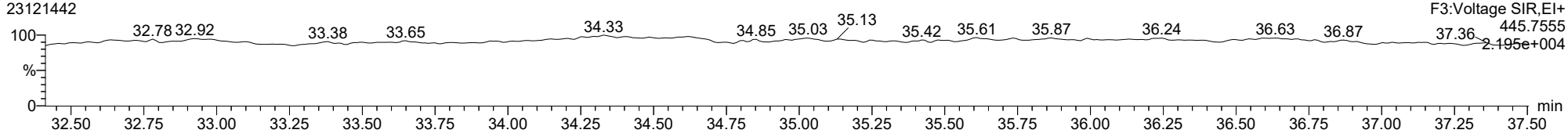
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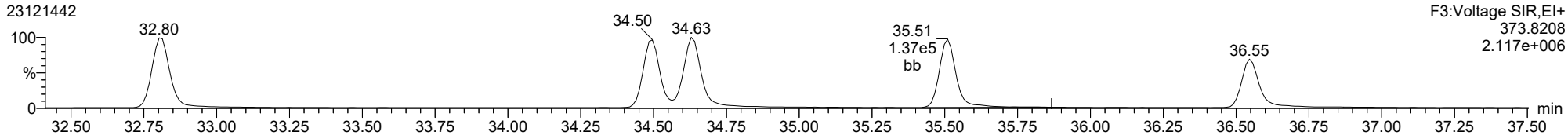


FUNCTION3 OCDPE

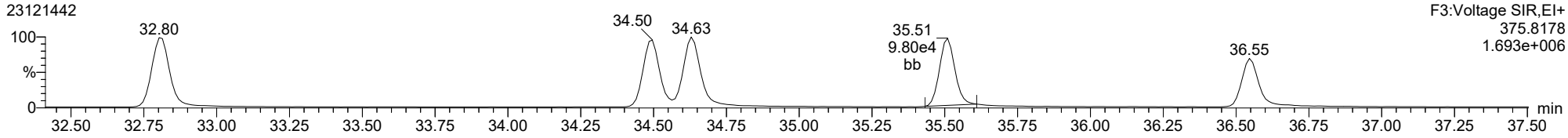


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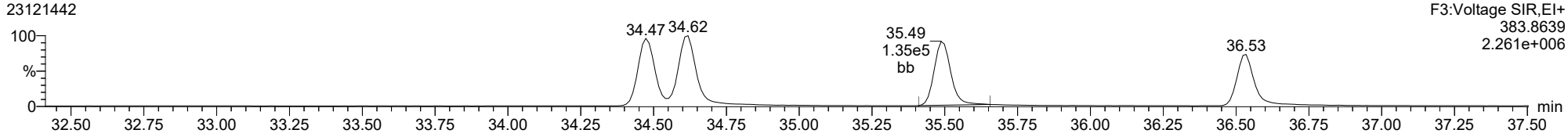
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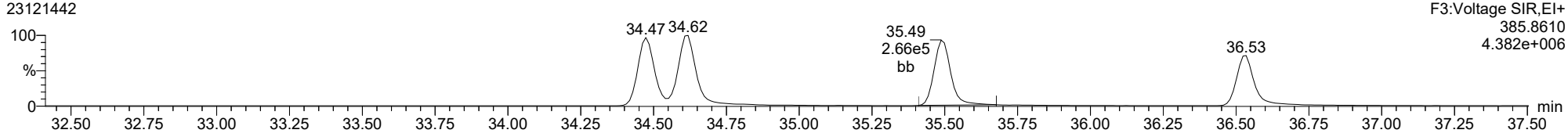
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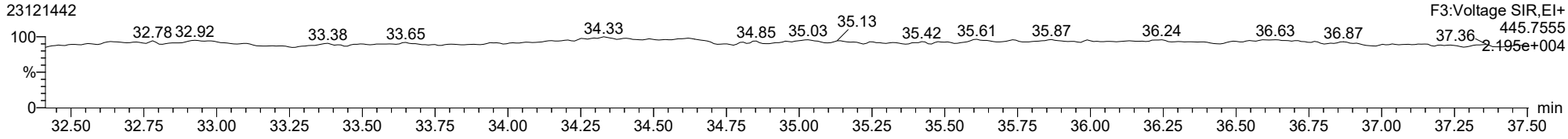
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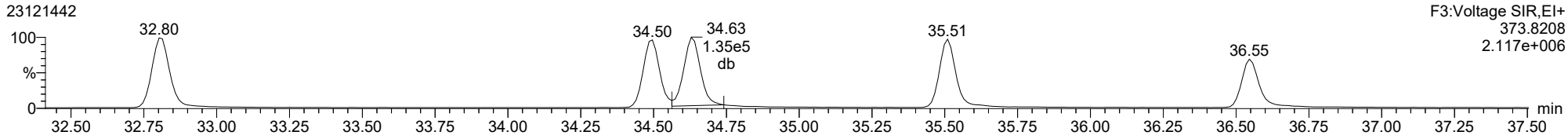


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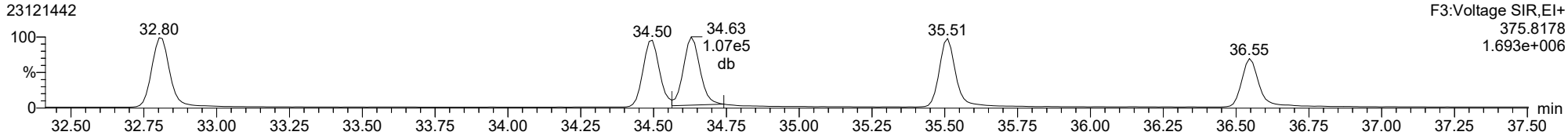


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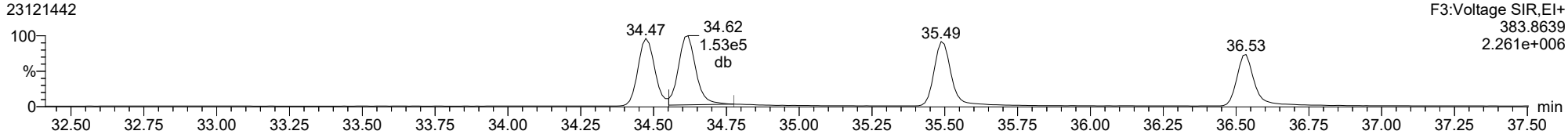
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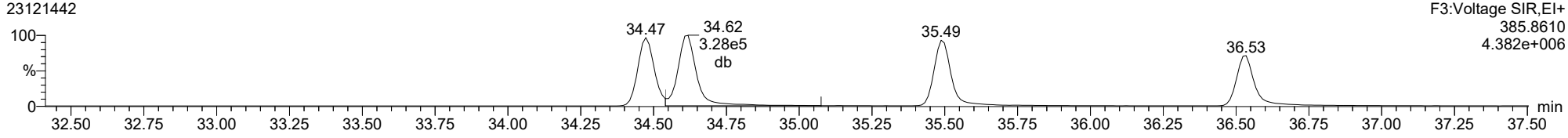
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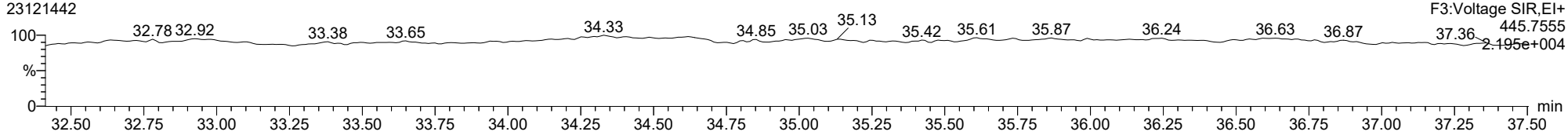
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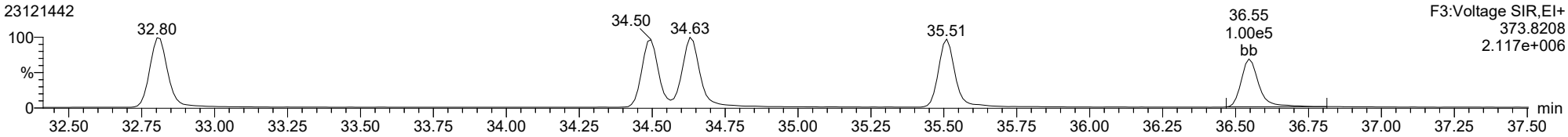


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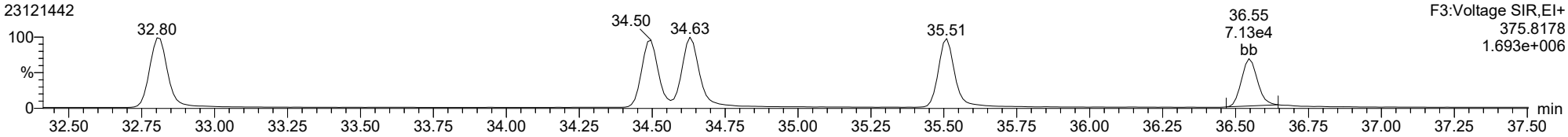


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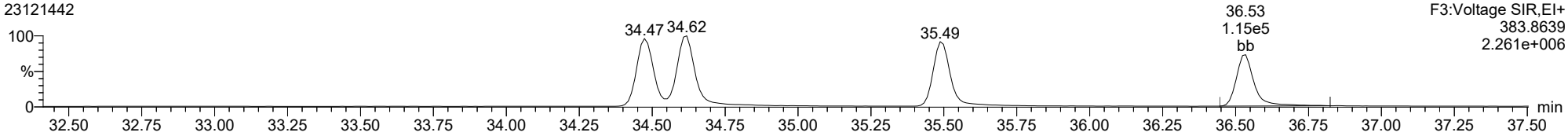
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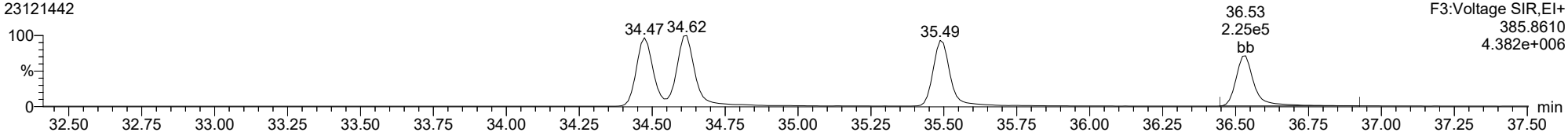
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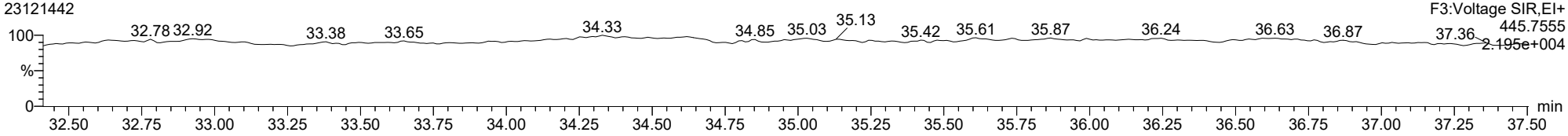
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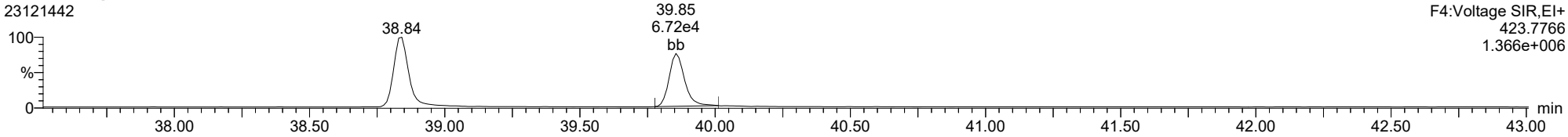


FUNCTION3 OCDPE

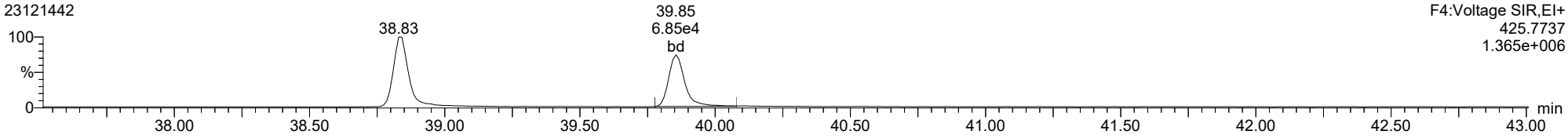


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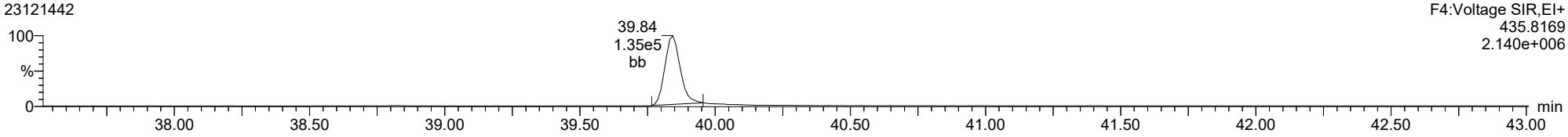
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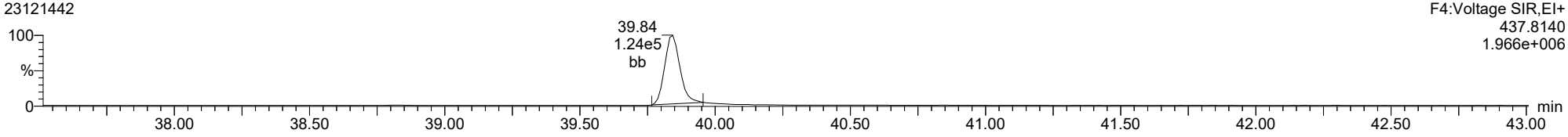
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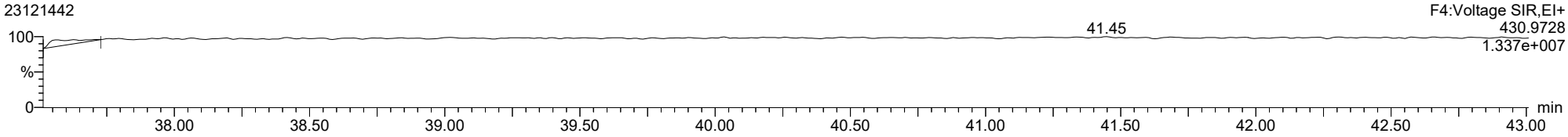
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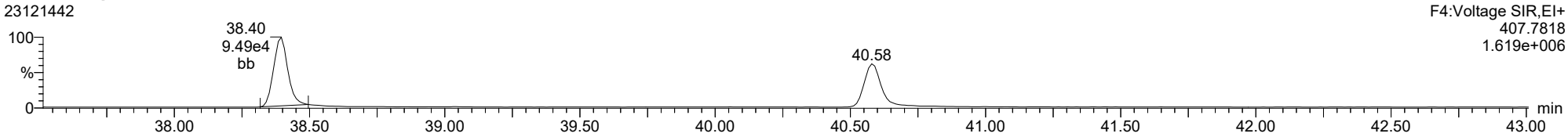


FUNCTION4 PFK

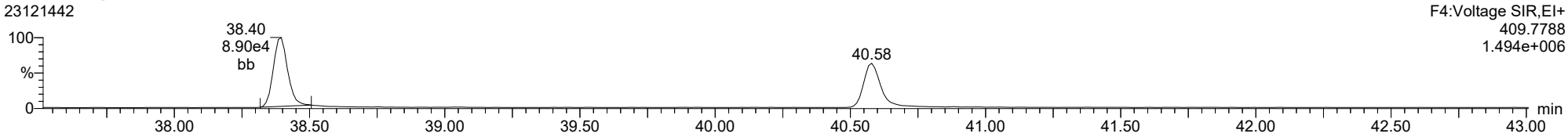


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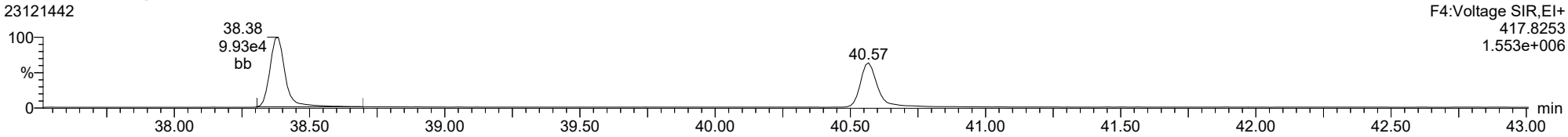
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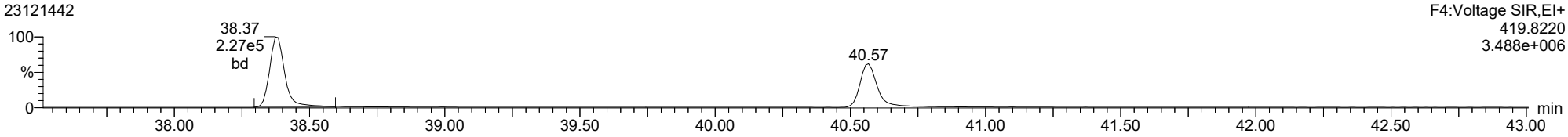
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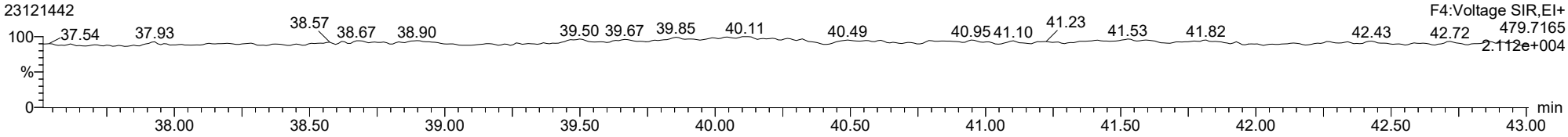
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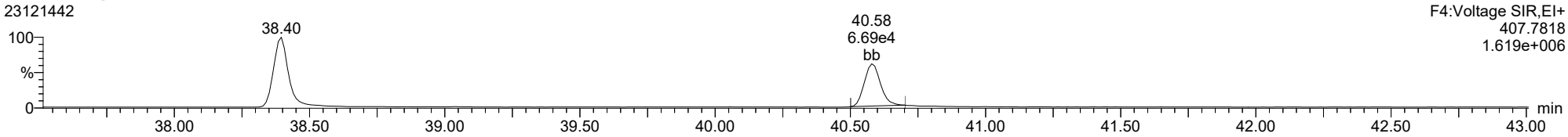


FUNCTION4 NCDPE

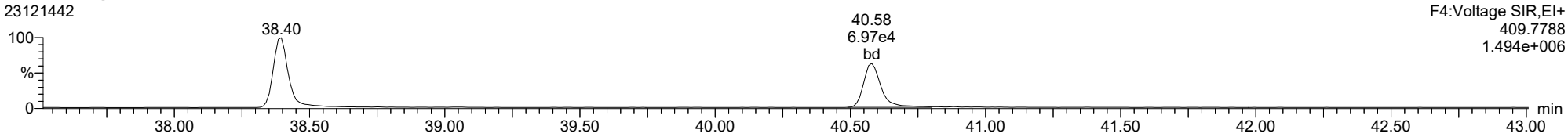


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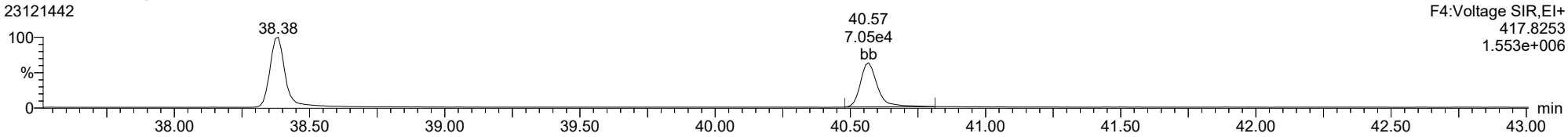
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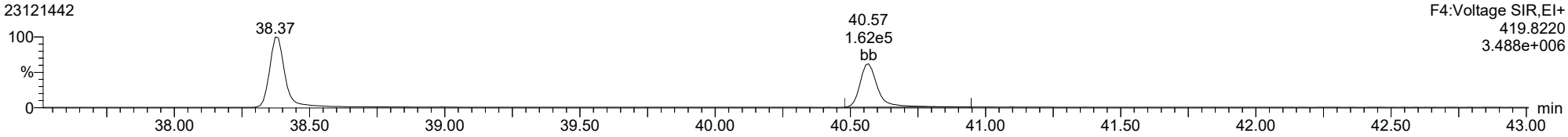
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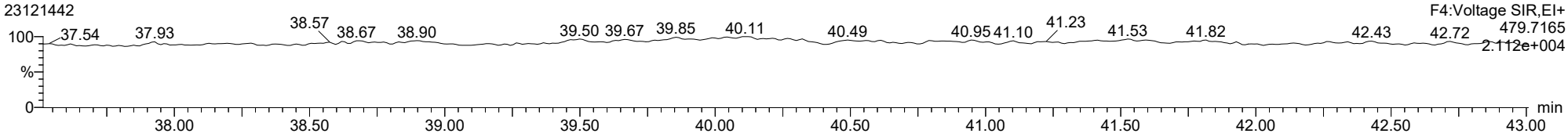
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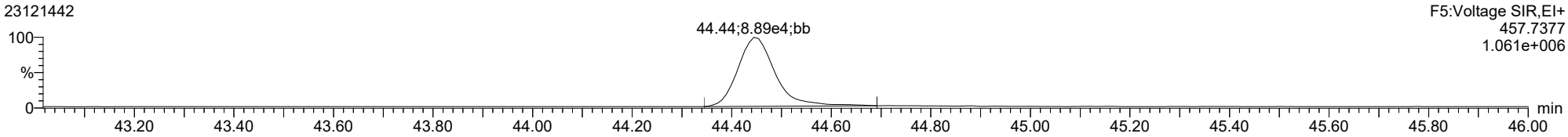


FUNCTION4 NCDPE

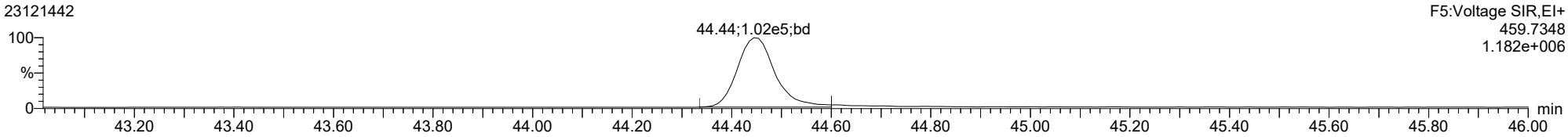


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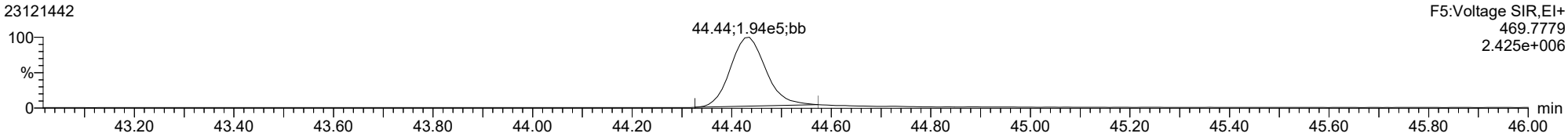
OCDD



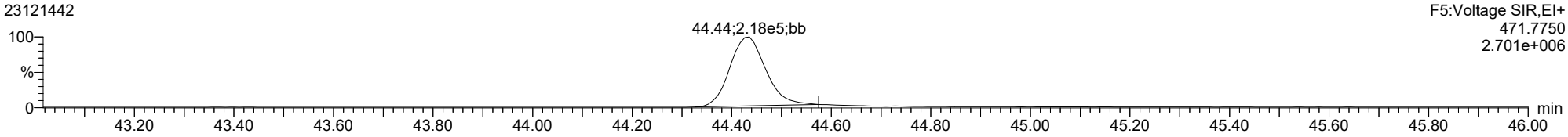
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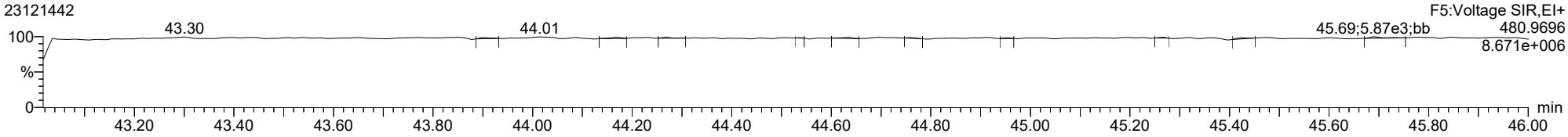
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13C-OCDD



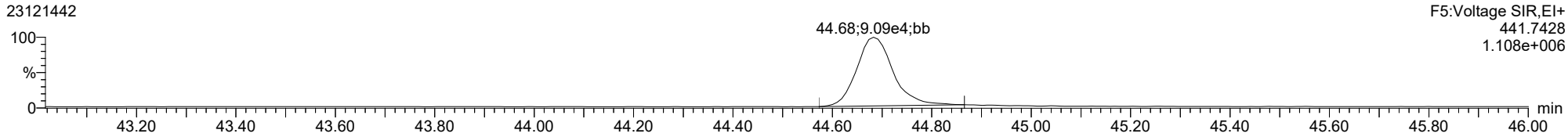
FUNCTION5 PFK



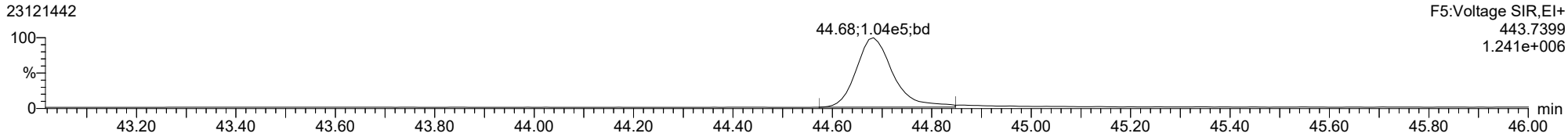
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ID: CS3J5, Name: 23121442, Date: 16-Dec-2023, Time: 00:33:30, Conditions: AUTOSPEC01, User: pk

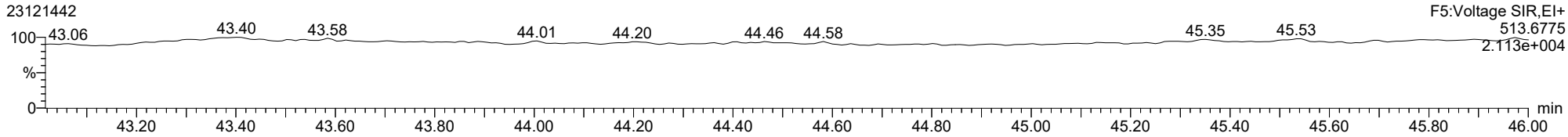
OCDF



OCDF

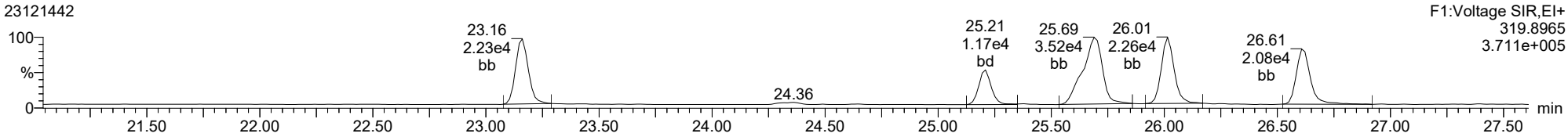


FUNCTION5 DCDPE

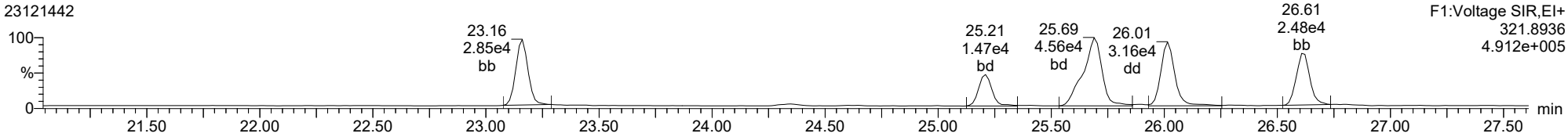


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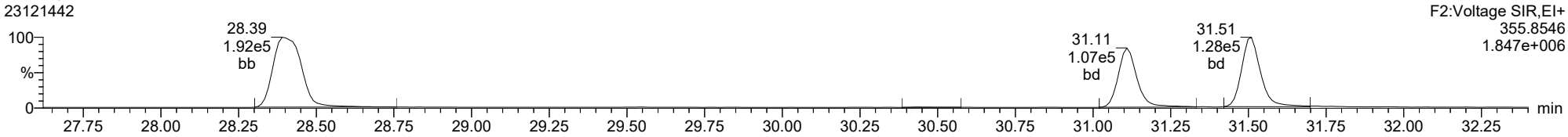
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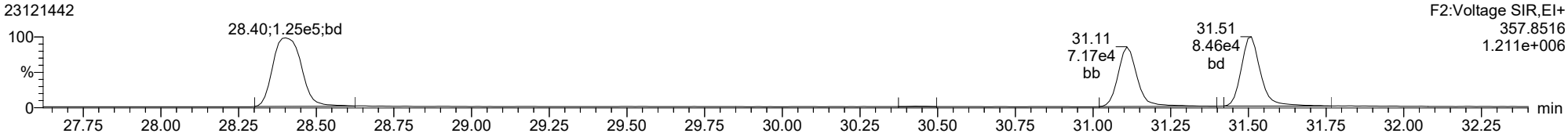
Total-tetradioxins



Total-pentadioxins

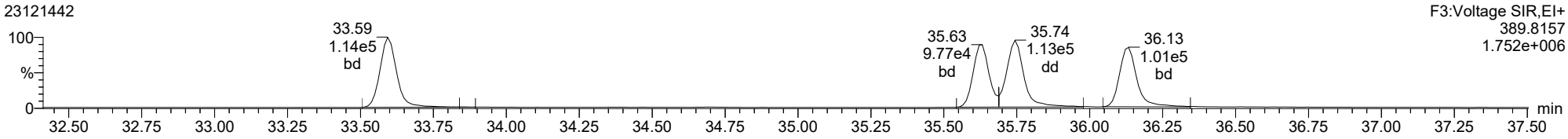


Total-pentadioxins

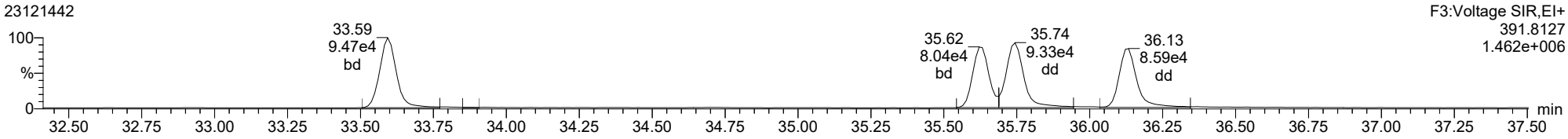


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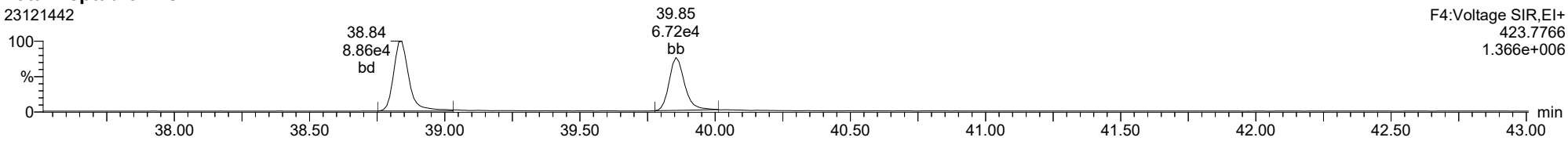
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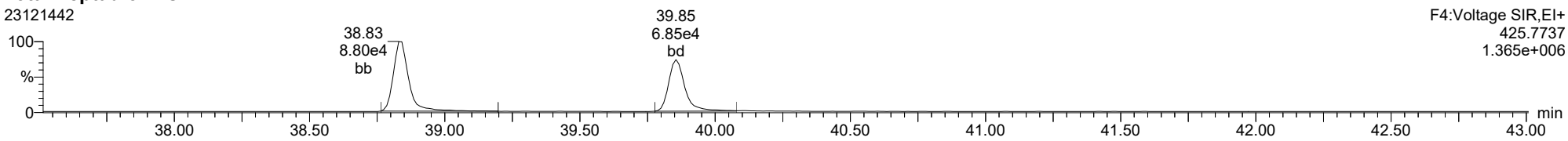
Total-hexadioxins



Total-heptadioxins

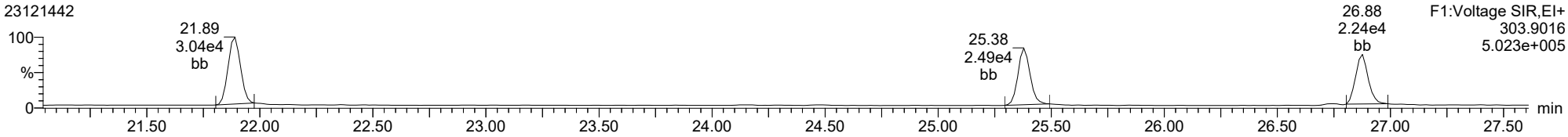


Total-heptadioxins

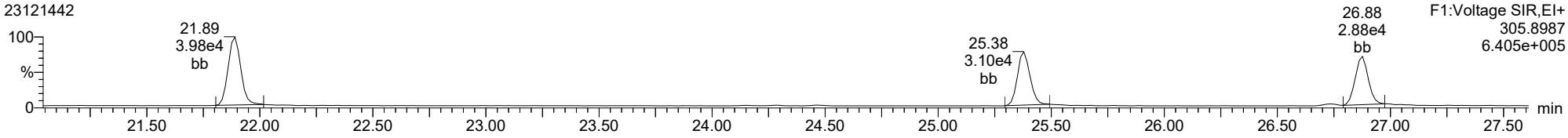


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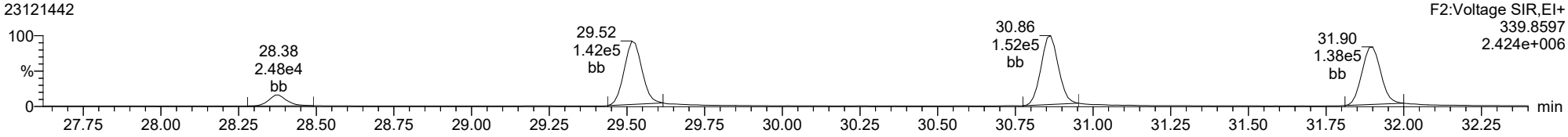
Total-tetrafurans



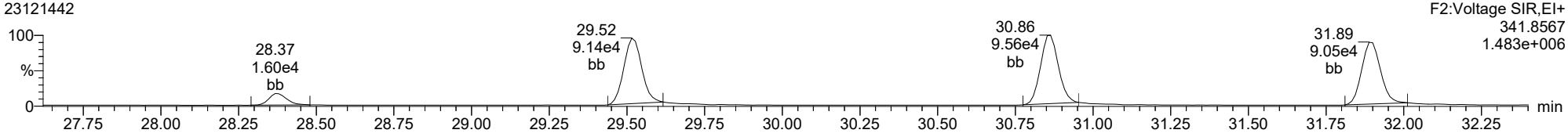
Total-tetrafurans



Total-pentafurans



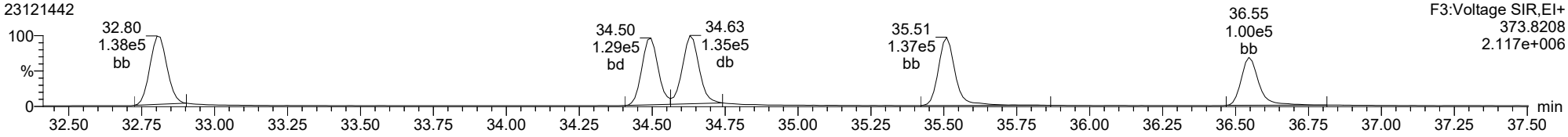
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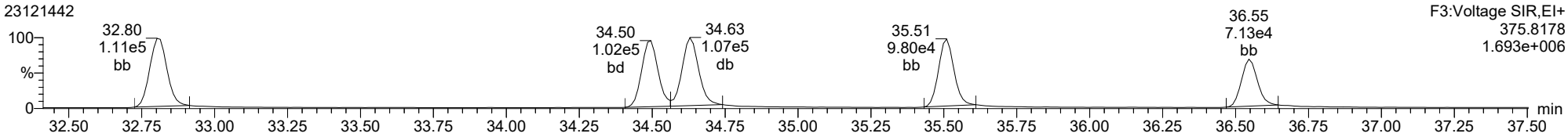
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Printed: Saturday, December 16, 2023 10:41:36 Pacific Standard Time

ID: CS3J5, Name: 23121442, Date: 16-Dec-2023, Time: 00:33:30, Conditions: AUTOSPEC01, User: pk

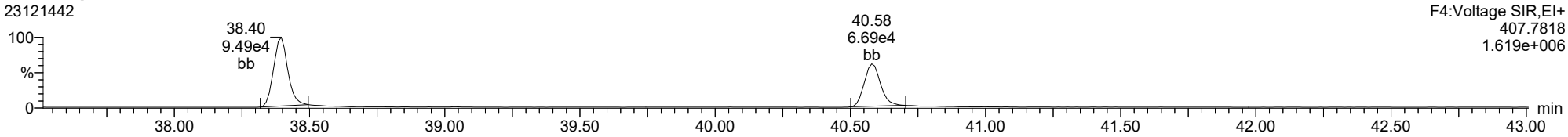
Total-hexafurans



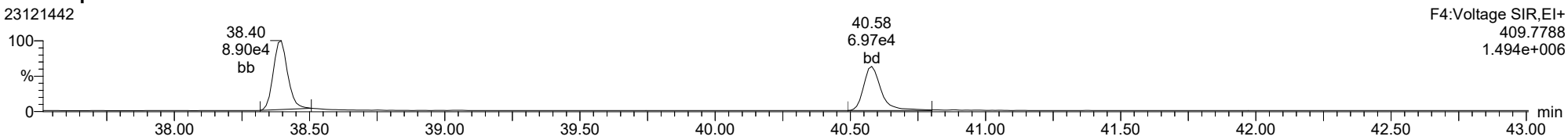
Total-hexafurans



Total-heptafurans

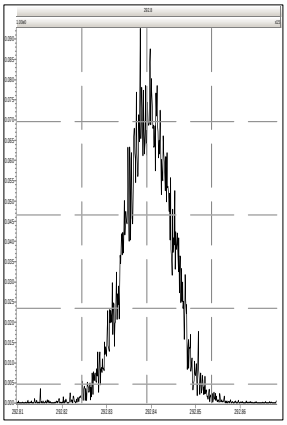


Total-heptafurans

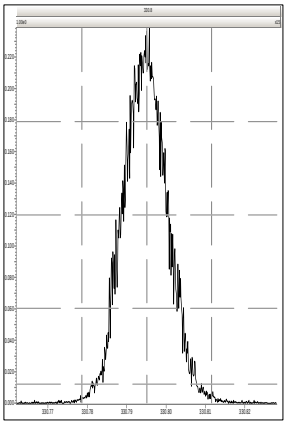


Printed: Saturday, December 16, 2023 01:26:33 Pacific Standard Time

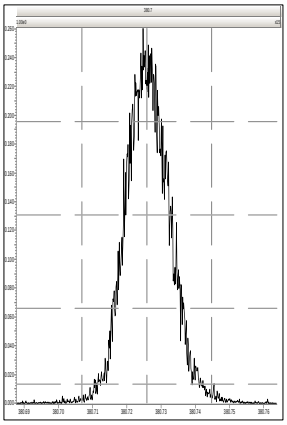
M 292.9824 R 13041



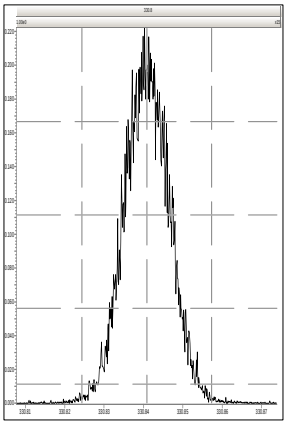
M 330.9792 R 13158



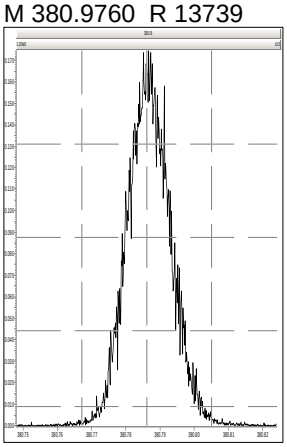
M 380.9760 R 12567



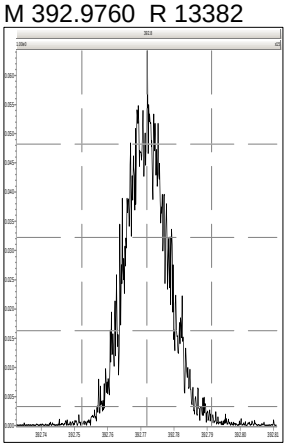
M 330.9792 R 12533



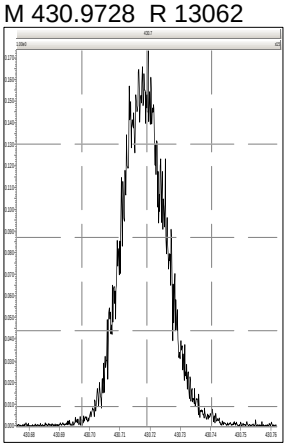
M 380.9760 R 13739



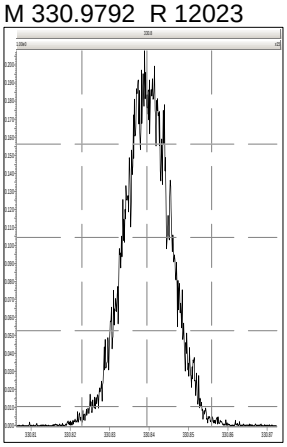
M 392.9760 R 13382



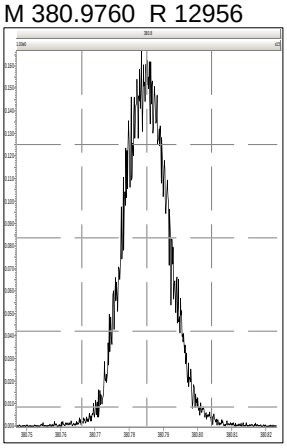
M 430.9728 R 13062



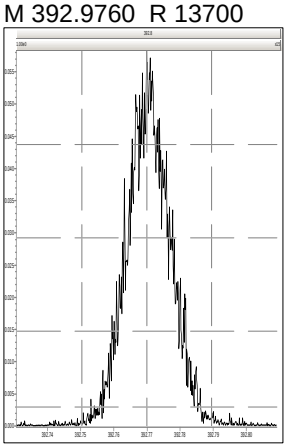
M 330.9792 R 12023



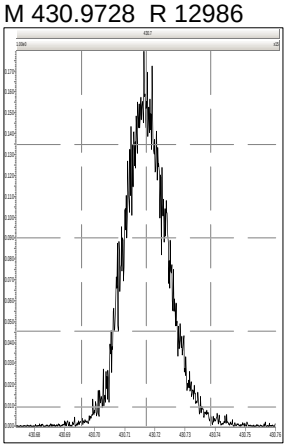
M 380.9760 R 12956



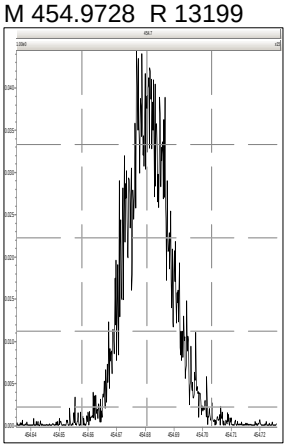
M 392.9760 R 13700



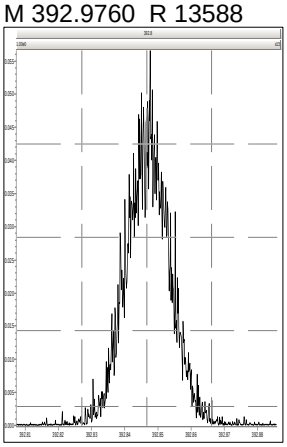
M 430.9728 R 12986



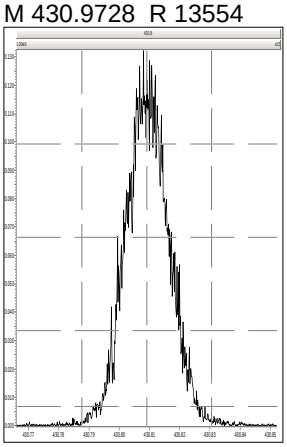
M 454.9728 R 13199



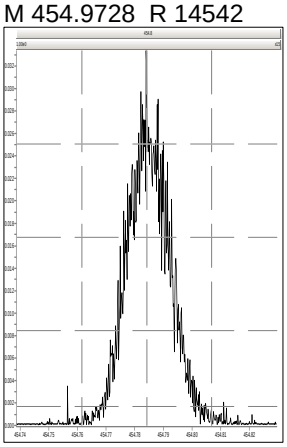
M 392.9760 R 13588



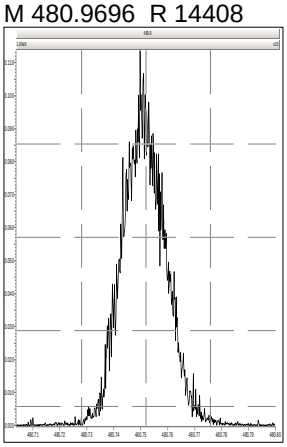
M 430.9728 R 13554



M 454.9728 R 14542

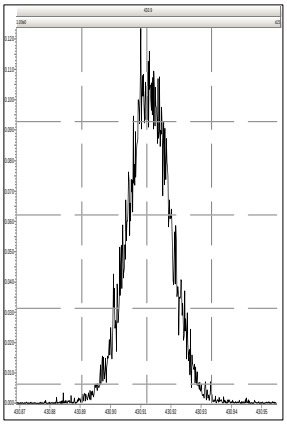


M 480.9696 R 14408

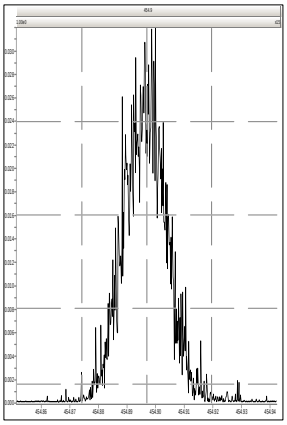


Printed: Saturday, December 16, 2023 01:26:33 Pacific Standard Time

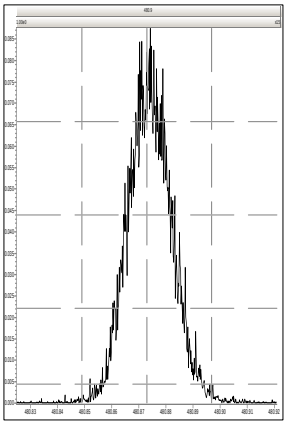
M 430.9728 R 14164



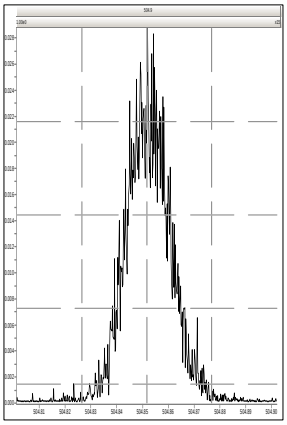
M 454.9728 R 15773



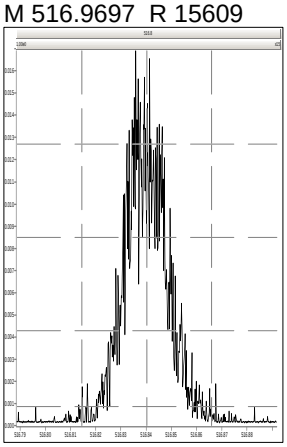
M 480.9696 R 13519

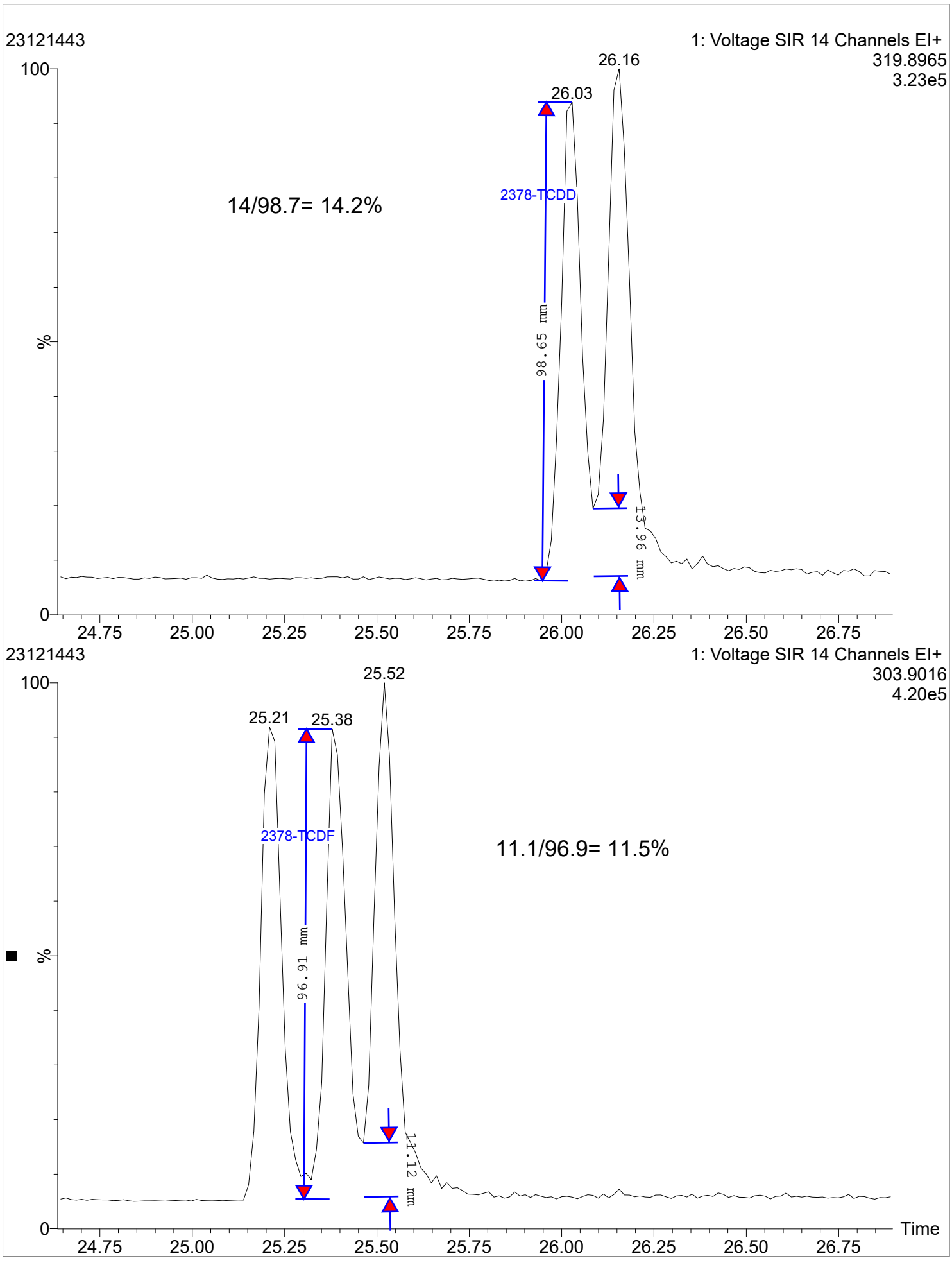


M 504.9696 R 14507



M 516.9697 R 15609




23121443
1: Voltage SIR 14 Channels EI+
319.8965
3.23e5
100
%
0
26.16
26.03
2378-TCDD
14/98.7= 14.2%
98.65 mm
13.96 mm
24.75
25.00
25.25
25.50
25.75
26.00
26.25
26.50
26.75
23121443
1: Voltage SIR 14 Channels EI+
303.9016
4.20e5
100
%
0
25.52
25.21
25.38
2378-TCDF
11.1/96.9= 11.5%
96.91 mm
11.12 mm
Time
24.75
25.00
25.25
25.50
25.75
26.00
26.25
26.50
26.75

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23I0156
Instrument .ID: AUTOSPEC01
Lab File ID: 23081103
Date Analyzed: 08/11/23
Time Analyzed: 11:19
Lab Sample ID: SLH0135-RES1
Sequence: SLH0135

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 14.9

3467-TCDF/2378-TCDF: 10.5

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLH0135-ICV1	CS3F1	23081102	08/11/2023	10:28
SLH0135-RES1	ISCF1	23081103	08/11/2023	11:19
SLH0135-CAL1	CSLCF	23081104	08/11/2023	12:07
SLH0135-CAL2	CS1CF	23081105	08/11/2023	13:01
SLH0135-CAL3	CS2CF	23081106	08/11/2023	13:56
SLH0135-CAL4	CS3CF	23081107	08/11/2023	14:52
SLH0135-CAL5	CS4CF	23081108	08/11/2023	15:40
SLH0135-CAL6	CS5CF	23081109	08/11/2023	16:29
SLH0135-SCV1	ICVCF	23081110	08/11/2023	17:18
SLH0135-CCV1	CS3F2	23081111	08/11/2023	18:06
SLH0135-RES2	ISCF2	23081112	08/11/2023	18:59

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23I0156
Instrument .ID: AUTOSPEC01
Lab File ID: 23081112
Date Analyzed: 08/11/23
Time Analyzed: 18:59
Lab Sample ID: SLH0135-RES2
Sequence: SLH0135

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 18.4

3467-TCDF/2378-TCDF: 15.3

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLH0135-ICV1	CS3F1	23081102	08/11/2023	10:28
SLH0135-RES1	ISCF1	23081103	08/11/2023	11:19
SLH0135-CAL1	CSLCF	23081104	08/11/2023	12:07
SLH0135-CAL2	CS1CF	23081105	08/11/2023	13:01
SLH0135-CAL3	CS2CF	23081106	08/11/2023	13:56
SLH0135-CAL4	CS3CF	23081107	08/11/2023	14:52
SLH0135-CAL5	CS4CF	23081108	08/11/2023	15:40
SLH0135-CAL6	CS5CF	23081109	08/11/2023	16:29
SLH0135-SCV1	ICVCF	23081110	08/11/2023	17:18
SLH0135-CCV1	CS3F2	23081111	08/11/2023	18:06
SLH0135-RES2	ISCF2	23081112	08/11/2023	18:59

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC SDG: 23I0156

Instrument .ID: AUTOSPEC01 Lab File ID: 23121420

Date Analyzed: 12/15/23 Time Analyzed: 01:28

Lab Sample ID: SLL0222-RES1 Sequence: SLL0222

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 15.2

3467-TCDF/2378-TCDF: 15.2

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLL0222-ICV1	CS3J3	23121419A	12/15/2023	00:35
SLL0222-RES1	ISCJ3	23121420	12/15/2023	01:28
BLK0112-BLK1	Blank	23121421	12/15/2023	02:20
BLK0112-BS1	LCS	23121422	12/15/2023	03:08
23I0156-05	AOC3-03-0.5-1.0	23121426	12/15/2023	06:24
23I0156-06	AOC3-103-0.5-1.0	23121427	12/15/2023	07:13
23I0156-08	AOC3-04-0.5-1.0	23121428	12/15/2023	13:03
23I0156-10	AOC3-05-0.5-1.0	23121429	12/15/2023	13:50
SLL0222-CCV1	CS3J4	23121431	12/15/2023	15:28
SLL0222-RES2	ISCJ4	23121432	12/15/2023	16:21
SLL0222-CCV2	CS3J5	23121442	12/16/2023	00:33
SLL0222-RES3	ISCJ5	23121443	12/16/2023	01:26

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23I0156
Instrument .ID: AUTOSPEC01
Lab File ID: 23121432
Date Analyzed: 12/15/23
Time Analyzed: 16:21
Lab Sample ID: SLL0222-RES2
Sequence: SLL0222

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 13.6

3467-TCDF/2378-TCDF: 12.3

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLL0222-ICV1	CS3J3	23121419A	12/15/2023	00:35
SLL0222-RES1	ISCJ3	23121420	12/15/2023	01:28
BLK0112-BLK1	Blank	23121421	12/15/2023	02:20
BLK0112-BS1	LCS	23121422	12/15/2023	03:08
23I0156-05	AOC3-03-0.5-1.0	23121426	12/15/2023	06:24
23I0156-06	AOC3-103-0.5-1.0	23121427	12/15/2023	07:13
23I0156-08	AOC3-04-0.5-1.0	23121428	12/15/2023	13:03
23I0156-10	AOC3-05-0.5-1.0	23121429	12/15/2023	13:50
SLL0222-CCV1	CS3J4	23121431	12/15/2023	15:28
SLL0222-RES2	ISCJ4	23121432	12/15/2023	16:21
SLL0222-CCV2	CS3J5	23121442	12/16/2023	00:33
SLL0222-RES3	ISCJ5	23121443	12/16/2023	01:26

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23I0156
Instrument .ID: AUTOSPEC01
Lab File ID: 23121443
Date Analyzed: 12/16/23
Time Analyzed: 01:26
Lab Sample ID: SLL0222-RES3
Sequence: SLL0222

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 14.2

3467-TCDF/2378-TCDF: 11.5

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLL0222-ICV1	CS3J3	23121419A	12/15/2023	00:35
SLL0222-RES1	ISCJ3	23121420	12/15/2023	01:28
BLK0112-BLK1	Blank	23121421	12/15/2023	02:20
BLK0112-BS1	LCS	23121422	12/15/2023	03:08
23I0156-05	AOC3-03-0.5-1.0	23121426	12/15/2023	06:24
23I0156-06	AOC3-103-0.5-1.0	23121427	12/15/2023	07:13
23I0156-08	AOC3-04-0.5-1.0	23121428	12/15/2023	13:03
23I0156-10	AOC3-05-0.5-1.0	23121429	12/15/2023	13:50
SLL0222-CCV1	CS3J4	23121431	12/15/2023	15:28
SLL0222-RES2	ISCJ4	23121432	12/15/2023	16:21
SLL0222-CCV2	CS3J5	23121442	12/16/2023	00:33
SLL0222-RES3	ISCJ5	23121443	12/16/2023	01:26

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SLH0135	Instrument:	AUTOSPEC01
		Calibration:	GH00041

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CS3F1	SLH0135-ICV1	23081102	NA	08/11/23 10:28
ISCF1	SLH0135-RES1	23081103	NA	08/11/23 11:19
CSLCF	SLH0135-CAL1	23081104	NA	08/11/23 12:07
CS1CF	SLH0135-CAL2	23081105	NA	08/11/23 13:01
CS2CF	SLH0135-CAL3	23081106	NA	08/11/23 13:56
CS3CF	SLH0135-CAL4	23081107	NA	08/11/23 14:52
CS4CF	SLH0135-CAL5	23081108	NA	08/11/23 15:40
CS5CF	SLH0135-CAL6	23081109	NA	08/11/23 16:29
ICVCF	SLH0135-SCV1	23081110	NA	08/11/23 17:18
CS3F2	SLH0135-CCV1	23081111	NA	08/11/23 18:06
ISCF2	SLH0135-RES2	23081112	NA	08/11/23 18:59

Analytical Resources, LLC
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ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SLL0222	Instrument:	AUTOSPEC01
		Calibration:	GH00041

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CS3J3	SLL0222-ICV1	23121419A	NA	12/15/23 00:35
ISCJ3	SLL0222-RES1	23121420	NA	12/15/23 01:28
Blank	BLK0112-BLK1	23121421	Solid	12/15/23 02:20
LCS	BLK0112-BS1	23121422	Solid	12/15/23 03:08
AOC3-03-0.5-1.0	23I0156-05	23121426	Solid	12/15/23 06:24
AOC3-103-0.5-1.0	23I0156-06	23121427	Solid	12/15/23 07:13
AOC3-04-0.5-1.0	23I0156-08	23121428	Solid	12/15/23 13:03
AOC3-05-0.5-1.0	23I0156-10	23121429	Solid	12/15/23 13:50
CS3J4	SLL0222-CCV1	23121431	NA	12/15/23 15:28
ISCJ4	SLL0222-RES2	23121432	NA	12/15/23 16:21
CS3J5	SLL0222-CCV2	23121442	NA	12/16/23 00:33
ISCJ5	SLL0222-RES3	23121443	NA	12/16/23 01:26

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SLL0222	Instrument:	AUTOSPEC01
Sample ID:	SLL0222-ICV1	Calibration:	GH00041
File ID:	23121419A	Analyzed:	12/15/23 00:35

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	88.6	71 - 129	25.3647	25.134	0.2307	N/A	
13C12-2,3,7,8-TCDD	100.00	102	82 - 118	26.0002	25.76963	0.2306	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	86.5	76 - 124	29.5043	29.2753	0.2290	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	84.2	77 - 123	30.8415	30.6141	0.2274	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	102	62 - 138	31.0975	30.86477	0.2327	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	90.4	76 - 124	34.4735	34.26848	0.2050	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	87.0	70 - 130	34.6183	34.40585	0.2124	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	85.0	73 - 127	35.4872	35.29345	0.1938	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	87.0	74 - 126	36.5345	36.3333	0.2012	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	105	85 - 115	35.6097	35.40857	0.2011	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	101	85 - 115	35.7322	35.52743	0.2048	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	79.1	78 - 122	38.3838	38.21063	0.1732	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	74.0	77 - 123	40.5675	40.372	0.1955	N/A	*
13C12-1,2,3,4,6,7,8-HpCDD	100.00	93.9	72 - 128	39.8432	39.66083	0.1824	N/A	
13C12-OCDD	200.00	76.8	48 - 152	44.4352	44.22563	0.2096	N/A	
37Cl4-2,3,7,8-TCDD	10.000	105	0 - 200	26.0143	25.78615	0.2281	N/A	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SLL0222	Instrument:	AUTOSPEC01
Sample ID:	BLK0112-BLK1	Calibration:	GH00041
File ID:	23121421	Analyzed:	12/15/23 02:20

Surrogate Compound	Spike Level ng/kg wet	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	200.00	46.9	24 - 169	25.3503	25.134	0.2163	N/A	
13C12-2,3,7,8-TCDD	200.00	56.4	25 - 164	25.986	25.76963	0.2164	N/A	
13C12-1,2,3,7,8-PeCDF	200.00	46.1	24 - 185	29.4822	29.2753	0.2069	N/A	
13C12-2,3,4,7,8-PeCDF	200.00	46.5	21 - 178	30.8303	30.6141	0.2162	N/A	
13C12-1,2,3,7,8-PeCDD	200.00	55.4	25 - 181	31.0753	30.86477	0.2105	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.00	49.8	26 - 152	34.4623	34.26848	0.1938	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.00	50.1	26 - 123	34.596	34.40585	0.1901	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.00	47.5	28 - 136	35.4762	35.29345	0.1827	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.00	48.0	29 - 147	36.5122	36.3333	0.1789	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.00	58.3	32 - 141	35.5987	35.40857	0.1901	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.00	56.1	28 - 130	35.7102	35.52743	0.1828	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.00	41.3	28 - 143	38.3615	38.21063	0.1509	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.00	40.0	26 - 138	40.5565	40.372	0.1845	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.00	52.6	23 - 140	39.8323	39.66083	0.1715	N/A	
13C12-OCDD	400.00	43.3	17 - 157	44.4078	44.22563	0.1822	N/A	
37Cl4-2,3,7,8-TCDD	80.000	89.1	35 - 197	26.0002	25.78615	0.2141	N/A	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SLL0222	Instrument:	AUTOSPEC01
Sample ID:	BLK0112-BS1	Calibration:	GH00041
File ID:	23121422	Analyzed:	12/15/23 03:08

Surrogate Compound	Spike Level ng/kg wet	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	200.00	42.0	24 - 169	25.3645	25.134	0.2305	N/A	
13C12-2,3,7,8-TCDD	200.00	54.4	25 - 164	26.0002	25.76963	0.2306	N/A	
13C12-1,2,3,7,8-PeCDF	200.00	57.4	24 - 185	29.4933	29.2753	0.2180	N/A	
13C12-2,3,4,7,8-PeCDF	200.00	53.4	21 - 178	30.8415	30.6141	0.2274	N/A	
13C12-1,2,3,7,8-PeCDD	200.00	67.4	25 - 181	31.0865	30.86477	0.2217	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.00	62.1	26 - 152	34.4623	34.26848	0.1938	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.00	57.4	26 - 123	34.6073	34.40585	0.2015	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.00	60.9	28 - 136	35.4873	35.29345	0.1938	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.00	65.4	29 - 147	36.5235	36.3333	0.1902	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.00	74.9	32 - 141	35.6098	35.40857	0.2012	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.00	73.7	28 - 130	35.7213	35.52743	0.1939	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.00	52.1	28 - 143	38.3728	38.21063	0.1622	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.00	52.0	26 - 138	40.5563	40.372	0.1843	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.00	67.8	23 - 140	39.8323	39.66083	0.1715	N/A	
13C12-OCDD	400.00	56.7	17 - 157	44.4168	44.22563	0.1912	N/A	
37Cl4-2,3,7,8-TCDD	80.000	64.6	35 - 197	26.0143	25.78615	0.2281	N/A	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SLL0222	Instrument:	AUTOSPEC01
Sample ID:	23I0156-05	Calibration:	GH00041
File ID:	23121426	Analyzed:	12/15/23 06:24

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	197.67	47.4	24 - 169	25.3648	25.134	0.2308	N/A	
13C12-2,3,7,8-TCDD	197.67	62.9	25 - 164	26.0003	25.76963	0.2307	N/A	
13C12-1,2,3,7,8-PeCDF	197.67	53.1	24 - 185	29.5047	29.2753	0.2294	N/A	
13C12-2,3,4,7,8-PeCDF	197.67	51.6	21 - 178	30.8528	30.6141	0.2387	N/A	
13C12-1,2,3,7,8-PeCDD	197.67	68.0	25 - 181	31.0978	30.86477	0.2330	N/A	
13C12-1,2,3,4,7,8-HxCDF	197.67	52.1	26 - 152	34.4848	34.26848	0.2163	N/A	
13C12-1,2,3,6,7,8-HxCDF	197.67	43.7	26 - 123	34.6297	34.40585	0.2238	N/A	
13C12-2,3,4,6,7,8-HxCDF	197.67	47.0	28 - 136	35.5097	35.29345	0.2163	N/A	
13C12-1,2,3,7,8,9-HxCDF	197.67	49.4	29 - 147	36.5458	36.3333	0.2125	N/A	
13C12-1,2,3,4,7,8-HxCDD	197.67	63.9	32 - 141	35.6212	35.40857	0.2126	N/A	
13C12-1,2,3,6,7,8-HxCDD	197.67	52.2	28 - 130	35.7437	35.52743	0.2163	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	197.67	39.3	28 - 143	38.3953	38.21063	0.1847	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	197.67	39.6	26 - 138	40.579	40.372	0.2070	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	197.67	54.2	23 - 140	39.8658	39.66083	0.2050	N/A	
13C12-OCDD	395.34	40.8	17 - 157	44.4538	44.22563	0.2282	N/A	
37Cl4-2,3,7,8-TCDD	79.069	88.9	35 - 197	26.0145	25.78615	0.2284	N/A	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SLL0222	Instrument:	AUTOSPEC01
Sample ID:	23I0156-06	Calibration:	GH00041
File ID:	23121427	Analyzed:	12/15/23 07:13

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	199.79	47.5	24 - 169	25.3647	25.134	0.2307	N/A	
13C12-2,3,7,8-TCDD	199.79	62.9	25 - 164	26.0002	25.76963	0.2306	N/A	
13C12-1,2,3,7,8-PeCDF	199.79	49.8	24 - 185	29.5157	29.2753	0.2404	N/A	
13C12-2,3,4,7,8-PeCDF	199.79	48.8	21 - 178	30.8527	30.6141	0.2386	N/A	
13C12-1,2,3,7,8-PeCDD	199.79	65.7	25 - 181	31.1088	30.86477	0.2440	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.79	53.4	26 - 152	34.4957	34.26848	0.2272	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.79	45.1	26 - 123	34.6295	34.40585	0.2236	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.79	47.9	28 - 136	35.5095	35.29345	0.2161	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.79	50.3	29 - 147	36.5455	36.3333	0.2122	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.79	63.1	32 - 141	35.632	35.40857	0.2234	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.79	54.5	28 - 130	35.7433	35.52743	0.2159	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.79	38.2	28 - 143	38.4062	38.21063	0.1956	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.79	40.0	26 - 138	40.5898	40.372	0.2178	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.79	55.6	23 - 140	39.8657	39.66083	0.2049	N/A	
13C12-OCDD	399.58	43.2	17 - 157	44.4533	44.22563	0.2277	N/A	
37Cl4-2,3,7,8-TCDD	79.916	78.8	35 - 197	26.0143	25.78615	0.2281	N/A	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SLL0222	Instrument:	AUTOSPEC01
Sample ID:	23I0156-08	Calibration:	GH00041
File ID:	23121428	Analyzed:	12/15/23 13:03

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	198.68	98.9	24 - 169	25.4493	25.134	0.3153	N/A	
13C12-2,3,7,8-TCDD	198.68	134	25 - 164	26.0568	25.76963	0.2872	N/A	
13C12-1,2,3,7,8-PeCDF	198.68	110	24 - 185	29.5492	29.2753	0.2739	N/A	
13C12-2,3,4,7,8-PeCDF	198.68	111	21 - 178	30.8862	30.6141	0.2721	N/A	
13C12-1,2,3,7,8-PeCDD	198.68	130	25 - 181	31.1423	30.86477	0.2775	N/A	
13C12-1,2,3,4,7,8-HxCDF	198.68	63.6	26 - 152	34.5072	34.26848	0.2387	N/A	
13C12-1,2,3,6,7,8-HxCDF	198.68	54.1	26 - 123	34.6408	34.40585	0.2349	N/A	
13C12-2,3,4,6,7,8-HxCDF	198.68	57.8	28 - 136	35.521	35.29345	0.2276	N/A	
13C12-1,2,3,7,8,9-HxCDF	198.68	61.4	29 - 147	36.5572	36.3333	0.2239	N/A	
13C12-1,2,3,4,7,8-HxCDD	198.68	75.1	32 - 141	35.6435	35.40857	0.2349	N/A	
13C12-1,2,3,6,7,8-HxCDD	198.68	66.2	28 - 130	35.7548	35.52743	0.2274	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	198.68	49.6	28 - 143	38.4065	38.21063	0.1959	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	198.68	50.2	26 - 138	40.5902	40.372	0.2182	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	198.68	66.1	23 - 140	39.866	39.66083	0.2052	N/A	
13C12-OCDD	397.35	48.1	17 - 157	44.4538	44.22563	0.2282	N/A	
37Cl4-2,3,7,8-TCDD	79.471	190	35 - 197	26.085	25.78615	0.2989	N/A	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SLL0222	Instrument:	AUTOSPEC01
Sample ID:	23I0156-10	Calibration:	GH00041
File ID:	23121429	Analyzed:	12/15/23 13:50

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	199.90	66.6	24 - 169	25.4068	25.134	0.2728	N/A	
13C12-2,3,7,8-TCDD	199.90	90.4	25 - 164	26.0283	25.76963	0.2587	N/A	
13C12-1,2,3,7,8-PeCDF	199.90	79.7	24 - 185	29.5265	29.2753	0.2512	N/A	
13C12-2,3,4,7,8-PeCDF	199.90	82.1	21 - 178	30.8635	30.6141	0.2494	N/A	
13C12-1,2,3,7,8-PeCDD	199.90	107	25 - 181	31.1197	30.86477	0.2549	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.90	59.1	26 - 152	34.4955	34.26848	0.2270	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.90	49.6	26 - 123	34.6403	34.40585	0.2345	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.90	53.5	28 - 136	35.5203	35.29345	0.2268	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.90	57.9	29 - 147	36.5455	36.3333	0.2122	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.90	71.9	32 - 141	35.643	35.40857	0.2344	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.90	61.3	28 - 130	35.7543	35.52743	0.2269	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.90	47.6	28 - 143	38.395	38.21063	0.1844	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.90	49.6	26 - 138	40.5898	40.372	0.2178	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.90	66.3	23 - 140	39.8657	39.66083	0.2049	N/A	
13C12-OCDD	399.80	52.3	17 - 157	44.4535	44.22563	0.2279	N/A	
37Cl4-2,3,7,8-TCDD	79.961	122	35 - 197	26.0425	25.78615	0.2564	N/A	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SLL0222	Instrument:	AUTOSPEC01
Sample ID:	SLL0222-CCV1	Calibration:	GH00041
File ID:	23121431	Analyzed:	12/15/23 15:28

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	86.3	71 - 129	25.3647	25.134	0.2307	N/A	
13C12-2,3,7,8-TCDD	100.00	105	82 - 118	25.9862	25.76963	0.2166	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	89.6	76 - 124	29.4933	29.2753	0.2180	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	89.7	77 - 123	30.8417	30.6141	0.2276	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	111	62 - 138	31.0867	30.86477	0.2219	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	85.9	76 - 124	34.4735	34.26848	0.2050	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	72.0	70 - 130	34.6073	34.40585	0.2015	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	79.7	73 - 127	35.4875	35.29345	0.1940	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	81.9	74 - 126	36.5235	36.3333	0.1902	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	103	85 - 115	35.61	35.40857	0.2014	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	88.1	85 - 115	35.7213	35.52743	0.1939	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	72.7	78 - 122	38.373	38.21063	0.1624	N/A	*
13C12-1,2,3,4,7,8,9-HpCDF	100.00	71.7	77 - 123	40.5565	40.372	0.1845	N/A	*
13C12-1,2,3,4,6,7,8-HpCDD	100.00	95.4	72 - 128	39.8435	39.66083	0.1827	N/A	
13C12-OCDD	200.00	72.2	48 - 152	44.4262	44.22563	0.2006	N/A	
37Cl4-2,3,7,8-TCDD	10.000	104	0 - 200	26.0145	25.78615	0.2284	N/A	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23I0156
Client:	Floyd - Snider	Project:	Smith-Kem
Sequence:	SLL0222	Instrument:	AUTOSPEC01
Sample ID:	SLL0222-CCV2	Calibration:	GH00041
File ID:	23121442	Analyzed:	12/16/23 00:33

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	88.8	71 - 129	25.3645	25.134	0.2305	N/A	
13C12-2,3,7,8-TCDD	100.00	105	82 - 118	26.0002	25.76963	0.2306	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	89.5	76 - 124	29.5045	29.2753	0.2292	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	90.2	77 - 123	30.8415	30.6141	0.2274	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	107	62 - 138	31.0867	30.86477	0.2219	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	87.3	76 - 124	34.4735	34.26848	0.2050	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	81.8	70 - 130	34.6183	34.40585	0.2124	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	83.6	73 - 127	35.4873	35.29345	0.1938	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	81.5	74 - 126	36.5347	36.3333	0.2014	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	103	85 - 115	35.61	35.40857	0.2014	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	95.1	85 - 115	35.7325	35.52743	0.2051	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	75.5	78 - 122	38.3842	38.21063	0.1736	N/A	*
13C12-1,2,3,4,7,8,9-HpCDF	100.00	70.1	77 - 123	40.5678	40.372	0.1958	N/A	*
13C12-1,2,3,4,6,7,8-HpCDD	100.00	94.0	72 - 128	39.8437	39.66083	0.1829	N/A	
13C12-OCDD	200.00	74.0	48 - 152	44.4355	44.22563	0.2099	N/A	
37Cl4-2,3,7,8-TCDD	10.000	100	0 - 200	26.0143	25.78615	0.2281	N/A	

* Values outside of QC limits

HOLDING TIME SUMMARY

Analysis: EPA 1613B

Laboratory: Analytical Resources, LLC SDG: 23I0156

Client: Floyd - Snider Project: Smith-Kem

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
AOC3-03-0.5-1.0 23I0156-05	09/07/23 08:45	09/08/23 11:58	11/14/23 13:25	68	365	12/15/23 06:24	31	365	
AOC3-103-0.5-1.0 23I0156-06	09/07/23 08:47	09/08/23 11:58	11/14/23 13:25	68	365	12/15/23 07:13	31	365	
AOC3-04-0.5-1.0 23I0156-08	09/07/23 09:00	09/08/23 11:58	11/14/23 13:25	68	365	12/15/23 13:03	31	365	
AOC3-05-0.5-1.0 23I0156-10	09/07/23 09:15	09/08/23 11:58	11/14/23 13:25	68	365	12/15/23 13:50	31	365	

* Indicates hold time exceedance.

Analytical Resources, LLC
Analytical Chemists and Consultants

METHOD DETECTION AND REPORTING LIMITS

EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23I0156
Client: Floyd - Snider
Project: Smith-Kem
Matrix: Solid
Instrument: AUTOSPEC01

Analyte	MDL	RL	Units
2,3,7,8-TCDF	0.058	1.00	ng/kg
2,3,7,8-TCDD	0.150	1.00	ng/kg
1,2,3,7,8-PeCDF	0.240	1.00	ng/kg
2,3,4,7,8-PeCDF	0.220	1.00	ng/kg
1,2,3,7,8-PeCDD	0.170	1.00	ng/kg
1,2,3,4,7,8-HxCDF	0.280	1.00	ng/kg
1,2,3,6,7,8-HxCDF	0.200	1.00	ng/kg
2,3,4,6,7,8-HxCDF	0.170	1.00	ng/kg
1,2,3,7,8,9-HxCDF	0.190	1.00	ng/kg
1,2,3,4,7,8-HxCDD	0.170	1.00	ng/kg
1,2,3,6,7,8-HxCDD	0.180	1.00	ng/kg
1,2,3,7,8,9-HxCDD	0.220	1.00	ng/kg
1,2,3,4,6,7,8-HpCDF	0.210	1.00	ng/kg
1,2,3,4,7,8,9-HpCDF	0.240	1.00	ng/kg
1,2,3,4,6,7,8-HpCDD	0.560	2.50	ng/kg
OCDF	1.10	2.50	ng/kg
OCDD	4.60	10.0	ng/kg
Total TCDF		1.00	ng/kg
Total TCDD		1.00	ng/kg
Total PeCDF		1.00	ng/kg
Total PeCDD		1.00	ng/kg
Total HxCDF		1.00	ng/kg
Total HxCDD		1.00	ng/kg
Total HpCDF		1.00	ng/kg
Total HpCDD		1.00	ng/kg

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

CS3WT

Calibration and Verification Solution (EPA-1613CS3) combined with Window Defining and 2,3,7,8-TCDD Resolution Testing Congeners

PRODUCT CODE:	CS3WT
LOT NUMBER:	CS3WT0918
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/24/2018
LAST TESTED: (mm/dd/yyyy)	10/29/2018
EXPIRY DATE: (mm/dd/yyyy)	10/29/2025
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

CS3WT is a solution/mixture of native and $^{13}C_{12}$-labelled chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

CS3WT was designed and prepared to be used as a HRMS calibration standard according to U.S. EPA Method 1613B.

It is to be used for calibration verification in place of EPA-1613CS3 (Lot: 13CS30918). It also contains the PCDD and PCDF window defining congeners for a DB-5 (or equivalent) capillary column as well as the TCDD isomers required to test and confirm the resolution of 2,3,7,8-TCDD.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%. The individual native 2,3,7,8-substituted PCDD and PCDF congeners all have chemical purities of >98%; the other congeners (window defining and resolution testing) should only be considered semi-quantitative.

This current lot of CS3WT is to be used with the 1613 calibration solutions having the following lot numbers:

PRODUCT CODE	LOT NUMBER
EPA-1613CS1	13CS10918
EPA-1613CS2	13CS20918
EPA-1613CS3	13CS30918
EPA-1613CS4	13CS40918
EPA-1613CS5	13CS50918
EPA-1613CSL	13CSL0918
EPA-1613CS0.5	13CS0.50918

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Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.
- Only the 2,3,7,8-substituted PCDDs and PCDFs should be used for quantitation. The other congeners (window defining and 2378-TCDD resolution testing) should be considered semi-quantitative (within ±20% of their design value). Impurities have been identified where possible.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **CS3WT; Components and Concentrations (ng/ml, in nonane/4.5% toluene)**

QUANTITATIVE ANALYTES (ng/ml, ±5%)	
Native PCDDs & PCDFs:	
2,3,7,8-TCDD	10
2,3,7,8-TCDF	10
1,2,3,7,8-PeCDD	50
1,2,3,7,8-PeCDF	50
2,3,4,7,8-PeCDF	50
1,2,3,4,7,8-HxCDD	50
1,2,3,6,7,8-HxCDD	50
1,2,3,7,8,9-HxCDD	50
1,2,3,4,7,8-HxCDF	50
1,2,3,6,7,8-HxCDF	50
1,2,3,7,8,9-HxCDF	50
2,3,4,6,7,8-HxCDF	50
1,2,3,4,6,7,8-HpCDD *(WD)*	50
1,2,3,4,6,7,8-HpCDF *(WD)*	50
1,2,3,4,7,8,9-HpCDF *(WD)*	50
OCDD	100
OCDF	100
Labelled PCDDs & PCDFs:	
$^{13}C_{12}$-2,3,7,8-TCDD	100
$^{13}C_{12}$-2,3,7,8-TCDF	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100
$^{13}C_{12}$-OCDD	200
Cleanup Standard:	
$^{37}Cl_4$-2,3,7,8-TCDD	10
Internal Standards:	
$^{13}C_{12}$-1,2,3,4-TCDD	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100

SEMI-QUANTITATIVE ANALYTES (ng/ml, ±20%)	
Window Definers:*	
1,3,6,8-TCDD	10
1,2,8,9-TCDD	10
1,3,6,8-TCDF	10
1,2,8,9-TCDF	10
1,2,4,6,8/1,2,4,7,9-PeCDD	50
1,2,3,8,9-PeCDD	50
1,3,4,6,8-PeCDF	50
1,2,3,8,9-PeCDF	50
1,2,4,6,7,9-HxCDD	50
1,2,3,4,6,8-HxCDF	50
1,2,3,4,6,7,9-HpCDD	50
2378-TCDD Resolution Testing Isomers:	
1,2,3,4-TCDD	5
1,2,3,7/1,2,3,8-TCDD	5
1,2,3,9-TCDD	10

** 1,2,3,4,6,7-HxCDD (last eluting HxCDD) not included; coelutes with 1,2,3,7,8,9-HxCDD. Use 1,2,3,4,6,7,9-HpCDD to set window.*

** 1,2,3,4,8,9-HxCDF (last eluting HxCDF) not included; can interfere with 1,2,3,7,8,9-HxCDF. Use 1,2,3,4,6,7,8-HpCDF to set window.*

WD – Window Definer

Certified By: _____ **Date:** 10/30/2018
(mm/dd/yyyy)

B.G. Chittim, General Manager

Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

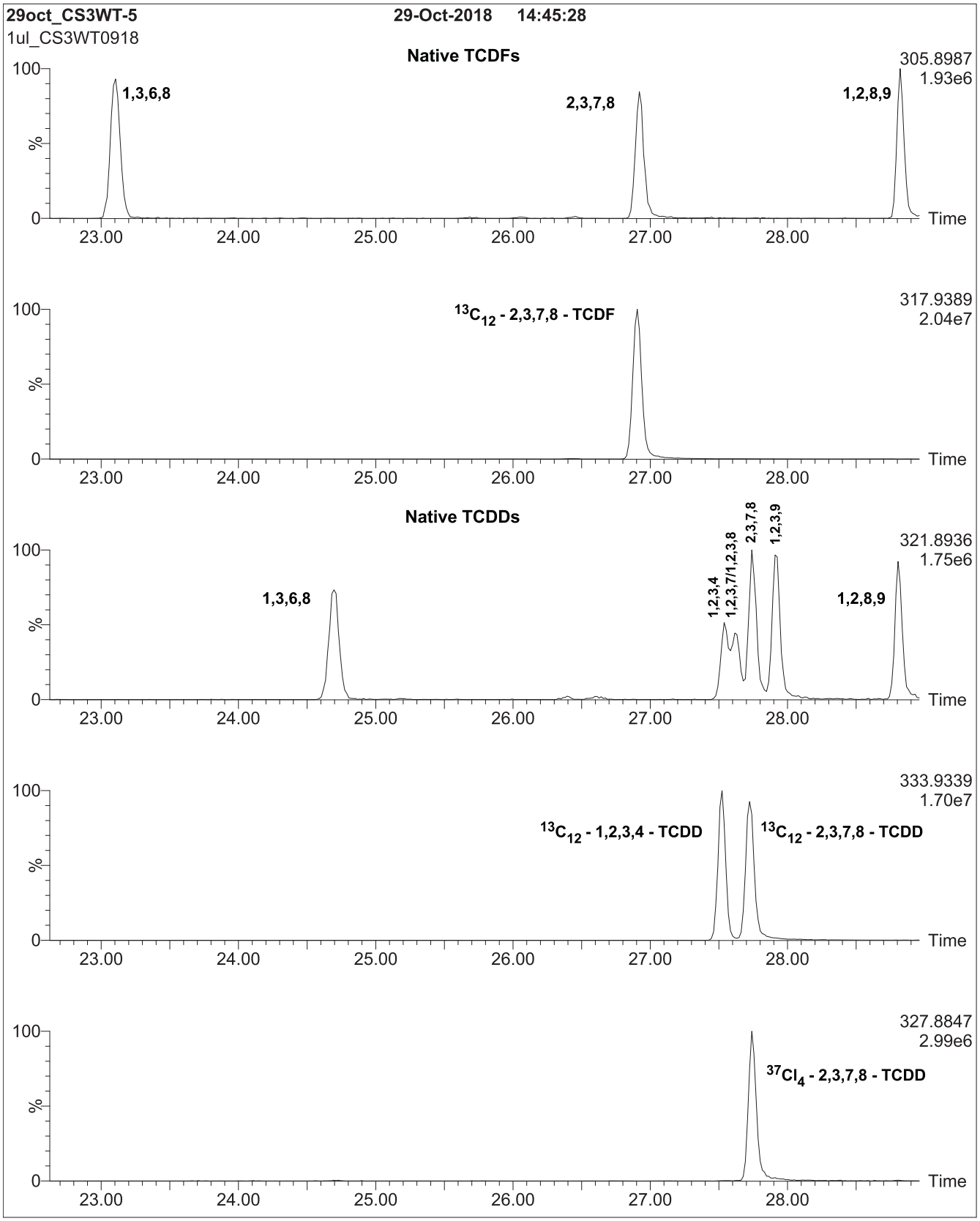


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

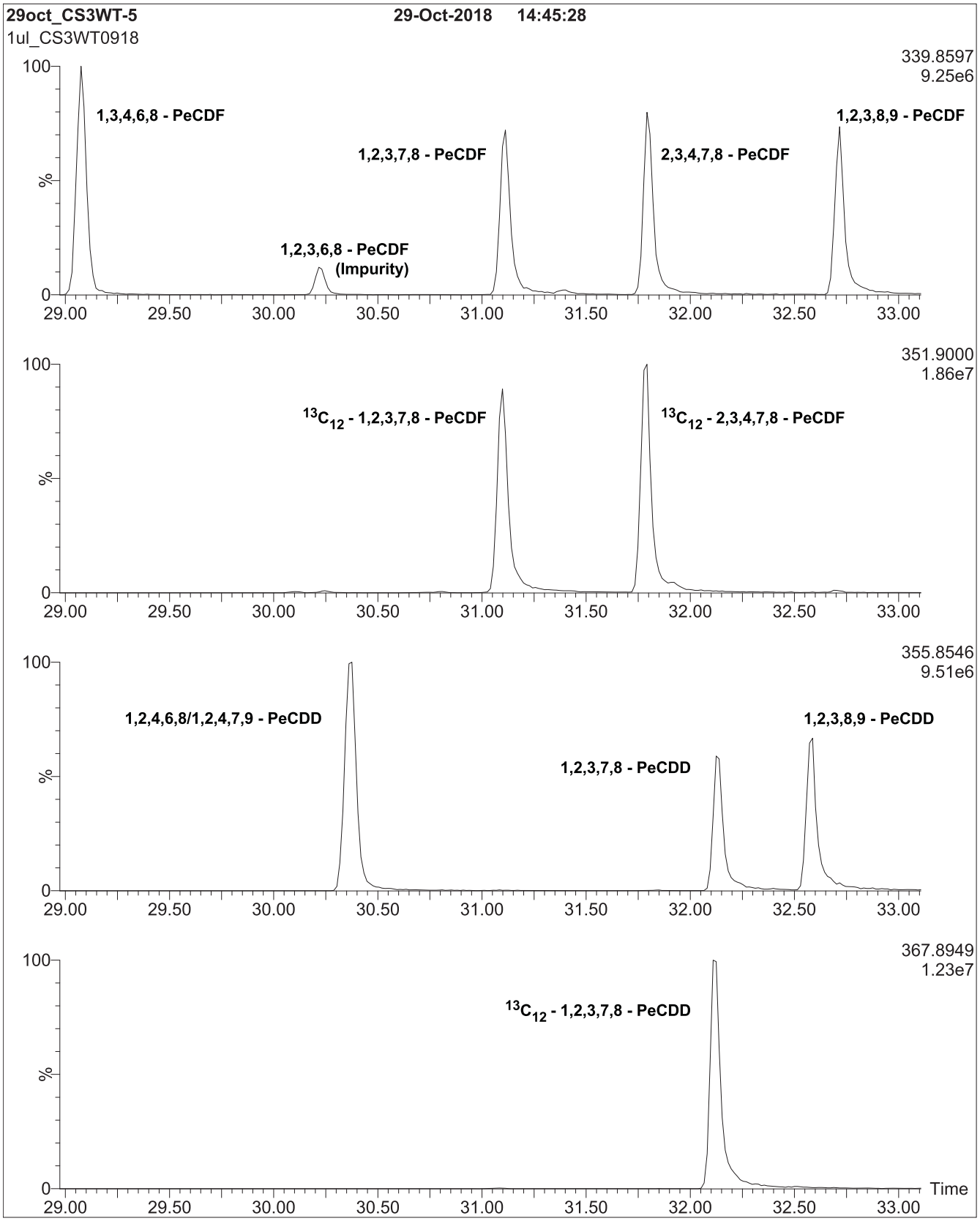


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

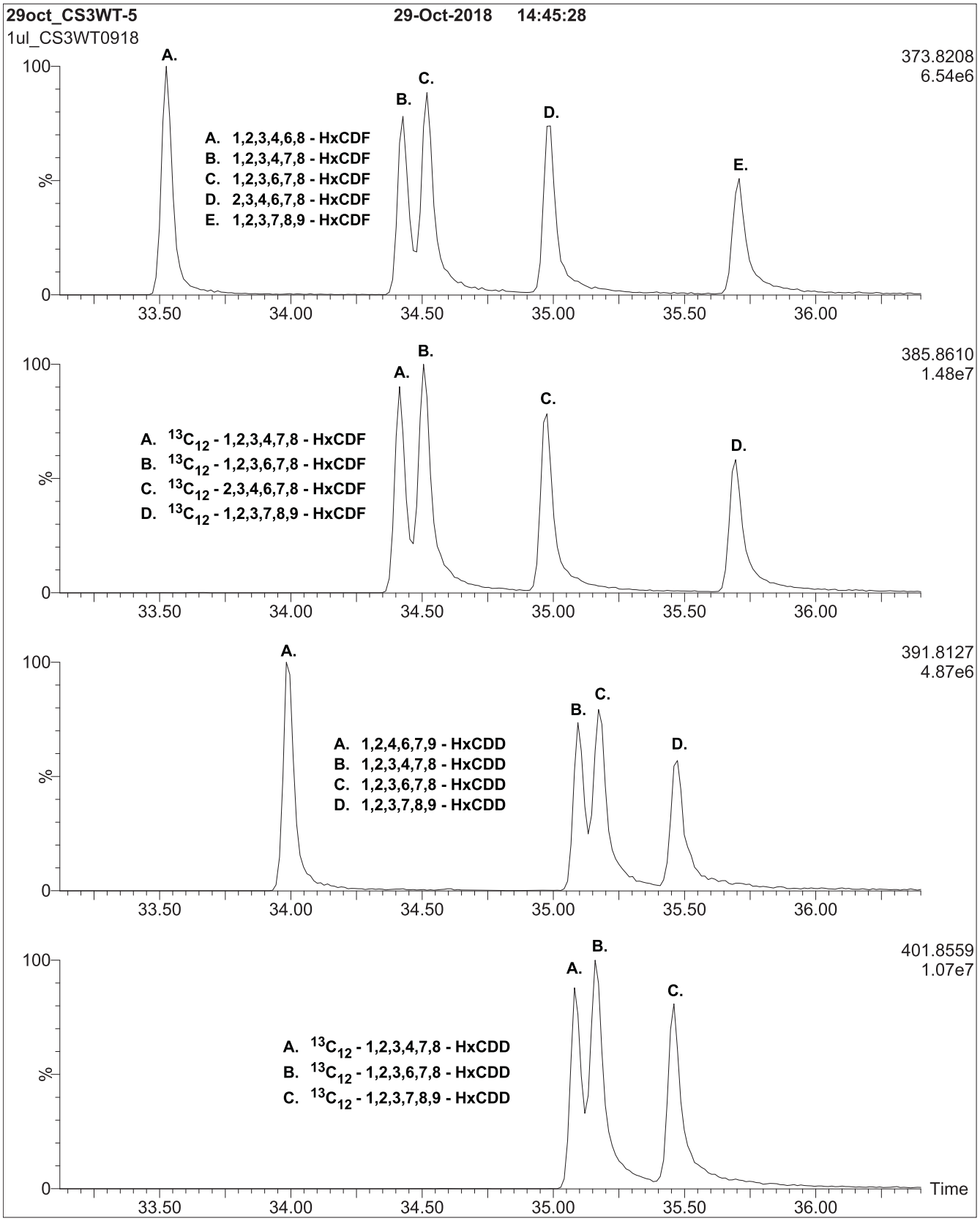


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

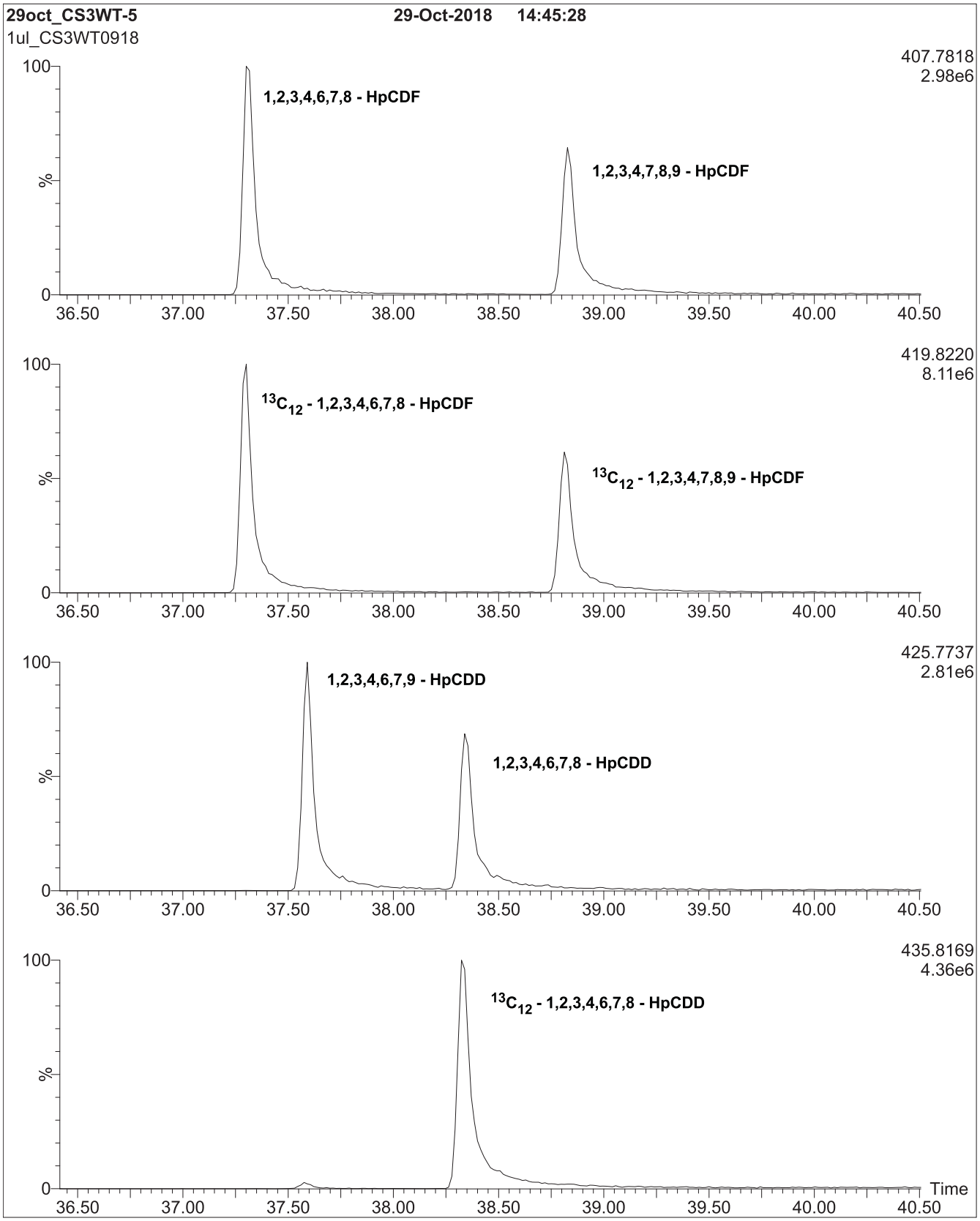
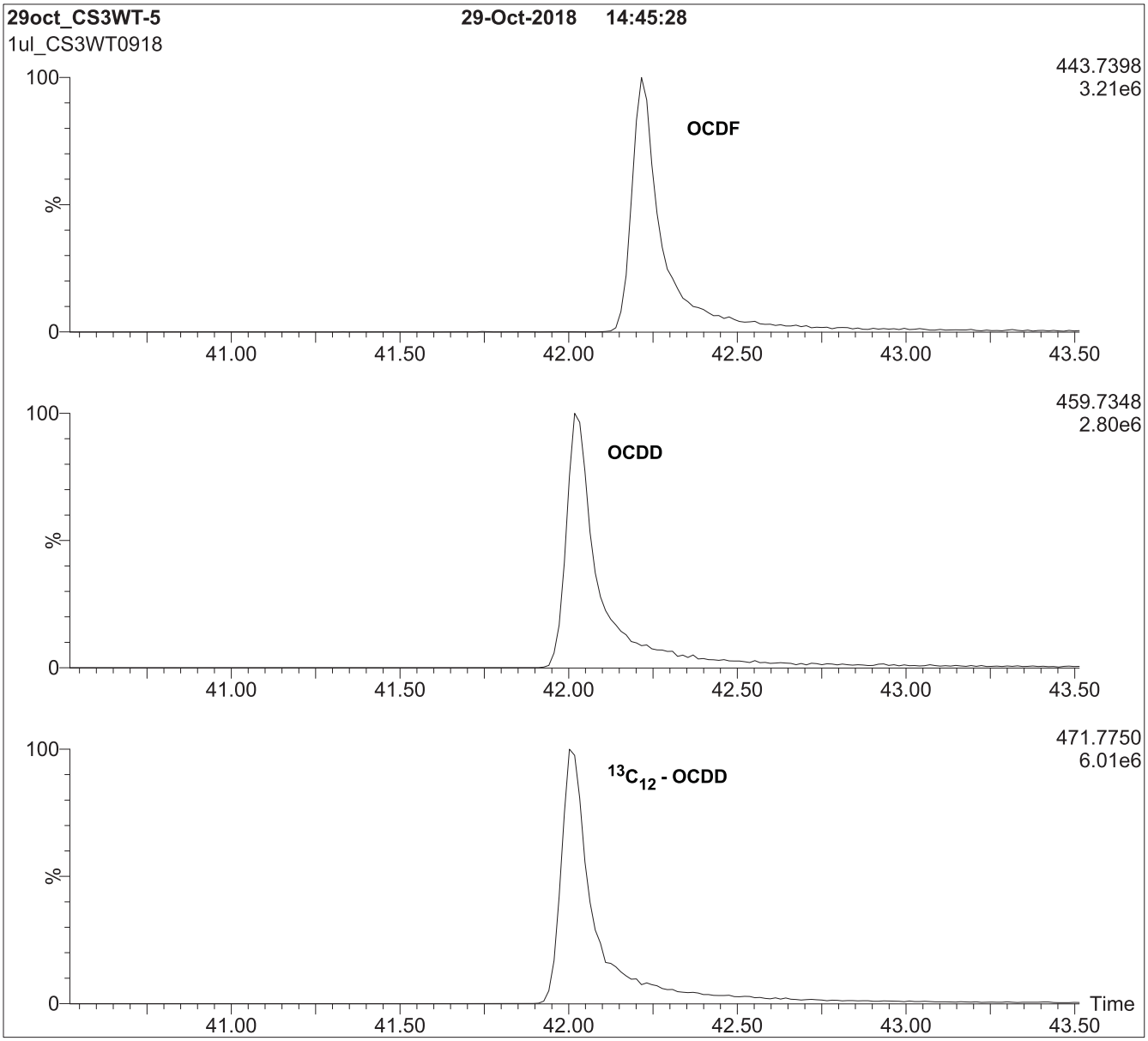


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow:	Constant at 1 ml/min	Oven:	150 °C (1 min)
Injector:	280 °C (Splitless Injection)		12 °C/min to 200 °C
Ionization:	EI+		3 °C/min to 235 °C
Detector:	280 °C		235 °C (8 min)
	SIR at 10,000 mass resolving power		8 °C/min to 310 °C
			310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005456
1613 CS1 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019
(mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

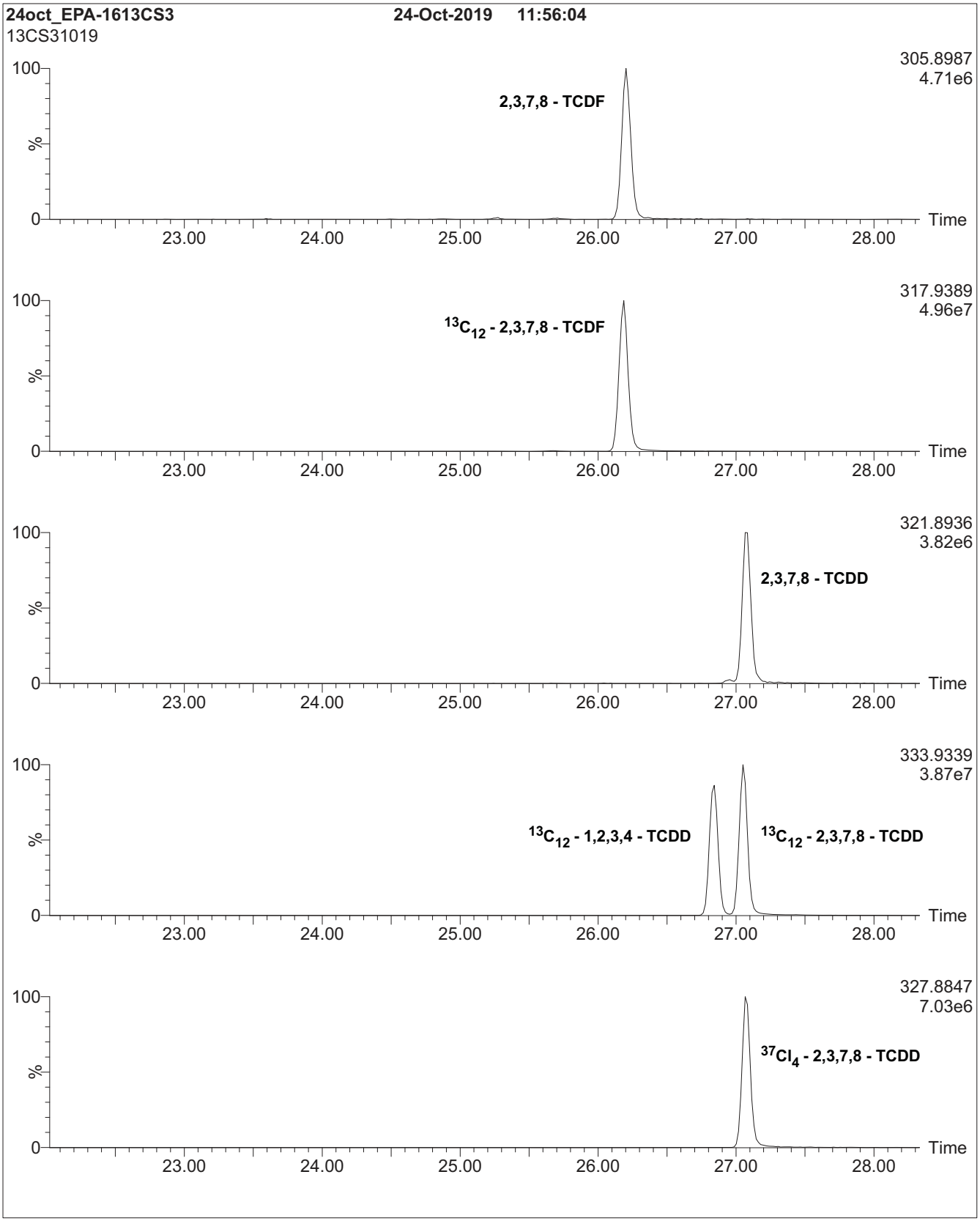


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

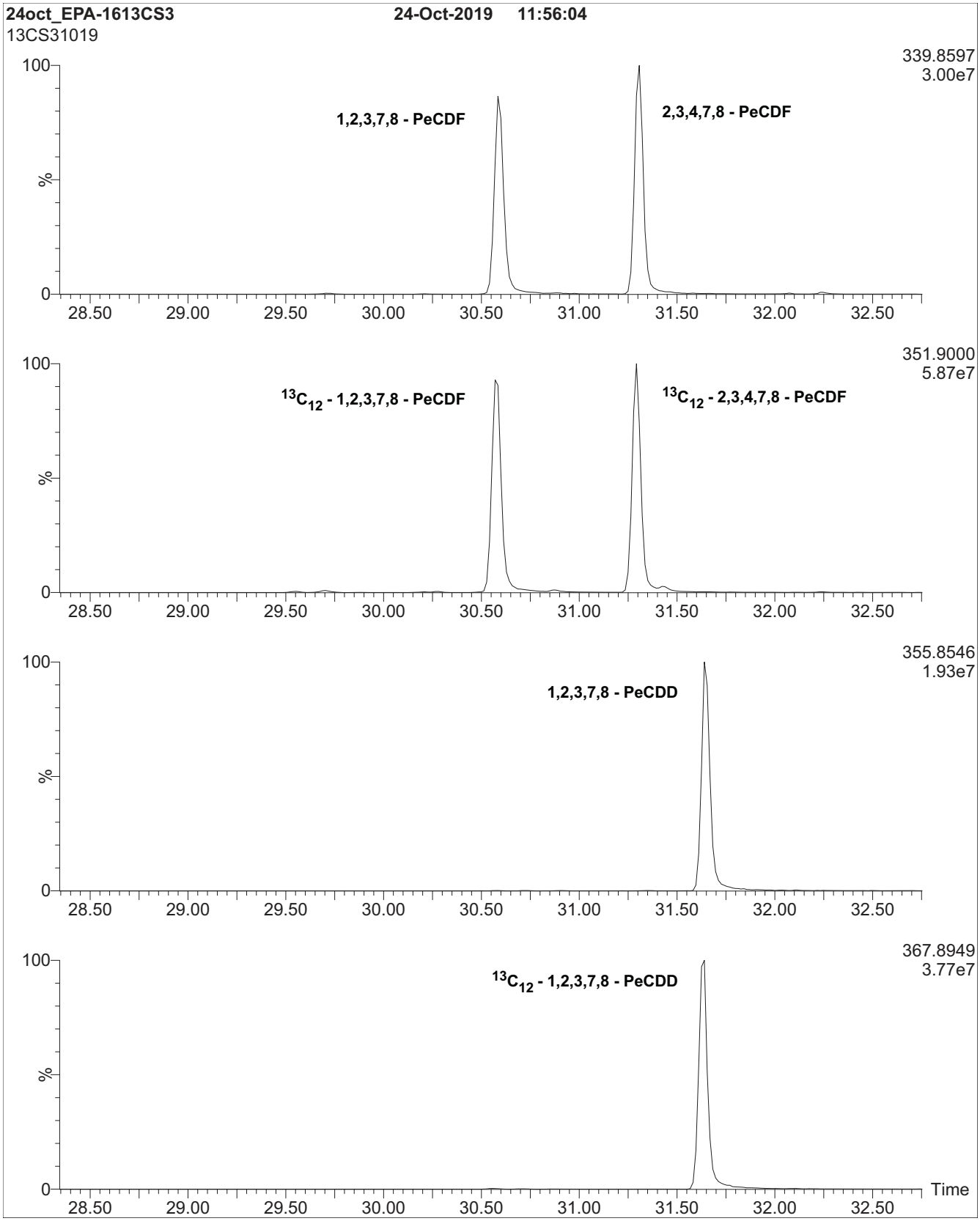


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

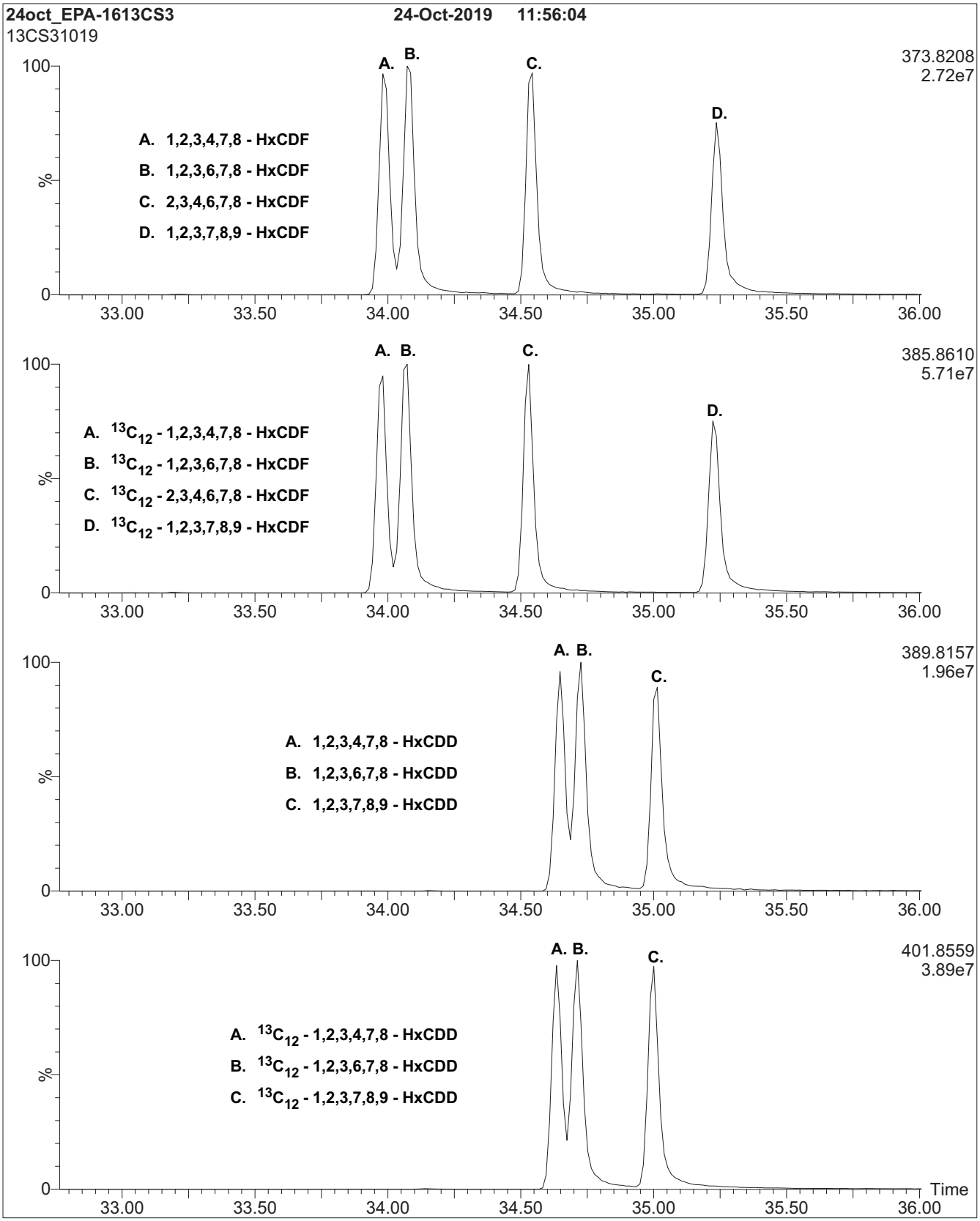


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

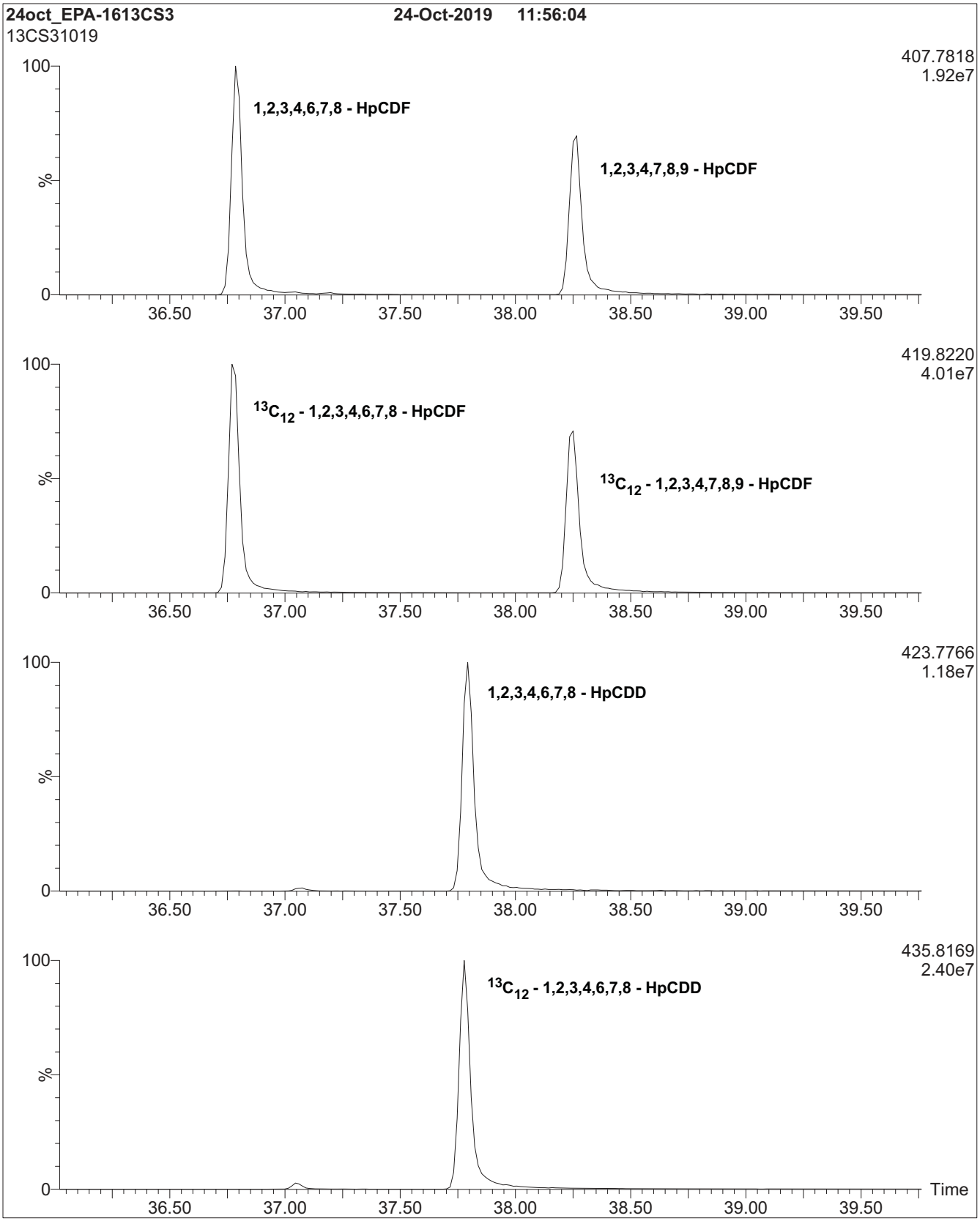
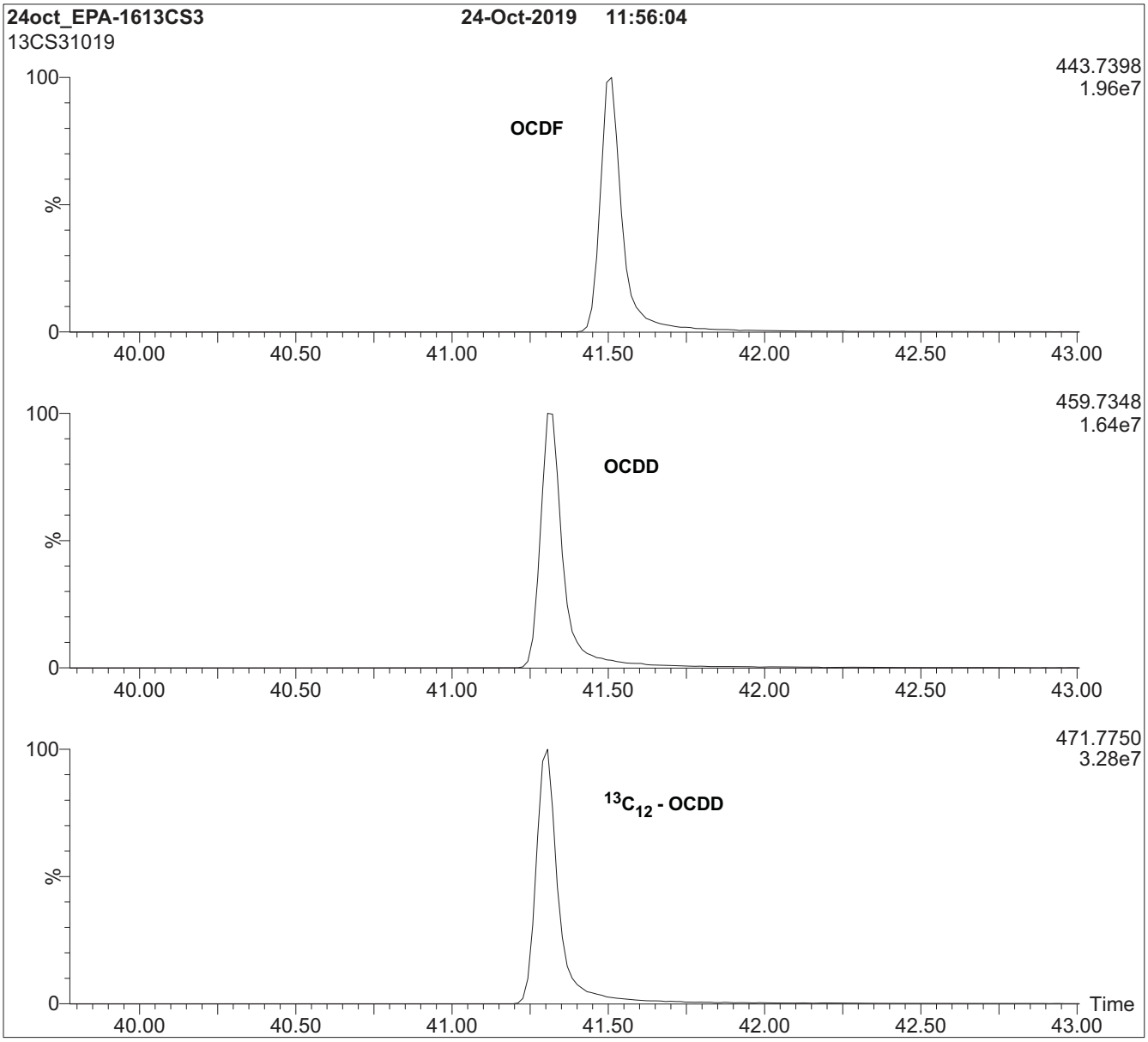


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005457
1613 CS2 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019
(mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

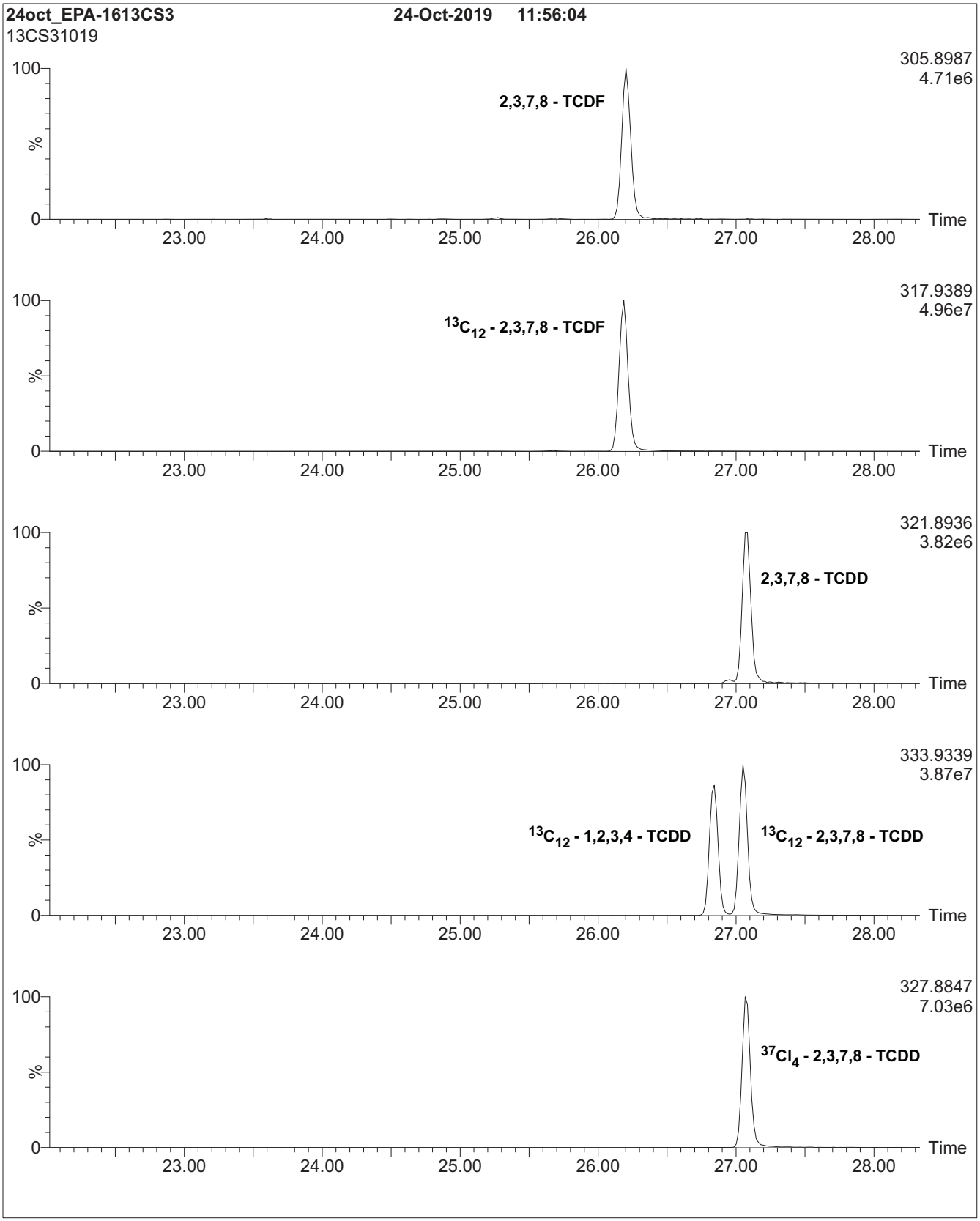


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

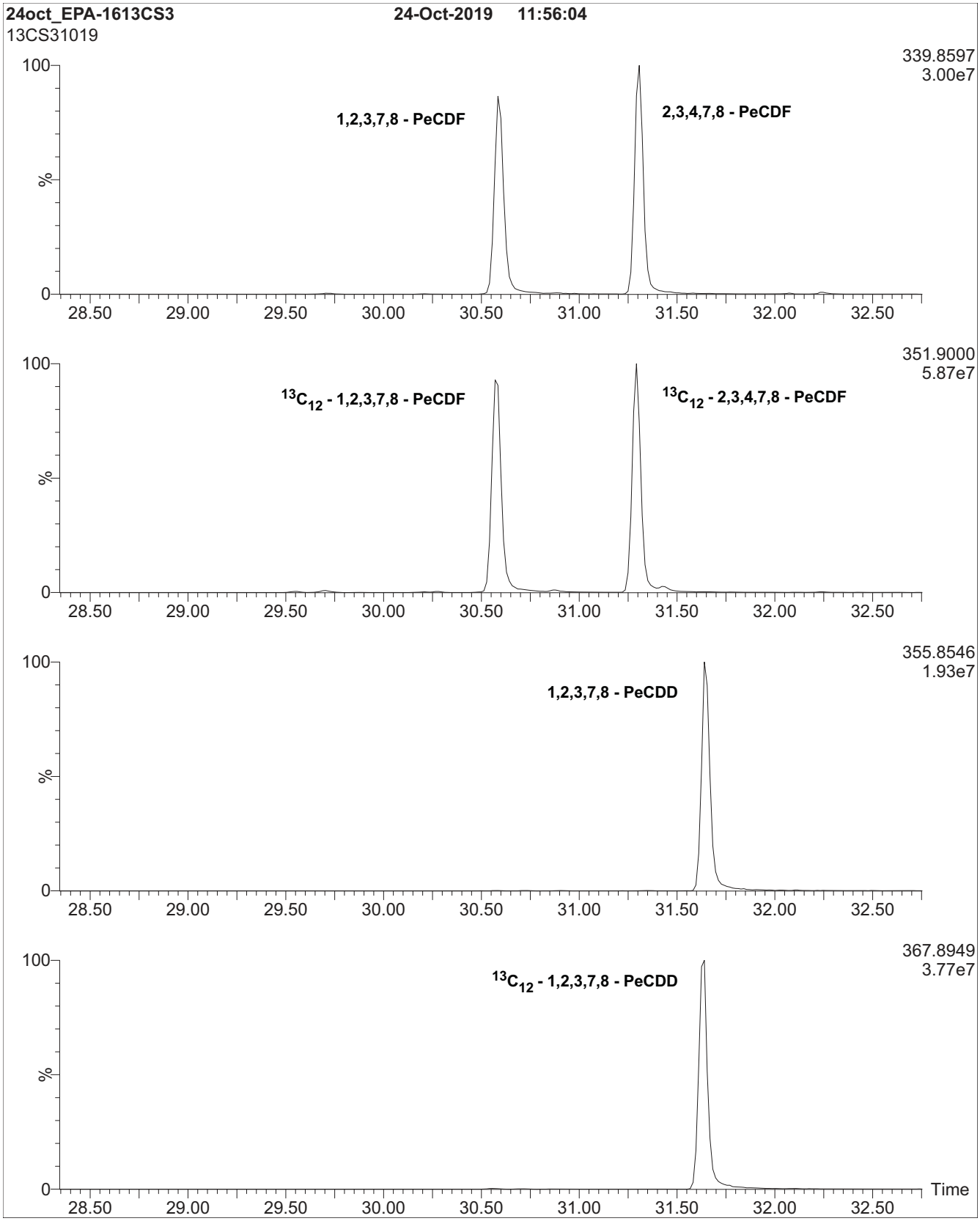


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

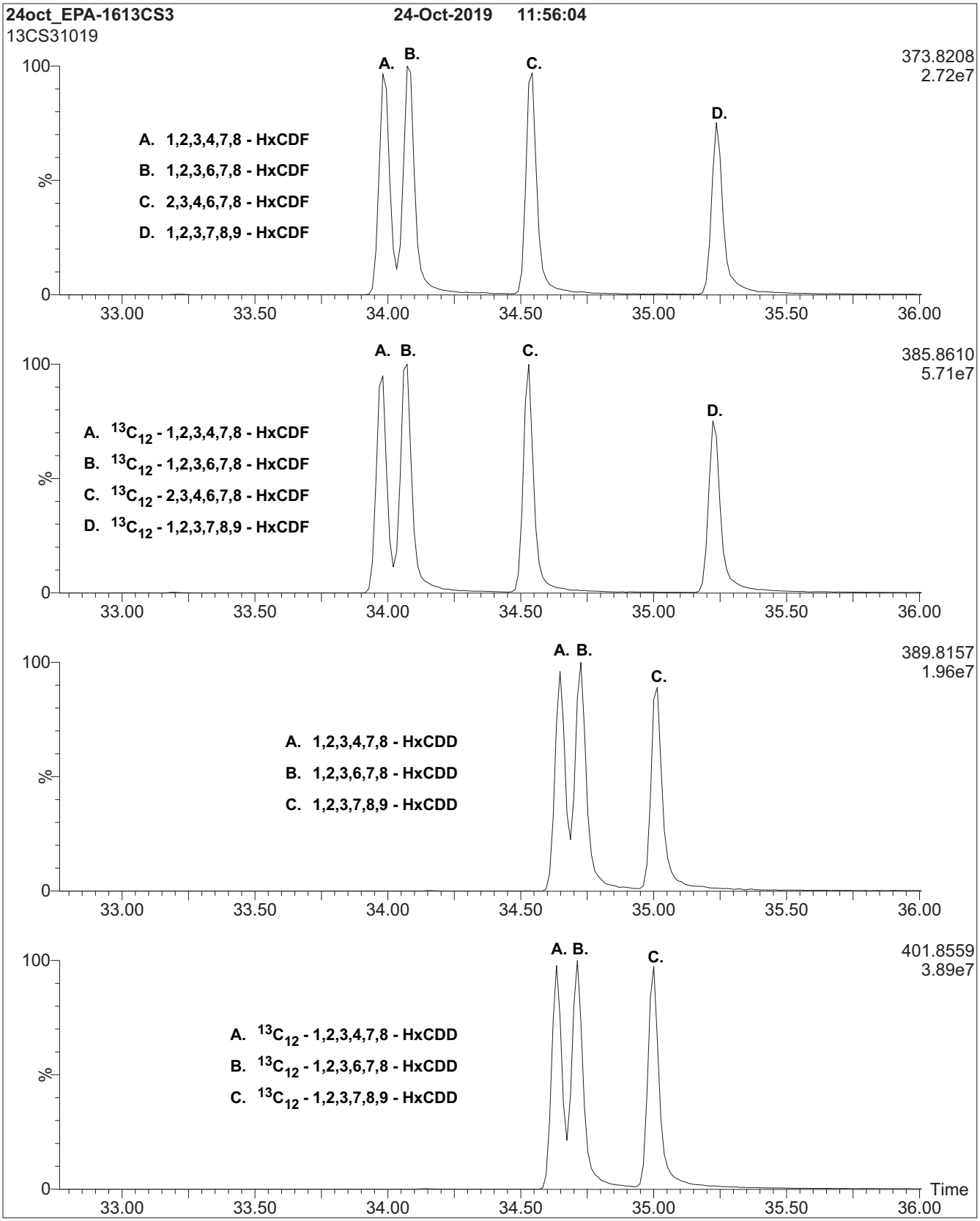


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

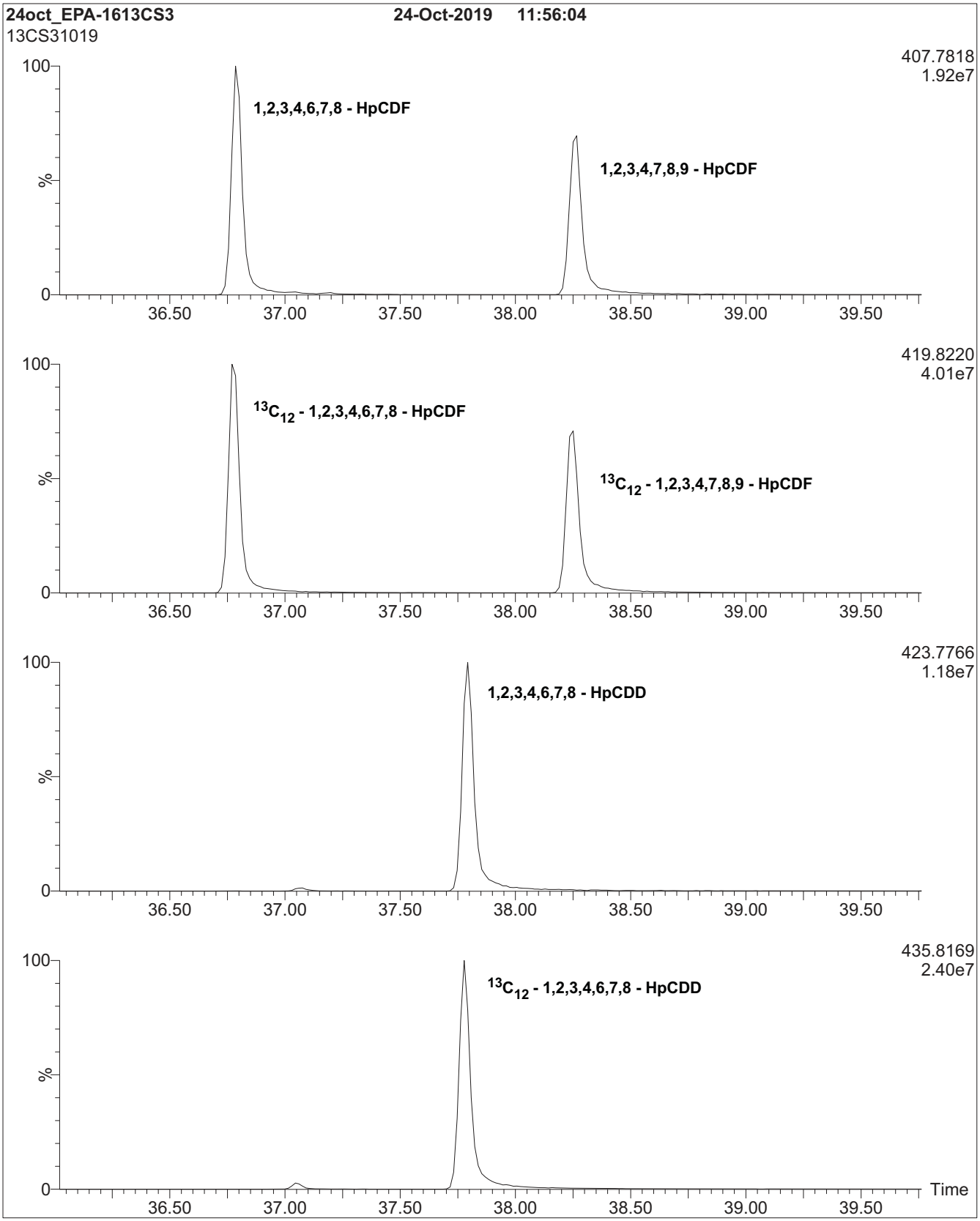
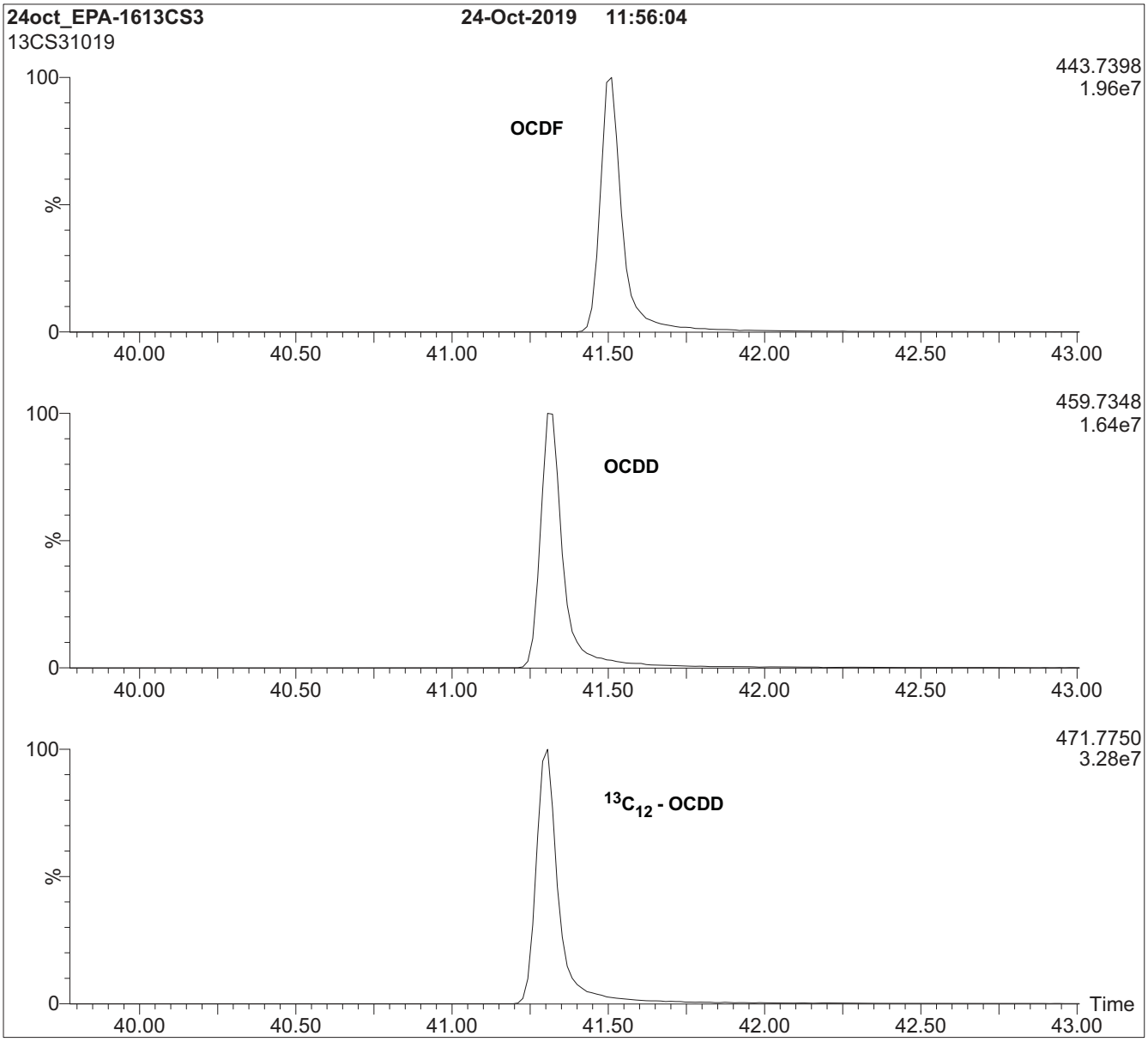


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005458
1613 CS4 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019
(mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

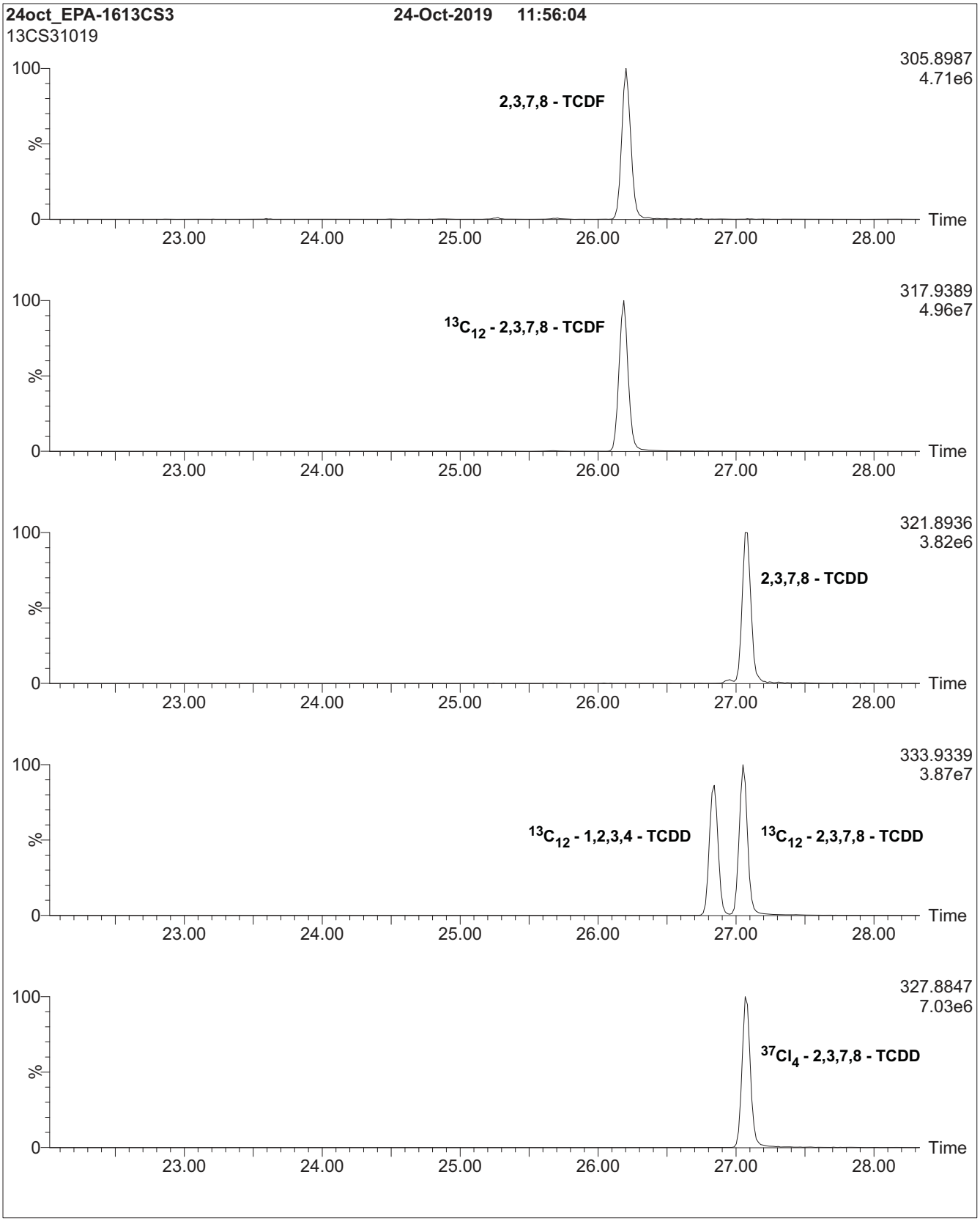


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

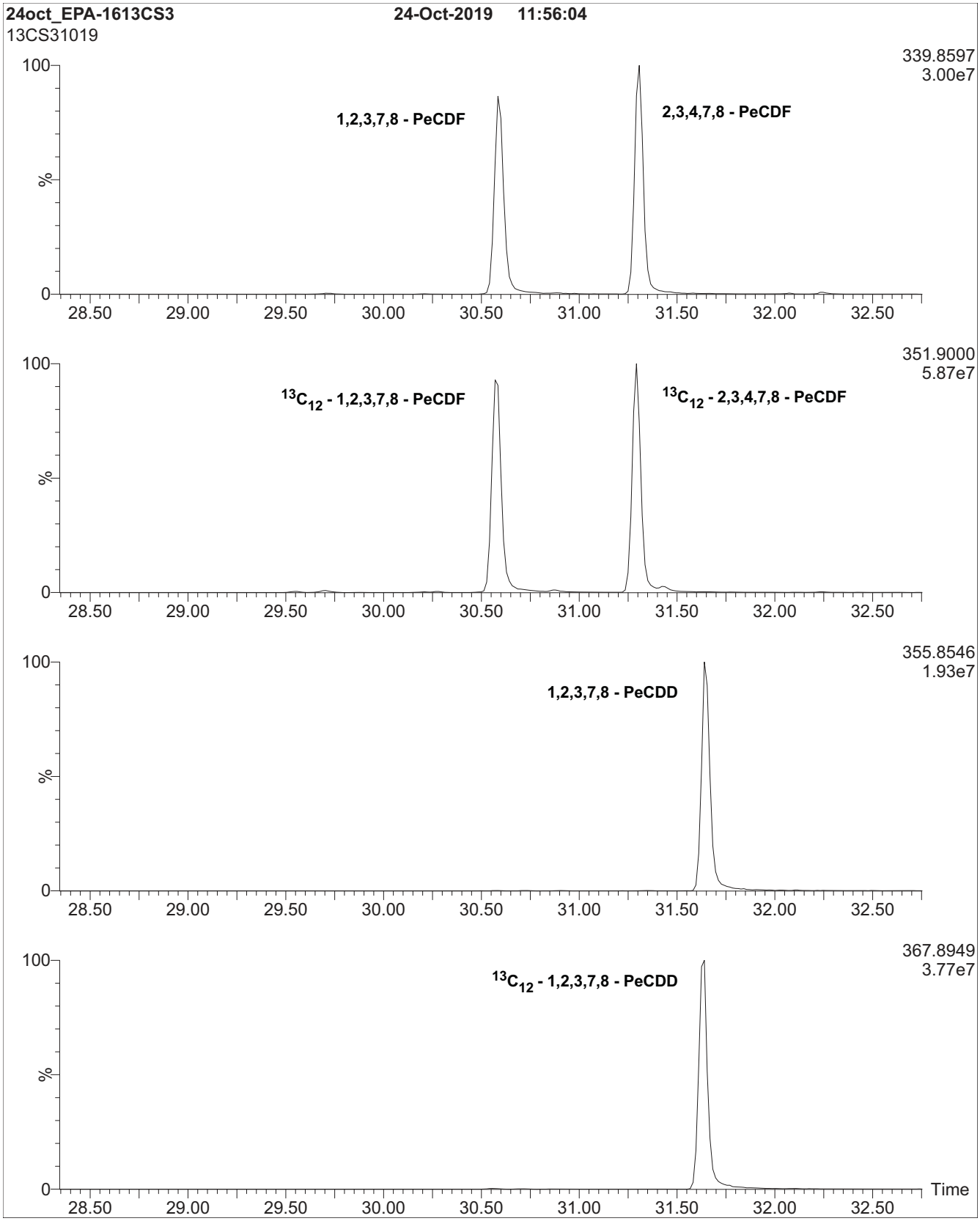


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

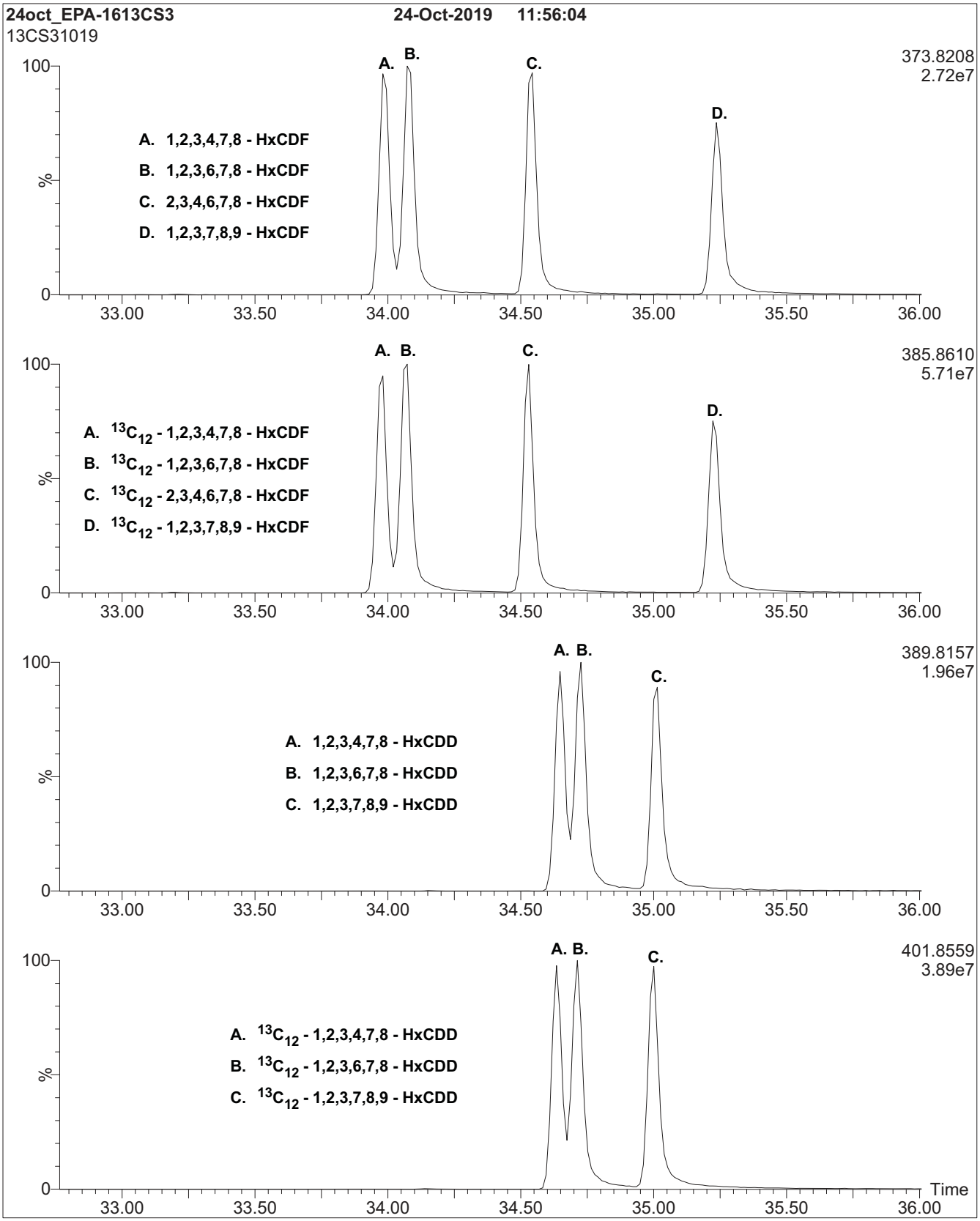


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

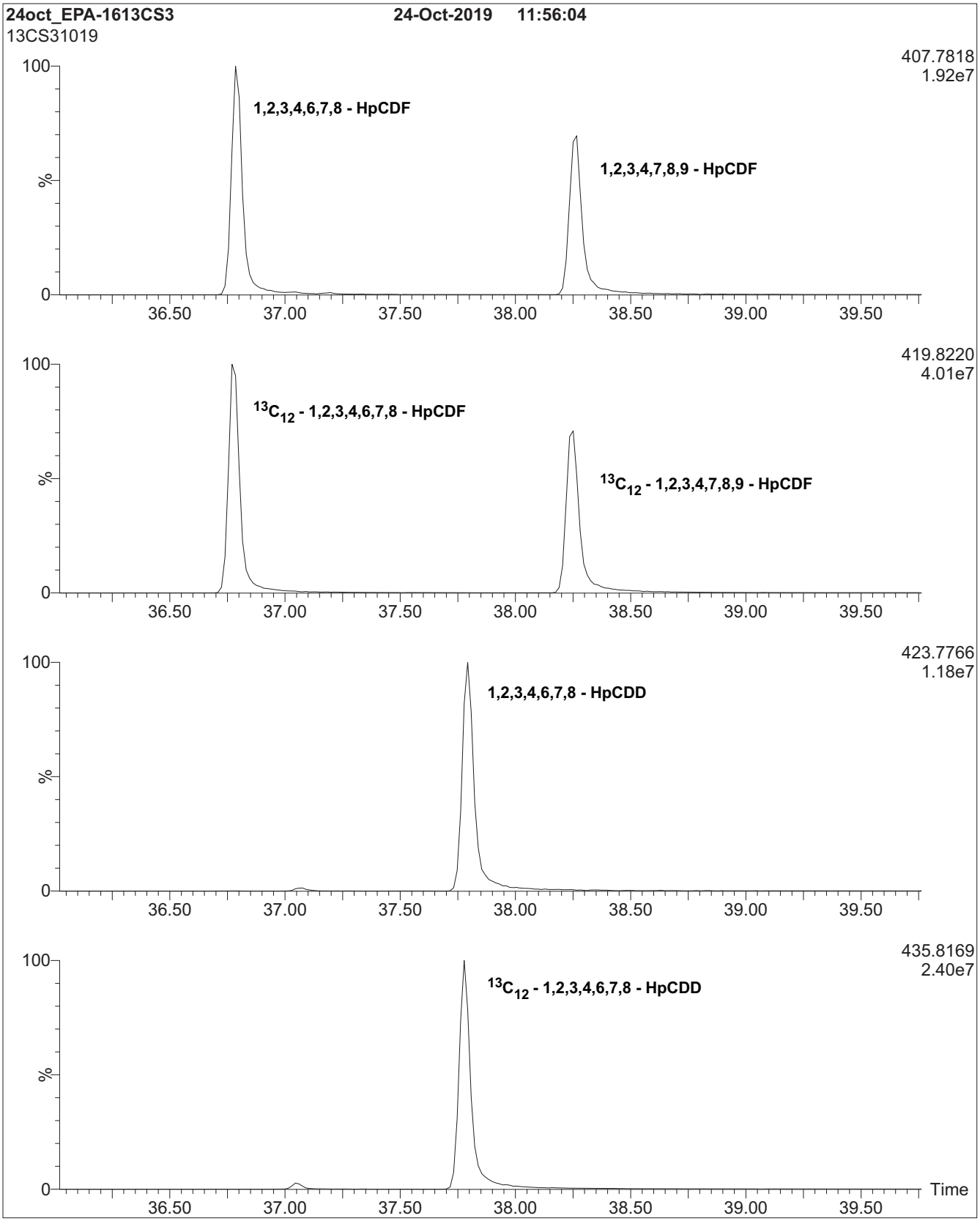
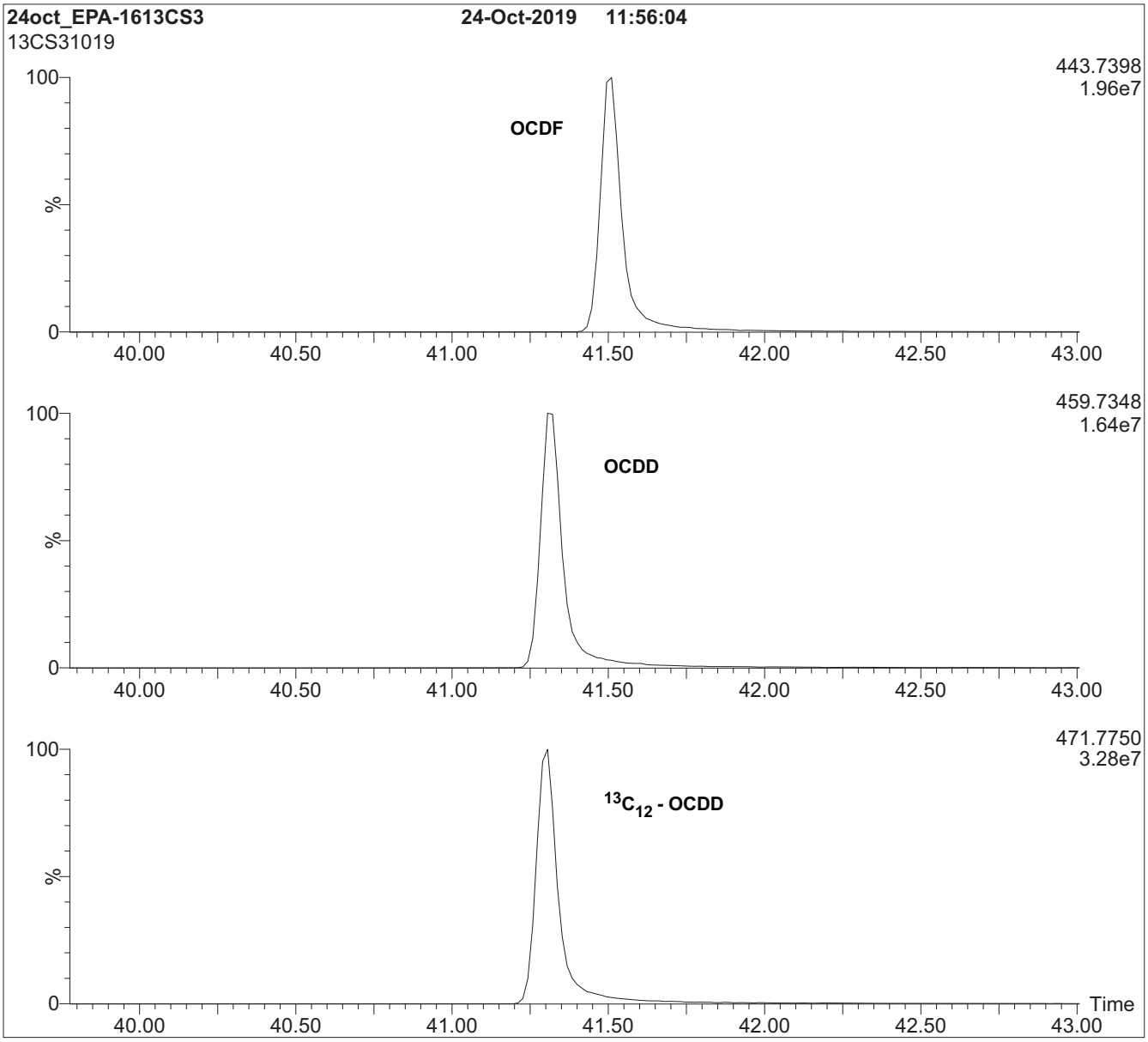


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005459
1613 CS5 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019
(mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

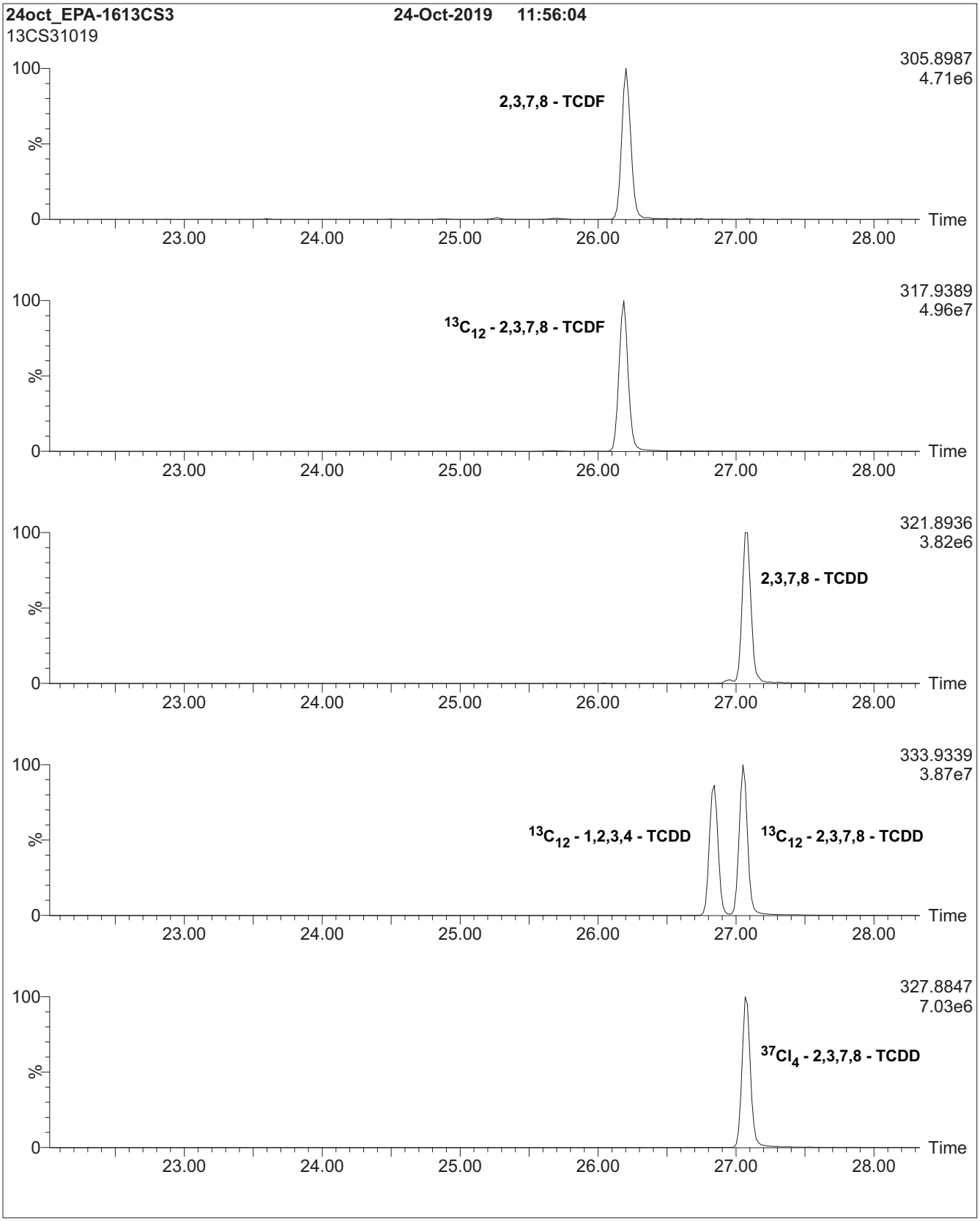


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

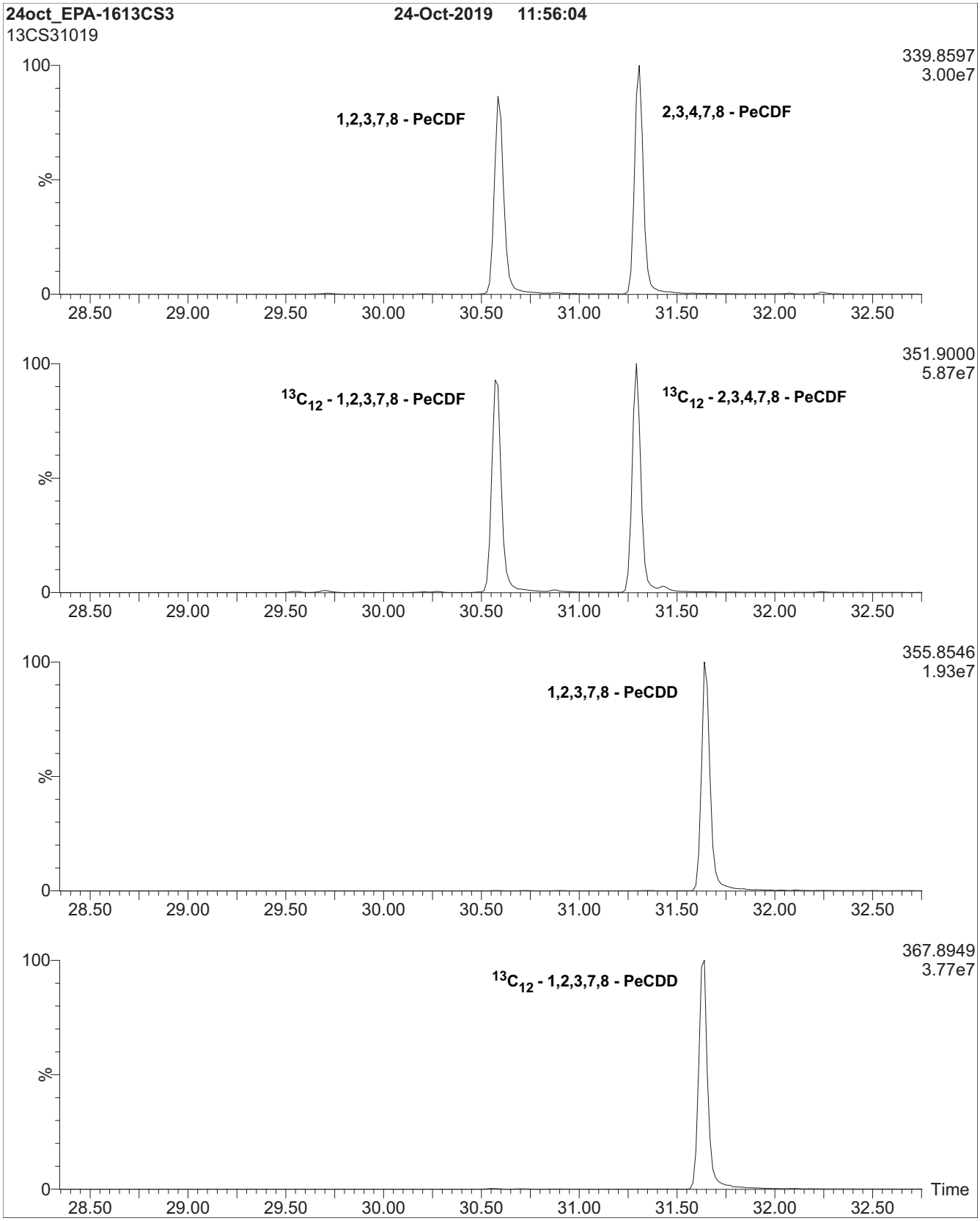


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

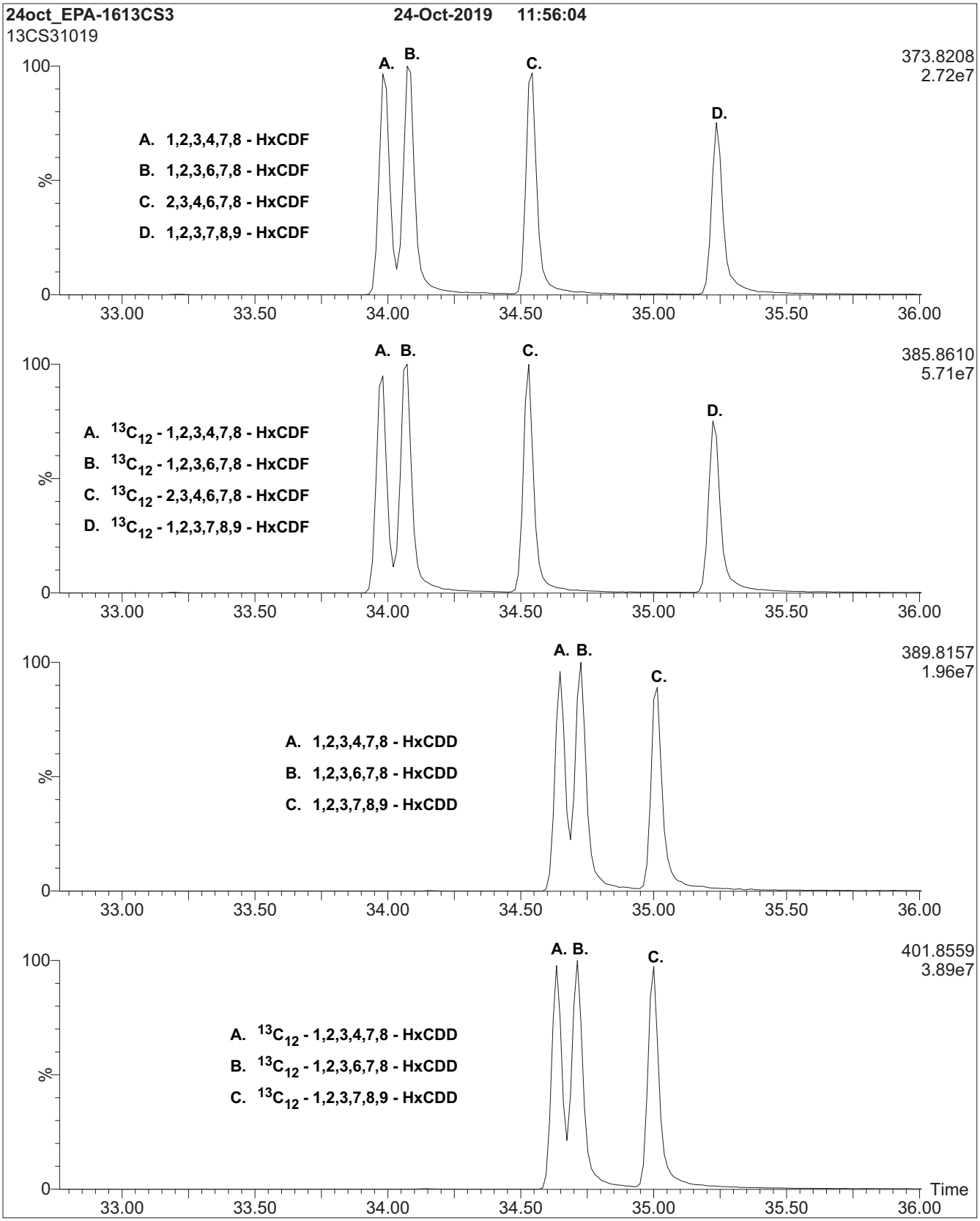


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

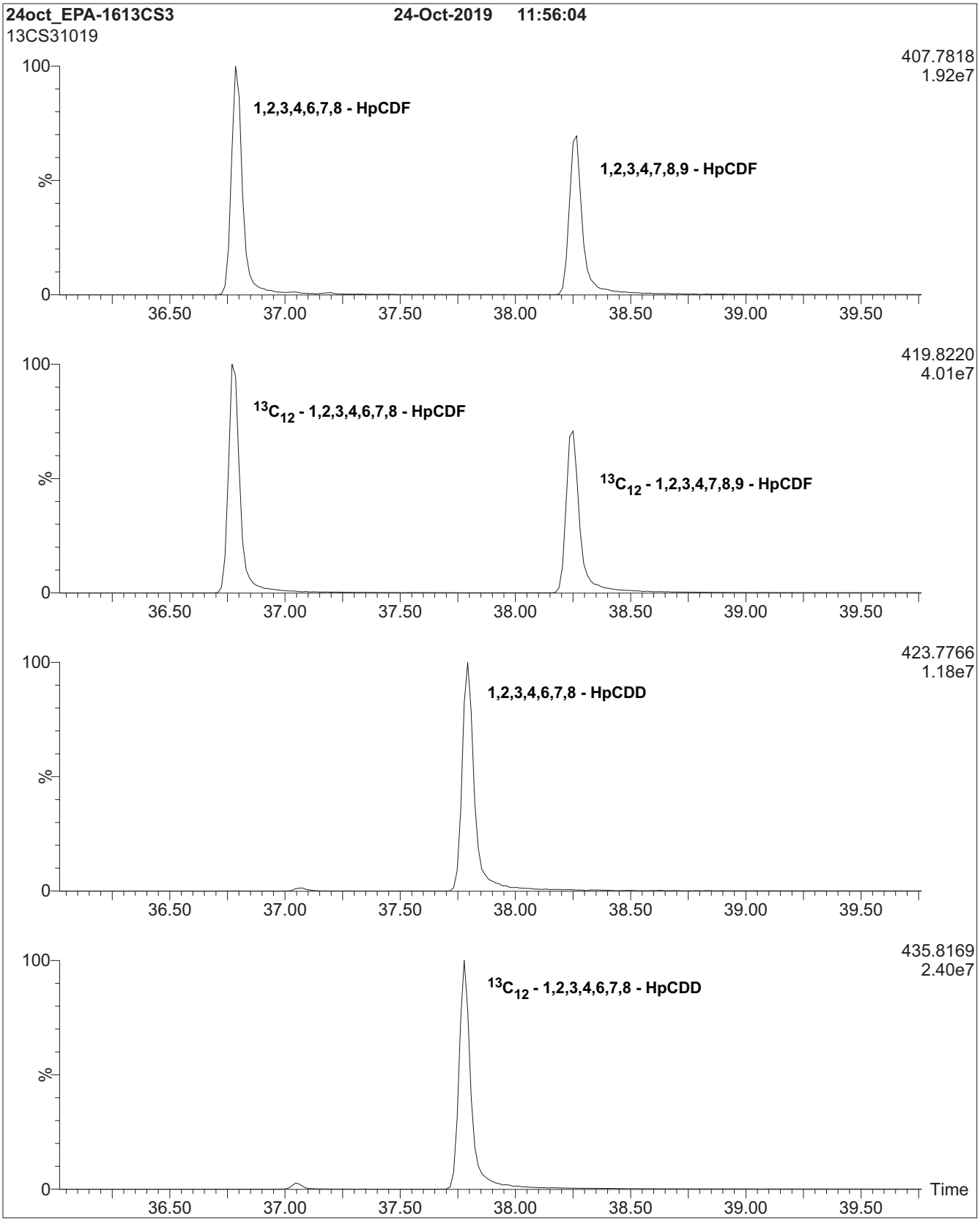
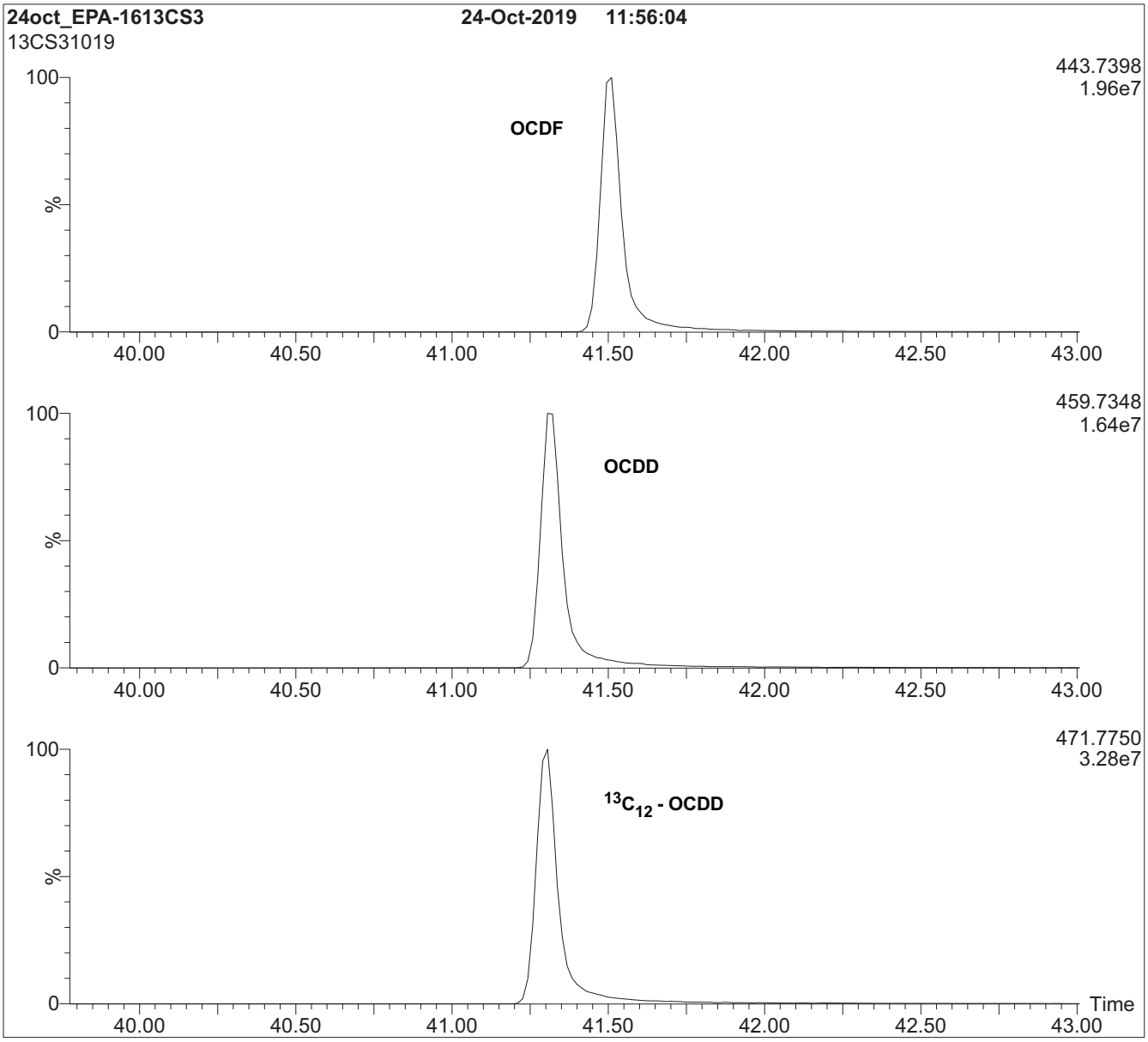


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005460
1613 CSL CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019
(mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

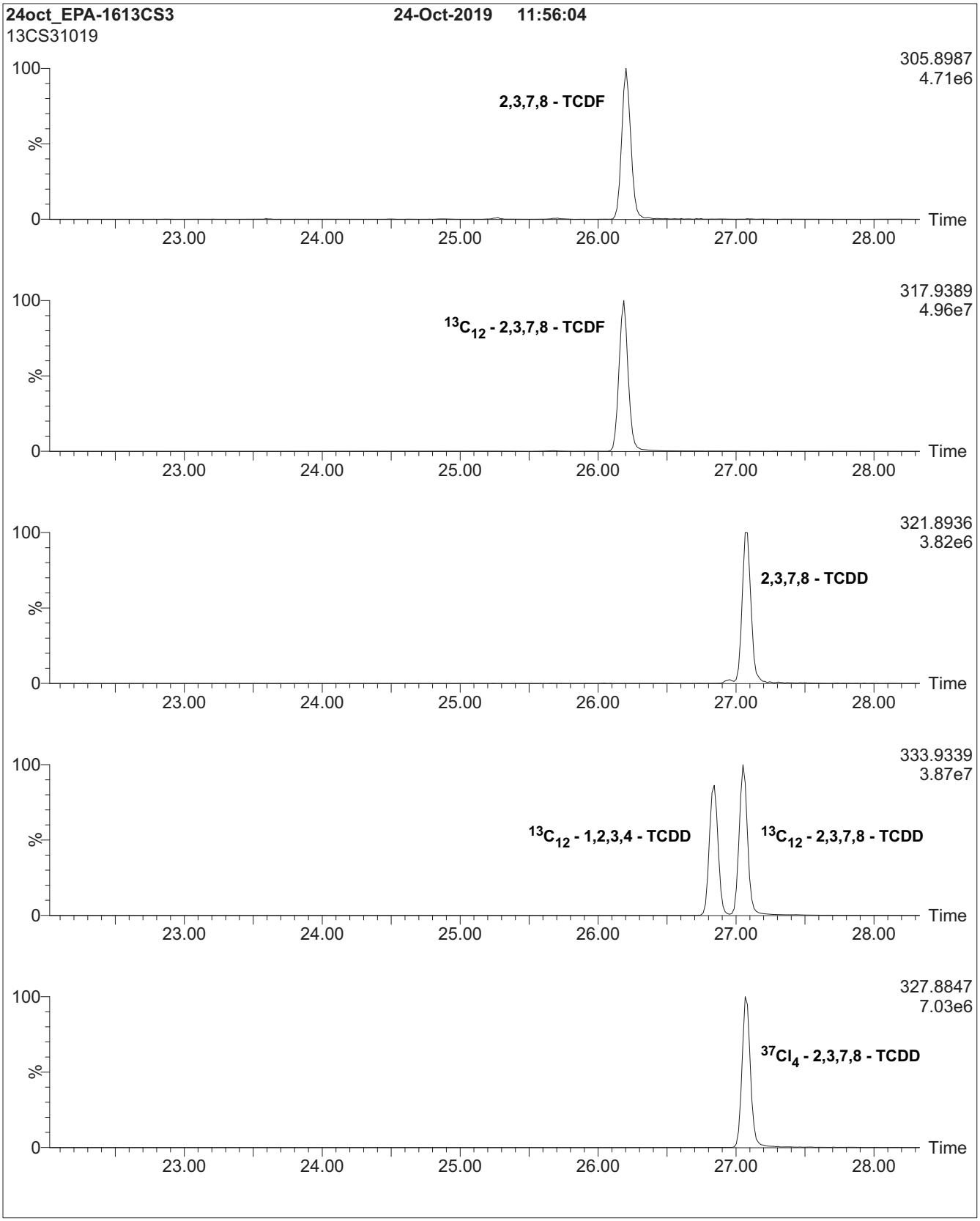


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

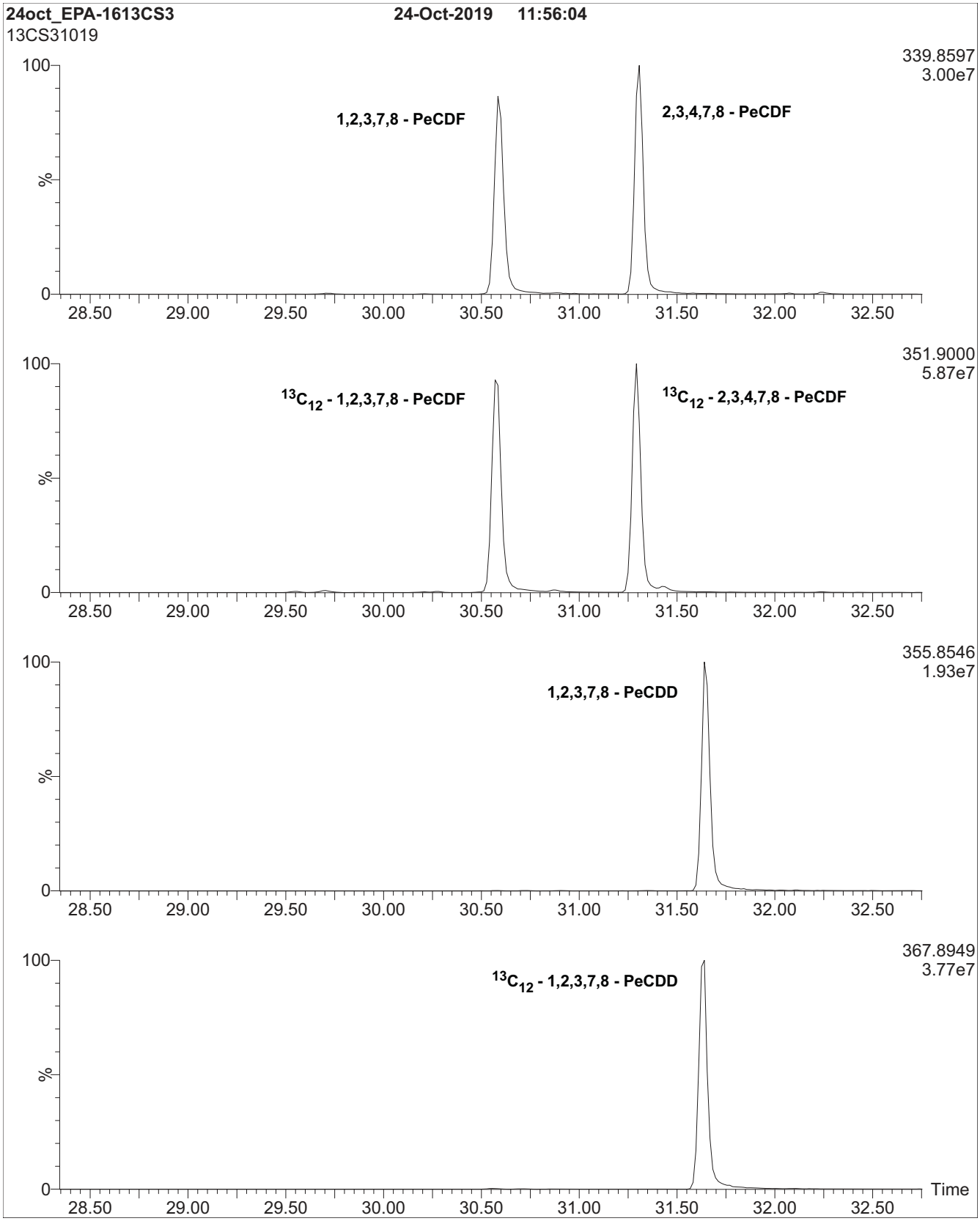


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

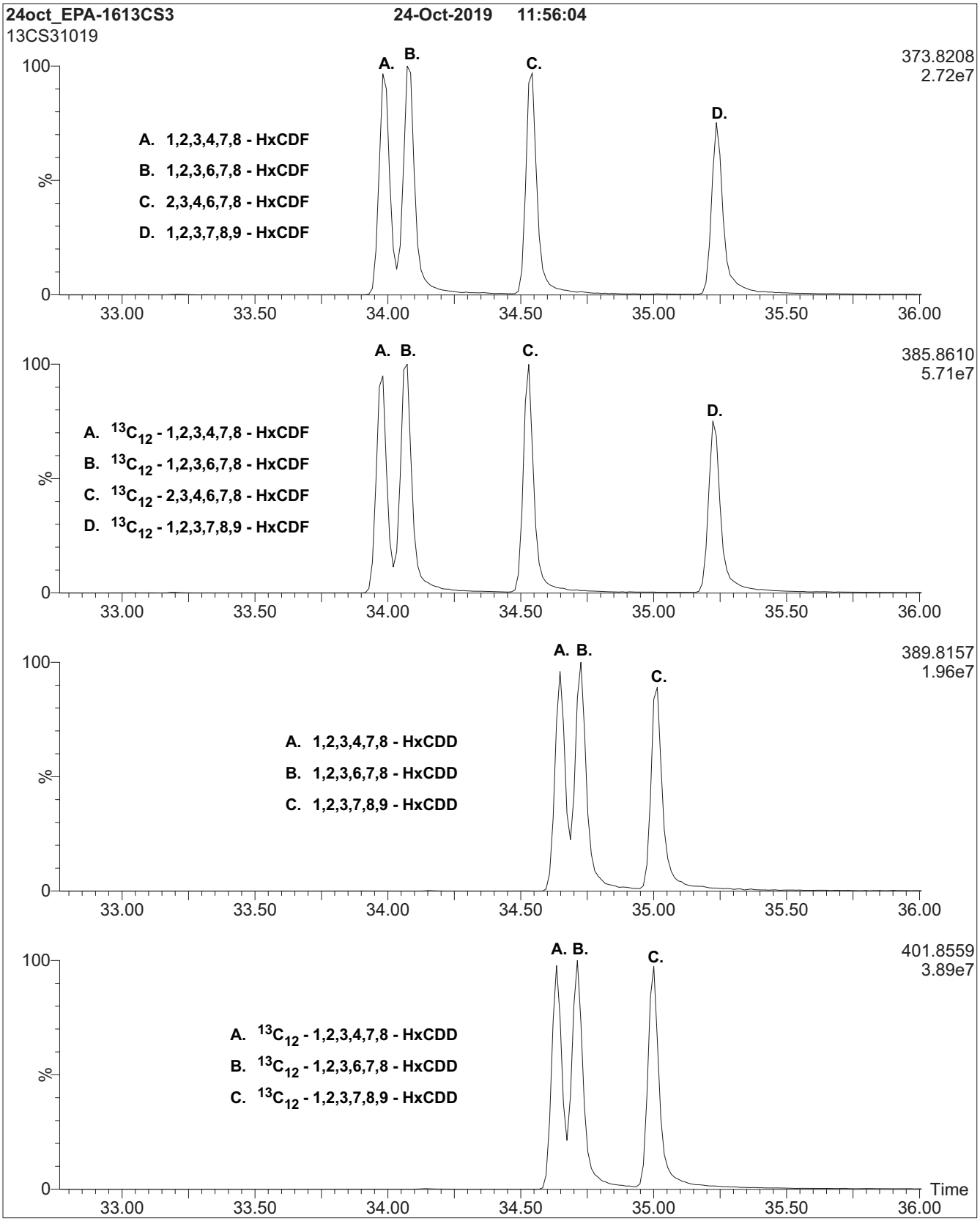


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

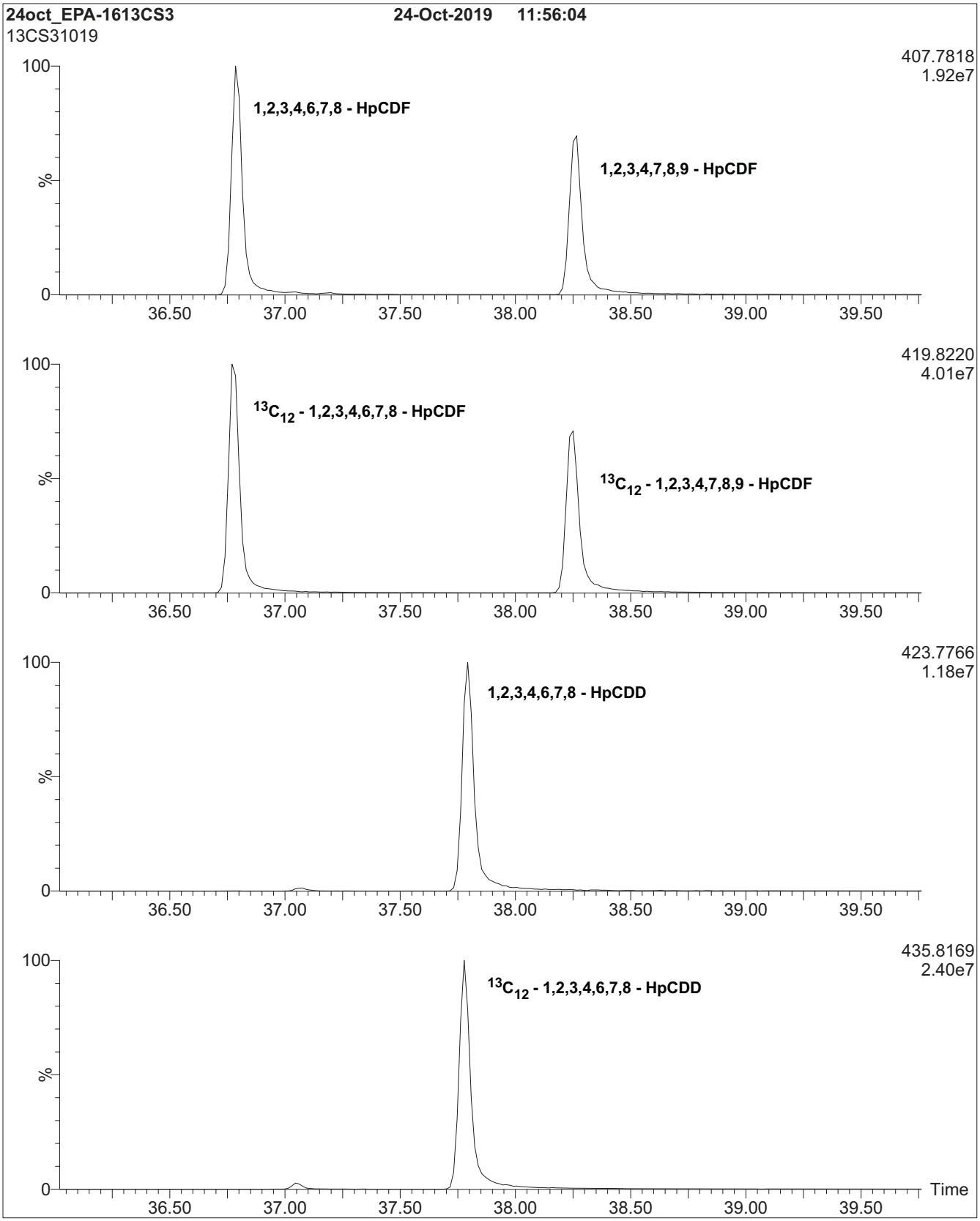
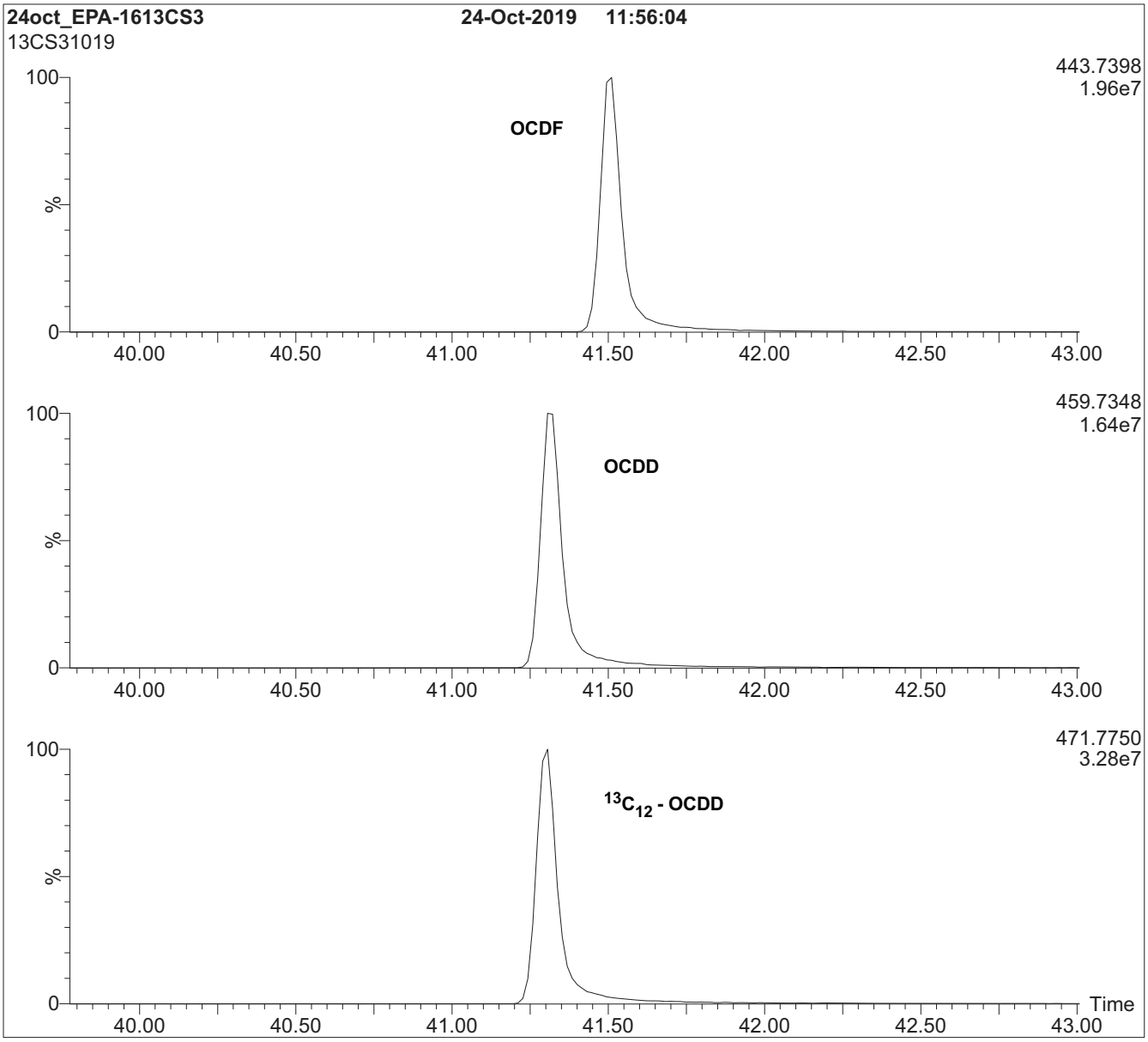


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

EPA-1613PAR

U.S. EPA Method 1613 Native PCDD/PCDF Precision and Recovery Stock Solution

PRODUCT CODE:	EPA-1613PAR
LOT NUMBER:	13PAR1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/25/2021
LAST TESTED: (mm/dd/yyyy)	11/03/2021
EXPIRY DATE: (mm/dd/yyyy)	11/03/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

J013397
Recd. JR
12/20/21

DESCRIPTION:

EPA-1613PAR is a solution/mixture of all the 2,3,7,8-substituted polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

EPA-1613PAR was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

The individual PCDDs and PCDFs all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

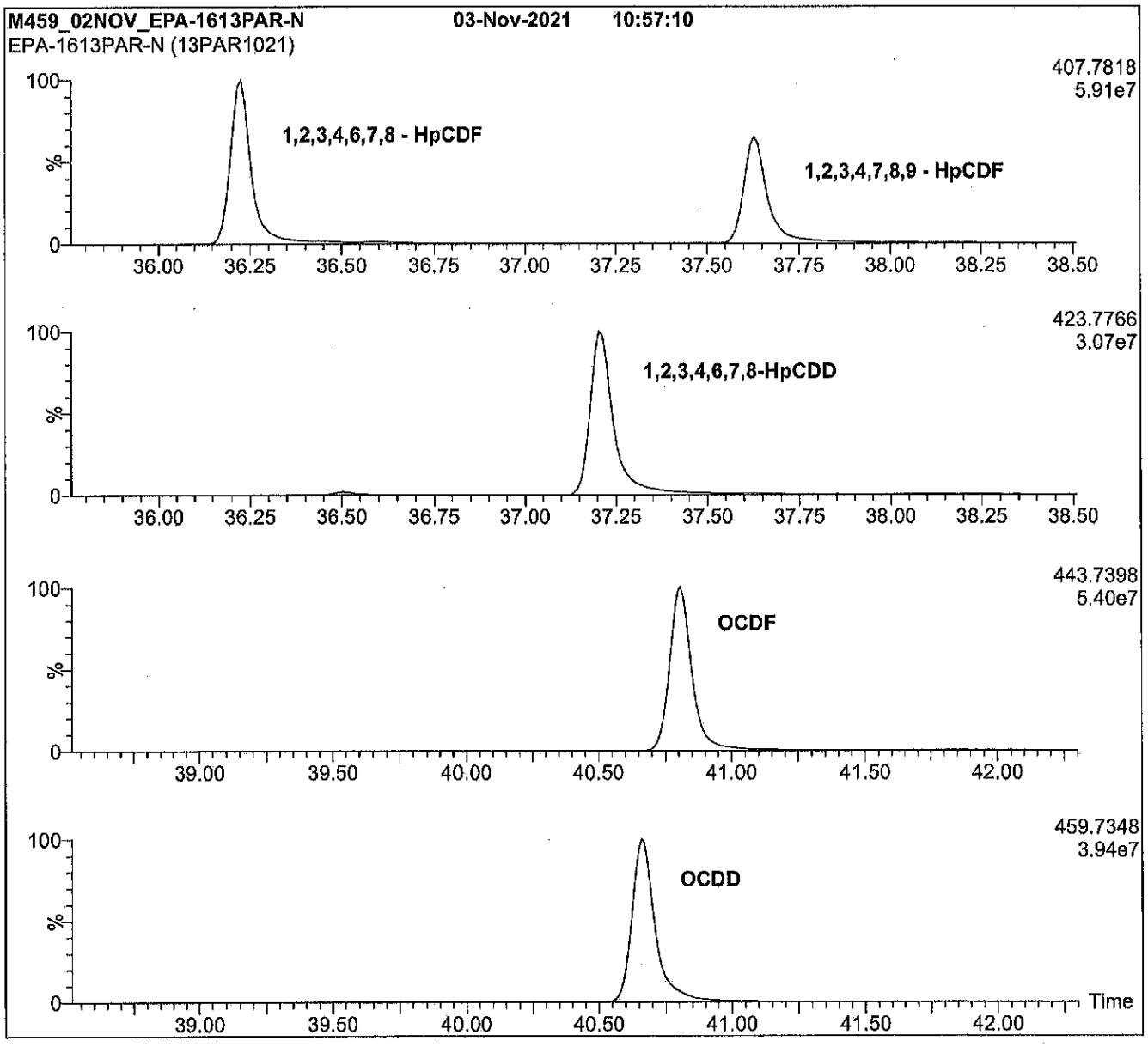
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Table A: **EPA-1613PAR; Components and Concentrations (ng/mL, ± 5% in nonane/2.4% toluene)**

Compound	Acronym	CAS #	Concentration (ng/mL)
PCDDs:			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin	2,3,7,8-TCDD	1746-01-6	40.0
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin	1,2,3,7,8-PeCDD	40321-76-4	200
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin	1,2,3,4,7,8-HxCDD	39227-28-6	200
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin	1,2,3,6,7,8-HxCDD	57653-85-7	200
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin	1,2,3,7,8,9-HxCDD	19408-74-3	200
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin	1,2,3,4,6,7,8-HpCDD	35822-46-9	200
Octachlorodibenzo-*p*-dioxin	OCDD	3268-87-9	400
PCDFs:			
2,3,7,8-Tetrachlorodibenzofuran	2,3,7,8-TCDF	51207-31-9	40.0
1,2,3,7,8-Pentachlorodibenzofuran	1,2,3,7,8-PeCDF	57117-41-6	200
2,3,4,7,8-Pentachlorodibenzofuran	2,3,4,7,8-PeCDF	57117-31-4	200
1,2,3,4,7,8-Hexachlorodibenzofuran	1,2,3,4,7,8-HxCDF	70648-26-9	200
1,2,3,6,7,8-Hexachlorodibenzofuran	1,2,3,6,7,8-HxCDF	57117-44-9	200
1,2,3,7,8,9-Hexachlorodibenzofuran	1,2,3,7,8,9-HxCDF	72918-21-9	200
2,3,4,6,7,8-Hexachlorodibenzofuran	2,3,4,6,7,8-HxCDF	60851-34-5	200
1,2,3,4,6,7,8-Heptachlorodibenzofuran	1,2,3,4,6,7,8-HpCDF	67562-39-4	200
1,2,3,4,7,8,9-Heptachlorodibenzofuran	1,2,3,4,7,8,9-HpCDF	55673-89-7	200
Octachlorodibenzofuran	OCDF	39001-02-0	400

Certified By: _____ **Date:** 11/05/2021
(mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: **EPA-1613PAR; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

EPA-1613PAR

U.S. EPA Method 1613 Native PCDD/PCDF Precision and Recovery Stock Solution

PRODUCT CODE:	EPA-1613PAR
LOT NUMBER:	13PAR1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/25/2021
LAST TESTED: (mm/dd/yyyy)	11/03/2021
EXPIRY DATE: (mm/dd/yyyy)	11/03/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

J013397
Recd. JR
12/20/21

DESCRIPTION:

EPA-1613PAR is a solution/mixture of all the 2,3,7,8-substituted polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

EPA-1613PAR was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

The individual PCDDs and PCDFs all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, ...x_n$ on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613PAR; Components and Concentrations (ng/mL, ± 5% in nonane/2.4% toluene)**

Compound	Acronym	CAS #	Concentration (ng/mL)
PCDDs:			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin	2,3,7,8-TCDD	1746-01-6	40.0
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin	1,2,3,7,8-PeCDD	40321-76-4	200
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin	1,2,3,4,7,8-HxCDD	39227-28-6	200
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin	1,2,3,6,7,8-HxCDD	57653-85-7	200
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin	1,2,3,7,8,9-HxCDD	19408-74-3	200
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin	1,2,3,4,6,7,8-HpCDD	35822-46-9	200
Octachlorodibenzo-*p*-dioxin	OCDD	3268-87-9	400
PCDFs:			
2,3,7,8-Tetrachlorodibenzofuran	2,3,7,8-TCDF	51207-31-9	40.0
1,2,3,7,8-Pentachlorodibenzofuran	1,2,3,7,8-PeCDF	57117-41-6	200
2,3,4,7,8-Pentachlorodibenzofuran	2,3,4,7,8-PeCDF	57117-31-4	200
1,2,3,4,7,8-Hexachlorodibenzofuran	1,2,3,4,7,8-HxCDF	70648-26-9	200
1,2,3,6,7,8-Hexachlorodibenzofuran	1,2,3,6,7,8-HxCDF	57117-44-9	200
1,2,3,7,8,9-Hexachlorodibenzofuran	1,2,3,7,8,9-HxCDF	72918-21-9	200
2,3,4,6,7,8-Hexachlorodibenzofuran	2,3,4,6,7,8-HxCDF	60851-34-5	200
1,2,3,4,6,7,8-Heptachlorodibenzofuran	1,2,3,4,6,7,8-HpCDF	67562-39-4	200
1,2,3,4,7,8,9-Heptachlorodibenzofuran	1,2,3,4,7,8,9-HpCDF	55673-89-7	200
Octachlorodibenzofuran	OCDF	39001-02-0	400

Certified By: _____ **Date:** 11/05/2021
(mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: **EPA-1613PAR; HRGC/HRMS Data (60 m DB-5 Column)**

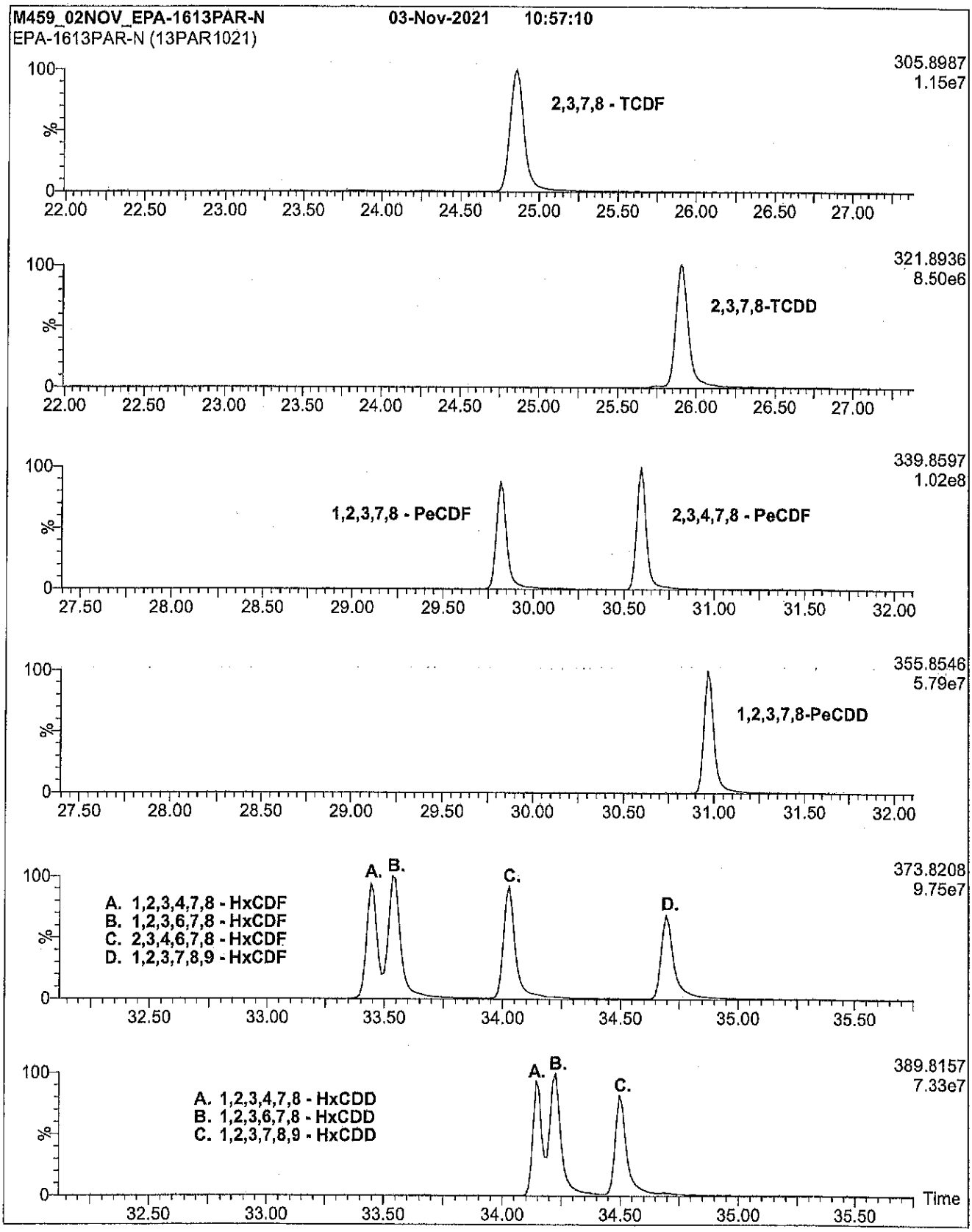
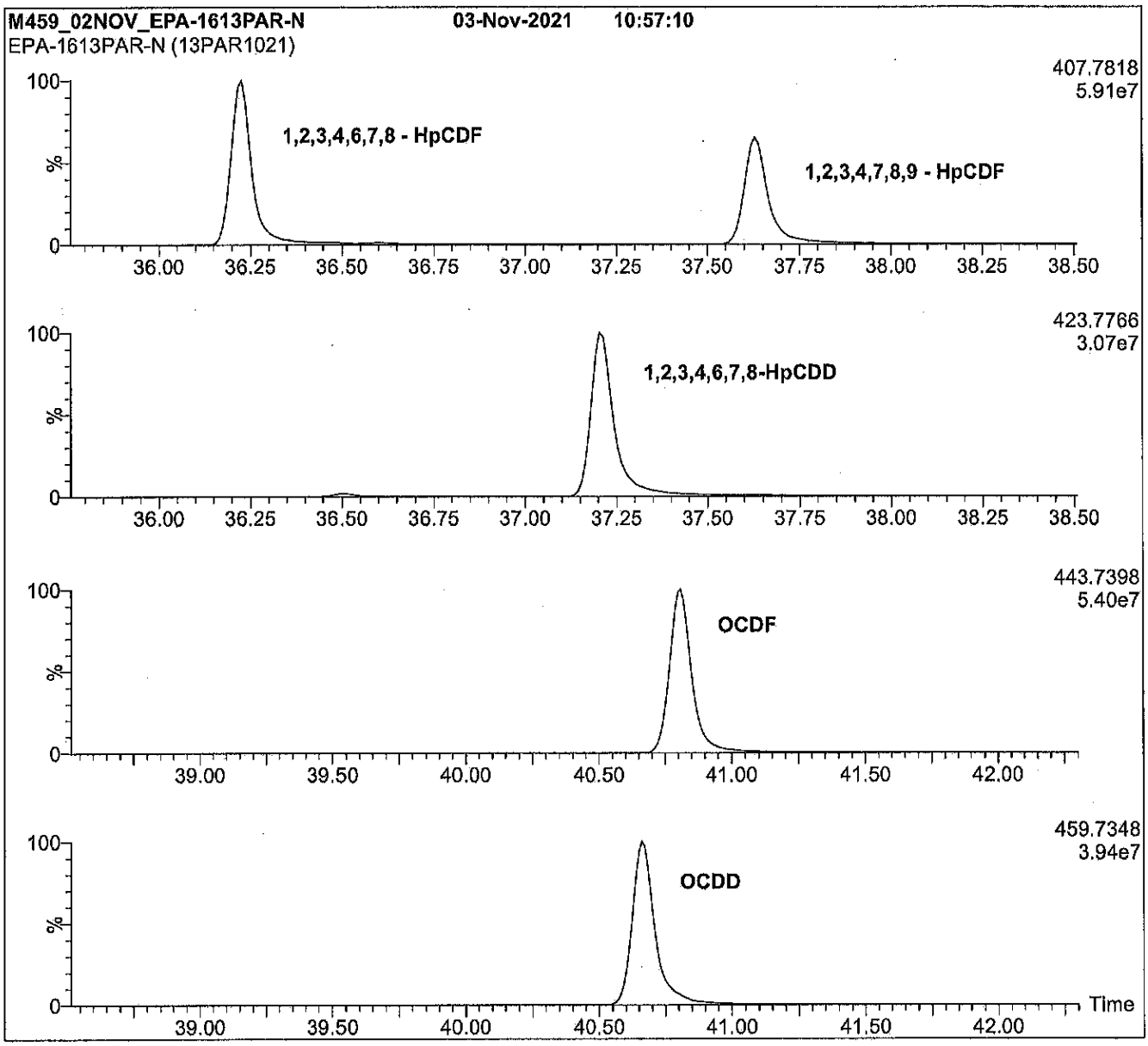


Figure 1: **EPA-1613PAR; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

K9821

CS3WT

Calibration and Verification Solution (EPA-1613CS3) combined with Window Defining and 2,3,7,8-TCDD Resolution Testing Congeners

PRODUCT CODE:	CS3WT
LOT NUMBER:	CS3WT1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	11/01/2021
LAST TESTED: (mm/dd/yyyy)	11/02/2021
EXPIRY DATE: (mm/dd/yyyy)	11/02/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

CS3WT is a solution/mixture of native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$) polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Tables A and B.

CS3WT is an HRGC/HRMS calibration solution that was designed and prepared to be used according to U.S. EPA Method 1613, Revision B, in place of EPA-1613CS3 (lot: 13CS31021). Additionally, it contains the PCDD and PCDF isomers required to set retention time windows as well as test and establish isomer specificity for 2,3,7,8-TCDD on a DB-5 (or equivalent) capillary column.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-($^{37}Cl_4$)tetrachlorodibenzo-*p*-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%. The individual native 2,3,7,8-substituted PCDD and PCDF congeners all have chemical purities of >98%; the other congeners (window defining and resolution testing) should only be considered semi-quantitative.

This current lot of CS3WT is to be used with the 1613 calibration solutions having the following lot numbers:

PRODUCT CODE	LOT NUMBER
EPA-1613CS1	13CS11021
EPA-1613CS2	13CS21021
EPA-1613CS3	13CS31021
EPA-1613CS4	13CS41021
EPA-1613CS5	13CS51021
EPA-1613CSL	13CSL1021
EPA-1613CS0.5	13CS0.51021

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INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) has been assigned to the quantitative components in this product. A maximum combined percent relative uncertainty of ±20% has been assigned to the semi-quantitative components in this product.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **CS3WT; Quantitative Components and Concentrations (ng/mL, ± 5%, in nonane/4.5% toluene)**

Compound		Acronym	CAS #	Concentration (ng/mL)
Native PCDDs:	**Designation[a]**			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin		2,3,7,8-TCDD	1746-01-6	10.0
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin		1,2,3,7,8-PeCDD	40321-76-4	50.0
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin		1,2,3,4,7,8-HxCDD	39227-28-6	50.0
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin		1,2,3,6,7,8-HxCDD	57653-85-7	50.0
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin	Last HxCDD[b]	1,2,3,7,8,9-HxCDD	19408-74-3	50.0
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin	Last HpCDD	1,2,3,4,6,7,8-HpCDD	35822-46-9	50.0
Octachlorodibenzo-*p*-dioxin		OCDD	3268-87-9	100
Native PCDFs:	**Designation[a]**			
2,3,7,8-Tetrachlorodibenzofuran		2,3,7,8-TCDF	51207-31-9	10.0
1,2,3,7,8-Pentachlorodibenzofuran		1,2,3,7,8-PeCDF	57117-41-6	50.0
2,3,4,7,8-Pentachlorodibenzofuran		2,3,4,7,8-PeCDF	57117-31-4	50.0
1,2,3,4,7,8-Hexachlorodibenzofuran		1,2,3,4,7,8-HxCDF	70648-26-9	50.0
1,2,3,6,7,8-Hexachlorodibenzofuran		1,2,3,6,7,8-HxCDF	57117-44-9	50.0
1,2,3,7,8,9-Hexachlorodibenzofuran		1,2,3,7,8,9-HxCDF	72918-21-9	50.0
2,3,4,6,7,8-Hexachlorodibenzofuran		2,3,4,6,7,8-HxCDF	60851-34-5	50.0
1,2,3,4,6,7,8-Heptachlorodibenzofuran	First HpCDF[c]	1,2,3,4,6,7,8-HpCDF	67562-39-4	50.0
1,2,3,4,7,8,9-Heptachlorodibenzofuran	Last HpCDF	1,2,3,4,7,8,9-HpCDF	55673-89-7	50.0
Octachlorodibenzofuran		OCDF	39001-02-0	100
Mass-Labelled PCDDs:				
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-2,3,7,8-TCDD	76523-40-5	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,7,8-PeCDD	109719-79-1	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	109719-80-4	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	109719-81-5	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	109719-83-7	100
Octachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-OCDD	114423-97-1	200
Mass-Labelled PCDFs:				
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,7,8-TCDF	89059-46-1	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,7,8-PeCDF	109719-77-9	100
2,3,4,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,4,7,8-PeCDF	116843-02-8	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	114423-98-2	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	116843-03-9	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	116843-04-0	100
2,3,4,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	116843-05-1	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	109719-84-8	100
1,2,3,4,7,8,9-Heptachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	109719-94-0	100
Cleanup Standard:				
2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin		$^{37}Cl_4$-2,3,7,8-TCDD	85508-50-5	10.0
Internal Standards:				
1,2,3,4-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4-TCDD	114423-99-3	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	109719-82-6	100

[a] First/Last eluting isomer for the specified homologue group (see Table B for additional Window Definers).
[b, c] – see Table B for footnote.

Table B: **CS3WT; Semi-Quantitative Components and Concentrations (ng/mL, ± 20%, in nonane/4.5% toluene)**

Compound		Acronym	CAS #	Concentration (ng/mL)
PCDD Window Definers:	**Designation[a]**			
1,3,6,8-Tetrachlorodibenzo-*p*-dioxin	First TCDD	1,3,6,8-TCDD	33423-92-6	10.0
1,2,8,9-Tetrachlorodibenzo-*p*-dioxin	Last TCDD	1,2,8,9-TCDD	62470-54-6	10.0
1,2,4,6,8-/1,2,4,7,9-Pentachlorodibenzo-*p*-dioxin	First PeCDD	1,2,4,6,8-PeCDD 1,2,4,7,9-PeCDD	71998-76-0 82291-37-0	50.0[d]
1,2,3,8,9-Pentachlorodibenzo-*p*-dioxin	Last PeCDD	1,2,3,8,9-PeCDD	71925-18-3	50.0
1,2,4,6,7,9-Hexachlorodibenzo-*p*-dioxin	First HxCDD	1,2,4,6,7,9-HxCDD	39227-62-8	50.0
1,2,3,4,6,7,9-Heptachlorodibenzo-*p*-dioxin	First HpCDD	1,2,3,4,6,7,9-HpCDD	58200-70-7	50.0
PCDF Window Definers:	**Designation[a]**			
1,3,6,8-Tetrachlorodibenzofuran	First TCDF	1,3,6,8-TCDF	71998-72-6	10.0
1,2,8,9-Tetrachlorodibenzofuran	Last TCDF	1,2,8,9-TCDF	70648-22-5	10.0
1,3,4,6,8-Pentachlorodibenzofuran	First PeCDF	1,3,4,6,8-PeCDF	83704-55-6	50.0
1,2,3,8,9-Pentachlorodibenzofuran	Last PeCDF	1,2,3,8,9-PeCDF	83704-54-5	50.0
1,2,3,4,6,8-Hexachlorodibenzofuran	First HxCDF	1,2,3,4,6,8-HxCDF	69698-60-8	50.0
2,3,7,8-TCDD Resolution Testing Isomers:				
1,2,3,4-Tetrachlorodibenzo-*p*-dioxin		1,2,3,4-TCDD	30746-58-8	5.00
1,2,3,7-/1,2,3,8-Tetrachlorodibenzo-*p*-dioxin		1,2,3,7-TCDD 1,2,3,8-TCDD	67028-18-6 53555-02-5	5.00[d]
1,2,3,9-Tetrachlorodibenzo-*p*-dioxin		1,2,3,9-TCDD	71669-26-6	10.0

[a] First/Last eluting isomer for the specified homologue group (see Table A for additional Window Definers).

[b] 1,2,3,4,6,7-HxCDD (last eluting HxCDD) not included; coelutes with 1,2,3,7,8,9-HxCDD on a 60 m DB-5 column. Use 1,2,3,7,8,9-HxCDD (see Table A) and 1,2,3,4,6,7,9-HpCDD to approximate the end of the HxCDD window.

[c] 1,2,3,4,8,9-HxCDF (last eluting HxCDF) not included; can interfere with 1,2,3,7,8,9-HxCDF on a 60 m DB-5 column. Use 1,2,3,4,6,7,8-HpCDF (see Table A) to approximate the end of the HxCDF window.

[d] Total concentration of isomers.

Certified By: _____ **Date:** 11/05/2021 (mm/dd/yyyy)

B.G. Chittim, General Manager

Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

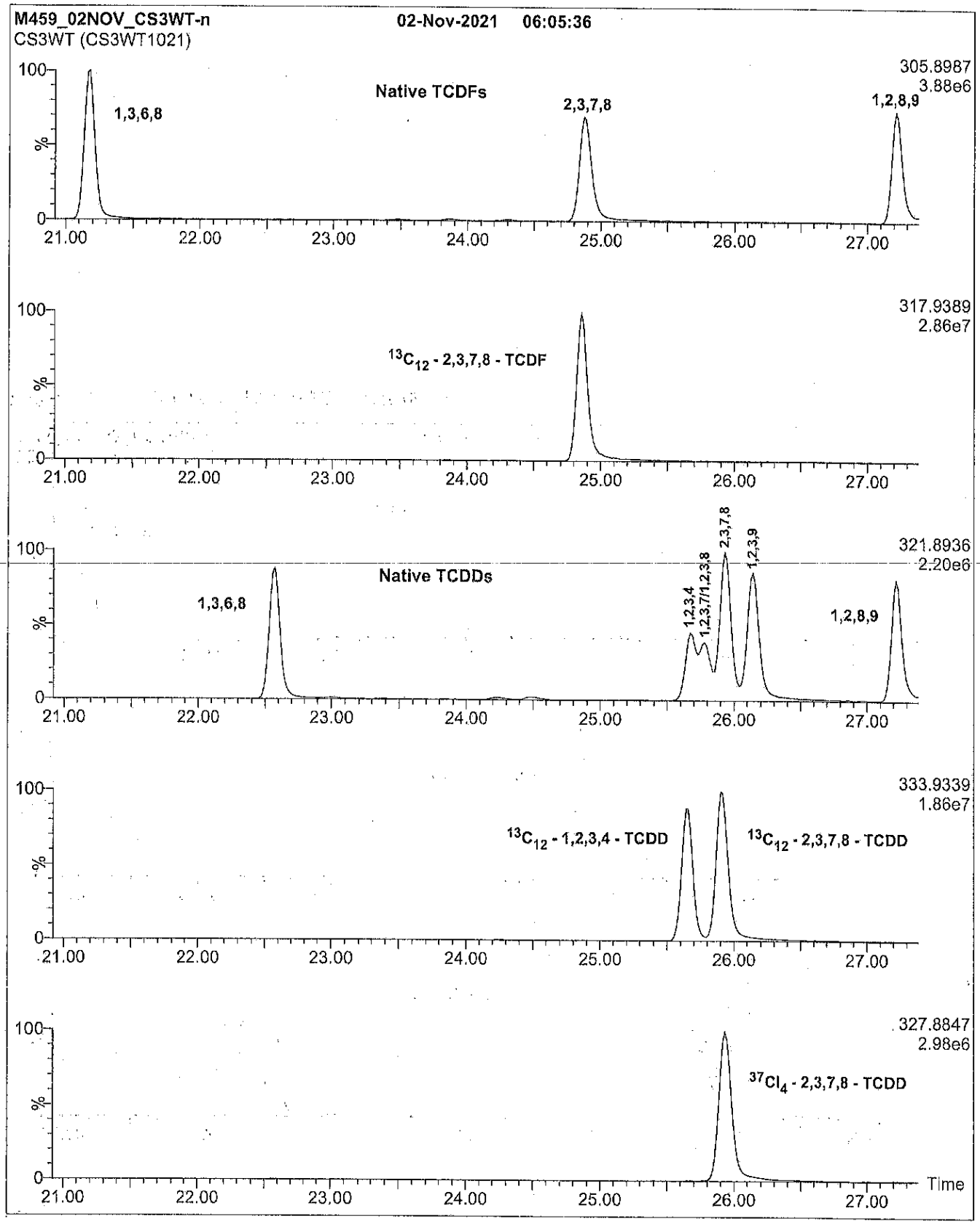


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

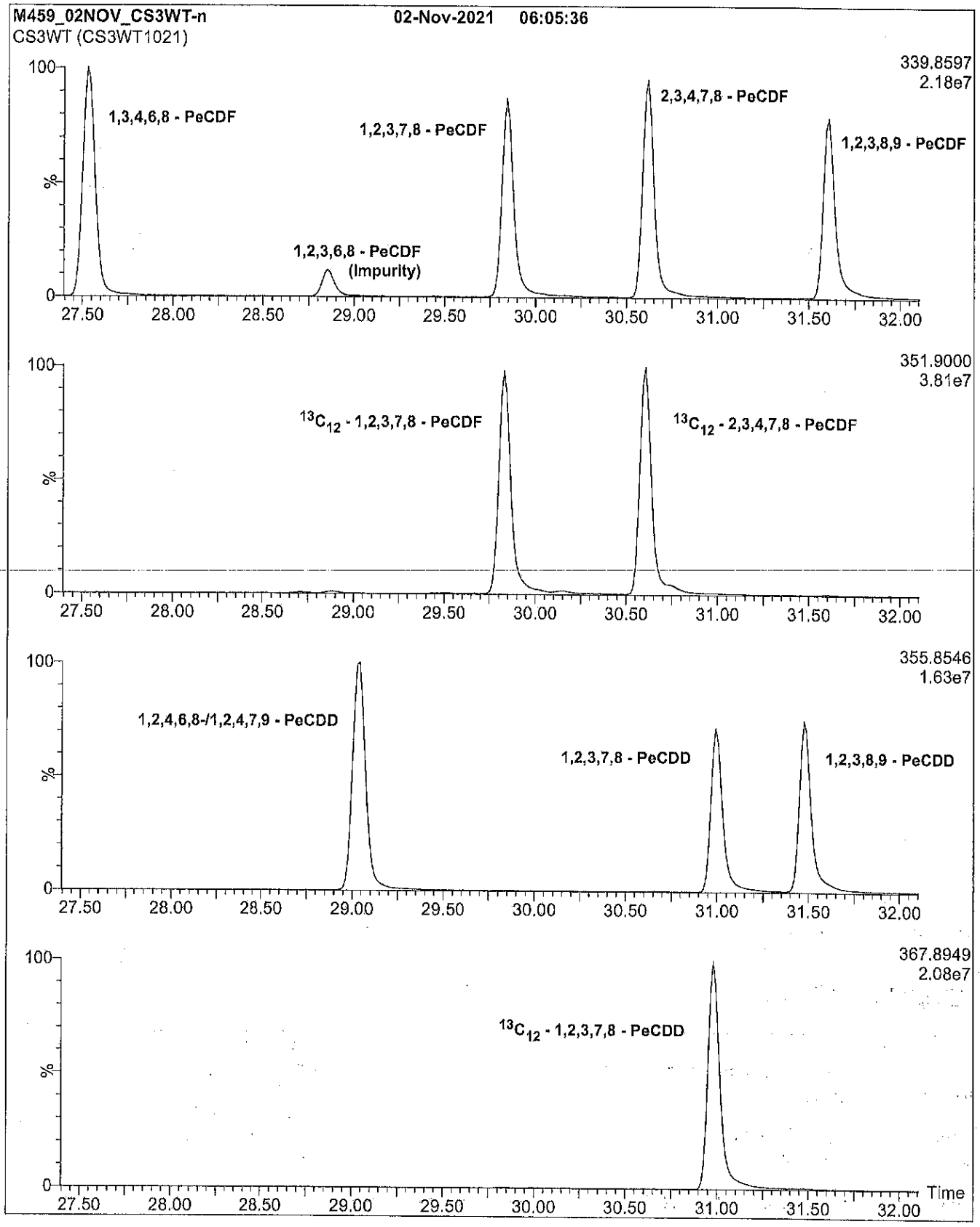


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

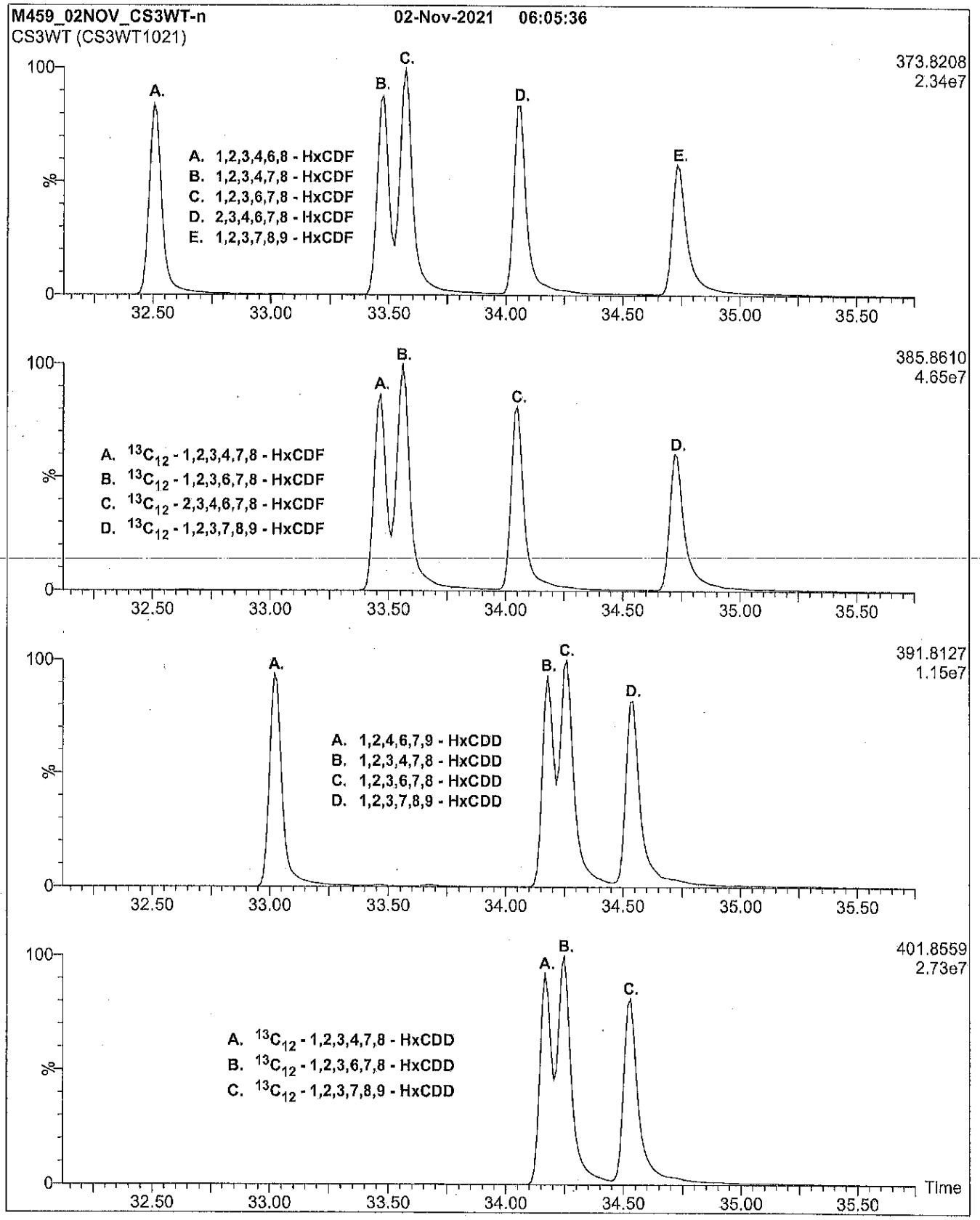


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

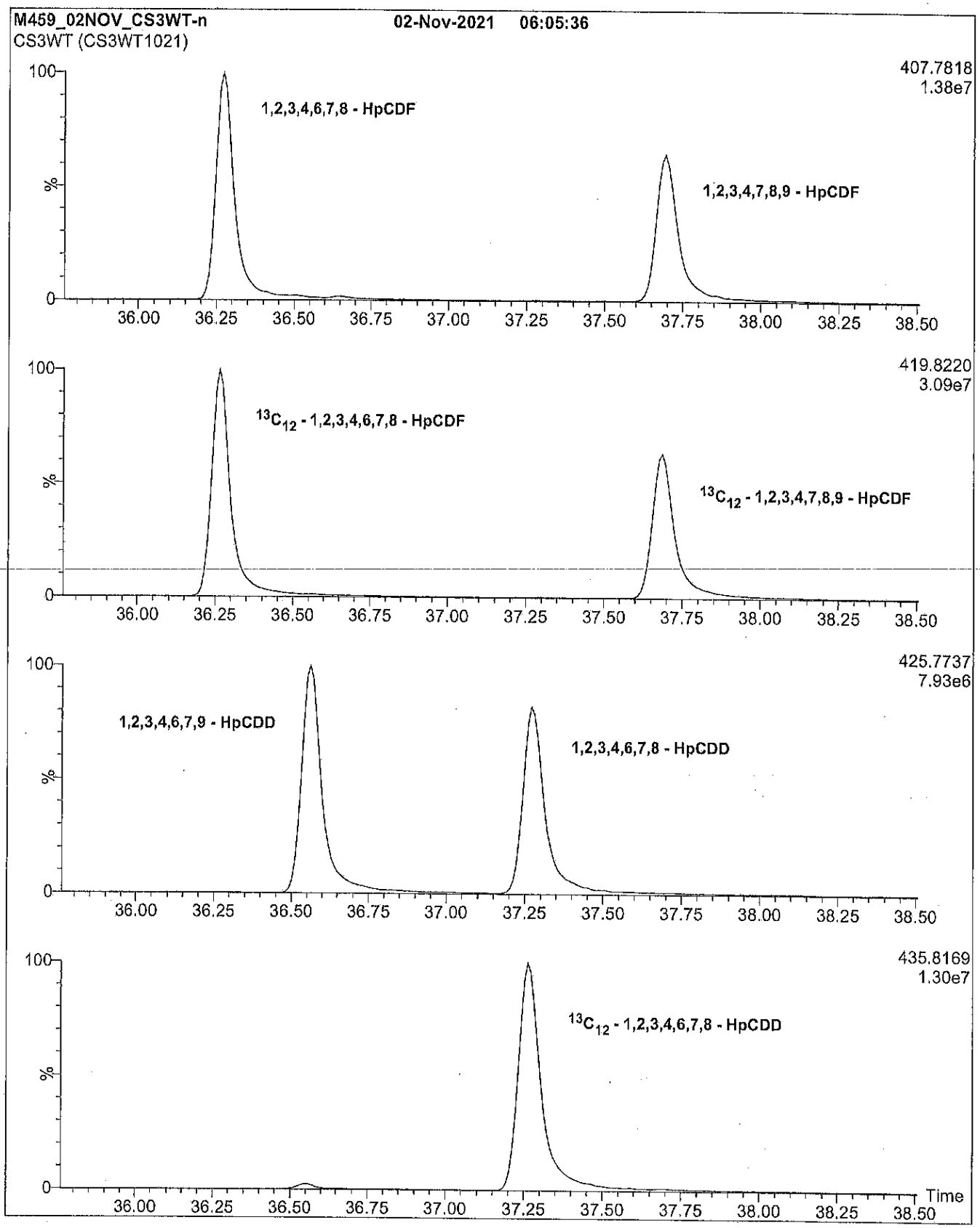
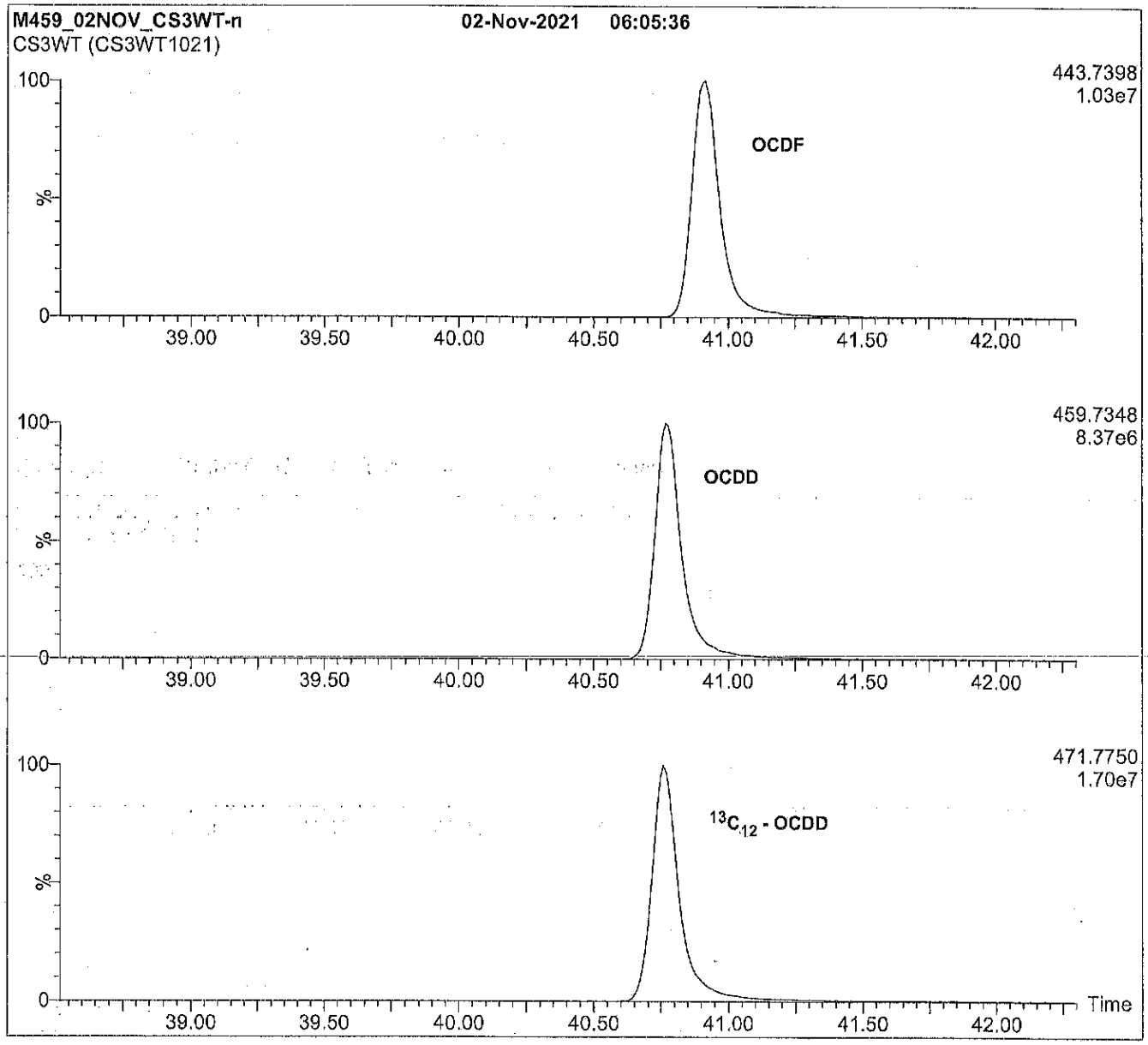


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Standard Record

Standard ID: L002084 **Printed: 3/2/2023 8:59:18AM**

Description:	Dioxin ISC Mix	Expires:	24-Feb-2024
Standard Type:	Other	Prepared:	24-Feb-2023
Solvent:	Nonane	Prepared By:	Peter Kepler
Final Volume (mls):	1	Department:	HRGCMS
Vials:	1	Last Edit:	24-Feb-2023 11:19 by PK
Vendor:	NA	Lot #:	1234
Vendor Catalog #:			

Comments

Stock: H9902: 2378-TCDF, 3467-TCDF, 2348-TCDF, 1278-TCDD, 2378-TCDD. each @ 1000 ng/mL

10 ul to 1 mL FV in Nonane. Final Conc = 10 ng/mL. Analytes and units not available in Element.

Analyte	CAS Number	Concentration	Units
2,3,7,8-TCDF	51207-31-9	10	ug/mL
2,3,7,8-TCDD	1746-01-6	10	ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CSS

U.S. EPA Method 1613 Cleanup Standard Spiking Solution

PRODUCT CODE:	EPA-1613CSS
LOT NUMBER:	13CSS1021
SOLVENT(S):	Nonane
DATE PREPARED: (mm/dd/yyyy)	10/29/2021
LAST TESTED: (mm/dd/yyyy)	10/31/2021
EXPIRY DATE: (mm/dd/yyyy)	10/31/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

L 3420

DESCRIPTION:

EPA-1613CSS contains 2,3,7,8-($^{37}Cl_4$)tetrachlorodibenzo-*p*-dioxin at the concentration given in Table A.

EPA-1613CSS was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

Table A: **EPA-1613CSS; Components and Concentrations (ng/mL, ± 5% in nonane)**

Compound	Acronym	CAS #	Concentration (ng/mL)
2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin	$^{37}Cl_4$-2,3,7,8-TCDD	85508-50-5	40.0

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/05/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

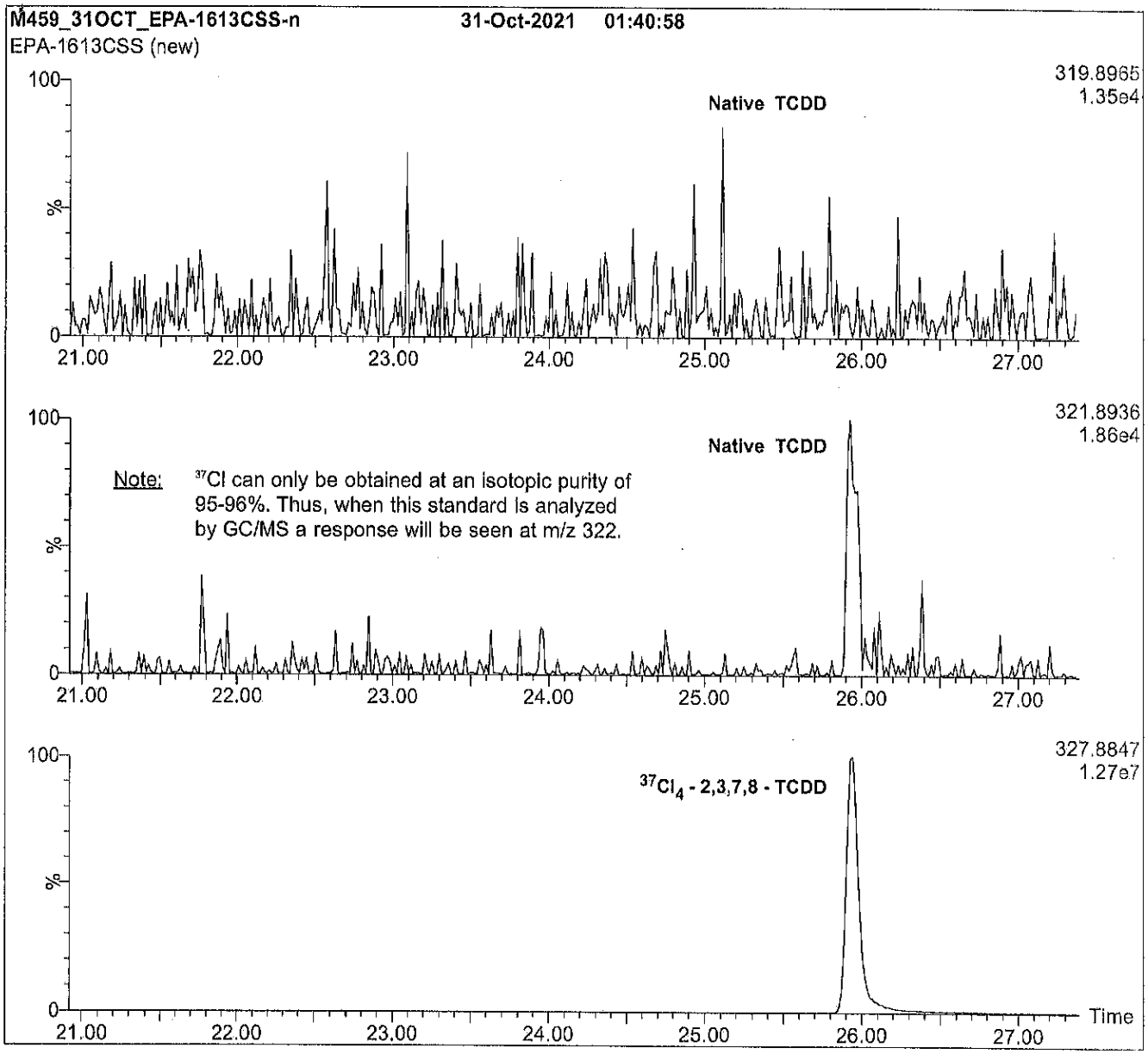
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **EPA-1613CSS; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613LCS

U.S. EPA Method 1613
Labelled Compound Stock Solution

PRODUCT CODE:	EPA-1613LCS
LOT NUMBER:	13LCS1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/29/2021
LAST TESTED: (mm/dd/yyyy)	10/31/2021
EXPIRY DATE: (mm/dd/yyyy)	10/31/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

21
L3420
04/01/23

DESCRIPTION:

EPA-1613LCS is a solution/mixture of mass-labelled ($^{13}C_{12}$) polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

EPA-1613LCS was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

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HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613LCS; Components and Concentrations (ng/mL, ± 5% in nonane/3.2% toluene)**

Compound	Acronym	CAS #	Concentration (ng/mL)
Mass-Labelled PCDDs:			
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-2,3,7,8-TCDD	76523-40-5	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,7,8-PeCDD	109719-79-1	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	109719-80-4	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	109719-81-5	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	109719-83-7	100
Octachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-OCDD	114423-97-1	200
Mass-Labelled PCDFs:			
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-2,3,7,8-TCDF	89059-46-1	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,7,8-PeCDF	109719-77-9	100
2,3,4,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-2,3,4,7,8-PeCDF	116843-02-8	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	114423-98-2	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	116843-03-9	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	116843-04-0	100
2,3,4,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	116843-05-1	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	109719-84-8	100
1,2,3,4,7,8,9-Heptachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	109719-94-0	100

Certified By: _____ **Date:** 11/05/2021
(mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)

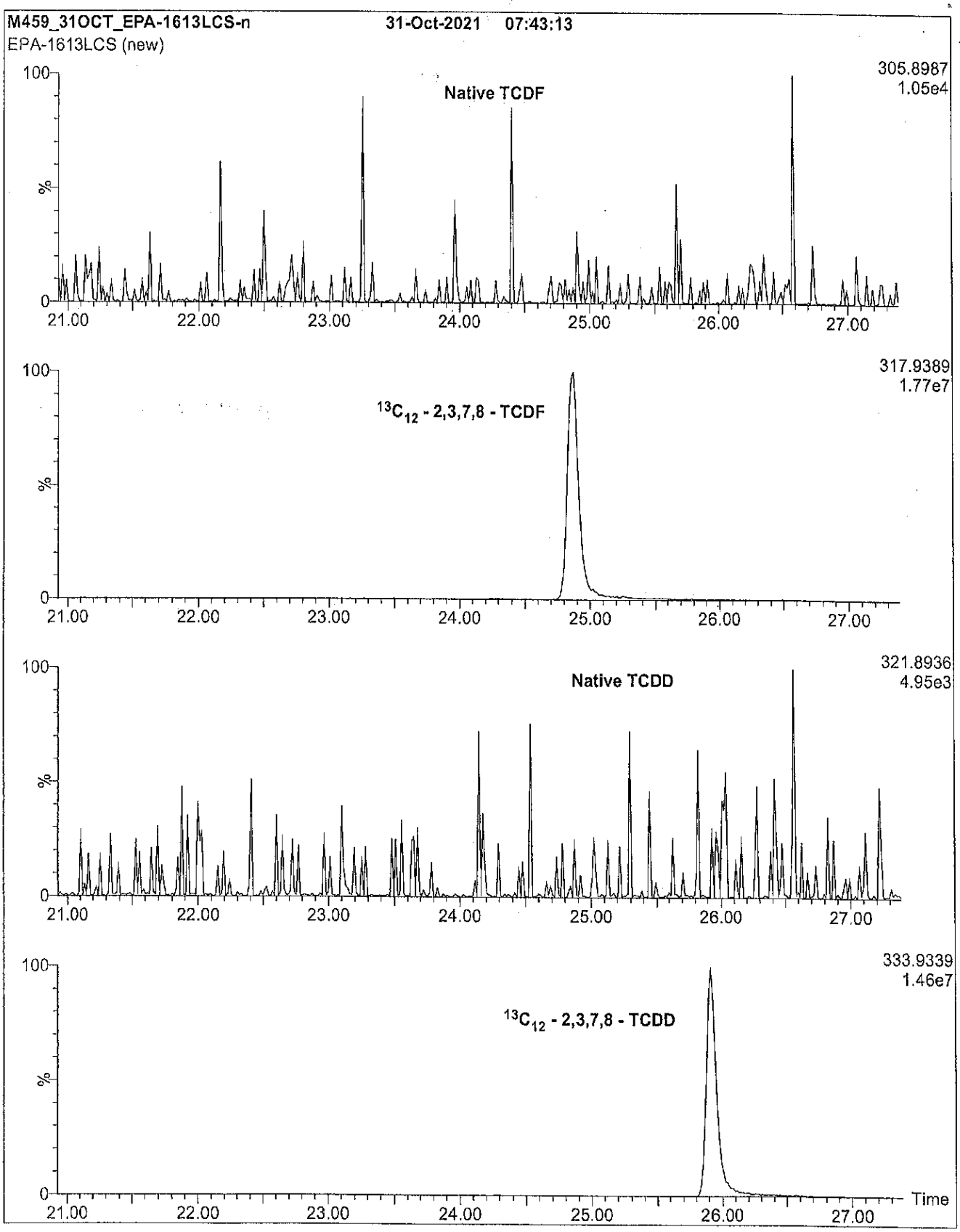


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

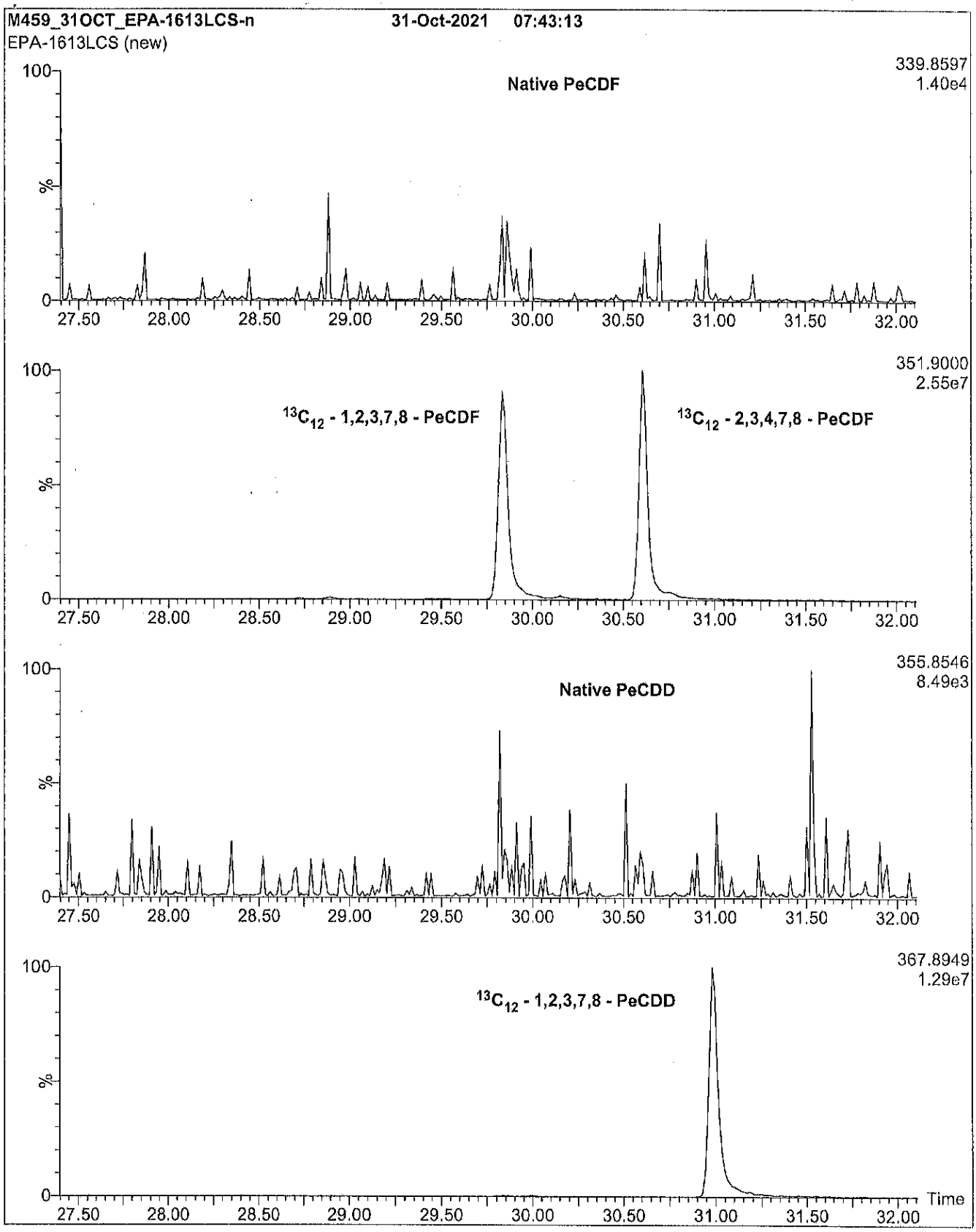


Figure 1: EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)

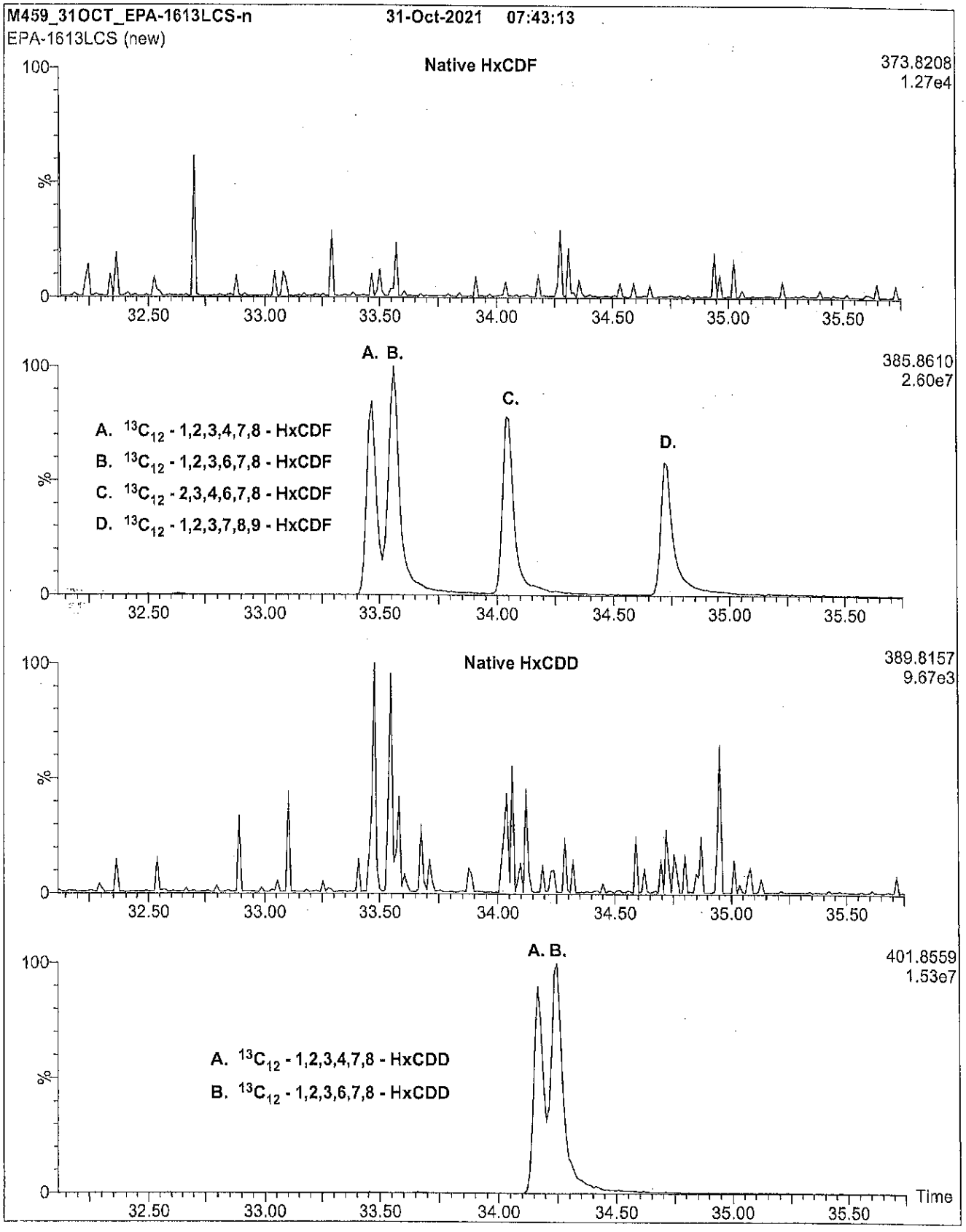


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

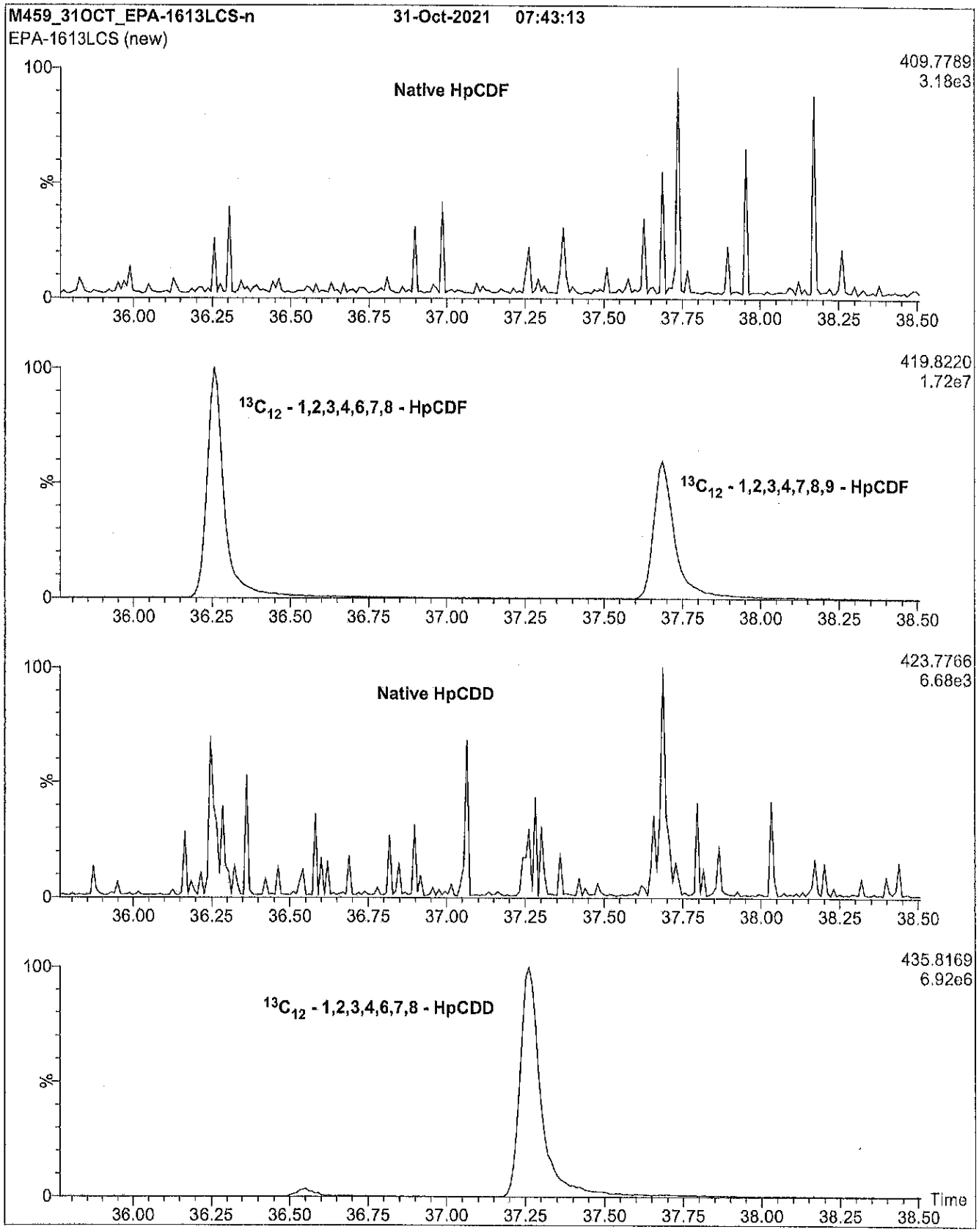
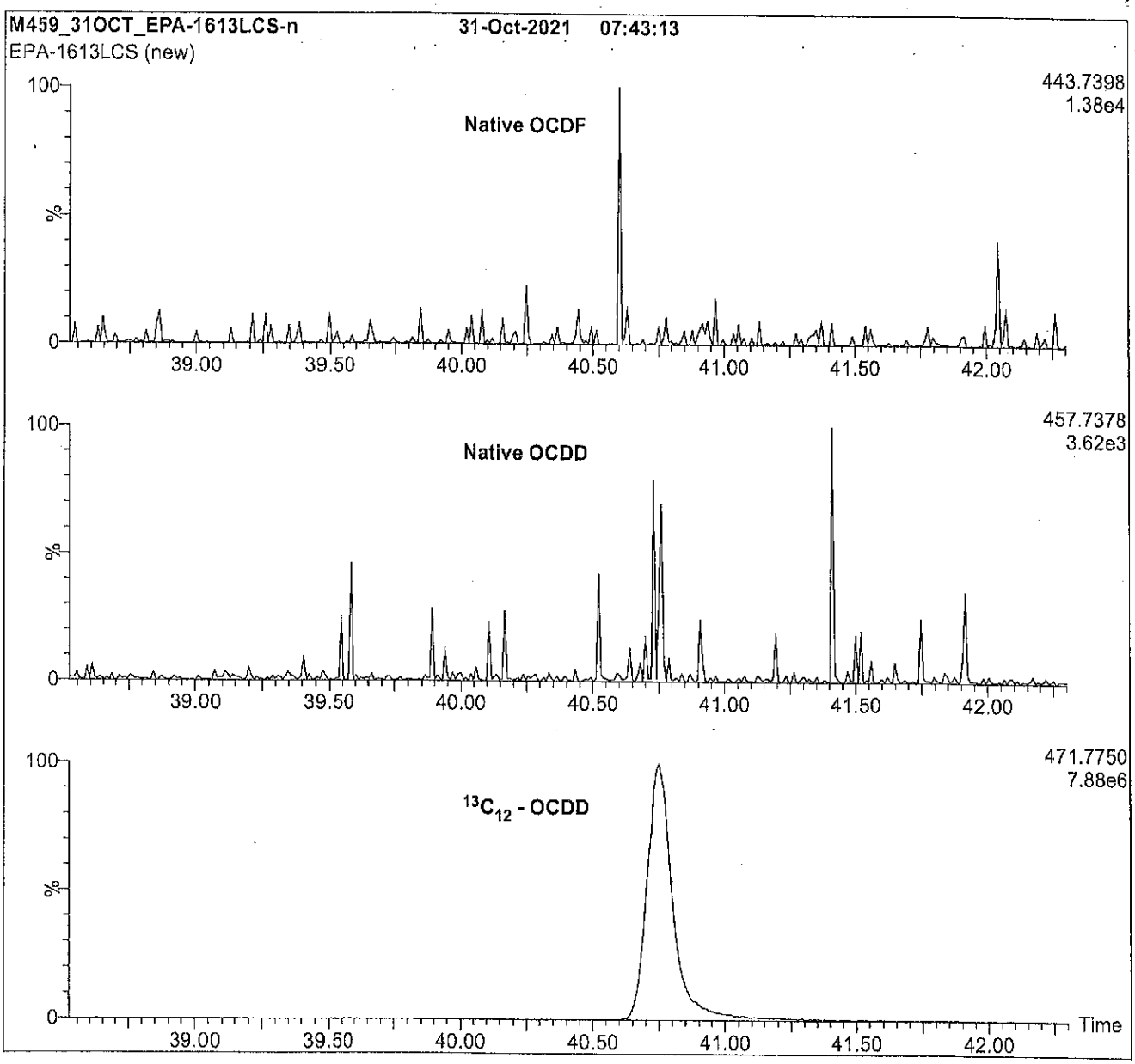


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

CS3WT

Calibration and Verification Solution (EPA-1613CS3) combined with Window Defining and 2,3,7,8-TCDD Resolution Testing Congeners

PRODUCT CODE:	CS3WT
LOT NUMBER:	CS3WT1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	11/01/2021
LAST TESTED: (mm/dd/yyyy)	11/02/2021
EXPIRY DATE: (mm/dd/yyyy)	11/02/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

LOO 6734

DESCRIPTION:

CS3WT is a solution/mixture of native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$) polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Tables A and B.

CS3WT is an HRGC/HRMS calibration solution that was designed and prepared to be used according to U.S. EPA Method 1613, Revision B, in place of EPA-1613CS3 (lot: 13CS31021). Additionally, it contains the PCDD and PCDF isomers required to set retention time windows as well as test and establish isomer specificity for 2,3,7,8-TCDD on a DB-5 (or equivalent) capillary column.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-($^{37}Cl_4$)tetrachlorodibenzo-*p*-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%. The individual native 2,3,7,8-substituted PCDD and PCDF congeners all have chemical purities of >98%; the other congeners (window defining and resolution testing) should only be considered semi-quantitative.

This current lot of CS3WT is to be used with the 1613 calibration solutions having the following lot numbers:

PRODUCT CODE	LOT NUMBER
EPA-1613CS1	13CS11021
EPA-1613CS2	13CS21021
EPA-1613CS3	13CS31021
EPA-1613CS4	13CS41021
EPA-1613CS5	13CS51021
EPA-1613CSL	13CSL1021
EPA-1613CS0.5	13CS0.51021

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Quantitative Components and Concentrations of the Solution/Mixture
Table B: Semi-Quantitative Components and Concentrations of the Solution/Mixture
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.
- Only the 2,3,7,8-substituted PCDDs and PCDFs should be used for quantitation. The other congeners (window defining and 2,3,7,8-TCDD resolution testing) should be considered semi-quantitative (within ±20% of their design value). Impurities have been identified where possible.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) has been assigned to the quantitative components in this product. A maximum combined percent relative uncertainty of ±20% has been assigned to the semi-quantitative components in this product.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **CS3WT; Quantitative Components and Concentrations (ng/mL, ± 5%, in nonane/4.5% toluene)**

Compound		Acronym	CAS #	Concentration (ng/mL)
Native PCDDs:	**Designation[a]**			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin		2,3,7,8-TCDD	1746-01-6	10.0
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin		1,2,3,7,8-PeCDD	40321-76-4	50.0
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin		1,2,3,4,7,8-HxCDD	39227-28-6	50.0
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin		1,2,3,6,7,8-HxCDD	57653-85-7	50.0
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin	Last HxCDD[b]	1,2,3,7,8,9-HxCDD	19408-74-3	50.0
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin	Last HpCDD	1,2,3,4,6,7,8-HpCDD	35822-46-9	50.0
Octachlorodibenzo-*p*-dioxin		OCDD	3268-87-9	100
Native PCDFs:	**Designation[a]**			
2,3,7,8-Tetrachlorodibenzofuran		2,3,7,8-TCDF	51207-31-9	10.0
1,2,3,7,8-Pentachlorodibenzofuran		1,2,3,7,8-PeCDF	57117-41-6	50.0
2,3,4,7,8-Pentachlorodibenzofuran		2,3,4,7,8-PeCDF	57117-31-4	50.0
1,2,3,4,7,8-Hexachlorodibenzofuran		1,2,3,4,7,8-HxCDF	70648-26-9	50.0
1,2,3,6,7,8-Hexachlorodibenzofuran		1,2,3,6,7,8-HxCDF	57117-44-9	50.0
1,2,3,7,8,9-Hexachlorodibenzofuran		1,2,3,7,8,9-HxCDF	72918-21-9	50.0
2,3,4,6,7,8-Hexachlorodibenzofuran		2,3,4,6,7,8-HxCDF	60851-34-5	50.0
1,2,3,4,6,7,8-Heptachlorodibenzofuran	First HpCDF[c]	1,2,3,4,6,7,8-HpCDF	67562-39-4	50.0
1,2,3,4,7,8,9-Heptachlorodibenzofuran	Last HpCDF	1,2,3,4,7,8,9-HpCDF	55673-89-7	50.0
Octachlorodibenzofuran		OCDF	39001-02-0	100
Mass-Labelled PCDDs:				
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-2,3,7,8-TCDD	76523-40-5	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,7,8-PeCDD	109719-79-1	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	109719-80-4	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	109719-81-5	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	109719-83-7	100
Octachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-OCDD	114423-97-1	200
Mass-Labelled PCDFs:				
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,7,8-TCDF	89059-46-1	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,7,8-PeCDF	109719-77-9	100
2,3,4,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,4,7,8-PeCDF	116843-02-8	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	114423-98-2	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	116843-03-9	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	116843-04-0	100
2,3,4,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	116843-05-1	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	109719-84-8	100
1,2,3,4,7,8,9-Heptachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	109719-94-0	100
Cleanup Standard:				
2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin		$^{37}Cl_4$-2,3,7,8-TCDD	85508-50-5	10.0
Internal Standards:				
1,2,3,4-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4-TCDD	114423-99-3	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	109719-82-6	100

[a] First/Last eluting isomer for the specified homologue group (see Table B for additional Window Definers).
[b, c] – see Table B for footnote.

Table B: **CS3WT; Semi-Quantitative Components and Concentrations (ng/mL, ± 20%, in nonane/4.5% toluene)**

Compound		Acronym	CAS #	Concentration (ng/mL)
PCDD Window Definers:	**Designation[a]**			
1,3,6,8-Tetrachlorodibenzo-*p*-dioxin	First TCDD	1,3,6,8-TCDD	33423-92-6	10.0
1,2,8,9-Tetrachlorodibenzo-*p*-dioxin	Last TCDD	1,2,8,9-TCDD	62470-54-6	10.0
1,2,4,6,8-/1,2,4,7,9-Pentachlorodibenzo-*p*-dioxin	First PeCDD	1,2,4,6,8-PeCDD 1,2,4,7,9-PeCDD	71998-76-0 82291-37-0	50.0[d]
1,2,3,8,9-Pentachlorodibenzo-*p*-dioxin	Last PeCDD	1,2,3,8,9-PeCDD	71925-18-3	50.0
1,2,4,6,7,9-Hexachlorodibenzo-*p*-dioxin	First HxCDD	1,2,4,6,7,9-HxCDD	39227-62-8	50.0
1,2,3,4,6,7,9-Heptachlorodibenzo-*p*-dioxin	First HpCDD	1,2,3,4,6,7,9-HpCDD	58200-70-7	50.0
PCDF Window Definers:	**Designation[a]**			
1,3,6,8-Tetrachlorodibenzofuran	First TCDF	1,3,6,8-TCDF	71998-72-6	10.0
1,2,8,9-Tetrachlorodibenzofuran	Last TCDF	1,2,8,9-TCDF	70648-22-5	10.0
1,3,4,6,8-Pentachlorodibenzofuran	First PeCDF	1,3,4,6,8-PeCDF	83704-55-6	50.0
1,2,3,8,9-Pentachlorodibenzofuran	Last PeCDF	1,2,3,8,9-PeCDF	83704-54-5	50.0
1,2,3,4,6,8-Hexachlorodibenzofuran	First HxCDF	1,2,3,4,6,8-HxCDF	69698-60-8	50.0
2,3,7,8-TCDD Resolution Testing Isomers:				
1,2,3,4-Tetrachlorodibenzo-*p*-dioxin		1,2,3,4-TCDD	30746-58-8	5.00
1,2,3,7-/1,2,3,8-Tetrachlorodibenzo-*p*-dioxin		1,2,3,7-TCDD 1,2,3,8-TCDD	67028-18-6 53555-02-5	5.00[d]
1,2,3,9-Tetrachlorodibenzo-*p*-dioxin		1,2,3,9-TCDD	71669-26-6	10.0

[a] First/Last eluting isomer for the specified homologue group (see Table A for additional Window Definers).

[b] 1,2,3,4,6,7-HxCDD (last eluting HxCDD) not included; coelutes with 1,2,3,7,8,9-HxCDD on a 60 m DB-5 column. Use 1,2,3,7,8,9-HxCDD (see Table A) and 1,2,3,4,6,7,9-HpCDD to approximate the end of the HxCDD window.

[c] 1,2,3,4,8,9-HxCDF (last eluting HxCDF) not included; can interfere with 1,2,3,7,8,9-HxCDF on a 60 m DB-5 column. Use 1,2,3,4,6,7,8-HpCDF (see Table A) to approximate the end of the HxCDF window.

[d] Total concentration of isomers.

Certified By: _____ **Date:** 11/05/2021 (mm/dd/yyyy)

B.G. Chittim, General Manager

Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

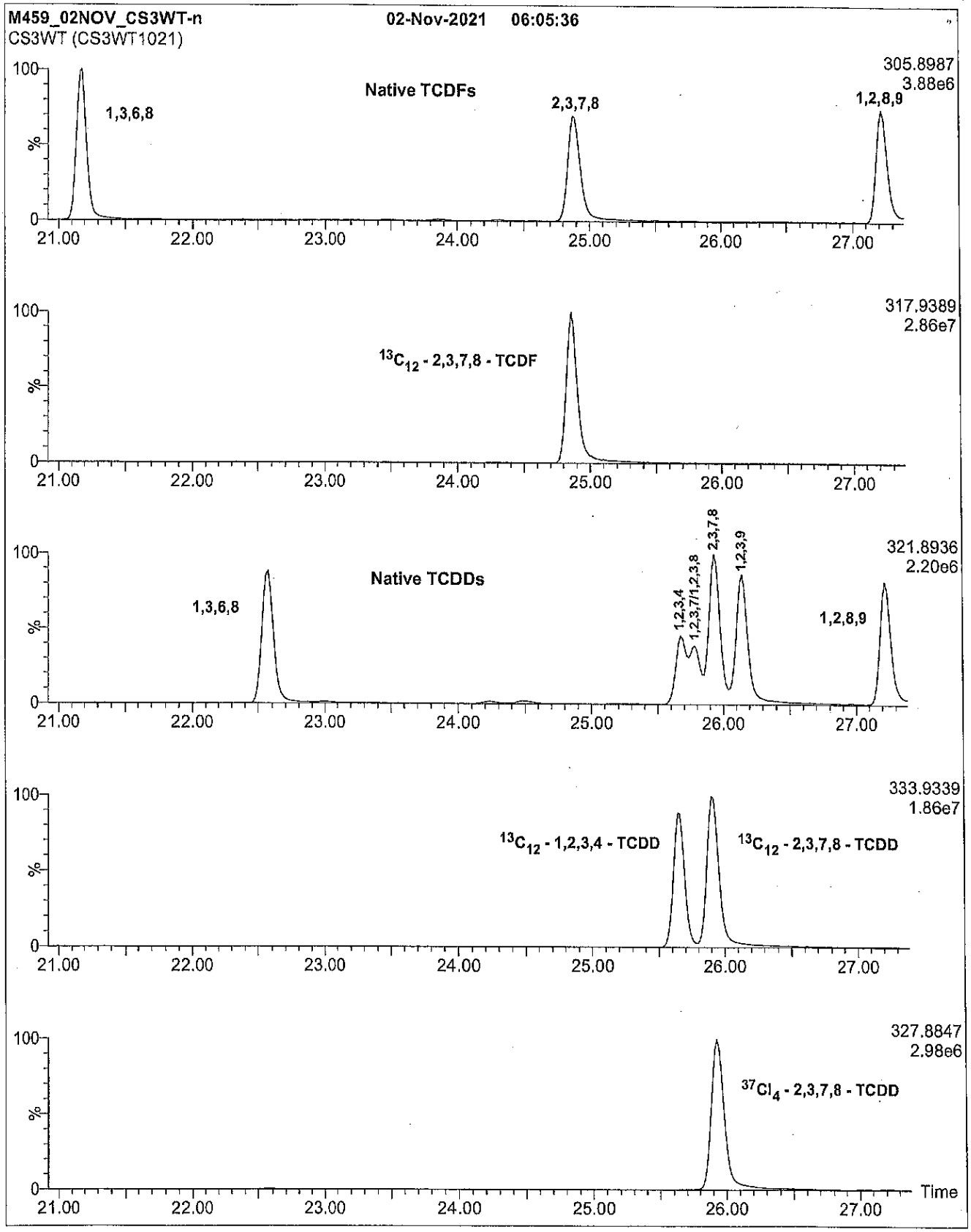


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

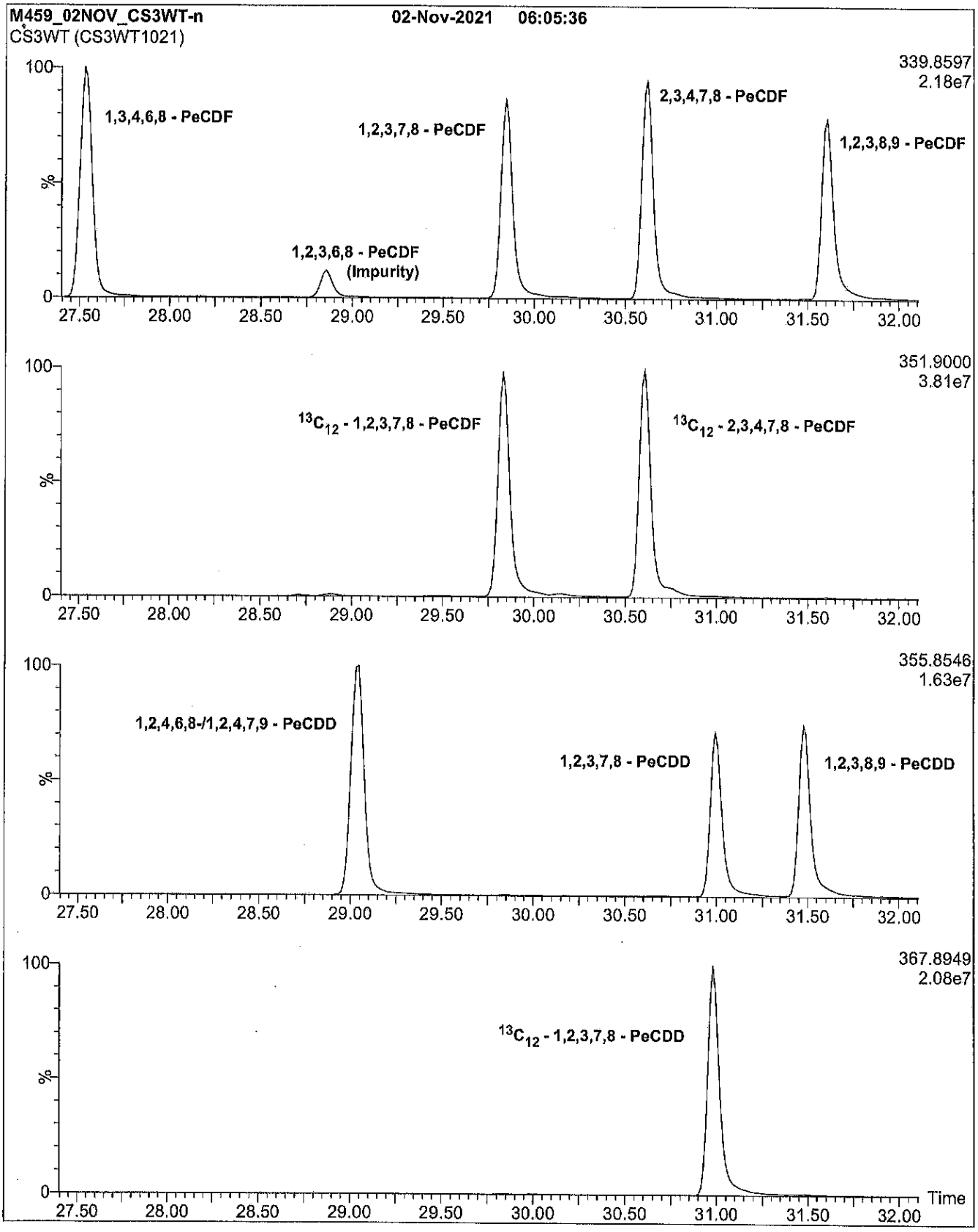


Figure 1: CS3WT; HRGC/HRMS Data (60 m DB-5 Column)

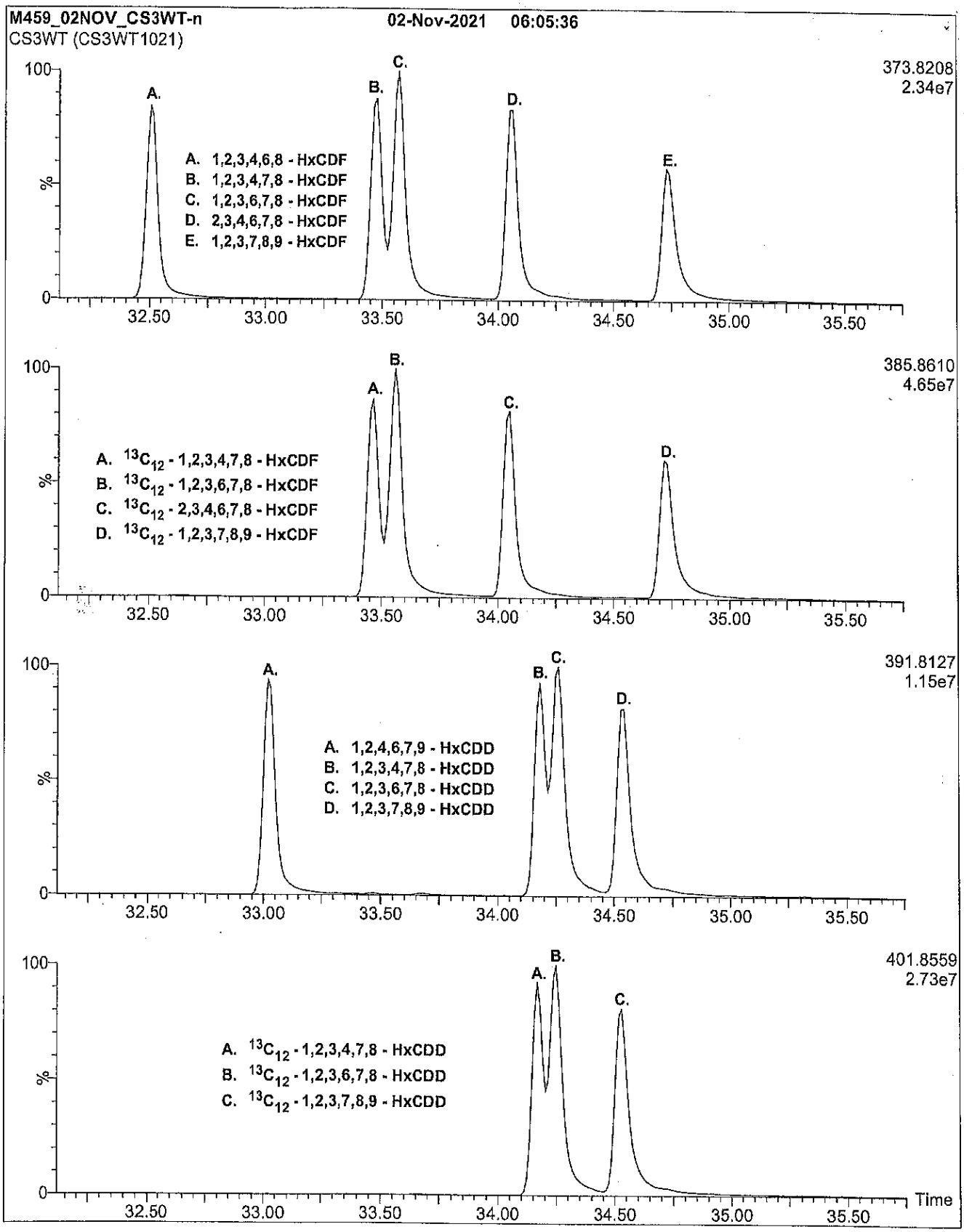


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

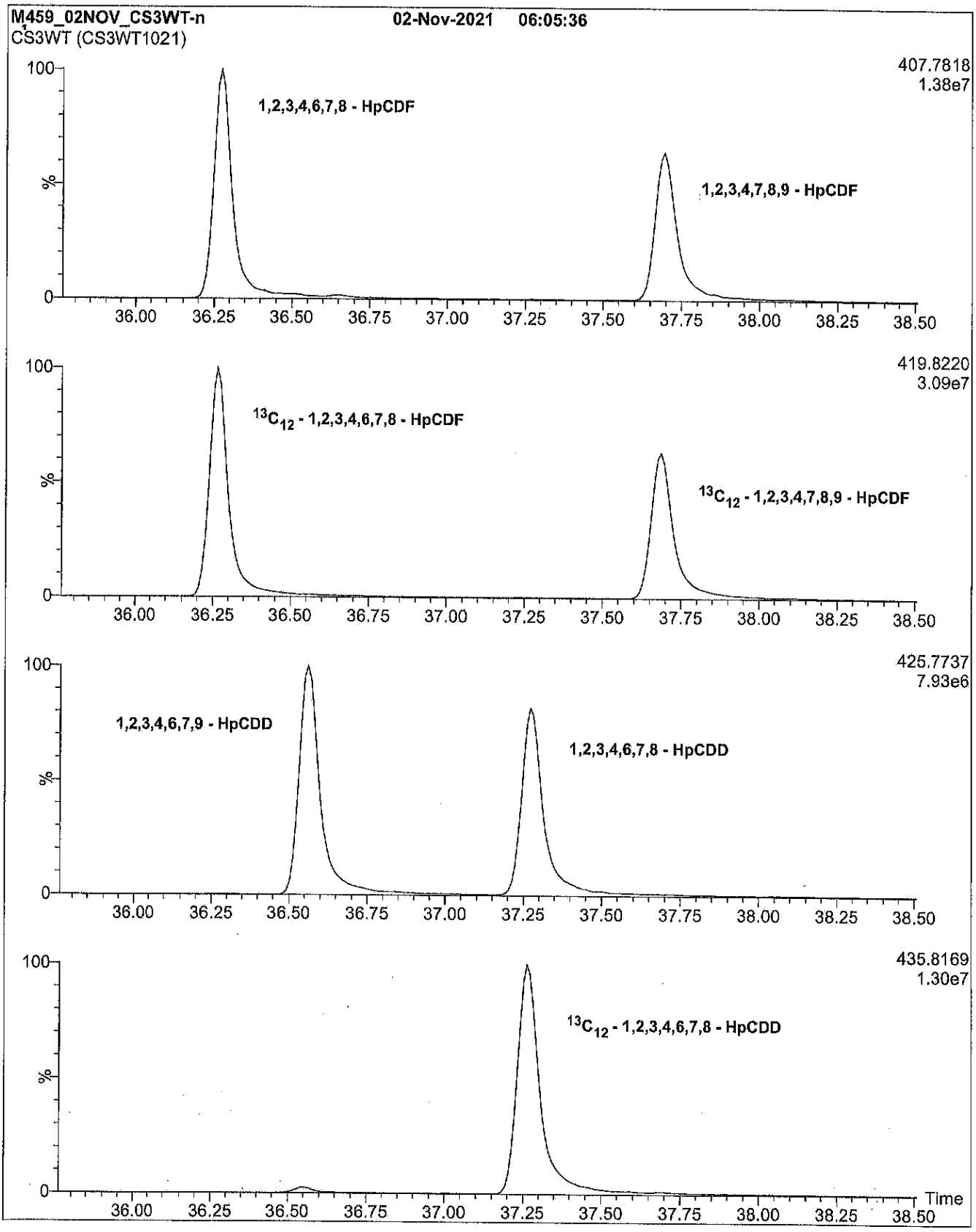
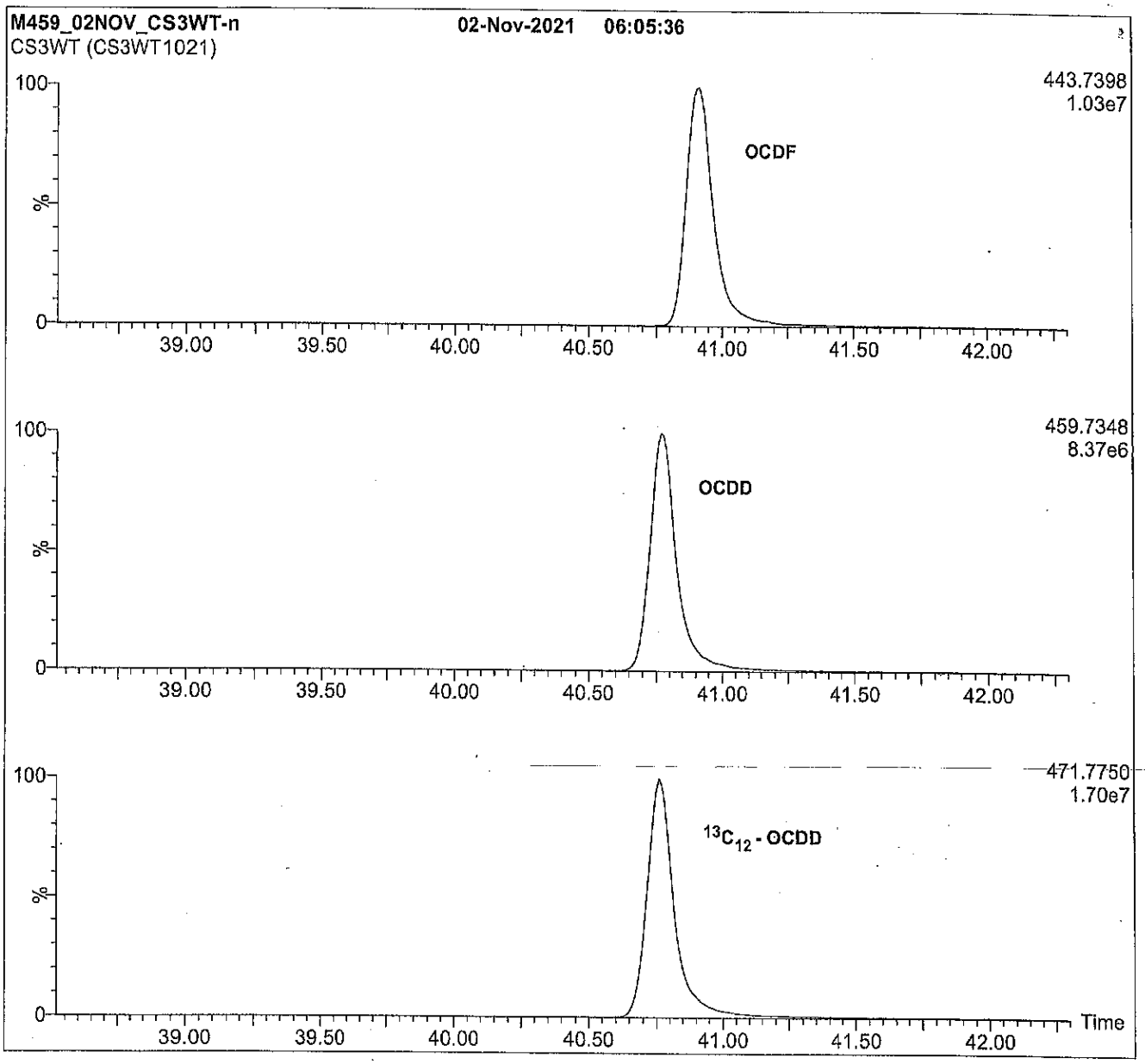


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

Analytical Resources, LLC
Analytical Chemists and Consultants

PREPARATION BATCH SUMMARY

ASTM D2216

Laboratory: Analytical Resources, LLC
SDG: 23I0156
Client: Floyd - Snider
Project: Smith-Kem
Batch: BLJ0767
Batch Matrix: Solid
Preparation: No Prep-Organics

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
AOC3-03-0.5-1.0	23I0156-05		10/26/23 13:30	
AOC3-103-0.5-1.0	23I0156-06		10/26/23 13:30	
AOC3-04-0.5-1.0	23I0156-08		10/26/23 13:30	
AOC3-05-0.5-1.0	23I0156-10		10/26/23 13:30	

HOLDING TIME SUMMARY

Analysis: ASTM D2216

Laboratory: Analytical Resources, LLC SDG: 23I0156

Client: Floyd - Snider Project: Smith-Kem

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
AOC3-03-0.5-1.0 23I0156-05	09/07/23 08:45	09/08/23 11:58	10/26/23 13:30	49	365	10/27/23 05:09	50	365	
AOC3-103-0.5-1.0 23I0156-06	09/07/23 08:47	09/08/23 11:58	10/26/23 13:30	49	365	10/27/23 05:09	50	365	
AOC3-04-0.5-1.0 23I0156-08	09/07/23 09:00	09/08/23 11:58	10/26/23 13:30	49	365	10/27/23 05:09	50	365	
AOC3-05-0.5-1.0 23I0156-10	09/07/23 09:15	09/08/23 11:58	10/26/23 13:30	49	365	10/27/23 05:09	50	365	

* Indicates hold time exceedance.

Analytical Resources, LLC
Analytical Chemists and Consultants

METHOD DETECTION AND REPORTING LIMITS

ASTM D2216

Laboratory: Analytical Resources, LLC
SDG: 23I0156
Client: Floyd - Snider
Project: Smith-Kem
Matrix: Solid
Instrument:

Analyte	MDL	RL	Units
Total Solids		0.01	%

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Avenue South
Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

August 24, 2023

Pamela Osterhout, Project Manager
Floyd-Snider
Two Union Square
601 Union St, Suite 600
Seattle, WA 98101

Dear Ms Osterhout:

Included are the results from the testing of material submitted on August 16, 2023 from the PKG-Smith Kem, F&BI 308255 project. There are 16 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Floyd Snider Lab Data, Pamela Osterhaut
FDS0824R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 16, 2023 by Friedman & Bruya, Inc. from the Floyd-Snider PKG-Smith Kem, F&BI 308255 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Floyd-Snider
308255 -01	MW-1-081523
308255 -02	MW-2-081523
308255 -03	MW-6-081623
308255 -04	MW-10-081523

Samples MW-1-081523, MW-2-081523, and MW-10-081523 were sent to Fremont Analytical for alkalinity, total aluminum, and TOC analyses. The report is enclosed.

The 8260D acetone and 2-hexanone calibration standard exceeded the acceptance criteria. The compounds were not detected, therefore this did not represent an out of control condition.

All quality control requirements were acceptable.

Date of Report: 08/24/23
Date Received: 08/16/23
Project: PKG-Smith Kem, F&BI 308255
Date Extracted: 08/17/23
Date Analyzed: 08/17/23

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
MW-1-081523 308255-01	<100	98
MW-6-081623 308255-03	<100	98
Method Blank 03-1643 MB	<100	100

Date of Report: 08/24/23
Date Received: 08/16/23
Project: PKG-Smith Kem, F&BI 308255
Date Extracted: 08/16/23
Date Analyzed: 08/16/23

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
MW-1-081523 308255-01	100 x	<250	89
MW-6-081623 308255-03	160 x	<250	114
Method Blank 03-1936 MB	<50	<250	134

Analysis For Hardness By EPA Method 200.8 and SM 2340B

Client ID:	MW-1-081523	Client:	Floyd-Snider
Date Received:	08/16/23	Project:	PKG-Smith Kem, F&BI 308255
Date Extracted:	08/18/23	Lab ID:	308255-01 x10
Date Analyzed:	08/21/23	Data File:	308255-01 x10.036
Matrix:	Water	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)
Calcium	60.4
Magnesium	19.8
Hardness (as CaCO3)	232

Analysis For Hardness By EPA Method 200.8 and SM 2340B

Client ID:	MW-2-081523	Client:	Floyd-Snider
Date Received:	08/16/23	Project:	PKG-Smith Kem, F&BI 308255
Date Extracted:	08/18/23	Lab ID:	308255-02 x10
Date Analyzed:	08/21/23	Data File:	308255-02 x10.039
Matrix:	Water	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)
Calcium	28.5
Magnesium	14.4
Hardness (as CaCO3)	130

Analysis For Hardness By EPA Method 200.8 and SM 2340B

Client ID:	MW-10-081523	Client:	Floyd-Snider
Date Received:	08/16/23	Project:	PKG-Smith Kem, F&BI 308255
Date Extracted:	08/18/23	Lab ID:	308255-04 x10
Date Analyzed:	08/21/23	Data File:	308255-04 x10.040
Matrix:	Water	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)
Calcium	18.9
Magnesium	9.16
Hardness (as CaCO3)	84.9

Analysis For Hardness By EPA Method 200.8 and SM 2340B

Client ID:	Method Blank	Client:	Floyd-Snider
Date Received:	NA	Project:	PKG-Smith Kem, F&BI 308255
Date Extracted:	08/18/23	Lab ID:	I3-649 mb
Date Analyzed:	08/21/23	Data File:	I3-649 mb.034
Matrix:	Water	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)
Calcium	<0.05
Magnesium	<0.05
Hardness (as CaCO3)	<0.35

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW-1-081523	Client:	Floyd-Snider
Date Received:	08/16/23	Project:	PKG-Smith Kem, F&BI 308255
Date Extracted:	08/17/23	Lab ID:	308255-01
Date Analyzed:	08/17/23	Data File:	081732.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	78	126
Toluene-d8	99	84	115
4-Bromofluorobenzene	111	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<0.01
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50 k	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10 k		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW-6-081623	Client:	Floyd-Snider
Date Received:	08/16/23	Project:	PKG-Smith Kem, F&BI 308255
Date Extracted:	08/17/23	Lab ID:	308255-03
Date Analyzed:	08/17/23	Data File:	081733.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	78	126
Toluene-d8	100	84	115
4-Bromofluorobenzene	103	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<0.01
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50 k	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10 k		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Floyd-Snider
Date Received:	Not Applicable	Project:	PKG-Smith Kem, F&BI 308255
Date Extracted:	08/17/23	Lab ID:	03-1941 mb
Date Analyzed:	08/17/23	Data File:	081707.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	78	126
Toluene-d8	98	84	115
4-Bromofluorobenzene	104	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<0.01
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50 k	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10 k		

Date of Report: 08/24/23
Date Received: 08/16/23
Project: PKG-Smith Kem, F&BI 308255

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 308255-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	120	70-130

Date of Report: 08/24/23
Date Received: 08/16/23
Project: PKG-Smith Kem, F&BI 308255

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	104	104	65-151	0

Date of Report: 08/24/23
Date Received: 08/16/23
Project: PKG-Smith Kem, F&BI 308255

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8 AND SM 2340B

Laboratory Code: 308255-01 x10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Calcium	mg/L (ppm)	1.0	60.4	331 b	181 b	70-130	59 b
Magnesium	mg/L (ppm)	1.0	19.8	193 b	140 b	70-130	32 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Calcium	mg/L (ppm)	1.0	102	85-115
Magnesium	mg/L (ppm)	1.0	100	85-115

Date of Report: 08/24/23
Date Received: 08/16/23
Project: PKG-Smith Kem, F&BI 308255

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 308255-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	10	<1	82	30-221
Chloromethane	ug/L (ppb)	10	<10	77	50-150
Vinyl chloride	ug/L (ppb)	10	<0.02	85	50-150
Bromomethane	ug/L (ppb)	10	<5	90	50-150
Chloroethane	ug/L (ppb)	10	<1	86	50-150
Trichlorofluoromethane	ug/L (ppb)	10	<1	86	50-150
Acetone	ug/L (ppb)	50	<50	46	18-161
1,1-Dichloroethene	ug/L (ppb)	10	<1	106	50-150
Hexane	ug/L (ppb)	10	<5	103	50-150
Methylene chloride	ug/L (ppb)	10	<5	105	50-150
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	105	50-150
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	107	50-150
1,1-Dichloroethane	ug/L (ppb)	10	<1	105	50-150
2,2-Dichloropropane	ug/L (ppb)	10	<1	110	43-171
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	102	10-211
Chloroform	ug/L (ppb)	10	<1	100	50-150
2-Butanone (MEK)	ug/L (ppb)	50	<20	67	10-192
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	105	50-150
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	99	50-150
1,1-Dichloropropene	ug/L (ppb)	10	<1	98	50-150
Carbon tetrachloride	ug/L (ppb)	10	<0.5	91	50-150
Benzene	ug/L (ppb)	10	<0.35	109	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	102	35-149
1,2-Dichloropropane	ug/L (ppb)	10	<1	103	50-150
Bromodichloromethane	ug/L (ppb)	10	<0.5	103	50-150
Dibromomethane	ug/L (ppb)	10	<1	100	50-150
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	106	50-150
cis-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	109	50-150
Toluene	ug/L (ppb)	10	<1	105	50-150
trans-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	104	50-150
1,1,2-Trichloroethane	ug/L (ppb)	10	<0.5	101	50-150
2-Hexanone	ug/L (ppb)	50	<10	91	50-150
1,3-Dichloropropane	ug/L (ppb)	10	<1	100	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	99	50-150
Dibromochloromethane	ug/L (ppb)	10	<0.5	95	50-150
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<0.01	100	50-150
Chlorobenzene	ug/L (ppb)	10	<1	98	50-150
Ethylbenzene	ug/L (ppb)	10	<1	107	50-150
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<1	95	50-150
m,p-Xylene	ug/L (ppb)	20	<2	102	50-150
o-Xylene	ug/L (ppb)	10	<1	102	50-150
Styrene	ug/L (ppb)	10	<1	99	50-150
Isopropylbenzene	ug/L (ppb)	10	<1	99	50-150
Bromoform	ug/L (ppb)	10	<5	95	50-150
n-Propylbenzene	ug/L (ppb)	10	<1	105	50-150
Bromobenzene	ug/L (ppb)	10	<1	98	50-150
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	103	50-150
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<0.2	110	50-150
1,2,3-Trichloropropane	ug/L (ppb)	10	<1	108	50-150
2-Chlorotoluene	ug/L (ppb)	10	<1	108	50-150
4-Chlorotoluene	ug/L (ppb)	10	<1	103	50-150
tert-Butylbenzene	ug/L (ppb)	10	<1	102	50-150
1,2,4-Trimethylbenzene	ug/L (ppb)	10	<1	105	50-150
sec-Butylbenzene	ug/L (ppb)	10	<1	102	50-150
p-Isopropyltoluene	ug/L (ppb)	10	<1	103	50-150
1,3-Dichlorobenzene	ug/L (ppb)	10	<1	100	50-150
1,4-Dichlorobenzene	ug/L (ppb)	10	<1	101	50-150
1,2-Dichlorobenzene	ug/L (ppb)	10	<1	98	50-150
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<10	105	50-150
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	98	50-150
Hexachlorobutadiene	ug/L (ppb)	10	<0.5	94	50-150
Naphthalene	ug/L (ppb)	10	<1	100	50-150
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<1	95	50-150

Date of Report: 08/24/23
Date Received: 08/16/23
Project: PKG-Smith Kem, F&BI 308255

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	85	78	46-206	9
Chloromethane	ug/L (ppb)	10	74	74	59-132	0
Vinyl chloride	ug/L (ppb)	10	84	83	64-142	1
Bromomethane	ug/L (ppb)	10	90	91	50-197	1
Chloroethane	ug/L (ppb)	10	85	88	70-130	3
Trichlorofluoromethane	ug/L (ppb)	10	89	88	51-159	1
Acetone	ug/L (ppb)	50	47	46	10-140	2
1,1-Dichloroethene	ug/L (ppb)	10	105	102	64-140	3
Hexane	ug/L (ppb)	10	102	99	54-136	3
Methylene chloride	ug/L (ppb)	10	106	102	43-134	4
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	105	101	70-130	4
trans-1,2-Dichloroethene	ug/L (ppb)	10	107	105	70-130	2
1,1-Dichloroethane	ug/L (ppb)	10	103	101	70-130	2
2,2-Dichloropropane	ug/L (ppb)	10	116	110	64-148	5
cis-1,2-Dichloroethene	ug/L (ppb)	10	102	100	70-130	2
Chloroform	ug/L (ppb)	10	97	96	70-130	1
2-Butanone (MEK)	ug/L (ppb)	50	62	63	47-112	2
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	103	102	70-130	1
1,1,1-Trichloroethane	ug/L (ppb)	10	99	96	70-130	3
1,1-Dichloropropene	ug/L (ppb)	10	97	94	70-130	3
Carbon tetrachloride	ug/L (ppb)	10	93	90	70-130	3
Benzene	ug/L (ppb)	10	107	105	70-130	2
Trichloroethene	ug/L (ppb)	10	102	99	70-130	3
1,2-Dichloropropane	ug/L (ppb)	10	100	97	70-130	3
Bromodichloromethane	ug/L (ppb)	10	97	98	70-130	1
Dibromomethane	ug/L (ppb)	10	99	95	70-130	4
4-Methyl-2-pentanone	ug/L (ppb)	50	94	99	68-130	5
cis-1,3-Dichloropropene	ug/L (ppb)	10	105	101	69-131	4
Toluene	ug/L (ppb)	10	110	107	70-130	3
trans-1,3-Dichloropropene	ug/L (ppb)	10	106	108	70-130	2
1,1,2-Trichloroethane	ug/L (ppb)	10	104	101	70-130	3
2-Hexanone	ug/L (ppb)	50	90	88	45-138	2
1,3-Dichloropropane	ug/L (ppb)	10	103	100	70-130	3
Tetrachloroethene	ug/L (ppb)	10	104	101	70-130	3
Dibromochloromethane	ug/L (ppb)	10	103	100	60-148	3
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	104	102	70-130	2
Chlorobenzene	ug/L (ppb)	10	101	99	70-130	2
Ethylbenzene	ug/L (ppb)	10	112	109	70-130	3
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	97	98	70-130	1
m,p-Xylene	ug/L (ppb)	20	107	104	70-130	3
o-Xylene	ug/L (ppb)	10	107	104	70-130	3
Styrene	ug/L (ppb)	10	101	98	70-130	3
Isopropylbenzene	ug/L (ppb)	10	106	101	70-130	5
Bromoform	ug/L (ppb)	10	98	94	69-138	4
n-Propylbenzene	ug/L (ppb)	10	105	100	70-130	5
Bromobenzene	ug/L (ppb)	10	97	94	70-130	3
1,3,5-Trimethylbenzene	ug/L (ppb)	10	106	100	70-130	6
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	109	103	70-130	6
1,2,3-Trichloropropane	ug/L (ppb)	10	106	102	70-130	4
2-Chlorotoluene	ug/L (ppb)	10	108	103	70-130	5
4-Chlorotoluene	ug/L (ppb)	10	104	98	70-130	6
tert-Butylbenzene	ug/L (ppb)	10	103	98	70-130	5
1,2,4-Trimethylbenzene	ug/L (ppb)	10	107	99	70-130	8
sec-Butylbenzene	ug/L (ppb)	10	105	100	70-130	5
p-Isopropyltoluene	ug/L (ppb)	10	105	97	70-130	8
1,3-Dichlorobenzene	ug/L (ppb)	10	101	96	70-130	5
1,4-Dichlorobenzene	ug/L (ppb)	10	102	97	70-130	5
1,2-Dichlorobenzene	ug/L (ppb)	10	100	97	70-130	3
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	96	91	70-130	5
1,2,4-Trichlorobenzene	ug/L (ppb)	10	99	94	70-130	5
Hexachlorobutadiene	ug/L (ppb)	10	101	94	70-130	7
Naphthalene	ug/L (ppb)	10	102	96	70-130	6
1,2,3-Trichlorobenzene	ug/L (ppb)	10	101	91	70-130	10

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

k – The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

308255

SAMPLE CHAIN OF CUSTODY

09/16/23

F2/VW2/K3

Page # 1 of 1

Report To Pamela Osterhout
Company Floyd Snider
Address 601 Union St, Suite 600
City, State, ZIP Seattle, WA 98101
Phone 206 387-9440 Email

SAMPLERS (*signature*)

PROJECT NAME: PKG-Smith Kem

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
- [x] Standard turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Archive samples
- [ ] Other
- [x] Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Total Al, Ca, Mg, Mn, K, Na by EPA 200.8	Total Hardness as CaCO3 by SM 2340B	Alkalinity SM 2320B	TOC by Lloyd Kahn Method	Notes
MW-1-081523	01 A-K	8/15/23	12:50	GW	11	✓	✓			✓			✓	✓	✓	✓	
MW-2-081523	02 A-D	8/15/23	14:25		4								✓	✓	✓	✓	
MW-6-081623	03 A-G	8/16/23	08:20		7	✓	✓			✓							
MW-10-081523	04 A-D	8/15/23	15:45		4								✓	✓	✓	✓	
								Samples received at 4 °C									

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		P. Osterhout	Floyd Snider	8/16/23	11:52
Received by:		ANHPHAN	FSB	08/16/23	11:52
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Received by:					

Friedman & Bruya, Inc.
Ph. (206) 285-8282

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RE: 308255
Work Order Number: 2308225

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Attention Michael Erdahl:

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Total Metals by EPA Method 200.8
Total Alkalinity by SM 2320B
Total Organic Carbon by SM 5310C

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Date: *08/23/2023*

CLIENT: □rie□□ an □ Br□ya
Project: □□□□□□
Work Order: □□□□□□□

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
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Case Narrative

W□ □□ **2308225**

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CLIENT: □rie□□ an □ Br□ya
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Analytical Report

W□r□ □r□er□ **2308225**
□ate Re□□rte□□ **8/23/2023**

CLIENT: □rie□□an □ Br□ya
Project: □□□□□□

Lab ID: □□□□□□□□□□□□ **Collection Date:** □□□□□□□□□□ □□□□□□□□□ □□
Client Sample ID: **MW-1-081523** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 200.8				Batch I□□ □□□□□□		Ana□y□t□□R
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Total Organic Carbon by SM 5310C				Batch I□□R□□□□□□		Ana□y□t□SLL
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Total Alkalinity by SM 2320B				Batch I□□R□□□□□□		Ana□y□t□□E
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Client Sample ID: **MW-2-081523** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 200.8				Batch I□□ □□□□□□		Ana□y□t□□R
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Analytical Report

W□r□ □r□er□ **2308225**
□ate Re□□rte□□ **8/23/2023**

CLIENT: □rie□□an □ Br□ya
Project: □□□□□□

Lab ID: □□□□□□□□□□□□ **Collection Date:** □□□□□□□□□□ □□□□□□□□ □□
Client Sample ID: **MW-10-081523** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Work Order: □□□□□□□
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QC SUMMARY REPORT

Total Alkalinity by SM 2320B

Sa□ □e I□□ **MB-R86032**	Sa□ □Ty□e□ **MBLK**	Unit□□ **mg/L**	□re□ □ate□ **8/21/2023**	R□nN□□ **86032**	
C□ient I□□ **MBLKW**	Batch I□□ **R86032**		Ana□y□i□ □ate□ **8/21/2023**	Se□N□□ **1795077**	

Ana□yte	Re□□t	RL	S□□ □a□e	S□□ Re□□a□	□ REC	L□□Li□it	Hi□hLi□it	R□□ Re□□a□	□ R□□	R□□Li□it	□ □a□
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Sa□ □e I□□ **LCS-R86032**	Sa□ □Ty□e□ **LCS**	Unit□□ **mg/L**	□re□ □ate□ **8/21/2023**	R□nN□□ **86032**	
C□ient I□□ **LCSW**	Batch I□□ **R86032**		Ana□y□i□ □ate□ **8/21/2023**	Se□N□□ **1795078**	

Ana□yte	Re□□t	RL	S□□ □a□e	S□□ Re□□a□	□ REC	L□□Li□it	Hi□hLi□it	R□□ Re□□a□	□ R□□	R□□Li□it	□ □a□
A□a□inity□T□ta□A□ CaC□ □□	□□□	□□□□	□□□□□	□	□□□	□□□□	□□□				

Sa□ □e I□□ **2308225-001BDUP**	Sa□ □Ty□e□ **DUP**	Unit□□ **mg/L**	□re□ □ate□ **8/21/2023**	R□nN□□ **86032**	
C□ient I□□ **MW-1-081523**	Batch I□□ **R86032**		Ana□y□i□ □ate□ **8/21/2023**	Se□N□□ **1795080**	

Ana□yte	Re□□t	RL	S□□ □a□e	S□□ Re□□a□	□ REC	L□□Li□it	Hi□hLi□it	R□□ Re□□a□	□ R□□	R□□Li□it	□ □a□
A□a□inity□T□ta□A□ CaC□ □□	□□□	□□□□						□□□□	□□□□	□□	

Work Order: □□□□□□□
CLIENT: □rie□□an □ Br□ya
Project: □□□□□□

QC SUMMARY REPORT

Total Organic Carbon by SM 5310C

Sa□ □e I□□ **LCS-86047**	Sa□ □Ty□e□ **LCS**			Unit□□ **mg/L**		□re□ □ate□ **8/21/2023**			R□nN□□ **86047**		
C□ient I□□ **LCSW**	Batch I□□ **R86047**					Ana□y□i□ □ate□ **8/21/2023**			Se□N□□ **1795502**		
Ana□yte	Re□□t	RL	S□□ □a□e	S□□ Re□□a□	□ REC	L□□Li□it	Hi□hLi□it	R□□ Re□□a□		□ R□□	R□□Li□it	□ □a□
T□ta□□r□anic Car□□n	□□□□	□□□□□	□□□□□	□	□□□	□□□□	□□□					

Sa□ □e I□□ **2308225-002ADUP**	Sa□ □Ty□e□ **DUP**			Unit□□ **mg/L**		□re□ □ate□ **8/22/2023**			R□nN□□ **86047**		
C□ient I□□ **MW-2-081523**	Batch I□□ **R86047**					Ana□y□i□ □ate□ **8/22/2023**			Se□N□□ **1795505**		
Ana□yte	Re□□t	RL	S□□ □a□e	S□□ Re□□a□	□ REC	L□□Li□it	Hi□hLi□it	R□□ Re□□a□		□ R□□	R□□Li□it	□ □a□
T□ta□□r□anic Car□□n	□□□□	□□□□□						□□□□□		□□□□	□□	

Sa□ □e I□□ **2308225-002AMS**	Sa□ □Ty□e□ **MS**			Unit□□ **mg/L**		□re□ □ate□ **8/22/2023**			R□nN□□ **86047**		
C□ient I□□ **MW-2-081523**	Batch I□□ **R86047**					Ana□y□i□ □ate□ **8/22/2023**			Se□N□□ **1795506**		
Ana□yte	Re□□t	RL	S□□ □a□e	S□□ Re□□a□	□ REC	L□□Li□it	Hi□hLi□it	R□□ Re□□a□		□ R□□	R□□Li□it	□ □a□
T□ta□□r□anic Car□□n	□□□□	□□□□□	□□□□□	□□□□□	□□□	□□□□	□□□					

Sa□ □e I□□ **2308225-002AMSD**	Sa□ □Ty□e□ **MSD**			Unit□□ **mg/L**		□re□ □ate□ **8/22/2023**			R□nN□□ **86047**		
C□ient I□□ **MW-2-081523**	Batch I□□ **R86047**					Ana□y□i□ □ate□ **8/22/2023**			Se□N□□ **1795507**		
Ana□yte	Re□□t	RL	S□□ □a□e	S□□ Re□□a□	□ REC	L□□Li□it	Hi□hLi□it	R□□ Re□□a□		□ R□□	R□□Li□it	□ □a□
T□ta□□r□anic Car□□n	□□□□	□□□□□	□□□□□	□□□□□	□□□□	□□□□	□□□	□□□□□		□□□□	□□	

Work Order: □□□□□□□
CLIENT: □rie□□an □ Br□ya
Project: □□□□□□

QC SUMMARY REPORT

Total Metals by EPA Method 200.8

Sa□ □e I□□ **MB-41232**	Sa□ □Ty□e□ **MBLK**	Unit□□ **µg/L**	□re□ □ate□ **8/17/2023**	R□nN□□ **85991**
C□ient I□□ **MBLKW**	Batch I□□ **41232**		Ana□y□i□ □ate□ **8/17/2023**	Se□N□□ **1794387**

Ana□yte	Re□□t	RL	S□□ □a□e	S□□ Re□□a□	□ REC	L□□Li□it	Hi□hLi□it	R□□ Re□□a□	□ R□□	R□□Li□it	□ □a□
A□□□ in□□	N□	□□□□									

Sa□ □e I□□ **LCS-41232**	Sa□ □Ty□e□ **LCS**	Unit□□ **µg/L**	□re□ □ate□ **8/17/2023**	R□nN□□ **85991**
C□ient I□□ **LCSW**	Batch I□□ **41232**		Ana□y□i□ □ate□ **8/17/2023**	Se□N□□ **1794388**

Ana□yte	Re□□t	RL	S□□ □a□e	S□□ Re□□a□	□ REC	L□□Li□it	Hi□hLi□it	R□□ Re□□a□	□ R□□	R□□Li□it	□ □a□
A□□□ in□□	□□□□□	□□□□	□□□□□	□	□□□	□□	□□□				

Sa□ □e I□□ **2308226-001ADUP**	Sa□ □Ty□e□ **DUP**	Unit□□ **µg/L**	□re□ □ate□ **8/17/2023**	R□nN□□ **85991**
C□ient I□□ **BATCH**	Batch I□□ **41232**		Ana□y□i□ □ate□ **8/17/2023**	Se□N□□ **1794390**

Ana□yte	Re□□t	RL	S□□ □a□e	S□□ Re□□a□	□ REC	L□□Li□it	Hi□hLi□it	R□□ Re□□a□	□ R□□	R□□Li□it	□ □a□
A□□□ in□□	□□□	□□□□						□□□□□	□□□□	□□	

Sa□ □e I□□ **2308226-001AMS**	Sa□ □Ty□e□ **MS**	Unit□□ **µg/L**	□re□ □ate□ **8/17/2023**	R□nN□□ **85991**
C□ient I□□ **BATCH**	Batch I□□ **41232**		Ana□y□i□ □ate□ **8/17/2023**	Se□N□□ **1794391**

Ana□yte	Re□□t	RL	S□□ □a□e	S□□ Re□□a□	□ REC	L□□Li□it	Hi□hLi□it	R□□ Re□□a□	□ R□□	R□□Li□it	□ □a□
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Sa□ □e I□□ **2308225-003CMS**	Sa□ □Ty□e□ **MS**	Unit□□ **µg/L**	□re□ □ate□ **8/17/2023**	R□nN□□ **85991**
C□ient I□□ **MW-10-081523**	Batch I□□ **41232**		Ana□y□i□ □ate□ **8/17/2023**	Se□N□□ **1794370**

Ana□yte	Re□□t	RL	S□□ □a□e	S□□ Re□□a□	□ REC	L□□Li□it	Hi□hLi□it	R□□ Re□□a□	□ R□□	R□□Li□it	□ □a□
A□□□ in□□	□□□□□	□□□□	□□□□□	□□□□□	□□□	□□	□□□				

Fremont Analytical
An Alliance Technical Group Company

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Special Handling (if applicable)

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SUBCONTRACT SAMPLE CHAIN OF CUSTODY

2308225

Send Report To Michael Erdahl
Company Friedman and Bruya, Inc.
Address 3012 16th Ave W
City, State, ZIP Seattle, WA 98119
Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER	
Fremont	
PROJECT NAME/NO.	PO #
308255	D-424
REMARKS	
Floyd Snider EDD	

TURNAROUND TIME
☒ Standard TAT
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

						ANALYSES REQUESTED										
Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	TOC	Alkalinity	Total Al	Sulfate	CO2	dissolved methane					Notes
MW-1-081523		8/15/2023	1250	water		x	x	x								
MW-2-081523		8/15/2023	1425	water		x	x	x								
MW-10-081523		8/15/2023	1545	water		x	x	x								

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	8/16/23	1245
Received by:		MASON P	FAI	8/16/23	1:49
Relinquished by:					
Received by:					

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Avenue South
Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

November 14, 2023

Pamela Osterhout, Project Manager
Floyd-Snider
Two Union Square
601 Union St, Suite 600
Seattle, WA 98101

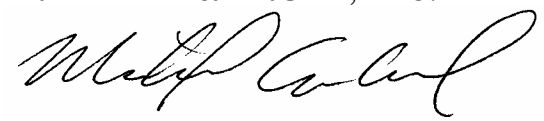
Dear Ms Osterhout:

Included are the additional results from the testing of material submitted on September 8, 2023 from the Smith Kem, F&BI 309097 project. There are 5 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Floyd Snider Lab Data
FDS1114R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 8, 2023 by Friedman & Bruya, Inc. from the Floyd-Snider Smith Kem, F&BI 309097 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Floyd-Snider
309097 -01	AOC5-01-06-6.5
309097 -02	AOC5-01-07
309097 -03	AOC5-04-05-06
309097 -04	AOC5-04-08-09
309097 -05	AOC5-04-11-12
309097 -06	AOC5-04-14-15
309097 -07	AOC4-03-2.0
309097 -08	AOC4-103-2.0
309097 -09	AOC4-03-6.5
309097 -10	AOC4-03-7.0
309097 -11	AOC4-04-2.5
309097 -12	AOC4-02-2.5
309097 -13	AOC4-02-8.5
309097 -14	AOC4-02-9.5
309097 -15	AOC2-04-6.0
309097 -16	AOC2-04-8.5
309097 -17	AOC2-04-9.5
309097 -18	AOC2-03-6.5
309097 -19	AOC2-03-8.5

All quality control requirements were acceptable.

Analysis for TCLP Metals By EPA Method 6020B and 1311

Client ID:	AOC4-03-2.0	Client:	Floyd-Snider
Date Received:	09/08/23	Project:	Smith Kem, F&BI 309097
Date Extracted:	11/08/23	Lab ID:	309097-07
Date Analyzed:	11/10/23	Data File:	309097-07.070
Matrix:	Soil/Solid	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Lead	<1	5.0

Analysis for TCLP Metals By EPA Method 6020B and 1311

Client ID:	Method Blank	Client:	Floyd-Snider
Date Received:	Not Applicable	Project:	Smith Kem, F&BI 309097
Date Extracted:	11/08/23	Lab ID:	I3-898 mb
Date Analyzed:	11/10/23	Data File:	I3-898 mb.124
Matrix:	Soil/Solid	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Lead	<1	5.0

Date of Report: 11/14/23
Date Received: 09/08/23
Project: Smith Kem, F&BI 309097

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL/SOLID SAMPLES FOR TCLP METALS USING EPA METHODS 6020B AND 1311

Laboratory Code: 310414-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/L (ppm)	1.0	<1	89	92	75-125	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/L (ppm)	1.0	92	80-120

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

k – The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

309097

SAMPLE CHAIN OF CUSTODY

09/08/23 M3

Page # 1 of 2

Report To Pamela Osterhout
Company Floyd Snider
Address 601 Union Street, Suite 600
City, State, ZIP Seattle, WA 98104
Phone 206 805-2188 Email

SAMPLERS (signature) Pam Osterhout
PROJECT NAME: Smith Kem
PO #
REMARKS
Project specific RLs? - Yes / No
INVOICE TO

TURNAROUND TIME
[X] Standard turnaround
[ ] RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
[X] Archive samples
[ ] Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Archive	Grain Size	Total Land USCS		Notes
ADC5-01-06-6.5	01	9/5/23	14:29	Soil	1	X							✓				X-per PO
ADC5-01-07	02	"	14:30	Soil	1								✓				09/12/23 ME
ADC5-04-05-06	03AB	"	13:55	Soil	2									✓			
ADC5-04-08-09	04	"	14:05	Soil	2									✓			
ADC5-04-11-12	05	"	14:10	Soil	2									✓			
ADC5-04-14-15	06	"	14:15	Soil	2									✓			
ADC4-03-2.0	07	"	15:25	Soil	1										✓		
ADC4-103-2.0	08	"	15:27	Soil	1										✓		
ADC4-03-6.5	09	"	15:35	Soil	1	X							✓				
ADC4-03-7.0	10	"	15:40	Soil	1								✓				

ANALYSES REQUESTED

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Pam Osterhout	Pamela Osterhout	F/S	9/8/23	12:15
Received by: Nhan Phan	Nhan Phan	FeBI	9/8/23	1215
Relinquished by:				
Received by:		Samples received at 2 °C		

Friedman & Bruya, Inc.
Ph. (206) 285-8282

309097

SAMPLE CHAIN OF CUSTODY

09/08/23

M3

Page # 2 of 2

Report To Pamela Osterhaut

Company Floyd Snider

Address 601 Union St, Suite 600

City, State, ZIP see page 1

Phone ____ Email ____

SAMPLERS (*signature*) [signature]

PROJECT NAME: Smith Kem

PO #:

REMARKS:

Project specific RLs? - Yes / No

INVOICE TO:

TURNAROUND TIME
- [x] Standard turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [x] Archive samples
- [ ] Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Archive/freeze		Total Lead Lead		Notes
ADC4-04-2.5	11	9/5/23	15:55	Soil	1										✓		
ADC4-02-2.5	12	9/6/23	08:15	"	1										✓		
ADC4-02-8.5	13	"	08:30	"	1	X							✓				
ADC4-02-9.5	14	"	08:35	"	1								✓				
ADC2-04-6.0	15	"	0952	"	1	X							✓				
ADC2-04-8.5	16	"	10:02	"	1	X							✓				
ADC2-04-9.5	17	"	10:00	"	1								✓				
ADC2-03-6.5	18	"	10:52	"	1	X							✓				
ADC2-03-8.5	19	"	11:00	"	1								✓				
																	P.O.

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	P Osterhaut	F/S	9/8/23	12:15
Received by: [signature]	Nhan Phan	FeBI	9/8/23	1215
Relinquished by:				
Received by:		Samples received at 2 °C		

Friedman & Bruya, Inc.
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Avenue South
Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

September 26, 2023

Pamela Osterhout, Project Manager
Floyd-Snider
Two Union Square
601 Union St, Suite 600
Seattle, WA 98101

Dear Ms Osterhout:

Included are the results from the testing of material submitted on September 8, 2023 from the Smith Kem, F&BI 309097 project. There are 11 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Floyd Snider Lab Data
FDS0926R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 8, 2023 by Friedman & Bruya, Inc. from the Floyd-Snider Smith Kem, F&BI 309097 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Floyd-Snider
309097 -01	AOC5-01-06-6.5
309097 -02	AOC5-01-07
309097 -03	AOC5-04-05-06
309097 -04	AOC5-04-08-09
309097 -05	AOC5-04-11-12
309097 -06	AOC5-04-14-15
309097 -07	AOC4-03-2.0
309097 -08	AOC4-103-2.0
309097 -09	AOC4-03-6.5
309097 -10	AOC4-03-7.0
309097 -11	AOC4-04-2.5
309097 -12	AOC4-02-2.5
309097 -13	AOC4-02-8.5
309097 -14	AOC4-02-9.5
309097 -15	AOC2-04-6.0
309097 -16	AOC2-04-8.5
309097 -17	AOC2-04-9.5
309097 -18	AOC2-03-6.5
309097 -19	AOC2-03-8.5

Samples AOC5-04-05-06, AOC5-04-08-09, AOC5-04-11-12, and AOC5-04-14-15 were sent to Fremont Analytical for grain size analysis. The report is enclosed.

All quality control requirements were acceptable.

Date of Report: 09/26/23
Date Received: 09/08/23
Project: Smith Kem, F&BI 309097
Date Extracted: 09/13/23 and 09/14/23
Date Analyzed: 09/13/23 and 09/14/23

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
AOC5-01-06-6.5 309097-01	760	<250	96
AOC4-03-6.5 309097-09	750 x	9,600	95
AOC4-03-7.0 309097-10	<50	<250	92
AOC4-02-8.5 309097-13 1/10	1,500 x	17,000	ip
AOC4-02-9.5 309097-14	<50	520	102
AOC2-04-6.0 309097-15	19,000	490 x	125
AOC2-04-8.5 309097-16	600	<250	92
AOC2-03-6.5 309097-18	8,300	<250	108
AOC2-03-8.5 309097-19	<50	<250	92
Method Blank 03-2194 MB	<50	<250	74
Method Blank 03-2201 MB	<50	<250	85

Analysis For Total Metals By EPA Method 6020B

Client ID:	AOC4-03-2.0	Client:	Floyd-Snider
Date Received:	09/08/23	Project:	Smith Kem, F&BI 309097
Date Extracted:	09/11/23 09:39	Lab ID:	309097-07
Date Analyzed:	09/11/23	Data File:	309097-07.056
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	154

Analysis For Total Metals By EPA Method 6020B

Client ID:	AOC4-103-2.0	Client:	Floyd-Snider
Date Received:	09/08/23	Project:	Smith Kem, F&BI 309097
Date Extracted:	09/11/23 09:39	Lab ID:	309097-08
Date Analyzed:	09/11/23	Data File:	309097-08.057
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	63.1

Analysis For Total Metals By EPA Method 6020B

Client ID:	AOC4-04-2.5	Client:	Floyd-Snider
Date Received:	09/08/23	Project:	Smith Kem, F&BI 309097
Date Extracted:	09/11/23 09:39	Lab ID:	309097-11
Date Analyzed:	09/11/23	Data File:	309097-11.060
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	3.28

Analysis For Total Metals By EPA Method 6020B

Client ID:	AOC4-02-2.5	Client:	Floyd-Snider
Date Received:	09/08/23	Project:	Smith Kem, F&BI 309097
Date Extracted:	09/11/23 09:39	Lab ID:	309097-12
Date Analyzed:	09/11/23	Data File:	309097-12.061
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	15.1

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Floyd-Snider
Date Received:	NA	Project:	Smith Kem, F&BI 309097
Date Extracted:	09/11/23 09:39	Lab ID:	I3-698 mb
Date Analyzed:	09/11/23	Data File:	I3-698 mb.095
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	<1

Date of Report: 09/26/23
Date Received: 09/08/23
Project: Smith Kem, F&BI 309097

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 309120-07 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	94	96	64-136	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	92	78-121

Date of Report: 09/26/23
Date Received: 09/08/23
Project: Smith Kem, F&BI 309097

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 309174-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	102	104	64-136	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	108	78-121

Date of Report: 09/26/23
Date Received: 09/08/23
Project: Smith Kem, F&BI 309097

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 309098-01 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/kg (ppm)	50	<5	95	102	75-125	7

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/kg (ppm)	50	96	80-120

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

k – The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

309097

SAMPLE CHAIN OF CUSTODY

09/08/23 M3

Page # 1 of 2

Report To Pamela Osterhout
Company Floyd Snider
Address 601 Union Street, Suite 600
City, State, ZIP Seattle, WA 98104
Phone 206 805-2188 Email

SAMPLERS (signature) Pam Osterhout
PROJECT NAME: Smith Kem
PO #
REMARKS
Project specific RLs? - Yes / No
INVOICE TO

TURNAROUND TIME
[X] Standard turnaround
[ ] RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
[X] Archive samples
[ ] Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Archive	Grain Size	Total Land Use		Notes
ANALYSES REQUESTED																	
ADC5-01-06-6.5	01	9/5/23	14:29	Soil	1	X							✓				X-per PO
ADC5-01-07	02	"	14:30	Soil	1								✓				09/12/23 ME
ADC5-04-05-06	03AB	"	13:55	Soil	2									✓			A-per PO
ADC5-04-08-09	04	"	14:05	Soil	2									✓			09/14/23 ME
ADC5-04-11-12	05	"	14:10	Soil	2									✓			
ADC5-04-14-15	06	"	14:15	Soil	2									✓			
ADC4-03-2.0	07	"	15:25	Soil	1										✓		
ADC4-103-2.0	08	"	15:27	Soil	1										✓		
ADC4-03-6.5	09	"	15:35	Soil	1	X							✓				
ADC4-03-7.0	10	"	15:40	Soil	1	A							✓				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Pam Osterhout	Pamela Osterhout	F/S	9/8/23	12:15
Received by: Nhan Phan	Nhan Phan	FeBI	9/8/23	1215
Relinquished by:				
Received by:		Samples received at 2 °C		

Friedman & Bruya, Inc.
Ph. (206) 285-8282

309097

SAMPLE CHAIN OF CUSTODY

09/08/23

M3

Page # 2 of 2

Report To Pamela Osterhaut

Company Floyd Snider

Address 601 Union St, Suite 600

City, State, ZIP see page 1

Phone ____ Email ____

SAMPLERS (*signature*) [signature]

PROJECT NAME: Smith Kem

PO #:

REMARKS:

Project specific RLs? - Yes / No

INVOICE TO:

TURNAROUND TIME
- [x] Standard turnaround
- [ ] RUSH
- Rush charges authorized by:

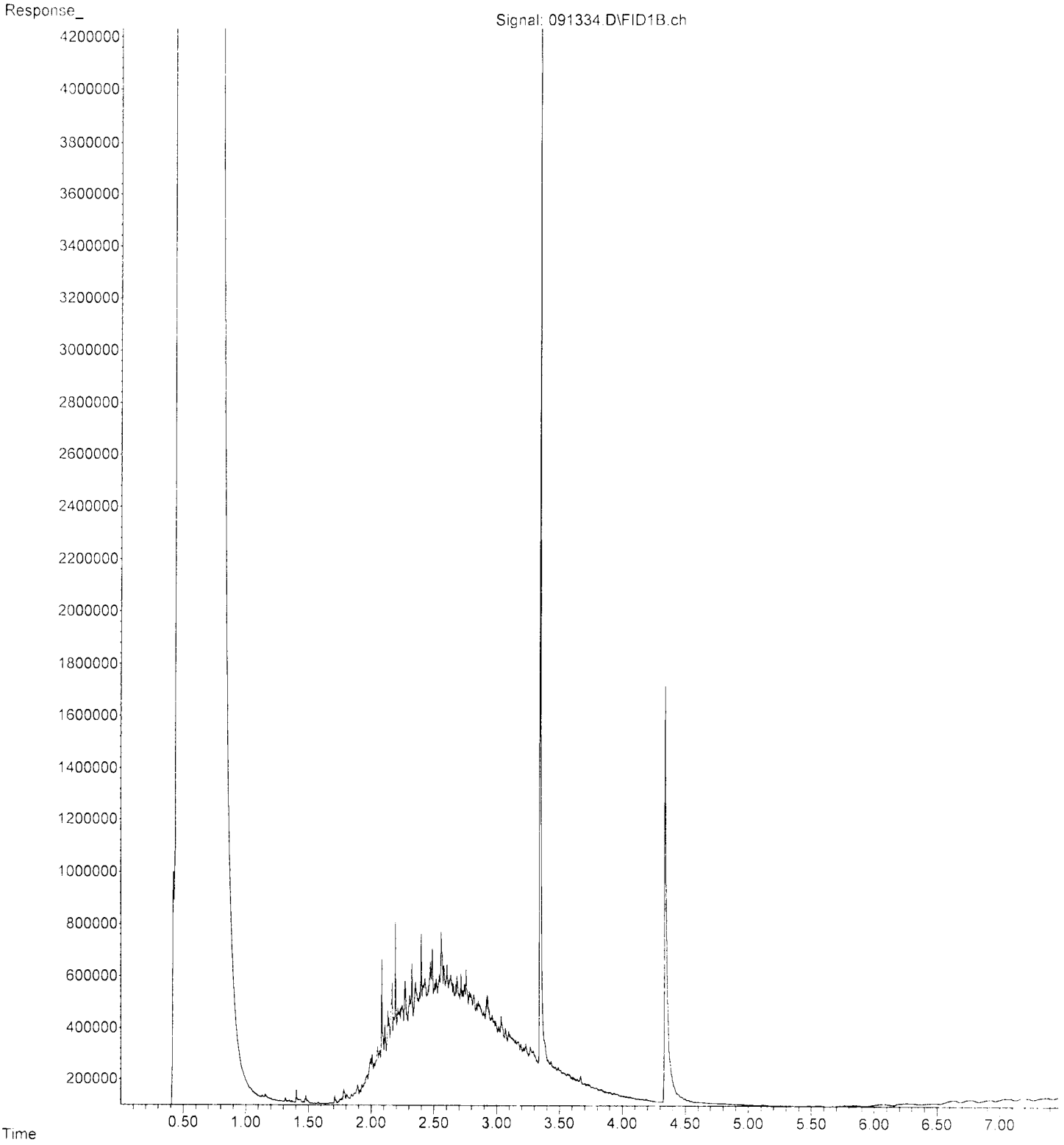
SAMPLE DISPOSAL
- [x] Archive samples
- [ ] Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Archive/freeze		Total Lead Lead		Notes
ADC4-04-2.5	11	9/5/23	15:55	Soil	1										✓		
ADC4-02-2.5	12	9/6/23	08:15	"	1										✓		
ADC4-02-8.5	13	"	08:30	"	1	X							✓				
ADC4-02-9.5	14	"	08:35	"	1	A							✓				
ADC2-04-6.0	15	"	0952	"	1	X							✓				
ADC2-04-8.5	16	"	10:02	"	1	X							✓				
ADC2-04-9.5	17	"	10:00	"	1								✓				
ADC2-03-6.5	18	"	10:52	"	1	X							✓				
ADC2-03-8.5	19	"	11:00	"	1	A							✓				
																	P.O.

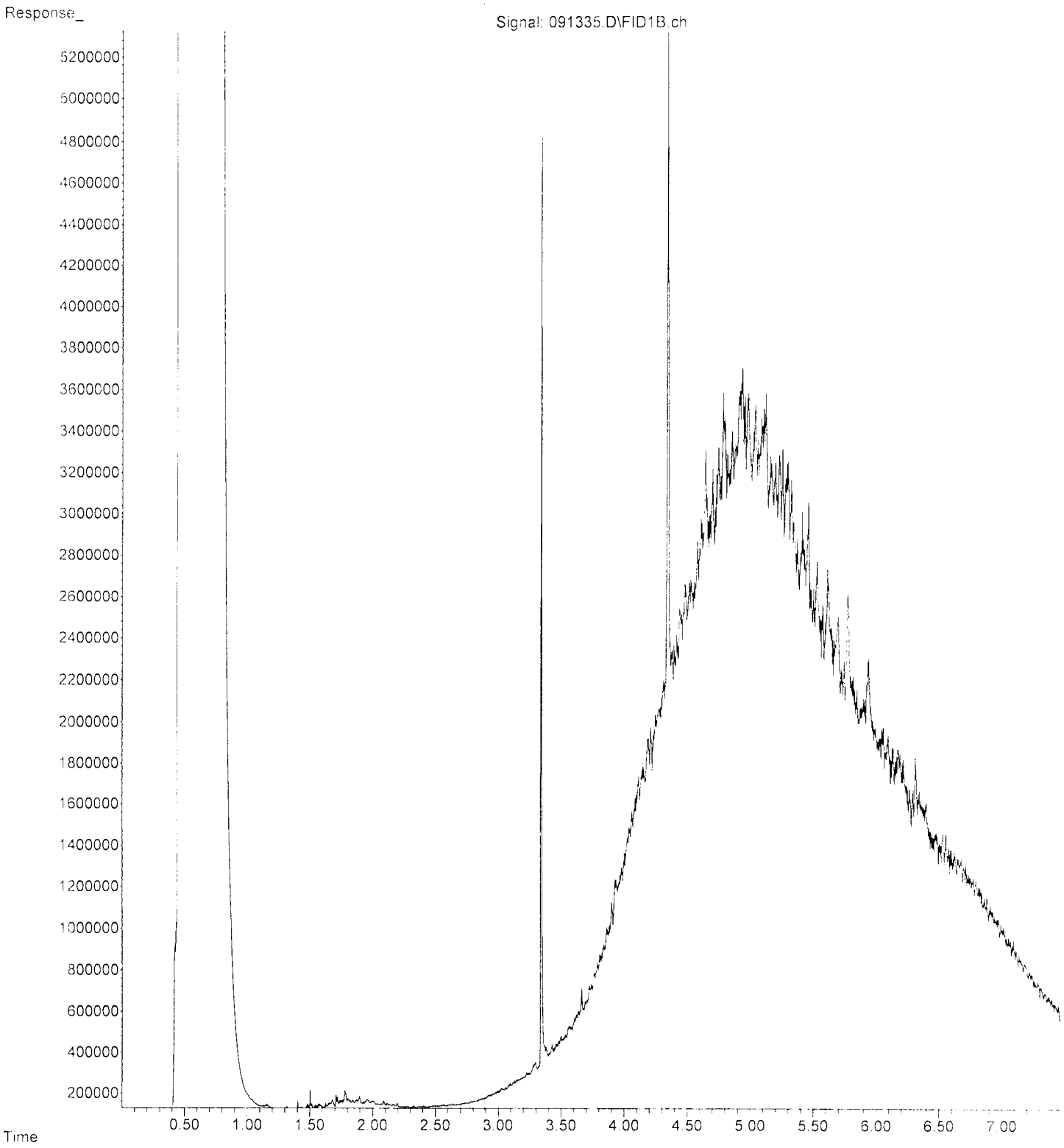
SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	P Osterhaut	F/S	9/8/23	12:15
Received by: [signature]	Nhan Phan	FEBI	9/8/23	1215
Relinquished by:				
Received by:		Samples received at 2 °C		

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Ph. (206) 285-8282

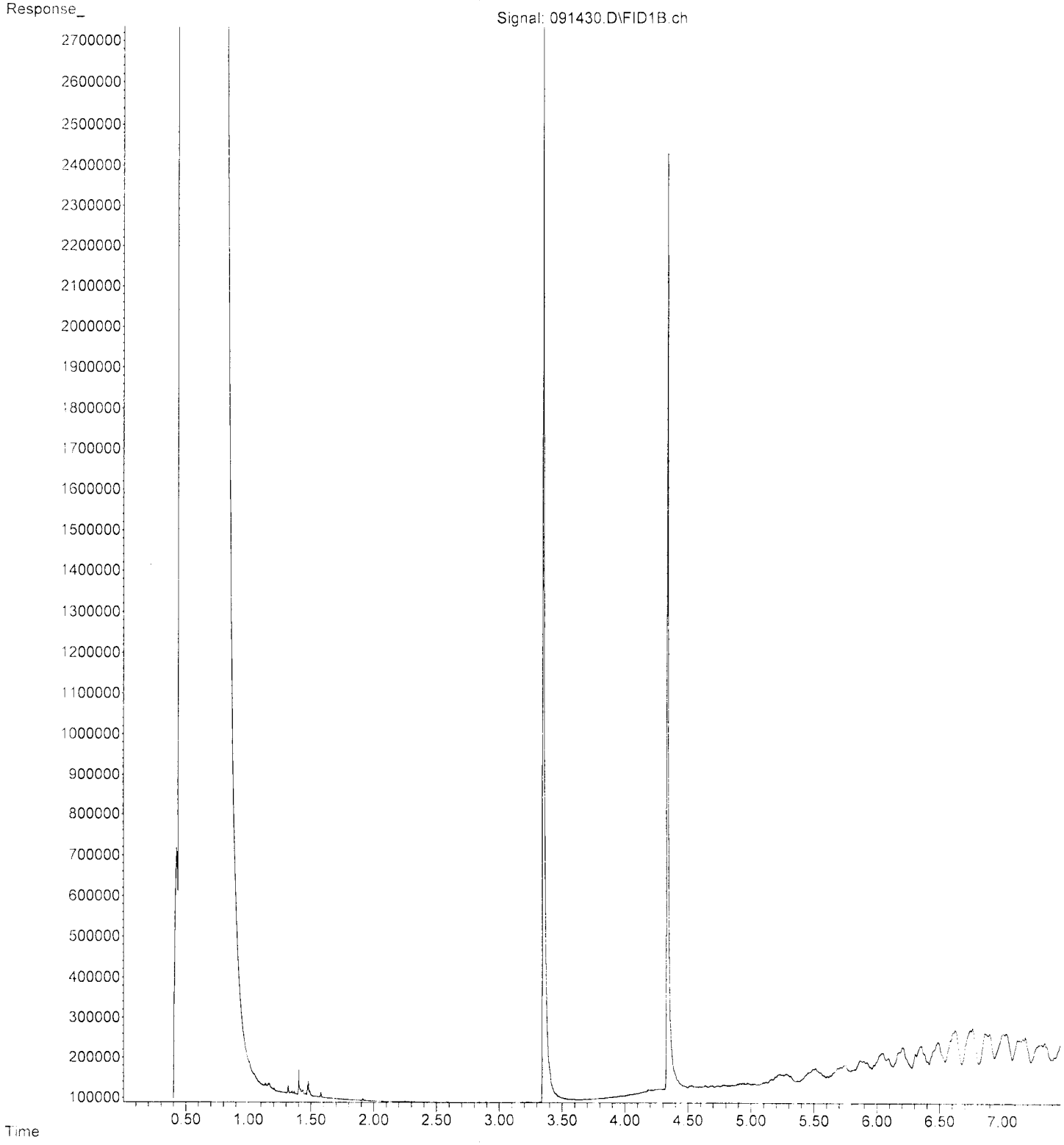
File :P:\Proc_GC13\09-13-23\091334.D
Operator : TL
Acquired : 13 Sep 2023 01:54 pm using AcqMethod Dx.M
Instrument : GC13
Sample Name: 309097-01
Misc Info : ERR
Vial Number: 34



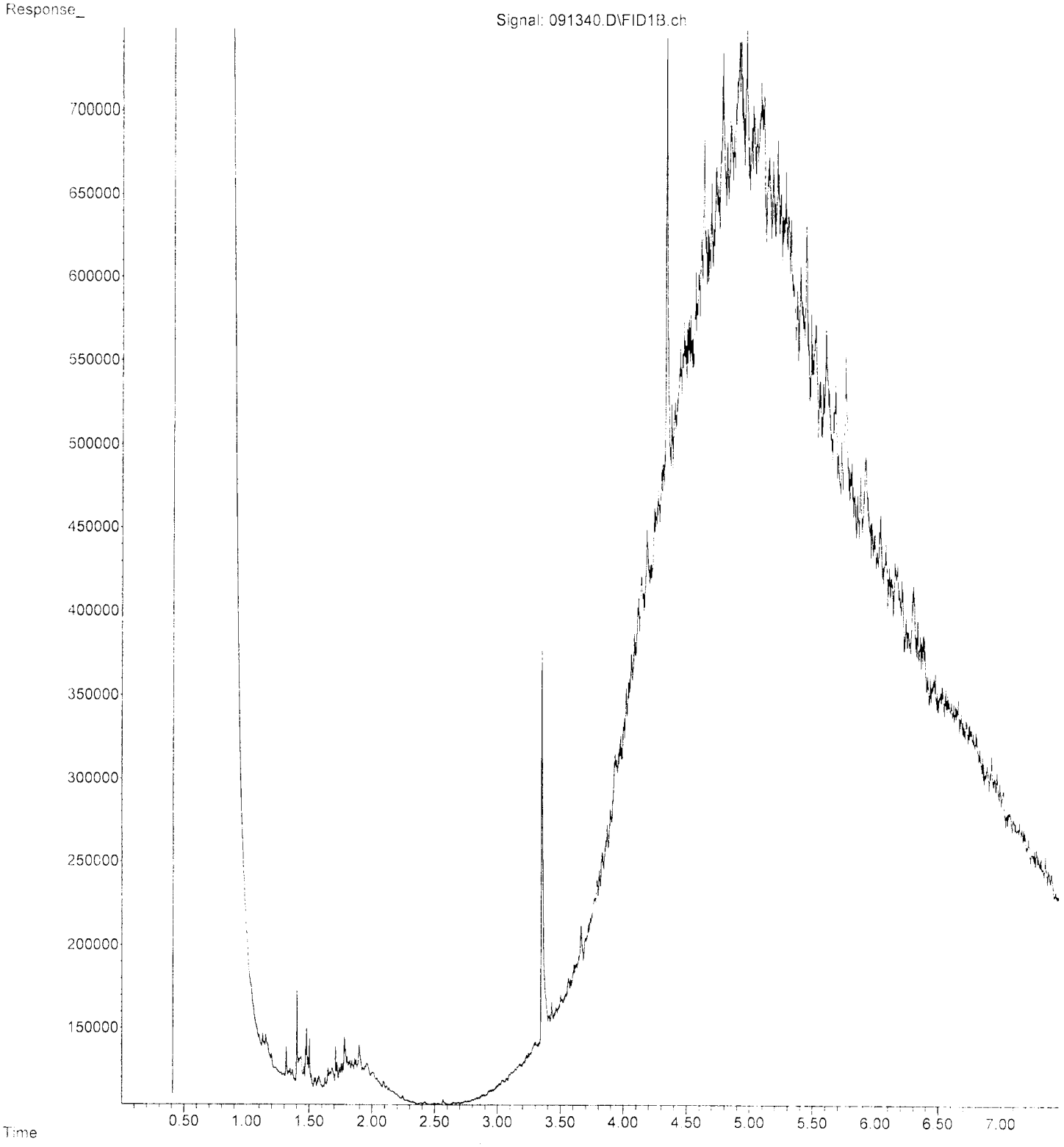
File :P:\Proc_GC13\09-13-23\091335.D
Operator : TL
Acquired : 13 Sep 2023 02:05 pm using AcqMethod Dx.M
Instrument : GC13
Sample Name: 309097-09
Misc Info : ERR
Vial Number: 35



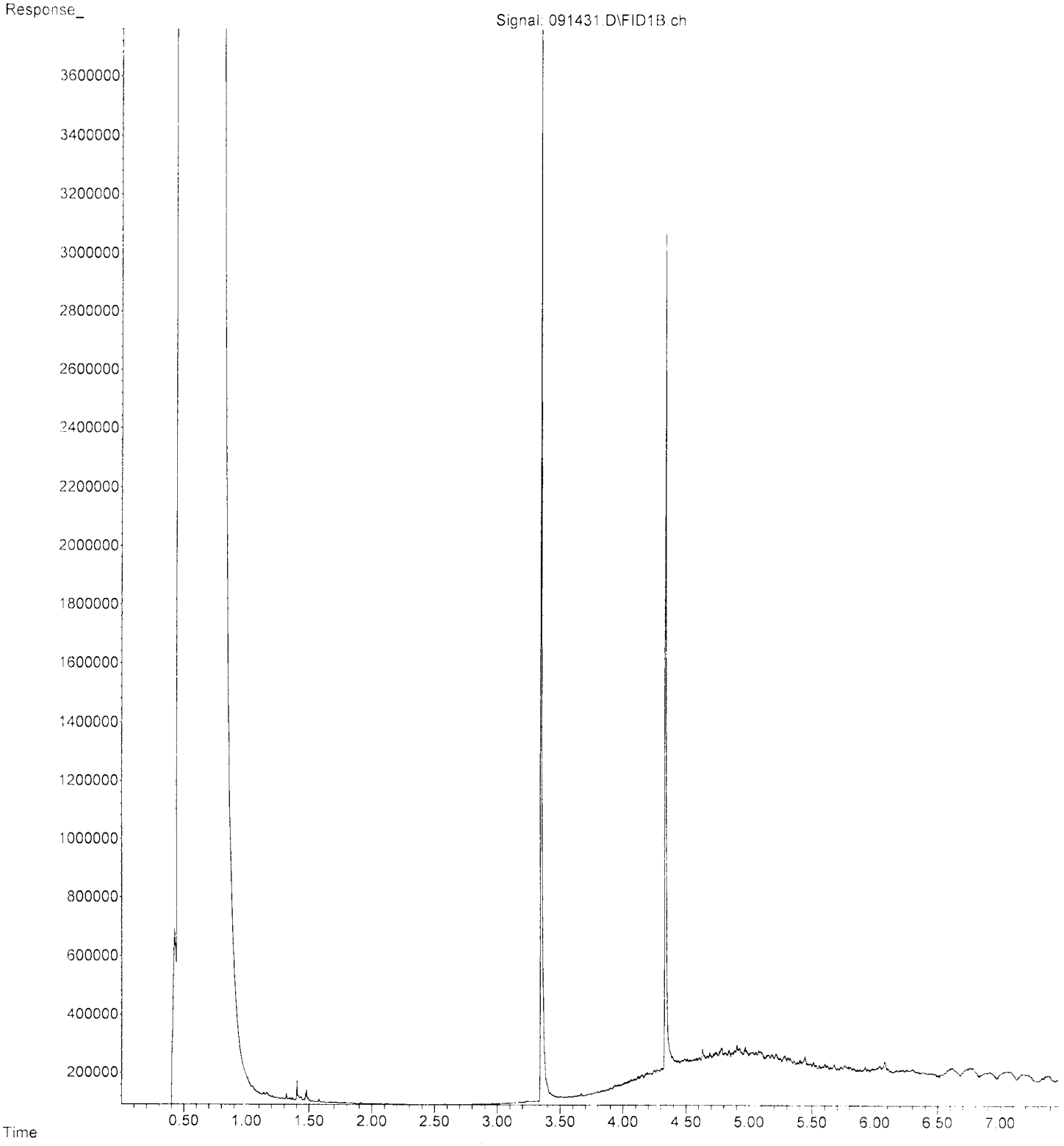
File :P:\Proc_GC13\09-14-23\091430.D
Operator : TL
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Instrument : GC13
Sample Name: 309097-10
Misc Info : ERR
Vial Number: 30



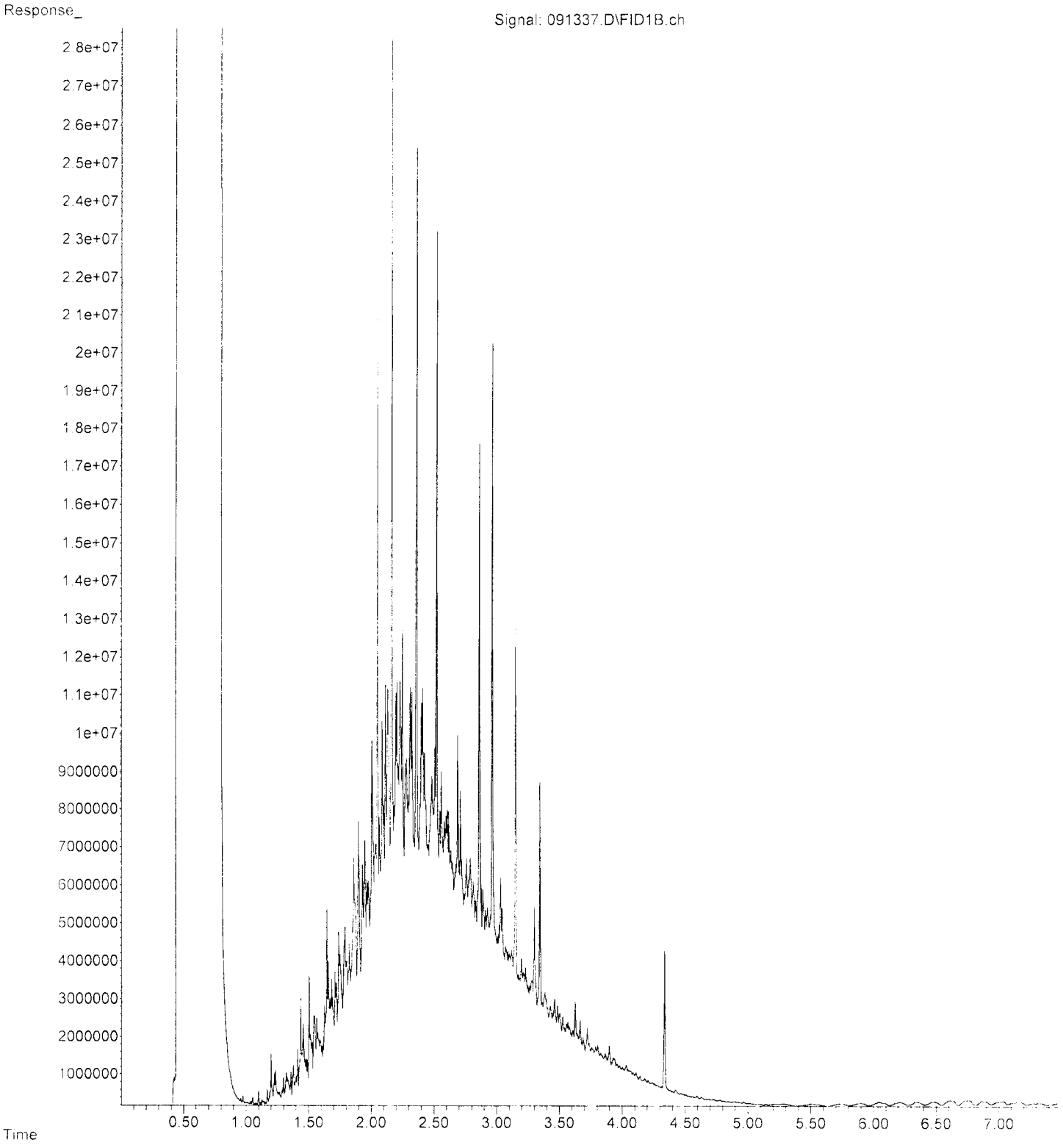
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Instrument : GC13
Sample Name: 309097-13 1/10
Misc Info : ERR
Vial Number: 101



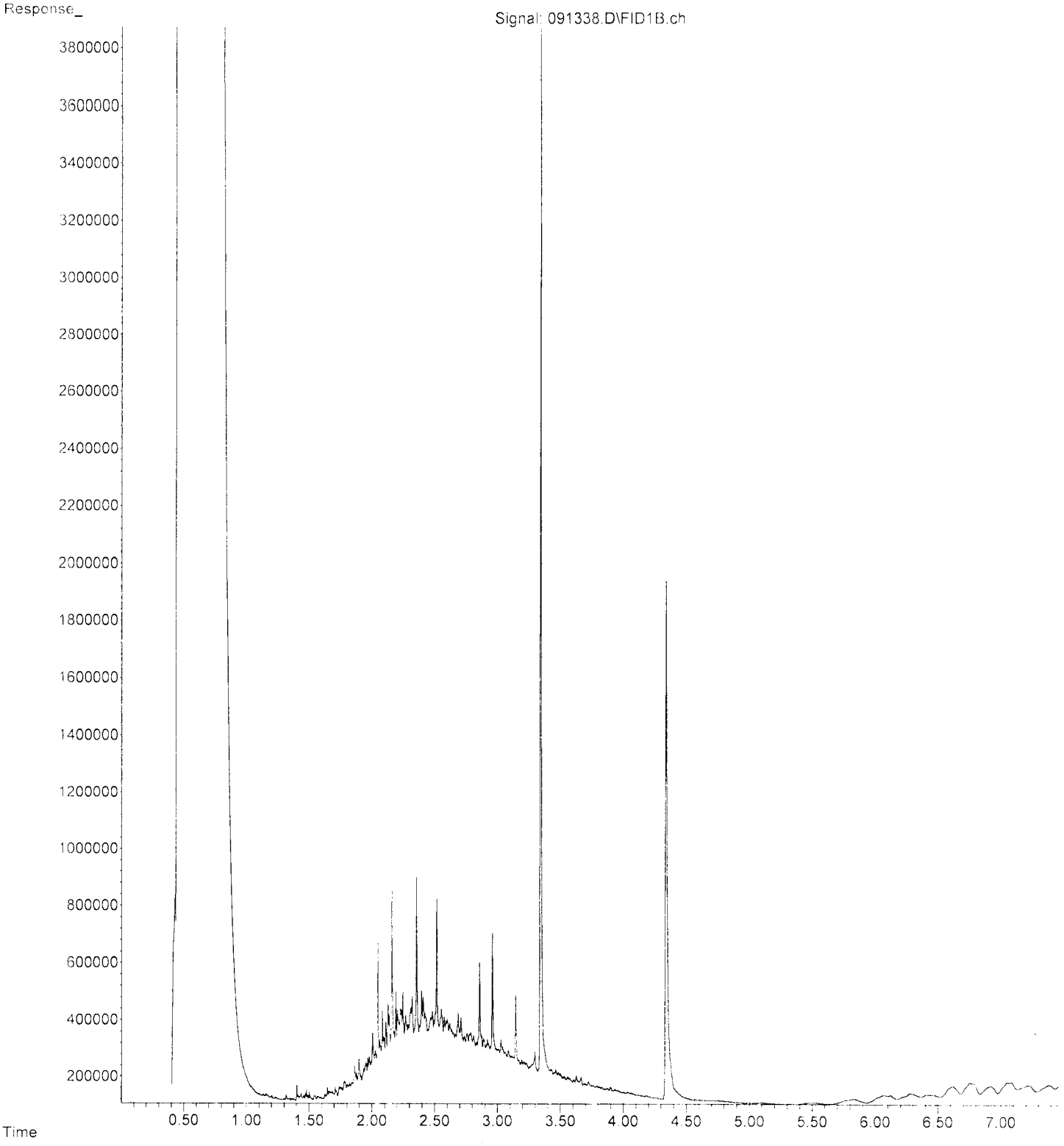
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Instrument : GC13
Sample Name: 309097-14
Misc Info : ERR
Vial Number: 31



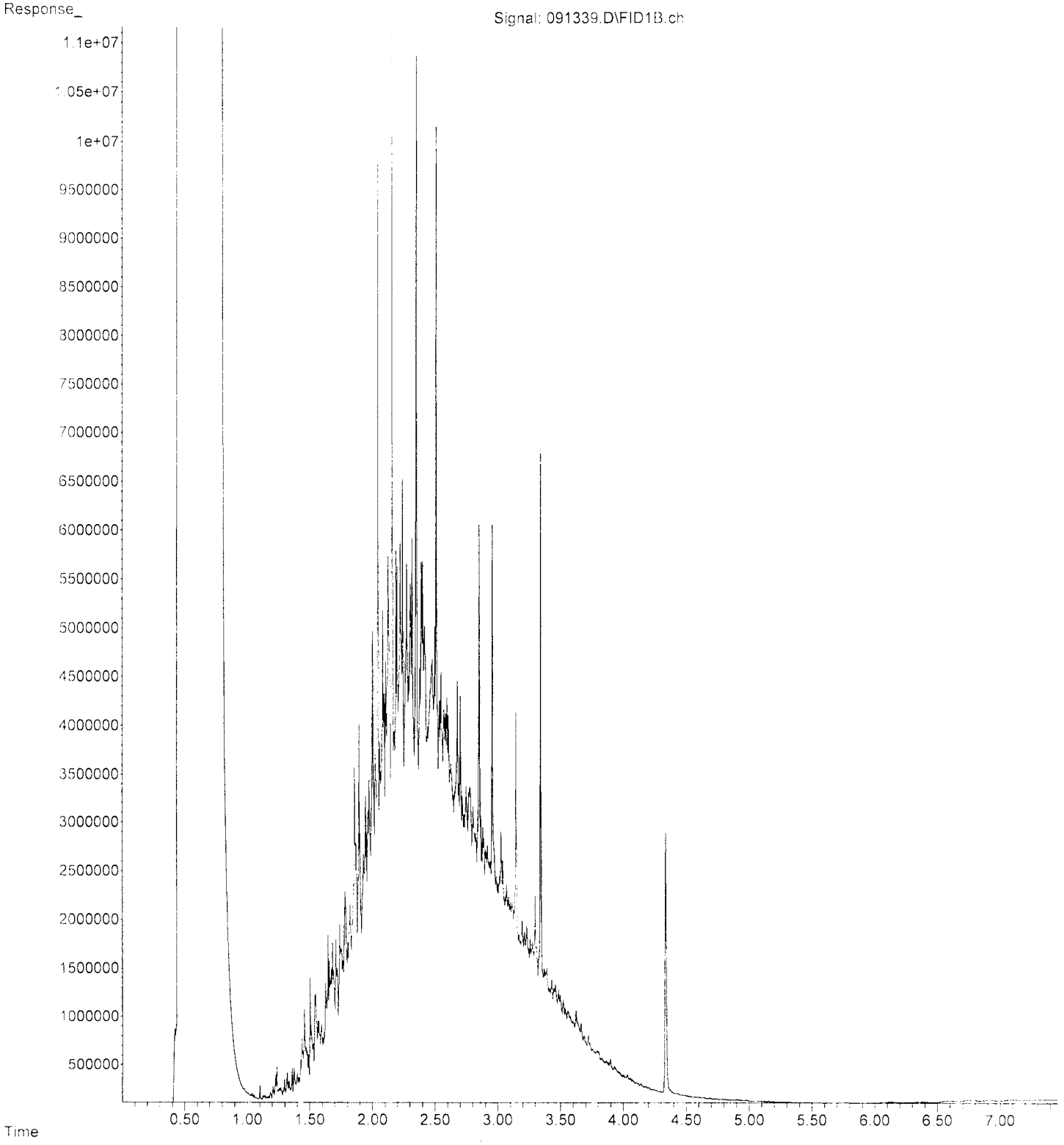
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Operator : TL
Acquired : 13 Sep 2023 02:28 pm using AcqMethod Dx.M
Instrument : GC13
Sample Name: 309097-15
Misc Info : ERR
Vial Number: 37



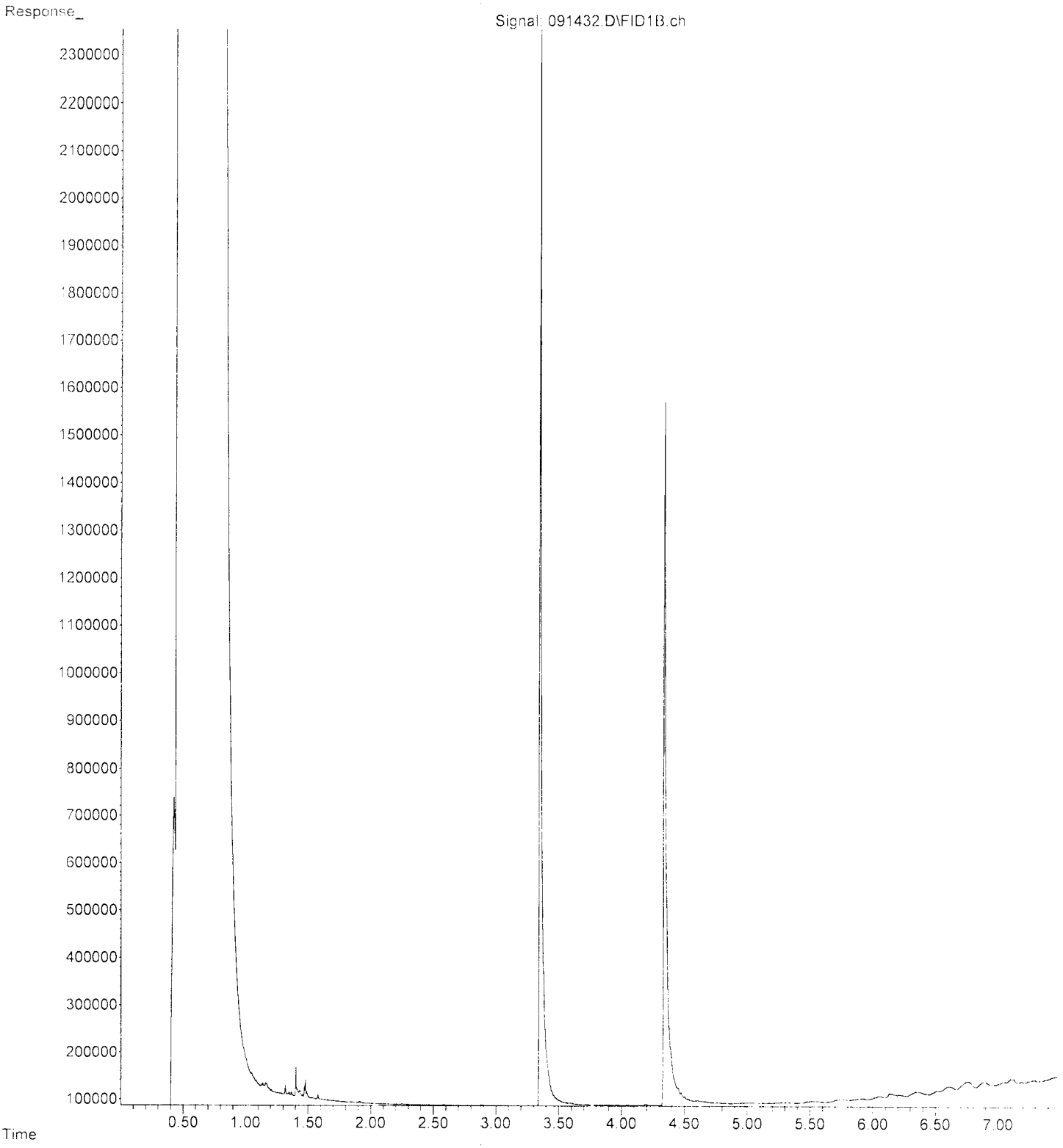
File :P:\Proc_GC13\09-13-23\091338.D
Operator : TL
Acquired : 13 Sep 2023 02:39 pm using AcqMethod Dx.M
Instrument : GC13
Sample Name: 309097-16
Misc Info : ERR
Vial Number: 38



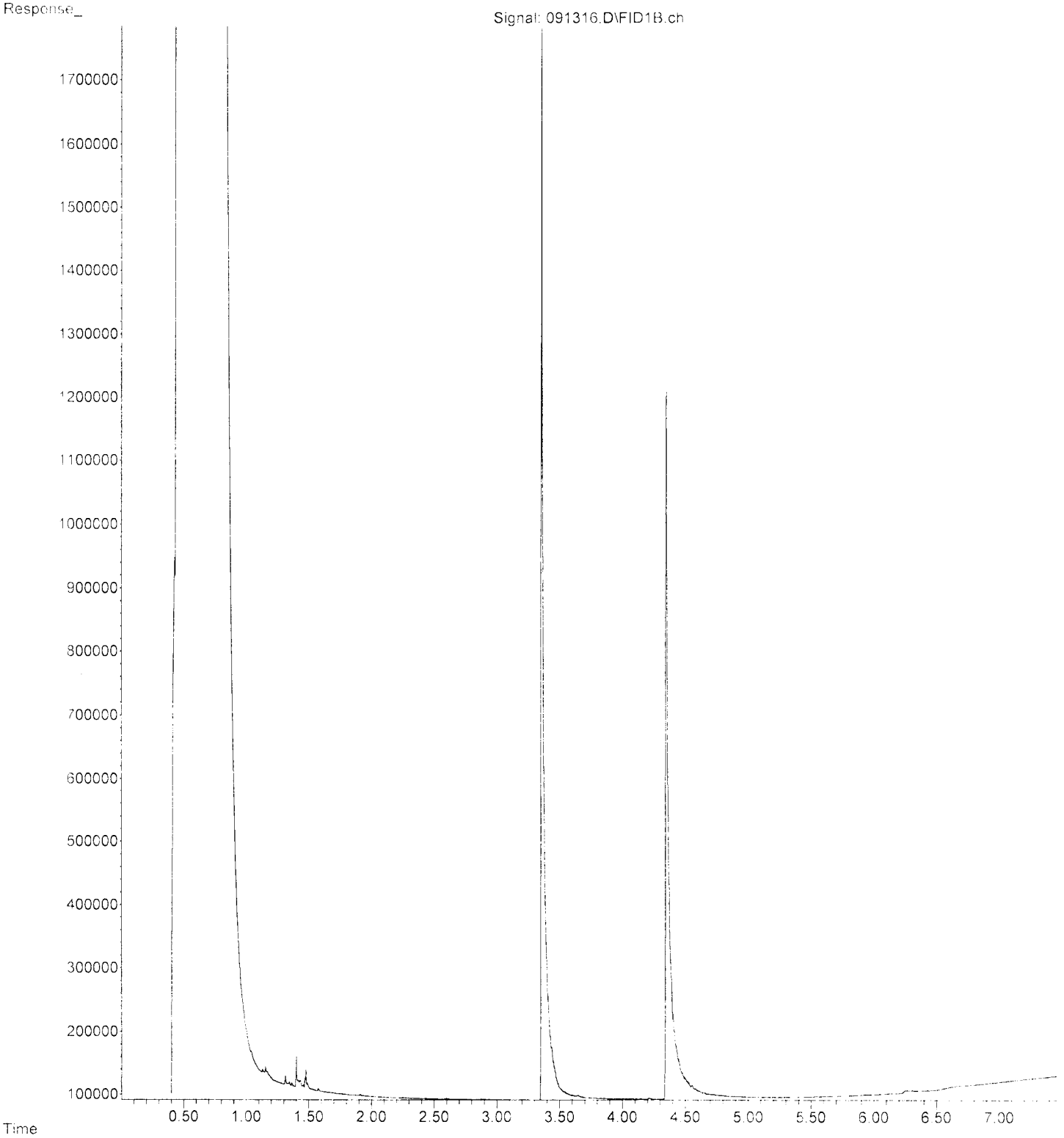
File :P:\Proc_GC13\09-13-23\091339.D
Operator : TL
Acquired : 13 Sep 2023 02:50 pm using AcqMethod Dx.M
Instrument : GC13
Sample Name: 309097-18
Misc Info : ERR
Vial Number: 39



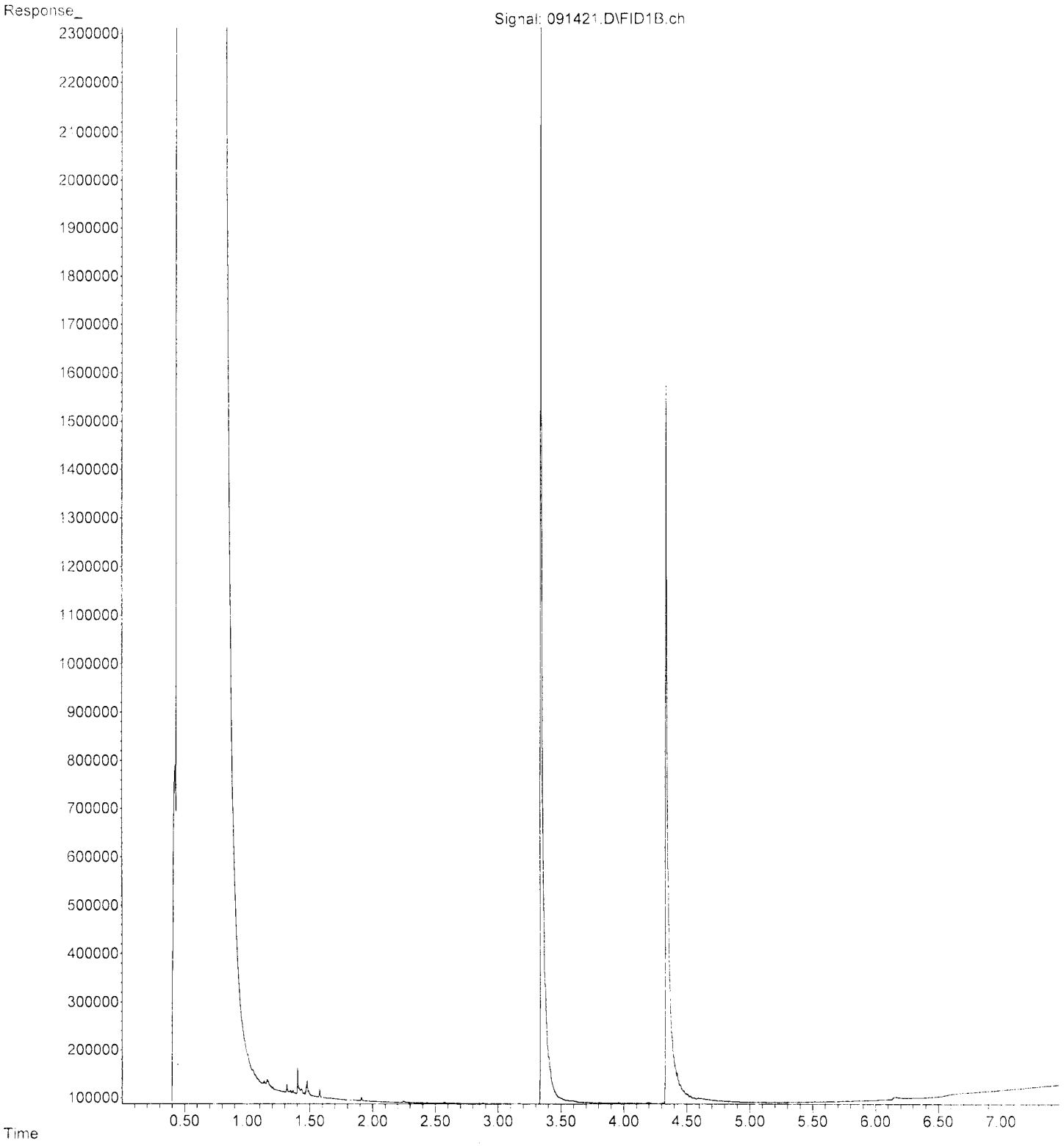
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Operator : TL
Acquired : 14 Sep 2023 03:43 pm using AcqMethod Dx.M
Instrument : GC13
Sample Name: 309097-19
Misc Info : ERR
Vial Number: 32



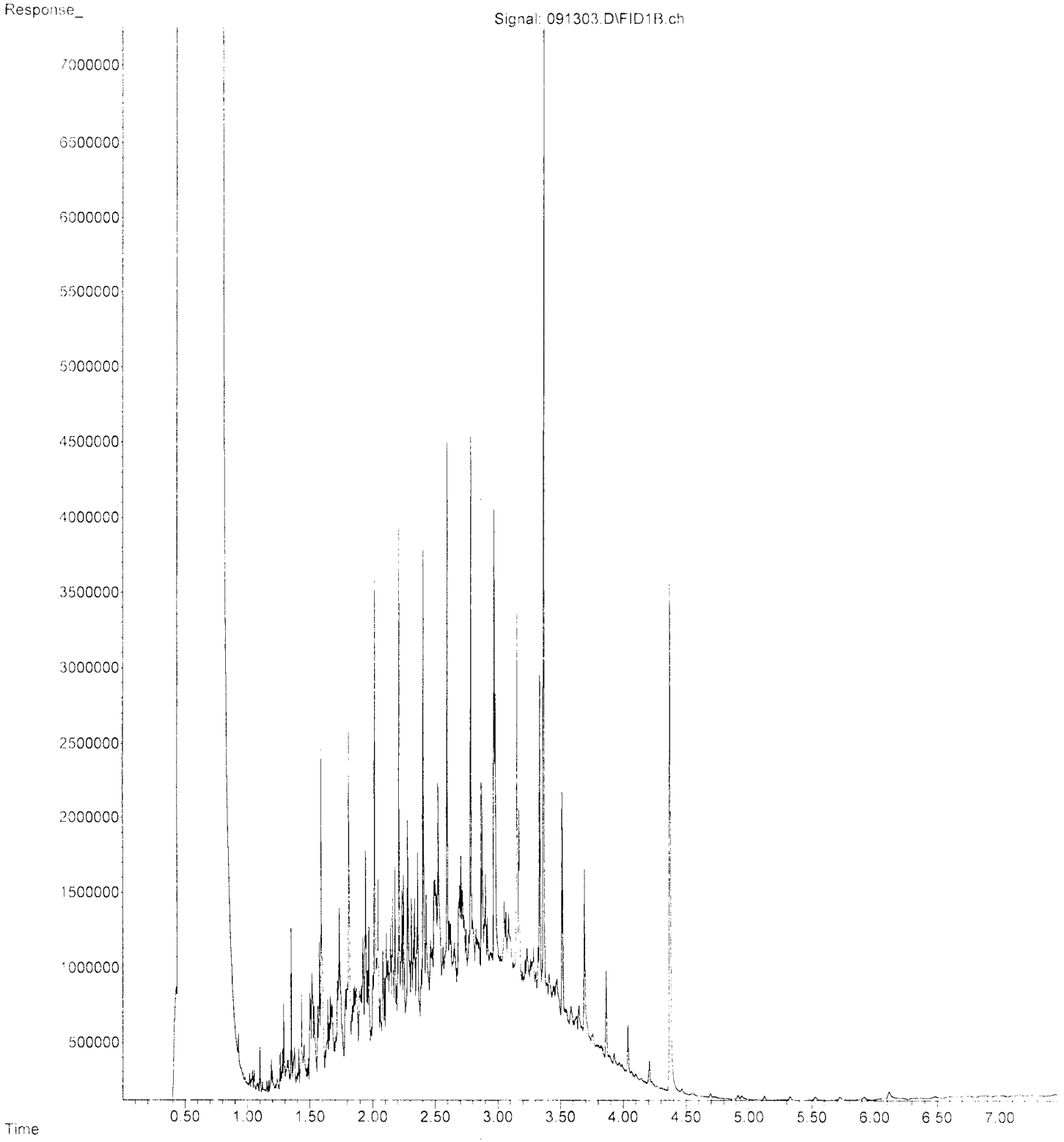
File :P:\Proc_GC13\09-13-23\091316.D
Operator : TL
Acquired : 13 Sep 2023 10:30 am using AcqMethod Dx.M
Instrument : GC13
Sample Name: 03-2194 mb
Misc Info : ERR
Vial Number: 18



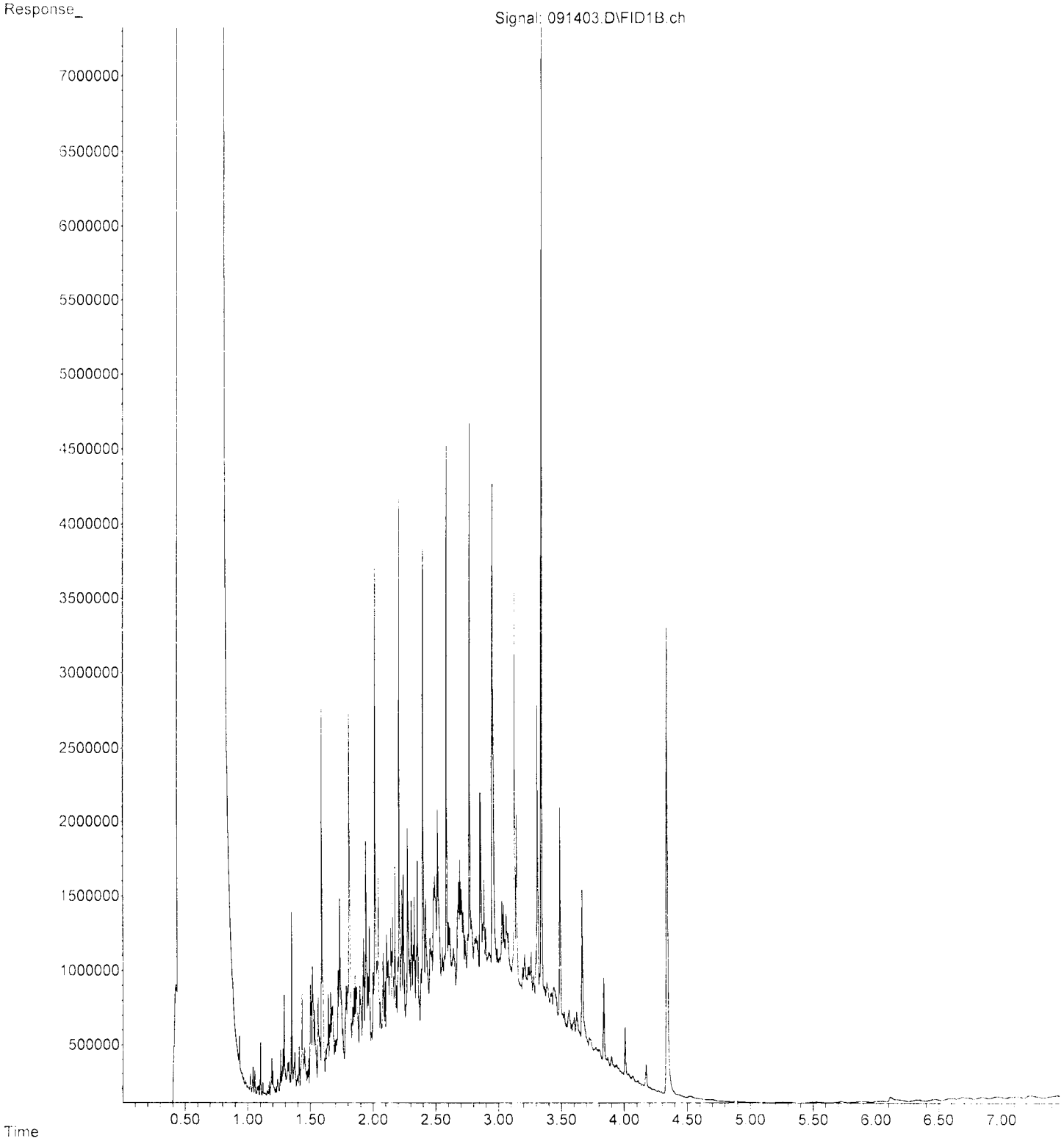
File :P:\Proc_GC13\09-14-23\091421.D
Operator : TL
Acquired : 14 Sep 2023 12:57 pm using AcqMethod Dx.M
Instrument : GC13
Sample Name: 03-2201 mb
Misc Info : ERR
Vial Number: 23



File :P:\Proc_GC13\09-13-23\091303.D
Operator : TL
Acquired : 13 Sep 2023 07:24 am using AcqMethod Dx.M
Instrument : GC13
Sample Name: 500 Dx 69-104B
Misc Info : ERR
Vial Number: 3



File :P:\Proc_GC13\09-14-23\091403.D
Operator : TL
Acquired : 14 Sep 2023 09:25 am using AcqMethod Dx.M
Instrument : GC13
Sample Name: 500 Dx 69-104B
Misc Info : ERR
Vial Number: 3



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RE: 309097
Work Order Number: 2309097

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Attention Michael Erdahl:

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Grain Size by ASTM D422

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Date: *09/22/2023*

CLIENT: [illegible]rie[illegible] an [illegible] Br[illegible]ya

Project: [illegible]

Work Order: [illegible]

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
[illegible]	A[illegible]C[illegible]	[illegible]	[illegible]
[illegible]	A[illegible]C[illegible]	[illegible]	[illegible]
[illegible]	A[illegible]C[illegible]	[illegible]	[illegible]
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3600 Fremont Ave. N
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178
Email: info@fremontanalytical.com

Grain Size by ASTM D422

Project:	**309097**
Client:	**Friedman & Bruya**
Lab Project #:	**2309097**

Percent Finer (Passing) than the Indicated Size

UOM = Percent

Grain Size Classification	*Gravel*						*Coarse Sand*	*Medium Sand*		*Fine Sand*			*Silt*		
Sieve Size	**3"**	**2"**	**1 1/2"**	**1"**	**3/4"**	**3/8"**	**#4**	**#10**	**#20**	**#40**	**#60**	**#140**	**#230**	**#325**	**#450**
Particle Size (Microns)	**76200**	**50800**	**38100**	**25400**	**19050**	**9525**	**4750**	**2000**	**850**	**425**	**250**	**106**	**62.5**	**45**	**34**
Sample ID															
AOC5-04-05-06	100%	100%	84.7%	58.1%	50.4%	32.7%	22.9%	13.8%	8.35%	4.82%	2.93%	1.27%	0.714%	0.552%	0.348%
AOC5-04-08-09	100%	100%	100%	73.3%	69.6%	53.3%	39.3%	26.2%	17.1%	9.34%	6.04%	3.35%	1.74%	0.678%	0.148%
AOC5-04-11-12	100%	100%	100%	73.5%	64.7%	44.3%	29.8%	17.7%	11.2%	7.24%	4.62%	2.18%	1.31%	0.974%	0.363%
AOC5-04-14-15	100%	100%	100%	83.4%	80.8%	61.0%	45.9%	27.1%	18.3%	11.3%	8.12%	4.63%	2.02%	1.09%	0.367%

3600 Fremont Ave. N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178
Email: info@fremontanalytical.com

Grain Size by ASTM D422

Project:	**309097**
Client:	**Friedman & Bruya**
Lab Project #:	**2309097**

Percent Retained in Each Size Fraction

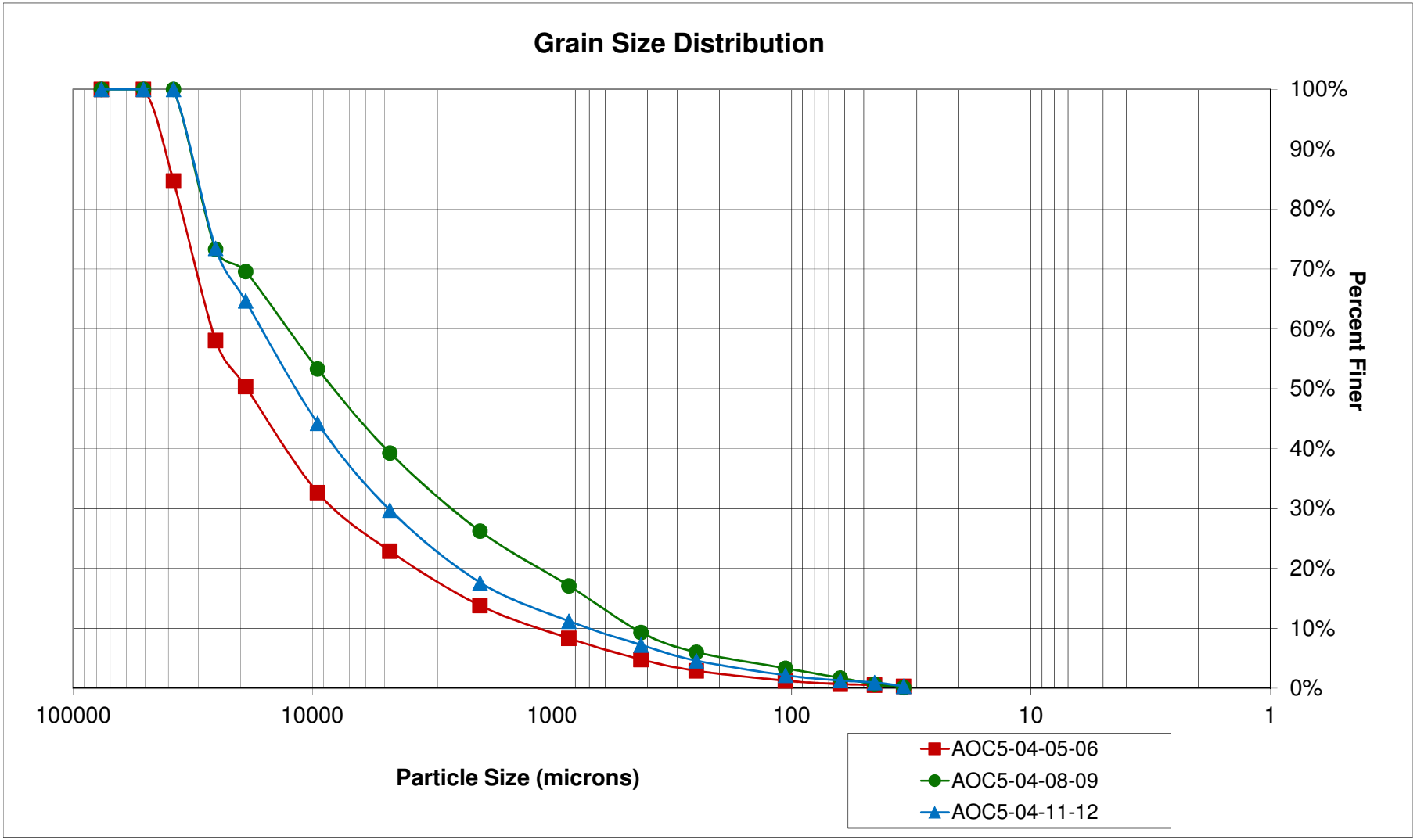
UOM = Percent

Grain Size Classification	*Gravel*							*Coarse Sand*	*Medium Sand*		*Fine Sand*			*Silt*		
Sieves Size	3"	2"	1 1/2"	1"	3/4"	3/8"	#4	#10	#20	#40	#60	#140	#230	#325	#450	
Particle Size (Microns)	>76200	76200-50800	50800-38100	38100-25400	25400-19000	19050-9525	9525-4750	4750-2000	2000-850	850-425	425-250	250-106	106-62.5	62.5-45	45-34	<34
Sample ID																
AOC5-04-05-06	0.00%	0.00%	15.3%	26.6%	7.70%	17.7%	9.80%	9.07%	5.48%	3.53%	1.89%	1.66%	0.552%	0.163%	0.204%	0.348%
AOC5-04-08-09	0.00%	0.00%	0.00%	26.7%	3.71%	16.3%	14.0%	13.0%	9.13%	7.77%	3.31%	2.69%	1.61%	1.06%	0.530%	0.148%
AOC5-04-11-12	0.00%	0.00%	0.00%	26.5%	8.79%	20.4%	14.5%	12.1%	6.45%	3.97%	2.62%	2.44%	0.871%	0.333%	0.610%	0.363%
AOC5-04-14-15	0.00%	0.00%	0.00%	16.6%	2.66%	19.7%	15.2%	18.8%	8.82%	6.99%	3.17%	3.49%	2.61%	0.931%	0.728%	0.367%

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Grain Size by ASTM D422

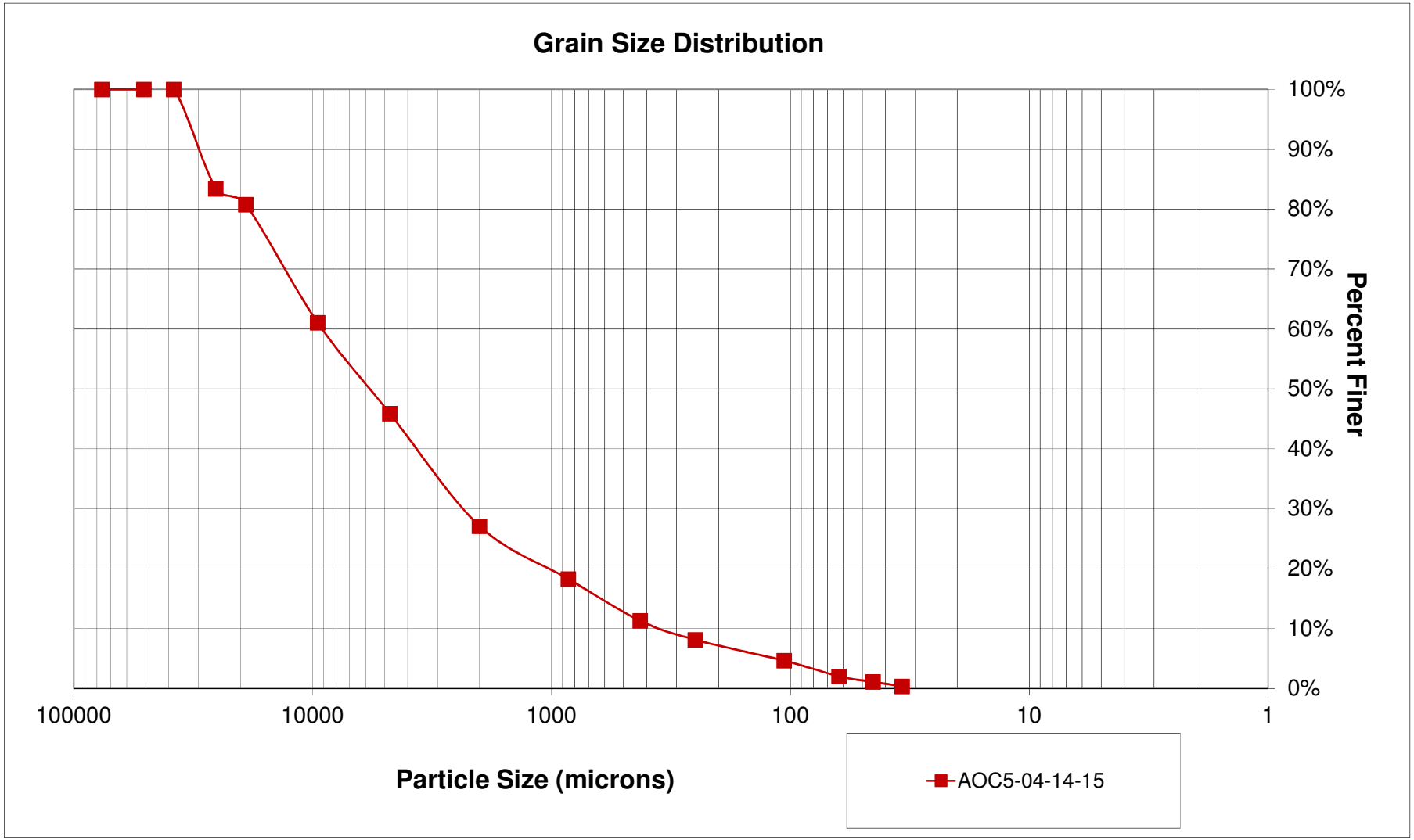
Project: 309097
Client: Friedman & Bruya
Lab Project #: 2309097



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Grain Size by ASTM D422

Project: 309097
Client: Friedman & Bruya
Lab Project #: 2309097



Fremont Analytical
An Alliance Technical Group Company

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Special Handling (if applicable)

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SUBCONTRACT SAMPLE CHAIN OF CUSTODY

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 5500 4th Ave S

City, State, ZIP Seattle, WA 98108

Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER	
Fremont	
PROJECT NAME/NO.	PO #
309097	D-435
REMARKS	
FDS EDD	

TURNAROUND TIME

☒ Standard TAT

RUSH 230907

Rush charges authorized by:

SAMPLE DISPOSAL

Dispose after 30 days

Return samples

Will call with instructions

						ANALYSES REQUESTED										
Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	Grain Size										Notes
AOC5-04-05-06		9/5/2023	1355	soil	2	x										
AOC5-04-08-09		9/5/2023	1405	soil	2	x										
AOC5-04-11-12		9/5/2023	1410	soil	2	x										
AOC5-04-14-15		9/5/2023	1415	soil	2	x										
					pH 9/8/23											

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Michael Erdahl	Friedman & Bruya	9/11/23	0821
Received by:	NR	FAI	9/11/23	15:00
Relinquished by:				
Received by:				

DRAFT

Date of Report: 09/14/23
Date Received: 09/08/23
Project: Smith Kem, F&BI 309097
Date Extracted: 09/13/23
Date Analyzed: 09/13/23

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
AOC5-01-06-6.5 309097-01	760	<250	96
AOC4-03-6.5 309097-09	750 x	9,600	95
AOC2-04-6.0 309097-15	19,000	490 x	125
AOC2-04-8.5 309097-16	600	<250	92
AOC2-03-6.5 309097-18	8,300	<250	108
AOC4-02-8.5 309097-13 1/10	1,500 x	17,000	ip
Method Blank 03-2194 MB	<50	<250	74

Analysis For Total Metals By EPA Method 6020B

Client ID:	AOC4-03-2.0	Client:	Floyd-Snider
Date Received:	09/08/23	Project:	Smith Kem, F&BI 309097
Date Extracted:	09/11/23 09:39	Lab ID:	309097-07
Date Analyzed:	09/11/23	Data File:	309097-07.056
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	154

Analysis For Total Metals By EPA Method 6020B

Client ID:	AOC4-103-2.0	Client:	Floyd-Snider
Date Received:	09/08/23	Project:	Smith Kem, F&BI 309097
Date Extracted:	09/11/23 09:39	Lab ID:	309097-08
Date Analyzed:	09/11/23	Data File:	309097-08.057
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	63.1

Analysis For Total Metals By EPA Method 6020B

Client ID:	AOC4-04-2.5	Client:	Floyd-Snider
Date Received:	09/08/23	Project:	Smith Kem, F&BI 309097
Date Extracted:	09/11/23 09:39	Lab ID:	309097-11
Date Analyzed:	09/11/23	Data File:	309097-11.060
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	3.28

Analysis For Total Metals By EPA Method 6020B

Client ID:	AOC4-02-2.5	Client:	Floyd-Snider
Date Received:	09/08/23	Project:	Smith Kem, F&BI 309097
Date Extracted:	09/11/23 09:39	Lab ID:	309097-12
Date Analyzed:	09/11/23	Data File:	309097-12.061
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	15.1

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Floyd-Snider
Date Received:	NA	Project:	Smith Kem, F&BI 309097
Date Extracted:	09/11/23 09:39	Lab ID:	I3-698 mb
Date Analyzed:	09/11/23	Data File:	I3-698 mb.095
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Avenue South
Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

January 5, 2024

Pamela Osterhout, Project Manager
Floyd-Snider
Two Union Square
601 Union St, Suite 600
Seattle, WA 98101

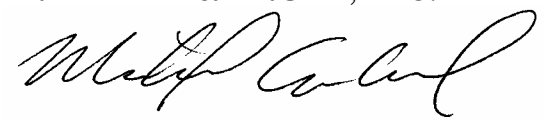
Dear Ms Osterhout:

Included are the additional results from the testing of material submitted on December 15, 2023 from the Smith Kem, F&BI 312274 project. There are 4 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Floyd Snider Lab Data
FDS0105R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on December 15, 2023 by Friedman & Bruya, Inc. from the Floyd-Snider Smith Kem, F&BI 312274 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Floyd-Snider
312274 -01	AOC4-09-5.5-6.0
312274 -02	AOC4-09-7.0
312274 -03	AOC4-09-8.5
312274 -04	AOC2-11-6.0-6.5
312274 -05	AOC2-11-7.5
312274 -06	AOC2-12-6.5
312274 -07	AOC2-12-8.5-9.5
312274 -08	AOC2-12-10.0
312274 -09	AOC2-13-6.5
312274 -10	AOC2-13-7.5
312274 -11	AOC2-13-10.0
312274 -12	AOC2-14-6.0-6.5
312274 -13	AOC2-14-8.5
312274 -14	AOC2-14-9.0
312274 -15	AOC2-15-6.0-6.5
312274 -16	AOC2-16-6.5
312274 -17	AOC2-16-8.5
312274 -18	AOC2-17-6.5
312274 -19	AOC2-17-8.5
312274 -20	AOC2-15-7.5

The NWTPH-Dx analysis of sample AOC2-17-6.5 was requested outside of the holding time. The data were flagged accordingly.

All other quality control requirements were acceptable.

Date of Report: 01/05/24
Date Received: 12/15/23
Project: Smith Kem, F&BI 312274
Date Extracted: 01/03/24
Date Analyzed: 01/03/24

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
AOC2-17-6.5 ht 312274-18	<50	<250	100
Method Blank 04-0073 MB	<50	<250	100

Date of Report: 01/05/24
Date Received: 12/15/23
Project: Smith Kem, F&BI 312274

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 401013-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	3,900	100	110	64-136	10

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	90	78-121

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

k – The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

312274

SAMPLE CHAIN OF CUSTODY

12/15/23 G3

Page # 1 of 2

Report To Pamela Osterhout
Company Floyd Snider
Address 600 Union St, Suite 600
City, State, ZIP Seattle, WA
Phone 206 805-2188 Email

SAMPLERS (signature) Pam Osterhout

PROJECT NAME: Smith Kem

PO #:

REMARKS:

Project specific RLs? - Yes / No

INVOICE TO:

TURNAROUND TIME
☐ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Archive	Dx w SG			Notes
ADC4-09-5.5-6.0	01	12/14/23	08:30	Soil	1	✓											*hot
ADC4-09-7.0	02	"	08:35	"	1	✓											
ADC4-09-8.5	03	"	08:40	"	1								✓				
ADC2-11-6.0-6.5	04	"	09:55	"	1	✓											
ADC2-11-7.5	05	"	10:00	"	1	✓											
ADC2-12-6.5	06	"	14:25	"	1	✓											
ADC2-12-8.5-9.5	07	"	14:30	"	1	✓											
ADC2-12-10.0	08	"	14:35	"	1	✓											
ADC2-13-6.5	09	"	10:30	"	1	✓								A			*hot
ADC2-13-7.5	10	"	10:35	"	1	✓											

ANALYSES REQUESTED

A-per PO
12/19/23 ME

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Pam Osterhout	Pamela Osterhout	Floyd Snider	12/15/23	8:17
Received by:		ANH PHAN	FSI	12/15/23	08:17
Relinquished by:			Samples received at 2 °C		
Received by:					

Friedman & Bruya, Inc.
Ph. (206) 285-8282

312274

SAMPLE CHAIN OF CUSTODY

12/15/23 G3

Page # 2 of 2

Report To Pamela Osterhout

Company Floyd Snider

Address

City, State, ZIP

Phone Email

SAMPLERS (signature)

PROJECT NAME: Smith Kem

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
- ☑ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

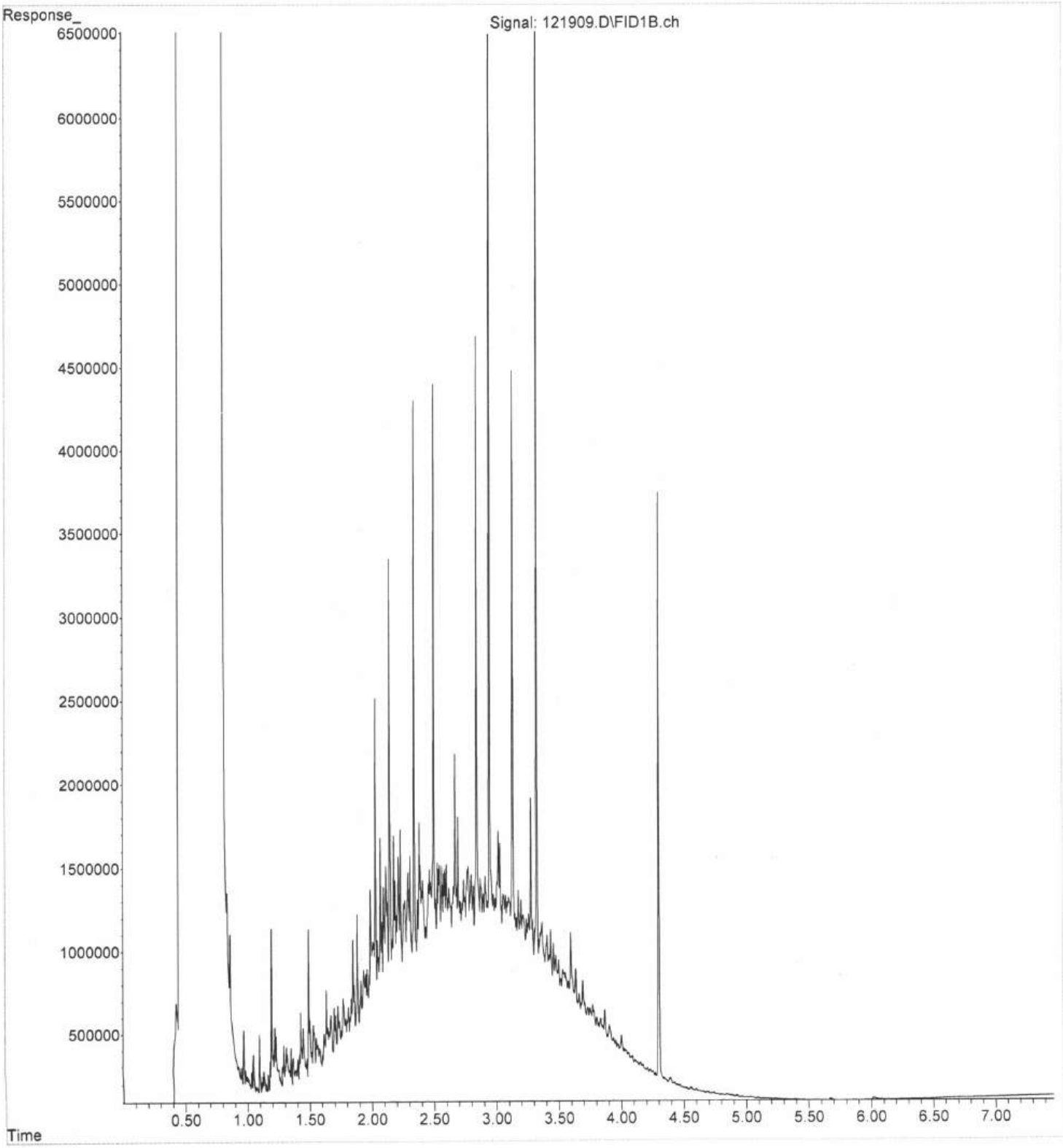
SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Archive				Notes
ADC2-13-10.0	11	12/14/23	10:40	S	1								✓				A-per PO 01/02/24 EY/ME
ADC2-14-6.0-6.5	12		11:50		1	✓											
ADC2-14-8.5	13		11:55		1	✓											
ADC2-14-9.0	14		12:00		1	✓											
ADC2-15-6.0-6.5	15		11:15		1	✓											
ADC2-16-6.5	16		~~11:20~~ 13:45 PO		1	✓	PO						✓				
ADC2-16-8.5	17		13:50		1								✓				
ADC2-17-6.5	18		14:40		1	A							✓				
ADC2-17-8.5	19		14:45		1								✓				
ADC2-15-7.5	20		11:20		1	✓											

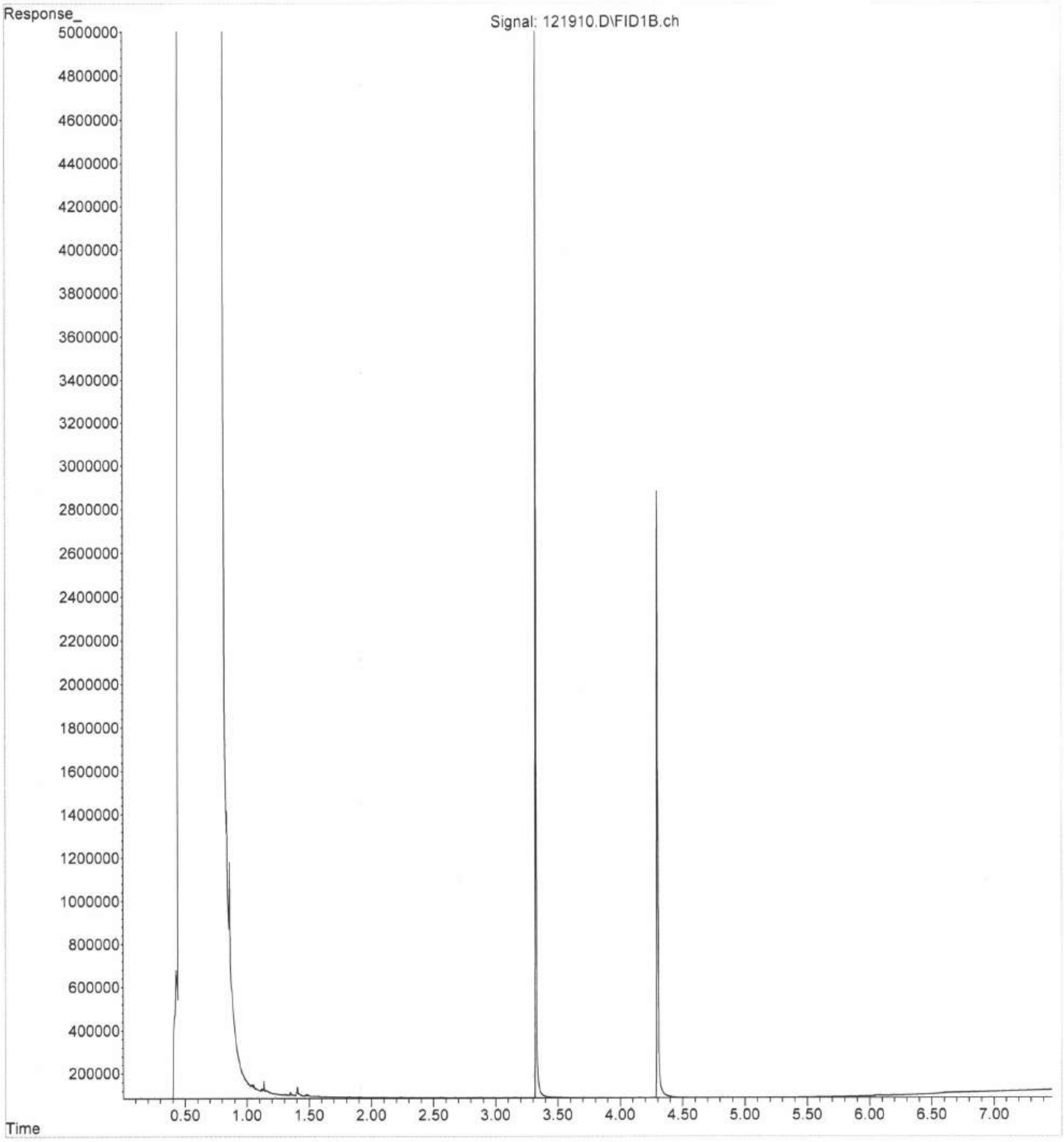
SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	P Osterhout	F/S	12/15	0917
Received by:	ANTHPHAN	FSS	12/15/23	08:17
Relinquished by:		Samples received at 2 °C		
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

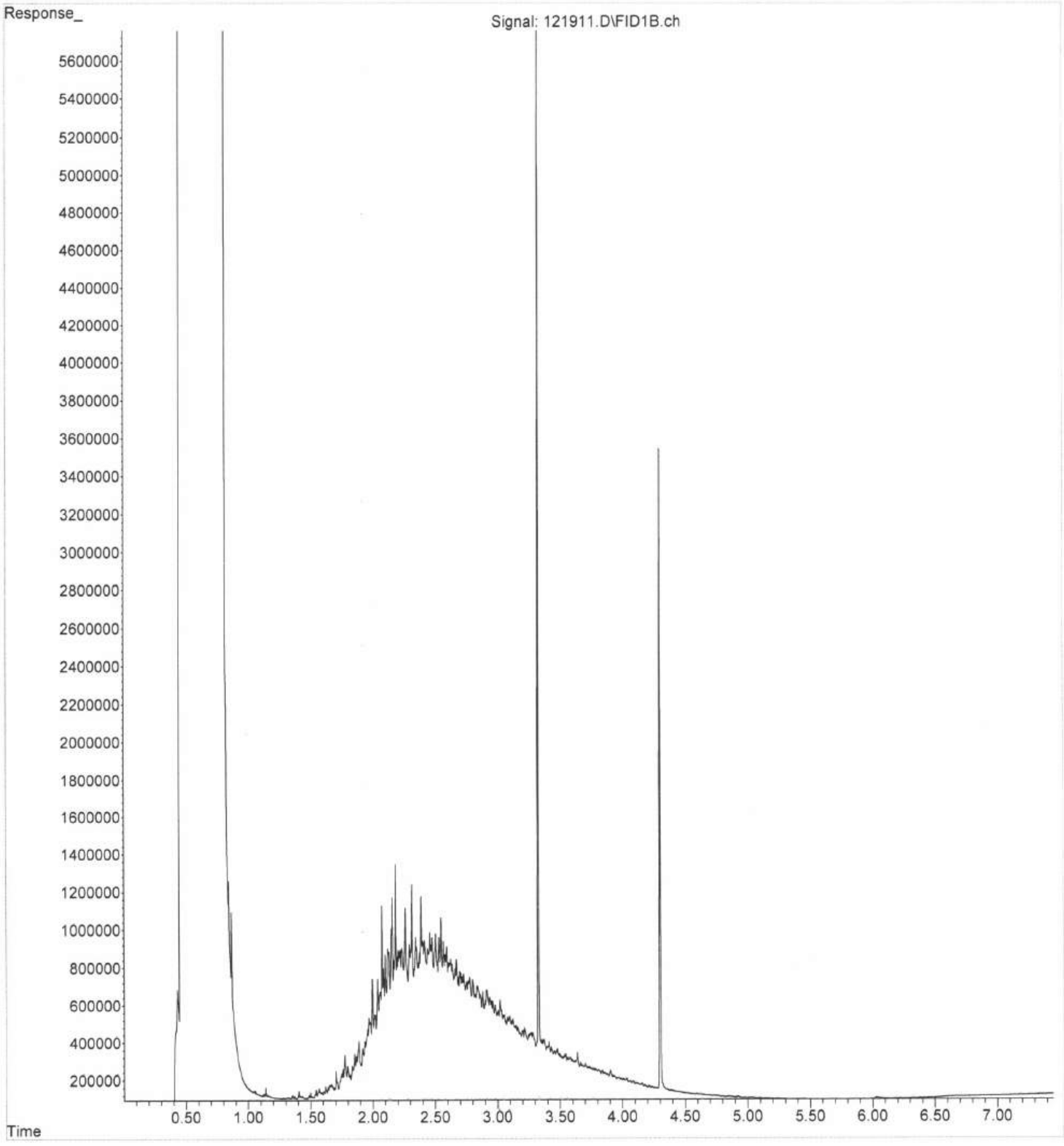
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Instrument : GC10
Sample Name: 312274-01
Misc Info :
Vial Number: 10



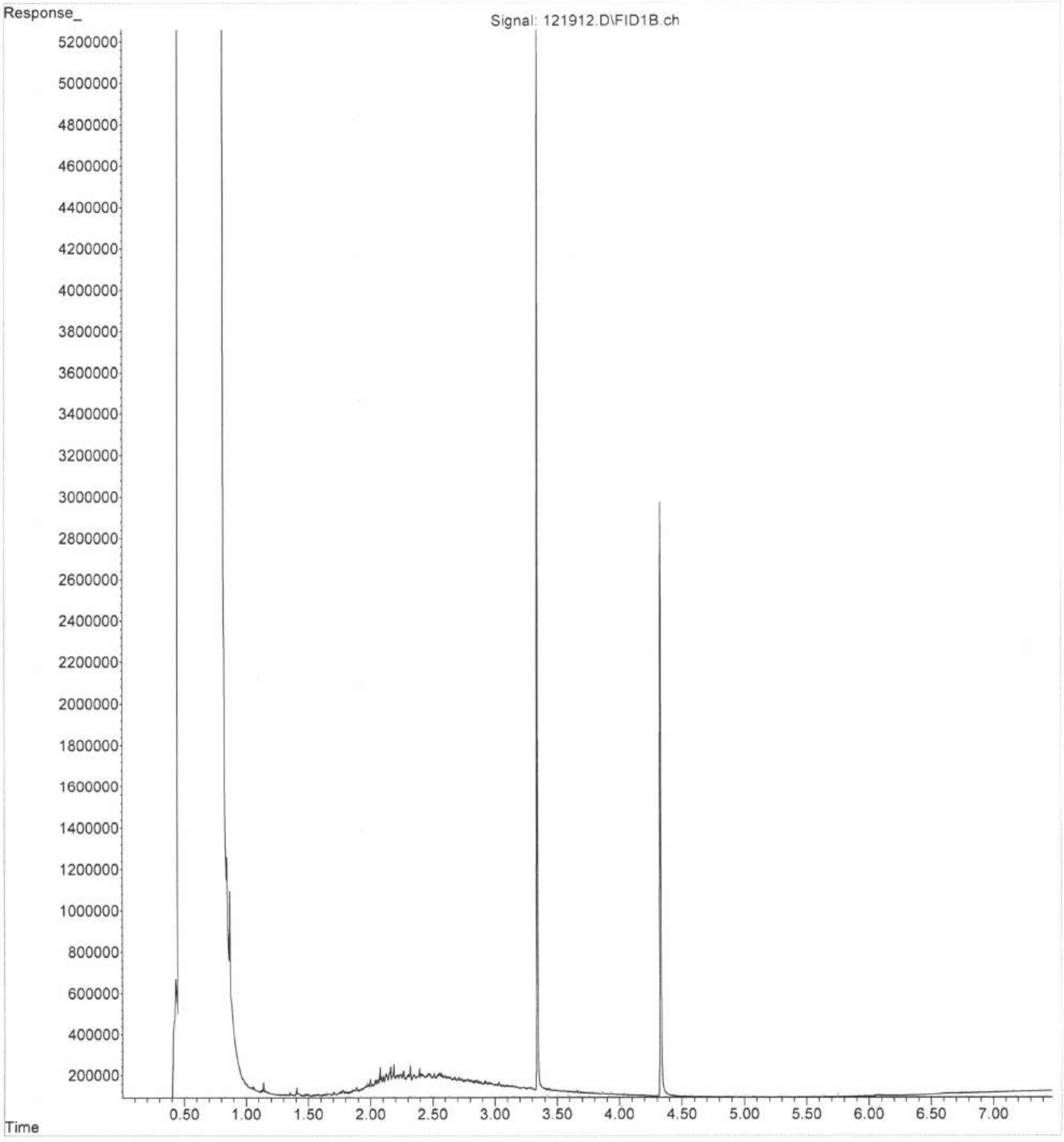
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Instrument : GC10
Sample Name: 312274-02
Misc Info :
Vial Number: 11



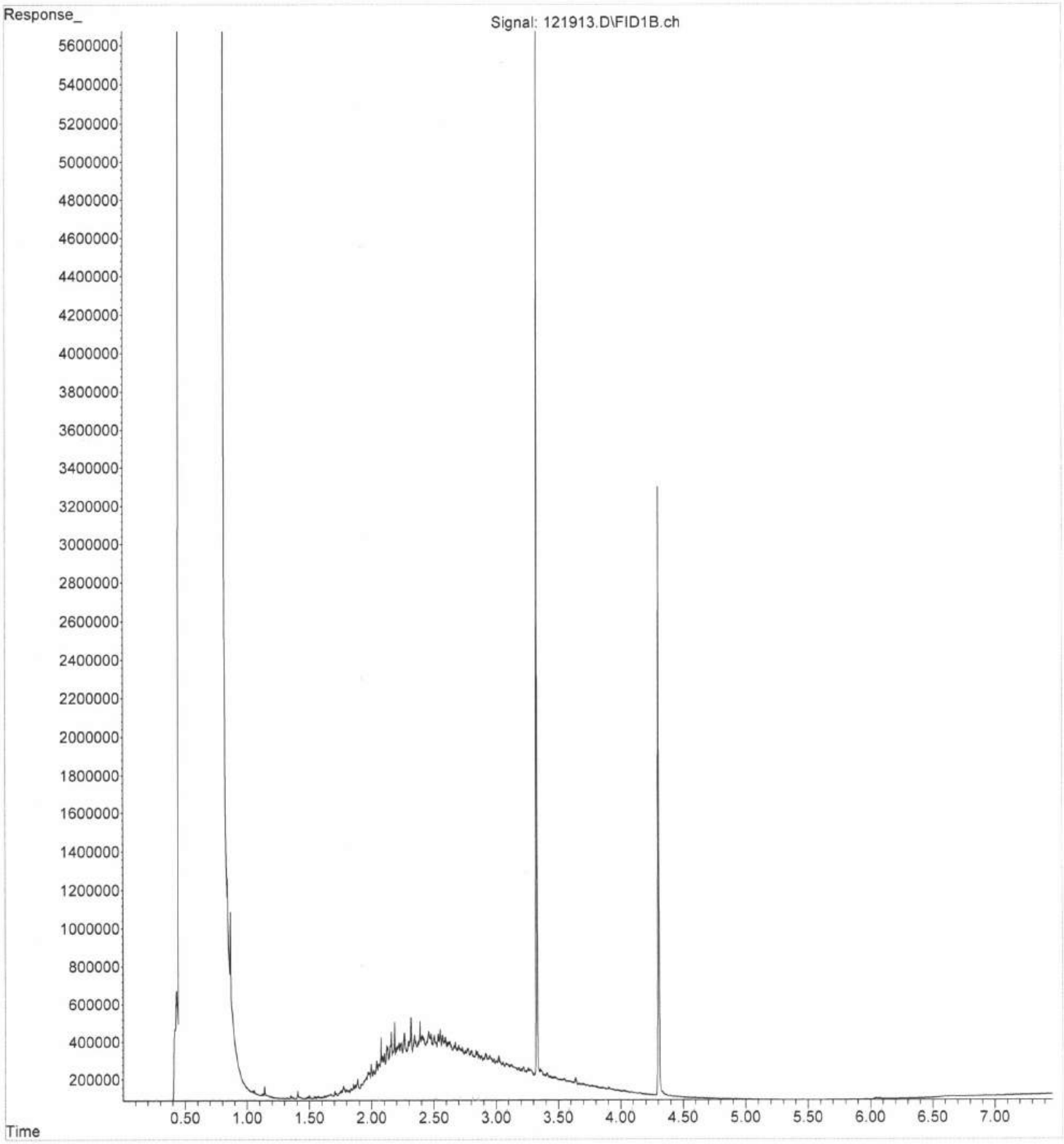
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Instrument : GC10
Sample Name: 312274-04
Misc Info :
Vial Number: 12



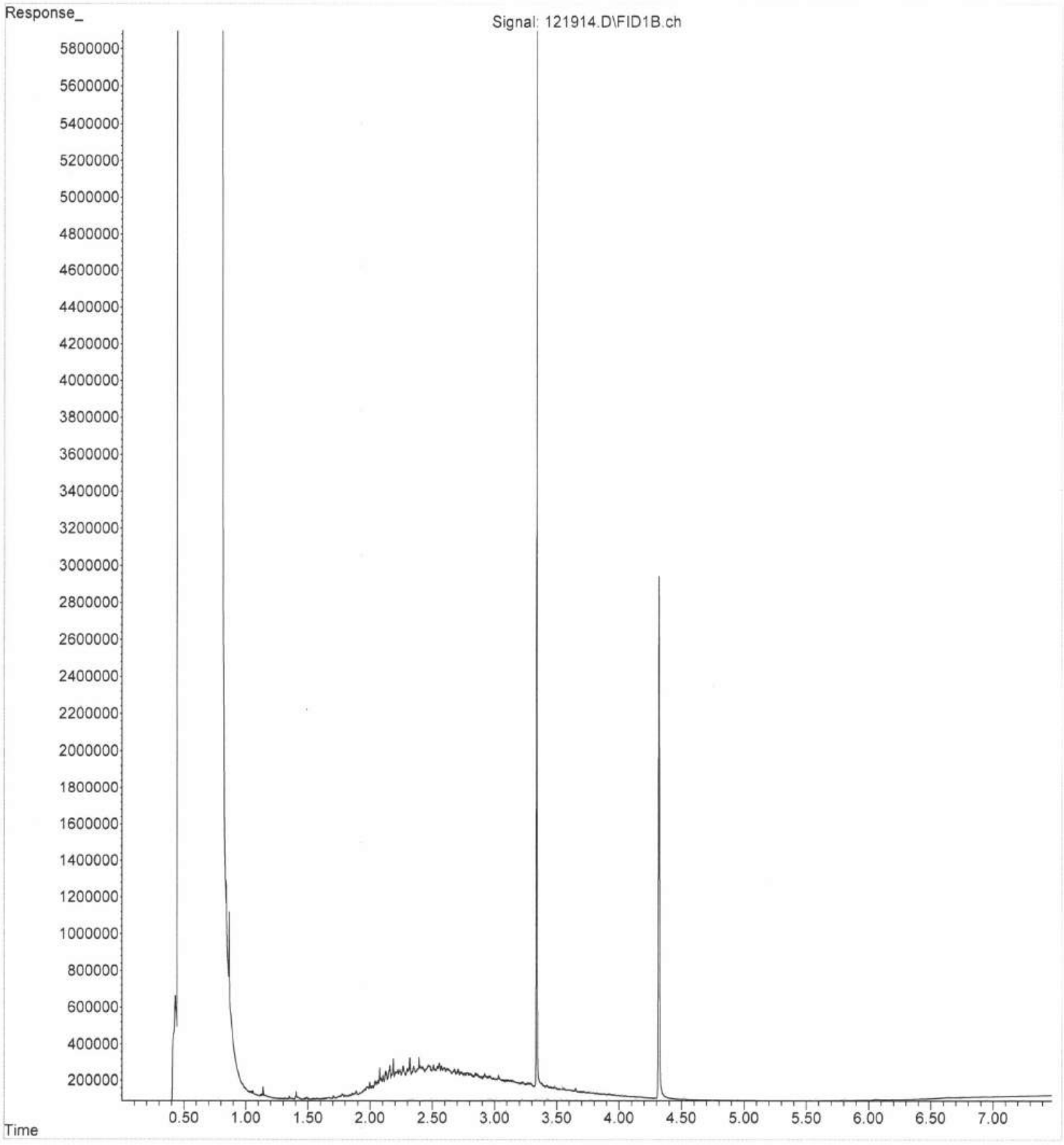
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Instrument : GC10
Sample Name: 312274-05
Misc Info :
Vial Number: 13



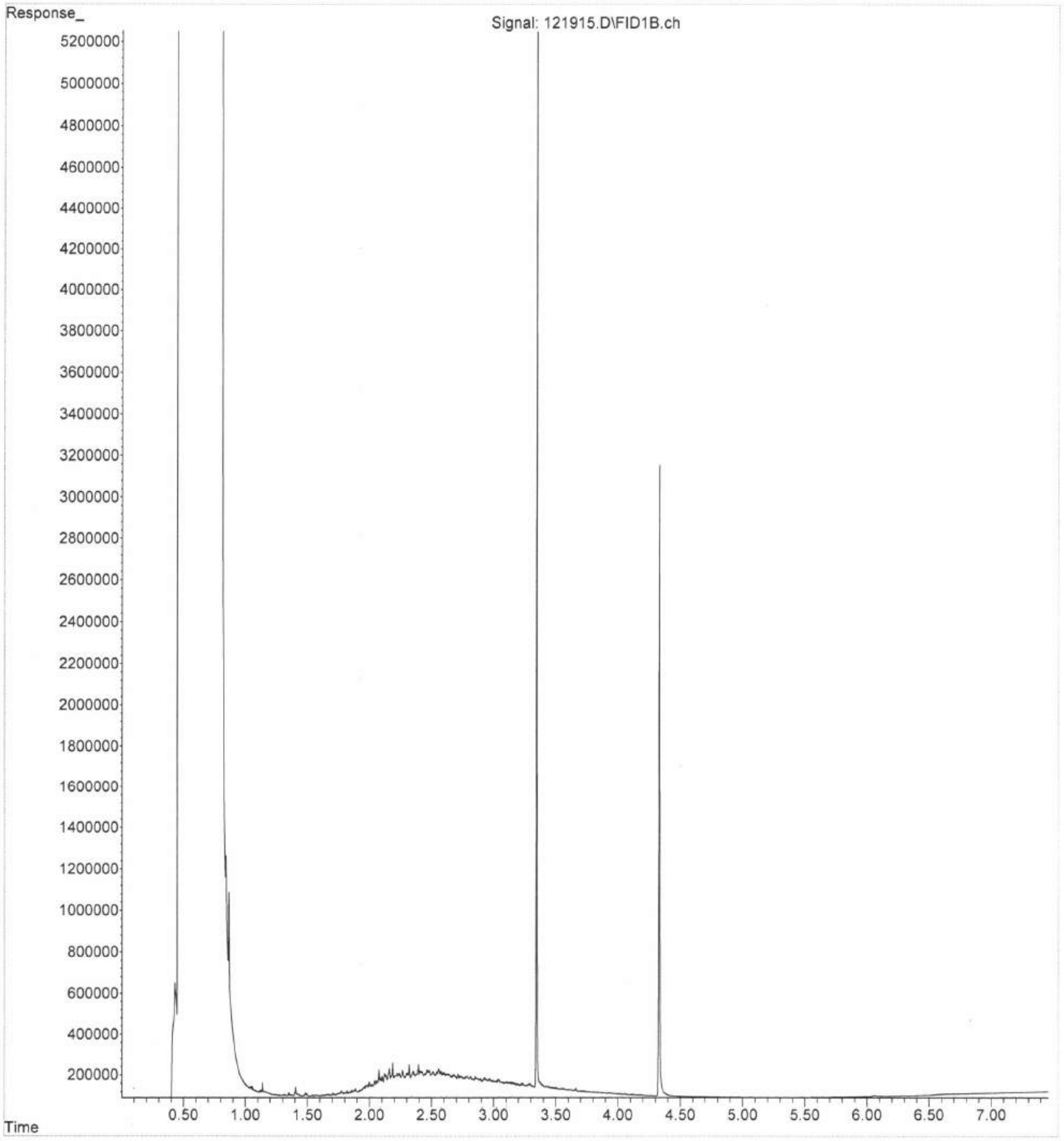
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Instrument : GC10
Sample Name: 312274-06
Misc Info :
Vial Number: 14



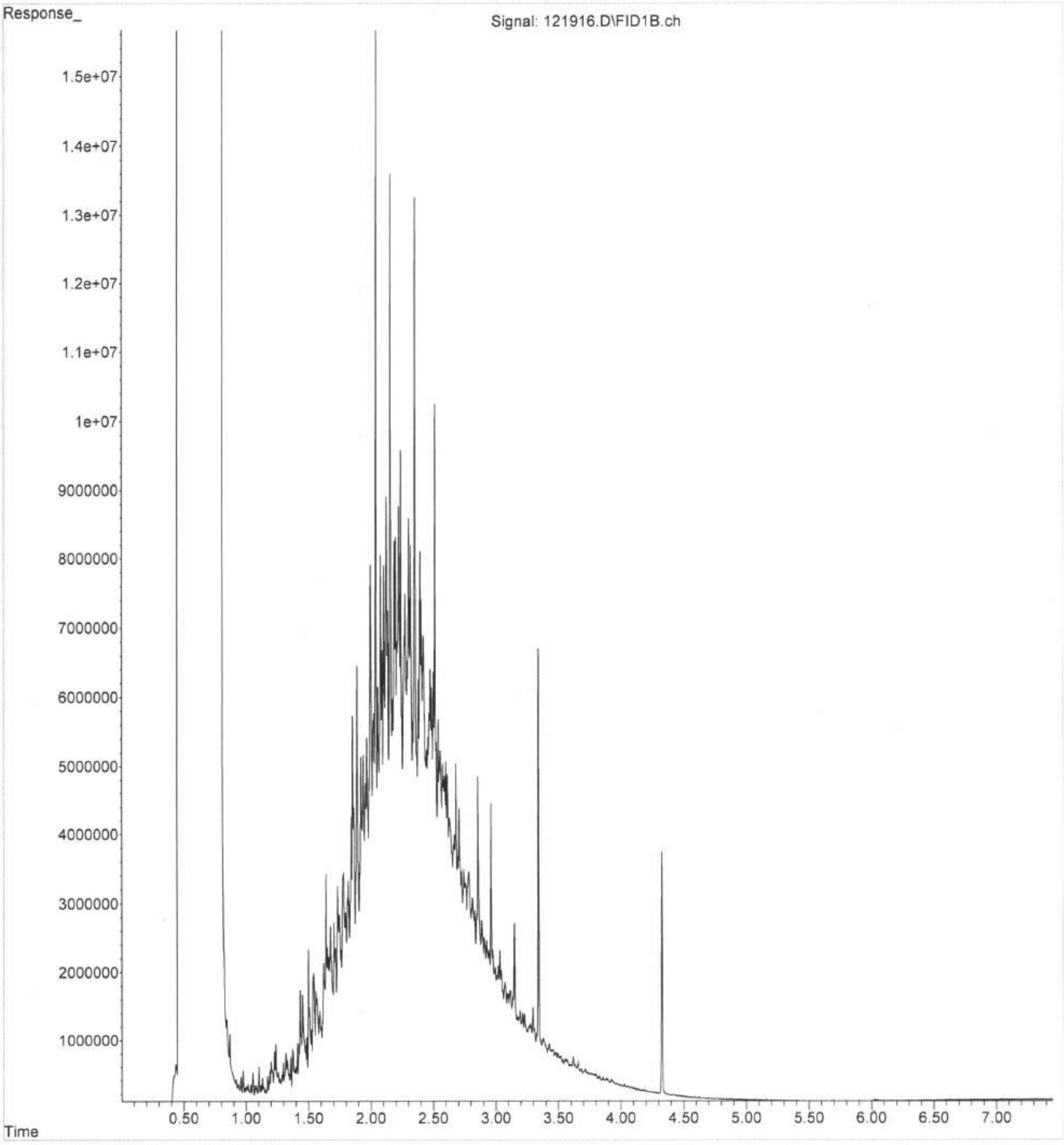
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Sample Name: 312274-07
Misc Info :
Vial Number: 15



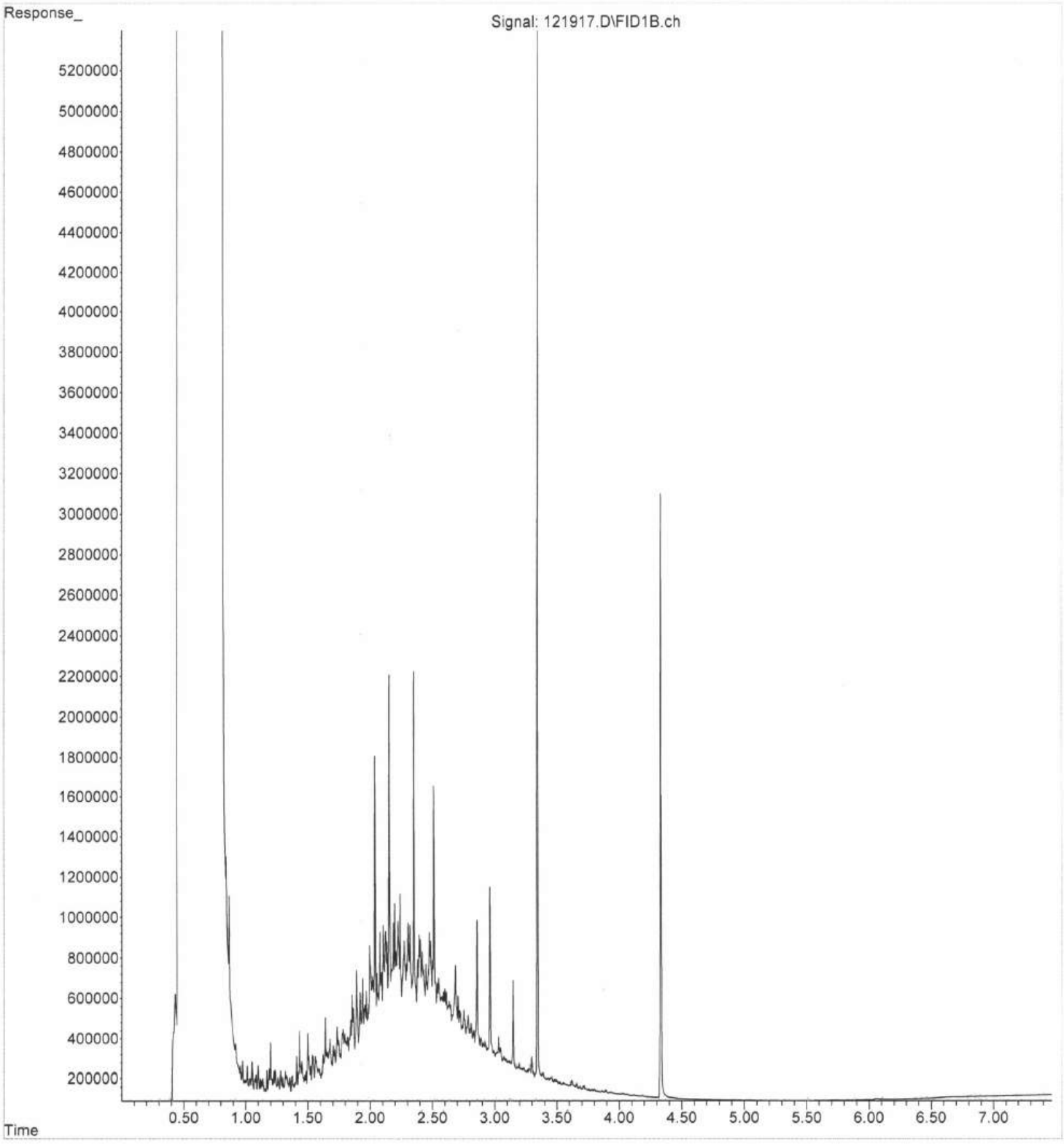
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Sample Name: 312274-08
Misc Info :
Vial Number: 16



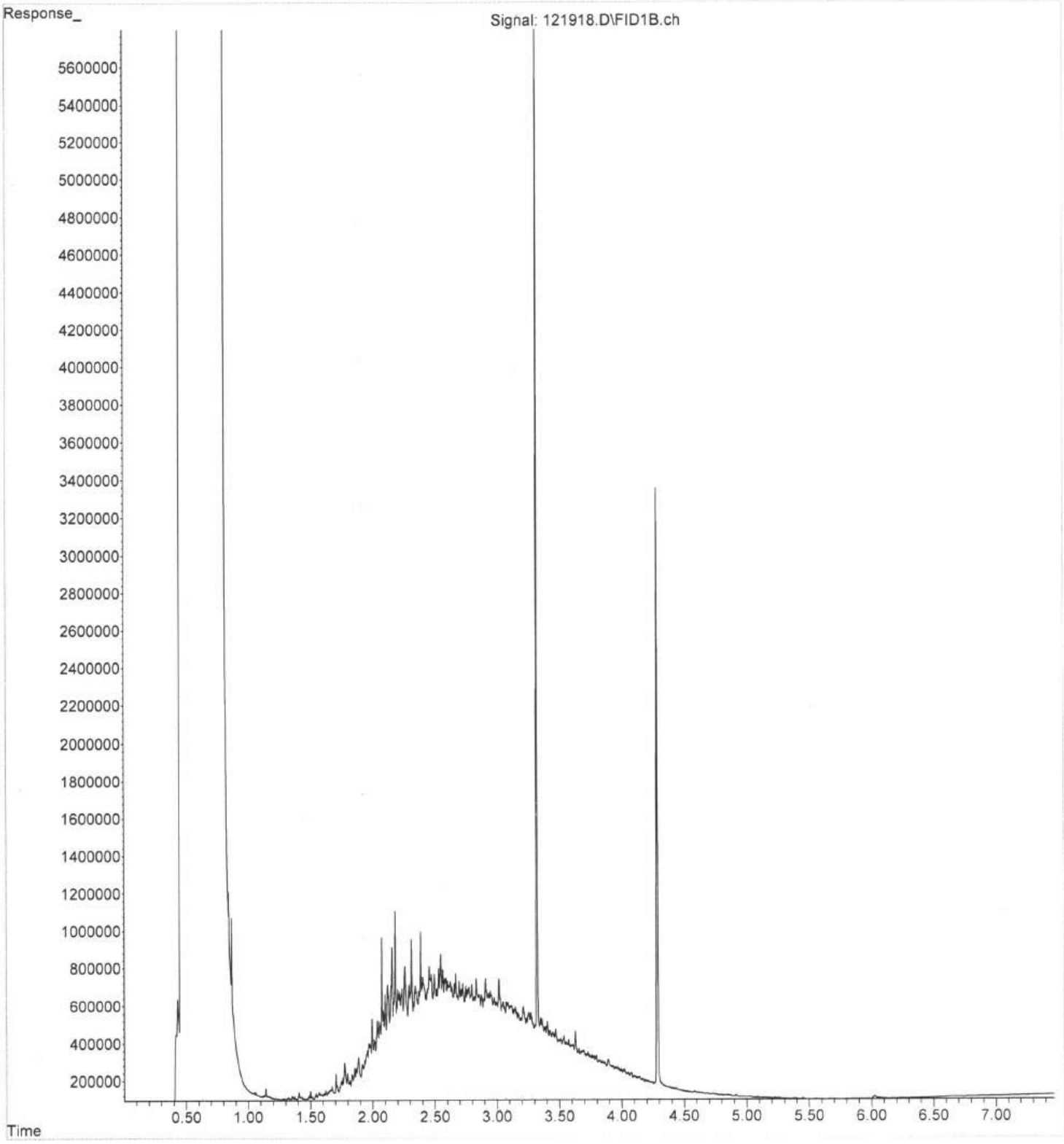
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Instrument : GC10
Sample Name: 312274-09
Misc Info :
Vial Number: 17



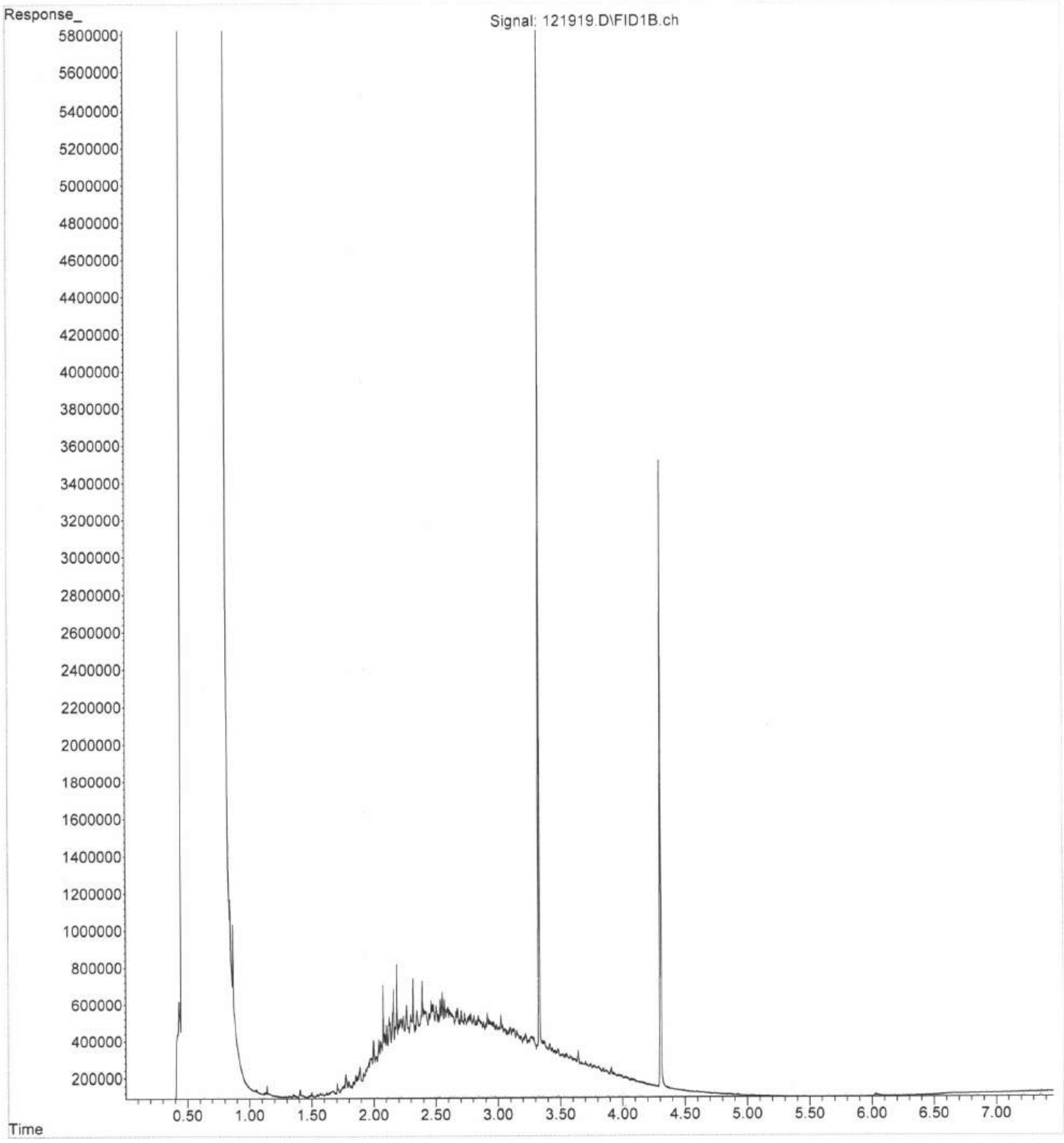
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Instrument : GC10
Sample Name: 312274-10
Misc Info :
Vial Number: 18



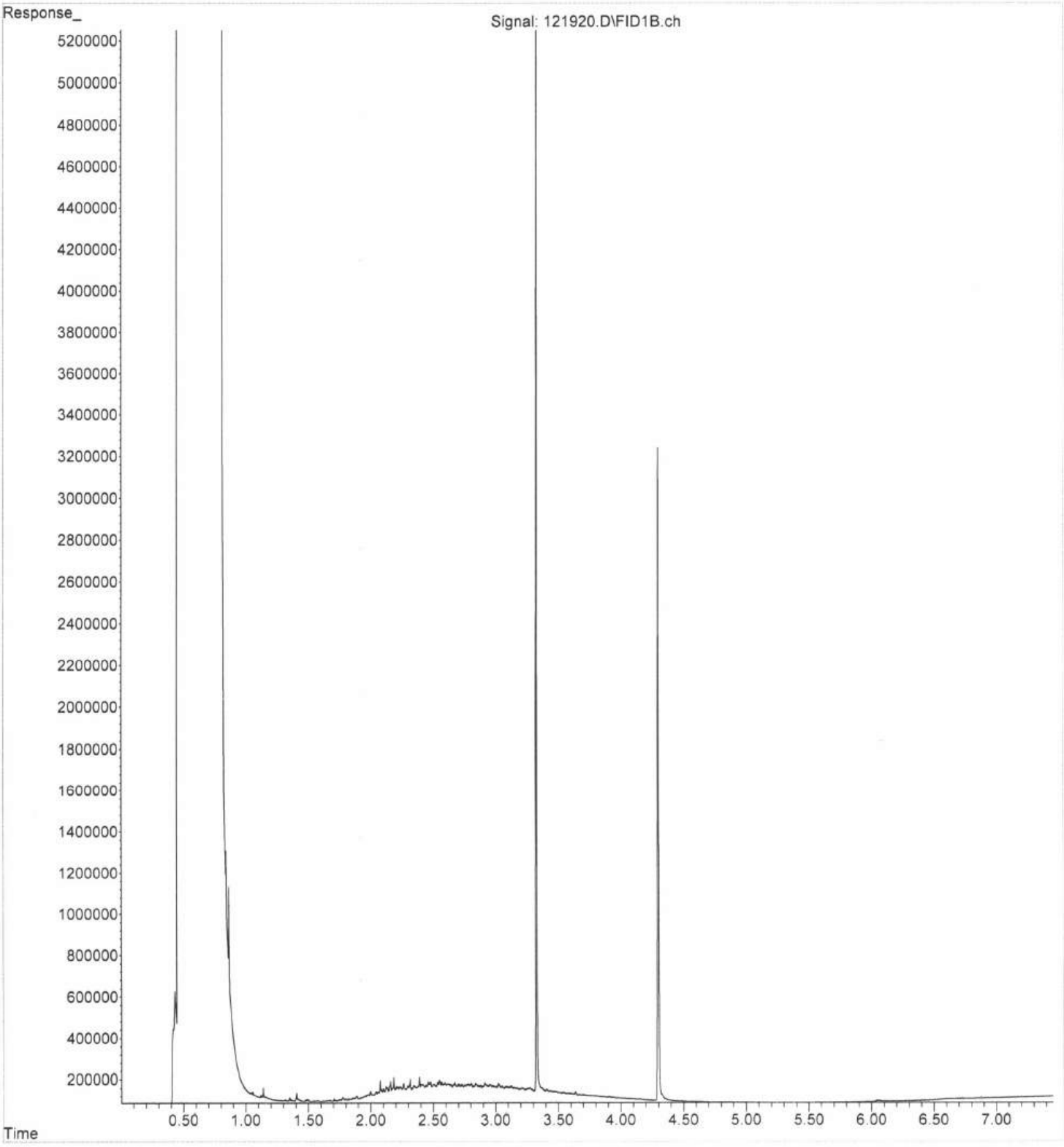
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Sample Name: 312274-12
Misc Info :
Vial Number: 19



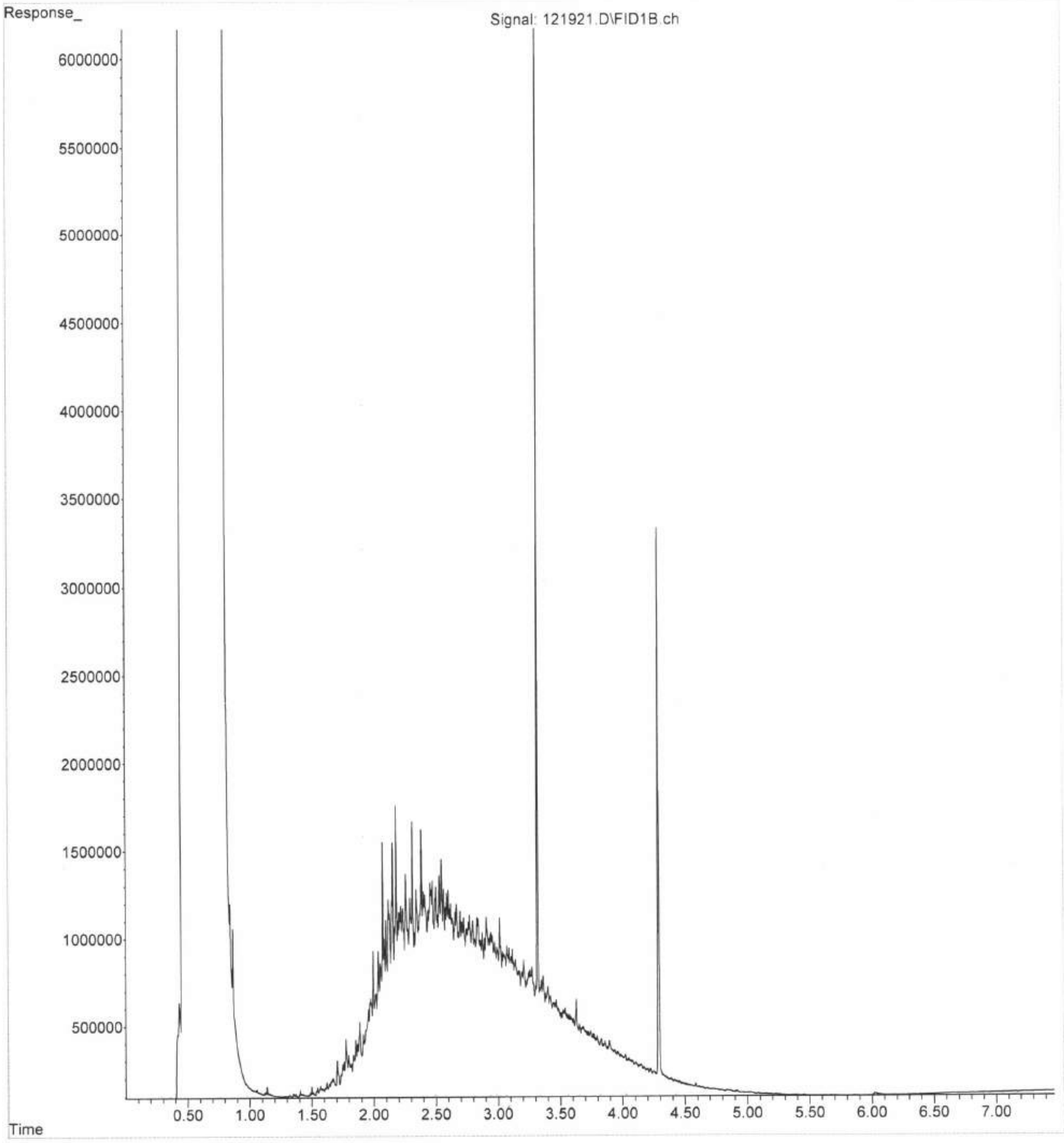
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Instrument : GC10
Sample Name: 312274-13
Misc Info :
Vial Number: 20



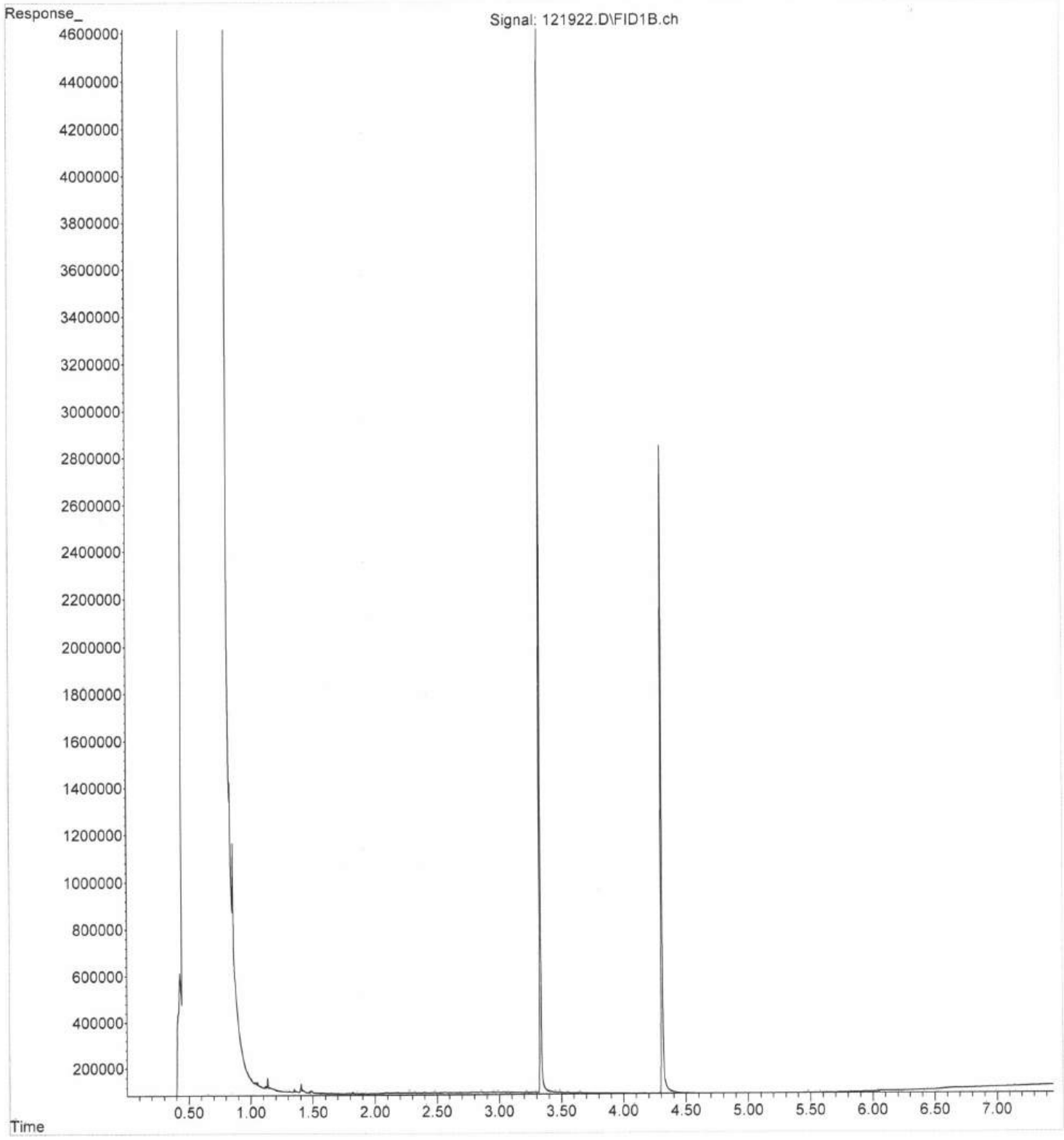
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Sample Name: 312274-14
Misc Info :
Vial Number: 21



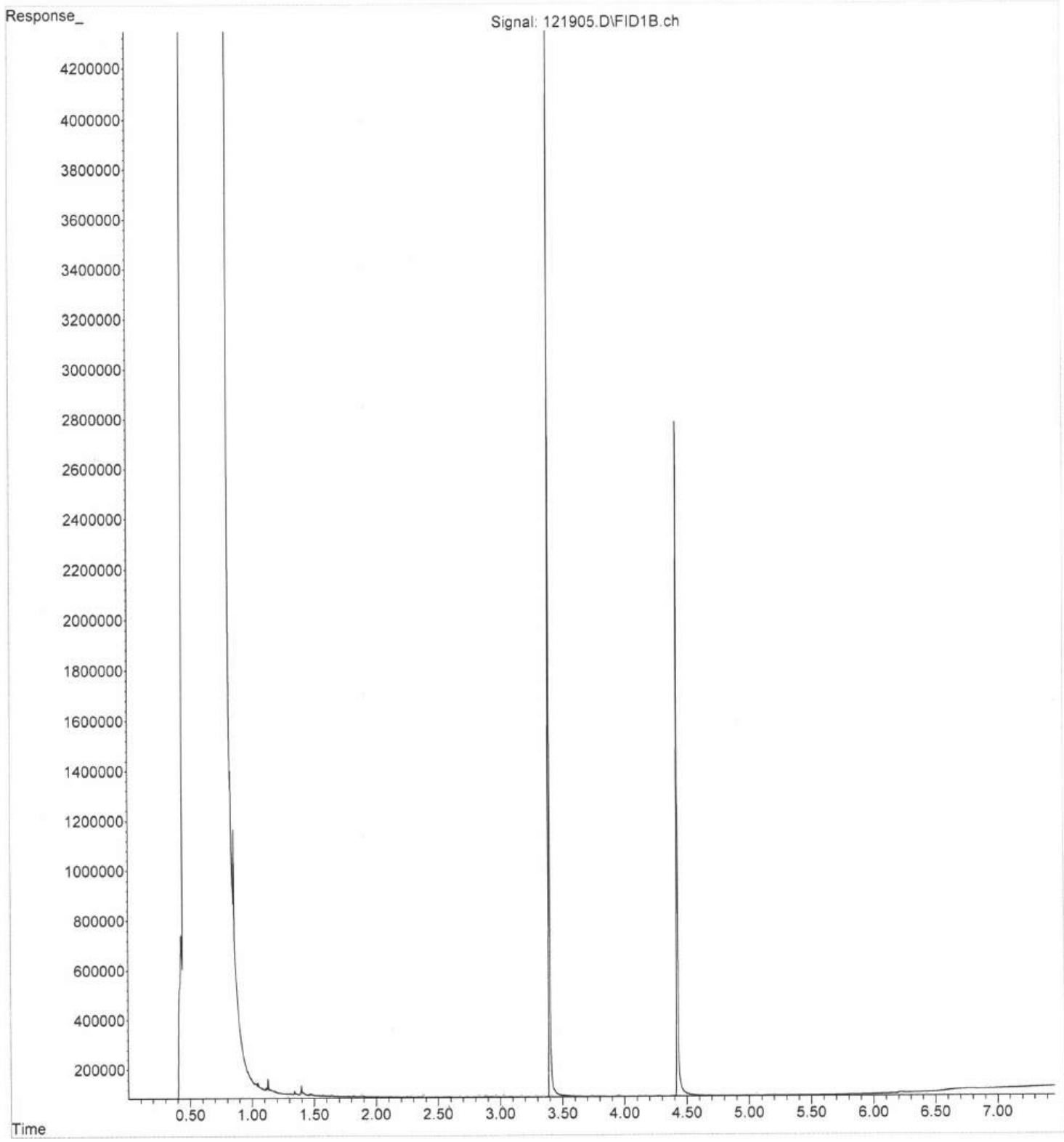
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Instrument : GC10
Sample Name: 312274-15
Misc Info :
Vial Number: 22



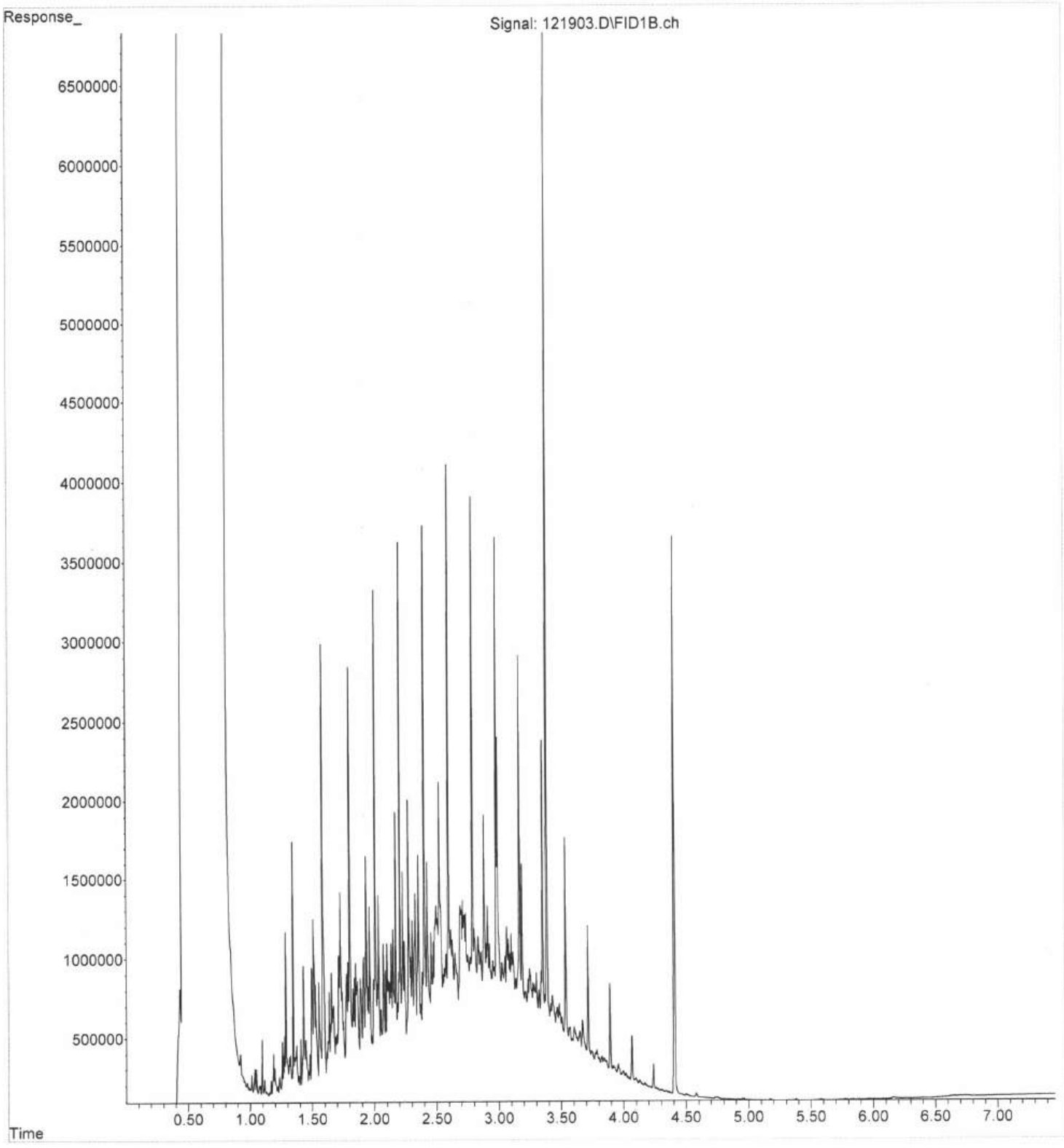
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Instrument : GC10
Sample Name: 312274-20
Misc Info :
Vial Number: 23



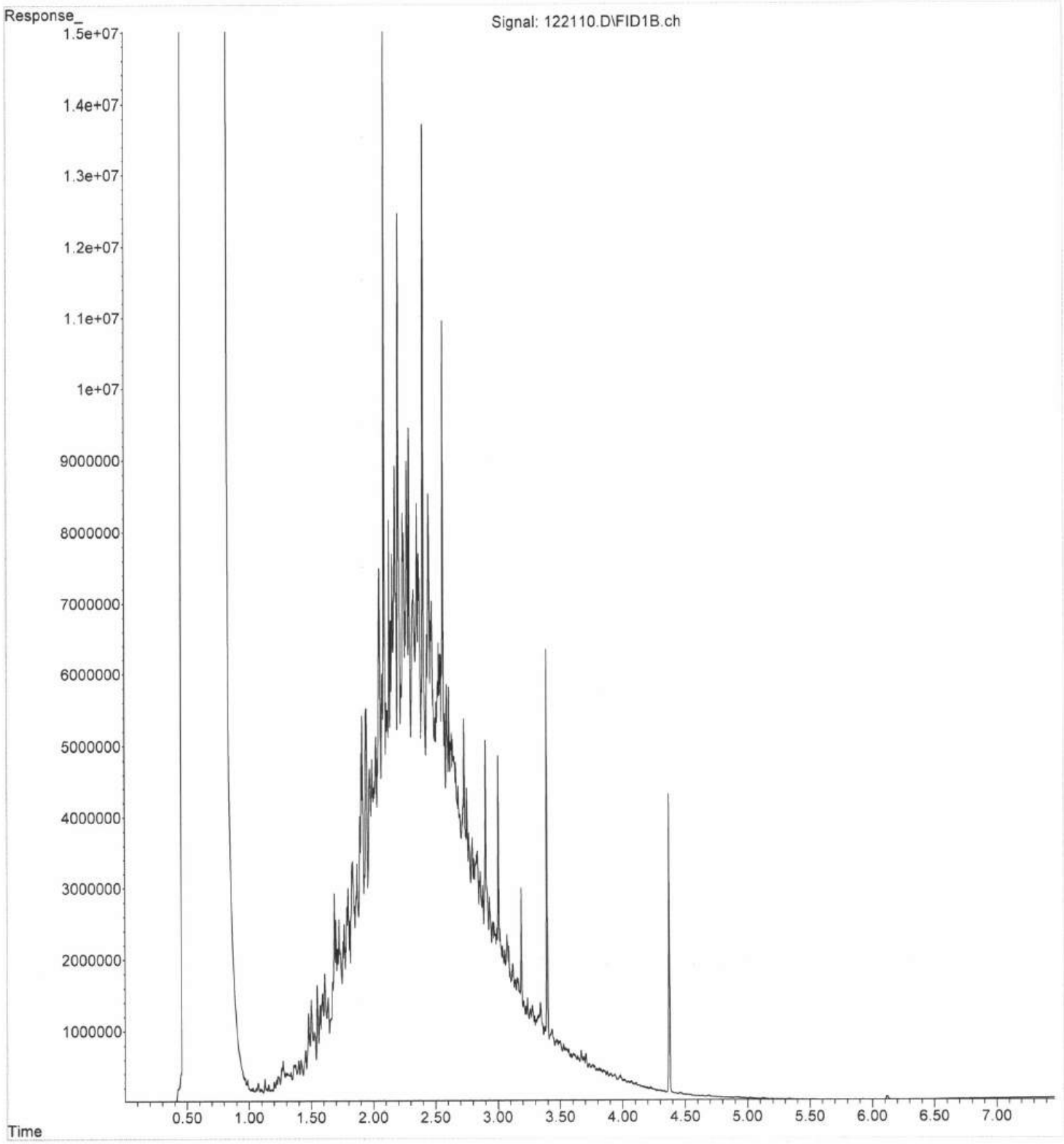
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Instrument : GC10
Sample Name: 03-2927 mb
Misc Info :
Vial Number: 7



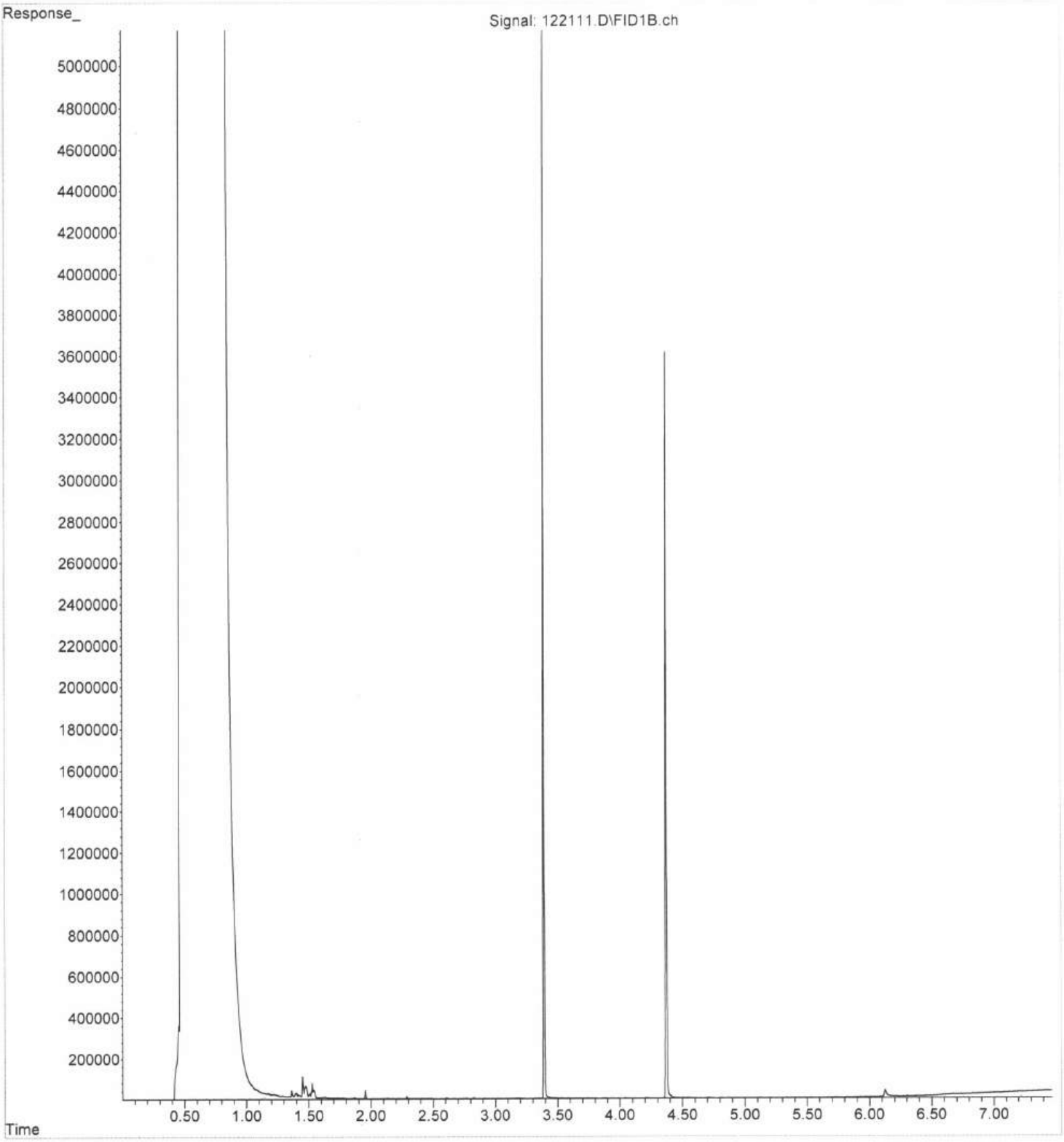
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Operator : IJL
Acquired : 19 Dec 2023 08:00 am using AcqMethod DX.M
Instrument : GC10
Sample Name: 500 DX 70-26F
Misc Info :
Vial Number: 3



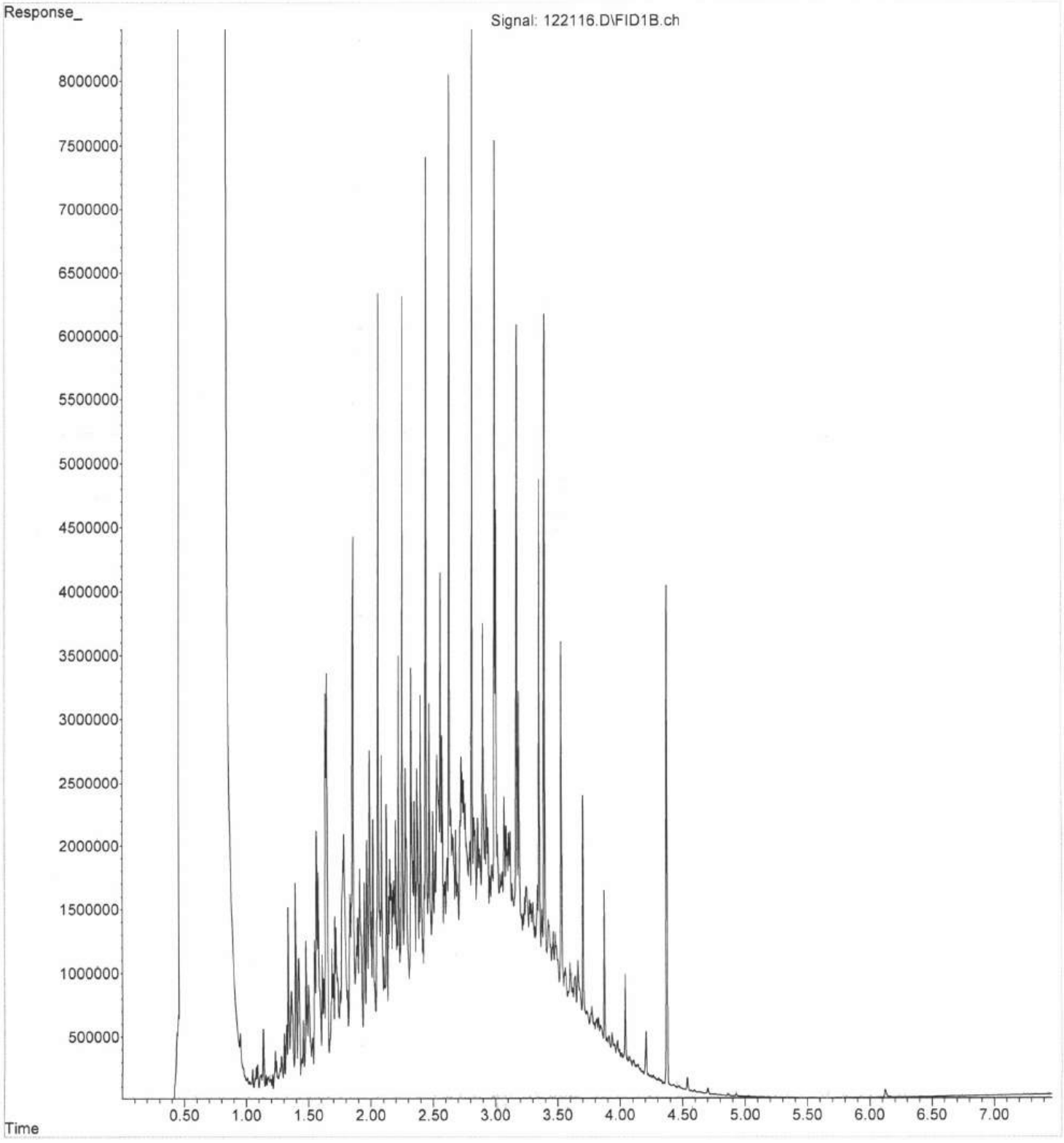
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Operator : IJL
Acquired : 21 Dec 2023 11:42 am using AcqMethod DX.M
Instrument : GC14
Sample Name: 312274-09 sg
Misc Info : ERR
Vial Number: 10



File :P:\Proc_GC14\12-21-23\122111.D
Operator : IJL
Acquired : 21 Dec 2023 11:54 am using AcqMethod DX.M
Instrument : GC14
Sample Name: 03-2927 mb sg
Misc Info : ERR
Vial Number: 11



File :P:\Proc_GC14\12-21-23\122116.D
Operator : IJL
Acquired : 21 Dec 2023 02:16 pm using AcqMethod DX.M
Instrument : GC14
Sample Name: 1000 Dx 70-26G
Misc Info : ERR
Vial Number: 5



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Avenue South
Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

December 27, 2023

Pamela Osterhout, Project Manager
Floyd-Snider
Two Union Square
601 Union St, Suite 600
Seattle, WA 98101

Dear Ms Osterhout:

Included are the results from the testing of material submitted on December 15, 2023 from the Smith Kem, F&BI 312274 project. There are 7 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Floyd Snider Lab Data
FDS1227R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on December 15, 2023 by Friedman & Bruya, Inc. from the Floyd-Snider Smith Kem, F&BI 312274 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Floyd-Snider
312274 -01	AOC4-09-5.5-6.0
312274 -02	AOC4-09-7.0
312274 -03	AOC4-09-8.5
312274 -04	AOC2-11-6.0-6.5
312274 -05	AOC2-11-7.5
312274 -06	AOC2-12-6.5
312274 -07	AOC2-12-8.5-9.5
312274 -08	AOC2-12-10.0
312274 -09	AOC2-13-6.5
312274 -10	AOC2-13-7.5
312274 -11	AOC2-13-10.0
312274 -12	AOC2-14-6.0-6.5
312274 -13	AOC2-14-8.5
312274 -14	AOC2-14-9.0
312274 -15	AOC2-15-6.0-6.5
312274 -16	AOC2-16-6.5
312274 -17	AOC2-16-8.5
312274 -18	AOC2-17-6.5
312274 -19	AOC2-17-8.5
312274 -20	AOC2-15-7.5

All quality control requirements were acceptable.

Date of Report: 12/27/23
Date Received: 12/15/23
Project: Smith Kem, F&BI 312274
Date Extracted: 12/19/23
Date Analyzed: 12/19/23

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
AOC4-09-5.5-6.0 312274-01	3,800	<250	97
AOC4-09-7.0 312274-02	<50	<250	85
AOC2-11-6.0-6.5 312274-04	1,700	<250	89
AOC2-11-7.5 312274-05	220	<250	89
AOC2-12-6.5 312274-06	670	<250	90
AOC2-12-8.5-9.5 312274-07	390	<250	90
AOC2-12-10.0 312274-08	260	<250	87
AOC2-13-6.5 312274-09	13,000	<250	103
AOC2-13-7.5 312274-10	1,200	<250	90
AOC2-14-6.0-6.5 312274-12	1,700	<250	92
AOC2-14-8.5 312274-13	1,100	<250	90
AOC2-14-9.0 312274-14	220	<250	87

Date of Report: 12/27/23
Date Received: 12/15/23
Project: Smith Kem, F&BI 312274
Date Extracted: 12/19/23
Date Analyzed: 12/19/23

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
AOC2-15-6.0-6.5 312274-15	2,900	<250	88
AOC2-15-7.5 312274-20	<50	<250	83
Method Blank 03-2927 MB	<50	<250	80

Date of Report: 12/27/23
Date Received: 12/15/23
Project: Smith Kem, F&BI 312274
Date Extracted: 12/19/23
Date Analyzed: 12/21/23

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx
Sample Extracts Passed Through a Silica Gel Column Prior to Analysis
Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
AOC2-13-6.5 312274-09	13,000	<250	94
Method Blank 03-2927 MB	<50	<250	84

Date of Report: 12/27/23
Date Received: 12/15/23
Project: Smith Kem, F&BI 312274

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 312274-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	98	98	63-146	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	96	77-123

Date of Report: 12/27/23
Date Received: 12/15/23
Project: Smith Kem, F&BI 312274

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 312274-02 (Matrix Spike) Silica Gel

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	102	102	53-141	0

Laboratory Code: Laboratory Control Sample Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	106	71-126

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

k – The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

312274

SAMPLE CHAIN OF CUSTODY

12/15/23 G3

Page # 1 of 2

Report To Pamela Osterhout
Company Floyd Snider
Address 600 Union St, Suite 600
City, State, ZIP Seattle, WA
Phone 206 805-2188 Email

SAMPLERS (signature) Pam Osterhout

PROJECT NAME: Smith Kem

PO #:

REMARKS:

Project specific RLs? - Yes / No

INVOICE TO:

TURNAROUND TIME
☐ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Archive	Dx w SG			Notes
ADC4-09-5.5-6.0	01	12/14/23	08:30	Soil	1	✓											*hot
ADC4-09-7.0	02	"	08:35	"	1	✓											
ADC4-09-8.5	03	"	08:40	"	1								✓				
ADC2-11-6.0-6.5	04	"	09:55	"	1	✓											
ADC2-11-7.5	05	"	10:00	"	1	✓											
ADC2-12-6.5	06	"	14:25	"	1	✓											
ADC2-12-8.5-9.5	07	"	14:30	"	1	✓											
ADC2-12-10.0	08	"	14:35	"	1	✓											
ADC2-13-6.5	09	"	10:30	"	1	✓								A			*hot
ADC2-13-7.5	10	"	10:35	"	1	✓											

ANALYSES REQUESTED

A-per PO
12/19/23 ME

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Pam Osterhout	Pamela Osterhout	Floyd Snider	12/15/23	8:17
Received by:		ANH PHAN	FSI	12/15/23	08:17
Relinquished by:			Samples received at 2 °C		
Received by:					

Friedman & Bruya, Inc.
Ph. (206) 285-8282

312274

SAMPLE CHAIN OF CUSTODY

12/15/23 G3

Page # 2 of 2

Report To Pamela Osterhout

Company Floyd Snider

Address

City, State, ZIP

Phone Email

SAMPLERS (*signature*)

PROJECT NAME: Smith Kem

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
- ☑ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

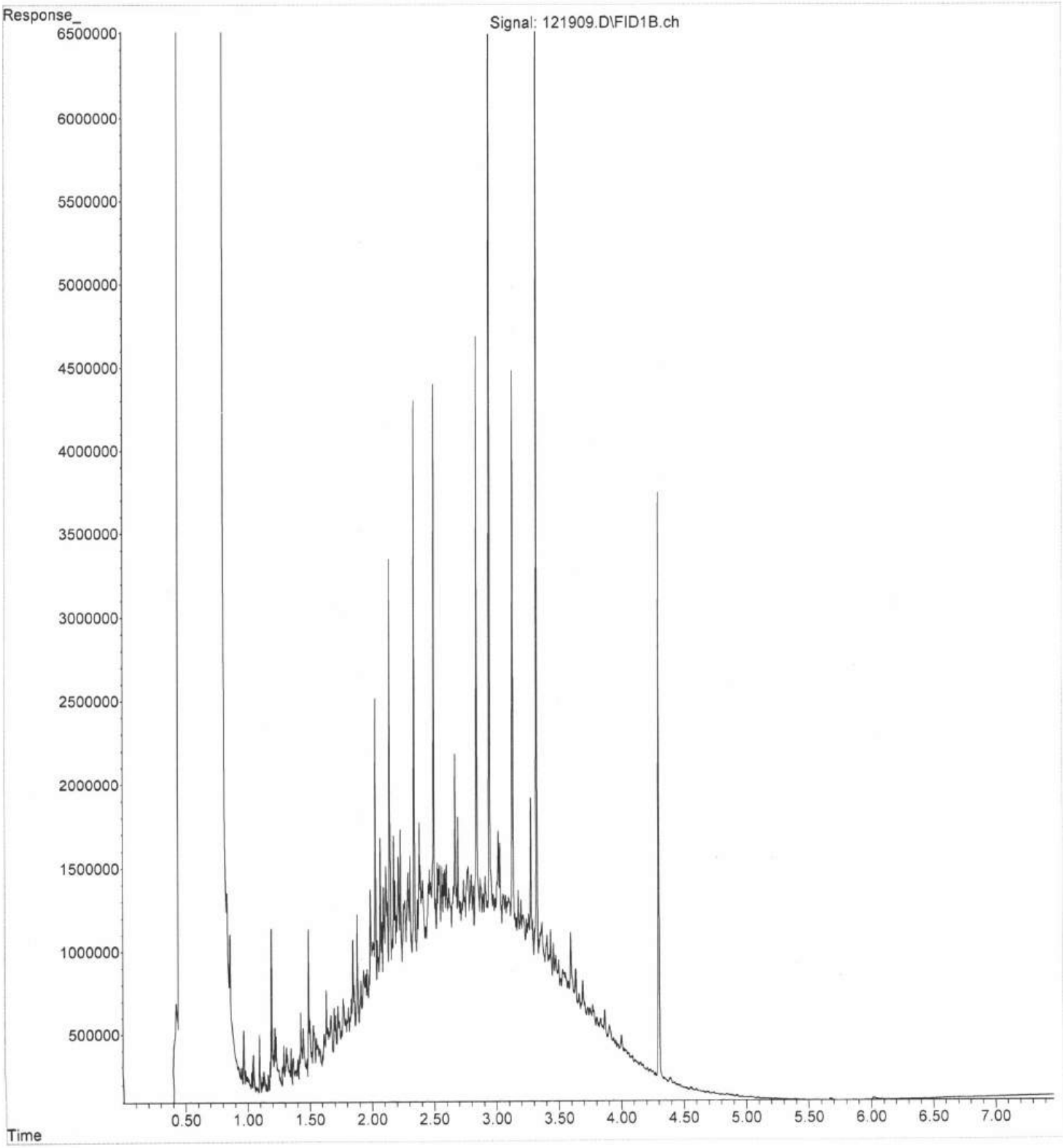
SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Archive				Notes
ADC2-13-10.0	11	12/14/23	10:40	S	1								✓				
ADC2-14-6.0-6.5	12		11:50		1	✓											
ADC2-14-8.5	13		11:55		1	✓											
ADC2-14-9.0	14		12:00		1	✓											
ADC2-15-6.0-6.5	15		11:15		1	✓											
ADC2-16-6.5	16		~~11:20~~ 13:45 PO		1	✓	PO						✓				
ADC2-16-8.5	17		13:50		1								✓				
ADC2-17-6.5	18		14:40		1								✓				
ADC2-17-8.5	19		14:45		1								✓				
ADC2-15-7.5	20		11:20		1	✓											

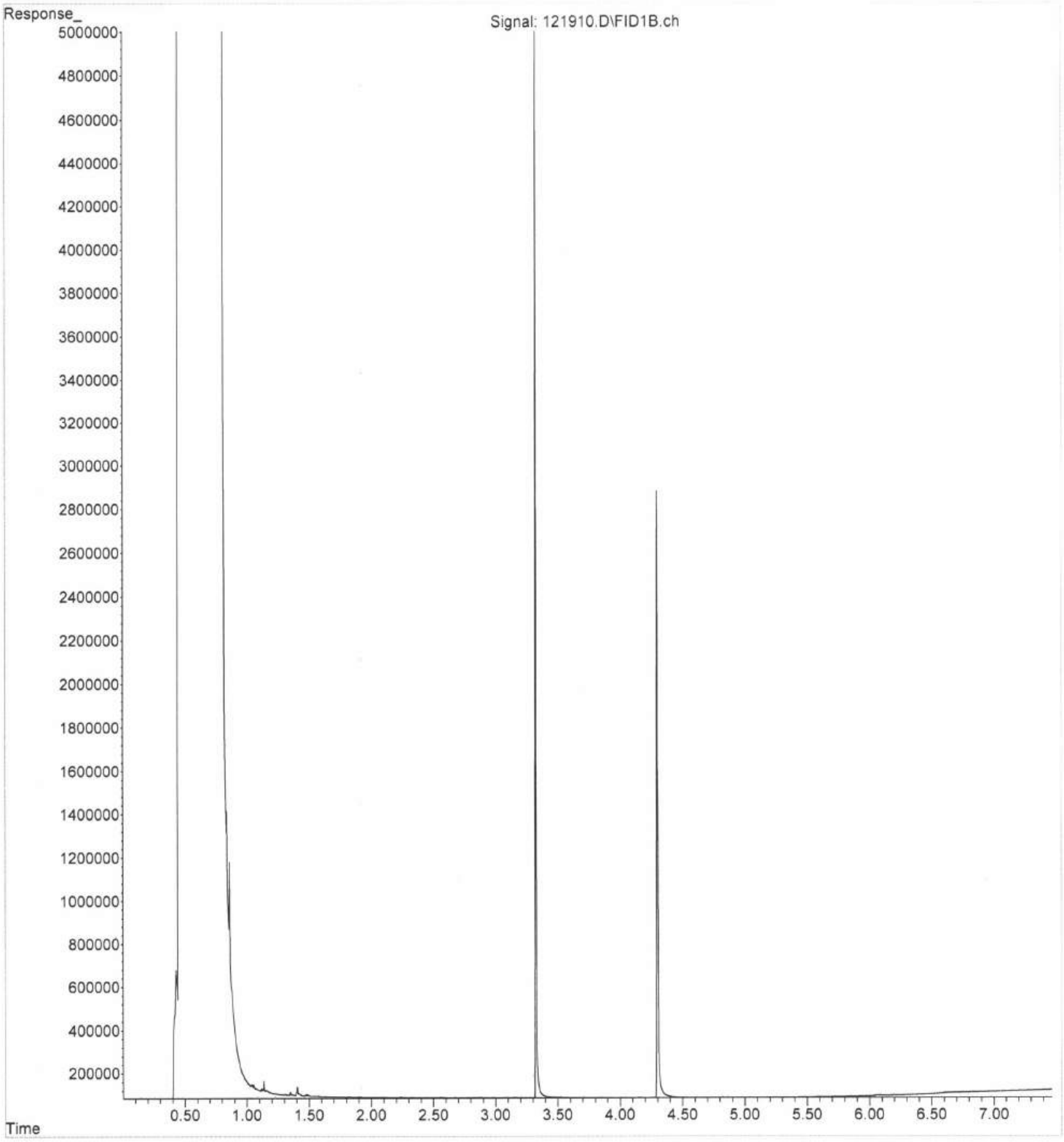
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Received by:	ANTHPHAN	F&S	12/15/23	08:17
Relinquished by:		Samples received at 2 °C		
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

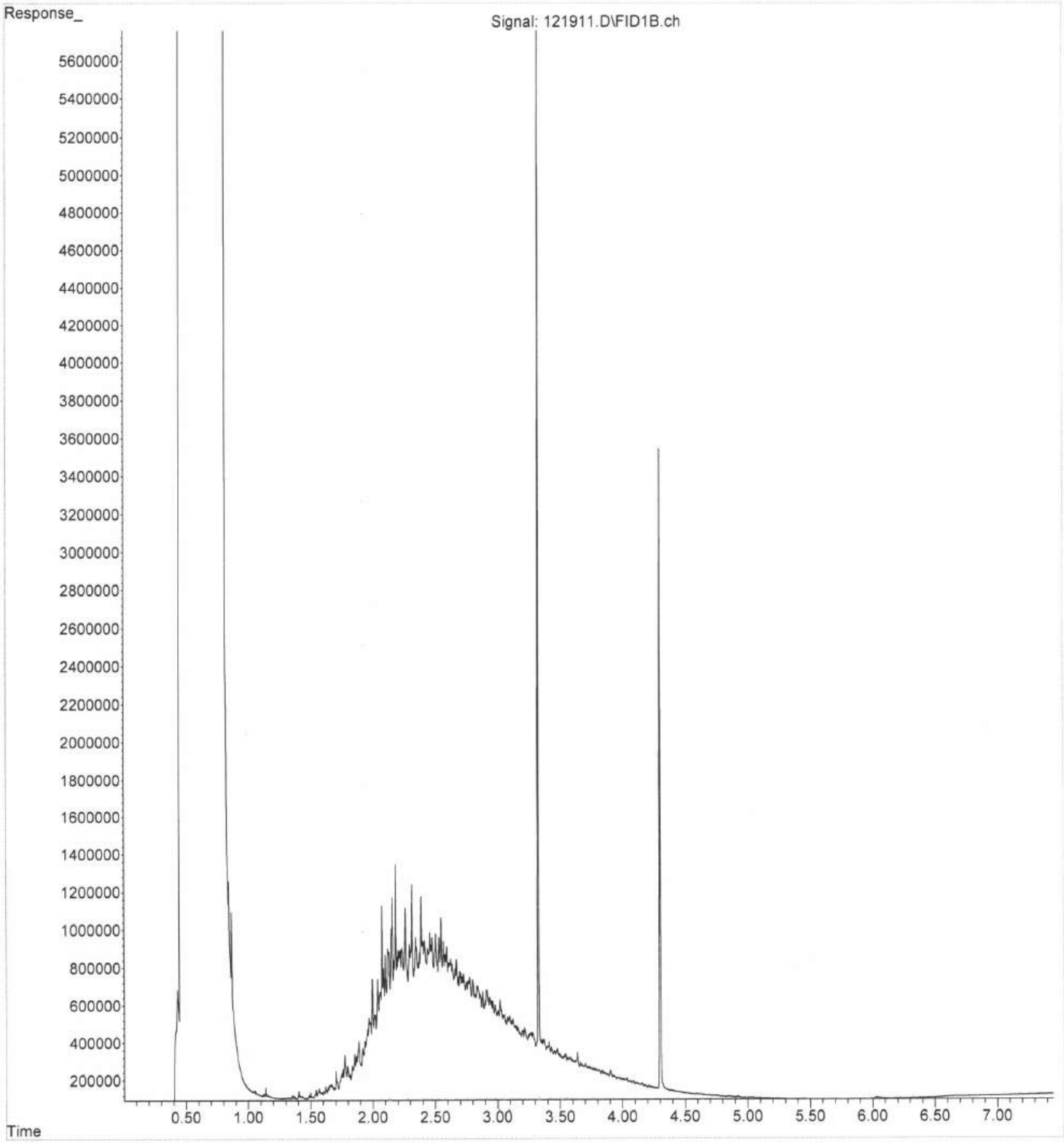
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Vial Number: 10



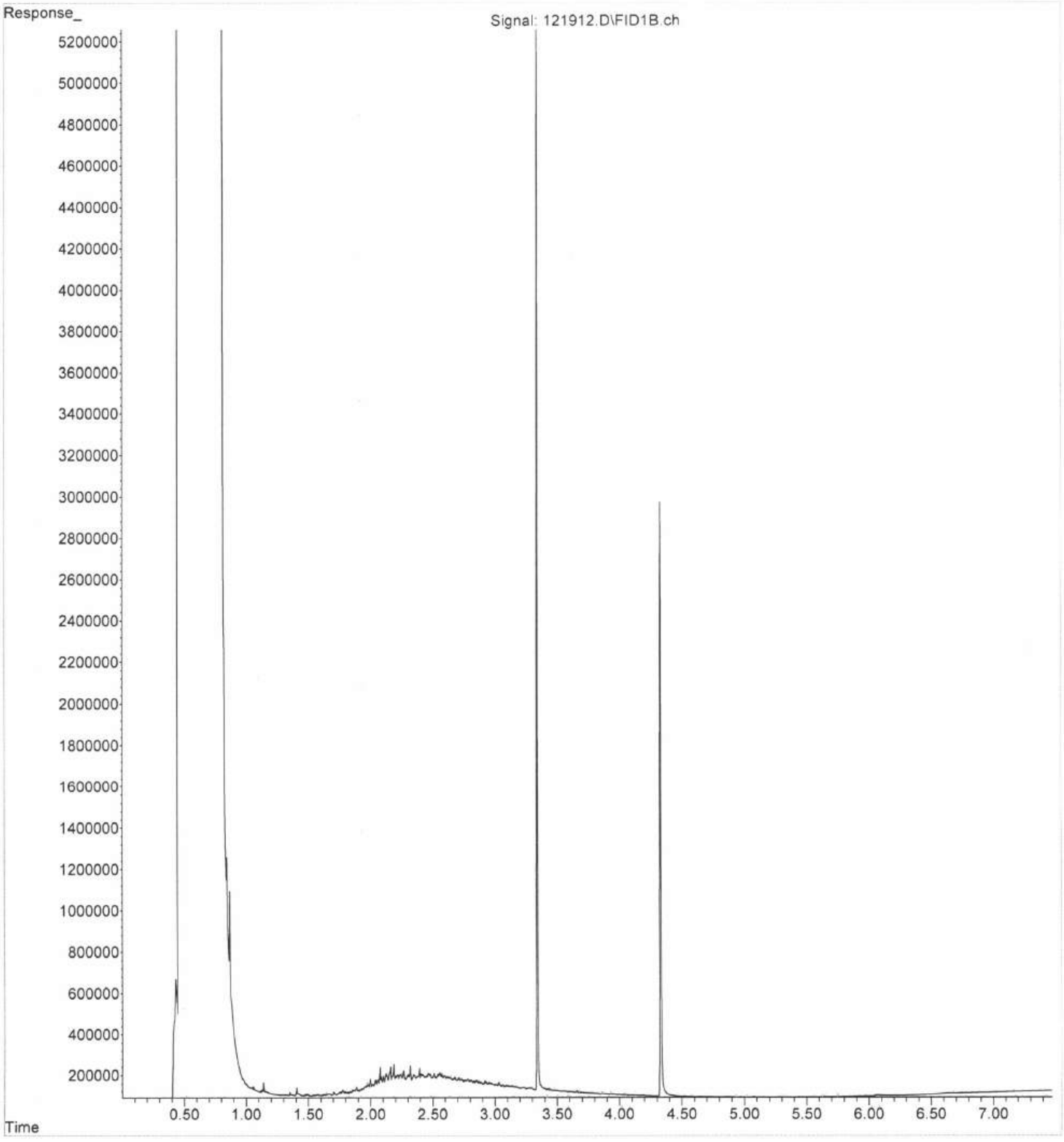
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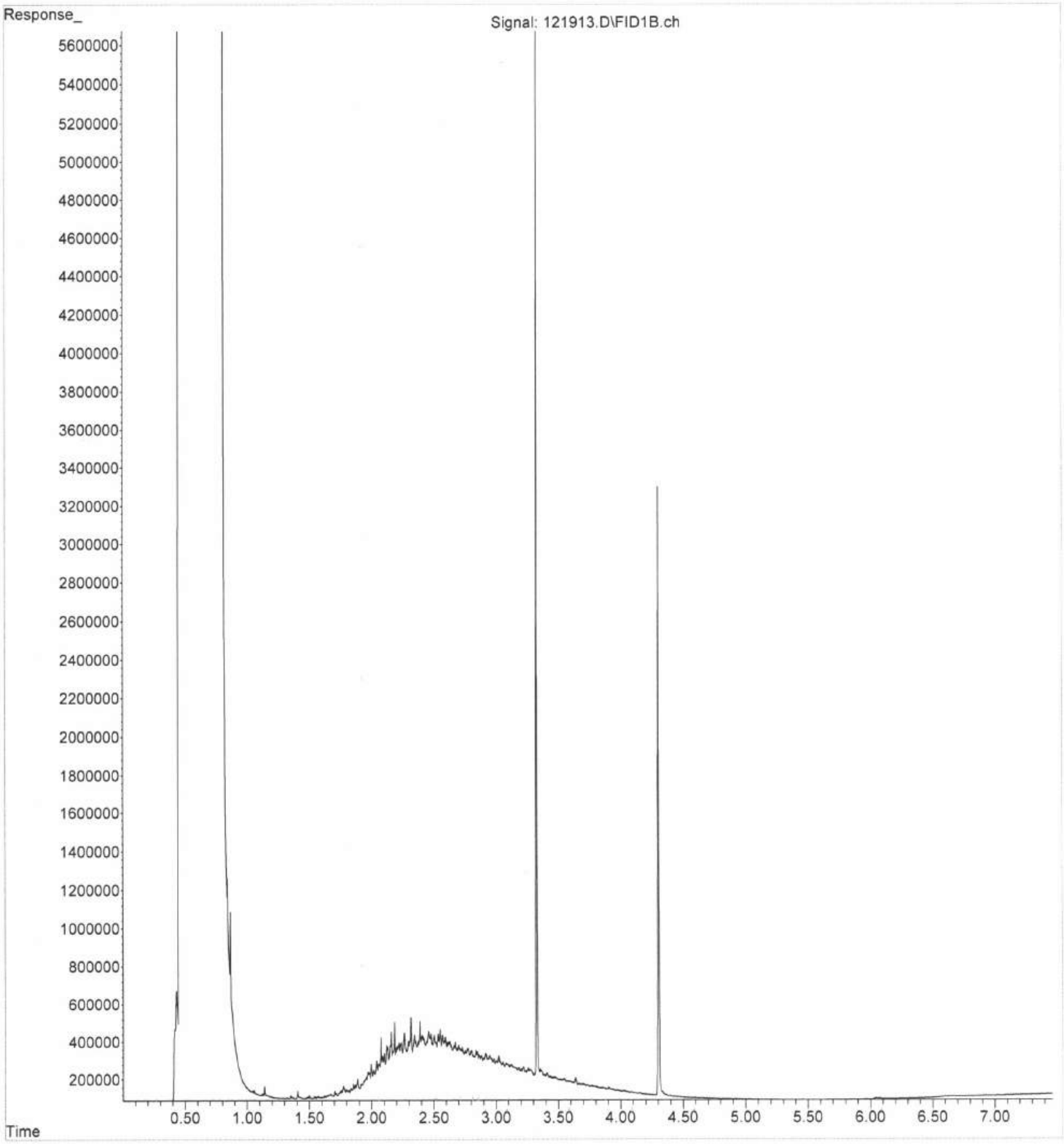
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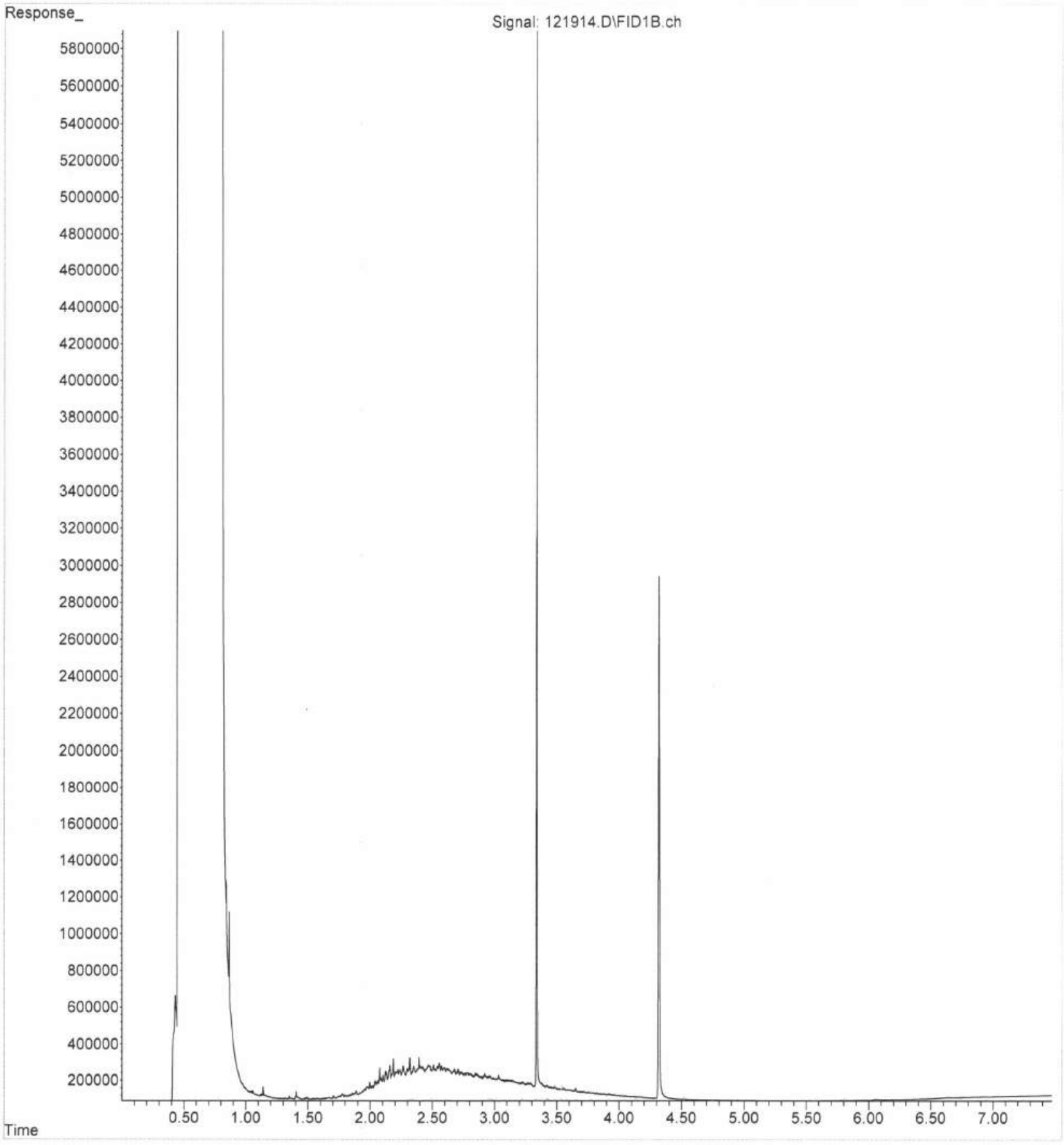
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Misc Info :
Vial Number: 13



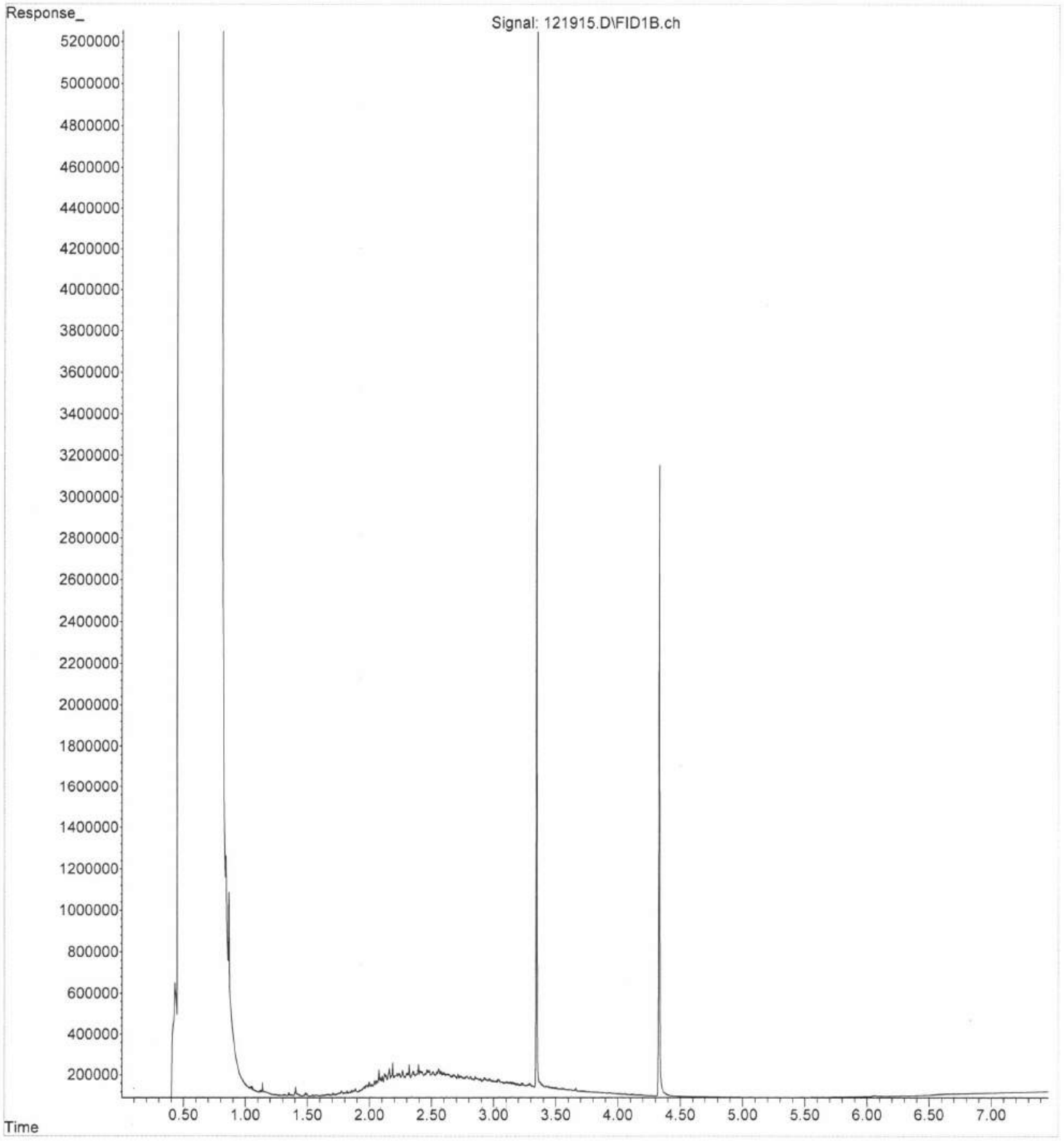
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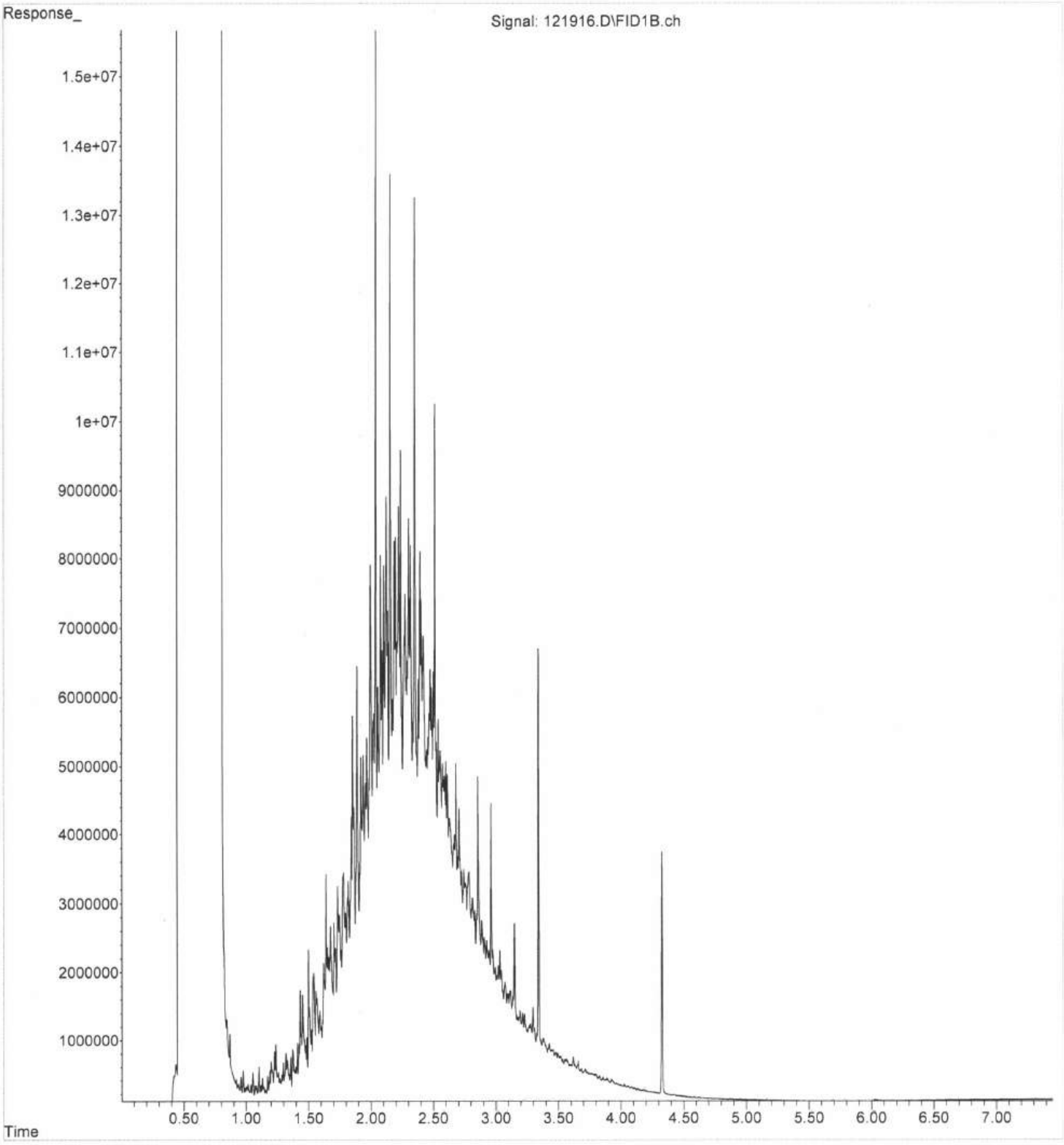
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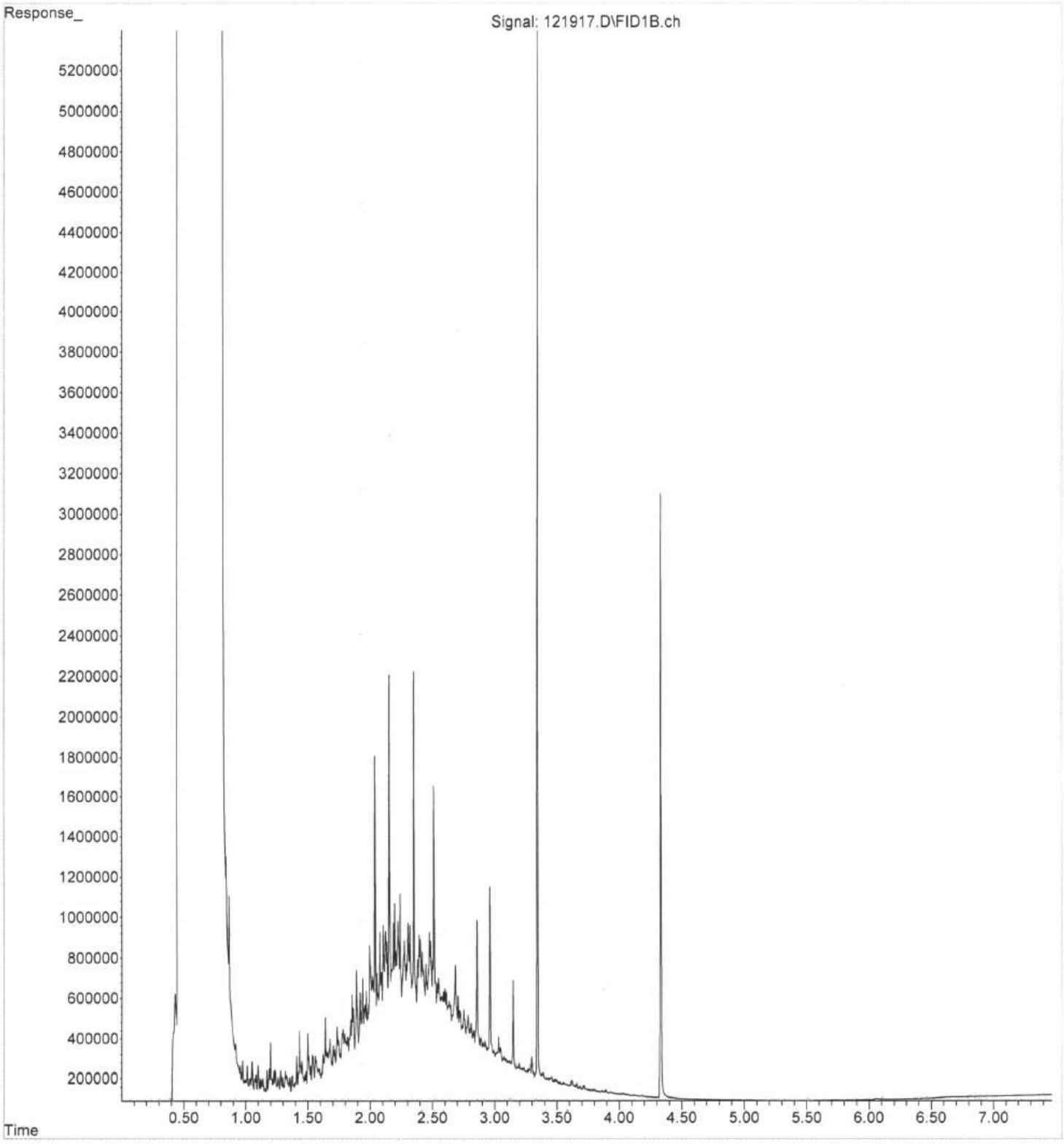
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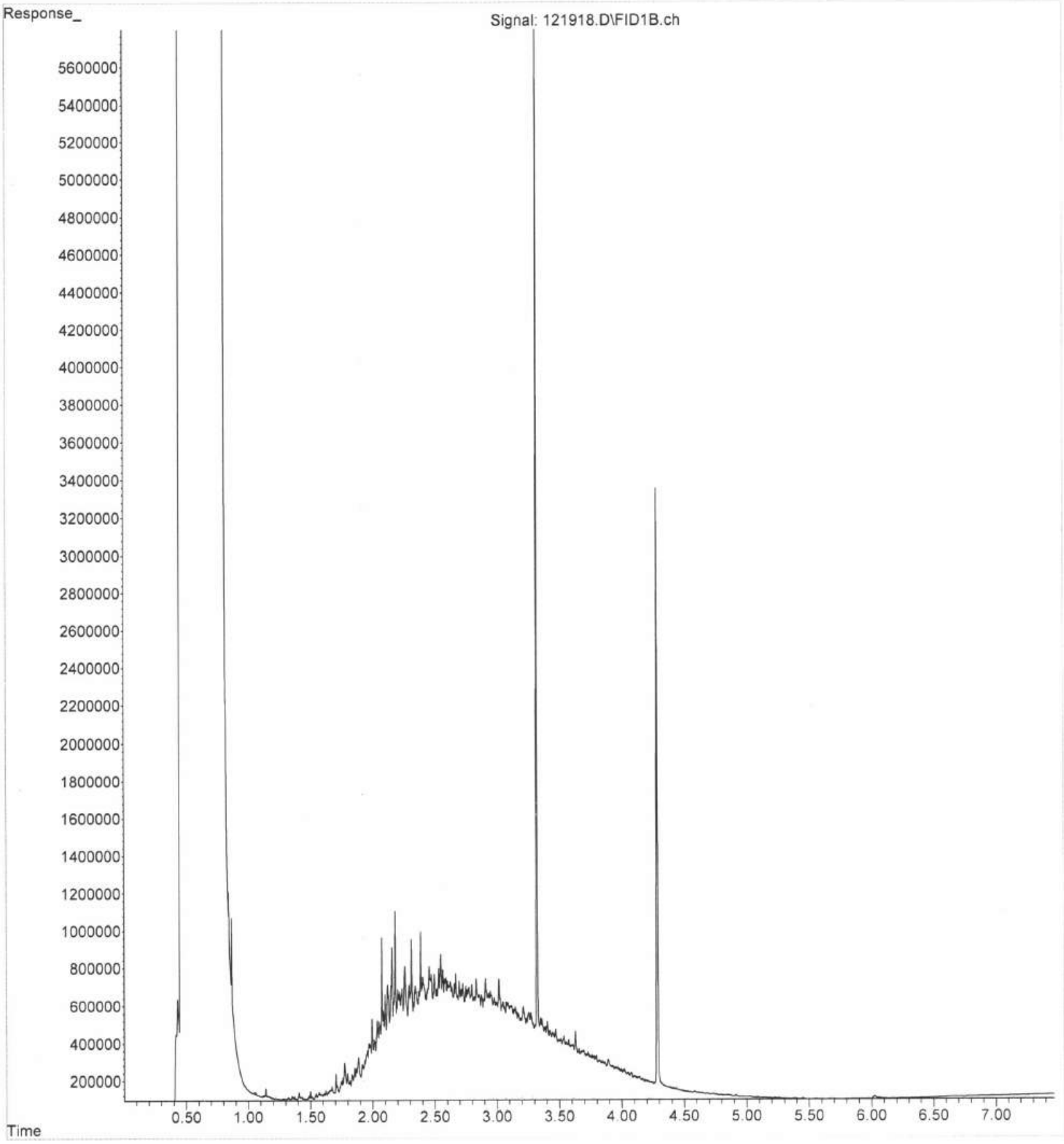
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Vial Number: 17



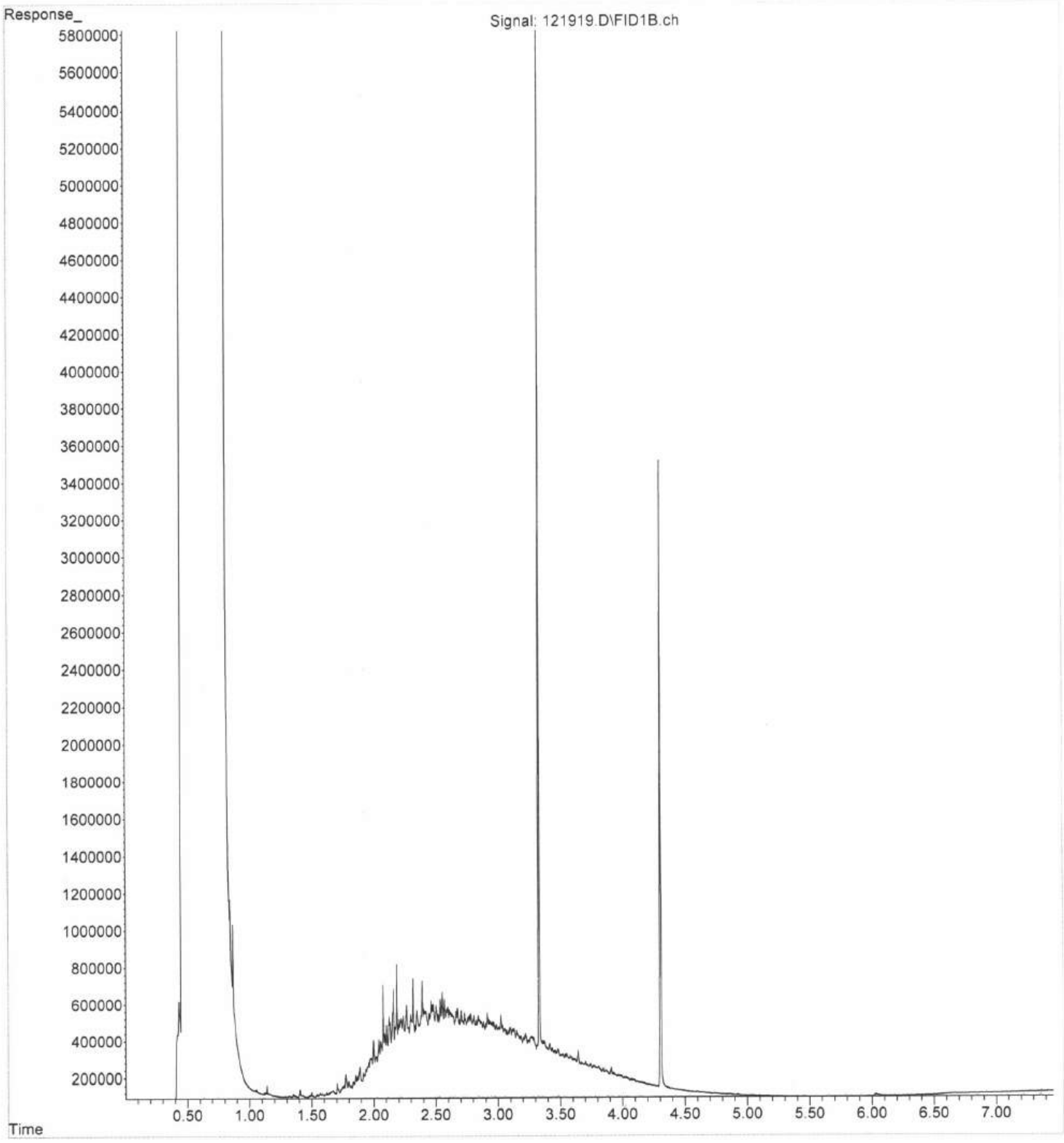
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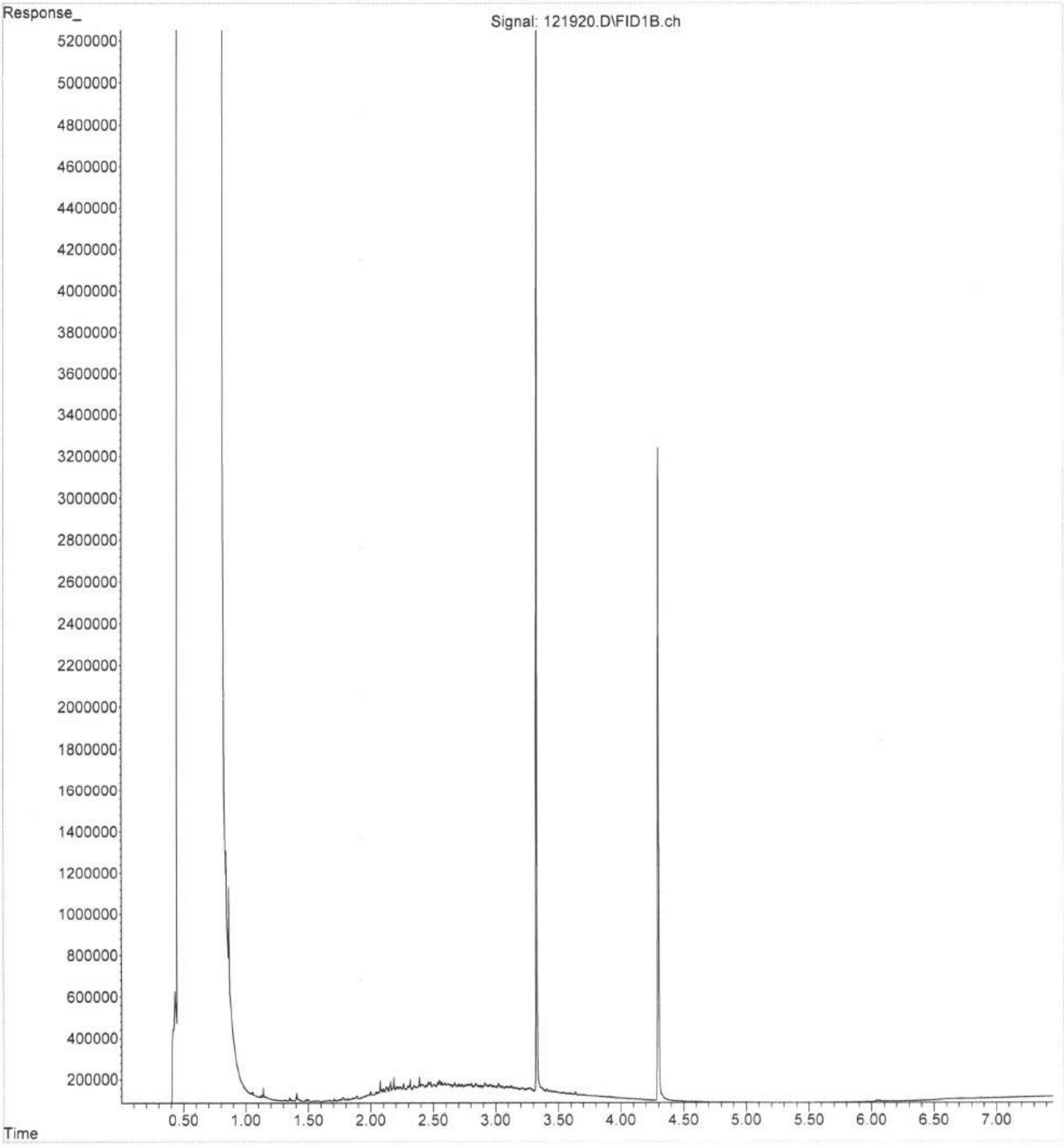
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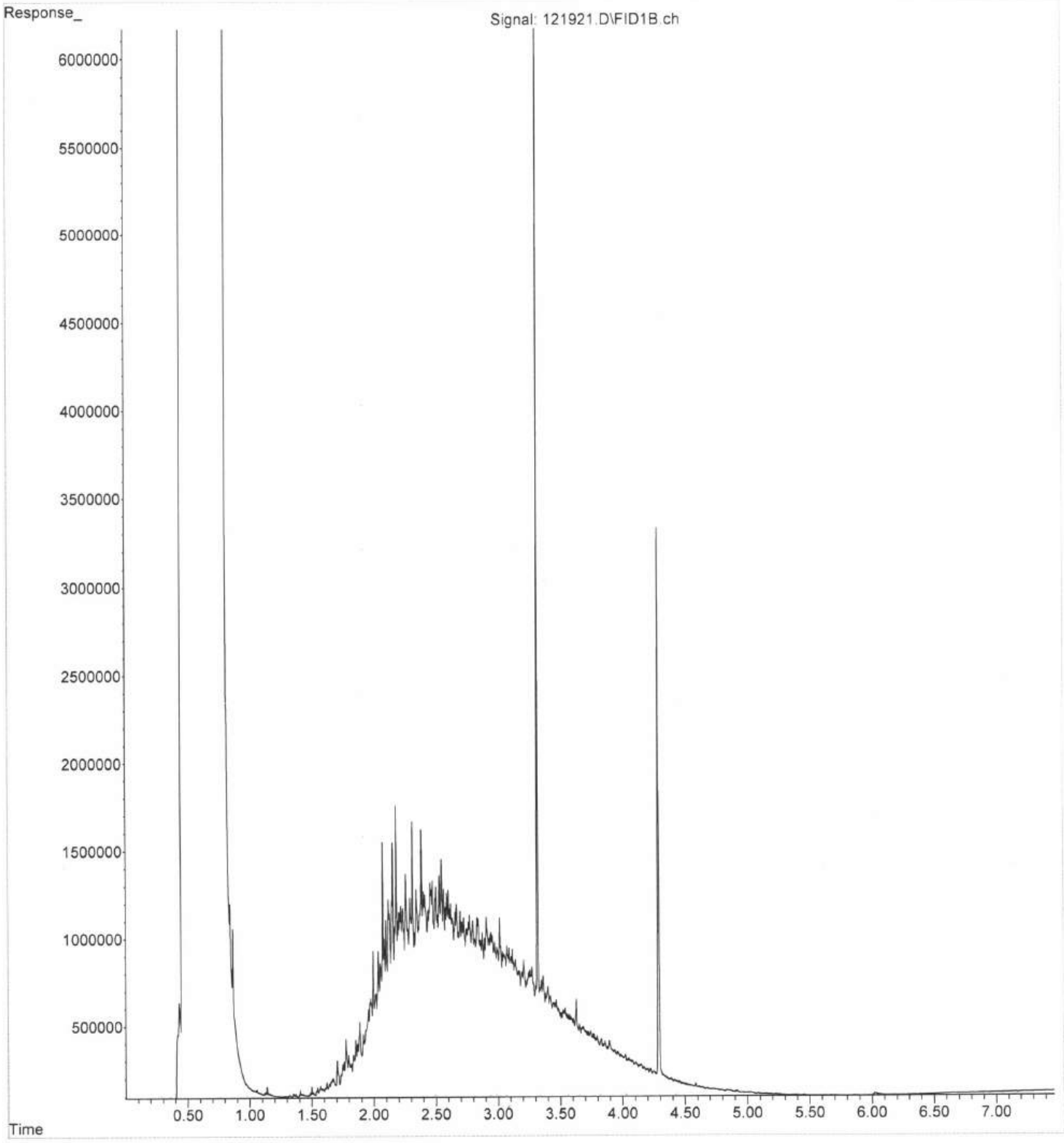
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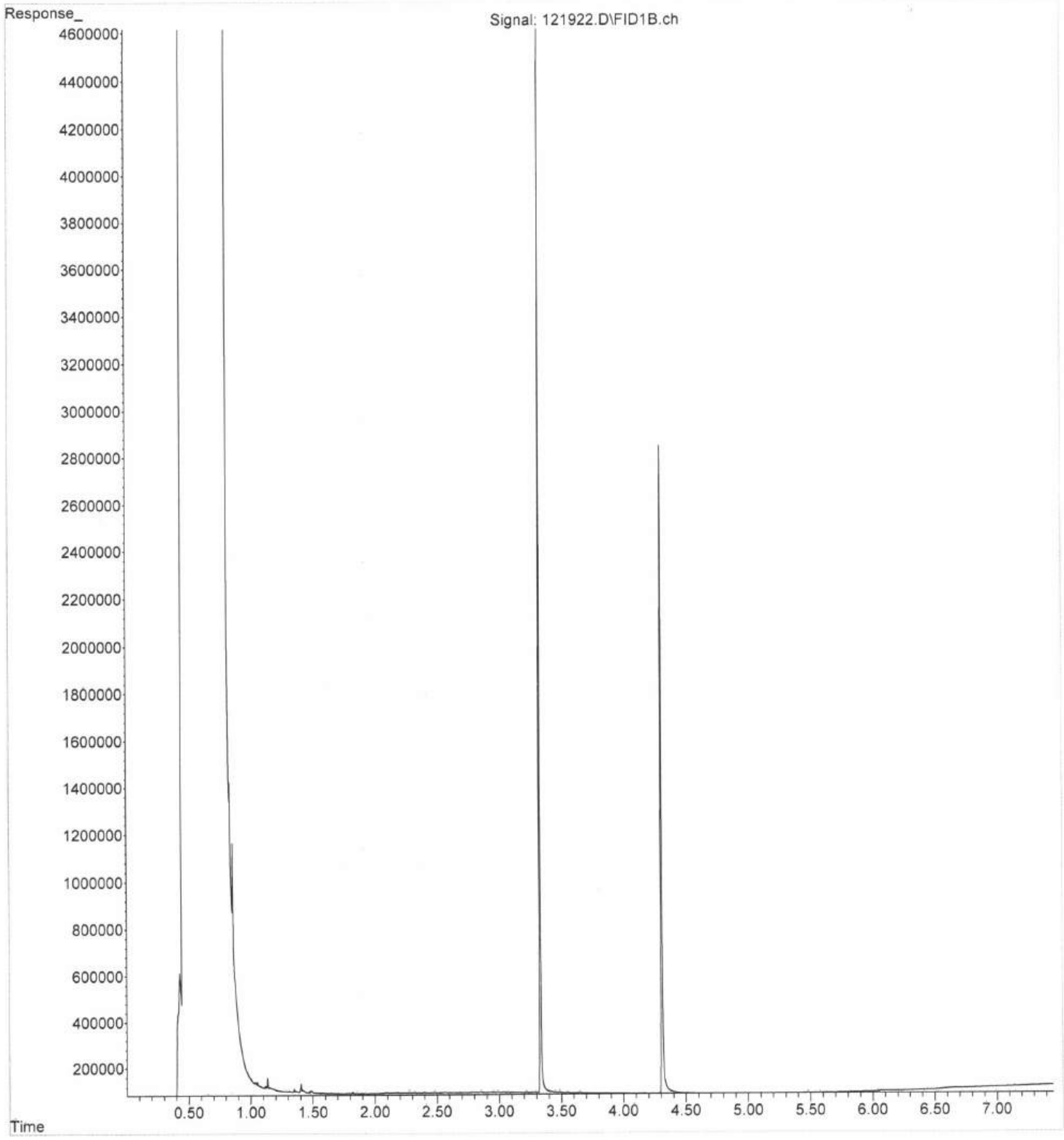
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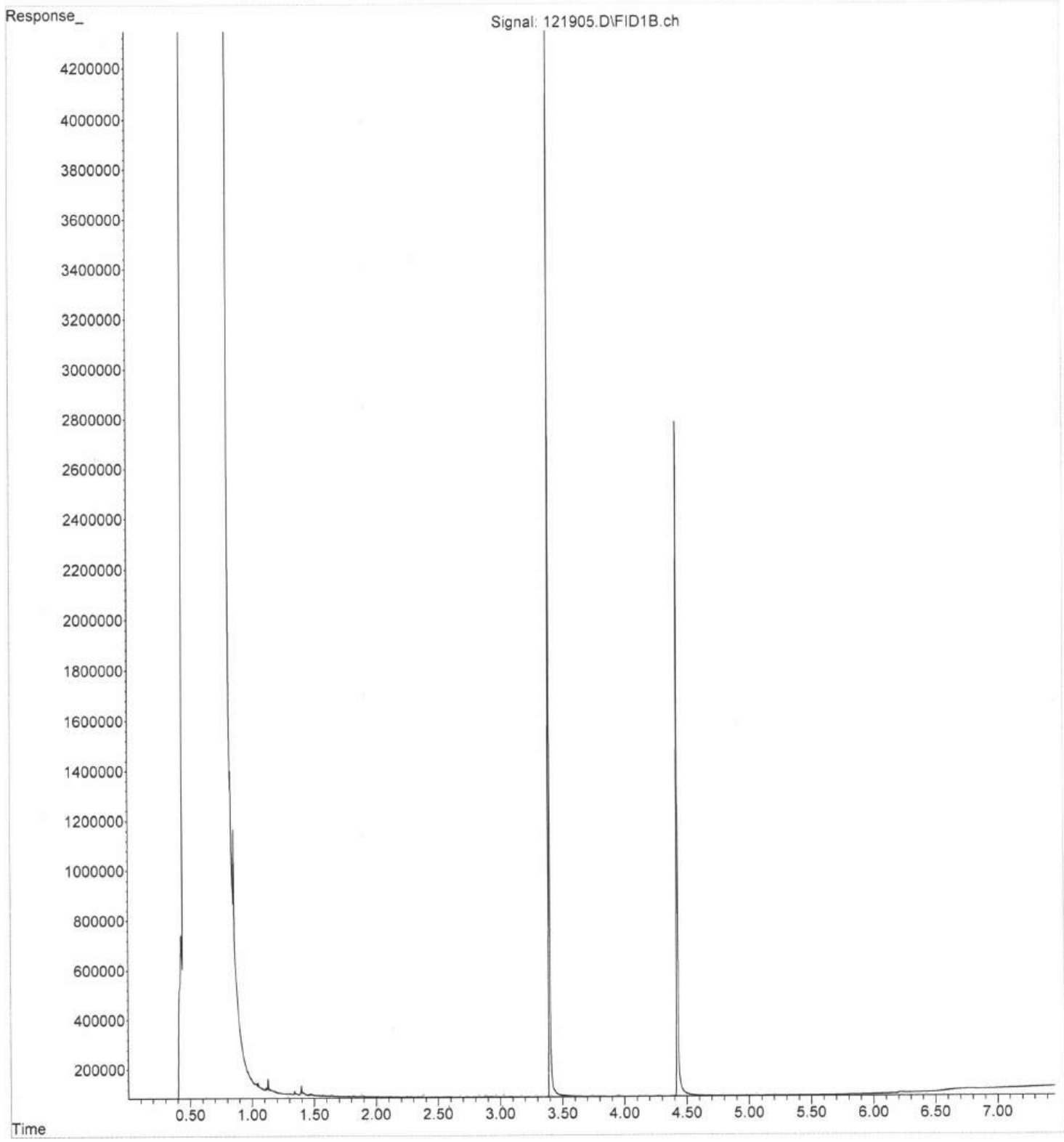
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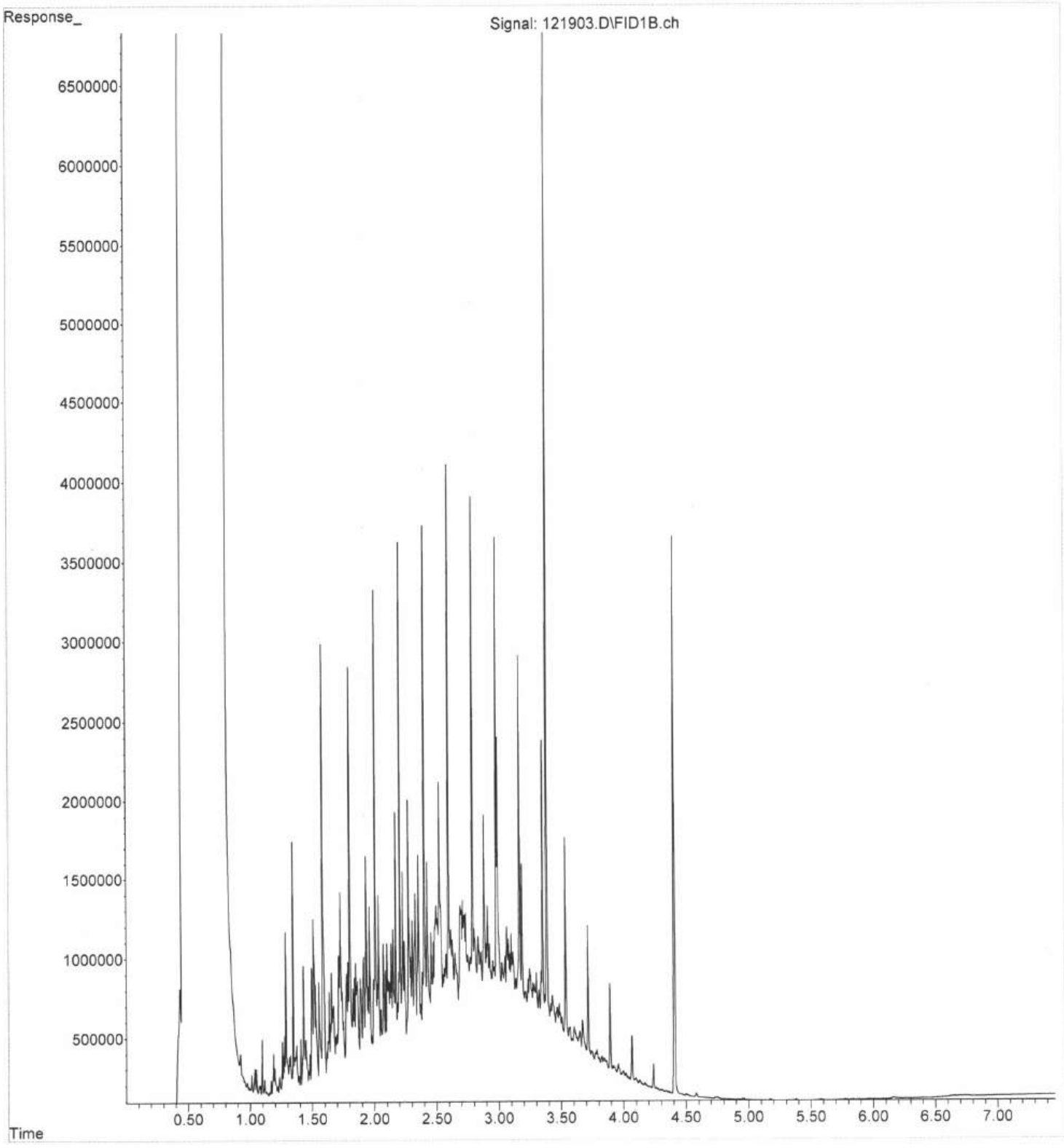
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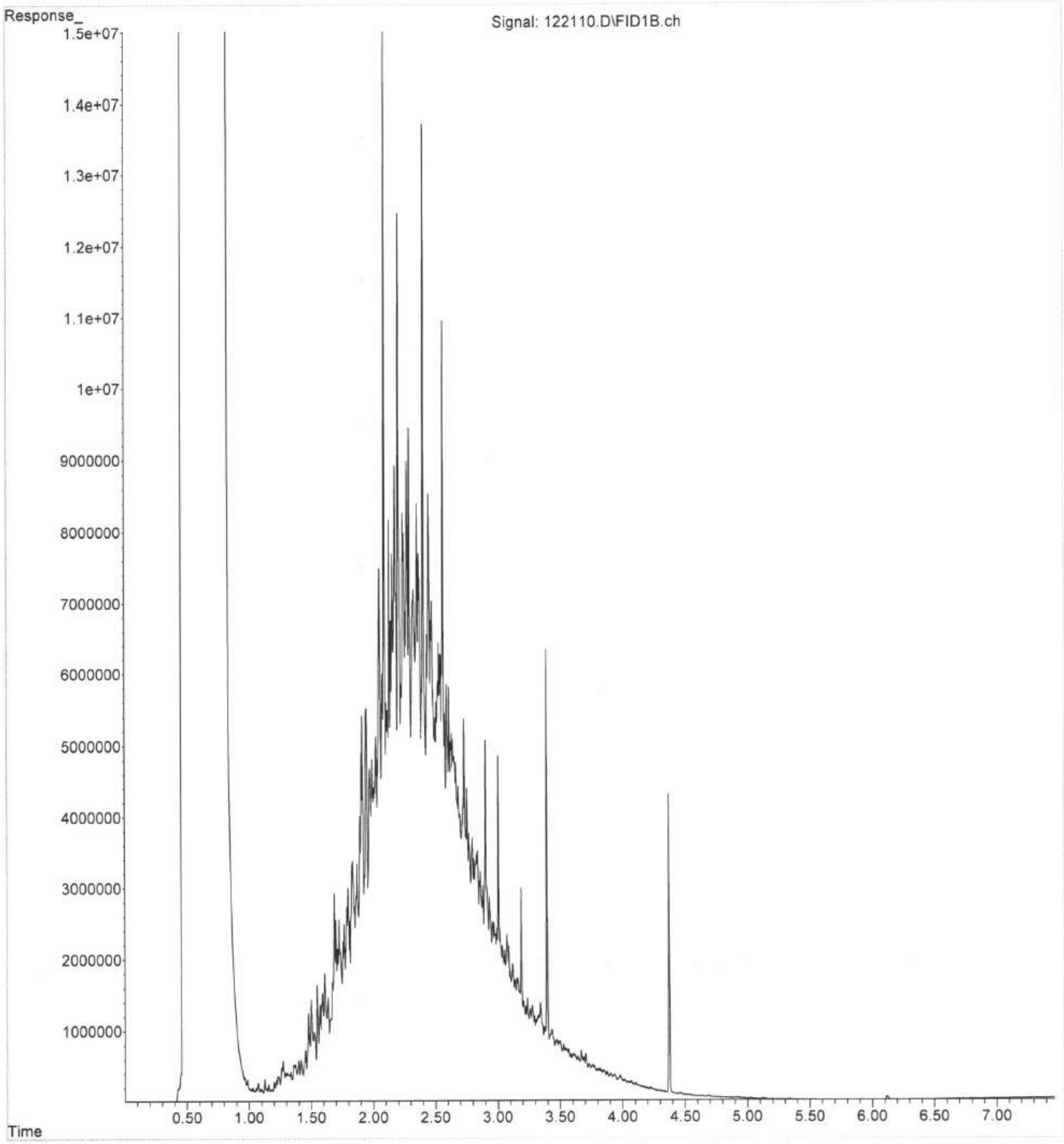
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Misc Info :
Vial Number: 7



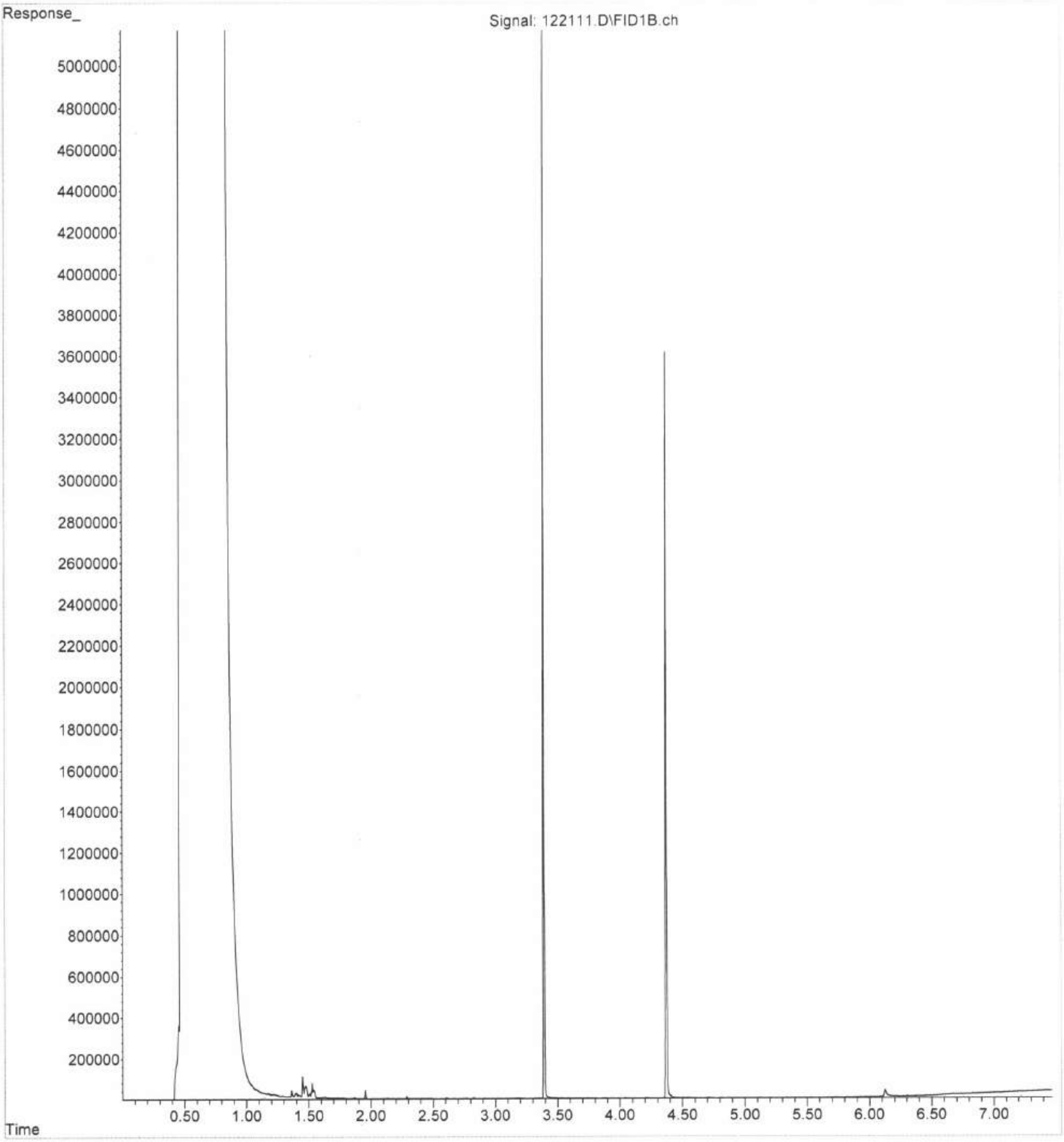
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Misc Info :
Vial Number: 3



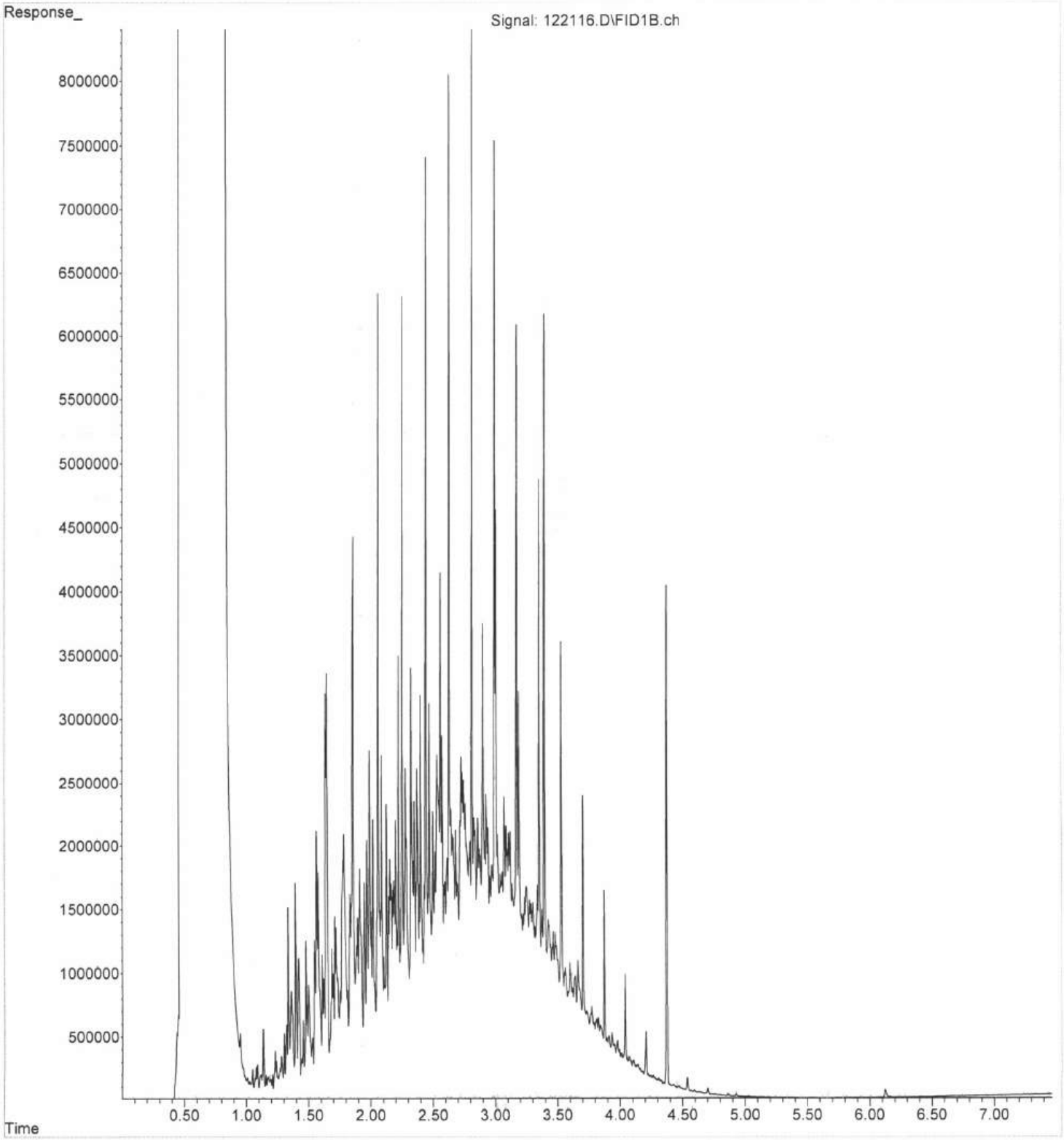
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Instrument : GC14
Sample Name: 312274-09 sg
Misc Info : ERR
Vial Number: 10



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Operator : IJL
Acquired : 21 Dec 2023 11:54 am using AcqMethod DX.M
Instrument : GC14
Sample Name: 03-2927 mb sg
Misc Info : ERR
Vial Number: 11



File :P:\Proc_GC14\12-21-23\122116.D
Operator : IJL
Acquired : 21 Dec 2023 02:16 pm using AcqMethod DX.M
Instrument : GC14
Sample Name: 1000 Dx 70-26G
Misc Info : ERR
Vial Number: 5



ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

January 11, 2024

Analytical Report for Service Request No: K2309259
Revised Service Request No: K2309259.01

Pamela Osterhout
Floyd Snider
601 Union Street, Suite 600
Seattle, WA 98101

RE: PKG Smith Kem

Dear Pamela,

Enclosed is the revised report for the sample(s) submitted to our laboratory August 17, 2023
For your reference, these analyses have been assigned our service request number **K2309259.**

The report has been revised to Level III.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at Mark.Harris@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental



Mark Harris
Project Manager

REVISED
10:30 am, Jan 11, 2024

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

Table of Contents

Acronyms
Qualifiers
State Certifications, Accreditations, And Licenses
Case Narrative
Chain of Custody
Steroids and Endocrine Disrupting Compounds

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

Client: Floyd Snider
Project: PKG Smith Kem
Sample Matrix: Water

Service Request: K2309259
Date Received: 08/17/2023

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier III level requested by the client.

Sample Receipt:

Two water samples were received for analysis at ALS Environmental on 08/17/2023. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivolatiles by GC/MS:

No significant anomalies were noted with this analysis.

Subcontracted Analytical Parameters:

No significant anomalies were noted with this analysis.

Organic LC:

Method 1694M, 08/24/2023:The internal standard recovery of Atrazine-C13 in both samples was outside control criteria due to suspected matrix interference. The samples were analyzed at a dilution with acceptable results. All analytes were reported from the diluted analysis. The reporting limits were elevated to reflect the dilution. No further corrective action was taken.

Approved by _____ Date 01/11/2024

Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

CHAIN OF CUSTODY

132385

132385

002

SR# K2309259

COC Set 1 of 1

COC#

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: PKG Smith Kem | Project Number:

Project Manager: Pamela Osterhout

Company: Floyd Snider

Address, City, State: 601 Union St, Suite 600, Seattle, WA

Phone #: 206-387-9440 | email:

Sampler Signature: [signature] | Sampler Printed Name: Pamela Osterhout

CLIENT SAMPLE ID	LABID	SAMPLING Date Time State	Matrix	NUMBER OF CONTAINERS	8081B / Pest QC LL	8270D / SVO LL	7D Arizona Method Hydrocarbon 3511 Extraction	2	3	4	5	Remarks
1. MW-1-081523		8/15/23 12:50	GW	6	✓	✓	✓					
2. MW-6-081623		8/16/23 8:20	GW	6	✓	✓	✓					
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

X II. Report Dup., MS, MSD as required

___ III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

X V. EDD

Invoice Information

P.O.# PKG-Smith Kem

Bill To: Floyd Snider

Turnaround Requirements

___ 24 hr. ___ 48 hr.

___ 5 Day

X Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

~~X~~ 8091 List: ~~Aldrin, Chlordane, Dieldrin, and Toxaphene~~ w/ ~~extraction method~~ AZ H 3511

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: [signature]	Signature: [signature]	Signature	Signature	Signature	Signature
Printed Name: P. Osterhout	Printed Name: Daniel Swarz	Printed Name	Printed Name	Printed Name	Printed Name
Firm: Floyd Snider	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 8/16/23 13:00	Date/Time: 8/18/23 1050	Date/Time	Date/Time	Date/Time	Date/Time

Via FedEx

PM Mark

Cooler Receipt and Preservation Form

Client Floyd Service Request K23 09259

Received: 8-17-23 Opened: 8-17-23 By: DS Unloaded: 8-17-23 By: DS

1. Samples were received via? USPS (Fed Ex) UPS DHL PDX Courier Hand Delivered
2. Samples were received in: (circle) (Cooler) Box Envelope Other _____ NA
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 1 Front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
7.0	5.6	IR02				773076619300	
		~~IR07~~				773074806572 DS	

4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column above:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # above and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

6. Packing material: *Inserts* *Baggies* *Bubble Wrap* (*Gel Packs*) (*Wet Ice*) *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA Y (N)
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
14. Was C12/Res negative? (NA) Y N
15. Were samples received within the method specified time limit? If not, notate the error below and notify the PM (NA) Y N
16. Were 100ml sterile microbiology bottles filled exactly to the 100ml mark? (NA) Y N Underfilled Overfilled

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: Temp was further away from IR gun. Received 3 out of 6 on both samples.

Steroids and Endocrine Disrupting Compounds

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2309259
Project:	PKG Smith Kem	**Date Collected:**	08/15/23 12:50
Sample Matrix:	Water	**Date Received:**	08/17/23 10:20
Sample Name:	MW-1-081523	**Units:**	ng/L
Lab Code:	K2309259-001	**Basis:**	NA

Steroids and Endocrine Disrupting Compounds

Analysis Method: 1694M
Prep Method: Method

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Atrazine	**310**	9.9	10	08/24/23 19:06	8/22/23	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2309259
Project:	PKG Smith Kem	**Date Collected:**	08/15/23 08:20
Sample Matrix:	Water	**Date Received:**	08/17/23 10:20
Sample Name:	MW-6-081623	**Units:**	ng/L
Lab Code:	K2309259-002	**Basis:**	NA

Steroids and Endocrine Disrupting Compounds

Analysis Method: 1694M
Prep Method: Method

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Atrazine	**220**	9.6	10	08/24/23 19:26	8/22/23	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2309259
Project:	PKG Smith Kem	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/L
Lab Code:	KQ2314673-01	**Basis:**	NA

Steroids and Endocrine Disrupting Compounds

Analysis Method: 1694M
Prep Method: Method

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Atrazine	ND U	1.0	1	08/24/23 18:45	8/22/23	

Client: Floyd Snider **Service Request:**K2309259
Project: PKG Smith Kem **Date Analyzed:**08/24/23 17:21

Internal Standard Area and RT SUMMARY
Steroids and Endocrine Disrupting Compounds

File ID: J:\LCMS03\DATA\230824L\230824L-0003.wiff **Lab Code:**KQ2314959-01
Instrument ID: K-LCMS-03 **Analysis Lot:**815063
Analysis Method: 1694M **Signal ID:**1

	13C3-Atrazine	
	Area	**RT**
Result ==>	81,077,000	10.8
Upper Limit ==>	162,154,000	11.05
Lower Limit ==>	40,538,500	10.55

Associated Analyses

Continuing Calibration Verification	KQ2314959-01	81077000	10.8
Continuing Calibration Blank	KQ2314959-02	81610000	10.8
Lab Control Sample	KQ2314673-02	82401000	10.8
Duplicate Lab Control Sample	KQ2314673-03	85057000	10.8
Method Blank	KQ2314673-01	81889000	10.8
MW-1-081523	K2309259-001	64882000	10.8
MW-6-081623	K2309259-002	52369000	10.8

Client:	Floyd Snider	**Service Request:**	K2309259
Project:	PKG Smith Kem	**Date Analyzed:**	08/24/23
Sample Matrix:	Water	**Date Extracted:**	08/22/23

Duplicate Lab Control Sample Summary
Steroids and Endocrine Disrupting Compounds

Analysis Method:	1694M	**Units:**	ng/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	815063

	Lab Control Sample KQ2314673-02			Duplicate Lab Control Sample KQ2314673-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Atrazine	46.2	50.0	92	47.1	50.0	94	41-126	2	30

Client:	Floyd Snider	**Service Request:**	K2309259
Project:	PKG Smith Kem	**Date Analyzed:**	08/24/23 18:45
Sample Matrix:	Water	**Date Extracted:**	08/22/23

Method Blank Summary
Steroids and Endocrine Disrupting Compounds

Sample Name:	Method Blank	**Instrument ID:**	K-LCMS-03
Lab Code:	KQ2314673-01	**File ID:**	J:\LCMS03\DATA\230824L\230824L-0007.wiff
Analysis Method:	1694M	**Analysis Lot:**	815063
Prep Method:	Method	**Extraction Lot:**	425149

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ2314673-02	J:\LCMS03\DATA\230824L\230824L-0005.wiff	08/24/23 18:03
Duplicate Lab Control Sample	KQ2314673-03	J:\LCMS03\DATA\230824L\230824L-0006.wiff	08/24/23 18:24
MW-1-081523	K2309259-001	J:\LCMS03\DATA\230824L\230824L-0008.wiff	08/24/23 19:06
MW-6-081623	K2309259-002	J:\LCMS03\DATA\230824L\230824L-0009.wiff	08/24/23 19:26

Client:	Floyd Snider	**Service Request:**	K2309259
Project:	PKG Smith Kem	**Date Analyzed:**	08/24/23 18:03
Sample Matrix:	Water	**Date Extracted:**	08/22/23

Lab Control Sample Summary
Steroids and Endocrine Disrupting Compounds

Sample Name:	Lab Control Sample	**Instrument ID:**	K-LCMS-03
Lab Code:	KQ2314673-02	**File ID:**	J:\LCMS03\DATA\230824L\230824L-0005.wiff
Analysis Method:	1694M	**Analysis Lot:**	815063
Prep Method:	Method	**Extraction Lot:**	425149

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Duplicate Lab Control Sample	KQ2314673-03	J:\LCMS03\DATA\230824L\230824L-0006.wiff	08/24/23 18:24
Method Blank	KQ2314673-01	J:\LCMS03\DATA\230824L\230824L-0007.wiff	08/24/23 18:45
MW-1-081523	K2309259-001	J:\LCMS03\DATA\230824L\230824L-0008.wiff	08/24/23 19:06
MW-6-081623	K2309259-002	J:\LCMS03\DATA\230824L\230824L-0009.wiff	08/24/23 19:26

Client: Floyd Snider
Project: PKG Smith Kem

Service Request: K2309259
Calibration Date: 8/4/2023

Initial Calibration Summary
Steroids and Endocrine Disrupting Compounds

Calibration ID: KC2300464
Instrument ID: K-LCMS-03

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC2300464-01	PPCP CAL 0.50ppb	230804L\0002.wiff	08/04/2023 11:05
02	KC2300464-02	PPCP CAL 1.0ppb	230804L\0003.wiff	08/04/2023 11:26
03	KC2300464-03	PPCP CAL 2.0ppb	230804L\0004.wiff	08/04/2023 11:47
04	KC2300464-04	PPCP CAL 3.0ppb	230804L\0005.wiff	08/04/2023 12:08
05	KC2300464-05	PPCP CAL 4.0ppb	230804L\0006.wiff	08/04/2023 12:29
06	KC2300464-06	PPCP CAL 5.0ppb	230804L\0007.wiff	08/04/2023 12:50
07	KC2300464-07	PPCP CAL 10ppb	230804L\0008.wiff	08/04/2023 13:11
08	KC2300464-08	PPCP CAL 20ppb	230804L\0009.wiff	08/04/2023 13:31
09	KC2300464-09	PPCP CAL 50ppb	230804L\0010.wiff	08/04/2023 13:52
10	KC2300464-10	PPCP CAL 100ppb	230804L\0011.wiff	08/04/2023 14:13
11	KC2300464-11	PPCP CAL 200ppb	230804L\0012.wiff	08/04/2023 14:34

Analyte

Atrazine

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	0.1168	02	1.00	0.1005	03	2.00	0.1043	06	5.00	0.0979
07	10.0	0.09517	08	20.0	0.09021	09	50.0	0.0982	10	100.	0.09223
11	200.	0.09478									

Client: Floyd Snider
Project: PKG Smith Kem

Service Request: K2309259
Calibration Date: 8/4/2023

Initial Calibration Summary
Steroids and Endocrine Disrupting Compounds

Calibration ID: KC2300464
Instrument ID: K-LCMS-03

Signal ID: 1

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Atrazine	TRG	Average RF	% RSD	8.0	≤20	0.0989	

Client: Floyd Snider
Project: PKG Smith Kem

Service Request: K2309259
Calibration Date: 8/4/2023

Initial Calibration Verification Summary
Steroids and Endocrine Disrupting Compounds

Calibration ID: KC2300464
Instrument ID: K-LCMS-03

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
12	KC2300464-12	ICV MIX (A&B)	230804L\0014.wiff	08/04/2023 15:16

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Atrazine	10.0	7.43	9.89E-2	7.353E-2	-25.655	±30	Average RF

Client: Floyd Snider
Project: PKG Smith Kem

Service Request: K2309259
Date Analyzed: 08/24/23 17:21

Continuing Calibration Verification (CCV) Summary
Steroids and Endocrine Disrupting Compounds

Analysis Method: 1694M
File ID: J:\LCMS03\DATA\230824L\230824L-0003.wiff
Signal ID: 1

Calibration Date: 8/4/2023
Calibration ID: KC2300464
Analysis Lot: 815063
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
Atrazine	10.0	12.2	0.099	0.120	122	NA	±30	Average RF

Client: Floyd Snider **Service Request:**K2309259
Project: PKG Smith Kem

Analysis Run Log
Steroids and Endocrine Disrupting Compounds

Analysis Method: 1694M **Analysis Lot:**815063
Instrument ID:K-LCMS-03

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\LCMS03\DATA\230824L\230824L-0003.wiff	Continuing Calibration Verification	KQ2314959-01	8/24/2023	17:21:41	
J:\LCMS03\DATA\230824L\230824L-0004.wiff	Continuing Calibration Blank	KQ2314959-02	8/24/2023	17:42:31	
J:\LCMS03\DATA\230824L\230824L-0005.wiff	Lab Control Sample	KQ2314673-02	8/24/2023	18:03:26	
J:\LCMS03\DATA\230824L\230824L-0006.wiff	Duplicate Lab Control Sample	KQ2314673-03	8/24/2023	18:24:19	
J:\LCMS03\DATA\230824L\230824L-0007.wiff	Method Blank	KQ2314673-01	8/24/2023	18:45:10	
J:\LCMS03\DATA\230824L\230824L-0008.wiff	MW-1-081523	K2309259-001	8/24/2023	19:06:06	
J:\LCMS03\DATA\230824L\230824L-0009.wiff	MW-6-081623	K2309259-002	8/24/2023	19:26:55	

Prep Summary Report

Client: Floyd Snider **Service Request:**K2309259
Project: PKG Smith Kem
Sample Matrix: Water

Steroids and Endocrine Disrupting Compounds

Prep Method: Method **Extraction Lot:** 425149
Analytical Method: 1694M **Extraction Date:** 08/22/23 11:00

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
MW-1-081523	K2309259-001	8/15/23	8/17/23	1010.0000	1 mL	
MW-6-081623	K2309259-002	8/15/23	8/17/23	1040.0000	1 mL	
Method Blank	KQ2314673-01MB	NA	NA	1000 mL	1 mL	
Lab Control Sample	KQ2314673-02LCS	NA	NA	1000 mL	1 mL	
Duplicate Lab Control Sample	KQ2314673-03DLCS	NA	NA	1000 mL	1 mL	

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

January 11, 2024

Analytical Report for Service Request No: K2310173
Revised Service Request No: K2310173.01

Pamela Osterhout
Floyd Snider
601 Union Street, Suite 600
Seattle, WA 98101

RE: SmithKem

Dear Pamela,

Enclosed is the revised report for the sample(s) submitted to our laboratory September 12, 2023 For your reference, these analyses have been assigned our service request number **K2310173.**

The report has been revised to Level III.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at Mark.Harris@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Mark Harris
Project Manager

REVISED
10:34 am, Jan 11, 2024

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

Client: Floyd Snider
Project: SmithKem
Sample Matrix: Soil

Service Request: K2310173
Date Received: 09/12/2023

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier III level requested by the client.

Sample Receipt:

Twenty soil samples were received for analysis at ALS Environmental on 09/12/2023. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivoa GC:

Method 8081B, 10/16/2023:The analysis of Chlorinated Pesticides by EPA 8081B requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for 4,4'-DDD. The results were reported from the column with an acceptable CCV KQ2318448-05. The data quality was not affected. No further corrective action was necessary.
Method 8081B, 10/17/2023:The recoveries for all surrogates in sample AOC1-09-08 were 0%. A re-extraction and re-analysis was performed. The recoveries for the surrogates were acceptable for the second extract. The results for both analyses were reported. No further corrective action was required.

Method 8081B, 10/31/2023:The analysis of Chlorinated Pesticides by EPA 8081B requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for cis-Nonachlor. The results were reported from the column with an acceptable CCV KQ2319283-05. The data quality was not affected. No further corrective action was necessary.
Method 8081B, 10/30/2023:The analysis of Chlorinated Pesticides by EPA 8081B requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for 4,4'-DDT and cis-Nonachlor. The results were reported from the column with an acceptable CCV KQ2319283-02. The data quality was not affected. No further corrective action was necessary.

Approved by _____ Date 01/11/2024

Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

Chain of Custody Record & Laboratory Analysis Request

ALS Kelso
K2310173

Analytical Resources, LLC
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

ARI Assigned Number:	Turn-around Requested: Standard	Page: 1 of 11	
ARI Client Company: Floyd Snider	Phone: 206-805-2188	Date: 9/5/23	Ice Present?
Client Contact: Pamela Osterhout		No. of Coolers:	Cooler Temps:
Client Project Name: Smithkem			
Client Project #:	Samplers: PO/MTM/GS		

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: * Pesticides 8082/8LL	Archive freeze upon receipt	Notes/Comments
AOC1-01-02	9/5/23	12:10	S	1	✓		Report Total Chlordane as trans, cis, oxy-cis-non. and trans-non
AOC1-01-05		12:15	S	1	✓		Archive any remaining volume for all samples (pages 1-11)
AOC1-01-07		12:20	S	1		✓	
AOC1-02-25		11:15	S	1	✓		
AOC1-02-05		11:20	S	1	✓		
AOC1-02-08		11:25	S	1		✓	
AOC1-05-02		11:50	S	1	✓		
AOC1-05-04		11:55	S	1		✓	
AOC1-06-04		11:40	S	1	✓		
AOC1-06-6.5	—	11:45	S	1		✓	

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
* Pesticide list includes: Aldrin, beta-BHC, Chlordane (total), alpha-Chlordane, Dieldrin, Total DDT and toxaphene	Printed Name: Pamela Osterhout	Printed Name: Naomi Pedersen	Printed Name:	Printed Name:
	Company: Floyd Snider	Company: ALS	Company:	Company:
	Date & Time: 9/11/23 @ 9:00	Date & Time: 9/12/23 0945	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ALS Kelso K2310173

Analytical Resources, LLC
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

ARI Assigned Number:	Turn-around Requested: Standard
ARI Client Company: Floyd Snider	Phone:
Client Contact: Pamela Osterhout	
Client Project Name: Smith Kem	
Client Project #:	Samplers: P.O. / MTM / GS

Page: 2 of 11

Date: 9/5/23 Ice Present?

No. of Coolers: Cooler Temps:

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: ★ Pesticides 8081B LL	Archive Freeze upon receipt							Notes/Comments
AOC1-07-2.5	9/5/23	11:25	Soil	1	✓								Archive all Remaining Volume.
AOC1-07-05		11:30		1	✓								
AOC1-07-6.5		11:35		1		✓							
AOC1-08-2.5		12:00		1	✓								
AOC1-08-05		12:05		1		✓							
AOC1-09-05		11:00		1	✓								
AOC1-09-08		11:05		1	✓								
AOC1-09-10		11:10		1		✓							
AOC5-01-2.5		14:20		1	✓								
AOC5-01-05		14:25		1	✓								

★ Comments/Special Instructions: 8081BLL = Aldrin, b-BHC, trans-chlordane, cis-chlordane, oxychlordane, cis-nonachlor, trans-nonachlor, Dieldrin, Total DDT, and Toxaphene

	Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature)				
Printed Name:	P. Osterhout	Naomi Redelsperger		
Company:	FIS	FIS		
Date & Time:	9/11/23 @ 09:00	9/12/23 0945		

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

PM MH

Cooler Receipt and Preservation Form

lient Pamela Osterhout Service Request K23 10173

eceived: 9/12/23 Opened: 9/12/23 By: AP Unloaded: 9/12/23 By: AP

Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*

Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*

Were custody seals on coolers? NA (Y) N If yes, how many and where? 1 front

If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
4.2	5.0	IR01	1 of 3			773377422 1969	
1.7		IR01	2 of 3			7733 7422 7807	
3.1	3.4	IR01	3 of 3			7733 7422 7900	

Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column above:

If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":

Were samples received within the method specified temperature ranges? NA (Y) N

If no, were they received on ice and same day as collected? If not, notate the cooler # above and notify the PM. (NA) Y N

applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____

Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N

Were samples received in good condition (unbroken) NA (Y) N

Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N

). Did all sample labels and tags agree with custody papers? NA (Y) N

. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N

2. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N

. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N

. Was C12/Res negative? (NA) Y N

. Were samples received within the method specified time limit? If not, notate the error below and notify the PM (NA) Y N

. Were 100ml sterile microbiology bottles filled exactly to the 100ml mark? (NA) Y N Underfilled Overfilled

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

lotes, Discrepancies, Resolutions: _____

Total Solids

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	09/5/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	As Received

Solids, Total

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
AOC1-01-02	K2310173-001	**85.5**	-	-	1	09/13/23 11:41	
AOC1-01-05	K2310173-002	**89.1**	-	-	1	09/13/23 11:41	
AOC1-02-2.5	K2310173-004	**78.7**	-	-	1	09/13/23 11:41	
AOC1-02-05	K2310173-005	**95.7**	-	-	1	09/13/23 11:41	
AOC1-05-02	K2310173-007	**75.5**	-	-	1	09/13/23 11:41	
AOC1-06-04	K2310173-009	**95.5**	-	-	1	09/13/23 11:41	
AOC1-07-2.5	K2310173-011	**94.9**	-	-	1	09/13/23 11:41	
AOC1-07-05	K2310173-012	**92.5**	-	-	1	09/13/23 11:41	
AOC1-08-2.5	K2310173-014	**93.1**	-	-	1	09/13/23 11:41	
AOC1-09-05	K2310173-016	**94.5**	-	-	1	09/13/23 11:41	
AOC1-09-08	K2310173-017	**90.0**	-	-	1	09/13/23 11:41	
AOC5-01-2.5	K2310173-019	**83.8**	-	-	1	09/13/23 11:41	
AOC5-01-05	K2310173-020	**93.1**	-	-	1	09/13/23 11:41	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Floyd Snider	**Service Request:**	K2310173
Project	SmithKem	**Date Collected:**	09/05/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
		Date Analyzed:	09/13/23

Replicate Sample Summary
Inorganic Parameters

Sample Name:	AOC1-01-02	**Units:**	Percent
Lab Code:	K2310173-001	**Basis:**	As Received

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K2310173-001DUP Result	Average	RPD	RPD Limit
Solids, Total	160.3 Modified	-	85.5	86.3	85.9	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Low Level Organochlorine Pesticides by GC

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	09/05/23 12:10
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC1-01-02	**Units:**	ug/Kg
Lab Code:	K2310173-001	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/16/23 23:09	9/14/23	
beta-BHC	ND U	1.0	0.27	1	10/16/23 23:09	9/14/23	
cis-Chlordane	ND U	1.0	0.41	1	10/16/23 23:09	9/14/23	
trans-Chlordane	ND U	1.0	0.38	1	10/16/23 23:09	9/14/23	
2,4'-DDD	ND U	1.0	0.27	1	10/16/23 23:09	9/14/23	
4,4'-DDD	ND U	2.0	0.60	1	10/16/23 23:09	9/14/23	
2,4'-DDE	ND U	1.0	0.47	1	10/16/23 23:09	9/14/23	
4,4'-DDE	**3.6**	1.0	0.40	1	10/16/23 23:09	9/14/23	
2,4'-DDT	ND U	1.0	0.48	1	10/16/23 23:09	9/14/23	
4,4'-DDT	**ND Ui**	12	12	1	10/16/23 23:09	9/14/23	
Dieldrin	ND U	1.0	0.22	1	10/16/23 23:09	9/14/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/16/23 23:09	9/14/23	
trans-Nonachlor	ND U	2.0	0.71	1	10/16/23 23:09	9/14/23	
Oxychlordane	ND U	1.0	0.25	1	10/16/23 23:09	9/14/23	
Toxaphene	ND U	100	34	1	10/16/23 23:09	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	69	10 - 134	10/16/23 23:09	
Tetrachloro-m-xylene	69	10 - 121	10/16/23 23:09	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	09/05/23 12:15
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC1-01-05	**Units:**	ug/Kg
Lab Code:	K2310173-002	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/16/23 23:39	9/14/23	
beta-BHC	ND U	1.0	0.27	1	10/16/23 23:39	9/14/23	
cis-Chlordane	**1.1**	1.0	0.41	1	10/16/23 23:39	9/14/23	
trans-Chlordane	**1.2**	1.0	0.38	1	10/16/23 23:39	9/14/23	
2,4'-DDD	ND U	1.0	0.27	1	10/16/23 23:39	9/14/23	
4,4'-DDD	ND U	2.0	0.60	1	10/16/23 23:39	9/14/23	
2,4'-DDE	ND U	1.0	0.47	1	10/16/23 23:39	9/14/23	
4,4'-DDE	ND U	1.0	0.40	1	10/16/23 23:39	9/14/23	
2,4'-DDT	ND U	1.0	0.48	1	10/16/23 23:39	9/14/23	
4,4'-DDT	ND U	2.0	0.61	1	10/16/23 23:39	9/14/23	
Dieldrin	**1.5**	0.92	0.22	1	10/16/23 23:39	9/14/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/16/23 23:39	9/14/23	
trans-Nonachlor	ND U	2.0	0.71	1	10/16/23 23:39	9/14/23	
Oxychlordane	ND U	0.92	0.25	1	10/16/23 23:39	9/14/23	
Toxaphene	ND U	100	34	1	10/16/23 23:39	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	66	10 - 134	10/16/23 23:39	
Tetrachloro-m-xylene	63	10 - 121	10/16/23 23:39	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	09/05/23 11:15
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC1-02-2.5	**Units:**	ug/Kg
Lab Code:	K2310173-004	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	**30**	2.5	0.73	1	10/17/23 00:09	9/14/23	
beta-BHC	ND U	1.2	0.34	1	10/17/23 00:09	9/14/23	
cis-Chlordane	ND U	1.2	0.51	1	10/17/23 00:09	9/14/23	
trans-Chlordane	**2.4**	1.2	0.47	1	10/17/23 00:09	9/14/23	
2,4'-DDD	ND U	1.2	0.34	1	10/17/23 00:09	9/14/23	
4,4'-DDD	ND U	2.5	0.74	1	10/17/23 00:09	9/14/23	
2,4'-DDE	**1.6**	1.2	0.58	1	10/17/23 00:09	9/14/23	
4,4'-DDE	**3.2**	1.2	0.50	1	10/17/23 00:09	9/14/23	
2,4'-DDT	ND U	1.2	0.59	1	10/17/23 00:09	9/14/23	
4,4'-DDT	**5.8**	2.5	0.75	1	10/17/23 00:09	9/14/23	
Dieldrin	**35**	1.2	0.28	1	10/17/23 00:09	9/14/23	
cis-Nonachlor	ND U	1.2	0.36	1	10/17/23 00:09	9/14/23	
trans-Nonachlor	ND U	2.5	0.88	1	10/17/23 00:09	9/14/23	
Oxychlordane	ND U	1.2	0.31	1	10/17/23 00:09	9/14/23	
Toxaphene	ND U	120	42	1	10/17/23 00:09	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	66	10 - 134	10/17/23 00:09	
Tetrachloro-m-xylene	65	10 - 121	10/17/23 00:09	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	09/05/23 11:20
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC1-02-05	**Units:**	ug/Kg
Lab Code:	K2310173-005	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/17/23 00:40	9/14/23	
beta-BHC	**0.31 J**	1.0	0.27	1	10/17/23 00:40	9/14/23	
cis-Chlordane	**5.4**	1.0	0.41	1	10/17/23 00:40	9/14/23	
trans-Chlordane	**7.6**	1.0	0.38	1	10/17/23 00:40	9/14/23	
2,4'-DDD	ND U	1.0	0.27	1	10/17/23 00:40	9/14/23	
4,4'-DDD	ND U	2.0	0.60	1	10/17/23 00:40	9/14/23	
2,4'-DDE	ND U	1.0	0.47	1	10/17/23 00:40	9/14/23	
4,4'-DDE	**0.41 J**	1.0	0.40	1	10/17/23 00:40	9/14/23	
2,4'-DDT	ND U	1.0	0.48	1	10/17/23 00:40	9/14/23	
4,4'-DDT	ND U	2.0	0.61	1	10/17/23 00:40	9/14/23	
Dieldrin	**3.1**	0.95	0.22	1	10/17/23 00:40	9/14/23	
cis-Nonachlor	**2.7**	1.0	0.29	1	10/17/23 00:40	9/14/23	
trans-Nonachlor	**5.6**	2.0	0.71	1	10/17/23 00:40	9/14/23	
Oxychlordane	ND U	0.95	0.25	1	10/17/23 00:40	9/14/23	
Toxaphene	ND U	100	34	1	10/17/23 00:40	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	60	10 - 134	10/17/23 00:40	
Tetrachloro-m-xylene	59	10 - 121	10/17/23 00:40	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	09/05/23 11:50
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC1-05-02	**Units:**	ug/Kg
Lab Code:	K2310173-007	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND	U	2.5	0.75	1	10/17/23 01:10	9/14/23	
beta-BHC	ND	U	1.3	0.35	1	10/17/23 01:10	9/14/23	
cis-Chlordane	**25**		1.3	0.53	1	10/17/23 01:10	9/14/23	
trans-Chlordane	**30**		1.3	0.49	1	10/17/23 01:10	9/14/23	
2,4'-DDD	ND	U	1.3	0.35	1	10/17/23 01:10	9/14/23	
4,4'-DDD	ND	U	2.5	0.77	1	10/17/23 01:10	9/14/23	
2,4'-DDE	**20**		1.3	0.60	1	10/17/23 01:10	9/14/23	
4,4'-DDE	**20**		1.3	0.51	1	10/17/23 01:10	9/14/23	
2,4'-DDT	ND	U	1.3	0.61	1	10/17/23 01:10	9/14/23	
4,4'-DDT	**65**	**E**	2.5	0.78	1	10/17/23 01:10	9/14/23	
Dieldrin	**100**	**E**	1.3	0.28	1	10/17/23 01:10	9/14/23	
cis-Nonachlor	ND	U	1.3	0.37	1	10/17/23 01:10	9/14/23	
trans-Nonachlor	**13**		2.5	0.91	1	10/17/23 01:10	9/14/23	
Oxychlordane	ND	U	1.3	0.32	1	10/17/23 01:10	9/14/23	
Toxaphene	**1500**		130	44	1	10/17/23 01:10	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	67	10 - 134	10/17/23 01:10	
Tetrachloro-m-xylene	57	10 - 121	10/17/23 01:10	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	09/05/23 11:50
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC1-05-02	**Units:**	ug/Kg
Lab Code:	K2310173-007	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND	U	13	3.8	5	10/19/23 18:17	9/14/23	
beta-BHC	ND	U	6.3	1.8	5	10/19/23 18:17	9/14/23	
cis-Chlordane	**19**		6.3	2.7	5	10/19/23 18:17	9/14/23	
trans-Chlordane	**21**		6.3	2.5	5	10/19/23 18:17	9/14/23	
2,4'-DDD	ND	U	6.3	1.8	5	10/19/23 18:17	9/14/23	
4,4'-DDD	ND	U	13	3.9	5	10/19/23 18:17	9/14/23	
2,4'-DDE	**19**		6.3	3.0	5	10/19/23 18:17	9/14/23	
4,4'-DDE	**17**	**P**	6.3	2.6	5	10/19/23 18:17	9/14/23	
2,4'-DDT	ND	U	6.3	3.1	5	10/19/23 18:17	9/14/23	
4,4'-DDT	**52**		13	3.9	5	10/19/23 18:17	9/14/23	
Dieldrin	**89**		6.3	1.4	5	10/19/23 18:17	9/14/23	
cis-Nonachlor	ND	U	6.3	1.9	5	10/19/23 18:17	9/14/23	
trans-Nonachlor	**13**		13	4.6	5	10/19/23 18:17	9/14/23	
Oxychlordane	ND	U	6.3	1.6	5	10/19/23 18:17	9/14/23	
Toxaphene	**1500**	**P**	630	220	5	10/19/23 18:17	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	57	10 - 134	10/19/23 18:17	
Tetrachloro-m-xylene	58	10 - 121	10/19/23 18:17	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	09/05/23 11:40
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC1-06-04	**Units:**	ug/Kg
Lab Code:	K2310173-009	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.60	1	10/17/23 01:40	9/14/23	
beta-BHC	ND U	1.0	0.28	1	10/17/23 01:40	9/14/23	
cis-Chlordane	**3.9**	1.0	0.42	1	10/17/23 01:40	9/14/23	
trans-Chlordane	**4.5**	1.0	0.39	1	10/17/23 01:40	9/14/23	
2,4'-DDD	ND U	1.0	0.28	1	10/17/23 01:40	9/14/23	
4,4'-DDD	ND U	2.0	0.61	1	10/17/23 01:40	9/14/23	
2,4'-DDE	ND U	1.0	0.48	1	10/17/23 01:40	9/14/23	
4,4'-DDE	**1.7**	1.0	0.41	1	10/17/23 01:40	9/14/23	
2,4'-DDT	ND U	1.0	0.49	1	10/17/23 01:40	9/14/23	
4,4'-DDT	**2.3**	2.0	0.62	1	10/17/23 01:40	9/14/23	
Dieldrin	**14**	1.0	0.23	1	10/17/23 01:40	9/14/23	
cis-Nonachlor	ND U	1.0	0.30	1	10/17/23 01:40	9/14/23	
trans-Nonachlor	**3.1**	2.0	0.72	1	10/17/23 01:40	9/14/23	
Oxychlordane	ND U	1.0	0.26	1	10/17/23 01:40	9/14/23	
Toxaphene	ND U	100	35	1	10/17/23 01:40	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	65	10 - 134	10/17/23 01:40	
Tetrachloro-m-xylene	63	10 - 121	10/17/23 01:40	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	09/05/23 11:25
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC1-07-2.5	**Units:**	ug/Kg
Lab Code:	K2310173-011	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/17/23 02:11	9/14/23	
beta-BHC	ND U	1.0	0.27	1	10/17/23 02:11	9/14/23	
cis-Chlordane	**4.8**	1.0	0.41	1	10/17/23 02:11	9/14/23	
trans-Chlordane	**7.0**	1.0	0.38	1	10/17/23 02:11	9/14/23	
2,4'-DDD	ND U	1.0	0.27	1	10/17/23 02:11	9/14/23	
4,4'-DDD	ND U	2.0	0.60	1	10/17/23 02:11	9/14/23	
2,4'-DDE	ND U	1.0	0.47	1	10/17/23 02:11	9/14/23	
4,4'-DDE	**0.56 J**	1.0	0.40	1	10/17/23 02:11	9/14/23	
2,4'-DDT	ND U	1.0	0.48	1	10/17/23 02:11	9/14/23	
4,4'-DDT	**0.74 JP**	2.0	0.61	1	10/17/23 02:11	9/14/23	
Dieldrin	**7.2**	0.91	0.22	1	10/17/23 02:11	9/14/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/17/23 02:11	9/14/23	
trans-Nonachlor	**3.1**	2.0	0.71	1	10/17/23 02:11	9/14/23	
Oxychlordane	ND U	0.91	0.25	1	10/17/23 02:11	9/14/23	
Toxaphene	**340**	100	34	1	10/17/23 02:11	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	66	10 - 134	10/17/23 02:11	
Tetrachloro-m-xylene	65	10 - 121	10/17/23 02:11	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	09/05/23 11:30
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC1-07-05	**Units:**	ug/Kg
Lab Code:	K2310173-012	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/17/23 02:42	9/14/23	
beta-BHC	ND U	1.0	0.27	1	10/17/23 02:42	9/14/23	
cis-Chlordane	**2.8**	1.0	0.41	1	10/17/23 02:42	9/14/23	
trans-Chlordane	**4.1**	1.0	0.38	1	10/17/23 02:42	9/14/23	
2,4'-DDD	ND U	1.0	0.27	1	10/17/23 02:42	9/14/23	
4,4'-DDD	ND U	2.0	0.60	1	10/17/23 02:42	9/14/23	
2,4'-DDE	ND U	1.0	0.47	1	10/17/23 02:42	9/14/23	
4,4'-DDE	ND U	1.0	0.40	1	10/17/23 02:42	9/14/23	
2,4'-DDT	ND U	1.0	0.48	1	10/17/23 02:42	9/14/23	
4,4'-DDT	ND U	2.0	0.61	1	10/17/23 02:42	9/14/23	
Dieldrin	**4.1**	0.83	0.22	1	10/17/23 02:42	9/14/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/17/23 02:42	9/14/23	
trans-Nonachlor	**2.4**	2.0	0.71	1	10/17/23 02:42	9/14/23	
Oxychlordane	ND U	0.83	0.25	1	10/17/23 02:42	9/14/23	
Toxaphene	ND U	100	34	1	10/17/23 02:42	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	63	10 - 134	10/17/23 02:42	
Tetrachloro-m-xylene	62	10 - 121	10/17/23 02:42	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	09/05/23 12:00
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC1-08-2.5	**Units:**	ug/Kg
Lab Code:	K2310173-014	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/17/23 03:13	9/14/23	
beta-BHC	ND U	1.0	0.27	1	10/17/23 03:13	9/14/23	
cis-Chlordane	**17**	1.0	0.41	1	10/17/23 03:13	9/14/23	
trans-Chlordane	**20**	1.0	0.38	1	10/17/23 03:13	9/14/23	
2,4'-DDD	ND U	1.0	0.27	1	10/17/23 03:13	9/14/23	
4,4'-DDD	ND U	2.0	0.60	1	10/17/23 03:13	9/14/23	
2,4'-DDE	ND U	1.0	0.47	1	10/17/23 03:13	9/14/23	
4,4'-DDE	ND U	1.0	0.40	1	10/17/23 03:13	9/14/23	
2,4'-DDT	ND U	1.0	0.48	1	10/17/23 03:13	9/14/23	
4,4'-DDT	**0.66 J**	2.0	0.61	1	10/17/23 03:13	9/14/23	
Dieldrin	**6.2**	0.99	0.22	1	10/17/23 03:13	9/14/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/17/23 03:13	9/14/23	
trans-Nonachlor	**9.3**	2.0	0.71	1	10/17/23 03:13	9/14/23	
Oxychlordane	ND U	0.99	0.25	1	10/17/23 03:13	9/14/23	
Toxaphene	ND U	100	34	1	10/17/23 03:13	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	65	10 - 134	10/17/23 03:13	
Tetrachloro-m-xylene	62	10 - 121	10/17/23 03:13	

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	09/05/23 11:00
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC1-09-05	**Units:**	ug/Kg
Lab Code:	K2310173-016	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/17/23 03:43	9/14/23	
beta-BHC	ND U	1.0	0.27	1	10/17/23 03:43	9/14/23	
cis-Chlordane	**2.5**	1.0	0.41	1	10/17/23 03:43	9/14/23	
trans-Chlordane	**3.5**	1.0	0.38	1	10/17/23 03:43	9/14/23	
2,4'-DDD	ND U	1.0	0.27	1	10/17/23 03:43	9/14/23	
4,4'-DDD	ND U	2.0	0.60	1	10/17/23 03:43	9/14/23	
2,4'-DDE	ND U	1.0	0.47	1	10/17/23 03:43	9/14/23	
4,4'-DDE	**0.51 J**	1.0	0.40	1	10/17/23 03:43	9/14/23	
2,4'-DDT	ND U	1.0	0.48	1	10/17/23 03:43	9/14/23	
4,4'-DDT	**1.2 J**	2.0	0.61	1	10/17/23 03:43	9/14/23	
Dieldrin	**3.2**	0.99	0.22	1	10/17/23 03:43	9/14/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/17/23 03:43	9/14/23	
trans-Nonachlor	**2.3**	2.0	0.71	1	10/17/23 03:43	9/14/23	
Oxychlordane	ND U	0.99	0.25	1	10/17/23 03:43	9/14/23	
Toxaphene	ND U	100	34	1	10/17/23 03:43	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	64	10 - 134	10/17/23 03:43	
Tetrachloro-m-xylene	61	10 - 121	10/17/23 03:43	

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	09/05/23 11:05
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC1-09-08	**Units:**	ug/Kg
Lab Code:	K2310173-017	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.2	0.66	1	10/31/23 07:30	10/26/23	*
beta-BHC	ND U	1.1	0.30	1	10/31/23 07:30	10/26/23	*
cis-Chlordane	**0.63 JP**	1.1	0.46	1	10/31/23 07:30	10/26/23	*
trans-Chlordane	**0.90 J**	1.1	0.43	1	10/31/23 07:30	10/26/23	*
2,4'-DDD	ND U	1.1	0.30	1	10/31/23 07:30	10/26/23	*
4,4'-DDD	ND U	2.2	0.67	1	10/31/23 07:30	10/26/23	*
2,4'-DDE	ND U	1.1	0.53	1	10/31/23 07:30	10/26/23	*
4,4'-DDE	ND U	1.1	0.45	1	10/31/23 07:30	10/26/23	*
2,4'-DDT	ND U	1.1	0.54	1	10/31/23 07:30	10/26/23	*
4,4'-DDT	ND U	2.2	0.68	1	10/31/23 07:30	10/26/23	*
Dieldrin	ND U	1.1	0.25	1	10/31/23 07:30	10/26/23	*
cis-Nonachlor	**ND Ui**	1.1	0.44	1	10/31/23 07:30	10/26/23	*
trans-Nonachlor	ND U	2.2	0.79	1	10/31/23 07:30	10/26/23	*
Oxychlordane	ND U	1.1	0.28	1	10/31/23 07:30	10/26/23	*
Toxaphene	ND U	110	38	1	10/31/23 07:30	10/26/23	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	66	10 - 134	10/31/23 07:30	
Tetrachloro-m-xylene	60	10 - 121	10/31/23 07:30	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	09/05/23 11:05
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC1-09-08	**Units:**	ug/Kg
Lab Code:	K2310173-017	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.1	0.61	1	10/17/23 08:18	9/14/23	
beta-BHC	ND U	1.0	0.28	1	10/17/23 08:18	9/14/23	
cis-Chlordane	ND U	1.0	0.43	1	10/17/23 08:18	9/14/23	
trans-Chlordane	ND U	1.0	0.39	1	10/17/23 08:18	9/14/23	
2,4'-DDD	ND U	1.0	0.28	1	10/17/23 08:18	9/14/23	
4,4'-DDD	ND U	2.1	0.62	1	10/17/23 08:18	9/14/23	
2,4'-DDE	ND U	1.0	0.49	1	10/17/23 08:18	9/14/23	
4,4'-DDE	ND U	1.0	0.42	1	10/17/23 08:18	9/14/23	
2,4'-DDT	ND U	1.0	0.50	1	10/17/23 08:18	9/14/23	
4,4'-DDT	ND U	2.1	0.63	1	10/17/23 08:18	9/14/23	
Dieldrin	ND U	1.0	0.23	1	10/17/23 08:18	9/14/23	
cis-Nonachlor	ND U	1.0	0.30	1	10/17/23 08:18	9/14/23	
trans-Nonachlor	ND U	2.1	0.73	1	10/17/23 08:18	9/14/23	
Oxychlordane	ND U	1.0	0.26	1	10/17/23 08:18	9/14/23	
Toxaphene	ND U	100	35	1	10/17/23 08:18	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	0	10 - 134	10/17/23 08:18	*
Tetrachloro-m-xylene	0	10 - 121	10/17/23 08:18	*

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	09/05/23 14:20
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC5-01-2.5	**Units:**	ug/Kg
Lab Code:	K2310173-019	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.1	0.63	1	10/17/23 08:49	9/14/23	
beta-BHC	ND U	1.1	0.29	1	10/17/23 08:49	9/14/23	
cis-Chlordane	**0.47 J**	1.1	0.44	1	10/17/23 08:49	9/14/23	
trans-Chlordane	**0.76 J**	1.1	0.41	1	10/17/23 08:49	9/14/23	
2,4'-DDD	ND U	1.1	0.29	1	10/17/23 08:49	9/14/23	
4,4'-DDD	ND U	2.1	0.64	1	10/17/23 08:49	9/14/23	
2,4'-DDE	ND U	1.1	0.51	1	10/17/23 08:49	9/14/23	
4,4'-DDE	ND U	1.1	0.43	1	10/17/23 08:49	9/14/23	
2,4'-DDT	ND U	1.1	0.52	1	10/17/23 08:49	9/14/23	
4,4'-DDT	ND U	2.1	0.66	1	10/17/23 08:49	9/14/23	
Dieldrin	**0.41 J**	1.1	0.24	1	10/17/23 08:49	9/14/23	
cis-Nonachlor	ND U	1.1	0.31	1	10/17/23 08:49	9/14/23	
trans-Nonachlor	ND U	2.1	0.76	1	10/17/23 08:49	9/14/23	
Oxychlordane	ND U	1.1	0.27	1	10/17/23 08:49	9/14/23	
Toxaphene	ND U	110	37	1	10/17/23 08:49	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	62	10 - 134	10/17/23 08:49	
Tetrachloro-m-xylene	63	10 - 121	10/17/23 08:49	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	09/05/23 14:25
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC5-01-05	**Units:**	ug/Kg
Lab Code:	K2310173-020	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.60	1	10/17/23 09:19	9/14/23	
beta-BHC	ND U	1.0	0.28	1	10/17/23 09:19	9/14/23	
cis-Chlordane	ND U	1.0	0.42	1	10/17/23 09:19	9/14/23	
trans-Chlordane	ND U	1.0	0.39	1	10/17/23 09:19	9/14/23	
2,4'-DDD	ND U	1.0	0.28	1	10/17/23 09:19	9/14/23	
4,4'-DDD	ND U	2.0	0.61	1	10/17/23 09:19	9/14/23	
2,4'-DDE	ND U	1.0	0.48	1	10/17/23 09:19	9/14/23	
4,4'-DDE	ND U	1.0	0.41	1	10/17/23 09:19	9/14/23	
2,4'-DDT	ND U	1.0	0.49	1	10/17/23 09:19	9/14/23	
4,4'-DDT	ND U	2.0	0.62	1	10/17/23 09:19	9/14/23	
Dieldrin	**2.6**	1.0	0.23	1	10/17/23 09:19	9/14/23	
cis-Nonachlor	ND U	1.0	0.30	1	10/17/23 09:19	9/14/23	
trans-Nonachlor	ND U	2.0	0.73	1	10/17/23 09:19	9/14/23	
Oxychlordane	ND U	1.0	0.26	1	10/17/23 09:19	9/14/23	
Toxaphene	ND U	100	35	1	10/17/23 09:19	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	63	10 - 134	10/17/23 09:19	
Tetrachloro-m-xylene	65	10 - 121	10/17/23 09:19	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	KQ2316059-10	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/13/23 17:17	9/14/23	
beta-BHC	ND U	1.0	0.27	1	10/13/23 17:17	9/14/23	
cis-Chlordane	ND U	1.0	0.41	1	10/13/23 17:17	9/14/23	
trans-Chlordane	ND U	1.0	0.38	1	10/13/23 17:17	9/14/23	
2,4'-DDD	ND U	1.0	0.27	1	10/13/23 17:17	9/14/23	
4,4'-DDD	ND U	2.0	0.60	1	10/13/23 17:17	9/14/23	
2,4'-DDE	ND U	1.0	0.47	1	10/13/23 17:17	9/14/23	
4,4'-DDE	ND U	1.0	0.40	1	10/13/23 17:17	9/14/23	
2,4'-DDT	ND U	1.0	0.48	1	10/13/23 17:17	9/14/23	
4,4'-DDT	ND U	2.0	0.61	1	10/13/23 17:17	9/14/23	
Dieldrin	ND U	0.72	0.22	1	10/13/23 17:17	9/14/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/13/23 17:17	9/14/23	
trans-Nonachlor	ND U	2.0	0.71	1	10/13/23 17:17	9/14/23	
Oxychlordane	ND U	0.72	0.25	1	10/13/23 17:17	9/14/23	
Toxaphene	ND U	100	34	1	10/13/23 17:17	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	67	10 - 134	10/13/23 17:17	
Tetrachloro-m-xylene	66	10 - 121	10/13/23 17:17	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	KQ2316059-10	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/19/23 16:45	9/14/23	
beta-BHC	ND U	1.0	0.27	1	10/19/23 16:45	9/14/23	
cis-Chlordane	ND U	1.0	0.41	1	10/19/23 16:45	9/14/23	
trans-Chlordane	ND U	1.0	0.38	1	10/19/23 16:45	9/14/23	
2,4'-DDD	ND U	1.0	0.27	1	10/19/23 16:45	9/14/23	
4,4'-DDD	ND U	2.0	0.60	1	10/19/23 16:45	9/14/23	
2,4'-DDE	ND U	1.0	0.47	1	10/19/23 16:45	9/14/23	
4,4'-DDE	ND U	1.0	0.40	1	10/19/23 16:45	9/14/23	
2,4'-DDT	ND U	1.0	0.48	1	10/19/23 16:45	9/14/23	
4,4'-DDT	ND U	2.0	0.61	1	10/19/23 16:45	9/14/23	
Dieldrin	ND U	0.72	0.22	1	10/19/23 16:45	9/14/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/19/23 16:45	9/14/23	
trans-Nonachlor	ND U	2.0	0.71	1	10/19/23 16:45	9/14/23	
Oxychlordane	ND U	0.72	0.25	1	10/19/23 16:45	9/14/23	
Toxaphene	ND U	100	34	1	10/19/23 16:45	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	67	10 - 134	10/19/23 16:45	
Tetrachloro-m-xylene	70	10 - 121	10/19/23 16:45	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	KQ2316059-10	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/23/23 17:19	9/14/23	
beta-BHC	ND U	1.0	0.27	1	10/23/23 17:19	9/14/23	
cis-Chlordane	ND U	1.0	0.41	1	10/23/23 17:19	9/14/23	
trans-Chlordane	ND U	1.0	0.38	1	10/23/23 17:19	9/14/23	
2,4'-DDD	ND U	1.0	0.27	1	10/23/23 17:19	9/14/23	
4,4'-DDD	ND U	2.0	0.60	1	10/23/23 17:19	9/14/23	
2,4'-DDE	ND U	1.0	0.47	1	10/23/23 17:19	9/14/23	
4,4'-DDE	ND U	1.0	0.40	1	10/23/23 17:19	9/14/23	
2,4'-DDT	ND U	1.0	0.48	1	10/23/23 17:19	9/14/23	
4,4'-DDT	ND U	2.0	0.61	1	10/23/23 17:19	9/14/23	
Dieldrin	ND U	0.72	0.22	1	10/23/23 17:19	9/14/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/23/23 17:19	9/14/23	
trans-Nonachlor	ND U	2.0	0.71	1	10/23/23 17:19	9/14/23	
Oxychlordane	ND U	0.72	0.25	1	10/23/23 17:19	9/14/23	
Toxaphene	ND U	100	34	1	10/23/23 17:19	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	77	10 - 134	10/23/23 17:19	
Tetrachloro-m-xylene	69	10 - 121	10/23/23 17:19	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	KQ2318802-10	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/30/23 19:04	10/26/23	
beta-BHC	ND U	1.0	0.27	1	10/30/23 19:04	10/26/23	
cis-Chlordane	ND U	1.0	0.41	1	10/30/23 19:04	10/26/23	
trans-Chlordane	ND U	1.0	0.38	1	10/30/23 19:04	10/26/23	
2,4'-DDD	ND U	1.0	0.27	1	10/30/23 19:04	10/26/23	
4,4'-DDD	ND U	2.0	0.60	1	10/30/23 19:04	10/26/23	
2,4'-DDE	ND U	1.0	0.47	1	10/30/23 19:04	10/26/23	
4,4'-DDE	ND U	1.0	0.40	1	10/30/23 19:04	10/26/23	
2,4'-DDT	ND U	1.0	0.48	1	10/30/23 19:04	10/26/23	
4,4'-DDT	ND U	2.0	0.61	1	10/30/23 19:04	10/26/23	
Dieldrin	ND U	0.86	0.22	1	10/30/23 19:04	10/26/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/30/23 19:04	10/26/23	
trans-Nonachlor	ND U	2.0	0.71	1	10/30/23 19:04	10/26/23	
Oxychlordane	ND U	0.86	0.25	1	10/30/23 19:04	10/26/23	
Toxaphene	ND U	100	34	1	10/30/23 19:04	10/26/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	75	10 - 134	10/30/23 19:04	
Tetrachloro-m-xylene	70	10 - 121	10/30/23 19:04	

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 12:10
Date Received: 9/12/23

Sample Name: AOC1-01-02
Lab Code: K2310173-001

Units: ug/Kg
Basis: Dry
Percent Solids: 85.5

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDE	0.40	3.6	3.8	5		1	10/16/23 23:09

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 12:15
Date Received: 9/12/23

Sample Name: AOC1-01-05
Lab Code: K2310173-002

Units: ug/Kg
Basis: Dry
Percent Solids: 89.1

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Dieldrin	0.22	1.5	1.7	12		1	10/16/23 23:39
cis-Chlordane	0.41	1.1	1.4	24		1	10/16/23 23:39
trans-Chlordane	0.38	1.2	1.5	22		1	10/16/23 23:39

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 11:15
Date Received: 9/12/23

Sample Name: AOC1-02-2.5
Lab Code: K2310173-004

Units: ug/Kg
Basis: Dry
Percent Solids: 78.7

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
2,4'-DDE	0.58	1.6	1.7	6		1	10/17/23 00:09
4,4'-DDE	0.50	3.2	3.2	<1		1	10/17/23 00:09
4,4'-DDT	0.75	5.8	8.1	33		1	10/17/23 00:09
Aldrin	0.73	30	31	3		1	10/17/23 00:09
Dieldrin	0.28	35	35	<1		1	10/17/23 00:09
trans-Chlordane	0.47	2.4	2.5	4		1	10/17/23 00:09

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 11:20
Date Received: 9/12/23

Sample Name: AOC1-02-05
Lab Code: K2310173-005

Units: ug/Kg
Basis: Dry
Percent Solids: 95.7

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDE	0.40	0.41	0.49	18	J	1	10/17/23 00:40
Dieldrin	0.22	3.1	3.3	6		1	10/17/23 00:40
beta-BHC	0.27	0.31	0.36	15	J	1	10/17/23 00:40
cis-Chlordane	0.41	5.4	6.2	14		1	10/17/23 00:40
cis-Nonachlor	0.29	2.7	2.8	4		1	10/17/23 00:40
trans-Chlordane	0.38	7.6	10	27		1	10/17/23 00:40
trans-Nonachlor	0.71	5.6	5.7	2		1	10/17/23 00:40

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 11:50
Date Received: 9/12/23

Sample Name: AOC1-05-02
Lab Code: K2310173-007

Units: ug/Kg
Basis: Dry
Percent Solids: 75.5

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
2,4'-DDE	3.0	19	27	35		5	10/19/23 18:17
4,4'-DDE	2.6	17	26	42	P	5	10/19/23 18:17
4,4'-DDT	3.9	52	61	16		5	10/19/23 18:17
Dieldrin	1.4	89	110	21		5	10/19/23 18:17
Toxaphene	220	1500	2400	46	P	5	10/19/23 18:17
cis-Chlordane	2.7	19	22	15		5	10/19/23 18:17
trans-Chlordane	2.5	21	27	25		5	10/19/23 18:17
trans-Nonachlor	4.6	13	14	7		5	10/19/23 18:17
2,4'-DDE	0.60	20	20	<1		1	10/17/23 01:10
4,4'-DDE	0.51	20	26	26		1	10/17/23 01:10
4,4'-DDT	0.78	65	58	11	E	1	10/17/23 01:10
Dieldrin	0.28	100	130	26	E	1	10/17/23 01:10
Toxaphene	44	1500	1600	6		1	10/17/23 01:10
cis-Chlordane	0.53	25	27	8		1	10/17/23 01:10
trans-Chlordane	0.49	30	31	3		1	10/17/23 01:10
trans-Nonachlor	0.91	13	14	7		1	10/17/23 01:10

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 11:40
Date Received: 9/12/23

Sample Name: AOC1-06-04
Lab Code: K2310173-009

Units: ug/Kg
Basis: Dry
Percent Solids: 95.5

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDE	0.41	1.7	2.0	16		1	10/17/23 01:40
4,4'-DDT	0.62	2.3	3.2	33		1	10/17/23 01:40
Dieldrin	0.23	14	17	19		1	10/17/23 01:40
cis-Chlordane	0.42	3.9	4.3	10		1	10/17/23 01:40
trans-Chlordane	0.39	4.5	5.7	24		1	10/17/23 01:40
trans-Nonachlor	0.72	3.1	3.9	23		1	10/17/23 01:40

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 11:25
Date Received: 9/12/23

Sample Name: AOC1-07-2.5
Lab Code: K2310173-011

Units: ug/Kg
Basis: Dry
Percent Solids: 94.9

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDE	0.40	0.56	0.73	26	J	1	10/17/23 02:11
4,4'-DDT	0.61	0.74	1.2	47	JP	1	10/17/23 02:11
Dieldrin	0.22	7.2	10	33		1	10/17/23 02:11
Toxaphene	34	340	400	16		1	10/17/23 02:11
cis-Chlordane	0.41	4.8	5.5	14		1	10/17/23 02:11
trans-Chlordane	0.38	7.0	7.6	8		1	10/17/23 02:11
trans-Nonachlor	0.71	3.1	3.8	20		1	10/17/23 02:11

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 11:30
Date Received: 9/12/23

Sample Name: AOC1-07-05
Lab Code: K2310173-012

Units: ug/Kg
Basis: Dry
Percent Solids: 92.5

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Dieldrin	0.22	4.1	4.2	2		1	10/17/23 02:42
cis-Chlordane	0.41	2.8	3.3	16		1	10/17/23 02:42
trans-Chlordane	0.38	4.1	5.0	20		1	10/17/23 02:42
trans-Nonachlor	0.71	2.4	2.9	19		1	10/17/23 02:42

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 12:00
Date Received: 9/12/23

Sample Name: AOC1-08-2.5
Lab Code: K2310173-014

Units: ug/Kg
Basis: Dry
Percent Solids: 93.1

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDT	0.61	0.66	0.95	36	J	1	10/17/23 03:13
Dieldrin	0.22	6.2	6.5	5		1	10/17/23 03:13
cis-Chlordane	0.41	17	18	6		1	10/17/23 03:13
trans-Chlordane	0.38	20	22	10		1	10/17/23 03:13
trans-Nonachlor	0.71	9.3	10	7		1	10/17/23 03:13

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 11:00
Date Received: 9/12/23

Sample Name: AOC1-09-05
Lab Code: K2310173-016

Units: ug/Kg
Basis: Dry
Percent Solids: 94.5

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDE	0.40	0.51	0.72	34	J	1	10/17/23 03:43
4,4'-DDT	0.61	1.2	1.8	40	J	1	10/17/23 03:43
Dieldrin	0.22	3.2	3.4	6		1	10/17/23 03:43
cis-Chlordane	0.41	2.5	3.4	31		1	10/17/23 03:43
trans-Chlordane	0.38	3.5	3.9	11		1	10/17/23 03:43
trans-Nonachlor	0.71	2.3	2.8	20		1	10/17/23 03:43

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 11:05
Date Received: 9/12/23

Sample Name: AOC1-09-08
Lab Code: K2310173-017

Units: ug/Kg
Basis: Dry
Percent Solids: 90.0

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
cis-Chlordane	0.46	0.63	1.1	54	JP	1	10/31/23 07:30
trans-Chlordane	0.43	0.90	1.1	20	J	1	10/31/23 07:30

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 14:20
Date Received: 9/12/23

Sample Name: AOC5-01-2.5
Lab Code: K2310173-019

Units: ug/Kg
Basis: Dry
Percent Solids: 83.8

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Dieldrin	0.24	0.41	0.58	34	J	1	10/17/23 08:49
cis-Chlordane	0.44	0.47	0.52	10	J	1	10/17/23 08:49
trans-Chlordane	0.41	0.76	0.96	23	J	1	10/17/23 08:49

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 14:25
Date Received: 9/12/23

Sample Name: AOC5-01-05
Lab Code: K2310173-020

Units: ug/Kg
Basis: Dry
Percent Solids: 93.1

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Dieldrin	0.23	2.6	2.7	4		1	10/17/23 09:19

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 12:15
Date Received: 9/12/23

Sample Name: AOC1-01-05
Lab Code: KQ2316059-01

Units: ug/Kg
Basis: Dry
Percent Solids: 89.1

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDD	0.60	12.3	21.5	54	P	1	10/13/23 19:20
4,4'-DDE	0.40	12.2	13.1	7		1	10/13/23 19:20
4,4'-DDT	0.61	13.6	14.3	5		1	10/13/23 19:20
Aldrin	0.59	12.2	12.4	2		1	10/13/23 19:20
Dieldrin	0.22	13.2	14.3	8		1	10/13/23 19:20
Oxychlordane	0.25	12.2	12.3	<1		1	10/13/23 19:20
beta-BHC	0.27	11.7	13.7	16		1	10/13/23 19:20
cis-Chlordane	0.41	13.5	13.5	<1		1	10/13/23 19:20
cis-Nonachlor	0.29	17.7	26.4	39		1	10/13/23 19:20
trans-Chlordane	0.38	14.8	15.7	6		1	10/13/23 19:20
trans-Nonachlor	0.71	14.9	21.5	36		1	10/13/23 19:20

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 12:15
Date Received: 9/12/23

Sample Name: AOC1-01-05
Lab Code: KQ2316059-02

Units: ug/Kg
Basis: Dry
Percent Solids: 89.1

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDD	0.64	16.0	43.6	93	P	1	10/13/23 19:50
4,4'-DDE	0.43	15.8	16.5	4		1	10/13/23 19:50
4,4'-DDT	0.65	17.4	18.6	7		1	10/13/23 19:50
Aldrin	0.63	15.7	16.0	2		1	10/13/23 19:50
Dieldrin	0.24	17.4	18.1	4		1	10/13/23 19:50
Oxychlordane	0.27	15.8	16.0	1		1	10/13/23 19:50
beta-BHC	0.29	15.1	17.7	16		1	10/13/23 19:50
cis-Chlordane	0.44	17.9	18.0	<1		1	10/13/23 19:50
cis-Nonachlor	0.31	23.2	35.0	41	P	1	10/13/23 19:50
trans-Chlordane	0.41	20.4	22.0	8		1	10/13/23 19:50
trans-Nonachlor	0.76	19.5	28.1	36		1	10/13/23 19:50

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 12:15
Date Received: 9/12/23

Sample Name: AOC1-01-05
Lab Code: KQ2316059-03

Units: ug/Kg
Basis: Dry
Percent Solids: 89.1

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Toxaphene	34	798	905	13		1	10/13/23 20:21

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 12:15
Date Received: 9/12/23

Sample Name: AOC1-01-05
Lab Code: KQ2316059-04

Units: ug/Kg
Basis: Dry
Percent Solids: 89.1

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Toxaphene	34	783	921	16		1	10/16/23 21:37

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 12:15
Date Received: 9/12/23

Sample Name: AOC1-01-05
Lab Code: KQ2316059-05

Units: ug/Kg
Basis: Dry
Percent Solids: 89.1

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
2,4'-DDD	0.27	19.1	19.7	3		1	10/16/23 22:07
2,4'-DDE	0.47	18.5	20.0	8		1	10/16/23 22:07
2,4'-DDT	0.48	19.6	21.6	10		1	10/16/23 22:07

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 12:15
Date Received: 9/12/23

Sample Name: AOC1-01-05
Lab Code: KQ2316059-06

Units: ug/Kg
Basis: Dry
Percent Solids: 89.1

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
2,4'-DDD	0.27	19.1	19.3	1		1	10/16/23 22:38
2,4'-DDE	0.47	18.1	19.9	9		1	10/16/23 22:38
2,4'-DDT	0.48	19.1	21.4	11		1	10/16/23 22:38

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: NA
Date Received:

Sample Name: Lab Control Sample
Lab Code: KQ2316059-07

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDD	0.60	18.2	22.2	20		1	10/23/23 18:01
4,4'-DDE	0.40	17.1	17.5	2		1	10/23/23 18:01
4,4'-DDT	0.61	16.8	16.9	<1		1	10/23/23 18:01
Aldrin	0.59	17.7	19.0	7		1	10/23/23 18:01
Dieldrin	0.22	18.4	19.2	4		1	10/23/23 18:01
beta-BHC	0.27	17.7	18.1	2		1	10/23/23 18:01
cis-Chlordane	0.41	18.2	19.2	5		1	10/23/23 18:01
trans-Chlordane	0.38	17.3	17.4	<1		1	10/23/23 18:01
4,4'-DDD	0.60	18.5	35.9	64	P	1	10/13/23 17:48
4,4'-DDE	0.40	14.2	15.2	7		1	10/13/23 17:48
4,4'-DDT	0.61	15.8	16.2	2		1	10/13/23 17:48
Aldrin	0.59	13.9	13.9	<1		1	10/13/23 17:48
Dieldrin	0.22	14.6	15.3	5		1	10/13/23 17:48
Oxychlordane	0.25	13.6	13.8	1		1	10/13/23 17:48
beta-BHC	0.27	13.4	15.8	16		1	10/13/23 17:48
cis-Chlordane	0.41	14.4	15.0	4		1	10/13/23 17:48
cis-Nonachlor	0.29	20.1	28.8	36		1	10/13/23 17:48
trans-Chlordane	0.38	14.2	18.0	24		1	10/13/23 17:48
trans-Nonachlor	0.71	16.0	23.6	38		1	10/13/23 17:48
4,4'-DDD	0.60	15.9	38.6	83	P	1	10/19/23 17:16
4,4'-DDE	0.40	14.9	16.9	13		1	10/19/23 17:16
4,4'-DDT	0.61	16.2	16.6	2		1	10/19/23 17:16
Aldrin	0.59	14.4	14.5	<1		1	10/19/23 17:16
Dieldrin	0.22	15.2	15.7	3		1	10/19/23 17:16
Oxychlordane	0.25	14.3	14.4	<1		1	10/19/23 17:16
beta-BHC	0.27	14.0	16.1	14		1	10/19/23 17:16
cis-Chlordane	0.41	15.2	16.6	9		1	10/19/23 17:16
cis-Nonachlor	0.29	16.1	30.9	63	P	1	10/19/23 17:16

trans-Chlordane	0.38	15.0	19.5	26	1	10/19/23 17:16
trans-Nonachlor	0.71	18.4	25.1	31	1	10/19/23 17:16

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: NA
Date Received:

Sample Name: Lab Control Sample
Lab Code: KQ2316059-08

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Toxaphene	34	989	818	19		1	10/23/23 18:42
Toxaphene	34	796	847	6		1	10/13/23 18:19

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: NA
Date Received:

Sample Name: Lab Control Sample
Lab Code: KQ2316059-09

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
2,4'-DDD	0.27	17.7	18.4	4		1	10/13/23 18:49
2,4'-DDE	0.47	16.7	17.2	3		1	10/13/23 18:49
2,4'-DDT	0.48	18.1	20.0	10		1	10/13/23 18:49

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 11:05
Date Received: 9/12/23

Sample Name: AOC1-09-08
Lab Code: KQ2318802-01

Units: ug/Kg
Basis: Dry
Percent Solids: 90.0

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDD	0.64	19.8	23.7	18		1	10/30/23 21:50
4,4'-DDE	0.43	20.9	21.4	2		1	10/30/23 21:50
4,4'-DDT	0.65	22.3	25.9	15		1	10/30/23 21:50
Aldrin	0.63	21.1	23.2	9		1	10/30/23 21:50
Dieldrin	0.24	22.7	23.8	5		1	10/30/23 21:50
Oxychlordane	0.27	19.3	20.0	4		1	10/30/23 21:50
beta-BHC	0.29	20.5	22.5	9		1	10/30/23 21:50
cis-Chlordane	0.44	21.9	23.3	6		1	10/30/23 21:50
cis-Nonachlor	0.31	23.6	23.6	<1		1	10/30/23 21:50
trans-Chlordane	0.41	23.6	23.9	1		1	10/30/23 21:50
trans-Nonachlor	0.75	21.4	39.0	58	P	1	10/30/23 21:50

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 11:05
Date Received: 9/12/23

Sample Name: AOC1-09-08
Lab Code: KQ2318802-02

Units: ug/Kg
Basis: Dry
Percent Solids: 90.0

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDD	0.67	19.1	25.3	28		1	10/30/23 22:32
4,4'-DDE	0.45	20.0	20.5	2		1	10/30/23 22:32
4,4'-DDT	0.68	20.9	24.8	17		1	10/30/23 22:32
Aldrin	0.66	20.1	22.0	9		1	10/30/23 22:32
Dieldrin	0.25	21.8	22.7	4		1	10/30/23 22:32
Oxychlordane	0.28	18.7	19.4	4		1	10/30/23 22:32
beta-BHC	0.30	19.7	20.7	5		1	10/30/23 22:32
cis-Chlordane	0.46	20.6	22.1	7		1	10/30/23 22:32
cis-Nonachlor	0.33	24.7	22.8	8		1	10/30/23 22:32
trans-Chlordane	0.43	21.1	22.5	6		1	10/30/23 22:32
trans-Nonachlor	0.79	20.1	37.2	60	P	1	10/30/23 22:32

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 11:05
Date Received: 9/12/23

Sample Name: AOC1-09-08
Lab Code: KQ2318802-03

Units: ug/Kg
Basis: Dry
Percent Solids: 90.0

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
2,4'-DDD	0.29	18.4	18.8	2		1	10/30/23 23:14
2,4'-DDE	0.50	18.5	18.4	<1		1	10/30/23 23:14
2,4'-DDT	0.51	17.6	22.9	26		1	10/30/23 23:14

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 11:05
Date Received: 9/12/23

Sample Name: AOC1-09-08
Lab Code: KQ2318802-04

Units: ug/Kg
Basis: Dry
Percent Solids: 90.0

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
2,4'-DDD	0.27	18.3	18.9	3		1	10/31/23 05:27
2,4'-DDE	0.47	18.4	19.8	7		1	10/31/23 05:27
2,4'-DDT	0.48	17.1	21.3	22		1	10/31/23 05:27

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 11:05
Date Received: 9/12/23

Sample Name: AOC1-09-08
Lab Code: KQ2318802-05

Units: ug/Kg
Basis: Dry
Percent Solids: 90.0

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Toxaphene	34	673	677	<1		1	10/31/23 06:08

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: 09/05/23 11:05
Date Received: 9/12/23

Sample Name: AOC1-09-08
Lab Code: KQ2318802-06

Units: ug/Kg
Basis: Dry
Percent Solids: 90.0

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Toxaphene	34	730	753	3		1	10/31/23 06:49

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: NA
Date Received:

Sample Name: Lab Control Sample
Lab Code: KQ2318802-07

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDD	0.60	15.3	19.2	23		1	10/30/23 19:45
4,4'-DDE	0.40	17.5	17.7	1		1	10/30/23 19:45
4,4'-DDT	0.61	18.0	21.7	19		1	10/30/23 19:45
Aldrin	0.59	17.6	19.1	8		1	10/30/23 19:45
Dieldrin	0.22	18.4	19.0	3		1	10/30/23 19:45
Oxychlordane	0.25	16.1	16.5	2		1	10/30/23 19:45
beta-BHC	0.27	17.0	17.8	5		1	10/30/23 19:45
cis-Chlordane	0.41	17.3	18.5	7		1	10/30/23 19:45
cis-Nonachlor	0.29	19.8	20.0	1		1	10/30/23 19:45
trans-Chlordane	0.38	17.3	18.5	7		1	10/30/23 19:45
trans-Nonachlor	0.71	17.2	31.5	59	P	1	10/30/23 19:45

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: NA
Date Received:

Sample Name: Lab Control Sample
Lab Code: KQ2318802-08

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
2,4'-DDD	0.27	18.1	20.0	10		1	10/30/23 20:27
2,4'-DDE	0.47	16.1	17.9	11		1	10/30/23 20:27
2,4'-DDT	0.48	17.1	22.5	27		1	10/30/23 20:27

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310173
Date Collected: NA
Date Received:

Sample Name: Lab Control Sample
Lab Code: KQ2318802-09

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Toxaphene	34	657	660	<1		1	10/30/23 21:09

Client: Floyd Snider **Service Request:** K2310173
Project: SmithKem
Sample Matrix: Soil

SURROGATE RECOVERY SUMMARY
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Extraction Method: EPA 3546

Sample Name	Lab Code	Decachlorobiphenyl 10 - 134	Tetrachloro-m-xylene 10 - 121
AOC1-01-02	K2310173-001	69	69
AOC1-01-05	K2310173-002	66	63
AOC1-02-2.5	K2310173-004	66	65
AOC1-02-05	K2310173-005	60	59
AOC1-05-02	K2310173-007	67	57
AOC1-05-02 DL1	K2310173-007	57	58
AOC1-06-04	K2310173-009	65	63
AOC1-07-2.5	K2310173-011	66	65
AOC1-07-05	K2310173-012	63	62
AOC1-08-2.5	K2310173-014	65	62
AOC1-09-05	K2310173-016	64	61
AOC1-09-08	K2310173-017	0 *	0 *
AOC1-09-08 RE1	K2310173-017	66	60
AOC5-01-2.5	K2310173-019	62	63
AOC5-01-05	K2310173-020	63	65
AOC1-01-05	KQ2316059-01	65	66
AOC1-01-05	KQ2316059-02	66	65
AOC1-01-05	KQ2316059-03	59	61
AOC1-01-05	KQ2316059-04	64	63
AOC1-01-05	KQ2316059-05	65	64
AOC1-01-05	KQ2316059-06	67	64
Lab Control Sample	KQ2316059-07	64	63
Lab Control Sample LCS1	KQ2316059-07	72	65
Lab Control Sample LCS2	KQ2316059-07	75	66
Lab Control Sample	KQ2316059-08	61	60
Lab Control Sample LCS1	KQ2316059-08	78	68
Lab Control Sample	KQ2316059-09	60	61
Method Blank	KQ2316059-10	67	66
Method Blank MB1	KQ2316059-10	75	70
Method Blank MB2	KQ2316059-10	78	69
AOC1-09-08	KQ2318802-01	75	69
AOC1-09-08	KQ2318802-02	67	60
AOC1-09-08	KQ2318802-03	65	59
AOC1-09-08	KQ2318802-04	68	63
AOC1-09-08	KQ2318802-05	64	59
AOC1-09-08	KQ2318802-06	72	68
Lab Control Sample	KQ2318802-07	70	66

Client: Floyd Snider **Service Request:** K2310173
Project: SmithKem
Sample Matrix: Soil

SURROGATE RECOVERY SUMMARY
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Extraction Method: EPA 3546

Sample Name	Lab Code	Decachlorobiphenyl 10 - 134	Tetrachloro-m-xylene 10 - 121
Lab Control Sample	KQ2318802-08	69	64
Lab Control Sample	KQ2318802-09	67	60
Method Blank	KQ2318802-10	75	70

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/13/23 14:13

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC22\DATA\101323A\1013F003.D\
Instrument ID: K-GC-22
Analytical Method: 8081B

Lab Code: KQ2318448-02
Analysis Lot: 820939
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	78,194,372	6.51	80,894,837	6.51	83,245,674	6.51
	Upper Limit ==>	156,388,744	7.01	161,789,674	7.01	166,491,348	7.01
	Lower Limit ==>	39,097,186	6.01	40,447,419	6.01	41,622,837	6.01
Associated Analyses							
Continuing Calibration Verification	KQ2318448-02	96,234,451	6.50	96,234,451	6.50	96,234,451	6.50
Continuing Calibration Verification	KQ2318448-02	96,584,490	6.50	96,584,490	6.50	96,584,490	6.50
Continuing Calibration Verification	KQ2318448-02	92,324,419	6.50	92,324,419	6.50	92,324,419	6.50
Continuing Calibration Verification	KQ2318448-02	94,873,055	6.50	94,873,055	6.50	94,873,055	6.50
Continuing Calibration Verification	KQ2318448-02	95,107,309	6.50	95,107,309	6.50	95,107,309	6.50
Method Blank	KQ2316059-10	94,207,726	6.51	94,207,726	6.51	94,207,726	6.51
Lab Control Sample	KQ2316059-07	96,701,157	6.50	96,701,157	6.50	96,701,157	6.50
Lab Control Sample	KQ2316059-08	99,527,918	6.50	99,527,918	6.50	99,527,918	6.50
Lab Control Sample	KQ2316059-09	100,841,107	6.50	100,841,107	6.50	100,841,107	6.50
AOC1-01-05MS	KQ2316059-01	100,456,496	6.50	100,456,496	6.50	100,456,496	6.50
AOC1-01-05DMS	KQ2316059-02	101,308,583	6.50	101,308,583	6.50	101,308,583	6.50
AOC1-01-05MS	KQ2316059-03	102,043,677	6.50	102,043,677	6.50	102,043,677	6.50

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/13/23 14:13

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC22\DATA\101323A\1013F003.D\
Instrument ID: K-GC-22
Analytical Method: 8081B

Lab Code: KQ2318448-02
Analysis Lot: 820939
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	308,451,260	5.72	322,971,958	5.72	317,776,500	5.72
	Upper Limit ==>	616,902,520	6.22	645,943,916	6.22	635,553,000	6.22
	Lower Limit ==>	154,225,630	5.22	161,485,979	5.22	158,888,250	5.22
Associated Analyses							
Continuing Calibration Verification	KQ2318448-02	366,735,651	5.71	366,735,651	5.71	366,735,651	5.71
Continuing Calibration Verification	KQ2318448-02	369,221,412	5.72	369,221,412	5.72	369,221,412	5.72
Continuing Calibration Verification	KQ2318448-02	354,611,915	5.72	354,611,915	5.72	354,611,915	5.72
Continuing Calibration Verification	KQ2318448-02	362,375,674	5.72	362,375,674	5.72	362,375,674	5.72
Continuing Calibration Verification	KQ2318448-02	357,478,707	5.72	357,478,707	5.72	357,478,707	5.72
Method Blank	KQ2316059-10	355,751,513	5.72	355,751,513	5.72	355,751,513	5.72
Lab Control Sample	KQ2316059-07	366,606,963	5.72	366,606,963	5.72	366,606,963	5.72
Lab Control Sample	KQ2316059-08	367,261,003	5.72	367,261,003	5.72	367,261,003	5.72
Lab Control Sample	KQ2316059-09	384,548,973	5.72	384,548,973	5.72	384,548,973	5.72
AOC1-01-05MS	KQ2316059-01	383,123,074	5.72	383,123,074	5.72	383,123,074	5.72
AOC1-01-05DMS	KQ2316059-02	383,700,463	5.72	383,700,463	5.72	383,700,463	5.72
AOC1-01-05MS	KQ2316059-03	385,697,819	5.72	385,697,819	5.72	385,697,819	5.72

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/16/23 18:34

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC22\DATA\101623\1016F005.D\
Instrument ID: K-GC-22
Analytical Method: 8081B

Lab Code: KQ2318448-05
Analysis Lot: 820939
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	78,194,372	6.51	80,894,837	6.51	83,245,674	6.51
	Upper Limit ==>	156,388,744	7.01	161,789,674	7.01	166,491,348	7.01
	Lower Limit ==>	39,097,186	6.01	40,447,419	6.01	41,622,837	6.01
Associated Analyses							
Continuing Calibration Verification	KQ2318448-05	86,447,688	6.50	86,447,688	6.50	86,447,688	6.50
Continuing Calibration Verification	KQ2318448-05	85,223,332	6.50	85,223,332	6.50	85,223,332	6.50
Continuing Calibration Verification	KQ2318448-05	87,422,660	6.50	87,422,660	6.50	87,422,660	6.50
Continuing Calibration Verification	KQ2318448-05	87,656,920	6.50	87,656,920	6.50	87,656,920	6.50
Continuing Calibration Verification	KQ2318448-05	86,547,627	6.50	86,547,627	6.50	86,547,627	6.50
AOC1-01-05DMS	KQ2316059-04	89,159,195	6.50	89,159,195	6.50	89,159,195	6.50
AOC1-01-05MS	KQ2316059-05	103,933,776	6.50	103,933,776	6.50	103,933,776	6.50
AOC1-01-05DMS	KQ2316059-06	97,850,892	6.50	97,850,892	6.50	97,850,892	6.50
AOC1-01-02	K2310173-001	106,022,144	6.50	106,022,144	6.50	106,022,144	6.50
AOC1-01-05	K2310173-002	106,424,475	6.50	106,424,475	6.50	106,424,475	6.50
AOC1-02-2.5	K2310173-004	105,304,203	6.50	105,304,203	6.50	105,304,203	6.50
AOC1-02-05	K2310173-005	105,287,280	6.50	105,287,280	6.50	105,287,280	6.50
AOC1-05-02	K2310173-007	91,379,394	6.50	91,379,394	6.50	91,379,394	6.50
AOC1-06-04	K2310173-009	96,657,623	6.50	96,657,623	6.50	96,657,623	6.50
AOC1-07-2.5	K2310173-011	95,943,573	6.50	95,943,573	6.50	95,943,573	6.50
AOC1-07-05	K2310173-012	99,390,449	6.50	99,390,449	6.50	99,390,449	6.50
AOC1-08-2.5	K2310173-014	101,922,992	6.50	101,922,992	6.50	101,922,992	6.50
AOC1-09-05	K2310173-016	100,783,651	6.50	100,783,651	6.50	100,783,651	6.50

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/16/23 18:34

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC22\DATA\101623\1016F005.D\
Instrument ID: K-GC-22
Analytical Method: 8081B

Lab Code: KQ2318448-05
Analysis Lot: 820939
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	308,451,260	5.72	322,971,958	5.72	317,776,500	5.72
	Upper Limit ==>	616,902,520	6.22	645,943,916	6.22	635,553,000	6.22
	Lower Limit ==>	154,225,630	5.22	161,485,979	5.22	158,888,250	5.22
Associated Analyses							
Continuing Calibration Verification	KQ2318448-05	332,461,006	5.72	332,461,006	5.72	332,461,006	5.72
Continuing Calibration Verification	KQ2318448-05	329,488,200	5.72	329,488,200	5.72	329,488,200	5.72
Continuing Calibration Verification	KQ2318448-05	339,631,634	5.72	339,631,634	5.72	339,631,634	5.72
Continuing Calibration Verification	KQ2318448-05	342,928,268	5.72	342,928,268	5.72	342,928,268	5.72
Continuing Calibration Verification	KQ2318448-05	333,046,480	5.71	333,046,480	5.71	333,046,480	5.71
AOC1-01-05DMS	KQ2316059-04	345,915,584	5.71	345,915,584	5.71	345,915,584	5.71
AOC1-01-05MS	KQ2316059-05	404,134,946	5.72	404,134,946	5.72	404,134,946	5.72
AOC1-01-05DMS	KQ2316059-06	379,755,753	5.72	379,755,753	5.72	379,755,753	5.72
AOC1-01-02	K2310173-001	413,036,266	5.72	413,036,266	5.72	413,036,266	5.72
AOC1-01-05	K2310173-002	413,556,082	5.72	413,556,082	5.72	413,556,082	5.72
AOC1-02-2.5	K2310173-004	410,600,696	5.72	410,600,696	5.72	410,600,696	5.72
AOC1-02-05	K2310173-005	410,926,573	5.72	410,926,573	5.72	410,926,573	5.72
AOC1-05-02	K2310173-007	358,490,427	5.72	358,490,427	5.72	358,490,427	5.72
AOC1-06-04	K2310173-009	376,815,347	5.72	376,815,347	5.72	376,815,347	5.72
AOC1-07-2.5	K2310173-011	372,732,486	5.72	372,732,486	5.72	372,732,486	5.72
AOC1-07-05	K2310173-012	388,258,054	5.72	388,258,054	5.72	388,258,054	5.72
AOC1-08-2.5	K2310173-014	401,929,477	5.72	401,929,477	5.72	401,929,477	5.72
AOC1-09-05	K2310173-016	395,071,674	5.72	395,071,674	5.72	395,071,674	5.72

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/17/23 05:15

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC22\DATA\101623\1016F026.D\
Instrument ID: K-GC-22
Analytical Method: 8081B

Lab Code: KQ2318448-08
Analysis Lot: 820939
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	78,194,372	6.51	80,894,837	6.51	83,245,674	6.51
	Upper Limit ==>	156,388,744	7.01	161,789,674	7.01	166,491,348	7.01
	Lower Limit ==>	39,097,186	6.01	40,447,419	6.01	41,622,837	6.01
Associated Analyses							
Continuing Calibration Verification	KQ2318448-08	93,295,786	6.50	93,295,786	6.50	93,295,786	6.50
Continuing Calibration Verification	KQ2318448-08	90,305,027	6.50	90,305,027	6.50	90,305,027	6.50
Continuing Calibration Verification	KQ2318448-08	92,736,504	6.50	92,736,504	6.50	92,736,504	6.50
Continuing Calibration Verification	KQ2318448-08	91,399,967	6.50	91,399,967	6.50	91,399,967	6.50
Continuing Calibration Verification	KQ2318448-08	91,182,900	6.50	91,182,900	6.50	91,182,900	6.50
AOC1-09-08	K2310173-017	108,080,924	6.50	108,080,924	6.50	108,080,924	6.50
AOC5-01-2.5	K2310173-019	110,065,630	6.50	110,065,630	6.50	110,065,630	6.50
AOC5-01-05	K2310173-020	113,915,807	6.50	113,915,807	6.50	113,915,807	6.50

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/17/23 05:15

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC22\DATA\101623\1016F026.D\
Instrument ID: K-GC-22
Analytical Method: 8081B

Lab Code: KQ2318448-08
Analysis Lot: 820939
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	308,451,260	5.72	322,971,958	5.72	317,776,500	5.72
	Upper Limit ==>	616,902,520	6.22	645,943,916	6.22	635,553,000	6.22
	Lower Limit ==>	154,225,630	5.22	161,485,979	5.22	158,888,250	5.22
Associated Analyses							
Continuing Calibration Verification	KQ2318448-08	363,300,885	5.72	363,300,885	5.72	363,300,885	5.72
Continuing Calibration Verification	KQ2318448-08	351,190,197	5.72	351,190,197	5.72	351,190,197	5.72
Continuing Calibration Verification	KQ2318448-08	361,645,422	5.72	361,645,422	5.72	361,645,422	5.72
Continuing Calibration Verification	KQ2318448-08	355,106,956	5.72	355,106,956	5.72	355,106,956	5.72
Continuing Calibration Verification	KQ2318448-08	354,072,283	5.72	354,072,283	5.72	354,072,283	5.72
AOC1-09-08	K2310173-017	421,946,504	5.72	421,946,504	5.72	421,946,504	5.72
AOC5-01-2.5	K2310173-019	431,436,420	5.72	431,436,420	5.72	431,436,420	5.72
AOC5-01-05	K2310173-020	443,939,211	5.72	443,939,211	5.72	443,939,211	5.72

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/19/23 13:39

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC22\DATA\101923\1019F005.D\
Instrument ID: K-GC-22
Analytical Method: 8081B

Lab Code: KQ2318610-02
Analysis Lot: 821228
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	78,194,372	6.51	80,894,837	6.51	83,245,674	6.51
	Upper Limit ==>	156,388,744	7.01	161,789,674	7.01	166,491,348	7.01
	Lower Limit ==>	39,097,186	6.01	40,447,419	6.01	41,622,837	6.01
Associated Analyses							
Continuing Calibration Verification	KQ2318610-02	93,049,614	6.50	93,049,614	6.50	93,049,614	6.50
Method Blank	KQ2316059-10	103,844,952	6.50	103,844,952	6.50	103,844,952	6.50
Lab Control Sample	KQ2316059-07	106,424,168	6.50	106,424,168	6.50	106,424,168	6.50
AOC1-05-02DL	K2310173-007	103,301,853	6.50	103,301,853	6.50	103,301,853	6.50

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider **Service Request:** K2310173
Project: SmithKem **Date Analyzed:** 10/19/23 13:39

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC22\DATA\101923\1019F005.D\ **Lab Code:** KQ2318610-02
Instrument ID: K-GC-22 **Analysis Lot:** 821228
Analytical Method: 8081B **Signal ID:** DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	308,451,260	5.72	322,971,958	5.72	317,776,500	5.72
	Upper Limit ==>	616,902,520	6.22	645,943,916	6.22	635,553,000	6.22
	Lower Limit ==>	154,225,630	5.22	161,485,979	5.22	158,888,250	5.22
Associated Analyses							
Continuing Calibration Verification	KQ2318610-02	358,120,509	5.72	358,120,509	5.72	358,120,509	5.72
Method Blank	KQ2316059-10	421,941,621	5.72	421,941,621	5.72	421,941,621	5.72
Lab Control Sample	KQ2316059-07	433,821,410	5.72	433,821,410	5.72	433,821,410	5.72
AOC1-05-02DL	K2310173-007	422,684,760	5.72	422,684,760	5.72	422,684,760	5.72

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/23/23 11:08

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\102323\1023F005.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2318867-02
Analysis Lot: 821606
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	73,829,386	6.43	76,677,049	6.44	75,668,453	6.44
	Upper Limit ==>	147,658,772	6.93	153,354,098	6.94	151,336,906	6.94
	Lower Limit ==>	36,914,693	5.93	38,338,525	5.94	37,834,227	5.94
Associated Analyses							
Continuing Calibration Verification	KQ2318867-02	65,885,968	6.41	65,885,968	6.41	65,885,968	6.41
Method Blank	KQ2316059-10	64,757,457	6.41	64,757,457	6.41	64,757,457	6.41
Lab Control Sample	KQ2316059-07	67,306,803	6.41	67,306,803	6.41	67,306,803	6.41
Lab Control Sample	KQ2316059-08	67,470,331	6.41	67,470,331	6.41	67,470,331	6.41

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/23/23 11:08

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\102323\1023F005.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2318867-02
Analysis Lot: 821606
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	36,249,909	5.89	35,088,135	5.90	34,585,592	5.90
	Upper Limit ==>	72,499,818	6.39	70,176,270	6.40	69,171,184	6.40
	Lower Limit ==>	18,124,955	5.39	17,544,068	5.40	17,292,796	5.40
Associated Analyses							
Continuing Calibration Verification	KQ2318867-02	37,537,723	5.87	37,537,723	5.87	37,537,723	5.87
Method Blank	KQ2316059-10	38,241,060	5.87	38,241,060	5.87	38,241,060	5.87
Lab Control Sample	KQ2316059-07	39,600,228	5.87	39,600,228	5.87	39,600,228	5.87
Lab Control Sample	KQ2316059-08	39,476,684	5.87	39,476,684	5.87	39,476,684	5.87

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/24/23 00:12

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\102323\1023F020.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2318867-05
Analysis Lot: 821606
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	73,829,386	6.43	76,677,049	6.44	75,668,453	6.44
	Upper Limit ==>	147,658,772	6.93	153,354,098	6.94	151,336,906	6.94
	Lower Limit ==>	36,914,693	5.93	38,338,525	5.94	37,834,227	5.94
Associated Analyses							
Continuing Calibration Verification	KQ2318867-05	71,488,784	6.41	71,488,784	6.41	71,488,784	6.41

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/24/23 00:12

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\102323\1023F020.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2318867-05
Analysis Lot: 821606
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	36,249,909	5.89	35,088,135	5.90	34,585,592	5.90
	Upper Limit ==>	72,499,818	6.39	70,176,270	6.40	69,171,184	6.40
	Lower Limit ==>	18,124,955	5.39	17,544,068	5.40	17,292,796	5.40
Associated Analyses							
Continuing Calibration Verification	KQ2318867-05	40,884,699	5.87	40,884,699	5.87	40,884,699	5.87

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider **Service Request:** K2310173
Project: SmithKem **Date Analyzed:** 10/30/23 13:31

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\103023\1030F004.D\ **Lab Code:** KQ2319283-02
Instrument ID: K-GC-38 **Analysis Lot:** 822348
Analytical Method: 8081B **Signal ID:** DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	73,829,386	6.43	76,677,049	6.44	75,668,453	6.44
	Upper Limit ==>	147,658,772	6.93	153,354,098	6.94	151,336,906	6.94
	Lower Limit ==>	36,914,693	5.93	38,338,525	5.94	37,834,227	5.94
Associated Analyses							
Continuing Calibration Verification	KQ2319283-02	59,069,487	6.41	59,069,487	6.41	59,069,487	6.41
Continuing Calibration Verification	KQ2319283-02	58,946,110	6.41	58,946,110	6.41	58,946,110	6.41
Continuing Calibration Verification	KQ2319283-02	60,916,059	6.41	60,916,059	6.41	60,916,059	6.41
Continuing Calibration Verification	KQ2319283-02	61,031,886	6.41	61,031,886	6.41	61,031,886	6.41
Method Blank	KQ2318802-10	62,561,411	6.41	62,561,411	6.41	62,561,411	6.41
Lab Control Sample	KQ2318802-07	68,560,922	6.41	68,560,922	6.41	68,560,922	6.41
Lab Control Sample	KQ2318802-08	70,900,773	6.41	70,900,773	6.41	70,900,773	6.41
Lab Control Sample	KQ2318802-09	69,378,481	6.41	69,378,481	6.41	69,378,481	6.41
AOC1-09-08MS	KQ2318802-01	66,943,843	6.41	66,943,843	6.41	66,943,843	6.41
AOC1-09-08DMS	KQ2318802-02	69,206,280	6.41	69,206,280	6.41	69,206,280	6.41
AOC1-09-08MS	KQ2318802-03	71,193,247	6.41	71,193,247	6.41	71,193,247	6.41

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/30/23 13:31

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\103023\1030F004.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2319283-02
Analysis Lot: 822348
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	36,249,909	5.89	35,088,135	5.90	34,585,592	5.90
	Upper Limit ==>	72,499,818	6.39	70,176,270	6.40	69,171,184	6.40
	Lower Limit ==>	18,124,955	5.39	17,544,068	5.40	17,292,796	5.40
Associated Analyses							
Continuing Calibration Verification	KQ2319283-02	36,784,814	5.86	36,784,814	5.86	36,784,814	5.86
Continuing Calibration Verification	KQ2319283-02	37,011,351	5.86	37,011,351	5.86	37,011,351	5.86
Continuing Calibration Verification	KQ2319283-02	38,288,061	5.86	38,288,061	5.86	38,288,061	5.86
Continuing Calibration Verification	KQ2319283-02	38,414,503	5.86	38,414,503	5.86	38,414,503	5.86
Method Blank	KQ2318802-10	39,497,994	5.86	39,497,994	5.86	39,497,994	5.86
Lab Control Sample	KQ2318802-07	43,436,535	5.86	43,436,535	5.86	43,436,535	5.86
Lab Control Sample	KQ2318802-08	45,023,064	5.86	45,023,064	5.86	45,023,064	5.86
Lab Control Sample	KQ2318802-09	43,837,184	5.86	43,837,184	5.86	43,837,184	5.86
AOC1-09-08MS	KQ2318802-01	42,216,005	5.86	42,216,005	5.86	42,216,005	5.86
AOC1-09-08DMS	KQ2318802-02	43,671,548	5.86	43,671,548	5.86	43,671,548	5.86
AOC1-09-08MS	KQ2318802-03	45,149,096	5.86	45,149,096	5.86	45,149,096	5.86

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/31/23 01:18

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\103023\1030F021.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2319283-05
Analysis Lot: 822348
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	73,829,386	6.43	76,677,049	6.44	75,668,453	6.44
	Upper Limit ==>	147,658,772	6.93	153,354,098	6.94	151,336,906	6.94
	Lower Limit ==>	36,914,693	5.93	38,338,525	5.94	37,834,227	5.94
Associated Analyses							
Continuing Calibration Verification	KQ2319283-05	63,955,641	6.41	63,955,641	6.41	63,955,641	6.41
Continuing Calibration Verification	KQ2319283-05	63,274,315	6.41	63,274,315	6.41	63,274,315	6.41
Continuing Calibration Verification	KQ2319283-05	65,206,020	6.41	65,206,020	6.41	65,206,020	6.41
Continuing Calibration Verification	KQ2319283-05	64,277,263	6.41	64,277,263	6.41	64,277,263	6.41
AOC1-09-08DMS	KQ2318802-04	72,184,226	6.41	72,184,226	6.41	72,184,226	6.41
AOC1-09-08MS	KQ2318802-05	75,266,388	6.41	75,266,388	6.41	75,266,388	6.41
AOC1-09-08DMS	KQ2318802-06	72,691,016	6.41	72,691,016	6.41	72,691,016	6.41
AOC1-09-08RE	K2310173-017	72,810,759	6.41	72,810,759	6.41	72,810,759	6.41

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/31/23 01:18

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\103023\1030F021.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2319283-05
Analysis Lot: 822348
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	36,249,909	5.89	35,088,135	5.90	34,585,592	5.90
	Upper Limit ==>	72,499,818	6.39	70,176,270	6.40	69,171,184	6.40
	Lower Limit ==>	18,124,955	5.39	17,544,068	5.40	17,292,796	5.40
Associated Analyses							
Continuing Calibration Verification	KQ2319283-05	40,195,696	5.86	40,195,696	5.86	40,195,696	5.86
Continuing Calibration Verification	KQ2319283-05	39,984,124	5.86	39,984,124	5.86	39,984,124	5.86
Continuing Calibration Verification	KQ2319283-05	41,190,426	5.86	41,190,426	5.86	41,190,426	5.86
Continuing Calibration Verification	KQ2319283-05	40,400,890	5.86	40,400,890	5.86	40,400,890	5.86
AOC1-09-08DMS	KQ2318802-04	45,217,535	5.86	45,217,535	5.86	45,217,535	5.86
AOC1-09-08MS	KQ2318802-05	47,497,024	5.86	47,497,024	5.86	47,497,024	5.86
AOC1-09-08DMS	KQ2318802-06	46,212,120	5.86	46,212,120	5.86	46,212,120	5.86
AOC1-09-08RE	K2310173-017	46,244,006	5.86	46,244,006	5.86	46,244,006	5.86

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider **Service Request:** K2310173
Project: SmithKem **Date Analyzed:** 10/31/23 13:03

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\103023\1030F038.D\ **Lab Code:** KQ2319283-08
Instrument ID: K-GC-38 **Analysis Lot:** 822348
Analytical Method: 8081B **Signal ID:** DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	73,829,386	6.43	76,677,049	6.44	75,668,453	6.44
	Upper Limit ==>	147,658,772	6.93	153,354,098	6.94	151,336,906	6.94
	Lower Limit ==>	36,914,693	5.93	38,338,525	5.94	37,834,227	5.94
Associated Analyses							
Continuing Calibration Verification	KQ2319283-08	69,318,922	6.41	69,318,922	6.41	69,318,922	6.41
Continuing Calibration Verification	KQ2319283-08	70,166,783	6.41	70,166,783	6.41	70,166,783	6.41

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/31/23 13:03

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\103023\1030F038.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2319283-08
Analysis Lot: 822348
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	36,249,909	5.89	35,088,135	5.90	34,585,592	5.90
	Upper Limit ==>	72,499,818	6.39	70,176,270	6.40	69,171,184	6.40
	Lower Limit ==>	18,124,955	5.39	17,544,068	5.40	17,292,796	5.40
Associated Analyses							
Continuing Calibration Verification	KQ2319283-08	42,866,564	5.86	42,866,564	5.86	42,866,564	5.86
Continuing Calibration Verification	KQ2319283-08	43,277,024	5.86	43,277,024	5.86	43,277,024	5.86

Results flagged with an asterisk (*) indicate values outside control criteria.

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	09/05/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
		Date Analyzed:	10/13/23
		Date Extracted:	09/14/23

Duplicate Matrix Spike Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	AOC1-01-05	**Units:**	ug/Kg
Lab Code:	K2310173-002	**Basis:**	Dry
Analysis Method:	8081B		
Prep Method:	EPA 3546		

		Matrix Spike KQ2316059-01			Duplicate Matrix Spike KQ2316059-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Aldrin	ND U	12.2	20.3	60	15.7	26.5	59	18-89	25	40
beta-BHC	ND U	11.7	20.3	58	15.1	26.5	57	16-106	25	40
cis-Chlordane	1.1	13.5	20.3	61	17.9	26.5	64	20-93	28	40
trans-Chlordane	1.2	14.8	20.3	67	20.4	26.5	72	10-103	32	40
4,4'-DDD	ND U	12.3 P	20.3	60	16.0 P	26.5	61	10-180	27	40
4,4'-DDE	ND U	12.2	20.3	60	15.8	26.5	60	17-94	25	40
4,4'-DDT	ND U	13.6	20.3	67	17.4	26.5	66	17-104	25	40
Dieldrin	1.5	13.2	20.3	58	17.4	26.5	60	19-88	27	40
cis-Nonachlor	ND U	17.7	20.3	87	23.2 P	26.5	88	11-172	27	40
trans-Nonachlor	ND U	14.9	20.3	73	19.5	26.5	74	30-107	27	40
Oxychlordane	ND U	12.2	20.3	60	15.8	26.5	60	30-99	26	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	09/05/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
		Date Analyzed:	10/13/23
		Date Extracted:	09/14/23

Duplicate Matrix Spike Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	AOC1-01-05	**Units:**	ug/Kg
Lab Code:	K2310173-002	**Basis:**	Dry
Analysis Method:	8081B		
Prep Method:	EPA 3546		

		Matrix Spike KQ2316059-03			Duplicate Matrix Spike KQ2316059-04					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Toxaphene	ND U	798	966	83	783	882	89	16-114	2	40

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Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	09/05/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
		Date Analyzed:	10/16/23
		Date Extracted:	09/14/23

Duplicate Matrix Spike Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	AOC1-01-05	**Units:**	ug/Kg
Lab Code:	K2310173-002	**Basis:**	Dry
Analysis Method:	8081B		
Prep Method:	EPA 3546		

		Matrix Spike KQ2316059-05			Duplicate Matrix Spike KQ2316059-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
2,4'-DDD	ND U	19.1	24.3	78	19.1	23.9	80	35-109	<1	40
2,4'-DDE	ND U	18.5	24.3	76	18.1	23.9	76	41-99	2	40
2,4'-DDT	ND U	19.6	24.3	80	19.1	23.9	80	34-122	2	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	09/05/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
		Date Analyzed:	10/30/23
		Date Extracted:	10/26/23

Duplicate Matrix Spike Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	AOC1-09-08	**Units:**	ug/Kg
Lab Code:	K2310173-017	**Basis:**	Dry
Analysis Method:	8081B		
Prep Method:	EPA 3546		

		Matrix Spike KQ2318802-01			Duplicate Matrix Spike KQ2318802-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Aldrin	ND U	21.1	26.4	80	20.1	27.7	73	18-89	4	40
beta-BHC	ND U	20.5	26.4	78	19.7	27.7	71	16-106	4	40
cis-Chlordane	0.63 J	21.9	26.4	81	20.6	27.7	72	20-93	6	40
trans-Chlordane	0.90 J	23.6	26.4	86	21.1	27.7	73	10-103	11	40
4,4'-DDD	ND U	19.8	26.4	75	19.1	27.7	69	10-180	4	40
4,4'-DDE	ND U	20.9	26.4	79	20.0	27.7	72	17-94	4	40
4,4'-DDT	ND U	22.3	26.4	85	20.9	27.7	75	17-104	6	40
Dieldrin	ND U	22.7	26.4	86	21.8	27.7	79	19-88	4	40
cis-Nonachlor	ND Ui	23.6	26.4	90	24.7	27.7	89	11-172	4	40
trans-Nonachlor	ND U	21.4 P	26.4	81	20.1 P	27.7	72	30-107	6	40
Oxychlordane	ND U	19.3	26.4	73	18.7	27.7	67	30-99	3	40

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Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	09/05/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
		Date Analyzed:	10/30/23
		Date Extracted:	10/26/23

Duplicate Matrix Spike Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	AOC1-09-08	**Units:**	ug/Kg
Lab Code:	K2310173-017	**Basis:**	Dry
Analysis Method:	8081B		
Prep Method:	EPA 3546		

		Matrix Spike KQ2318802-03			Duplicate Matrix Spike KQ2318802-04					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
2,4'-DDD	ND U	18.4	26.1	70	18.3	24.9	74	35-109	<1	40
2,4'-DDE	ND U	18.5	26.1	71	18.4	24.9	74	41-99	<1	40
2,4'-DDT	ND U	17.6	26.1	67	17.1	24.9	69	34-122	3	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Collected:**	09/05/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
		Date Analyzed:	10/31/23
		Date Extracted:	10/26/23

Duplicate Matrix Spike Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	AOC1-09-08	**Units:**	ug/Kg
Lab Code:	K2310173-017	**Basis:**	Dry
Analysis Method:	8081B		
Prep Method:	EPA 3546		

		Matrix Spike KQ2318802-05			Duplicate Matrix Spike KQ2318802-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Toxaphene	ND U	673	987	68	730	959	76	16-114	8	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Analyzed:**	10/13/23
Sample Matrix:	Soil	**Date Extracted:**	09/14/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Analysis Method:	8081B	**Units:**	ug/Kg
Prep Method:	EPA 3546	**Basis:**	Dry
		Analysis Lot:	820939

Lab Control Sample
KQ2316059-07

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
4,4'-DDD	18.5 P	25.0	74	10-180
4,4'-DDE	14.2	25.0	57	17-94
4,4'-DDT	15.8	25.0	63	17-104
Aldrin	13.9	25.0	56	18-89
beta-BHC	13.4	25.0	54	16-106
cis-Chlordane	14.4	25.0	58	20-93
cis-Nonachlor	20.1	25.0	80	11-172
Dieldrin	14.6	25.0	58	19-88
Oxychlordane	13.6	25.0	54	30-99
trans-Chlordane	14.2	25.0	57	10-103
trans-Nonachlor	16.0	25.0	64	30-107

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Analyzed:**	10/13/23
Sample Matrix:	Soil	**Date Extracted:**	09/14/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Analysis Method:	8081B	**Units:**	ug/Kg
Prep Method:	EPA 3546	**Basis:**	Dry
		Analysis Lot:	820939

Lab Control Sample
KQ2316059-08

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Toxaphene	796	1000	80	16-114

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Analyzed:**	10/13/23
Sample Matrix:	Soil	**Date Extracted:**	09/14/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Analysis Method:	8081B	**Units:**	ug/Kg
Prep Method:	EPA 3546	**Basis:**	Dry
		Analysis Lot:	820939

Lab Control Sample
KQ2316059-09

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
2,4'-DDD	17.7	25.0	71	35-109
2,4'-DDE	16.7	25.0	67	41-99
2,4'-DDT	18.1	25.0	72	34-122

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Analyzed:**	10/30/23
Sample Matrix:	Soil	**Date Extracted:**	10/26/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Analysis Method:	8081B	**Units:**	ug/Kg
Prep Method:	EPA 3546	**Basis:**	Dry
		Analysis Lot:	822348

Lab Control Sample
KQ2318802-07

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
4,4'-DDD	15.3	25.0	61	10-180
4,4'-DDE	17.5	25.0	70	17-94
4,4'-DDT	18.0	25.0	72	17-104
Aldrin	17.6	25.0	70	18-89
beta-BHC	17.0	25.0	68	16-106
cis-Chlordane	17.3	25.0	69	20-93
cis-Nonachlor	19.8	25.0	79	11-172
Dieldrin	18.4	25.0	74	19-88
Oxychlordane	16.1	25.0	64	30-99
trans-Chlordane	17.3	25.0	69	10-103
trans-Nonachlor	17.2 P	25.0	69	30-107

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Analyzed:**	10/30/23
Sample Matrix:	Soil	**Date Extracted:**	10/26/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Analysis Method:	8081B	**Units:**	ug/Kg
Prep Method:	EPA 3546	**Basis:**	Dry
		Analysis Lot:	822348

Lab Control Sample
KQ2318802-08

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
2,4'-DDD	18.1	25.0	73	35-109
2,4'-DDE	16.1	25.0	64	41-99
2,4'-DDT	17.1	25.0	68	34-122

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Analyzed:**	10/30/23
Sample Matrix:	Soil	**Date Extracted:**	10/26/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Analysis Method:	8081B	**Units:**	ug/Kg
Prep Method:	EPA 3546	**Basis:**	Dry
		Analysis Lot:	822348

Lab Control Sample
KQ2318802-09

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Toxaphene	657	1000	66	16-114

Client: Floyd Snider
Project: SmithKem
Sample Matrix: Soil

Service Request: K2310173
Date Analyzed: NA
Date Extracted:

Method Blank Summary
Low Level Organochlorine Pesticides by GC

Sample Name:
Lab Code:

Instrument ID:
File ID:

Analysis Method: 8081B
Prep Method: None

Analysis Lot:820939

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Performance Evaluation	KQ2318448-01	J:\GC22\DATA\101323A\1013F002.D\	10/13/23 13:43
Performance Evaluation	KQ2318448-04	J:\GC22\DATA\101623\1016F004.D\	10/16/23 18:04
Performance Evaluation	KQ2318448-07	J:\GC22\DATA\101623\1016F025.D\	10/17/23 04:44
Performance Evaluation	KQ2318610-01	J:\GC22\DATA\101923\1019F004.D\	10/19/23 13:08
Performance Evaluation	KQ2318867-01	J:\GC38\DATA\102323\1023F003.D\	10/23/23 09:45
Performance Evaluation	KQ2318867-04	J:\GC38\DATA\102323\1023F019.D\	10/23/23 23:31
Performance Evaluation	KQ2319283-01	J:\GC38\DATA\103023\1030F003.D\	10/30/23 12:49
Performance Evaluation	KQ2319283-04	J:\GC38\DATA\103023\1030F020.D\	10/31/23 00:37
Performance Evaluation	KQ2319283-07	J:\GC38\DATA\103023\1030F037.D\	10/31/23 12:21

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Analyzed:**	10/13/23 17:17
Sample Matrix:	Soil	**Date Extracted:**	09/14/23

Method Blank Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	Method Blank	**Instrument ID:**	K-GC-22
Lab Code:	KQ2316059-10	**File ID:**	J:\GC22\DATA\101323A\1013F009.D\
Analysis Method:	8081B	**Analysis Lot:**	820939,821228,821606
Prep Method:	EPA 3546	**Extraction Lot:**	426417

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ2316059-07	J:\GC22\DATA\101323A\1013F010.D\	10/13/23 17:48
Lab Control Sample	KQ2316059-08	J:\GC22\DATA\101323A\1013F011.D\	10/13/23 18:19
Lab Control Sample	KQ2316059-09	J:\GC22\DATA\101323A\1013F012.D\	10/13/23 18:49
AOC1-01-05MS	KQ2316059-01	J:\GC22\DATA\101323A\1013F013.D\	10/13/23 19:20
AOC1-01-05DMS	KQ2316059-02	J:\GC22\DATA\101323A\1013F014.D\	10/13/23 19:50
AOC1-01-05MS	KQ2316059-03	J:\GC22\DATA\101323A\1013F015.D\	10/13/23 20:21
AOC1-01-05DMS	KQ2316059-04	J:\GC22\DATA\101623\1016F011.D\	10/16/23 21:37
AOC1-01-05MS	KQ2316059-05	J:\GC22\DATA\101623\1016F012.D\	10/16/23 22:07
AOC1-01-05DMS	KQ2316059-06	J:\GC22\DATA\101623\1016F013.D\	10/16/23 22:38
AOC1-01-02	K2310173-001	J:\GC22\DATA\101623\1016F014.D\	10/16/23 23:09
AOC1-01-05	K2310173-002	J:\GC22\DATA\101623\1016F015.D\	10/16/23 23:39
AOC1-02-2.5	K2310173-004	J:\GC22\DATA\101623\1016F016.D\	10/17/23 00:09
AOC1-02-05	K2310173-005	J:\GC22\DATA\101623\1016F017.D\	10/17/23 00:40
AOC1-05-02	K2310173-007	J:\GC22\DATA\101623\1016F018.D\	10/17/23 01:10
AOC1-06-04	K2310173-009	J:\GC22\DATA\101623\1016F019.D\	10/17/23 01:40
AOC1-07-2.5	K2310173-011	J:\GC22\DATA\101623\1016F020.D\	10/17/23 02:11
AOC1-07-05	K2310173-012	J:\GC22\DATA\101623\1016F021.D\	10/17/23 02:42
AOC1-08-2.5	K2310173-014	J:\GC22\DATA\101623\1016F022.D\	10/17/23 03:13
AOC1-09-05	K2310173-016	J:\GC22\DATA\101623\1016F023.D\	10/17/23 03:43
AOC1-09-08	K2310173-017	J:\GC22\DATA\101623\1016F032.D\	10/17/23 08:18
AOC5-01-2.5	K2310173-019	J:\GC22\DATA\101623\1016F033.D\	10/17/23 08:49
AOC5-01-05	K2310173-020	J:\GC22\DATA\101623\1016F034.D\	10/17/23 09:19
Lab Control Sample	KQ2316059-07	J:\GC22\DATA\101923\1019F012.D\	10/19/23 17:16
AOC1-05-02	K2310173-007	J:\GC22\DATA\101923\1019F014.D\	10/19/23 18:17
Lab Control Sample	KQ2316059-07	J:\GC38\DATA\102323\1023F011.D\	10/23/23 18:01
Lab Control Sample	KQ2316059-08	J:\GC38\DATA\102323\1023F012.D\	10/23/23 18:42

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QA/QC Report

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Analyzed:**	10/30/23 19:04
Sample Matrix:	Soil	**Date Extracted:**	10/26/23

Method Blank Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	Method Blank	**Instrument ID:**	K-GC-38
Lab Code:	KQ2318802-10	**File ID:**	J:\GC38\DATA\103023\1030F012.D\
Analysis Method:	8081B	**Analysis Lot:**	822348
Prep Method:	EPA 3546	**Extraction Lot:**	428783

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ2318802-07	J:\GC38\DATA\103023\1030F013.D\	10/30/23 19:45
Lab Control Sample	KQ2318802-08	J:\GC38\DATA\103023\1030F014.D\	10/30/23 20:27
Lab Control Sample	KQ2318802-09	J:\GC38\DATA\103023\1030F015.D\	10/30/23 21:09
AOC1-09-08MS	KQ2318802-01	J:\GC38\DATA\103023\1030F016.D\	10/30/23 21:50
AOC1-09-08DMS	KQ2318802-02	J:\GC38\DATA\103023\1030F017.D\	10/30/23 22:32
AOC1-09-08MS	KQ2318802-03	J:\GC38\DATA\103023\1030F018.D\	10/30/23 23:14
AOC1-09-08DMS	KQ2318802-04	J:\GC38\DATA\103023\1030F027.D\	10/31/23 05:27
AOC1-09-08MS	KQ2318802-05	J:\GC38\DATA\103023\1030F028.D\	10/31/23 06:08
AOC1-09-08DMS	KQ2318802-06	J:\GC38\DATA\103023\1030F029.D\	10/31/23 06:49
AOC1-09-08	K2310173-017	J:\GC38\DATA\103023\1030F030.D\	10/31/23 07:30

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QA/QC Report

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Analyzed:**	NA
Sample Matrix:	Soil	**Date Extracted:**	

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Sample Name:		**Instrument ID:**	
Lab Code:		**File ID:**	
Analysis Method:	8081B	**Analysis Lot:**	820939
Prep Method:	None		

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Performance Evaluation	KQ2318448-01	J:\GC22\DATA\101323A\1013F002.D\	10/13/23 13:43
Performance Evaluation	KQ2318448-04	J:\GC22\DATA\101623\1016F004.D\	10/16/23 18:04
Performance Evaluation	KQ2318448-07	J:\GC22\DATA\101623\1016F025.D\	10/17/23 04:44
Performance Evaluation	KQ2318610-01	J:\GC22\DATA\101923\1019F004.D\	10/19/23 13:08
Performance Evaluation	KQ2318867-01	J:\GC38\DATA\102323\1023F003.D\	10/23/23 09:45
Performance Evaluation	KQ2318867-04	J:\GC38\DATA\102323\1023F019.D\	10/23/23 23:31
Performance Evaluation	KQ2319283-01	J:\GC38\DATA\103023\1030F003.D\	10/30/23 12:49
Performance Evaluation	KQ2319283-04	J:\GC38\DATA\103023\1030F020.D\	10/31/23 00:37
Performance Evaluation	KQ2319283-07	J:\GC38\DATA\103023\1030F037.D\	10/31/23 12:21

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QA/QC Report

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Analyzed:**	10/13/23 18:19
Sample Matrix:	Soil	**Date Extracted:**	09/14/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	Lab Control Sample	**Instrument ID:**	K-GC-22
Lab Code:	KQ2316059-08	**File ID:**	J:\GC22\DATA\101323A\1013F011.D\
Analysis Method:	8081B	**Analysis Lot:**	820939,821228,821606
Prep Method:	EPA 3546	**Extraction Lot:**	426417

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ2316059-10	J:\GC22\DATA\101323A\1013F009.D\	10/13/23 17:17
AOC1-01-05MS	KQ2316059-01	J:\GC22\DATA\101323A\1013F013.D\	10/13/23 19:20
AOC1-01-05DMS	KQ2316059-02	J:\GC22\DATA\101323A\1013F014.D\	10/13/23 19:50
AOC1-01-05MS	KQ2316059-03	J:\GC22\DATA\101323A\1013F015.D\	10/13/23 20:21
AOC1-01-05DMS	KQ2316059-04	J:\GC22\DATA\101623\1016F011.D\	10/16/23 21:37
AOC1-01-05MS	KQ2316059-05	J:\GC22\DATA\101623\1016F012.D\	10/16/23 22:07
AOC1-01-05DMS	KQ2316059-06	J:\GC22\DATA\101623\1016F013.D\	10/16/23 22:38
AOC1-01-02	K2310173-001	J:\GC22\DATA\101623\1016F014.D\	10/16/23 23:09
AOC1-01-05	K2310173-002	J:\GC22\DATA\101623\1016F015.D\	10/16/23 23:39
AOC1-02-2.5	K2310173-004	J:\GC22\DATA\101623\1016F016.D\	10/17/23 00:09
AOC1-02-05	K2310173-005	J:\GC22\DATA\101623\1016F017.D\	10/17/23 00:40
AOC1-05-02	K2310173-007	J:\GC22\DATA\101623\1016F018.D\	10/17/23 01:10
AOC1-06-04	K2310173-009	J:\GC22\DATA\101623\1016F019.D\	10/17/23 01:40
AOC1-07-2.5	K2310173-011	J:\GC22\DATA\101623\1016F020.D\	10/17/23 02:11
AOC1-07-05	K2310173-012	J:\GC22\DATA\101623\1016F021.D\	10/17/23 02:42
AOC1-08-2.5	K2310173-014	J:\GC22\DATA\101623\1016F022.D\	10/17/23 03:13
AOC1-09-05	K2310173-016	J:\GC22\DATA\101623\1016F023.D\	10/17/23 03:43
AOC1-09-08	K2310173-017	J:\GC22\DATA\101623\1016F032.D\	10/17/23 08:18
AOC5-01-2.5	K2310173-019	J:\GC22\DATA\101623\1016F033.D\	10/17/23 08:49
AOC5-01-05	K2310173-020	J:\GC22\DATA\101623\1016F034.D\	10/17/23 09:19
Method Blank	KQ2316059-10	J:\GC22\DATA\101923\1019F011.D\	10/19/23 16:45
AOC1-05-02	K2310173-007	J:\GC22\DATA\101923\1019F014.D\	10/19/23 18:17
Method Blank	KQ2316059-10	J:\GC38\DATA\102323\1023F010.D\	10/23/23 17:19

Client:	Floyd Snider	**Service Request:**	K2310173
Project:	SmithKem	**Date Analyzed:**	10/30/23 21:09
Sample Matrix:	Soil	**Date Extracted:**	10/26/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	Lab Control Sample	**Instrument ID:**	K-GC-38
Lab Code:	KQ2318802-09	**File ID:**	J:\GC38\DATA\103023\1030F015.D\
Analysis Method:	8081B	**Analysis Lot:**	822348
Prep Method:	EPA 3546	**Extraction Lot:**	428783

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ2318802-10	J:\GC38\DATA\103023\1030F012.D\	10/30/23 19:04
AOC1-09-08MS	KQ2318802-01	J:\GC38\DATA\103023\1030F016.D\	10/30/23 21:50
AOC1-09-08DMS	KQ2318802-02	J:\GC38\DATA\103023\1030F017.D\	10/30/23 22:32
AOC1-09-08MS	KQ2318802-03	J:\GC38\DATA\103023\1030F018.D\	10/30/23 23:14
AOC1-09-08DMS	KQ2318802-04	J:\GC38\DATA\103023\1030F027.D\	10/31/23 05:27
AOC1-09-08MS	KQ2318802-05	J:\GC38\DATA\103023\1030F028.D\	10/31/23 06:08
AOC1-09-08DMS	KQ2318802-06	J:\GC38\DATA\103023\1030F029.D\	10/31/23 06:49
AOC1-09-08	K2310173-017	J:\GC38\DATA\103023\1030F030.D\	10/31/23 07:30

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Calibration Date: 9/29/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580
Instrument ID: K-GC-22

Signal ID: DB XLB

#	Lab Code	Sample Name	File Location	Acquisition Date
32	KC2300580-32	8081 .2 PPB GCSP9-38C @50X	J:\GC22\DATA\092823ICAL\0929F008.D	09/29/2023 19:59
33	KC2300580-33	8081 .5 PPB GCSP9-38C @20X	J:\GC22\DATA\092823ICAL\0929F009.D	09/29/2023 20:30
34	KC2300580-34	8081 1 PPB GCSP9-38C @10X	J:\GC22\DATA\092823ICAL\0929F010.D	09/29/2023 21:01
35	KC2300580-35	8081 2 PPB GCSP9-38C @5X	J:\GC22\DATA\092823ICAL\0929F011.D	09/29/2023 21:33
36	KC2300580-36	8081 5 PPB GCSP9-38C @2X	J:\GC22\DATA\092823ICAL\0929F012.D	09/29/2023 22:04
37	KC2300580-37	8081 10 PPB GCSP9-38C	J:\GC22\DATA\092823ICAL\0929F013.D	09/29/2023 22:34
01	KC2300580-01	2,4 .2 PPB GCSP9-39J @50X	J:\GC22\DATA\100523ICAL\1005F006.D	10/05/2023 19:35
02	KC2300580-02	2,4 .5 PPB GCSP9-39J @20X	J:\GC22\DATA\100523ICAL\1005F007.D	10/05/2023 20:06
03	KC2300580-03	2,4 1 PPB GCSP9-39J @10X	J:\GC22\DATA\100523ICAL\1005F008.D	10/05/2023 20:36
04	KC2300580-04	2,4 2 PPB GCSP9-39J @5X	J:\GC22\DATA\100523ICAL\1005F009.D	10/05/2023 21:07
05	KC2300580-05	2,4 5 PPB GCSP9-39J @2X	J:\GC22\DATA\100523ICAL\1005F010.D	10/05/2023 21:37
06	KC2300580-06	2,4 10 PPB GCSP9-39J	J:\GC22\DATA\100523ICAL\1005F011.D	10/05/2023 22:08
08	KC2300580-08	TOX 10 PPB GCSP9-40A @50X	J:\GC22\DATA\100523ICAL\1005F022.D	10/06/2023 03:46
09	KC2300580-09	TOX 25 PPB GCSP9-40A @20X	J:\GC22\DATA\100523ICAL\1005F023.D	10/06/2023 04:17
10	KC2300580-10	TOX 50 PPB GCSP9-40A @10X	J:\GC22\DATA\100523ICAL\1005F024.D	10/06/2023 04:47
11	KC2300580-11	TOX 100 PPB GCSP9-40A@5X	J:\GC22\DATA\100523ICAL\1005F025.D	10/06/2023 05:18
12	KC2300580-12	TOX 250 PPB GCSP9-40A@2X	J:\GC22\DATA\100523ICAL\1005F026.D	10/06/2023 05:48
13	KC2300580-13	TOX 500 PPB GCSP9-40A	J:\GC22\DATA\100523ICAL\1005F027.D	10/06/2023 06:18
15	KC2300580-15	CHLOR 2 PPB GCSP9-40B @40X	J:\GC22\DATA\100523ICAL\1005F029.D	10/06/2023 07:19
16	KC2300580-16	CHLOR 5 PPB GCSP9-40B @40X	J:\GC22\DATA\100523ICAL\1005F030.D	10/06/2023 07:50
17	KC2300580-17	CHLOR 10 PPB GCSP9-40B @20X	J:\GC22\DATA\100523ICAL\1005F031.D	10/06/2023 08:20
18	KC2300580-18	CHLOR 20 PPB GCSP9-40B @10X	J:\GC22\DATA\100523ICAL\1005F032.D	10/06/2023 08:51
19	KC2300580-19	CHLOR 50 PPB GCSP9-40B @4X	J:\GC22\DATA\100523ICAL\1005F033.D	10/06/2023 09:22
20	KC2300580-20	CHLOR 100 PPB GCSP9-40B @2X	J:\GC22\DATA\100523ICAL\1005F034.D	10/06/2023 09:52
21	KC2300580-21	CHLOR 200 PPB GCSP9-40B	J:\GC22\DATA\100523ICAL\1005F035.D	10/06/2023 10:24
23	KC2300580-23	M/P .2/1 PPB GCSP9-39K @50X	J:\GC22\DATA\100923\1009F006.D	10/09/2023 13:40
24	KC2300580-24	M/P .5/2.5 PPB GCSP9-39K @20X	J:\GC22\DATA\100923\1009F007.D	10/09/2023 14:11
25	KC2300580-25	M/P 1/5 PPB GCSP9-39K @10X	J:\GC22\DATA\100923\1009F008.D	10/09/2023 14:43
26	KC2300580-26	M/P 2/10 PPB GCSP9-39K @5X	J:\GC22\DATA\100923\1009F009.D	10/09/2023 15:15
27	KC2300580-27	M/P 5/25 PPB GCSP9-39K @2X	J:\GC22\DATA\100923\1009F010.D	10/09/2023 15:46
28	KC2300580-28	M/P 10/50 PPB GCSP9-39K	J:\GC22\DATA\100923\1009F011.D	10/09/2023 16:17
29	KC2300580-29	PERTH 100 PPB GCSP9-30E	J:\GC22\DATA\100923\1009F012.D	10/09/2023 16:48

Analyte

2,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.6636	02	0.500	0.7152	03	1.000	0.6183	04	2.000	0.6102
05	5.000	0.6037	06	10.000	0.5955						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Calibration Date: 9/29/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580
Instrument ID: K-GC-22

Signal ID: DB XLB

Analyte

2,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.7471	02	0.500	0.781	03	1.000	0.7439	04	2.000	0.727
05	5.000	0.6986	06	10.000	0.6908						

2,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.6786	02	0.500	0.7588	03	1.000	0.6231	04	2.000	0.6501
05	5.000	0.6402	06	10.000	0.644						

4,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.026	33	0.500	1.033	34	1.000	0.9403	35	2.000	1.022
36	5.000	1.007	37	10.000	0.9286						

4,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.197	33	0.500	1.294	34	1.000	1.094	35	2.000	1.169
36	5.000	1.115	37	10.000	1.088						

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	0.852	33	0.500	0.9917	34	1.000	0.7994	35	2.000	0.8822
36	5.000	0.8727	37	10.000	0.8438						

Aldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.454	33	0.500	1.545	34	1.000	1.27	35	2.000	1.363
36	5.000	1.309	37	10.000	1.264						

Decachlorobiphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.01	33	0.500	1.05	34	1.000	0.9393	35	2.000	1.007
36	5.000	0.9033	37	10.000	0.8968						

Dieldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.21	33	0.500	1.354	34	1.000	1.104	35	2.000	1.219
36	5.000	1.18	37	10.000	1.146						

Oxychlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
23	0.200	1.656	24	0.500	1.418	25	1.000	1.142	26	2.000	1.179
27	5.000	1.179	28	10.000	1.196						

Tetrachloro-m-xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.138	33	0.500	1.447	34	1.000	1.263	35	2.000	1.329
36	5.000	1.245	37	10.000	1.177						

Client: Floyd Snider **Service Request:** K2310173
Project: SmithKem **Calibration Date:** 9/29/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580 **Signal ID:** DB XLB
Instrument ID: K-GC-22

Analyte

Toxaphene {1}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.008656	09	25.000	0.009847	10	50.000	0.008147	11	100.000	0.008076
12	250.000	0.008585	13	500.000	0.00751						

Toxaphene {2}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.009383	09	25.000	0.01039	10	50.000	0.01088	11	100.000	0.01224
12	250.000	0.00827	13	500.000	0.008827						

Toxaphene {3}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.01539	09	25.000	0.01553	10	50.000	0.01671	11	100.000	0.0172
12	250.000	0.01571	13	500.000	0.01623						

Toxaphene {4}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.01224	09	25.000	0.013	10	50.000	0.01388	11	100.000	0.01376
12	250.000	0.01263	13	500.000	0.01302						

Toxaphene {5}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.02117	09	25.000	0.01992	10	50.000	0.01742	11	100.000	0.01879
12	250.000	0.02189	13	500.000	0.02349						

Toxaphene {6}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.01899	09	25.000	0.01457	10	50.000	0.02034	11	100.000	0.0167
12	250.000	0.02087	13	500.000	0.0205						

beta-BHC

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	0.8983	33	0.500	0.9478	34	1.000	0.8411	35	2.000	0.797
36	5.000	0.7407	37	10.000	0.6865						

cis-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.428	33	0.500	1.291	34	1.000	1.147	35	2.000	1.259
36	5.000	1.206	37	10.000	1.171						

cis-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
23	0.200	2.294	24	0.500	1.69	25	1.000	1.389	26	2.000	1.223
27	5.000	1.242	28	10.000	1.23						

trans-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.397	33	0.500	1.395	34	1.000	1.239	35	2.000	1.285
36	5.000	1.223	37	10.000	1.186						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Calibration Date: 9/29/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580
Instrument ID: K-GC-22

Signal ID: DB XLB

Analyte

trans-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
23	0.200	1.74	24	0.500	1.529	25	1.000	1.244	26	2.000	1.221
27	5.000	1.222	28	10.000	1.215						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Calibration Date: 9/29/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580
Instrument ID: K-GC-22

Signal ID: DB XLB

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	7.3	≤20	0.6344	
2,4'-DDE	TRG	Average RF	% RSD	4.6	≤20	0.7314	
2,4'-DDT	TRG	Average RF	% RSD	7.4	≤20	0.6658	
4,4'-DDD	TRG	Average RF	% RSD	4.6	≤20	0.9927	
4,4'-DDE	TRG	Average RF	% RSD	6.8	≤20	1.16	
4,4'-DDT	TRG	Average RF	% RSD	7.4	≤20	0.8736	
Aldrin	TRG	Average RF	% RSD	8.2	≤20	1.367	
Decachlorobiphenyl	SURR	Average RF	% RSD	6.5	≤20	0.9677	
Dieldrin	TRG	Average RF	% RSD	7.1	≤20	1.202	
Oxychlordane	TRG	Average RF	% RSD	15.7	≤20	1.295	
Tetrachloro-m-xylene	SURR	Average RF	% RSD	8.8	≤20	1.267	
Toxaphene {1}	MULTI	Average RF	% RSD	9.3	≤20	0.00847	
Toxaphene {2}	MULTI	Average RF	% RSD	14.6	≤20	0.009997	
Toxaphene {3}	MULTI	Average RF	% RSD	4.4	≤20	0.01613	
Toxaphene {4}	MULTI	Average RF	% RSD	4.9	≤20	0.01309	
Toxaphene {5}	MULTI	Average RF	% RSD	10.7	≤20	0.02045	
Toxaphene {6}	MULTI	Average RF	% RSD	13.5	≤20	0.01866	
beta-BHC	TRG	Average RF	% RSD	11.9	≤20	0.8186	
cis-Chlordane	TRG	Average RF	% RSD	8.2	≤20	1.25	
cis-Nonachlor	TRG	Linear	R2	0.9997	≥0.990	1.511	
trans-Chlordane	TRG	Average RF	% RSD	7.0	≤20	1.288	
trans-Nonachlor	TRG	Average RF	% RSD	16.3	≤20	1.362	

QA/QC Report

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Calibration Date: 9/29/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580
Instrument ID: K-GC-22

Signal ID: DB-35MS

#	Lab Code	Sample Name	File Location	Acquisition Date
32	KC2300580-32	8081 .2 PPB GCSP9-38C @50X	J:\GC22\DATA\092823ICAL\0929F008.D	09/29/2023 19:59
33	KC2300580-33	8081 .5 PPB GCSP9-38C @20X	J:\GC22\DATA\092823ICAL\0929F009.D	09/29/2023 20:30
34	KC2300580-34	8081 1 PPB GCSP9-38C @10X	J:\GC22\DATA\092823ICAL\0929F010.D	09/29/2023 21:01
35	KC2300580-35	8081 2 PPB GCSP9-38C @5X	J:\GC22\DATA\092823ICAL\0929F011.D	09/29/2023 21:33
36	KC2300580-36	8081 5 PPB GCSP9-38C @2X	J:\GC22\DATA\092823ICAL\0929F012.D	09/29/2023 22:04
37	KC2300580-37	8081 10 PPB GCSP9-38C	J:\GC22\DATA\092823ICAL\0929F013.D	09/29/2023 22:34
01	KC2300580-01	2,4 .2 PPB GCSP9-39J @50X	J:\GC22\DATA\100523ICAL\1005F006.D	10/05/2023 19:35
02	KC2300580-02	2,4 .5 PPB GCSP9-39J @20X	J:\GC22\DATA\100523ICAL\1005F007.D	10/05/2023 20:06
03	KC2300580-03	2,4 1 PPB GCSP9-39J @10X	J:\GC22\DATA\100523ICAL\1005F008.D	10/05/2023 20:36
04	KC2300580-04	2,4 2 PPB GCSP9-39J @5X	J:\GC22\DATA\100523ICAL\1005F009.D	10/05/2023 21:07
05	KC2300580-05	2,4 5 PPB GCSP9-39J @2X	J:\GC22\DATA\100523ICAL\1005F010.D	10/05/2023 21:37
06	KC2300580-06	2,4 10 PPB GCSP9-39J	J:\GC22\DATA\100523ICAL\1005F011.D	10/05/2023 22:08
08	KC2300580-08	TOX 10 PPB GCSP9-40A @50X	J:\GC22\DATA\100523ICAL\1005F022.D	10/06/2023 03:46
09	KC2300580-09	TOX 25 PPB GCSP9-40A @20X	J:\GC22\DATA\100523ICAL\1005F023.D	10/06/2023 04:17
10	KC2300580-10	TOX 50 PPB GCSP9-40A @10X	J:\GC22\DATA\100523ICAL\1005F024.D	10/06/2023 04:47
11	KC2300580-11	TOX 100 PPB GCSP9-40A@5X	J:\GC22\DATA\100523ICAL\1005F025.D	10/06/2023 05:18
12	KC2300580-12	TOX 250 PPB GCSP9-40A@2X	J:\GC22\DATA\100523ICAL\1005F026.D	10/06/2023 05:48
13	KC2300580-13	TOX 500 PPB GCSP9-40A	J:\GC22\DATA\100523ICAL\1005F027.D	10/06/2023 06:18
15	KC2300580-15	CHLOR 2 PPB GCSP9-40B @40X	J:\GC22\DATA\100523ICAL\1005F029.D	10/06/2023 07:19
16	KC2300580-16	CHLOR 5 PPB GCSP9-40B @40X	J:\GC22\DATA\100523ICAL\1005F030.D	10/06/2023 07:50
17	KC2300580-17	CHLOR 10 PPB GCSP9-40B @20X	J:\GC22\DATA\100523ICAL\1005F031.D	10/06/2023 08:20
18	KC2300580-18	CHLOR 20 PPB GCSP9-40B @10X	J:\GC22\DATA\100523ICAL\1005F032.D	10/06/2023 08:51
19	KC2300580-19	CHLOR 50 PPB GCSP9-40B @4X	J:\GC22\DATA\100523ICAL\1005F033.D	10/06/2023 09:22
20	KC2300580-20	CHLOR 100 PPB GCSP9-40B @2X	J:\GC22\DATA\100523ICAL\1005F034.D	10/06/2023 09:52
21	KC2300580-21	CHLOR 200 PPB GCSP9-40B	J:\GC22\DATA\100523ICAL\1005F035.D	10/06/2023 10:24
23	KC2300580-23	M/P .2/1 PPB GCSP9-39K @50X	J:\GC22\DATA\100923\1009F006.D	10/09/2023 13:40
24	KC2300580-24	M/P .5/2.5 PPB GCSP9-39K @20X	J:\GC22\DATA\100923\1009F007.D	10/09/2023 14:11
25	KC2300580-25	M/P 1/5 PPB GCSP9-39K @10X	J:\GC22\DATA\100923\1009F008.D	10/09/2023 14:43
26	KC2300580-26	M/P 2/10 PPB GCSP9-39K @5X	J:\GC22\DATA\100923\1009F009.D	10/09/2023 15:15
27	KC2300580-27	M/P 5/25 PPB GCSP9-39K @2X	J:\GC22\DATA\100923\1009F010.D	10/09/2023 15:46
28	KC2300580-28	M/P 10/50 PPB GCSP9-39K	J:\GC22\DATA\100923\1009F011.D	10/09/2023 16:17
29	KC2300580-29	PERTH 100 PPB GCSP9-30E	J:\GC22\DATA\100923\1009F012.D	10/09/2023 16:48

Analyte

2,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.5152	02	0.500	0.6361	03	1.000	0.5566	04	2.000	0.5863
05	5.000	0.5766	06	10.000	0.5648						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Calibration Date: 9/29/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580
Instrument ID: K-GC-22

Signal ID: DB-35MS

Analyte

2,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.8445	02	0.500	0.8182	03	1.000	0.7537	04	2.000	0.7249
05	5.000	0.6867	06	10.000	0.6896						

2,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.58	02	0.500	0.5366	03	1.000	0.6274	04	2.000	0.5941
05	5.000	0.6107	06	10.000	0.6395						

4,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.335	33	0.500	1.082	34	1.000	1.042	35	2.000	1.095
36	5.000	0.9294	37	10.000	0.8611						

4,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.31	33	0.500	1.398	34	1.000	1.416	35	2.000	1.296
36	5.000	1.167	37	10.000	1.104						

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.025	33	0.500	1.065	34	1.000	1.015	35	2.000	0.9737
36	5.000	0.9381	37	10.000	0.9032						

Aldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.526	33	0.500	1.44	34	1.000	1.349	35	2.000	1.309
36	5.000	1.26	37	10.000	1.225						

Decachlorobiphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.305	33	0.500	1.095	34	1.000	1.044	35	2.000	1.016
36	5.000	0.9501	37	10.000	0.8846						

Dieldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.143	33	0.500	1.164	34	1.000	1.143	35	2.000	1.134
36	5.000	1.131	37	10.000	1.096						

Oxychlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
23	0.200	1.491	24	0.500	1.339	25	1.000	1.269	26	2.000	1.082
27	5.000	1.052	28	10.000	1.042						

Tetrachloro-m-xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.172	33	0.500	1.133	34	1.000	1.123	35	2.000	1.114
36	5.000	1.086	37	10.000	1.044						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Calibration Date: 9/29/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580
Instrument ID: K-GC-22

Signal ID: DB-35MS

Analyte

Toxaphene {1}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.02659	09	25.000	0.02425	10	50.000	0.02098	11	100.000	0.02097
12	250.000	0.01919	13	500.000	0.01957						

Toxaphene {2}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.01995	09	25.000	0.01817	10	50.000	0.01715	11	100.000	0.01583
12	250.000	0.01491	13	500.000	0.01543						

Toxaphene {3}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.01809	09	25.000	0.01831	10	50.000	0.01881	11	100.000	0.01884
12	250.000	0.01859	13	500.000	0.01883						

Toxaphene {4}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.01467	09	25.000	0.01374	10	50.000	0.01312	11	100.000	0.01346
12	250.000	0.01295	13	500.000	0.01287						

Toxaphene {5}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.02112	09	25.000	0.01924	10	50.000	0.01968	11	100.000	0.02034
12	250.000	0.02008	13	500.000	0.01989						

Toxaphene {6}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.02473	09	25.000	0.02289	10	50.000	0.0228	11	100.000	0.02532
12	250.000	0.02339	13	500.000	0.02703						

beta-BHC

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	0.7341	33	0.500	0.6882	34	1.000	0.726	35	2.000	0.6716
36	5.000	0.6455	37	10.000	0.6155						

cis-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.126	33	0.500	1.211	34	1.000	1.179	35	2.000	1.158
36	5.000	1.136	37	10.000	1.099						

cis-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
23	0.200	2.361	24	0.500	1.547	25	1.000	1.398	26	2.000	1.254
27	5.000	1.388	28	10.000	1.215						

trans-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.037	33	0.500	1.113	34	1.000	1.259	35	2.000	1.156
36	5.000	1.17	37	10.000	1.128						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Calibration Date: 9/29/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580
Instrument ID: K-GC-22

Signal ID: DB-35MS

Analyte

trans-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
23	0.200	1.877	24	0.500	1.476	25	1.000	1.275	26	2.000	1.152
27	5.000	1.13	28	10.000	1.122						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Calibration Date: 9/29/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580
Instrument ID: K-GC-22

Signal ID: DB-35MS

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	6.9	≤20	0.5726	
2,4'-DDE	TRG	Average RF	% RSD	8.8	≤20	0.7529	
2,4'-DDT	TRG	Average RF	% RSD	6.2	≤20	0.5981	
4,4'-DDD	TRG	Average RF	% RSD	15.5	≤20	1.057	
4,4'-DDE	TRG	Average RF	% RSD	9.7	≤20	1.282	
4,4'-DDT	TRG	Average RF	% RSD	6.1	≤20	0.9866	
Aldrin	TRG	Average RF	% RSD	8.4	≤20	1.351	
Decachlorobiphenyl	SURR	Average RF	% RSD	13.9	≤20	1.049	
Dieldrin	TRG	Average RF	% RSD	2.0	≤20	1.135	
Oxychlordane	TRG	Average RF	% RSD	15.1	≤20	1.212	
Tetrachloro-m-xylene	SURR	Average RF	% RSD	3.9	≤20	1.112	
Toxaphene {1}	MULTI	Average RF	% RSD	13.2	≤20	0.02192	
Toxaphene {2}	MULTI	Average RF	% RSD	11.3	≤20	0.01691	
Toxaphene {3}	MULTI	Average RF	% RSD	1.7	≤20	0.01858	
Toxaphene {4}	MULTI	Average RF	% RSD	5.0	≤20	0.01347	
Toxaphene {5}	MULTI	Average RF	% RSD	3.2	≤20	0.02006	
Toxaphene {6}	MULTI	Average RF	% RSD	6.8	≤20	0.02436	
beta-BHC	TRG	Average RF	% RSD	6.7	≤20	0.6801	
cis-Chlordane	TRG	Average RF	% RSD	3.5	≤20	1.151	
cis-Nonachlor	TRG	Linear	R2	0.9955	≥0.990	1.527	
trans-Chlordane	TRG	Average RF	% RSD	6.4	≤20	1.144	
trans-Nonachlor	TRG	Linear	R2	0.9999	≥0.990	1.339	

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB XLB

#	Lab Code	Sample Name	File Location	Acquisition Date
08	KC2300558-08	24 .2 PPB GCPS9-27G @50X	J:\GC38\DATA\072123ICAL\0721F012.D	07/22/2023 00:03
09	KC2300558-09	24 .5 PPB GCPS9-27G @20X	J:\GC38\DATA\072123ICAL\0721F013.D	07/22/2023 00:48
10	KC2300558-10	24 1 PPB GCPS9-27G @10X	J:\GC38\DATA\072123ICAL\0721F014.D	07/22/2023 01:33
11	KC2300558-11	24 2 PPB GCPS9-27G @5X	J:\GC38\DATA\072123ICAL\0721F015.D	07/22/2023 02:17
12	KC2300558-12	24 5 PPB GCPS9-27G @2X	J:\GC38\DATA\072123ICAL\0721F016.D	07/22/2023 03:02
13	KC2300558-13	24 10 PPB GCPS9-27G	J:\GC38\DATA\072123ICAL\0721F017.D	07/22/2023 03:48
15	KC2300558-15	M/P .2/1 PPB GCPS9-33A @50X	J:\GC38\DATA\072123ICAL\0721F019.D	07/22/2023 05:19
16	KC2300558-16	M/P .5/2.5 PPB GCPS9-33A @20X	J:\GC38\DATA\072123ICAL\0721F020.D	07/22/2023 06:05
17	KC2300558-17	M/P 1/5 PPB GCPS9-33A@10X	J:\GC38\DATA\072123ICAL\0721F021.D	07/22/2023 06:50
18	KC2300558-18	M/P 2/10 PPB GCPS9-33A @5X	J:\GC38\DATA\072123ICAL\0721F022.D	07/22/2023 07:34
19	KC2300558-19	M/P 5/25 PPB GCPS9-33A @2X	J:\GC38\DATA\072123ICAL\0721F023.D	07/22/2023 08:19
20	KC2300558-20	M/P 10/50 PPB GCPS9-33A	J:\GC38\DATA\072123ICAL\0721F024.D	07/22/2023 09:04
21	KC2300558-21	PERTH 100 PPB GSP9-30E	J:\GC38\DATA\072123ICAL\0721F025.D	07/22/2023 09:50
24	KC2300558-24	TOX 10 PPB GCPS9-29E @50X	J:\GC38\DATA\072123ICAL\0721F028.D	07/22/2023 12:06
25	KC2300558-25	TOX 25 PPB GCPS9-29E @20X	J:\GC38\DATA\072123ICAL\0721F029.D	07/22/2023 12:51
26	KC2300558-26	TOX 50 PPB GCPS9-29E @10X	J:\GC38\DATA\072123ICAL\0721F030.D	07/22/2023 13:37
27	KC2300558-27	TOX 100 PPB GCPS9-29E @5X	J:\GC38\DATA\072123ICAL\0721F031.D	07/22/2023 14:22
28	KC2300558-28	TOX 250 PPB GCPS9-29E @2X	J:\GC38\DATA\072123ICAL\0721F032.D	07/22/2023 15:08
29	KC2300558-29	TOX 500 PPB GCPS9-29E	J:\GC38\DATA\072123ICAL\0721F033.D	07/22/2023 15:54
31	KC2300558-31	CHLOR 2 PPB GCPS9-34D @100X	J:\GC38\DATA\072123ICAL\0721F035.D	07/22/2023 17:25
32	KC2300558-32	CHLOR 5 PPB GCPS9-34D @40X	J:\GC38\DATA\072123ICAL\0721F036.D	07/22/2023 18:11
33	KC2300558-33	CHLOR 10 PPB GCPS9-34D @20X	J:\GC38\DATA\072123ICAL\0721F037.D	07/22/2023 18:57
34	KC2300558-34	CHLOR 20 PPB GCPS9-34D @10X	J:\GC38\DATA\072123ICAL\0721F038.D	07/22/2023 19:43
35	KC2300558-35	CHLOR 50 PPB GCPS9-34D @4X	J:\GC38\DATA\072123ICAL\0721F039.D	07/22/2023 20:28
36	KC2300558-36	CHLOR 100 PPB GCPS9-34D @2X	J:\GC38\DATA\072123ICAL\0721F040.D	07/22/2023 21:14
37	KC2300558-37	CHLOR 200 PPB GCPS9-34D	J:\GC38\DATA\072123ICAL\0721F041.D	07/22/2023 21:59
01	KC2300558-01	8081 .2 PPB GCPS9-38C @50X	J:\GC38\DATA\092523\0925F008.D	09/25/2023 16:31
02	KC2300558-02	8081 .5 PPB GCPS9-38C@20X	J:\GC38\DATA\092523\0925F009.D	09/25/2023 17:12
03	KC2300558-03	8081 1 PPB GCPS9-38C @10X	J:\GC38\DATA\092523\0925F010.D	09/25/2023 17:54
04	KC2300558-04	8081 2 PPB GCPS9-38C@5X	J:\GC38\DATA\092523\0925F011.D	09/25/2023 18:35
05	KC2300558-05	8081 5 PPB GCPS9-38C @2X	J:\GC38\DATA\092523\0925F012.D	09/25/2023 19:17
06	KC2300558-06	8081 10 PPB GCPS9-38C	J:\GC38\DATA\092523\0925F013.D	09/25/2023 19:58

Analyte

2,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	0.698	09	0.500	0.6697	10	1.000	0.621	11	2.000	0.6061
12	5.000	0.585	13	10.000	0.5571						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB XLB

Analyte

2,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	1.045	09	0.500	0.8357	10	1.000	0.7712	11	2.000	0.7237
12	5.000	0.6848	13	10.000	0.6543						

2,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	0.8021	09	0.500	0.7347	10	1.000	0.6775	11	2.000	0.6494
12	5.000	0.6344	13	10.000	0.6101						

4,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.8654	02	0.500	0.8605	03	1.000	0.8406	04	2.000	0.8503
05	5.000	0.8122	06	10.000	0.8601						

4,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.108	02	0.500	1.153	03	1.000	1.096	04	2.000	1.106
05	5.000	1.056	06	10.000	1.069						

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.6987	02	0.500	0.7168	03	1.000	0.6876	04	2.000	0.7525
05	5.000	0.7258	06	10.000	0.7471						

Aldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.252	02	0.500	1.26	03	1.000	1.172	04	2.000	1.171
05	5.000	1.123	06	10.000	1.148						

Decachlorobiphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.273	02	0.500	1.305	03	1.000	1.232	04	2.000	1.257
05	5.000	1.118	06	10.000	1.059						

Dieldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.138	02	0.500	1.153	03	1.000	1.087	04	2.000	1.107
05	5.000	1.041	06	10.000	1.053						

Oxychlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.335	16	0.500	1.255	17	1.000	1.428	18	2.000	1.103
19	5.000	1.08	20	10.000	1.009						

Tetrachloro-m-xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.438	02	0.500	1.496	03	1.000	1.391	04	2.000	1.411
05	5.000	1.305	06	10.000	1.308						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB XLB

Analyte

Toxaphene {1}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.008207	25	25.000	0.00774	26	50.000	0.007891	27	100.000	0.008052
28	250.000	0.007785	29	500.000	0.007234						

Toxaphene {2}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.007719	25	25.000	0.007011	26	50.000	0.006153	27	100.000	0.007946
28	250.000	0.005349	29	500.000	0.004933						

Toxaphene {3}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01009	25	25.000	0.01271	26	50.000	0.01197	27	100.000	0.01102
28	250.000	0.01028	29	500.000	0.01025						

Toxaphene {4}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01461	25	25.000	0.01391	26	50.000	0.01364	27	100.000	0.01356
28	250.000	0.01245	29	500.000	0.01183						

Toxaphene {5}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01706	25	25.000	0.01666	26	50.000	0.01741	27	100.000	0.01663
28	250.000	0.01569	29	500.000	0.01599						

Toxaphene {6}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.02109	25	25.000	0.02031	26	50.000	0.01826	27	100.000	0.01791
28	250.000	0.01688	29	500.000	0.01635						

beta-BHC

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.02	02	0.500	0.8943	03	1.000	0.7489	04	2.000	0.716
05	5.000	0.6344	06	10.000	0.6179						

cis-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.424	02	0.500	1.279	03	1.000	1.19	04	2.000	1.186
05	5.000	1.106	06	10.000	1.087						

cis-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.503	16	0.500	1.324	17	1.000	1.293	18	2.000	1.151
19	5.000	1.155	20	10.000	1.101						

trans-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.238	02	0.500	1.266	03	1.000	1.177	04	2.000	1.172
05	5.000	1.094	06	10.000	1.094						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB XLB

Analyte

trans-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.497	16	0.500	1.301	17	1.000	1.225	18	2.000	1.157
19	5.000	1.105	20	10.000	1.049						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB XLB

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	8.5	≤20	0.6228	
2,4'-DDE	TRG	Average RF	% RSD	18.1	≤20	0.7857	
2,4'-DDT	TRG	Average RF	% RSD	10.5	≤20	0.6847	
4,4'-DDD	TRG	Average RF	% RSD	2.3	≤20	0.8482	
4,4'-DDE	TRG	Average RF	% RSD	3.1	≤20	1.098	
4,4'-DDT	TRG	Average RF	% RSD	3.6	≤20	0.7214	
Aldrin	TRG	Average RF	% RSD	4.7	≤20	1.188	
Decachlorobiphenyl	SURR	Average RF	% RSD	8.0	≤20	1.207	
Dieldrin	TRG	Average RF	% RSD	4.1	≤20	1.097	
Oxychlordane	TRG	Average RF	% RSD	13.6	≤20	1.202	
Tetrachloro-m-xylene	SURR	Average RF	% RSD	5.4	≤20	1.391	
Toxaphene {1}	MULTI	Average RF	% RSD	4.3	≤20	0.007818	
Toxaphene {2}	MULTI	Average RF	% RSD	19.1	≤20	0.006518	
Toxaphene {3}	MULTI	Average RF	% RSD	9.7	≤20	0.01105	
Toxaphene {4}	MULTI	Average RF	% RSD	7.6	≤20	0.01333	
Toxaphene {5}	MULTI	Average RF	% RSD	3.9	≤20	0.01657	
Toxaphene {6}	MULTI	Average RF	% RSD	10.2	≤20	0.01847	
beta-BHC	TRG	Quadratic	COD	0.9997	≥0.990	0.7719	
cis-Chlordane	TRG	Average RF	% RSD	10.2	≤20	1.212	
cis-Nonachlor	TRG	Average RF	% RSD	11.9	≤20	1.255	
trans-Chlordane	TRG	Average RF	% RSD	6.1	≤20	1.173	
trans-Nonachlor	TRG	Average RF	% RSD	13.2	≤20	1.222	

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

#	Lab Code	Sample Name	File Location	Acquisition Date
08	KC2300558-08	24 .2 PPB GCPS9-27G @50X	J:\GC38\DATA\072123ICAL\0721F012.D	07/22/2023 00:03
09	KC2300558-09	24 .5 PPB GCPS9-27G @20X	J:\GC38\DATA\072123ICAL\0721F013.D	07/22/2023 00:48
10	KC2300558-10	24 1 PPB GCPS9-27G @10X	J:\GC38\DATA\072123ICAL\0721F014.D	07/22/2023 01:33
11	KC2300558-11	24 2 PPB GCPS9-27G @5X	J:\GC38\DATA\072123ICAL\0721F015.D	07/22/2023 02:17
12	KC2300558-12	24 5 PPB GCPS9-27G @2X	J:\GC38\DATA\072123ICAL\0721F016.D	07/22/2023 03:02
13	KC2300558-13	24 10 PPB GCPS9-27G	J:\GC38\DATA\072123ICAL\0721F017.D	07/22/2023 03:48
15	KC2300558-15	M/P .2/1 PPB GCPS9-33A @50X	J:\GC38\DATA\072123ICAL\0721F019.D	07/22/2023 05:19
16	KC2300558-16	M/P .5/2.5 PPB GCPS9-33A @20X	J:\GC38\DATA\072123ICAL\0721F020.D	07/22/2023 06:05
17	KC2300558-17	M/P 1/5 PPB GCPS9-33A@10X	J:\GC38\DATA\072123ICAL\0721F021.D	07/22/2023 06:50
18	KC2300558-18	M/P 2/10 PPB GCPS9-33A @5X	J:\GC38\DATA\072123ICAL\0721F022.D	07/22/2023 07:34
19	KC2300558-19	M/P 5/25 PPB GCPS9-33A @2X	J:\GC38\DATA\072123ICAL\0721F023.D	07/22/2023 08:19
20	KC2300558-20	M/P 10/50 PPB GCPS9-33A	J:\GC38\DATA\072123ICAL\0721F024.D	07/22/2023 09:04
21	KC2300558-21	PERTH 100 PPB GSP9-30E	J:\GC38\DATA\072123ICAL\0721F025.D	07/22/2023 09:50
24	KC2300558-24	TOX 10 PPB GCPS9-29E @50X	J:\GC38\DATA\072123ICAL\0721F028.D	07/22/2023 12:06
25	KC2300558-25	TOX 25 PPB GCPS9-29E @20X	J:\GC38\DATA\072123ICAL\0721F029.D	07/22/2023 12:51
26	KC2300558-26	TOX 50 PPB GCPS9-29E @10X	J:\GC38\DATA\072123ICAL\0721F030.D	07/22/2023 13:37
27	KC2300558-27	TOX 100 PPB GCPS9-29E @5X	J:\GC38\DATA\072123ICAL\0721F031.D	07/22/2023 14:22
28	KC2300558-28	TOX 250 PPB GCPS9-29E @2X	J:\GC38\DATA\072123ICAL\0721F032.D	07/22/2023 15:08
29	KC2300558-29	TOX 500 PPB GCPS9-29E	J:\GC38\DATA\072123ICAL\0721F033.D	07/22/2023 15:54
31	KC2300558-31	CHLOR 2 PPB GCPS9-34D @100X	J:\GC38\DATA\072123ICAL\0721F035.D	07/22/2023 17:25
32	KC2300558-32	CHLOR 5 PPB GCPS9-34D @40X	J:\GC38\DATA\072123ICAL\0721F036.D	07/22/2023 18:11
33	KC2300558-33	CHLOR 10 PPB GCPS9-34D @20X	J:\GC38\DATA\072123ICAL\0721F037.D	07/22/2023 18:57
34	KC2300558-34	CHLOR 20 PPB GCPS9-34D @10X	J:\GC38\DATA\072123ICAL\0721F038.D	07/22/2023 19:43
35	KC2300558-35	CHLOR 50 PPB GCPS9-34D @4X	J:\GC38\DATA\072123ICAL\0721F039.D	07/22/2023 20:28
36	KC2300558-36	CHLOR 100 PPB GCPS9-34D @2X	J:\GC38\DATA\072123ICAL\0721F040.D	07/22/2023 21:14
37	KC2300558-37	CHLOR 200 PPB GCPS9-34D	J:\GC38\DATA\072123ICAL\0721F041.D	07/22/2023 21:59
01	KC2300558-01	8081 .2 PPB GCPS9-38C @50X	J:\GC38\DATA\092523\0925F008.D	09/25/2023 16:31
02	KC2300558-02	8081 .5 PPB GCPS9-38C@20X	J:\GC38\DATA\092523\0925F009.D	09/25/2023 17:12
03	KC2300558-03	8081 1 PPB GCPS9-38C @10X	J:\GC38\DATA\092523\0925F010.D	09/25/2023 17:54
04	KC2300558-04	8081 2 PPB GCPS9-38C@5X	J:\GC38\DATA\092523\0925F011.D	09/25/2023 18:35
05	KC2300558-05	8081 5 PPB GCPS9-38C @2X	J:\GC38\DATA\092523\0925F012.D	09/25/2023 19:17
06	KC2300558-06	8081 10 PPB GCPS9-38C	J:\GC38\DATA\092523\0925F013.D	09/25/2023 19:58

Analyte

2,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	0.6367	09	0.500	0.6481	10	1.000	0.6173	11	2.000	0.6254
12	5.000	0.6207	13	10.000	0.5908						

Client: Floyd Snider **Service Request:** K2310173
Project: SmithKem **Calibration Date:** 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558 **Signal ID:** DB-35MS
Instrument ID: K-GC-38

Analyte

2,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	1.218	09	0.500	0.9887	10	1.000	0.8944	11	2.000	0.8766
12	5.000	0.8416	13	10.000	0.7926						

2,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	0.8004	09	0.500	0.742	10	1.000	0.6857	11	2.000	0.6872
12	5.000	0.6657	13	10.000	0.6335						

4,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.6998	02	0.500	0.7666	03	1.000	0.7179	04	2.000	0.7734
05	5.000	0.767	06	10.000	0.7788						

4,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.092	02	0.500	1.103	03	1.000	1.056	04	2.000	1.11
05	5.000	1.078	06	10.000	1.082						

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.652	02	0.500	0.7295	03	1.000	0.6919	04	2.000	0.7718
05	5.000	0.7854	06	10.000	0.7974						

Aldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.144	02	0.500	1.18	03	1.000	1.092	04	2.000	1.167
05	5.000	1.124	06	10.000	1.146						

Decachlorobiphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.486	02	0.500	1.484	03	1.000	1.397	04	2.000	1.425
05	5.000	1.282	06	10.000	1.192						

Dieldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.218	02	0.500	1.112	03	1.000	1.021	04	2.000	1.082
05	5.000	1.065	06	10.000	1.048						

Oxychlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.334	16	0.500	1.219	17	1.000	1.327	18	2.000	1.162
19	5.000	1.162	20	10.000	1.068						

Tetrachloro-m-xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.431	02	0.500	1.44	03	1.000	1.317	04	2.000	1.369
05	5.000	1.266	06	10.000	1.272						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

Analyte

Toxaphene {1}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.0225	25	25.000	0.02183	26	50.000	0.02111	27	100.000	0.02184
28	250.000	0.02031	29	500.000	0.01977						

Toxaphene {2}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01439	25	25.000	0.01426	26	50.000	0.01486	27	100.000	0.01778
28	250.000	0.0138	29	500.000	0.01374						

Toxaphene {3}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.02047	25	25.000	0.02012	26	50.000	0.02108	27	100.000	0.02258
28	250.000	0.02085	29	500.000	0.0205						

Toxaphene {4}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01299	25	25.000	0.01518	26	50.000	0.01477	27	100.000	0.01464
28	250.000	0.01414	29	500.000	0.01422						

Toxaphene {5}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.02252	25	25.000	0.02798	26	50.000	0.02609	27	100.000	0.02517
28	250.000	0.02539	29	500.000	0.02503						

Toxaphene {6}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.004329	25	25.000	0.006344	26	50.000	0.006614	27	100.000	0.006822
28	250.000	0.006606	29	500.000	0.006504						

beta-BHC

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.7744	02	0.500	0.7237	03	1.000	0.6802	04	2.000	0.6875
05	5.000	0.6635	06	10.000	0.6553						

cis-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.156	02	0.500	1.195	03	1.000	1.154	04	2.000	1.181
05	5.000	1.112	06	10.000	1.111						

cis-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.517	16	0.500	1.494	17	1.000	1.412	18	2.000	1.308
19	5.000	1.314	20	10.000	1.225						

trans-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.341	02	0.500	1.26	03	1.000	1.114	04	2.000	1.18
05	5.000	1.114	06	10.000	1.117						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

Analyte

trans-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.578	16	0.500	1.417	17	1.000	1.378	18	2.000	1.253
19	5.000	1.252	20	10.000	1.163						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	3.1	≤20	0.6231	
2,4'-DDE	TRG	Average RF	% RSD	16.4	≤20	0.9353	
2,4'-DDT	TRG	Average RF	% RSD	8.5	≤20	0.7024	
4,4'-DDD	TRG	Average RF	% RSD	4.4	≤20	0.7506	
4,4'-DDE	TRG	Average RF	% RSD	1.8	≤20	1.087	
4,4'-DDT	TRG	Average RF	% RSD	7.8	≤20	0.738	
Aldrin	TRG	Average RF	% RSD	2.7	≤20	1.142	
Decachlorobiphenyl	SURR	Average RF	% RSD	8.5	≤20	1.378	
Dieldrin	TRG	Average RF	% RSD	6.4	≤20	1.091	
Oxychlordane	TRG	Average RF	% RSD	8.6	≤20	1.212	
Tetrachloro-m-xylene	SURR	Average RF	% RSD	5.7	≤20	1.349	
Toxaphene {1}	MULTI	Average RF	% RSD	4.9	≤20	0.02123	
Toxaphene {2}	MULTI	Average RF	% RSD	10.2	≤20	0.01481	
Toxaphene {3}	MULTI	Average RF	% RSD	4.2	≤20	0.02093	
Toxaphene {4}	MULTI	Average RF	% RSD	5.3	≤20	0.01432	
Toxaphene {5}	MULTI	Average RF	% RSD	7.0	≤20	0.02536	
Toxaphene {6}	MULTI	Average RF	% RSD	15.0	≤20	0.006203	
beta-BHC	TRG	Average RF	% RSD	6.4	≤20	0.6974	
cis-Chlordane	TRG	Average RF	% RSD	3.0	≤20	1.152	
cis-Nonachlor	TRG	Average RF	% RSD	8.3	≤20	1.378	
trans-Chlordane	TRG	Average RF	% RSD	8.0	≤20	1.188	
trans-Nonachlor	TRG	Average RF	% RSD	11.1	≤20	1.34	

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Calibration Date: 9/29/2023

Initial Calibration Verification Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580
Instrument ID: K-GC-22

Signal ID: DB XLB

#	Lab Code	Sample Name	File Location	Acquisition Date
38	KC2300580-38	8081 ICV 2 PPB GCSP9-32G	J:\GC22\DATA\092823ICAL\0929F014.D	09/29/2023 23:05
07	KC2300580-07	2,4 ICV 2 PPB GCSP9-27I	J:\GC22\DATA\100523ICAL\1005F012.D	10/05/2023 22:38
14	KC2300580-14	TOX ICV 100 PPB GCSP9-22I @5X	J:\GC22\DATA\100523ICAL\1005F028.D	10/06/2023 06:48
22	KC2300580-22	CHLOR ICV 50 PPB GCSP9-24H	J:\GC22\DATA\100523ICAL\1005F036.D	10/06/2023 10:54
30	KC2300580-30	PERTH ICV 25 PPB GCSP9-36D	J:\GC22\DATA\100923\1009F013.D	10/09/2023 17:20
31	KC2300580-31	MISC ICV 2 PPB GCSP9-30G	J:\GC22\DATA\100923\1009F014.D	10/09/2023 17:51

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Aldrin	2.00	1.94	1.367E0	1.325E0	-3.102	±20	Average RF
beta-BHC	2.00	1.92	8.186E-1	7.862E-1	-3.956	±20	Average RF
cis-Chlordane	2.00	1.98	1.25E0	1.24E0	-0.811	±20	Average RF
trans-Chlordane	2.00	1.95	1.288E0	1.258E0	-2.322	±20	Average RF
2,4'-DDD	2.00	1.92	6.344E-1	6.078E-1	-4.199	±20	Average RF
4,4'-DDD	2.00	2.15	9.927E-1	1.069E0	7.70	±20	Average RF
2,4'-DDE	2.00	1.93	7.314E-1	7.07E-1	-3.333	±20	Average RF
4,4'-DDE	2.00	1.94	1.16E0	1.127E0	-2.821	±20	Average RF
2,4'-DDT	2.00	1.98	6.658E-1	6.596E-1	-0.929	±20	Average RF
4,4'-DDT	2.00	1.60	8.736E-1	6.998E-1	-19.899	±20	Average RF
Dieldrin	2.00	1.89	1.202E0	1.139E0	-5.277	±20	Average RF
cis-Nonachlor	2.00	1.69	1.511E0	1.11E0	-15.284	±20	Linear
trans-Nonachlor	2.00	1.75	1.362E0	1.193E0	-12.368	±20	Average RF
Oxychlordane	2.00	1.70	1.295E0	1.101E0	-15.018	±20	Average RF
Toxaphene	100	100			0.090	±20	NA

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Toxaphene {1}	100	92.0	8.47E-3	7.788E-3	-8.047	±100	Average RF
Toxaphene {2}	100	96.7	9.997E-3	9.665E-3	-3.328	±100	Average RF
Toxaphene {3}	100	107	1.613E-2	1.73E-2	7.25	±100	Average RF
Toxaphene {4}	100	104	1.309E-2	1.367E-2	4.48	±100	Average RF
Toxaphene {5}	100	91.4	2.045E-2	1.868E-2	-8.642	±100	Average RF
Toxaphene {6}	100	114	1.866E-2	2.133E-2	14.32	±100	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Calibration Date: 9/29/2023

Initial Calibration Verification Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580
Instrument ID: K-GC-22

Signal ID: DB-35MS

#	Lab Code	Sample Name	File Location	Acquisition Date
38	KC2300580-38	8081 ICV 2 PPB GCSP9-32G	J:\GC22\DATA\092823ICAL\0929F014.D	09/29/2023 23:05
07	KC2300580-07	2,4 ICV 2 PPB GCSP9-27I	J:\GC22\DATA\100523ICAL\1005F012.D	10/05/2023 22:38
14	KC2300580-14	TOX ICV 100 PPB GCSP9-22I @5X	J:\GC22\DATA\100523ICAL\1005F028.D	10/06/2023 06:48
22	KC2300580-22	CHLOR ICV 50 PPB GCSP9-24H	J:\GC22\DATA\100523ICAL\1005F036.D	10/06/2023 10:54
30	KC2300580-30	PERTH ICV 25 PPB GCSP9-36D	J:\GC22\DATA\100923\1009F013.D	10/09/2023 17:20
31	KC2300580-31	MISC ICV 2 PPB GCSP9-30G	J:\GC22\DATA\100923\1009F014.D	10/09/2023 17:51

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Aldrin	2.00	1.84	1.351E0	1.246E0	-7.832	±20	Average RF
beta-BHC	2.00	1.92	6.801E-1	6.524E-1	-4.074	±20	Average RF
cis-Chlordane	2.00	1.93	1.151E0	1.111E0	-3.498	±20	Average RF
trans-Chlordane	2.00	2.01	1.144E0	1.148E0	0.384	±20	Average RF
2,4'-DDD	2.00	1.98	5.726E-1	5.655E-1	-1.240	±20	Average RF
4,4'-DDD	2.00	1.76	1.057E0	9.287E-1	-12.172	±20	Average RF
2,4'-DDE	2.00	1.83	7.529E-1	6.89E-1	-8.494	±20	Average RF
4,4'-DDE	2.00	1.93	1.282E0	1.237E0	-3.487	±20	Average RF
2,4'-DDT	2.00	2.07	5.981E-1	6.191E-1	3.51	±20	Average RF
4,4'-DDT	2.00	1.68	9.866E-1	8.292E-1	-15.951	±20	Average RF
Dieldrin	2.00	1.85	1.135E0	1.051E0	-7.388	±20	Average RF
cis-Nonachlor	2.00	1.74	1.527E0	1.184E0	-12.923	±20	Linear
trans-Nonachlor	2.00	1.89	1.339E0	1.121E0	-5.368	±20	Linear
Oxychlordane	2.00	1.65	1.212E0	9.997E-1	-17.546	±20	Average RF
Toxaphene	100	98.4			-1.637	±20	NA

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Toxaphene {1}	100	91.6	2.192E-2	2.008E-2	-8.426	±100	Average RF
Toxaphene {2}	100	94.3	1.691E-2	1.594E-2	-5.739	±100	Average RF
Toxaphene {3}	100	112	1.858E-2	2.077E-2	11.79	±100	Average RF
Toxaphene {4}	100	95.8	1.347E-2	1.291E-2	-4.171	±100	Average RF
Toxaphene {5}	100	98.3	2.006E-2	1.972E-2	-1.689	±100	Average RF
Toxaphene {6}	100	109	2.436E-2	2.653E-2	8.92	±100	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Calibration Date: 7/22/2023

Initial Calibration Verification Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB XLB

#	Lab Code	Sample Name	File Location	Acquisition Date
14	KC2300558-14	24 ICV 2 PPB GCPS9-27I	J:\GC38\DATA\072123ICAL\0721F018.D	07/22/2023 04:33
22	KC2300558-22	PERTH ICV 25 PPB GSP9-30I	J:\GC38\DATA\072123ICAL\0721F026.D	07/22/2023 10:36
23	KC2300558-23	MISC ICV 2 PPB GCPS9-30G	J:\GC38\DATA\072123ICAL\0721F027.D	07/22/2023 11:21
30	KC2300558-30	TOX ICV 100 PPB GCPS9-22H @5X	J:\GC38\DATA\072123ICAL\0721F034.D	07/22/2023 16:39
38	KC2300558-38	CHLOR ICV 50 PPB GCPS9-24H	J:\GC38\DATA\072123ICAL\0721F042.D	07/22/2023 22:44
39	KC2300558-39	TOX ICV 100 PPB GCPS9-22H @5X	J:\GC38\DATA\072423\0724F009.D	07/25/2023 01:24
40	KC2300558-40	PERTH ICV 25 PPB GSP9-24F	J:\GC38\DATA\072523\0725F007.D	07/25/2023 21:01
07	KC2300558-07	8081 ICV 2 PPB GCPS9-32H	J:\GC38\DATA\092523\0925F014.D	09/25/2023 20:39

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Aldrin	2.00	1.99	1.188E0	1.182E0	-0.503	±20	Average RF
beta-BHC	2.00	2.14	7.719E-1	7.306E-1	7.23	±20	Quadratic
cis-Chlordane	2.00	2.00	1.212E0	1.215E0	0.231	±20	Average RF
trans-Chlordane	2.00	2.04	1.173E0	1.197E0	2.00	±20	Average RF
2,4'-DDD	2.00	2.02	6.228E-1	6.297E-1	1.11	±20	Average RF
4,4'-DDD	2.00	2.01	8.482E-1	8.537E-1	0.647	±20	Average RF
2,4'-DDE	2.00	1.90	7.857E-1	7.465E-1	-4.998	±20	Average RF
4,4'-DDE	2.00	2.06	1.098E0	1.131E0	3.01	±20	Average RF
2,4'-DDT	2.00	1.99	6.847E-1	6.819E-1	-0.413	±20	Average RF
4,4'-DDT	2.00	1.90	7.214E-1	6.861E-1	-4.900	±20	Average RF
Dieldrin	2.00	1.96	1.097E0	1.073E0	-2.155	±20	Average RF
cis-Nonachlor	2.00	1.70	1.255E0	1.066E0	-15.045	±20	Average RF
trans-Nonachlor	2.00	1.82	1.222E0	1.11E0	-9.211	±20	Average RF
Oxychlordane	2.00	1.80	1.202E0	1.083E0	-9.848	±20	Average RF
Toxaphene	100	102			1.61	±20	NA

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Toxaphene {1}	100	109	7.818E-3	8.531E-3	9.11	±100	Average RF
Toxaphene {2}	100	89.2	6.518E-3	5.814E-3	-10.811	±100	Average RF
Toxaphene {3}	100	105	1.105E-2	1.16E-2	4.94	±100	Average RF
Toxaphene {4}	100	103	1.333E-2	1.367E-2	2.53	±100	Average RF
Toxaphene {5}	100	104	1.657E-2	1.722E-2	3.90	±100	Average RF
Toxaphene {6}	100	100	1.847E-2	1.847E-2	-0.013	±100	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Calibration Date: 7/22/2023

Initial Calibration Verification Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

#	Lab Code	Sample Name	File Location	Acquisition Date
14	KC2300558-14	24 ICV 2 PPB GCPS9-27I	J:\GC38\DATA\072123ICAL\0721F018.D	07/22/2023 04:33
22	KC2300558-22	PERTH ICV 25 PPB GSP9-30I	J:\GC38\DATA\072123ICAL\0721F026.D	07/22/2023 10:36
23	KC2300558-23	MISC ICV 2 PPB GCPS9-30G	J:\GC38\DATA\072123ICAL\0721F027.D	07/22/2023 11:21
30	KC2300558-30	TOX ICV 100 PPB GCPS9-22H @5X	J:\GC38\DATA\072123ICAL\0721F034.D	07/22/2023 16:39
38	KC2300558-38	CHLOR ICV 50 PPB GCPS9-24H	J:\GC38\DATA\072123ICAL\0721F042.D	07/22/2023 22:44
39	KC2300558-39	TOX ICV 100 PPB GCPS9-22H @5X	J:\GC38\DATA\072423\0724F009.D	07/25/2023 01:24
40	KC2300558-40	PERTH ICV 25 PPB GSP9-24F	J:\GC38\DATA\072523\0725F007.D	07/25/2023 21:01
07	KC2300558-07	8081 ICV 2 PPB GCPS9-32H	J:\GC38\DATA\092523\0925F014.D	09/25/2023 20:39

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Aldrin	2.00	2.05	1.142E0	1.173E0	2.66	±20	Average RF
beta-BHC	2.00	2.03	6.974E-1	7.083E-1	1.56	±20	Average RF
cis-Chlordane	2.00	2.10	1.152E0	1.209E0	4.96	±20	Average RF
trans-Chlordane	2.00	2.01	1.188E0	1.193E0	0.489	±20	Average RF
2,4'-DDD	2.00	2.05	6.231E-1	6.396E-1	2.64	±20	Average RF
4,4'-DDD	2.00	2.13	7.506E-1	7.986E-1	6.39	±20	Average RF
2,4'-DDE	2.00	1.92	9.353E-1	8.995E-1	-3.836	±20	Average RF
4,4'-DDE	2.00	2.06	1.087E0	1.119E0	2.96	±20	Average RF
2,4'-DDT	2.00	1.98	7.024E-1	6.94E-1	-1.192	±20	Average RF
4,4'-DDT	2.00	1.99	7.38E-1	7.326E-1	-0.722	±20	Average RF
Dieldrin	2.00	1.92	1.091E0	1.049E0	-3.879	±20	Average RF
cis-Nonachlor	2.00	1.79	1.378E0	1.23E0	-10.745	±20	Average RF
trans-Nonachlor	2.00	1.86	1.34E0	1.243E0	-7.225	±20	Average RF
Oxychlordane	2.00	1.89	1.212E0	1.143E0	-5.677	±20	Average RF
Toxaphene	100	109			8.68	±20	NA

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Toxaphene {1}	100	105	2.123E-2	2.229E-2	5.02	±100	Average RF
Toxaphene {2}	100	109	1.481E-2	1.607E-2	8.53	±100	Average RF
Toxaphene {3}	100	106	2.093E-2	2.211E-2	5.61	±100	Average RF
Toxaphene {4}	100	108	1.432E-2	1.554E-2	8.46	±100	Average RF
Toxaphene {5}	100	108	2.536E-2	2.746E-2	8.29	±100	Average RF
Toxaphene {6}	100	116	6.203E-3	7.205E-3	16.15	±100	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/13/23 14:13

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC22\DATA\101323A\1013F003.D\
Signal ID: DB-35MS

Calibration Date: 9/29/2023
Calibration ID: KC2300580
Analysis Lot: 820939
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	1.72	1.3514	1.1641	-13.9	NA	±20	Average RF
beta-BHC	2.00	1.81	0.6801	0.6169	-9.3	NA	±20	Average RF
cis-Chlordane	2.00	1.82	1.1513	1.0469	-9.1	NA	±20	Average RF
trans-Chlordane	2.00	1.83	1.1437	1.0446	-8.7	NA	±20	Average RF
2,4'-DDD	2.00	1.78	0.5726	0.5096	-11.0	NA	±20	Average RF
4,4'-DDD	2.00	1.65	1.0574	0.8738	-17.4	NA	±20	Average RF
2,4'-DDE	2.00	1.69	0.7529	0.6359	-15.5	NA	±20	Average RF
4,4'-DDE	2.00	1.73	1.2821	1.111	-13.3	NA	±20	Average RF
2,4'-DDT	2.00	1.89	0.5981	0.5661	-5.3	NA	±20	Average RF
4,4'-DDT	2.00	1.83	0.9866	0.9026	-8.5	NA	±20	Average RF
Dieldrin	2.00	1.82	1.1352	1.0311	-9.2	NA	±20	Average RF
cis-Nonachlor	2.00	1.85	1.5272	1.2491	NA	-7.6	±20	Linear
trans-Nonachlor	2.00	2.02	1.3387	1.1888	NA	0.8	±20	Linear
Oxychlordane	2.00	1.87	1.2125	1.1306	-6.8	NA	±20	Average RF
Toxaphene	100	92.1	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	83.4	0.0219	0.0183	-16.6	NA	±100	Average RF
Toxaphene {2}	100	87.2	0.0169	0.0147	-12.8	NA	±100	Average RF
Toxaphene {3}	100	94.8	0.0186	0.0176	-5.2	NA	±100	Average RF
Toxaphene {4}	100	89.3	0.0135	0.012	-10.7	NA	±100	Average RF
Toxaphene {5}	100	93.6	0.0201	0.0188	-6.4	NA	±100	Average RF
Toxaphene {6}	100	104	0.0244	0.0254	4.1	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.67	1.0491	0.8761	-16.5	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.79	1.1122	0.9975	-10.3	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/13/23 14:13

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC22\DATA\101323A\1013F003.D\
Signal ID: DB XLB

Calibration Date: 9/29/2023
Calibration ID: KC2300580
Analysis Lot: 820939
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	1.75	1.3675	1.1987	-12.3	NA	±20	Average RF
beta-BHC	2.00	1.67	0.8186	0.6813	-16.8	NA	±20	Average RF
cis-Chlordane	2.00	1.75	1.2503	1.0922	-12.6	NA	±20	Average RF
trans-Chlordane	2.00	1.74	1.2876	1.1206	-13.0	NA	±20	Average RF
2,4'-DDD	2.00	1.75	0.6344	0.5563	-12.3	NA	±20	Average RF
4,4'-DDD	2.00	1.62	0.9927	0.8016	-19.2	NA	±20	Average RF
2,4'-DDE	2.00	1.80	0.7314	0.658	-10.0	NA	±20	Average RF
4,4'-DDE	2.00	1.72	1.1596	0.9977	-14.0	NA	±20	Average RF
2,4'-DDT	2.00	1.75	0.6658	0.5821	-12.6	NA	±20	Average RF
4,4'-DDT	2.00	1.83	0.8736	0.8006	-8.4	NA	±20	Average RF
Dieldrin	2.00	1.76	1.202	1.0547	-12.3	NA	±20	Average RF
cis-Nonachlor	2.00	1.95	1.5113	1.2652	NA	-2.5	±20	Linear
trans-Nonachlor	2.00	1.85	1.3619	1.2575	-7.7	NA	±20	Average RF
Oxychlordane	2.00	1.85	1.295	1.2003	-7.3	NA	±20	Average RF
Toxaphene	100	98.5	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	92.8	0.0085	0.0079	-7.2	NA	±100	Average RF
Toxaphene {2}	100	93.9	0.01	0.0094	-6.1	NA	±100	Average RF
Toxaphene {3}	100	104	0.0161	0.0167	3.5	NA	±100	Average RF
Toxaphene {4}	100	97.2	0.0131	0.0127	-2.8	NA	±100	Average RF
Toxaphene {5}	100	96.1	0.0204	0.0196	-3.9	NA	±100	Average RF
Toxaphene {6}	100	107	0.0187	0.02	7.3	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.67	0.9677	0.8059	-16.7	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.78	1.2666	1.129	-10.9	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/16/23 18:34

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC22\DATA\101623\1016F005.D\
Signal ID: DB-35MS

Calibration Date: 9/29/2023
Calibration ID: KC2300580
Analysis Lot: 820939
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	1.72	1.3514	1.16	-14.2	NA	±20	Average RF
beta-BHC	2.00	1.81	0.6801	0.6164	-9.4	NA	±20	Average RF
cis-Chlordane	2.00	1.83	1.1513	1.0532	-8.5	NA	±20	Average RF
trans-Chlordane	2.00	1.98	1.1437	1.1294	-1.3	NA	±20	Average RF
2,4'-DDD	2.00	1.88	0.5726	0.5372	-6.2	NA	±20	Average RF
4,4'-DDD	2.00	1.54	1.0574	0.8139	-23.0*	NA	±20	Average RF
2,4'-DDE	2.00	1.79	0.7529	0.6748	-10.4	NA	±20	Average RF
4,4'-DDE	2.00	1.91	1.2821	1.227	-4.3	NA	±20	Average RF
2,4'-DDT	2.00	1.88	0.5981	0.5612	-6.2	NA	±20	Average RF
4,4'-DDT	2.00	1.78	0.9866	0.8785	-11.0	NA	±20	Average RF
Dieldrin	2.00	1.78	1.1352	1.0097	-11.1	NA	±20	Average RF
cis-Nonachlor	2.00	1.83	1.5272	1.2349	NA	-8.8	±20	Linear
trans-Nonachlor	2.00	2.05	1.3387	1.21	NA	2.7	±20	Linear
Oxychlordane	2.00	1.90	1.2125	1.1485	-5.3	NA	±20	Average RF
Toxaphene	100	92.7	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	87.7	0.0219	0.0192	-12.3	NA	±100	Average RF
Toxaphene {2}	100	91.1	0.0169	0.0154	-8.9	NA	±100	Average RF
Toxaphene {3}	100	96.5	0.0186	0.0179	-3.5	NA	±100	Average RF
Toxaphene {4}	100	89.6	0.0135	0.0121	-10.4	NA	±100	Average RF
Toxaphene {5}	100	92.2	0.0201	0.0185	-7.8	NA	±100	Average RF
Toxaphene {6}	100	99.0	0.0244	0.0241	-1.0	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.72	1.0491	0.9022	-14.0	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.84	1.1122	1.0219	-8.1	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/16/23 18:34

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC22\DATA\101623\1016F005.D\
Signal ID: DB XLB

Calibration Date: 9/29/2023
Calibration ID: KC2300580
Analysis Lot: 820939
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	1.75	1.3675	1.1978	-12.4	NA	±20	Average RF
beta-BHC	2.00	1.66	0.8186	0.6779	-17.2	NA	±20	Average RF
cis-Chlordane	2.00	1.81	1.2503	1.1299	-9.6	NA	±20	Average RF
trans-Chlordane	2.00	1.80	1.2876	1.1569	-10.1	NA	±20	Average RF
2,4'-DDD	2.00	1.93	0.6344	0.6123	-3.5	NA	±20	Average RF
4,4'-DDD	2.00	1.72	0.9927	0.8548	-13.9	NA	±20	Average RF
2,4'-DDE	2.00	1.90	0.7314	0.6936	-5.2	NA	±20	Average RF
4,4'-DDE	2.00	1.80	1.1596	1.0441	-10.0	NA	±20	Average RF
2,4'-DDT	2.00	1.82	0.6658	0.6058	-9.0	NA	±20	Average RF
4,4'-DDT	2.00	1.85	0.8736	0.8065	-7.7	NA	±20	Average RF
Dieldrin	2.00	1.83	1.202	1.0974	-8.7	NA	±20	Average RF
cis-Nonachlor	2.00	2.01	1.5113	1.3031	NA	0.7	±20	Linear
trans-Nonachlor	2.00	1.87	1.3619	1.2714	-6.6	NA	±20	Average RF
Oxychlordane	2.00	1.92	1.295	1.2413	-4.1	NA	±20	Average RF
Toxaphene	100	104	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	95.0	0.0085	0.008	-5.0	NA	±100	Average RF
Toxaphene {2}	100	97.3	0.01	0.0097	-2.7	NA	±100	Average RF
Toxaphene {3}	100	110	0.0161	0.0178	10.3	NA	±100	Average RF
Toxaphene {4}	100	101	0.0131	0.0132	0.8	NA	±100	Average RF
Toxaphene {5}	100	106	0.0204	0.0217	5.9	NA	±100	Average RF
Toxaphene {6}	100	117	0.0187	0.0218	17.0	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.79	0.9677	0.8677	-10.3	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.81	1.2666	1.1453	-9.6	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/17/23 05:15

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC22\DATA\101623\1016F026.D\
Signal ID: DB-35MS

Calibration Date: 9/29/2023
Calibration ID: KC2300580
Analysis Lot: 820939
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	1.74	1.3514	1.178	-12.8	NA	±20	Average RF
beta-BHC	2.00	1.81	0.6801	0.6146	-9.6	NA	±20	Average RF
cis-Chlordane	2.00	1.84	1.1513	1.0587	-8.0	NA	±20	Average RF
trans-Chlordane	2.00	1.95	1.1437	1.1121	-2.8	NA	±20	Average RF
2,4'-DDD	2.00	1.89	0.5726	0.5404	-5.6	NA	±20	Average RF
4,4'-DDD	2.00	1.65	1.0574	0.8718	-17.6	NA	±20	Average RF
2,4'-DDE	2.00	1.79	0.7529	0.6732	-10.6	NA	±20	Average RF
4,4'-DDE	2.00	1.76	1.2821	1.1268	-12.1	NA	±20	Average RF
2,4'-DDT	2.00	1.91	0.5981	0.5696	-4.8	NA	±20	Average RF
4,4'-DDT	2.00	1.83	0.9866	0.9016	-8.6	NA	±20	Average RF
Dieldrin	2.00	1.83	1.1352	1.0367	-8.7	NA	±20	Average RF
cis-Nonachlor	2.00	1.93	1.5272	1.2973	NA	-3.7	±20	Linear
trans-Nonachlor	2.00	2.01	1.3387	1.1827	NA	0.3	±20	Linear
Oxychlordane	2.00	1.99	1.2125	1.2056	-0.6	NA	±20	Average RF
Toxaphene	100	92.2	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	89.3	0.0219	0.0196	-10.7	NA	±100	Average RF
Toxaphene {2}	100	89.2	0.0169	0.0151	-10.8	NA	±100	Average RF
Toxaphene {3}	100	96.6	0.0186	0.0179	-3.4	NA	±100	Average RF
Toxaphene {4}	100	92.1	0.0135	0.0124	-7.9	NA	±100	Average RF
Toxaphene {5}	100	91.7	0.0201	0.0184	-8.3	NA	±100	Average RF
Toxaphene {6}	100	94.0	0.0244	0.0229	-6.0	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.73	1.0491	0.9048	-13.8	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.85	1.1122	1.026	-7.8	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/17/23 05:15

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC22\DATA\101623\1016F026.D\
Signal ID: DB XLB

Calibration Date: 9/29/2023
Calibration ID: KC2300580
Analysis Lot: 820939
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	1.76	1.3675	1.2061	-11.8	NA	±20	Average RF
beta-BHC	2.00	1.70	0.8186	0.6946	-15.1	NA	±20	Average RF
cis-Chlordane	2.00	1.83	1.2503	1.1429	-8.6	NA	±20	Average RF
trans-Chlordane	2.00	1.79	1.2876	1.1504	-10.7	NA	±20	Average RF
2,4'-DDD	2.00	1.87	0.6344	0.5929	-6.5	NA	±20	Average RF
4,4'-DDD	2.00	1.70	0.9927	0.8438	-15.0	NA	±20	Average RF
2,4'-DDE	2.00	1.96	0.7314	0.7156	-2.2	NA	±20	Average RF
4,4'-DDE	2.00	1.76	1.1596	1.0226	-11.8	NA	±20	Average RF
2,4'-DDT	2.00	1.84	0.6658	0.6122	-8.1	NA	±20	Average RF
4,4'-DDT	2.00	1.85	0.8736	0.8065	-7.7	NA	±20	Average RF
Dieldrin	2.00	1.81	1.202	1.0896	-9.3	NA	±20	Average RF
cis-Nonachlor	2.00	1.99	1.5113	1.2892	NA	-0.5	±20	Linear
trans-Nonachlor	2.00	1.88	1.3619	1.2824	-5.8	NA	±20	Average RF
Oxychlordane	2.00	1.91	1.295	1.2363	-4.5	NA	±20	Average RF
Toxaphene	100	108	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	101	0.0085	0.0086	1.3	NA	±100	Average RF
Toxaphene {2}	100	108	0.01	0.0108	8.2	NA	±100	Average RF
Toxaphene {3}	100	110	0.0161	0.0177	9.7	NA	±100	Average RF
Toxaphene {4}	100	105	0.0131	0.0138	5.1	NA	±100	Average RF
Toxaphene {5}	100	105	0.0204	0.0215	5.2	NA	±100	Average RF
Toxaphene {6}	100	119	0.0187	0.0223	19.5	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.90	0.9677	0.9182	-5.1	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.84	1.2666	1.1641	-8.1	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/19/23 13:39

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC22\DATA\101923\1019F005.D\
Signal ID: DB-35MS

Calibration Date: 9/29/2023
Calibration ID: KC2300580
Analysis Lot: 821228
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	1.72	1.3514	1.1585	-14.3	NA	±20	Average RF
beta-BHC	2.00	1.78	0.6801	0.6044	-11.1	NA	±20	Average RF
cis-Chlordane	2.00	1.82	1.1513	1.0456	-9.2	NA	±20	Average RF
trans-Chlordane	2.00	1.81	1.1437	1.0355	-9.5	NA	±20	Average RF
4,4'-DDD	2.00	1.65	1.0574	0.8716	-17.6	NA	±20	Average RF
4,4'-DDE	2.00	1.75	1.2821	1.1196	-12.7	NA	±20	Average RF
4,4'-DDT	2.00	1.70	0.9866	0.8407	-14.8	NA	±20	Average RF
Dieldrin	2.00	1.77	1.1352	1.0057	-11.4	NA	±20	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.66	1.0491	0.869	-17.2	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.81	1.1122	1.009	-9.3	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/19/23 13:39

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC22\DATA\101923\1019F005.D\
Signal ID: DB XLB

Calibration Date: 9/29/2023
Calibration ID: KC2300580
Analysis Lot: 821228
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	1.94	1.3675	1.3238	-3.2	NA	±20	Average RF
beta-BHC	2.00	1.88	0.8186	0.7707	-5.8	NA	±20	Average RF
cis-Chlordane	2.00	1.96	1.2503	1.2235	-2.1	NA	±20	Average RF
trans-Chlordane	2.00	1.92	1.2876	1.2388	-3.8	NA	±20	Average RF
4,4'-DDD	2.00	1.81	0.9927	0.8993	-9.4	NA	±20	Average RF
4,4'-DDE	2.00	1.93	1.1596	1.1194	-3.5	NA	±20	Average RF
4,4'-DDT	2.00	1.99	0.8736	0.8682	-0.6	NA	±20	Average RF
Dieldrin	2.00	1.94	1.202	1.1685	-2.8	NA	±20	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.93	0.9677	0.9321	-3.7	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.98	1.2666	1.2542	-1.0	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/23/23 10:27

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\102323\1023F004.D\
Signal ID: DB XLB

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 821606
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.07	1.1876	1.2263	3.3	NA	±20	Average RF
beta-BHC	2.00	1.84	0.7719	0.6363	NA	-8.0	±20	Quadratic
cis-Chlordane	2.00	1.94	1.2121	1.1753	-3.0	NA	±20	Average RF
trans-Chlordane	2.00	1.94	1.1734	1.1369	-3.1	NA	±20	Average RF
4,4'-DDD	2.00	2.16	0.8482	0.917	8.1	NA	±20	Average RF
4,4'-DDE	2.00	2.00	1.0981	1.0962	-0.2	NA	±20	Average RF
4,4'-DDT	2.00	1.67	0.7214	0.6025	-16.5	NA	±20	Average RF
Dieldrin	2.00	2.01	1.0966	1.0996	0.3	NA	±20	Average RF
Toxaphene	100	103	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	96.9	0.0078	0.0076	-3.1	NA	±100	Average RF
Toxaphene {2}	100	114	0.0065	0.0074	14.2	NA	±100	Average RF
Toxaphene {3}	100	101	0.0111	0.0111	0.8	NA	±100	Average RF
Toxaphene {4}	100	96.2	0.0133	0.0128	-3.8	NA	±100	Average RF
Toxaphene {5}	100	106	0.0166	0.0176	6.1	NA	±100	Average RF
Toxaphene {6}	100	102	0.0185	0.0188	1.7	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.92	1.2072	1.1609	-3.8	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.85	1.3913	1.2856	-7.6	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/23/23 10:27

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\102323\1023F004.D\
Signal ID: DB-35MS

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 821606
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.19	1.1423	1.2499	9.4	NA	±20	Average RF
beta-BHC	2.00	1.76	0.6974	0.6149	-11.8	NA	±20	Average RF
cis-Chlordane	2.00	2.00	1.1517	1.1497	-0.2	NA	±20	Average RF
trans-Chlordane	2.00	1.91	1.1876	1.1353	-4.4	NA	±20	Average RF
4,4'-DDD	2.00	1.96	0.7506	0.7341	-2.2	NA	±20	Average RF
4,4'-DDE	2.00	2.05	1.0867	1.1159	2.7	NA	±20	Average RF
4,4'-DDT	2.00	1.70	0.738	0.627	-15.0	NA	±20	Average RF
Dieldrin	2.00	1.95	1.0912	1.0637	-2.5	NA	±20	Average RF
Toxaphene	100	92.7	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	87.0	0.0212	0.0185	-13.0	NA	±100	Average RF
Toxaphene {2}	100	93.3	0.0148	0.0138	-6.7	NA	±100	Average RF
Toxaphene {3}	100	100	0.0209	0.021	0.1	NA	±100	Average RF
Toxaphene {4}	100	96.2	0.0143	0.0138	-3.8	NA	±100	Average RF
Toxaphene {5}	100	92.2	0.0254	0.0234	-7.8	NA	±100	Average RF
Toxaphene {6}	100	87.1	0.0062	0.0054	-12.9	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.88	1.3777	1.2916	-6.2	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.89	1.3493	1.2745	-5.5	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/24/23 00:12

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\102323\1023F020.D\
Signal ID: DB XLB

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 821606
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.02	1.1876	1.1979	0.9	NA	±20	Average RF
beta-BHC	2.00	1.84	0.7719	0.6357	NA	-8.1	±20	Quadratic
cis-Chlordane	2.00	1.90	1.2121	1.1494	-5.2	NA	±20	Average RF
trans-Chlordane	2.00	1.91	1.1734	1.1187	-4.7	NA	±20	Average RF
4,4'-DDD	2.00	2.07	0.8482	0.8759	3.3	NA	±20	Average RF
4,4'-DDE	2.00	1.89	1.0981	1.038	-5.5	NA	±20	Average RF
4,4'-DDT	2.00	1.53	0.7214	0.5501	-23.8*	NA	±20	Average RF
Dieldrin	2.00	1.98	1.0966	1.0847	-1.1	NA	±20	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.78	1.2072	1.0724	-11.2	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.71	1.3913	1.1874	-14.7	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/24/23 00:12

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\102323\1023F020.D\
Signal ID: DB-35MS

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 821606
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.13	1.1423	1.2178	6.6	NA	±20	Average RF
beta-BHC	2.00	1.78	0.6974	0.6192	-11.2	NA	±20	Average RF
cis-Chlordane	2.00	1.99	1.1517	1.1438	-0.7	NA	±20	Average RF
trans-Chlordane	2.00	1.89	1.1876	1.1229	-5.4	NA	±20	Average RF
4,4'-DDD	2.00	1.95	0.7506	0.7306	-2.7	NA	±20	Average RF
4,4'-DDE	2.00	1.96	1.0867	1.0663	-1.9	NA	±20	Average RF
4,4'-DDT	2.00	1.56	0.738	0.5757	-22.0*	NA	±20	Average RF
Dieldrin	2.00	1.97	1.0912	1.0743	-1.5	NA	±20	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.82	1.3777	1.2554	-8.9	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.80	1.3493	1.2126	-10.1	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/30/23 13:31

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\103023\1030F004.D\
Signal ID: DB XLB

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 822348
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.16	1.1876	1.2804	7.8	NA	±20	Average RF
beta-BHC	2.00	1.99	0.7719	0.6816	NA	-0.7	±20	Quadratic
cis-Chlordane	2.00	2.08	1.2121	1.2588	3.9	NA	±20	Average RF
trans-Chlordane	2.00	2.08	1.1734	1.218	3.8	NA	±20	Average RF
2,4'-DDD	2.00	2.24	0.6228	0.698	12.1	NA	±20	Average RF
4,4'-DDD	2.00	2.02	0.8482	0.8565	1.0	NA	±20	Average RF
2,4'-DDE	2.00	2.45	0.7857	0.9634	22.6*	NA	±20	Average RF
4,4'-DDE	2.00	2.17	1.0981	1.1926	8.6	NA	±20	Average RF
2,4'-DDT	2.00	1.81	0.6847	0.6186	-9.7	NA	±20	Average RF
4,4'-DDT	2.00	1.84	0.7214	0.663	-8.1	NA	±20	Average RF
Dieldrin	2.00	2.15	1.0966	1.1773	7.4	NA	±20	Average RF
cis-Nonachlor	2.00	2.49	1.2545	1.5638	24.7*	NA	±20	Average RF
trans-Nonachlor	2.00	2.38	1.2224	1.457	19.2	NA	±20	Average RF
Oxychlordane	2.00	2.30	1.2018	1.3825	15.0	NA	±20	Average RF
Toxaphene	100	112	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	114	0.0078	0.0089	13.9	NA	±100	Average RF
Toxaphene {2}	100	106	0.0065	0.0069	6.3	NA	±100	Average RF
Toxaphene {3}	100	116	0.0111	0.0128	16.1	NA	±100	Average RF
Toxaphene {4}	100	111	0.0133	0.0148	10.7	NA	±100	Average RF
Toxaphene {5}	100	109	0.0166	0.018	8.5	NA	±100	Average RF
Toxaphene {6}	100	115	0.0185	0.0212	15.0	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.23	1.2072	1.3456	11.5	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.97	1.3913	1.3721	-1.4	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/30/23 13:31

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\103023\1030F004.D\
Signal ID: DB-35MS

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 822348
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.33	1.1423	1.329	16.3	NA	±20	Average RF
beta-BHC	2.00	1.94	0.6974	0.6778	-2.8	NA	±20	Average RF
cis-Chlordane	2.00	2.22	1.1517	1.277	10.9	NA	±20	Average RF
trans-Chlordane	2.00	2.11	1.1876	1.2531	5.5	NA	±20	Average RF
2,4'-DDD	2.00	2.19	0.6231	0.6826	9.5	NA	±20	Average RF
4,4'-DDD	2.00	2.22	0.7506	0.8319	10.8	NA	±20	Average RF
2,4'-DDE	2.00	1.96	0.9353	0.9154	-2.1	NA	±20	Average RF
4,4'-DDE	2.00	2.18	1.0867	1.1817	8.7	NA	±20	Average RF
2,4'-DDT	2.00	2.07	0.7024	0.7257	3.3	NA	±20	Average RF
4,4'-DDT	2.00	2.51	0.738	0.9255	25.4*	NA	±20	Average RF
Dieldrin	2.00	2.15	1.0912	1.1712	7.3	NA	±20	Average RF
cis-Nonachlor	2.00	2.39	1.3783	1.6469	19.5	NA	±20	Average RF
trans-Nonachlor	2.00	2.28	1.3402	1.5251	13.8	NA	±20	Average RF
Oxychlordane	2.00	2.33	1.2122	1.412	16.5	NA	±20	Average RF
Toxaphene	100	114	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	108	0.0212	0.023	8.3	NA	±100	Average RF
Toxaphene {2}	100	114	0.0148	0.0169	14.0	NA	±100	Average RF
Toxaphene {3}	100	113	0.0209	0.0237	13.0	NA	±100	Average RF
Toxaphene {4}	100	115	0.0143	0.0165	15.0	NA	±100	Average RF
Toxaphene {5}	100	115	0.0254	0.0292	15.2	NA	±100	Average RF
Toxaphene {6}	100	119	0.0062	0.0074	19.2	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.09	1.3777	1.4383	4.4	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.96	1.3493	1.3225	-2.0	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/31/23 01:18

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\103023\1030F021.D\
Signal ID: DB XLB

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 822348
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.11	1.1876	1.2513	5.4	NA	±20	Average RF
beta-BHC	2.00	1.96	0.7719	0.6732	NA	-2.0	±20	Quadratic
cis-Chlordane	2.00	2.04	1.2121	1.2353	1.9	NA	±20	Average RF
trans-Chlordane	2.00	2.04	1.1734	1.1983	2.1	NA	±20	Average RF
2,4'-DDD	2.00	2.23	0.6228	0.6941	11.4	NA	±20	Average RF
4,4'-DDD	2.00	2.03	0.8482	0.8591	1.3	NA	±20	Average RF
2,4'-DDE	2.00	2.40	0.7857	0.9445	20.2	NA	±20	Average RF
4,4'-DDE	2.00	2.15	1.0981	1.1811	7.6	NA	±20	Average RF
2,4'-DDT	2.00	1.80	0.6847	0.6152	-10.1	NA	±20	Average RF
4,4'-DDT	2.00	1.80	0.7214	0.6481	-10.2	NA	±20	Average RF
Dieldrin	2.00	2.14	1.0966	1.1756	7.2	NA	±20	Average RF
cis-Nonachlor	2.00	2.49	1.2545	1.5608	24.4*	NA	±20	Average RF
trans-Nonachlor	2.00	2.37	1.2224	1.4482	18.5	NA	±20	Average RF
Oxychlordane	2.00	2.32	1.2018	1.3917	15.8	NA	±20	Average RF
Toxaphene	100	110	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	115	0.0078	0.009	14.9	NA	±100	Average RF
Toxaphene {2}	100	99.7	0.0065	0.0065	-0.3	NA	±100	Average RF
Toxaphene {3}	100	117	0.0111	0.0129	16.5	NA	±100	Average RF
Toxaphene {4}	100	108	0.0133	0.0144	7.7	NA	±100	Average RF
Toxaphene {5}	100	110	0.0166	0.0183	10.3	NA	±100	Average RF
Toxaphene {6}	100	110	0.0185	0.0203	10.1	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.19	1.2072	1.3199	9.3	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.93	1.3913	1.3457	-3.3	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/31/23 01:18

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\103023\1030F021.D\
Signal ID: DB-35MS

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 822348
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.26	1.1423	1.2883	12.8	NA	±20	Average RF
beta-BHC	2.00	1.98	0.6974	0.6903	-1.0	NA	±20	Average RF
cis-Chlordane	2.00	2.20	1.1517	1.266	9.9	NA	±20	Average RF
trans-Chlordane	2.00	2.10	1.1876	1.2459	4.9	NA	±20	Average RF
2,4'-DDD	2.00	2.22	0.6231	0.6922	11.1	NA	±20	Average RF
4,4'-DDD	2.00	2.17	0.7506	0.8145	8.5	NA	±20	Average RF
2,4'-DDE	2.00	1.94	0.9353	0.9063	-3.1	NA	±20	Average RF
4,4'-DDE	2.00	2.12	1.0867	1.1539	6.2	NA	±20	Average RF
2,4'-DDT	2.00	2.01	0.7024	0.7066	0.6	NA	±20	Average RF
4,4'-DDT	2.00	2.34	0.738	0.8634	17.0	NA	±20	Average RF
Dieldrin	2.00	2.26	1.0912	1.2302	12.7	NA	±20	Average RF
cis-Nonachlor	2.00	2.36	1.3783	1.6292	18.2	NA	±20	Average RF
trans-Nonachlor	2.00	2.26	1.3402	1.5136	12.9	NA	±20	Average RF
Oxychlordane	2.00	2.30	1.2122	1.3961	15.2	NA	±20	Average RF
Toxaphene	100	117	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	111	0.0212	0.0235	10.7	NA	±100	Average RF
Toxaphene {2}	100	120	0.0148	0.0177	19.7	NA	±100	Average RF
Toxaphene {3}	100	117	0.0209	0.0245	16.8	NA	±100	Average RF
Toxaphene {4}	100	116	0.0143	0.0166	15.6	NA	±100	Average RF
Toxaphene {5}	100	116	0.0254	0.0294	16.0	NA	±100	Average RF
Toxaphene {6}	100	121	0.0062	0.0075	20.9	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.09	1.3777	1.4392	4.5	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.88	1.3493	1.2697	-5.9	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/31/23 13:03

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\103023\1030F038.D\
Signal ID: DB XLB

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 822348
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.08	1.1876	1.2344	3.9	NA	±20	Average RF
beta-BHC	2.00	2.01	0.7719	0.6894	NA	0.6	±20	Quadratic
cis-Chlordane	2.00	2.03	1.2121	1.2298	1.5	NA	±20	Average RF
trans-Chlordane	2.00	2.00	1.1734	1.1722	-0.1	NA	±20	Average RF
4,4'-DDD	2.00	2.01	0.8482	0.8535	0.6	NA	±20	Average RF
4,4'-DDE	2.00	2.06	1.0981	1.1289	2.8	NA	±20	Average RF
4,4'-DDT	2.00	1.74	0.7214	0.6269	-13.1	NA	±20	Average RF
Dieldrin	2.00	2.13	1.0966	1.1701	6.7	NA	±20	Average RF
Toxaphene	100	106	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	105	0.0078	0.0082	4.9	NA	±100	Average RF
Toxaphene {2}	100	103	0.0065	0.0067	3.1	NA	±100	Average RF
Toxaphene {3}	100	115	0.0111	0.0127	14.5	NA	±100	Average RF
Toxaphene {4}	100	98.3	0.0133	0.0131	-1.7	NA	±100	Average RF
Toxaphene {5}	100	111	0.0166	0.0183	10.6	NA	±100	Average RF
Toxaphene {6}	100	105	0.0185	0.0194	4.8	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.05	1.2072	1.2383	2.6	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.88	1.3913	1.3084	-6.0	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310173
Date Analyzed: 10/31/23 13:03

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\103023\1030F038.D\
Signal ID: DB-35MS

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 822348
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.26	1.1423	1.2906	13.0	NA	±20	Average RF
beta-BHC	2.00	1.98	0.6974	0.6915	-0.8	NA	±20	Average RF
cis-Chlordane	2.00	2.20	1.1517	1.2648	9.8	NA	±20	Average RF
trans-Chlordane	2.00	2.10	1.1876	1.2468	5.0	NA	±20	Average RF
4,4'-DDD	2.00	2.24	0.7506	0.8393	11.8	NA	±20	Average RF
4,4'-DDE	2.00	2.11	1.0867	1.1446	5.3	NA	±20	Average RF
4,4'-DDT	2.00	2.26	0.738	0.8351	13.2	NA	±20	Average RF
Dieldrin	2.00	2.14	1.0912	1.1681	7.0	NA	±20	Average RF
Toxaphene	100	115	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	109	0.0212	0.0231	8.9	NA	±100	Average RF
Toxaphene {2}	100	119	0.0148	0.0176	19.1	NA	±100	Average RF
Toxaphene {3}	100	119	0.0209	0.0248	18.5	NA	±100	Average RF
Toxaphene {4}	100	118	0.0143	0.0168	17.5	NA	±100	Average RF
Toxaphene {5}	100	116	0.0254	0.0294	15.9	NA	±100	Average RF
Toxaphene {6}	100	108	0.0062	0.0067	7.6	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.02	1.3777	1.3916	1.0	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.90	1.3493	1.2798	-5.2	NA	±20	Average RF

Client: Floyd Snider **Service Request:**K2310173
Project: SmithKem

Analysis Run Log
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B **Analysis Lot:**820939
Instrument ID:K-GC-22

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC22\DATA\101323A\1013F002.D\	Performance Evaluation	KQ2318448-01	10/13/2023	13:43:00	
J:\GC22\DATA\101323A\1013F003.D\	Continuing Calibration Verification	KQ2318448-02	10/13/2023	14:13:00	
J:\GC22\DATA\101323A\1013F004.D\	Continuing Calibration Verification	KQ2318448-02	10/13/2023	14:44:00	
J:\GC22\DATA\101323A\1013F005.D\	Continuing Calibration Verification	KQ2318448-02	10/13/2023	15:14:00	
J:\GC22\DATA\101323A\1013F006.D\	Continuing Calibration Verification	KQ2318448-02	10/13/2023	15:45:00	
J:\GC22\DATA\101323A\1013F007.D\	Continuing Calibration Verification	KQ2318448-02	10/13/2023	16:15:00	
J:\GC22\DATA\101323A\1013F008.D\	Continuing Calibration Blank	KQ2318448-03	10/13/2023	16:46:00	
J:\GC22\DATA\101323A\1013F009.D\	Method Blank	KQ2316059-10	10/13/2023	17:17:00	
J:\GC22\DATA\101323A\1013F010.D\	Lab Control Sample	KQ2316059-07	10/13/2023	17:48:00	
J:\GC22\DATA\101323A\1013F011.D\	Lab Control Sample	KQ2316059-08	10/13/2023	18:19:00	
J:\GC22\DATA\101323A\1013F012.D\	Lab Control Sample	KQ2316059-09	10/13/2023	18:49:00	
J:\GC22\DATA\101323A\1013F013.D\	AOC1-01-05 MS	KQ2316059-01	10/13/2023	19:20:00	
J:\GC22\DATA\101323A\1013F014.D\	AOC1-01-05 DMS	KQ2316059-02	10/13/2023	19:50:00	
J:\GC22\DATA\101323A\1013F015.D\	AOC1-01-05 MS	KQ2316059-03	10/13/2023	20:21:00	
J:\GC22\DATA\101623\1016F004.D\	Performance Evaluation	KQ2318448-04	10/16/2023	18:04:00	
J:\GC22\DATA\101623\1016F005.D\	Continuing Calibration Verification	KQ2318448-05	10/16/2023	18:34:00	
J:\GC22\DATA\101623\1016F006.D\	Continuing Calibration Verification	KQ2318448-05	10/16/2023	19:05:00	
J:\GC22\DATA\101623\1016F007.D\	Continuing Calibration Verification	KQ2318448-05	10/16/2023	19:35:00	
J:\GC22\DATA\101623\1016F008.D\	Continuing Calibration Verification	KQ2318448-05	10/16/2023	20:05:00	
J:\GC22\DATA\101623\1016F009.D\	Continuing Calibration Verification	KQ2318448-05	10/16/2023	20:36:00	
J:\GC22\DATA\101623\1016F010.D\	Continuing Calibration Blank	KQ2318448-06	10/16/2023	21:06:00	
J:\GC22\DATA\101623\1016F011.D\	AOC1-01-05 DMS	KQ2316059-04	10/16/2023	21:37:00	
J:\GC22\DATA\101623\1016F012.D\	AOC1-01-05 MS	KQ2316059-05	10/16/2023	22:07:00	
J:\GC22\DATA\101623\1016F013.D\	AOC1-01-05 DMS	KQ2316059-06	10/16/2023	22:38:00	
J:\GC22\DATA\101623\1016F014.D\	AOC1-01-02	K2310173-001	10/16/2023	23:09:00	
J:\GC22\DATA\101623\1016F015.D\	AOC1-01-05	K2310173-002	10/16/2023	23:39:00	
J:\GC22\DATA\101623\1016F016.D\	AOC1-02-2.5	K2310173-004	10/17/2023	00:09:00	
J:\GC22\DATA\101623\1016F017.D\	AOC1-02-05	K2310173-005	10/17/2023	00:40:00	
J:\GC22\DATA\101623\1016F018.D\	AOC1-05-02	K2310173-007	10/17/2023	01:10:00	
J:\GC22\DATA\101623\1016F019.D\	AOC1-06-04	K2310173-009	10/17/2023	01:40:00	
J:\GC22\DATA\101623\1016F020.D\	AOC1-07-2.5	K2310173-011	10/17/2023	02:11:00	
J:\GC22\DATA\101623\1016F021.D\	AOC1-07-05	K2310173-012	10/17/2023	02:42:00	
J:\GC22\DATA\101623\1016F022.D\	AOC1-08-2.5	K2310173-014	10/17/2023	03:13:00	
J:\GC22\DATA\101623\1016F023.D\	AOC1-09-05	K2310173-016	10/17/2023	03:43:00	
J:\GC22\DATA\101623\1016F025.D\	Performance Evaluation	KQ2318448-07	10/17/2023	04:44:00	
J:\GC22\DATA\101623\1016F026.D\	Continuing Calibration Verification	KQ2318448-08	10/17/2023	05:15:00	
J:\GC22\DATA\101623\1016F027.D\	Continuing Calibration Verification	KQ2318448-08	10/17/2023	05:46:00	
J:\GC22\DATA\101623\1016F028.D\	Continuing Calibration Verification	KQ2318448-08	10/17/2023	06:16:00	
J:\GC22\DATA\101623\1016F029.D\	Continuing Calibration Verification	KQ2318448-08	10/17/2023	06:47:00	
J:\GC22\DATA\101623\1016F030.D\	Continuing Calibration Verification	KQ2318448-08	10/17/2023	07:17:00	
J:\GC22\DATA\101623\1016F031.D\	Continuing Calibration Blank	KQ2318448-09	10/17/2023	07:47:00	
J:\GC22\DATA\101623\1016F032.D\	AOC1-09-08	K2310173-017	10/17/2023	08:18:00	
J:\GC22\DATA\101623\1016F033.D\	AOC5-01-2.5	K2310173-019	10/17/2023	08:49:00	
J:\GC22\DATA\101623\1016F034.D\	AOC5-01-05	K2310173-020	10/17/2023	09:19:00	
J:\GC22\DATA\101623\1016F035.D\	ZZZZZZZ	ZZZZZZZ	10/17/2023	09:50:00	
J:\GC22\DATA\101623\1016F036.D\	ZZZZZZZ	ZZZZZZZ	10/17/2023	10:21:00	

Client: Floyd Snider **Service Request:** K2310173
Project: SmithKem

Analysis Run Log
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B **Analysis Lot:** 820939
Instrument ID: K-GC-22

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC22\DATA\101623\1016F037.D\	ZZZZZZZ	ZZZZZZZ	10/17/2023	10:52:00	

Client: Floyd Snider **Service Request:**K2310173
Project: SmithKem

Analysis Run Log
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B **Analysis Lot:**821228
Instrument ID:K-GC-22

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC22\DATA\101923\1019F004.D\	Performance Evaluation	KQ2318610-01	10/19/2023	13:08:00	
J:\GC22\DATA\101923\1019F005.D\	Continuing Calibration Verification	KQ2318610-02	10/19/2023	13:39:00	
J:\GC22\DATA\101923\1019F010.D\	Continuing Calibration Blank	KQ2318610-03	10/19/2023	16:14:00	
J:\GC22\DATA\101923\1019F011.D\	Method Blank	KQ2316059-10	10/19/2023	16:45:00	
J:\GC22\DATA\101923\1019F012.D\	Lab Control Sample	KQ2316059-07	10/19/2023	17:16:00	
J:\GC22\DATA\101923\1019F014.D\	AOC1-05-02	K2310173-007	10/19/2023	18:17:00	

Client: Floyd Snider **Service Request:** K2310173
Project: SmithKem

Analysis Run Log
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B **Analysis Lot:** 821606
Instrument ID: K-GC-38

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC38\DATA\102323\1023F003.D\	Performance Evaluation	KQ2318867-01	10/23/2023	09:45:00	
J:\GC38\DATA\102323\1023F004.D\	Continuing Calibration Verification	KQ2318867-02	10/23/2023	10:27:00	
J:\GC38\DATA\102323\1023F005.D\	Continuing Calibration Verification	KQ2318867-02	10/23/2023	11:08:00	
J:\GC38\DATA\102323\1023F009.D\	Continuing Calibration Blank	KQ2318867-03	10/23/2023	16:18:00	
J:\GC38\DATA\102323\1023F010.D\	Method Blank	KQ2316059-10	10/23/2023	17:19:00	
J:\GC38\DATA\102323\1023F011.D\	Lab Control Sample	KQ2316059-07	10/23/2023	18:01:00	
J:\GC38\DATA\102323\1023F012.D\	Lab Control Sample	KQ2316059-08	10/23/2023	18:42:00	
J:\GC38\DATA\102323\1023F014.D\	ZZZZZZZ	ZZZZZZZ	10/23/2023	20:05:00	
J:\GC38\DATA\102323\1023F019.D\	Performance Evaluation	KQ2318867-04	10/23/2023	23:31:00	
J:\GC38\DATA\102323\1023F020.D\	Continuing Calibration Verification	KQ2318867-05	10/24/2023	00:12:00	

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QA/QC Report

Client: Floyd Snider **Service Request:**K2310173
Project: SmithKem

Analysis Run Log
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B **Analysis Lot:**822348
Instrument ID:K-GC-38

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC38\DATA\103023\1030F003.D\	Performance Evaluation	KQ2319283-01	10/30/2023	12:49:00	
J:\GC38\DATA\103023\1030F004.D\	Continuing Calibration Verification	KQ2319283-02	10/30/2023	13:31:00	
J:\GC38\DATA\103023\1030F005.D\	Continuing Calibration Verification	KQ2319283-02	10/30/2023	14:13:00	
J:\GC38\DATA\103023\1030F006.D\	Continuing Calibration Verification	KQ2319283-02	10/30/2023	14:54:00	
J:\GC38\DATA\103023\1030F007.D\	Continuing Calibration Verification	KQ2319283-02	10/30/2023	15:36:00	
J:\GC38\DATA\103023\1030F009.D\	Continuing Calibration Blank	KQ2319283-03	10/30/2023	16:59:00	
J:\GC38\DATA\103023\1030F010.D\	ZZZZZZZ	ZZZZZZZ	10/30/2023	17:40:00	
J:\GC38\DATA\103023\1030F012.D\	Method Blank	KQ2318802-10	10/30/2023	19:04:00	
J:\GC38\DATA\103023\1030F013.D\	Lab Control Sample	KQ2318802-07	10/30/2023	19:45:00	
J:\GC38\DATA\103023\1030F014.D\	Lab Control Sample	KQ2318802-08	10/30/2023	20:27:00	
J:\GC38\DATA\103023\1030F015.D\	Lab Control Sample	KQ2318802-09	10/30/2023	21:09:00	
J:\GC38\DATA\103023\1030F016.D\	AOC1-09-08 MS	KQ2318802-01	10/30/2023	21:50:00	
J:\GC38\DATA\103023\1030F017.D\	AOC1-09-08 DMS	KQ2318802-02	10/30/2023	22:32:00	
J:\GC38\DATA\103023\1030F018.D\	AOC1-09-08 MS	KQ2318802-03	10/30/2023	23:14:00	
J:\GC38\DATA\103023\1030F020.D\	Performance Evaluation	KQ2319283-04	10/31/2023	00:37:00	
J:\GC38\DATA\103023\1030F021.D\	Continuing Calibration Verification	KQ2319283-05	10/31/2023	01:18:00	
J:\GC38\DATA\103023\1030F022.D\	Continuing Calibration Verification	KQ2319283-05	10/31/2023	02:00:00	
J:\GC38\DATA\103023\1030F023.D\	Continuing Calibration Verification	KQ2319283-05	10/31/2023	02:41:00	
J:\GC38\DATA\103023\1030F024.D\	Continuing Calibration Verification	KQ2319283-05	10/31/2023	03:22:00	
J:\GC38\DATA\103023\1030F026.D\	Continuing Calibration Blank	KQ2319283-06	10/31/2023	04:45:00	
J:\GC38\DATA\103023\1030F027.D\	AOC1-09-08 DMS	KQ2318802-04	10/31/2023	05:27:00	
J:\GC38\DATA\103023\1030F028.D\	AOC1-09-08 MS	KQ2318802-05	10/31/2023	06:08:00	
J:\GC38\DATA\103023\1030F029.D\	AOC1-09-08 DMS	KQ2318802-06	10/31/2023	06:49:00	
J:\GC38\DATA\103023\1030F030.D\	AOC1-09-08	K2310173-017	10/31/2023	07:30:00	
J:\GC38\DATA\103023\1030F031.D\	ZZZZZZZ	ZZZZZZZ	10/31/2023	08:12:00	
J:\GC38\DATA\103023\1030F037.D\	Performance Evaluation	KQ2319283-07	10/31/2023	12:21:00	
J:\GC38\DATA\103023\1030F038.D\	Continuing Calibration Verification	KQ2319283-08	10/31/2023	13:03:00	
J:\GC38\DATA\103023\1030F039.D\	Continuing Calibration Verification	KQ2319283-08	10/31/2023	13:45:00	
J:\GC38\DATA\103023\1030F041.D\	Continuing Calibration Blank	KQ2319283-09	10/31/2023	15:09:00	
J:\GC38\DATA\103023\1030F042.D\	ZZZZZZZ	ZZZZZZZ	10/31/2023	15:50:00	

Prep Summary Report

Client: Floyd Snider **Service Request:**K2310173
Project: SmithKem
Sample Matrix: Soil

Low Level Organochlorine Pesticides by GC

Prep Method: EPA 3546 **Extraction Lot:** 426417
Analytical Method: 8081B **Extraction Date:** 09/14/23 11:30

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
AOC1-01-02	K2310173-001	9/5/23	9/12/23	2.344 g	10 mL	85.5
AOC1-01-05	K2310173-002	9/5/23	9/12/23	2.438 g	10 mL	89.1
AOC1-02-2.5	K2310173-004	9/5/23	9/12/23	2.068 g	10 mL	78.7
AOC1-02-05	K2310173-005	9/5/23	9/12/23	2.209 g	10 mL	95.7
AOC1-05-02	K2310173-007	9/5/23	9/12/23	2.088 g	10 mL	75.5
AOC1-05-02	K2310173-007	9/5/23	9/12/23	2.088 g	10 mL	75.5
AOC1-06-04	K2310173-009	9/5/23	9/12/23	2.072 g	10 mL	95.5
AOC1-07-2.5	K2310173-011	9/5/23	9/12/23	2.320 g	10 mL	94.9
AOC1-07-05	K2310173-012	9/5/23	9/12/23	2.594 g	10 mL	92.5
AOC1-08-2.5	K2310173-014	9/5/23	9/12/23	2.179 g	10 mL	93.1
AOC1-09-05	K2310173-016	9/5/23	9/12/23	2.128 g	10 mL	94.5
AOC1-09-08	K2310173-017	9/5/23	9/12/23	2.168 g	10 mL	90.0
AOC5-01-2.5	K2310173-019	9/5/23	9/12/23	2.238 g	10 mL	83.8
AOC5-01-05	K2310173-020	9/5/23	9/12/23	2.118 g	10 mL	93.1
Matrix Spike	KQ2316059-01MS	9/5/23	9/12/23	2.761 g	10 mL	89.1
Duplicate Matrix Spike	KQ2316059-02DMS	9/5/23	9/12/23	2.120 g	10 mL	89.1
Matrix Spike	KQ2316059-03MS	9/5/23	9/12/23	2.323 g	10 mL	89.1
Duplicate Matrix Spike	KQ2316059-04DMS	9/5/23	9/12/23	2.546 g	10 mL	89.1
Matrix Spike	KQ2316059-05MS	9/5/23	9/12/23	2.305 g	10 mL	89.1
Duplicate Matrix Spike	KQ2316059-06DMS	9/5/23	9/12/23	2.345 g	10 mL	89.1
Lab Control Sample	KQ2316059-07LCS	NA	NA	2 g	10 mL	
Lab Control Sample	KQ2316059-08LCS	NA	NA	2 g	10 mL	
Lab Control Sample	KQ2316059-09LCS	NA	NA	2 g	10 mL	
Method Blank	KQ2316059-10MB	NA	NA	2.7610 g	10 mL	

Prep Summary Report

Client: Floyd Snider **Service Request:** K2310173
Project: SmithKem
Sample Matrix: Soil

Low Level Organochlorine Pesticides by GC

Prep Method: EPA 3546 **Extraction Lot:** 428783
Analytical Method: 8081B **Extraction Date:** 10/26/23 11:00

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
AOC1-09-08	K2310173-017	9/5/23	9/12/23	2.004 g	10 mL	90.0
Matrix Spike	KQ2318802-01MS	9/5/23	9/12/23	2.107 g	10 mL	90.0
Duplicate Matrix Spike	KQ2318802-02DMS	9/5/23	9/12/23	2.005 g	10 mL	90.0
Matrix Spike	KQ2318802-03MS	9/5/23	9/12/23	2.126 g	10 mL	90.0
Duplicate Matrix Spike	KQ2318802-04DMS	9/5/23	9/12/23	2.235 g	10 mL	90.0
Matrix Spike	KQ2318802-05MS	9/5/23	9/12/23	2.251 g	10 mL	90.0
Duplicate Matrix Spike	KQ2318802-06DMS	9/5/23	9/12/23	2.318 g	10 mL	90.0
Lab Control Sample	KQ2318802-07LCS	NA	NA	2 g	10 mL	
Lab Control Sample	KQ2318802-08LCS	NA	NA	2 g	10 mL	
Lab Control Sample	KQ2318802-09LCS	NA	NA	2 g	10 mL	
Method Blank	KQ2318802-10MB	NA	NA	2.3180 g	10 mL	

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

January 11, 2024

Analytical Report for Service Request No: K2310181
Revised Service Request No: K2310181.01

Pamela Osterhout
Floyd Snider
601 Union Street, Suite 600
Seattle, WA 98101

RE: SmithKem

Dear Pamela,

Enclosed is the revised report for the sample(s) submitted to our laboratory September 12, 2023 For your reference, these analyses have been assigned our service request number **K2310181.**

The report has been revised to Level III.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at Mark.Harris@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Mark Harris
Project Manager

REVISED
10:37 am, Jan 11, 2024

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

Table of Contents

Acronyms
Qualifiers
State Certifications, Accreditations, And Licenses
Case Narrative
Chain of Custody
Total Solids
Low Level Organochlorine Pesticides by GC

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

ALS Environmental

Client: Floyd Snider
Project: SmithKem
Sample Matrix: Soil

Service Request: K2310181
Date Received: 09/12/2023

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier III level requested by the client.

Sample Receipt:

Twenty soil samples were received for analysis at ALS Environmental on 09/12/2023. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivoa GC:

Method 8081B:The analysis of method EPA 8081 requires the use of dual column confirmation. When the Initial Calibration Verification (ICV) criteria are met for both columns, the higher of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for 4,4'-DDT. The ICV results were reported from the acceptable column. The data quality was not affected. No further corrective action was necessary.

Method 8081B, 10/13/2023:The analysis of method EPA 8081B requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for 2,4'-DDE or 2,4'-DDD in CCVs KQ2318580 -02/-05. The results were reported from the column with an acceptable CCV. The data quality was not affected. No further corrective action was necessary.

Method 8081B, 10/13/2023: The detection limit was elevated for cis-Chlordane in sample AOC4-03-2.0. The chromatogram indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compound at the normal limit. The result was flagged to indicate the matrix interference.

Method 8081B, 10/13/2023:The analysis of method EPA 8081B requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for Tetrachloro-m-xylene in CCV KQ2318580-05. The results were reported from the column with an acceptable CCV. The data quality was not affected. No further corrective action was necessary.

Method 8081B, 10/13/2023: The lower control criterion was exceeded for 2,4'-DDT in Continuing Calibration Verification (CCV) KQ2318580-05. The problem indicated a potential low bias for results reported from this analytical batch. The analyte in question was not detected in the associated field samples. Additional analysis of the associated field samples was performed and produced similar results. The results of the original analysis were reported. The data was flagged to indicate the problem.

Approved by Noe D. Dave Date 01/11/2024

Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

Chain of Custody Record & Laboratory Analysis Request

K2316181

ALS Kelso

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

ARI Assigned Number:	Turn-around Requested: Standard
ARI Client Company: Floyd Snider	Phone: 206-805-2188
Client Contact: Pamela Osterhout	
Client Project Name: Smith Kem	
Client Project #:	Samplers: P.O./MTM/G.S.
Page: 3 of 11	
Date: 9/5/23	Ice Present?
No. of Coolers:	Cooler Temps:

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: # Pesticides 8081B-LL	Archive freeze upon request	Notes/Comments
ADCS-101-05	9/5/23	14:27	S	1	✓		
ADCS-01-07	"	14:30	S	1		✓	
ADCS-02-2.5	"	14:30	S	1	✓		
ADCS-02-05	"	14:35	S	1	✓		
ADCS-02-06	"	14:40	S	1		✓	
ADCS-03-2.5	"	14:45	S	1	✓		
ADCS-03-05	"	14:50	S	1		✓	
ADCS-04-2.5	"	13.45	S	1	✓		
ADCS-04-05	"	13.50	S	1	✓		
ADCS-04-07	"	14:00	S	1		✓	

Comments/Special Instructions

* 8081 = Aldrin, b-BHC, trans-chlordane, cis-chlordane, oxychlordane, cis nonachlor, trans nonachlor, dieldrin, Total DDT and toxaphene

	Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature)				
Printed Name:	P.O.	Naomi Ederer		
Company:	FS	ALS		
Date & Time:	9/11/23 @ 09:00	9/12/23 0945		

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

K2310181

ALS Kelso

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested: Standard
ARI Client Company: Floyd Snider	Phone: 206-805-2188
Client Contact: Pamela Osterhout	
Client Project Name: Smith Kem	
Client Project #:	Samplers: P.O/MTM/GS

Page: 4 of 11

Date: 9/5/23 | Ice Present?

No. of Coolers: | Cooler Temps:

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Pesticides 8081B LL	Analysis Requested: Archive Freeze upon Receipt	Notes/Comments
ADC4-01-2.5	9/5/23	17:20	Soil	1	✓		
ADC4-01-5.0	"	17:25	"	1		✓	
ADC4-03-2.0	"	15:25	"	1	✓		
ADC4-103-2.0	"	15:27	"	1	✓		
ADC4-03-05	"	15:30	"	1		✓	
ADC4-04-2.5	"	15:55	"	1	✓		
ADC4-04-5.0	"	16:00	"	1		✓	
ADC4-05-2.5	"	16:00	"	1	✓		
ADC4-05-5.0	"	16:05	"	1		✓	
ADC4-06-2.5	"	16:15	"	1	✓		

Comments/Special Instructions: 8081 = Aldrin, b-BHC, trans-chlordane, cis-chlordane, oxychlordane, cis-nonachlor, trans-nonachlor, dieldrin, Total DDT, and toxaphene

	Relinquished by: (Signature)	Printed Name	Company	Date & Time	Received by: (Signature)	Printed Name	Company	Date & Time
1		P.O.	F/S	9/11/23 @ 09:00		Naomi Reclerson	AS	9/12/23 0945
2								
3								

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

PM MH

Cooler Receipt and Preservation Form

Client Pamela Osterhout Service Request K23 10181

Received: 9/12/23 Opened: 9/12/23 By: AR Unloaded: 9/12/23 By: AP

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 1 Front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified if out of temp	Tracking Number NA	Filed
4.2	5.0	IR01	1 of 3			773377422 1969	
4.7	-	IR01	2 of 3			773377422 7807	
3.1	3.4	IR01	3 of 3			7733 7422 7900	

4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column above:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # above and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

6. Packing material: *Inserts* (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
14. Was Cl2/Res negative? (NA) Y N
15. Were samples received within the method specified time limit? If not, notate the error below and notify the PM (NA) Y N
16. Were 100ml sterile microbiology bottles filled exactly to the 100ml mark? (NA) Y N Underfilled Overfilled

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

Total Solids

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Collected:**	09/5/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	As Received

Solids, Total

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
AOC5-101-05	K2310181-001	**91.1**	-	-	1	09/13/23 16:19	
AOC5-02-2.5	K2310181-003	**80.7**	-	-	1	09/13/23 16:19	
AOC5-02-05	K2310181-004	**96.1**	-	-	1	09/13/23 16:19	
AOC5-03-2.5	K2310181-006	**96.3**	-	-	1	09/13/23 16:19	
AOC5-04-2.5	K2310181-008	**88.4**	-	-	1	09/13/23 16:19	
AOC5-04-05	K2310181-009	**86.8**	-	-	1	09/13/23 16:19	
AOC4-01-2.5	K2310181-011	**96.2**	-	-	1	09/13/23 16:19	
AOC4-03-2.0	K2310181-013	**82.4**	-	-	1	09/13/23 16:19	
AOC4-103-2.0	K2310181-014	**83.7**	-	-	1	09/13/23 16:19	
AOC4-04-2.5	K2310181-016	**89.0**	-	-	1	09/13/23 16:19	
AOC4-05-2.5	K2310181-018	**86.8**	-	-	1	09/13/23 16:19	
AOC4-06-2.5	K2310181-020	**96.2**	-	-	1	09/13/23 16:19	

Client:	Floyd Snider	**Service Request:**	K2310181
Project	SmithKem	**Date Collected:**	09/05/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	As Received

Replicate Sample Summary
Inorganic Parameters

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
AOC5-101-05	K2310181-001DUP	-	91.1	90.9	91.0	<1	20	09/13/23
AOC4-06-2.5	K2310181-020DUP	-	96.2	96.4	96.3	<1	20	09/13/23

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Low Level Organochlorine Pesticides by GC

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Collected:**	09/05/23 14:27
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC5-101-05	**Units:**	ug/Kg
Lab Code:	K2310181-001	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/13/23 22:49	9/14/23	
beta-BHC	ND U	1.0	0.27	1	10/13/23 22:49	9/14/23	
cis-Chlordane	ND U	1.0	0.41	1	10/13/23 22:49	9/14/23	
trans-Chlordane	ND U	1.0	0.38	1	10/13/23 22:49	9/14/23	
2,4'-DDD	ND U	1.0	0.27	1	10/13/23 22:49	9/14/23	
4,4'-DDD	ND U	2.0	0.60	1	10/13/23 22:49	9/14/23	
2,4'-DDE	ND U	1.0	0.47	1	10/13/23 22:49	9/14/23	
4,4'-DDE	ND U	1.0	0.40	1	10/13/23 22:49	9/14/23	
2,4'-DDT	ND U	1.0	0.48	1	10/13/23 22:49	9/14/23	
4,4'-DDT	ND U	2.0	0.61	1	10/13/23 22:49	9/14/23	
Dieldrin	**2.4**	0.93	0.22	1	10/13/23 22:49	9/14/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/13/23 22:49	9/14/23	
trans-Nonachlor	ND U	2.0	0.71	1	10/13/23 22:49	9/14/23	
Oxychlordane	ND U	0.93	0.25	1	10/13/23 22:49	9/14/23	
Toxaphene	ND U	100	34	1	10/13/23 22:49	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	64	10 - 134	10/13/23 22:49	
Tetrachloro-m-xylene	57	10 - 121	10/13/23 22:49	

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Collected:**	09/05/23 14:30
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC5-02-2.5	**Units:**	ug/Kg
Lab Code:	K2310181-003	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/13/23 23:28	9/14/23	
beta-BHC	ND U	1.0	0.27	1	10/13/23 23:28	9/14/23	
cis-Chlordane	ND U	1.0	0.41	1	10/13/23 23:28	9/14/23	
trans-Chlordane	ND U	1.0	0.38	1	10/13/23 23:28	9/14/23	
2,4'-DDD	ND U	1.0	0.27	1	10/13/23 23:28	9/14/23	
4,4'-DDD	ND U	2.0	0.60	1	10/13/23 23:28	9/14/23	
2,4'-DDE	ND U	1.0	0.47	1	10/13/23 23:28	9/14/23	
4,4'-DDE	ND U	1.0	0.40	1	10/13/23 23:28	9/14/23	
2,4'-DDT	ND U	1.0	0.48	1	10/13/23 23:28	9/14/23	
4,4'-DDT	ND U	2.0	0.61	1	10/13/23 23:28	9/14/23	
Dieldrin	ND U	0.90	0.22	1	10/13/23 23:28	9/14/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/13/23 23:28	9/14/23	
trans-Nonachlor	ND U	2.0	0.71	1	10/13/23 23:28	9/14/23	
Oxychlordane	ND U	0.90	0.25	1	10/13/23 23:28	9/14/23	
Toxaphene	ND U	100	34	1	10/13/23 23:28	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	58	10 - 134	10/13/23 23:28	
Tetrachloro-m-xylene	56	10 - 121	10/13/23 23:28	

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Collected:**	09/05/23 14:35
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC5-02-05	**Units:**	ug/Kg
Lab Code:	K2310181-004	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND	U	2.0	0.59	1	10/19/23 18:48	9/14/23	
beta-BHC	ND	U	1.0	0.27	1	10/19/23 18:48	9/14/23	
cis-Chlordane	**0.50**	**J**	1.0	0.41	1	10/19/23 18:48	9/14/23	
trans-Chlordane	ND	U	1.0	0.38	1	10/19/23 18:48	9/14/23	
2,4'-DDD	ND	U	1.0	0.27	1	10/19/23 18:48	9/14/23	
4,4'-DDD	ND	U	2.0	0.60	1	10/19/23 18:48	9/14/23	
2,4'-DDE	ND	U	1.0	0.47	1	10/19/23 18:48	9/14/23	
4,4'-DDE	ND	U	1.0	0.40	1	10/19/23 18:48	9/14/23	
2,4'-DDT	ND	U	1.0	0.48	1	10/19/23 18:48	9/14/23	
4,4'-DDT	ND	U	2.0	0.61	1	10/19/23 18:48	9/14/23	
Dieldrin	**1.5**		0.83	0.22	1	10/19/23 18:48	9/14/23	
cis-Nonachlor	ND	U	1.0	0.29	1	10/19/23 18:48	9/14/23	
trans-Nonachlor	ND	U	2.0	0.71	1	10/19/23 18:48	9/14/23	
Oxychlordane	ND	U	0.83	0.25	1	10/19/23 18:48	9/14/23	
Toxaphene	ND	U	100	34	1	10/19/23 18:48	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	69	10 - 134	10/19/23 18:48	
Tetrachloro-m-xylene	68	10 - 121	10/19/23 18:48	

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Collected:**	09/05/23 14:45
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC5-03-2.5	**Units:**	ug/Kg
Lab Code:	K2310181-006	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/19/23 19:19	9/14/23	
beta-BHC	ND U	1.0	0.27	1	10/19/23 19:19	9/14/23	
cis-Chlordane	ND U	1.0	0.41	1	10/19/23 19:19	9/14/23	
trans-Chlordane	ND U	1.0	0.38	1	10/19/23 19:19	9/14/23	
2,4'-DDD	ND U	1.0	0.27	1	10/19/23 19:19	9/14/23	
4,4'-DDD	ND U	2.0	0.60	1	10/19/23 19:19	9/14/23	
2,4'-DDE	ND U	1.0	0.47	1	10/19/23 19:19	9/14/23	
4,4'-DDE	ND U	1.0	0.40	1	10/19/23 19:19	9/14/23	
2,4'-DDT	ND U	1.0	0.48	1	10/19/23 19:19	9/14/23	
4,4'-DDT	ND U	2.0	0.61	1	10/19/23 19:19	9/14/23	
Dieldrin	ND U	0.87	0.22	1	10/19/23 19:19	9/14/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/19/23 19:19	9/14/23	
trans-Nonachlor	ND U	2.0	0.71	1	10/19/23 19:19	9/14/23	
Oxychlordane	ND U	0.87	0.25	1	10/19/23 19:19	9/14/23	
Toxaphene	ND U	100	34	1	10/19/23 19:19	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	68	10 - 134	10/19/23 19:19	
Tetrachloro-m-xylene	70	10 - 121	10/19/23 19:19	

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Collected:**	09/05/23 13:45
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC5-04-2.5	**Units:**	ug/Kg
Lab Code:	K2310181-008	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.2	0.66	1	10/19/23 19:50	9/14/23	
beta-BHC	ND U	1.1	0.31	1	10/19/23 19:50	9/14/23	
cis-Chlordane	ND U	1.1	0.46	1	10/19/23 19:50	9/14/23	
trans-Chlordane	ND U	1.1	0.43	1	10/19/23 19:50	9/14/23	
2,4'-DDD	ND U	1.1	0.31	1	10/19/23 19:50	9/14/23	
4,4'-DDD	ND U	2.2	0.67	1	10/19/23 19:50	9/14/23	
2,4'-DDE	ND U	1.1	0.53	1	10/19/23 19:50	9/14/23	
4,4'-DDE	ND U	1.1	0.45	1	10/19/23 19:50	9/14/23	
2,4'-DDT	ND U	1.1	0.54	1	10/19/23 19:50	9/14/23	
4,4'-DDT	ND U	2.2	0.68	1	10/19/23 19:50	9/14/23	
Dieldrin	ND U	1.1	0.25	1	10/19/23 19:50	9/14/23	
cis-Nonachlor	ND U	1.1	0.33	1	10/19/23 19:50	9/14/23	
trans-Nonachlor	ND U	2.2	0.79	1	10/19/23 19:50	9/14/23	
Oxychlordane	ND U	1.1	0.28	1	10/19/23 19:50	9/14/23	
Toxaphene	ND U	110	38	1	10/19/23 19:50	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	60	10 - 134	10/19/23 19:50	
Tetrachloro-m-xylene	62	10 - 121	10/19/23 19:50	

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Collected:**	09/05/23 13:50
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC5-04-05	**Units:**	ug/Kg
Lab Code:	K2310181-009	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/19/23 20:21	9/14/23	
beta-BHC	ND U	1.0	0.27	1	10/19/23 20:21	9/14/23	
cis-Chlordane	ND U	1.0	0.41	1	10/19/23 20:21	9/14/23	
trans-Chlordane	ND U	1.0	0.38	1	10/19/23 20:21	9/14/23	
2,4'-DDD	ND U	1.0	0.27	1	10/19/23 20:21	9/14/23	
4,4'-DDD	ND U	2.0	0.60	1	10/19/23 20:21	9/14/23	
2,4'-DDE	ND U	1.0	0.47	1	10/19/23 20:21	9/14/23	
4,4'-DDE	ND U	1.0	0.40	1	10/19/23 20:21	9/14/23	
2,4'-DDT	ND U	1.0	0.48	1	10/19/23 20:21	9/14/23	
4,4'-DDT	ND U	2.0	0.61	1	10/19/23 20:21	9/14/23	
Dieldrin	ND U	0.96	0.22	1	10/19/23 20:21	9/14/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/19/23 20:21	9/14/23	
trans-Nonachlor	ND U	2.0	0.71	1	10/19/23 20:21	9/14/23	
Oxychlordane	ND U	0.96	0.25	1	10/19/23 20:21	9/14/23	
Toxaphene	ND U	100	34	1	10/19/23 20:21	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	61	10 - 134	10/19/23 20:21	
Tetrachloro-m-xylene	62	10 - 121	10/19/23 20:21	

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Collected:**	09/05/23 17:20
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC4-01-2.5	**Units:**	ug/Kg
Lab Code:	K2310181-011	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/19/23 20:51	9/14/23	
beta-BHC	ND U	1.0	0.27	1	10/19/23 20:51	9/14/23	
cis-Chlordane	ND U	1.0	0.41	1	10/19/23 20:51	9/14/23	
trans-Chlordane	ND U	1.0	0.38	1	10/19/23 20:51	9/14/23	
2,4'-DDD	ND U	1.0	0.27	1	10/19/23 20:51	9/14/23	
4,4'-DDD	ND U	2.0	0.60	1	10/19/23 20:51	9/14/23	
2,4'-DDE	ND U	1.0	0.47	1	10/19/23 20:51	9/14/23	
4,4'-DDE	ND U	1.0	0.40	1	10/19/23 20:51	9/14/23	
2,4'-DDT	ND U	1.0	0.48	1	10/19/23 20:51	9/14/23	
4,4'-DDT	ND U	2.0	0.61	1	10/19/23 20:51	9/14/23	
Dieldrin	**0.23 J**	0.83	0.22	1	10/19/23 20:51	9/14/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/19/23 20:51	9/14/23	
trans-Nonachlor	ND U	2.0	0.71	1	10/19/23 20:51	9/14/23	
Oxychlordane	ND U	0.83	0.25	1	10/19/23 20:51	9/14/23	
Toxaphene	ND U	100	34	1	10/19/23 20:51	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	65	10 - 134	10/19/23 20:51	
Tetrachloro-m-xylene	67	10 - 121	10/19/23 20:51	

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Collected:**	09/05/23 15:25
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC4-03-2.0	**Units:**	ug/Kg
Lab Code:	K2310181-013	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.60	1	10/19/23 21:22	9/14/23	
beta-BHC	ND U	1.0	0.28	1	10/19/23 21:22	9/14/23	
cis-Chlordane	ND Ui	3.7	3.7	1	10/19/23 21:22	9/14/23	
trans-Chlordane	ND U	1.0	0.39	1	10/19/23 21:22	9/14/23	
2,4'-DDD	ND U	1.0	0.28	1	10/19/23 21:22	9/14/23	
4,4'-DDD	ND U	2.0	0.61	1	10/19/23 21:22	9/14/23	
2,4'-DDE	ND U	1.0	0.48	1	10/19/23 21:22	9/14/23	
4,4'-DDE	ND U	1.0	0.41	1	10/19/23 21:22	9/14/23	
2,4'-DDT	ND U	1.0	0.49	1	10/19/23 21:22	9/14/23	
4,4'-DDT	ND U	2.0	0.62	1	10/19/23 21:22	9/14/23	
Dieldrin	ND U	1.0	0.23	1	10/19/23 21:22	9/14/23	
cis-Nonachlor	ND U	1.0	0.30	1	10/19/23 21:22	9/14/23	
trans-Nonachlor	ND U	2.0	0.72	1	10/19/23 21:22	9/14/23	
Oxychlordane	ND U	1.0	0.26	1	10/19/23 21:22	9/14/23	
Toxaphene	ND U	100	35	1	10/19/23 21:22	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	23	10 - 134	10/19/23 21:22	
Tetrachloro-m-xylene	66	10 - 121	10/19/23 21:22	

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Collected:**	09/05/23 15:27
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC4-103-2.0	**Units:**	ug/Kg
Lab Code:	K2310181-014	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.1	0.63	1	10/19/23 21:52	9/14/23	
beta-BHC	ND U	1.1	0.29	1	10/19/23 21:52	9/14/23	
cis-Chlordane	ND U	1.1	0.44	1	10/19/23 21:52	9/14/23	
trans-Chlordane	ND U	1.1	0.41	1	10/19/23 21:52	9/14/23	
2,4'-DDD	ND U	1.1	0.29	1	10/19/23 21:52	9/14/23	
4,4'-DDD	ND U	2.1	0.64	1	10/19/23 21:52	9/14/23	
2,4'-DDE	ND U	1.1	0.51	1	10/19/23 21:52	9/14/23	
4,4'-DDE	ND U	1.1	0.43	1	10/19/23 21:52	9/14/23	
2,4'-DDT	ND U	1.1	0.52	1	10/19/23 21:52	9/14/23	
4,4'-DDT	ND U	2.1	0.65	1	10/19/23 21:52	9/14/23	
Dieldrin	ND U	1.1	0.24	1	10/19/23 21:52	9/14/23	
cis-Nonachlor	ND U	1.1	0.31	1	10/19/23 21:52	9/14/23	
trans-Nonachlor	ND U	2.1	0.76	1	10/19/23 21:52	9/14/23	
Oxychlordane	ND U	1.1	0.27	1	10/19/23 21:52	9/14/23	
Toxaphene	ND U	110	37	1	10/19/23 21:52	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	40	10 - 134	10/19/23 21:52	
Tetrachloro-m-xylene	61	10 - 121	10/19/23 21:52	

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Collected:**	09/05/23 15:55
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC4-04-2.5	**Units:**	ug/Kg
Lab Code:	K2310181-016	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.1	0.61	1	10/19/23 22:23	9/14/23	
beta-BHC	ND U	1.0	0.28	1	10/19/23 22:23	9/14/23	
cis-Chlordane	ND U	1.0	0.43	1	10/19/23 22:23	9/14/23	
trans-Chlordane	ND U	1.0	0.39	1	10/19/23 22:23	9/14/23	
2,4'-DDD	ND U	1.0	0.28	1	10/19/23 22:23	9/14/23	
4,4'-DDD	ND U	2.1	0.62	1	10/19/23 22:23	9/14/23	
2,4'-DDE	ND U	1.0	0.49	1	10/19/23 22:23	9/14/23	
4,4'-DDE	ND U	1.0	0.42	1	10/19/23 22:23	9/14/23	
2,4'-DDT	ND U	1.0	0.50	1	10/19/23 22:23	9/14/23	
4,4'-DDT	ND U	2.1	0.63	1	10/19/23 22:23	9/14/23	
Dieldrin	ND U	1.0	0.23	1	10/19/23 22:23	9/14/23	
cis-Nonachlor	ND U	1.0	0.30	1	10/19/23 22:23	9/14/23	
trans-Nonachlor	ND U	2.1	0.73	1	10/19/23 22:23	9/14/23	
Oxychlordane	ND U	1.0	0.26	1	10/19/23 22:23	9/14/23	
Toxaphene	ND U	100	35	1	10/19/23 22:23	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	66	10 - 134	10/19/23 22:23	
Tetrachloro-m-xylene	56	10 - 121	10/19/23 22:23	

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Collected:**	09/05/23 16:00
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC4-05-2.5	**Units:**	ug/Kg
Lab Code:	K2310181-018	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.1	0.62	1	10/14/23 10:02	9/14/23	
beta-BHC	**0.32 J**	1.0	0.28	1	10/14/23 10:02	9/14/23	
cis-Chlordane	ND U	1.0	0.43	1	10/14/23 10:02	9/14/23	
trans-Chlordane	ND U	1.0	0.40	1	10/14/23 10:02	9/14/23	
2,4'-DDD	ND U	1.0	0.28	1	10/14/23 10:02	9/14/23	
4,4'-DDD	ND U	2.1	0.63	1	10/14/23 10:02	9/14/23	
2,4'-DDE	ND U	1.0	0.49	1	10/14/23 10:02	9/14/23	
4,4'-DDE	ND U	1.0	0.42	1	10/14/23 10:02	9/14/23	
2,4'-DDT	ND U	1.0	0.50	1	10/14/23 10:02	9/14/23	*
4,4'-DDT	ND U	2.1	0.64	1	10/14/23 10:02	9/14/23	
Dieldrin	ND U	1.0	0.23	1	10/14/23 10:02	9/14/23	
cis-Nonachlor	ND U	1.0	0.30	1	10/14/23 10:02	9/14/23	
trans-Nonachlor	ND U	2.1	0.74	1	10/14/23 10:02	9/14/23	
Oxychlordane	ND U	1.0	0.26	1	10/14/23 10:02	9/14/23	
Toxaphene	ND U	100	36	1	10/14/23 10:02	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	44	10 - 134	10/14/23 10:02	
Tetrachloro-m-xylene	53	10 - 121	10/14/23 10:02	

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Collected:**	09/05/23 16:15
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC4-06-2.5	**Units:**	ug/Kg
Lab Code:	K2310181-020	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/14/23 10:42	9/14/23	
beta-BHC	ND U	1.0	0.27	1	10/14/23 10:42	9/14/23	
cis-Chlordane	ND U	1.0	0.41	1	10/14/23 10:42	9/14/23	
trans-Chlordane	ND U	1.0	0.38	1	10/14/23 10:42	9/14/23	
2,4'-DDD	ND U	1.0	0.27	1	10/14/23 10:42	9/14/23	
4,4'-DDD	ND U	2.0	0.60	1	10/14/23 10:42	9/14/23	
2,4'-DDE	ND U	1.0	0.47	1	10/14/23 10:42	9/14/23	
4,4'-DDE	ND U	1.0	0.40	1	10/14/23 10:42	9/14/23	
2,4'-DDT	ND U	1.0	0.48	1	10/14/23 10:42	9/14/23	*
4,4'-DDT	ND U	2.0	0.61	1	10/14/23 10:42	9/14/23	
Dieldrin	ND U	0.98	0.22	1	10/14/23 10:42	9/14/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/14/23 10:42	9/14/23	
trans-Nonachlor	ND U	2.0	0.71	1	10/14/23 10:42	9/14/23	
Oxychlordane	ND U	0.98	0.25	1	10/14/23 10:42	9/14/23	
Toxaphene	ND U	100	34	1	10/14/23 10:42	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	47	10 - 134	10/14/23 10:42	
Tetrachloro-m-xylene	57	10 - 121	10/14/23 10:42	

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	KQ2316103-10	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/13/23 16:11	9/14/23	
beta-BHC	ND U	1.0	0.27	1	10/13/23 16:11	9/14/23	
cis-Chlordane	ND U	1.0	0.41	1	10/13/23 16:11	9/14/23	
trans-Chlordane	ND U	1.0	0.38	1	10/13/23 16:11	9/14/23	
2,4'-DDD	ND U	1.0	0.27	1	10/13/23 16:11	9/14/23	
4,4'-DDD	ND U	2.0	0.60	1	10/13/23 16:11	9/14/23	
2,4'-DDE	ND U	1.0	0.47	1	10/13/23 16:11	9/14/23	
4,4'-DDE	ND U	1.0	0.40	1	10/13/23 16:11	9/14/23	
2,4'-DDT	ND U	1.0	0.48	1	10/13/23 16:11	9/14/23	
4,4'-DDT	ND U	2.0	0.61	1	10/13/23 16:11	9/14/23	
Dieldrin	ND U	0.70	0.22	1	10/13/23 16:11	9/14/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/13/23 16:11	9/14/23	
trans-Nonachlor	ND U	2.0	0.71	1	10/13/23 16:11	9/14/23	
Oxychlordane	ND U	0.70	0.25	1	10/13/23 16:11	9/14/23	
Toxaphene	ND U	100	34	1	10/13/23 16:11	9/14/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	64	10 - 134	10/13/23 16:11	
Tetrachloro-m-xylene	57	10 - 121	10/13/23 16:11	

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310181
Date Collected: 09/05/23 14:27
Date Received: 9/12/23

Sample Name: AOC5-101-05
Lab Code: K2310181-001

Units: ug/Kg
Basis: Dry
Percent Solids: 91.1

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Dieldrin	0.22	2.4	2.4	<1		1	10/13/23 22:49

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310181
Date Collected: 09/05/23 14:35
Date Received: 9/12/23

Sample Name: AOC5-02-05
Lab Code: K2310181-004

Units: ug/Kg
Basis: Dry
Percent Solids: 96.1

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Dieldrin	0.22	1.5	1.6	6		1	10/19/23 18:48
cis-Chlordane	0.41	0.50	0.50	<1	J	1	10/19/23 18:48

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310181
Date Collected: 09/05/23 17:20
Date Received: 9/12/23

Sample Name: AOC4-01-2.5
Lab Code: K2310181-011

Units: ug/Kg
Basis: Dry
Percent Solids: 96.2

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Dieldrin	0.22	0.23	0.31	30	J	1	10/19/23 20:51

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310181
Date Collected: 09/05/23 16:00
Date Received: 9/12/23

Sample Name: AOC4-05-2.5
Lab Code: K2310181-018

Units: ug/Kg
Basis: Dry
Percent Solids: 86.8

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
beta-BHC	0.28	0.32	0.45	34	J	1	10/14/23 10:02

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310181
Date Collected: 09/05/23 14:30
Date Received: 9/12/23

Sample Name: AOC5-02-2.5
Lab Code: KQ2316103-01

Units: ug/Kg
Basis: Dry
Percent Solids: 80.7

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDD	0.75	18.4	55.9	101	P	1	10/13/23 18:50
4,4'-DDE	0.50	17.0	17.9	5		1	10/13/23 18:50
4,4'-DDT	0.76	17.7	20.5	15		1	10/13/23 18:50
Aldrin	0.74	17.5	19.3	10		1	10/13/23 18:50
Dieldrin	0.28	18.4	19.6	6		1	10/13/23 18:50
Oxychlordane	0.31	17.1	20.0	16		1	10/13/23 18:50
beta-BHC	0.34	18.0	21.5	18		1	10/13/23 18:50
cis-Chlordane	0.51	17.9	18.3	2		1	10/13/23 18:50
cis-Nonachlor	0.36	10.5	42.1	120	P	1	10/13/23 18:50
trans-Chlordane	0.48	18.0	18.5	3		1	10/13/23 18:50
trans-Nonachlor	0.88	20.7	36.5	55	P	1	10/13/23 18:50

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310181
Date Collected: 09/05/23 14:30
Date Received: 9/12/23

Sample Name: AOC5-02-2.5
Lab Code: KQ2316103-02

Units: ug/Kg
Basis: Dry
Percent Solids: 80.7

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDD	0.60	15.4	41.3	91	P	1	10/13/23 19:30
4,4'-DDE	0.40	12.3	12.9	5		1	10/13/23 19:30
4,4'-DDT	0.61	13.3	14.7	10		1	10/13/23 19:30
Aldrin	0.59	12.3	15.3	22		1	10/13/23 19:30
Dieldrin	0.22	13.9	14.5	4		1	10/13/23 19:30
Oxychlordane	0.25	12.4	14.4	15		1	10/13/23 19:30
beta-BHC	0.27	14.5	15.1	4		1	10/13/23 19:30
cis-Chlordane	0.41	13.0	13.2	2		1	10/13/23 19:30
cis-Nonachlor	0.29	8.03	31.1	118	P	1	10/13/23 19:30
trans-Chlordane	0.38	13.2	13.4	2		1	10/13/23 19:30
trans-Nonachlor	0.71	15.2	26.6	55	P	1	10/13/23 19:30

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310181
Date Collected: 09/05/23 14:30
Date Received: 9/12/23

Sample Name: AOC5-02-2.5
Lab Code: KQ2316103-03

Units: ug/Kg
Basis: Dry
Percent Solids: 80.7

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Toxaphene	34	475	512	7		1	10/13/23 20:09

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310181
Date Collected: 09/05/23 14:30
Date Received: 9/12/23

Sample Name: AOC5-02-2.5
Lab Code: KQ2316103-04

Units: ug/Kg
Basis: Dry
Percent Solids: 80.7

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Toxaphene	34	633	660	4		1	10/13/23 20:49

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310181
Date Collected: 09/05/23 14:30
Date Received: 9/12/23

Sample Name: AOC5-02-2.5
Lab Code: KQ2316103-05

Units: ug/Kg
Basis: Dry
Percent Solids: 80.7

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
2,4'-DDD	0.27	16.8	15.4	9		1	10/13/23 21:29
2,4'-DDE	0.47	15.2	28.9	62	P	1	10/13/23 21:29
2,4'-DDT	0.48	15.7	15.9	1		1	10/13/23 21:29

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310181
Date Collected: 09/05/23 14:30
Date Received: 9/12/23

Sample Name: AOC5-02-2.5
Lab Code: KQ2316103-06

Units: ug/Kg
Basis: Dry
Percent Solids: 80.7

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
2,4'-DDD	0.31	19.2	17.7	8		1	10/13/23 22:09
2,4'-DDE	0.54	17.2	22.5	27		1	10/13/23 22:09
2,4'-DDT	0.55	17.4	18.1	4		1	10/13/23 22:09

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310181
Date Collected: NA
Date Received:

Sample Name: Lab Control Sample
Lab Code: KQ2316103-07

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDD	0.60	18.2	53.3	98	P	1	10/13/23 16:51
4,4'-DDE	0.40	16.3	16.9	4		1	10/13/23 16:51
4,4'-DDT	0.61	16.4	18.4	11		1	10/13/23 16:51
Aldrin	0.59	16.7	18.0	7		1	10/13/23 16:51
Dieldrin	0.22	17.3	17.5	1		1	10/13/23 16:51
Oxychlordane	0.25	16.6	18.7	12		1	10/13/23 16:51
beta-BHC	0.27	17.5	20.1	14		1	10/13/23 16:51
cis-Chlordane	0.41	17.3	17.5	1		1	10/13/23 16:51
cis-Nonachlor	0.29	10.0	40.4	121	P	1	10/13/23 16:51
trans-Chlordane	0.38	17.4	17.8	2		1	10/13/23 16:51
trans-Nonachlor	0.71	20.1	34.5	53	P	1	10/13/23 16:51

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310181
Date Collected: NA
Date Received:

Sample Name: Lab Control Sample
Lab Code: KQ2316103-08

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Toxaphene	34	700	796	13		1	10/13/23 17:31

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310181
Date Collected: NA
Date Received:

Sample Name: Lab Control Sample
Lab Code: KQ2316103-09

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
2,4'-DDD	0.27	17.1	15.2	12		1	10/13/23 18:11
2,4'-DDE	0.47	16.0	20.2	23		1	10/13/23 18:11
2,4'-DDT	0.48	15.5	16.0	3		1	10/13/23 18:11

Client: Floyd Snider **Service Request:** K2310181
Project: SmithKem
Sample Matrix: Soil

SURROGATE RECOVERY SUMMARY
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Extraction Method: EPA 3546

Sample Name	Lab Code	Decachlorobiphenyl 10 - 134	Tetrachloro-m-xylene 10 - 121
AOC5-101-05	K2310181-001	64	57
AOC5-02-2.5	K2310181-003	58	56
AOC5-02-05	K2310181-004	69	68
AOC5-03-2.5	K2310181-006	68	70
AOC5-04-2.5	K2310181-008	60	62
AOC5-04-05	K2310181-009	61	62
AOC4-01-2.5	K2310181-011	65	67
AOC4-03-2.0	K2310181-013	23	66
AOC4-103-2.0	K2310181-014	40	61
AOC4-04-2.5	K2310181-016	66	56
AOC4-05-2.5	K2310181-018	44	53
AOC4-06-2.5	K2310181-020	47	57
AOC5-02-2.5 MS	KQ2316103-01	62	57
AOC5-02-2.5 DMS	KQ2316103-02	63	56
AOC5-02-2.5 MS	KQ2316103-03	53	52
AOC5-02-2.5 DMS	KQ2316103-04	62	60
AOC5-02-2.5 MS	KQ2316103-05	63	59
AOC5-02-2.5 DMS	KQ2316103-06	61	58
Lab Control Sample	KQ2316103-07	73	65
Lab Control Sample	KQ2316103-08	66	60
Lab Control Sample	KQ2316103-09	61	55
Method Blank	KQ2316103-10	64	57

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Date Analyzed: 10/13/23 12:52

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC37\DATA\101323\1013F004.D\
Instrument ID: K-GC-37
Analytical Method: 8081B

Lab Code: KQ2318580-02
Analysis Lot: 821154
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	53,552,828	6.39	54,473,636	6.39	53,703,628	6.39
	Upper Limit ==>	107,105,656	6.89	108,947,272	6.89	107,407,256	6.89
	Lower Limit ==>	26,776,414	5.89	27,236,818	5.89	26,851,814	5.89
Associated Analyses							
Continuing Calibration Verification	KQ2318580-02	57,376,309	6.39	57,376,309	6.39	57,376,309	6.39
Continuing Calibration Verification	KQ2318580-02	57,556,143	6.39	57,556,143	6.39	57,556,143	6.39
Continuing Calibration Verification	KQ2318580-02	56,175,829	6.39	56,175,829	6.39	56,175,829	6.39
Continuing Calibration Verification	KQ2318580-02	55,880,900	6.39	55,880,900	6.39	55,880,900	6.39
Method Blank	KQ2316103-10	62,811,272	6.39	62,811,272	6.39	62,811,272	6.39
Lab Control Sample	KQ2316103-07	63,169,732	6.39	63,169,732	6.39	63,169,732	6.39
Lab Control Sample	KQ2316103-08	65,826,169	6.39	65,826,169	6.39	65,826,169	6.39
Lab Control Sample	KQ2316103-09	65,321,340	6.39	65,321,340	6.39	65,321,340	6.39
AOC5-02-2.5MS	KQ2316103-01	68,193,667	6.39	68,193,667	6.39	68,193,667	6.39
AOC5-02-2.5DMS	KQ2316103-02	69,105,072	6.39	69,105,072	6.39	69,105,072	6.39
AOC5-02-2.5MS	KQ2316103-03	72,521,661	6.39	72,521,661	6.39	72,521,661	6.39
AOC5-02-2.5DMS	KQ2316103-04	69,701,281	6.39	69,701,281	6.39	69,701,281	6.39
AOC5-02-2.5MS	KQ2316103-05	68,657,833	6.39	68,657,833	6.39	68,657,833	6.39
AOC5-02-2.5DMS	KQ2316103-06	68,017,474	6.39	68,017,474	6.39	68,017,474	6.39
AOC5-101-05	K2310181-001	70,103,346	6.39	70,103,346	6.39	70,103,346	6.39
AOC5-02-2.5	K2310181-003	72,490,968	6.39	72,490,968	6.39	72,490,968	6.39

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Date Analyzed: 10/13/23 12:52

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC37\DATA\101323\1013F004.D\
Instrument ID: K-GC-37
Analytical Method: 8081B

Lab Code: KQ2318580-02
Analysis Lot: 821154
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	158,917,391	5.40	164,718,608	5.40	162,032,942	5.40
	Upper Limit ==>	317,834,782	5.90	329,437,216	5.90	324,065,884	5.90
	Lower Limit ==>	79,458,696	4.90	82,359,304	4.90	81,016,471	4.90
Associated Analyses							
Continuing Calibration Verification	KQ2318580-02	178,973,318	5.40	178,973,318	5.40	178,973,318	5.40
Continuing Calibration Verification	KQ2318580-02	180,250,504	5.40	180,250,504	5.40	180,250,504	5.40
Continuing Calibration Verification	KQ2318580-02	175,995,112	5.40	175,995,112	5.40	175,995,112	5.40
Continuing Calibration Verification	KQ2318580-02	175,700,432	5.40	175,700,432	5.40	175,700,432	5.40
Method Blank	KQ2316103-10	193,689,680	5.40	193,689,680	5.40	193,689,680	5.40
Lab Control Sample	KQ2316103-07	192,311,363	5.40	192,311,363	5.40	192,311,363	5.40
Lab Control Sample	KQ2316103-08	201,908,655	5.40	201,908,655	5.40	201,908,655	5.40
Lab Control Sample	KQ2316103-09	201,508,173	5.40	201,508,173	5.40	201,508,173	5.40
AOC5-02-2.5MS	KQ2316103-01	210,470,630	5.40	210,470,630	5.40	210,470,630	5.40
AOC5-02-2.5DMS	KQ2316103-02	213,118,499	5.40	213,118,499	5.40	213,118,499	5.40
AOC5-02-2.5MS	KQ2316103-03	224,017,746	5.40	224,017,746	5.40	224,017,746	5.40
AOC5-02-2.5DMS	KQ2316103-04	215,770,630	5.40	215,770,630	5.40	215,770,630	5.40
AOC5-02-2.5MS	KQ2316103-05	211,414,939	5.40	211,414,939	5.40	211,414,939	5.40
AOC5-02-2.5DMS	KQ2316103-06	211,233,402	5.40	211,233,402	5.40	211,233,402	5.40
AOC5-101-05	K2310181-001	215,486,604	5.40	215,486,604	5.40	215,486,604	5.40
AOC5-02-2.5	K2310181-003	226,294,298	5.40	226,294,298	5.40	226,294,298	5.40

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Date Analyzed: 10/14/23 01:27

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC37\DATA\101323\1013F023.D\
Instrument ID: K-GC-37
Analytical Method: 8081B

Lab Code: KQ2318580-05
Analysis Lot: 821154
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	53,552,828	6.39	54,473,636	6.39	53,703,628	6.39
	Upper Limit ==>	107,105,656	6.89	108,947,272	6.89	107,407,256	6.89
	Lower Limit ==>	26,776,414	5.89	27,236,818	5.89	26,851,814	5.89
Associated Analyses							
Continuing Calibration Verification	KQ2318580-05	63,831,492	6.39	63,831,492	6.39	63,831,492	6.39
Continuing Calibration Verification	KQ2318580-05	64,499,661	6.39	64,499,661	6.39	64,499,661	6.39
Continuing Calibration Verification	KQ2318580-05	62,167,472	6.39	62,167,472	6.39	62,167,472	6.39
Continuing Calibration Verification	KQ2318580-05	62,430,456	6.39	62,430,456	6.39	62,430,456	6.39
AOC4-05-2.5	K2310181-018	74,005,581	6.39	74,005,581	6.39	74,005,581	6.39
AOC4-06-2.5	K2310181-020	75,068,916	6.39	75,068,916	6.39	75,068,916	6.39

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider **Service Request:** K2310181
Project: SmithKem **Date Analyzed:** 10/14/23 01:27

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC37\DATA\101323\1013F023.D\ **Lab Code:** KQ2318580-05
Instrument ID: K-GC-37 **Analysis Lot:** 821154
Analytical Method: 8081B **Signal ID:** DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	158,917,391	5.40	164,718,608	5.40	162,032,942	5.40
	Upper Limit ==>	317,834,782	5.90	329,437,216	5.90	324,065,884	5.90
	Lower Limit ==>	79,458,696	4.90	82,359,304	4.90	81,016,471	4.90
Associated Analyses							
Continuing Calibration Verification	KQ2318580-05	199,312,027	5.40	199,312,027	5.40	199,312,027	5.40
Continuing Calibration Verification	KQ2318580-05	202,413,802	5.40	202,413,802	5.40	202,413,802	5.40
Continuing Calibration Verification	KQ2318580-05	195,376,799	5.40	195,376,799	5.40	195,376,799	5.40
Continuing Calibration Verification	KQ2318580-05	194,523,429	5.40	194,523,429	5.40	194,523,429	5.40
AOC4-05-2.5	K2310181-018	221,456,027	5.40	221,456,027	5.40	221,456,027	5.40
AOC4-06-2.5	K2310181-020	227,052,375	5.40	227,052,375	5.40	227,052,375	5.40

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Date Analyzed: 10/19/23 13:39

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC22\DATA\101923\1019F005.D\
Instrument ID: K-GC-22
Analytical Method: 8081B

Lab Code: KQ2318628-02
Analysis Lot: 821256
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	78,194,372	6.51	80,894,837	6.51	83,245,674	6.51
	Upper Limit ==>	156,388,744	7.01	161,789,674	7.01	166,491,348	7.01
	Lower Limit ==>	39,097,186	6.01	40,447,419	6.01	41,622,837	6.01
Associated Analyses							
Continuing Calibration Verification	KQ2318628-02	93,049,614	6.50	93,049,614	6.50	93,049,614	6.50
Continuing Calibration Verification	KQ2318628-02	94,023,463	6.50	94,023,463	6.50	94,023,463	6.50
Continuing Calibration Verification	KQ2318628-02	97,226,278	6.50	97,226,278	6.50	97,226,278	6.50
Continuing Calibration Verification	KQ2318628-02	93,807,006	6.50	93,807,006	6.50	93,807,006	6.50
AOC5-02-05	K2310181-004	67,663,954	6.50	67,663,954	6.50	67,663,954	6.50
AOC5-03-2.5	K2310181-006	65,116,244	6.50	65,116,244	6.50	65,116,244	6.50
AOC5-04-2.5	K2310181-008	80,124,189	6.50	80,124,189	6.50	80,124,189	6.50
AOC5-04-05	K2310181-009	97,022,688	6.49	97,022,688	6.49	97,022,688	6.49
AOC4-01-2.5	K2310181-011	78,926,952	6.49	78,926,952	6.49	78,926,952	6.49
AOC4-03-2.0	K2310181-013	87,043,785	6.49	87,043,785	6.49	87,043,785	6.49
AOC4-103-2.0	K2310181-014	83,012,093	6.50	83,012,093	6.50	83,012,093	6.50
AOC4-04-2.5	K2310181-016	75,770,074	6.50	75,770,074	6.50	75,770,074	6.50

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Date Analyzed: 10/19/23 13:39

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC22\DATA\101923\1019F005.D\
Instrument ID: K-GC-22
Analytical Method: 8081B

Lab Code: KQ2318628-02
Analysis Lot: 821256
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	308,451,260	5.72	322,971,958	5.72	317,776,500	5.72
	Upper Limit ==>	616,902,520	6.22	645,943,916	6.22	635,553,000	6.22
	Lower Limit ==>	154,225,630	5.22	161,485,979	5.22	158,888,250	5.22
Associated Analyses							
Continuing Calibration Verification	KQ2318628-02	358,120,509	5.72	358,120,509	5.72	358,120,509	5.72
Continuing Calibration Verification	KQ2318628-02	354,946,154	5.72	354,946,154	5.72	354,946,154	5.72
Continuing Calibration Verification	KQ2318628-02	362,467,854	5.71	362,467,854	5.71	362,467,854	5.71
Continuing Calibration Verification	KQ2318628-02	364,486,056	5.72	364,486,056	5.72	364,486,056	5.72
AOC5-02-05	K2310181-004	269,128,454	5.72	269,128,454	5.72	269,128,454	5.72
AOC5-03-2.5	K2310181-006	257,997,849	5.72	257,997,849	5.72	257,997,849	5.72
AOC5-04-2.5	K2310181-008	319,470,486	5.72	319,470,486	5.72	319,470,486	5.72
AOC5-04-05	K2310181-009	387,087,638	5.72	387,087,638	5.72	387,087,638	5.72
AOC4-01-2.5	K2310181-011	322,828,764	5.72	322,828,764	5.72	322,828,764	5.72
AOC4-03-2.0	K2310181-013	316,673,774	5.71	316,673,774	5.71	316,673,774	5.71
AOC4-103-2.0	K2310181-014	319,677,803	5.71	319,677,803	5.71	319,677,803	5.71
AOC4-04-2.5	K2310181-016	284,273,214	5.71	284,273,214	5.71	284,273,214	5.71

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Date Analyzed: 10/19/23 23:57

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC22\DATA\101923\1019F025.D\
Instrument ID: K-GC-22
Analytical Method: 8081B

Lab Code: KQ2318628-05
Analysis Lot: 821256
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	78,194,372	6.51	80,894,837	6.51	83,245,674	6.51
	Upper Limit ==>	156,388,744	7.01	161,789,674	7.01	166,491,348	7.01
	Lower Limit ==>	39,097,186	6.01	40,447,419	6.01	41,622,837	6.01
Associated Analyses							
Continuing Calibration Verification	KQ2318628-05	95,381,831	6.50	95,381,831	6.50	95,381,831	6.50
Continuing Calibration Verification	KQ2318628-05	91,733,240	6.50	91,733,240	6.50	91,733,240	6.50
Continuing Calibration Verification	KQ2318628-05	95,046,077	6.50	95,046,077	6.50	95,046,077	6.50
Continuing Calibration Verification	KQ2318628-05	95,299,973	6.50	95,299,973	6.50	95,299,973	6.50

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Date Analyzed: 10/19/23 23:57

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC22\DATA\101923\1019F025.D\
Instrument ID: K-GC-22
Analytical Method: 8081B

Lab Code: KQ2318628-05
Analysis Lot: 821256
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	308,451,260	5.72	322,971,958	5.72	317,776,500	5.72
	Upper Limit ==>	616,902,520	6.22	645,943,916	6.22	635,553,000	6.22
	Lower Limit ==>	154,225,630	5.22	161,485,979	5.22	158,888,250	5.22
Associated Analyses							
Continuing Calibration Verification	KQ2318628-05	362,343,289	5.72	362,343,289	5.72	362,343,289	5.72
Continuing Calibration Verification	KQ2318628-05	359,134,462	5.72	359,134,462	5.72	359,134,462	5.72
Continuing Calibration Verification	KQ2318628-05	373,678,920	5.72	373,678,920	5.72	373,678,920	5.72
Continuing Calibration Verification	KQ2318628-05	379,705,192	5.72	379,705,192	5.72	379,705,192	5.72

Results flagged with an asterisk (*) indicate values outside control criteria.

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Collected:**	09/05/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
		Date Analyzed:	10/13/23
		Date Extracted:	09/14/23

Duplicate Matrix Spike Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	AOC5-02-2.5	**Units:**	ug/Kg
Lab Code:	K2310181-003	**Basis:**	Dry
Analysis Method:	8081B		
Prep Method:	EPA 3546		

		Matrix Spike KQ2316103-01			**Duplicate Matrix Spike** KQ2316103-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Aldrin	ND U	17.5	30.9	56	12.3	22.9	54	18-89	35	40
beta-BHC	ND U	18.0	30.9	58	14.5	22.9	63	16-106	22	40
cis-Chlordane	ND U	17.9	30.9	58	13.0	22.9	57	20-93	31	40
trans-Chlordane	ND U	18.0	30.9	58	13.2	22.9	57	10-103	31	40
4,4'-DDD	ND U	18.4 P	30.9	59	15.4 P	22.9	67	10-180	17	40
4,4'-DDE	ND U	17.0	30.9	55	12.3	22.9	54	17-94	32	40
4,4'-DDT	ND U	17.7	30.9	57	13.3	22.9	58	17-104	29	40
Dieldrin	ND U	18.4	30.9	60	13.9	22.9	61	19-88	28	40
cis-Nonachlor	ND U	10.5 P	30.9	34	8.03 P	22.9	35	11-172	27	40
trans-Nonachlor	ND U	20.7 P	30.9	67	15.2 P	22.9	66	30-107	31	40
Oxychlordane	ND U	17.1	30.9	55	12.4	22.9	54	30-99	32	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Collected:**	09/05/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
		Date Analyzed:	10/13/23
		Date Extracted:	09/14/23

Duplicate Matrix Spike Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	AOC5-02-2.5	**Units:**	ug/Kg
Lab Code:	K2310181-003	**Basis:**	Dry
Analysis Method:	8081B		
Prep Method:	EPA 3546		

		Matrix Spike KQ2316103-03			Duplicate Matrix Spike KQ2316103-04					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Toxaphene	ND U	475	864	55	633	987	64	16-114	29	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Collected:**	09/05/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
		Date Analyzed:	10/13/23
		Date Extracted:	09/14/23

Duplicate Matrix Spike Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	AOC5-02-2.5	**Units:**	ug/Kg
Lab Code:	K2310181-003	**Basis:**	Dry
Analysis Method:	8081B		
Prep Method:	EPA 3546		

		Matrix Spike KQ2316103-05			Duplicate Matrix Spike KQ2316103-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
2,4'-DDD	ND U	16.8	24.0	70	19.2	28.3	68	35-109	13	40
2,4'-DDE	ND U	15.2 P	24.0	63	17.2	28.3	61	41-99	13	40
2,4'-DDT	ND U	15.7	24.0	66	17.4	28.3	62	34-122	10	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Analyzed:**	10/13/23
Sample Matrix:	Soil	**Date Extracted:**	09/14/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Analysis Method:	8081B	**Units:**	ug/Kg
Prep Method:	EPA 3546	**Basis:**	Dry
		Analysis Lot:	821154

Lab Control Sample
KQ2316103-07

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
4,4'-DDD	18.2 P	25.0	73	10-180
4,4'-DDE	16.3	25.0	65	17-94
4,4'-DDT	16.4	25.0	66	17-104
Aldrin	16.7	25.0	67	18-89
beta-BHC	17.5	25.0	70	16-106
cis-Chlordane	17.3	25.0	69	20-93
cis-Nonachlor	10.0 P	25.0	40	11-172
Dieldrin	17.3	25.0	69	19-88
Oxychlordane	16.6	25.0	66	30-99
trans-Chlordane	17.4	25.0	69	10-103
trans-Nonachlor	20.1 P	25.0	80	30-107

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Analyzed:**	10/13/23
Sample Matrix:	Soil	**Date Extracted:**	09/14/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Analysis Method:	8081B	**Units:**	ug/Kg
Prep Method:	EPA 3546	**Basis:**	Dry
		Analysis Lot:	821154

Lab Control Sample
KQ2316103-08

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Toxaphene	700	1000	70	16-114

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Analyzed:**	10/13/23
Sample Matrix:	Soil	**Date Extracted:**	09/14/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Analysis Method:	8081B	**Units:**	ug/Kg
Prep Method:	EPA 3546	**Basis:**	Dry
		Analysis Lot:	821154

Lab Control Sample
KQ2316103-09

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
2,4'-DDD	17.1	25.0	68	35-109
2,4'-DDE	16.0	25.0	64	41-99
2,4'-DDT	15.5	25.0	62	34-122

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Analyzed:**	NA
Sample Matrix:	Soil	**Date Extracted:**	

Method Blank Summary
Low Level Organochlorine Pesticides by GC

Sample Name:		**Instrument ID:**	
Lab Code:		**File ID:**	
Analysis Method:	8081B	**Analysis Lot:**	821154
Prep Method:	None		

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Performance Evaluation	KQ2318580-01	J:\GC37\DATA\101323\1013F003.D\	10/13/23 12:12
Performance Evaluation	KQ2318580-04	J:\GC37\DATA\101323\1013F022.D\	10/14/23 00:48
Performance Evaluation	KQ2318628-01	J:\GC22\DATA\101923\1019F004.D\	10/19/23 13:08
Performance Evaluation	KQ2318628-04	J:\GC22\DATA\101923\1019F024.D\	10/19/23 23:25

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Analyzed:**	10/13/23 16:11
Sample Matrix:	Soil	**Date Extracted:**	09/14/23

Method Blank Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	Method Blank	**Instrument ID:**	K-GC-37
Lab Code:	KQ2316103-10	**File ID:**	J:\GC37\DATA\101323\1013F009.D\
Analysis Method:	8081B	**Analysis Lot:**	821154,821256
Prep Method:	EPA 3546	**Extraction Lot:**	426452

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ2316103-07	J:\GC37\DATA\101323\1013F010.D\	10/13/23 16:51
Lab Control Sample	KQ2316103-08	J:\GC37\DATA\101323\1013F011.D\	10/13/23 17:31
Lab Control Sample	KQ2316103-09	J:\GC37\DATA\101323\1013F012.D\	10/13/23 18:11
AOC5-02-2.5MS	KQ2316103-01	J:\GC37\DATA\101323\1013F013.D\	10/13/23 18:50
AOC5-02-2.5DMS	KQ2316103-02	J:\GC37\DATA\101323\1013F014.D\	10/13/23 19:30
AOC5-02-2.5MS	KQ2316103-03	J:\GC37\DATA\101323\1013F015.D\	10/13/23 20:09
AOC5-02-2.5DMS	KQ2316103-04	J:\GC37\DATA\101323\1013F016.D\	10/13/23 20:49
AOC5-02-2.5MS	KQ2316103-05	J:\GC37\DATA\101323\1013F017.D\	10/13/23 21:29
AOC5-02-2.5DMS	KQ2316103-06	J:\GC37\DATA\101323\1013F018.D\	10/13/23 22:09
AOC5-101-05	K2310181-001	J:\GC37\DATA\101323\1013F019.D\	10/13/23 22:49
AOC5-02-2.5	K2310181-003	J:\GC37\DATA\101323\1013F020.D\	10/13/23 23:28
AOC4-05-2.5	K2310181-018	J:\GC37\DATA\101323\1013F036.D\	10/14/23 10:02
AOC4-06-2.5	K2310181-020	J:\GC37\DATA\101323\1013F037.D\	10/14/23 10:42
AOC5-02-05	K2310181-004	J:\GC22\DATA\101923\1019F015.D\	10/19/23 18:48
AOC5-03-2.5	K2310181-006	J:\GC22\DATA\101923\1019F016.D\	10/19/23 19:19
AOC5-04-2.5	K2310181-008	J:\GC22\DATA\101923\1019F017.D\	10/19/23 19:50
AOC5-04-05	K2310181-009	J:\GC22\DATA\101923\1019F018.D\	10/19/23 20:21
AOC4-01-2.5	K2310181-011	J:\GC22\DATA\101923\1019F019.D\	10/19/23 20:51
AOC4-03-2.0	K2310181-013	J:\GC22\DATA\101923\1019F020.D\	10/19/23 21:22
AOC4-103-2.0	K2310181-014	J:\GC22\DATA\101923\1019F021.D\	10/19/23 21:52
AOC4-04-2.5	K2310181-016	J:\GC22\DATA\101923\1019F022.D\	10/19/23 22:23

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Analyzed:**	NA
Sample Matrix:	Soil	**Date Extracted:**	

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Sample Name:		**Instrument ID:**	
Lab Code:		**File ID:**	
Analysis Method:	8081B	**Analysis Lot:**	821154
Prep Method:	None		

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Performance Evaluation	KQ2318580-01	J:\GC37\DATA\101323\1013F003.D\	10/13/23 12:12
Performance Evaluation	KQ2318580-04	J:\GC37\DATA\101323\1013F022.D\	10/14/23 00:48
Performance Evaluation	KQ2318628-01	J:\GC22\DATA\101923\1019F004.D\	10/19/23 13:08
Performance Evaluation	KQ2318628-04	J:\GC22\DATA\101923\1019F024.D\	10/19/23 23:25

Client:	Floyd Snider	**Service Request:**	K2310181
Project:	SmithKem	**Date Analyzed:**	10/13/23 18:11
Sample Matrix:	Soil	**Date Extracted:**	09/14/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	Lab Control Sample	**Instrument ID:**	K-GC-37
Lab Code:	KQ2316103-09	**File ID:**	J:\GC37\DATA\101323\1013F012.D\
Analysis Method:	8081B	**Analysis Lot:**	821154,821256
Prep Method:	EPA 3546	**Extraction Lot:**	426452

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ2316103-10	J:\GC37\DATA\101323\1013F009.D\	10/13/23 16:11
AOC5-02-2.5MS	KQ2316103-01	J:\GC37\DATA\101323\1013F013.D\	10/13/23 18:50
AOC5-02-2.5DMS	KQ2316103-02	J:\GC37\DATA\101323\1013F014.D\	10/13/23 19:30
AOC5-02-2.5MS	KQ2316103-03	J:\GC37\DATA\101323\1013F015.D\	10/13/23 20:09
AOC5-02-2.5DMS	KQ2316103-04	J:\GC37\DATA\101323\1013F016.D\	10/13/23 20:49
AOC5-02-2.5MS	KQ2316103-05	J:\GC37\DATA\101323\1013F017.D\	10/13/23 21:29
AOC5-02-2.5DMS	KQ2316103-06	J:\GC37\DATA\101323\1013F018.D\	10/13/23 22:09
AOC5-101-05	K2310181-001	J:\GC37\DATA\101323\1013F019.D\	10/13/23 22:49
AOC5-02-2.5	K2310181-003	J:\GC37\DATA\101323\1013F020.D\	10/13/23 23:28
AOC4-05-2.5	K2310181-018	J:\GC37\DATA\101323\1013F036.D\	10/14/23 10:02
AOC4-06-2.5	K2310181-020	J:\GC37\DATA\101323\1013F037.D\	10/14/23 10:42
AOC5-02-05	K2310181-004	J:\GC22\DATA\101923\1019F015.D\	10/19/23 18:48
AOC5-03-2.5	K2310181-006	J:\GC22\DATA\101923\1019F016.D\	10/19/23 19:19
AOC5-04-2.5	K2310181-008	J:\GC22\DATA\101923\1019F017.D\	10/19/23 19:50
AOC5-04-05	K2310181-009	J:\GC22\DATA\101923\1019F018.D\	10/19/23 20:21
AOC4-01-2.5	K2310181-011	J:\GC22\DATA\101923\1019F019.D\	10/19/23 20:51
AOC4-03-2.0	K2310181-013	J:\GC22\DATA\101923\1019F020.D\	10/19/23 21:22
AOC4-103-2.0	K2310181-014	J:\GC22\DATA\101923\1019F021.D\	10/19/23 21:52
AOC4-04-2.5	K2310181-016	J:\GC22\DATA\101923\1019F022.D\	10/19/23 22:23

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Calibration Date: 10/10/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300590
Instrument ID: K-GC-37

Signal ID: DB XLB

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC2300590-01	8081 .2 PPB GCPS9-39H @50X	J:\GC37\DATA\101023ICAL\1010F005.D	10/10/2023 19:51
02	KC2300590-02	8081 .5 PPB GCPS9-39H @20X	J:\GC37\DATA\101023ICAL\1010F006.D	10/10/2023 20:31
03	KC2300590-03	8081 1 PPB GCPS9-39H-@10X	J:\GC37\DATA\101023ICAL\1010F007.D	10/10/2023 21:11
04	KC2300590-04	8081 2 PPB GCPS9-39H @5X	J:\GC37\DATA\101023ICAL\1010F008.D	10/10/2023 21:51
05	KC2300590-05	8081 5 PPB GCPS9-39H @2X	J:\GC37\DATA\101023ICAL\1010F009.D	10/10/2023 22:30
06	KC2300590-06	8081 10 PPB GCPS9-39H	J:\GC37\DATA\101023ICAL\1010F010.D	10/10/2023 23:10
08	KC2300590-08	24 .2 PPB GCPS9-39J @50X	J:\GC37\DATA\101023ICAL\1010F012.D	10/11/2023 00:30
09	KC2300590-09	24 .5 PPB GCPS9-39J @20X	J:\GC37\DATA\101023ICAL\1010F013.D	10/11/2023 01:10
10	KC2300590-10	24 1 PPB GCPS9-39J @10X	J:\GC37\DATA\101023ICAL\1010F014.D	10/11/2023 01:49
11	KC2300590-11	24 2 PPB GCPS9-39J @5X	J:\GC37\DATA\101023ICAL\1010F015.D	10/11/2023 02:29
12	KC2300590-12	24 5 PPB GCPS9-39J @2X	J:\GC37\DATA\101023ICAL\1010F016.D	10/11/2023 03:09
13	KC2300590-13	24 10 PPB GCPS9-39J	J:\GC37\DATA\101023ICAL\1010F017.D	10/11/2023 03:49
15	KC2300590-15	M/P .2/1 PPB GCPS9-40L @50X	J:\GC37\DATA\101023ICAL\1010F019.D	10/11/2023 05:08
16	KC2300590-16	M/P .5/2.5 PPB GCPS9-40L@20X	J:\GC37\DATA\101023ICAL\1010F020.D	10/11/2023 05:48
17	KC2300590-17	M/P 1/5 PPB GCPS9-40L@10X	J:\GC37\DATA\101023ICAL\1010F021.D	10/11/2023 06:27
18	KC2300590-18	M/P 2/10 PPB GCPS9-40L@5X	J:\GC37\DATA\101023ICAL\1010F022.D	10/11/2023 07:07
19	KC2300590-19	M/P 5/25 PPB GCPS9-40L @2X	J:\GC37\DATA\101023ICAL\1010F023.D	10/11/2023 07:47
20	KC2300590-20	M/P 10/50 PPB GCPS9-40L	J:\GC37\DATA\101023ICAL\1010F024.D	10/11/2023 08:26
21	KC2300590-21	PERTH 100 PPB GSP9-40E	J:\GC37\DATA\101023ICAL\1010F025.D	10/11/2023 09:06
24	KC2300590-24	TOX 10 PPB GCPS9-40A @50X	J:\GC37\DATA\101023ICAL\1010F028.D	10/11/2023 11:06
25	KC2300590-25	TOX 25 PPB GCPS9-40A @20X	J:\GC37\DATA\101023ICAL\1010F029.D	10/11/2023 11:45
26	KC2300590-26	TOX 50 PPB GCPS9-40A@10X	J:\GC37\DATA\101023ICAL\1010F030.D	10/11/2023 12:25
27	KC2300590-27	TOX 100 PPB GCPS9-40A @5X	J:\GC37\DATA\101023ICAL\1010F031.D	10/11/2023 13:05
28	KC2300590-28	TOX 250 PPB GCPS9-40A@2X	J:\GC37\DATA\101023ICAL\1010F032.D	10/11/2023 13:45
29	KC2300590-29	TOX 500 PPB GCPS9-40A	J:\GC37\DATA\101023ICAL\1010F033.D	10/11/2023 14:25
31	KC2300590-31	CHLOR 2 PPB GCPS9-40B @100X	J:\GC37\DATA\101023ICAL\1010F035.D	10/11/2023 15:44
32	KC2300590-32	CHLOR 5 PPB GCPS9-40B@40X	J:\GC37\DATA\101023ICAL\1010F036.D	10/11/2023 16:23
33	KC2300590-33	CHLOR 10 PPB GCPS9-40B @20X	J:\GC37\DATA\101023ICAL\1010F037.D	10/11/2023 17:03
34	KC2300590-34	CHLOR 20 PPB GCPS9-40B @10X	J:\GC37\DATA\101023ICAL\1010F038.D	10/11/2023 17:43
35	KC2300590-35	CHLOR 50 PPB GCPS9-40B@4X	J:\GC37\DATA\101023ICAL\1010F039.D	10/11/2023 18:23
36	KC2300590-36	CHLOR 100 PPB GCPS9-40B @2X	J:\GC37\DATA\101023ICAL\1010F040.D	10/11/2023 19:02
37	KC2300590-37	CHLOR 200 PPB GCPS9-40B	J:\GC37\DATA\101023ICAL\1010F041.D	10/11/2023 19:42

Analyte

2,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	0.9136	09	0.500	0.7941	10	1.000	0.7585	11	2.000	0.733
12	5.000	0.7164	13	10.000	0.6619						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Calibration Date: 10/10/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300590
Instrument ID: K-GC-37

Signal ID: DB XLB

Analyte

2,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	1.677	09	0.500	1.505	10	1.000	1.086	11	2.000	1.022
12	5.000	0.963	13	10.000	0.8962						

2,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	1.205	09	0.500	1.031	10	1.000	0.8412	11	2.000	0.8268
12	5.000	0.7895	13	10.000	0.7295						

4,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.972	02	0.500	1.251	03	1.000	0.8782	04	2.000	0.9495
05	5.000	0.8738	06	10.000	0.8681						

4,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.48	02	0.500	1.731	03	1.000	1.377	04	2.000	1.38
05	5.000	1.307	06	10.000	1.275						

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.004	02	0.500	1.192	03	1.000	0.9727	04	2.000	0.9832
05	5.000	0.9318	06	10.000	0.9391						

Aldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.57	02	0.500	1.802	03	1.000	1.647	04	2.000	1.462
05	5.000	1.398	06	10.000	1.37						

Decachlorobiphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.476	02	0.500	1.372	03	1.000	1.169	04	2.000	1.204
05	5.000	1.205	06	10.000	1.152						

Dieldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.452	02	0.500	1.741	03	1.000	1.379	04	2.000	1.335
05	5.000	1.258	06	10.000	1.224						

Oxychlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	2.499	16	0.500	1.891	17	1.000	1.527	18	2.000	1.381
19	5.000	1.271	20	10.000	1.176						

Tetrachloro-m-xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.568	02	0.500	1.518	03	1.000	1.505	04	2.000	1.536
05	5.000	1.472	06	10.000	1.432						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Calibration Date: 10/10/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300590
Instrument ID: K-GC-37

Signal ID: DB XLB

Analyte

Toxaphene {1}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.00658	25	25.000	0.008302	26	50.000	0.007774	27	100.000	0.006283
28	250.000	0.006617	29	500.000	0.006228						

Toxaphene {2}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01827	25	25.000	0.01023	26	50.000	0.00966	27	100.000	0.009149
28	250.000	0.009005	29	500.000	0.008221						

Toxaphene {3}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.009079	25	25.000	0.01458	26	50.000	0.0129	27	100.000	0.01086
28	250.000	0.01215	29	500.000	0.01063						

Toxaphene {4}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01232	25	25.000	0.02038	26	50.000	0.01681	27	100.000	0.01591
28	250.000	0.01687	29	500.000	0.015						

Toxaphene {5}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.02657	25	25.000	0.02494	26	50.000	0.02633	27	100.000	0.02876
28	250.000	0.02921	29	500.000	0.03175						

Toxaphene {6}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.02497	25	25.000	0.02481	26	50.000	0.02323	27	100.000	0.02083
28	250.000	0.02224	29	500.000	0.02283						

beta-BHC

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.6921	02	0.500	0.8554	03	1.000	0.7515	04	2.000	0.756
05	5.000	0.7173	06	10.000	0.675						

cis-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.585	02	0.500	1.81	03	1.000	1.469	04	2.000	1.393
05	5.000	1.297	06	10.000	1.236						

cis-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	2.872	16	0.500	1.97	17	1.000	1.54	18	2.000	1.426
19	5.000	1.32	20	10.000	1.259						

trans-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.473	02	0.500	1.808	03	1.000	1.418	04	2.000	1.403
05	5.000	1.298	06	10.000	1.25						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Calibration Date: 10/10/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300590
Instrument ID: K-GC-37

Signal ID: DB XLB

Analyte

trans-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	2.48	16	0.500	1.85	17	1.000	1.519	18	2.000	1.406
19	5.000	1.294	20	10.000	1.222						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Calibration Date: 10/10/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300590
Instrument ID: K-GC-37

Signal ID: DB XLB

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	11.3	≤20	0.7629	
2,4'-DDE	TRG	Quadratic	COD	0.9997	≥0.990	1.192	
2,4'-DDT	TRG	Average RF	% RSD	19.8	≤20	0.9039	
4,4'-DDD	TRG	Average RF	% RSD	15.2	≤20	0.9655	
4,4'-DDE	TRG	Average RF	% RSD	11.6	≤20	1.425	
4,4'-DDT	TRG	Average RF	% RSD	9.6	≤20	1.004	
Aldrin	TRG	Average RF	% RSD	10.7	≤20	1.541	
Decachlorobiphenyl	SURR	Average RF	% RSD	10.3	≤20	1.263	
Dieldrin	TRG	Average RF	% RSD	13.4	≤20	1.398	
Oxychlordane	TRG	Quadratic	COD	1.0000	≥0.990	1.624	
Tetrachloro-m-xylene	SURR	Average RF	% RSD	3.2	≤20	1.505	
Toxaphene {1}	MULTI	Average RF	% RSD	12.4	≤20	0.006964	
Toxaphene {2}	MULTI	Linear	R2	0.9983	≥0.990	0.01076	
Toxaphene {3}	MULTI	Average RF	% RSD	16.5	≤20	0.0117	
Toxaphene {4}	MULTI	Average RF	% RSD	16.3	≤20	0.01621	
Toxaphene {5}	MULTI	Average RF	% RSD	8.8	≤20	0.02793	
Toxaphene {6}	MULTI	Average RF	% RSD	6.8	≤20	0.02315	
beta-BHC	TRG	Average RF	% RSD	8.7	≤20	0.7412	
cis-Chlordane	TRG	Average RF	% RSD	14.3	≤20	1.465	
cis-Nonachlor	TRG	Linear	R2	0.9998	≥0.990	1.731	
trans-Chlordane	TRG	Average RF	% RSD	13.7	≤20	1.442	
trans-Nonachlor	TRG	Linear	R2	0.9996	≥0.990	1.628	

Client: Floyd Snider **Service Request:** K2310181
Project: SmithKem **Calibration Date:** 10/10/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300590 **Signal ID:** DB-35MS
Instrument ID: K-GC-37

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC2300590-01	8081 .2 PPB GCPS9-39H @50X	J:\GC37\DATA\101023ICAL\1010F005.D	10/10/2023 19:51
02	KC2300590-02	8081 .5 PPB GCPS9-39H @20X	J:\GC37\DATA\101023ICAL\1010F006.D	10/10/2023 20:31
03	KC2300590-03	8081 1 PPB GCPS9-39H-@10X	J:\GC37\DATA\101023ICAL\1010F007.D	10/10/2023 21:11
04	KC2300590-04	8081 2 PPB GCPS9-39H @5X	J:\GC37\DATA\101023ICAL\1010F008.D	10/10/2023 21:51
05	KC2300590-05	8081 5 PPB GCPS9-39H @2X	J:\GC37\DATA\101023ICAL\1010F009.D	10/10/2023 22:30
06	KC2300590-06	8081 10 PPB GCPS9-39H	J:\GC37\DATA\101023ICAL\1010F010.D	10/10/2023 23:10
08	KC2300590-08	24 .2 PPB GCPS9-39J @50X	J:\GC37\DATA\101023ICAL\1010F012.D	10/11/2023 00:30
09	KC2300590-09	24 .5 PPB GCPS9-39J @20X	J:\GC37\DATA\101023ICAL\1010F013.D	10/11/2023 01:10
10	KC2300590-10	24 1 PPB GCPS9-39J @10X	J:\GC37\DATA\101023ICAL\1010F014.D	10/11/2023 01:49
11	KC2300590-11	24 2 PPB GCPS9-39J @5X	J:\GC37\DATA\101023ICAL\1010F015.D	10/11/2023 02:29
12	KC2300590-12	24 5 PPB GCPS9-39J @2X	J:\GC37\DATA\101023ICAL\1010F016.D	10/11/2023 03:09
13	KC2300590-13	24 10 PPB GCPS9-39J	J:\GC37\DATA\101023ICAL\1010F017.D	10/11/2023 03:49
15	KC2300590-15	M/P .2/1 PPB GCPS9-40L @50X	J:\GC37\DATA\101023ICAL\1010F019.D	10/11/2023 05:08
16	KC2300590-16	M/P .5/2.5 PPB GCPS9-40L@20X	J:\GC37\DATA\101023ICAL\1010F020.D	10/11/2023 05:48
17	KC2300590-17	M/P 1/5 PPB GCPS9-40L@10X	J:\GC37\DATA\101023ICAL\1010F021.D	10/11/2023 06:27
18	KC2300590-18	M/P 2/10 PPB GCPS9-40L@5X	J:\GC37\DATA\101023ICAL\1010F022.D	10/11/2023 07:07
19	KC2300590-19	M/P 5/25 PPB GCPS9-40L @2X	J:\GC37\DATA\101023ICAL\1010F023.D	10/11/2023 07:47
20	KC2300590-20	M/P 10/50 PPB GCPS9-40L	J:\GC37\DATA\101023ICAL\1010F024.D	10/11/2023 08:26
21	KC2300590-21	PERTH 100 PPB GSP9-40E	J:\GC37\DATA\101023ICAL\1010F025.D	10/11/2023 09:06
24	KC2300590-24	TOX 10 PPB GCPS9-40A @50X	J:\GC37\DATA\101023ICAL\1010F028.D	10/11/2023 11:06
25	KC2300590-25	TOX 25 PPB GCPS9-40A @20X	J:\GC37\DATA\101023ICAL\1010F029.D	10/11/2023 11:45
26	KC2300590-26	TOX 50 PPB GCPS9-40A@10X	J:\GC37\DATA\101023ICAL\1010F030.D	10/11/2023 12:25
27	KC2300590-27	TOX 100 PPB GCPS9-40A @5X	J:\GC37\DATA\101023ICAL\1010F031.D	10/11/2023 13:05
28	KC2300590-28	TOX 250 PPB GCPS9-40A@2X	J:\GC37\DATA\101023ICAL\1010F032.D	10/11/2023 13:45
29	KC2300590-29	TOX 500 PPB GCPS9-40A	J:\GC37\DATA\101023ICAL\1010F033.D	10/11/2023 14:25
31	KC2300590-31	CHLOR 2 PPB GCPS9-40B @100X	J:\GC37\DATA\101023ICAL\1010F035.D	10/11/2023 15:44
32	KC2300590-32	CHLOR 5 PPB GCPS9-40B@40X	J:\GC37\DATA\101023ICAL\1010F036.D	10/11/2023 16:23
33	KC2300590-33	CHLOR 10 PPB GCPS9-40B @20X	J:\GC37\DATA\101023ICAL\1010F037.D	10/11/2023 17:03
34	KC2300590-34	CHLOR 20 PPB GCPS9-40B @10X	J:\GC37\DATA\101023ICAL\1010F038.D	10/11/2023 17:43
35	KC2300590-35	CHLOR 50 PPB GCPS9-40B@4X	J:\GC37\DATA\101023ICAL\1010F039.D	10/11/2023 18:23
36	KC2300590-36	CHLOR 100 PPB GCPS9-40B @2X	J:\GC37\DATA\101023ICAL\1010F040.D	10/11/2023 19:02
37	KC2300590-37	CHLOR 200 PPB GCPS9-40B	J:\GC37\DATA\101023ICAL\1010F041.D	10/11/2023 19:42

Analyte

2,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	1.041	09	0.500	0.9005	10	1.000	0.7369	11	2.000	0.7045
12	5.000	0.6853	13	10.000	0.6533						

Client: Floyd Snider **Service Request:** K2310181
Project: SmithKem **Calibration Date:** 10/10/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300590 **Signal ID:** DB-35MS
Instrument ID: K-GC-37

Analyte

2,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	1.127	09	0.500	1.045	10	1.000	1.012	11	2.000	1.015
12	5.000	0.9806	13	10.000	0.9144						

2,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	0.9755	09	0.500	0.8199	10	1.000	0.8154	11	2.000	0.7544
12	5.000	0.7568	13	10.000	0.7211						

4,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.002	02	0.500	1.128	03	1.000	0.9313	04	2.000	0.9094
05	5.000	0.8907	06	10.000	0.8898						

4,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.464	02	0.500	1.665	03	1.000	1.493	04	2.000	1.385
05	5.000	1.379	06	10.000	1.373						

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.385	02	0.500	1.39	03	1.000	1.115	04	2.000	1.062
05	5.000	0.9996	06	10.000	0.9768						

Aldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.656	02	0.500	1.706	03	1.000	1.514	04	2.000	1.518
05	5.000	1.507	06	10.000	1.515						

Decachlorobiphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.731	02	0.500	1.61	03	1.000	1.531	04	2.000	1.507
05	5.000	1.389	06	10.000	1.309						

Dieldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.421	02	0.500	1.676	03	1.000	1.378	04	2.000	1.331
05	5.000	1.315	06	10.000	1.304						

Oxychlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.981	16	0.500	1.583	17	1.000	1.384	18	2.000	1.323
19	5.000	1.25	20	10.000	1.218						

Tetrachloro-m-xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.725	02	0.500	1.671	03	1.000	1.651	04	2.000	1.572
05	5.000	1.526	06	10.000	1.494						

Client: Floyd Snider **Service Request:** K2310181
Project: SmithKem **Calibration Date:** 10/10/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300590 **Signal ID:** DB-35MS
Instrument ID: K-GC-37

Analyte

Toxaphene {1}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.02399	25	25.000	0.02359	26	50.000	0.02337	27	100.000	0.0212
28	250.000	0.02434	29	500.000	0.02084						

Toxaphene {2}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.02313	25	25.000	0.02091	26	50.000	0.01907	27	100.000	0.01673
28	250.000	0.02171	29	500.000	0.01732						

Toxaphene {3}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.0293	25	25.000	0.02572	26	50.000	0.02493	27	100.000	0.02235
28	250.000	0.0256	29	500.000	0.02267						

Toxaphene {4}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01919	25	25.000	0.01548	26	50.000	0.01903	27	100.000	0.01796
28	250.000	0.01486	29	500.000	0.01919						

Toxaphene {5}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01914	25	25.000	0.02488	26	50.000	0.02435	27	100.000	0.02239
28	250.000	0.02434	29	500.000	0.02298						

Toxaphene {6}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.03215	25	25.000	0.03093	26	50.000	0.03164	27	100.000	0.02959
28	250.000	0.02972	29	500.000	0.03079						

beta-BHC

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.9223	02	0.500	0.9735	03	1.000	0.8283	04	2.000	0.7736
05	5.000	0.7452	06	10.000	0.7165						

cis-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.549	02	0.500	1.722	03	1.000	1.453	04	2.000	1.385
05	5.000	1.362	06	10.000	1.325						

cis-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	2.639	16	0.500	1.913	17	1.000	1.516	18	2.000	1.425
19	5.000	1.371	20	10.000	1.339						

trans-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.724	02	0.500	1.95	03	1.000	1.518	04	2.000	1.47
05	5.000	1.363	06	10.000	1.337						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Calibration Date: 10/10/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300590
Instrument ID: K-GC-37

Signal ID: DB-35MS

Analyte

trans-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	2.295	16	0.500	1.716	17	1.000	1.58	18	2.000	1.454
19	5.000	1.335	20	10.000	1.292						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Calibration Date: 10/10/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300590
Instrument ID: K-GC-37

Signal ID: DB-35MS

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	19.3	≤20	0.7869	
2,4'-DDE	TRG	Average RF	% RSD	6.9	≤20	1.016	
2,4'-DDT	TRG	Average RF	% RSD	11.3	≤20	0.8072	
4,4'-DDD	TRG	Average RF	% RSD	9.7	≤20	0.9584	
4,4'-DDE	TRG	Average RF	% RSD	7.7	≤20	1.46	
4,4'-DDT	TRG	Average RF	% RSD	16.2	≤20	1.155	
Aldrin	TRG	Average RF	% RSD	5.6	≤20	1.569	
Decachlorobiphenyl	SURR	Average RF	% RSD	10.0	≤20	1.513	
Dieldrin	TRG	Average RF	% RSD	10.0	≤20	1.404	
Oxychlordane	TRG	Average RF	% RSD	19.8	≤20	1.456	
Tetrachloro-m-xylene	SURR	Average RF	% RSD	5.6	≤20	1.607	
Toxaphene {1}	MULTI	Average RF	% RSD	6.5	≤20	0.02289	
Toxaphene {2}	MULTI	Average RF	% RSD	12.8	≤20	0.01981	
Toxaphene {3}	MULTI	Average RF	% RSD	10.1	≤20	0.02509	
Toxaphene {4}	MULTI	Average RF	% RSD	11.1	≤20	0.01762	
Toxaphene {5}	MULTI	Average RF	% RSD	9.2	≤20	0.02301	
Toxaphene {6}	MULTI	Average RF	% RSD	3.3	≤20	0.0308	
beta-BHC	TRG	Average RF	% RSD	12.4	≤20	0.8266	
cis-Chlordane	TRG	Average RF	% RSD	10.1	≤20	1.466	
cis-Nonachlor	TRG	Linear	R2	0.9999	≥0.990	1.701	
trans-Chlordane	TRG	Average RF	% RSD	15.1	≤20	1.56	
trans-Nonachlor	TRG	Linear	R2	0.9998	≥0.990	1.612	

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Calibration Date: 9/29/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580
Instrument ID: K-GC-22

Signal ID: DB XLB

#	Lab Code	Sample Name	File Location	Acquisition Date
32	KC2300580-32	8081 .2 PPB GCSP9-38C @50X	J:\GC22\DATA\092823ICAL\0929F008.D	09/29/2023 19:59
33	KC2300580-33	8081 .5 PPB GCSP9-38C @20X	J:\GC22\DATA\092823ICAL\0929F009.D	09/29/2023 20:30
34	KC2300580-34	8081 1 PPB GCSP9-38C @10X	J:\GC22\DATA\092823ICAL\0929F010.D	09/29/2023 21:01
35	KC2300580-35	8081 2 PPB GCSP9-38C @5X	J:\GC22\DATA\092823ICAL\0929F011.D	09/29/2023 21:33
36	KC2300580-36	8081 5 PPB GCSP9-38C @2X	J:\GC22\DATA\092823ICAL\0929F012.D	09/29/2023 22:04
37	KC2300580-37	8081 10 PPB GCSP9-38C	J:\GC22\DATA\092823ICAL\0929F013.D	09/29/2023 22:34
01	KC2300580-01	2,4 .2 PPB GCSP9-39J @50X	J:\GC22\DATA\100523ICAL\1005F006.D	10/05/2023 19:35
02	KC2300580-02	2,4 .5 PPB GCSP9-39J @20X	J:\GC22\DATA\100523ICAL\1005F007.D	10/05/2023 20:06
03	KC2300580-03	2,4 1 PPB GCSP9-39J @10X	J:\GC22\DATA\100523ICAL\1005F008.D	10/05/2023 20:36
04	KC2300580-04	2,4 2 PPB GCSP9-39J @5X	J:\GC22\DATA\100523ICAL\1005F009.D	10/05/2023 21:07
05	KC2300580-05	2,4 5 PPB GCSP9-39J @2X	J:\GC22\DATA\100523ICAL\1005F010.D	10/05/2023 21:37
06	KC2300580-06	2,4 10 PPB GCSP9-39J	J:\GC22\DATA\100523ICAL\1005F011.D	10/05/2023 22:08
08	KC2300580-08	TOX 10 PPB GCSP9-40A @50X	J:\GC22\DATA\100523ICAL\1005F022.D	10/06/2023 03:46
09	KC2300580-09	TOX 25 PPB GCSP9-40A @20X	J:\GC22\DATA\100523ICAL\1005F023.D	10/06/2023 04:17
10	KC2300580-10	TOX 50 PPB GCSP9-40A @10X	J:\GC22\DATA\100523ICAL\1005F024.D	10/06/2023 04:47
11	KC2300580-11	TOX 100 PPB GCSP9-40A@5X	J:\GC22\DATA\100523ICAL\1005F025.D	10/06/2023 05:18
12	KC2300580-12	TOX 250 PPB GCSP9-40A@2X	J:\GC22\DATA\100523ICAL\1005F026.D	10/06/2023 05:48
13	KC2300580-13	TOX 500 PPB GCSP9-40A	J:\GC22\DATA\100523ICAL\1005F027.D	10/06/2023 06:18
15	KC2300580-15	CHLOR 2 PPB GCSP9-40B @40X	J:\GC22\DATA\100523ICAL\1005F029.D	10/06/2023 07:19
16	KC2300580-16	CHLOR 5 PPB GCSP9-40B @40X	J:\GC22\DATA\100523ICAL\1005F030.D	10/06/2023 07:50
17	KC2300580-17	CHLOR 10 PPB GCSP9-40B @20X	J:\GC22\DATA\100523ICAL\1005F031.D	10/06/2023 08:20
18	KC2300580-18	CHLOR 20 PPB GCSP9-40B @10X	J:\GC22\DATA\100523ICAL\1005F032.D	10/06/2023 08:51
19	KC2300580-19	CHLOR 50 PPB GCSP9-40B @4X	J:\GC22\DATA\100523ICAL\1005F033.D	10/06/2023 09:22
20	KC2300580-20	CHLOR 100 PPB GCSP9-40B @2X	J:\GC22\DATA\100523ICAL\1005F034.D	10/06/2023 09:52
21	KC2300580-21	CHLOR 200 PPB GCSP9-40B	J:\GC22\DATA\100523ICAL\1005F035.D	10/06/2023 10:24
23	KC2300580-23	M/P .2/1 PPB GCSP9-39K @50X	J:\GC22\DATA\100923\1009F006.D	10/09/2023 13:40
24	KC2300580-24	M/P .5/2.5 PPB GCSP9-39K @20X	J:\GC22\DATA\100923\1009F007.D	10/09/2023 14:11
25	KC2300580-25	M/P 1/5 PPB GCSP9-39K @10X	J:\GC22\DATA\100923\1009F008.D	10/09/2023 14:43
26	KC2300580-26	M/P 2/10 PPB GCSP9-39K @5X	J:\GC22\DATA\100923\1009F009.D	10/09/2023 15:15
27	KC2300580-27	M/P 5/25 PPB GCSP9-39K @2X	J:\GC22\DATA\100923\1009F010.D	10/09/2023 15:46
28	KC2300580-28	M/P 10/50 PPB GCSP9-39K	J:\GC22\DATA\100923\1009F011.D	10/09/2023 16:17
29	KC2300580-29	PERTH 100 PPB GCSP9-30E	J:\GC22\DATA\100923\1009F012.D	10/09/2023 16:48

Analyte

2,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.6636	02	0.500	0.7152	03	1.000	0.6183	04	2.000	0.6102
05	5.000	0.6037	06	10.000	0.5955						

Client: Floyd Snider **Service Request:** K2310181
Project: SmithKem **Calibration Date:** 9/29/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580 **Signal ID:** DB XLB
Instrument ID: K-GC-22

Analyte

2,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.7471	02	0.500	0.781	03	1.000	0.7439	04	2.000	0.727
05	5.000	0.6986	06	10.000	0.6908						

2,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.6786	02	0.500	0.7588	03	1.000	0.6231	04	2.000	0.6501
05	5.000	0.6402	06	10.000	0.644						

4,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.026	33	0.500	1.033	34	1.000	0.9403	35	2.000	1.022
36	5.000	1.007	37	10.000	0.9286						

4,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.197	33	0.500	1.294	34	1.000	1.094	35	2.000	1.169
36	5.000	1.115	37	10.000	1.088						

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	0.852	33	0.500	0.9917	34	1.000	0.7994	35	2.000	0.8822
36	5.000	0.8727	37	10.000	0.8438						

Aldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.454	33	0.500	1.545	34	1.000	1.27	35	2.000	1.363
36	5.000	1.309	37	10.000	1.264						

Decachlorobiphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.01	33	0.500	1.05	34	1.000	0.9393	35	2.000	1.007
36	5.000	0.9033	37	10.000	0.8968						

Dieldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.21	33	0.500	1.354	34	1.000	1.104	35	2.000	1.219
36	5.000	1.18	37	10.000	1.146						

Oxychlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
23	0.200	1.656	24	0.500	1.418	25	1.000	1.142	26	2.000	1.179
27	5.000	1.179	28	10.000	1.196						

Tetrachloro-m-xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.138	33	0.500	1.447	34	1.000	1.263	35	2.000	1.329
36	5.000	1.245	37	10.000	1.177						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Calibration Date: 9/29/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580
Instrument ID: K-GC-22

Signal ID: DB XLB

Analyte

Toxaphene {1}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.008656	09	25.000	0.009847	10	50.000	0.008147	11	100.000	0.008076
12	250.000	0.008585	13	500.000	0.00751						

Toxaphene {2}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.009383	09	25.000	0.01039	10	50.000	0.01088	11	100.000	0.01224
12	250.000	0.00827	13	500.000	0.008827						

Toxaphene {3}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.01539	09	25.000	0.01553	10	50.000	0.01671	11	100.000	0.0172
12	250.000	0.01571	13	500.000	0.01623						

Toxaphene {4}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.01224	09	25.000	0.013	10	50.000	0.01388	11	100.000	0.01376
12	250.000	0.01263	13	500.000	0.01302						

Toxaphene {5}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.02117	09	25.000	0.01992	10	50.000	0.01742	11	100.000	0.01879
12	250.000	0.02189	13	500.000	0.02349						

Toxaphene {6}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.01899	09	25.000	0.01457	10	50.000	0.02034	11	100.000	0.0167
12	250.000	0.02087	13	500.000	0.0205						

beta-BHC

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	0.8983	33	0.500	0.9478	34	1.000	0.8411	35	2.000	0.797
36	5.000	0.7407	37	10.000	0.6865						

cis-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.428	33	0.500	1.291	34	1.000	1.147	35	2.000	1.259
36	5.000	1.206	37	10.000	1.171						

cis-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
23	0.200	2.294	24	0.500	1.69	25	1.000	1.389	26	2.000	1.223
27	5.000	1.242	28	10.000	1.23						

trans-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.397	33	0.500	1.395	34	1.000	1.239	35	2.000	1.285
36	5.000	1.223	37	10.000	1.186						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Calibration Date: 9/29/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580
Instrument ID: K-GC-22

Signal ID: DB XLB

Analyte

trans-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
23	0.200	1.74	24	0.500	1.529	25	1.000	1.244	26	2.000	1.221
27	5.000	1.222	28	10.000	1.215						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Calibration Date: 9/29/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580
Instrument ID: K-GC-22

Signal ID: DB XLB

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	7.3	≤20	0.6344	
2,4'-DDE	TRG	Average RF	% RSD	4.6	≤20	0.7314	
2,4'-DDT	TRG	Average RF	% RSD	7.4	≤20	0.6658	
4,4'-DDD	TRG	Average RF	% RSD	4.6	≤20	0.9927	
4,4'-DDE	TRG	Average RF	% RSD	6.8	≤20	1.16	
4,4'-DDT	TRG	Average RF	% RSD	7.4	≤20	0.8736	
Aldrin	TRG	Average RF	% RSD	8.2	≤20	1.367	
Decachlorobiphenyl	SURR	Average RF	% RSD	6.5	≤20	0.9677	
Dieldrin	TRG	Average RF	% RSD	7.1	≤20	1.202	
Oxychlordane	TRG	Average RF	% RSD	15.7	≤20	1.295	
Tetrachloro-m-xylene	SURR	Average RF	% RSD	8.8	≤20	1.267	
Toxaphene {1}	MULTI	Average RF	% RSD	9.3	≤20	0.00847	
Toxaphene {2}	MULTI	Average RF	% RSD	14.6	≤20	0.009997	
Toxaphene {3}	MULTI	Average RF	% RSD	4.4	≤20	0.01613	
Toxaphene {4}	MULTI	Average RF	% RSD	4.9	≤20	0.01309	
Toxaphene {5}	MULTI	Average RF	% RSD	10.7	≤20	0.02045	
Toxaphene {6}	MULTI	Average RF	% RSD	13.5	≤20	0.01866	
beta-BHC	TRG	Average RF	% RSD	11.9	≤20	0.8186	
cis-Chlordane	TRG	Average RF	% RSD	8.2	≤20	1.25	
cis-Nonachlor	TRG	Linear	R2	0.9997	≥0.990	1.511	
trans-Chlordane	TRG	Average RF	% RSD	7.0	≤20	1.288	
trans-Nonachlor	TRG	Average RF	% RSD	16.3	≤20	1.362	

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Calibration Date: 9/29/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580
Instrument ID: K-GC-22

Signal ID: DB-35MS

#	Lab Code	Sample Name	File Location	Acquisition Date
32	KC2300580-32	8081 .2 PPB GCSP9-38C @50X	J:\GC22\DATA\092823ICAL\0929F008.D	09/29/2023 19:59
33	KC2300580-33	8081 .5 PPB GCSP9-38C @20X	J:\GC22\DATA\092823ICAL\0929F009.D	09/29/2023 20:30
34	KC2300580-34	8081 1 PPB GCSP9-38C @10X	J:\GC22\DATA\092823ICAL\0929F010.D	09/29/2023 21:01
35	KC2300580-35	8081 2 PPB GCSP9-38C @5X	J:\GC22\DATA\092823ICAL\0929F011.D	09/29/2023 21:33
36	KC2300580-36	8081 5 PPB GCSP9-38C @2X	J:\GC22\DATA\092823ICAL\0929F012.D	09/29/2023 22:04
37	KC2300580-37	8081 10 PPB GCSP9-38C	J:\GC22\DATA\092823ICAL\0929F013.D	09/29/2023 22:34
01	KC2300580-01	2,4 .2 PPB GCSP9-39J @50X	J:\GC22\DATA\100523ICAL\1005F006.D	10/05/2023 19:35
02	KC2300580-02	2,4 .5 PPB GCSP9-39J @20X	J:\GC22\DATA\100523ICAL\1005F007.D	10/05/2023 20:06
03	KC2300580-03	2,4 1 PPB GCSP9-39J @10X	J:\GC22\DATA\100523ICAL\1005F008.D	10/05/2023 20:36
04	KC2300580-04	2,4 2 PPB GCSP9-39J @5X	J:\GC22\DATA\100523ICAL\1005F009.D	10/05/2023 21:07
05	KC2300580-05	2,4 5 PPB GCSP9-39J @2X	J:\GC22\DATA\100523ICAL\1005F010.D	10/05/2023 21:37
06	KC2300580-06	2,4 10 PPB GCSP9-39J	J:\GC22\DATA\100523ICAL\1005F011.D	10/05/2023 22:08
08	KC2300580-08	TOX 10 PPB GCSP9-40A @50X	J:\GC22\DATA\100523ICAL\1005F022.D	10/06/2023 03:46
09	KC2300580-09	TOX 25 PPB GCSP9-40A @20X	J:\GC22\DATA\100523ICAL\1005F023.D	10/06/2023 04:17
10	KC2300580-10	TOX 50 PPB GCSP9-40A @10X	J:\GC22\DATA\100523ICAL\1005F024.D	10/06/2023 04:47
11	KC2300580-11	TOX 100 PPB GCSP9-40A@5X	J:\GC22\DATA\100523ICAL\1005F025.D	10/06/2023 05:18
12	KC2300580-12	TOX 250 PPB GCSP9-40A@2X	J:\GC22\DATA\100523ICAL\1005F026.D	10/06/2023 05:48
13	KC2300580-13	TOX 500 PPB GCSP9-40A	J:\GC22\DATA\100523ICAL\1005F027.D	10/06/2023 06:18
15	KC2300580-15	CHLOR 2 PPB GCSP9-40B @40X	J:\GC22\DATA\100523ICAL\1005F029.D	10/06/2023 07:19
16	KC2300580-16	CHLOR 5 PPB GCSP9-40B @40X	J:\GC22\DATA\100523ICAL\1005F030.D	10/06/2023 07:50
17	KC2300580-17	CHLOR 10 PPB GCSP9-40B @20X	J:\GC22\DATA\100523ICAL\1005F031.D	10/06/2023 08:20
18	KC2300580-18	CHLOR 20 PPB GCSP9-40B @10X	J:\GC22\DATA\100523ICAL\1005F032.D	10/06/2023 08:51
19	KC2300580-19	CHLOR 50 PPB GCSP9-40B @4X	J:\GC22\DATA\100523ICAL\1005F033.D	10/06/2023 09:22
20	KC2300580-20	CHLOR 100 PPB GCSP9-40B @2X	J:\GC22\DATA\100523ICAL\1005F034.D	10/06/2023 09:52
21	KC2300580-21	CHLOR 200 PPB GCSP9-40B	J:\GC22\DATA\100523ICAL\1005F035.D	10/06/2023 10:24
23	KC2300580-23	M/P .2/1 PPB GCSP9-39K @50X	J:\GC22\DATA\100923\1009F006.D	10/09/2023 13:40
24	KC2300580-24	M/P .5/2.5 PPB GCSP9-39K @20X	J:\GC22\DATA\100923\1009F007.D	10/09/2023 14:11
25	KC2300580-25	M/P 1/5 PPB GCSP9-39K @10X	J:\GC22\DATA\100923\1009F008.D	10/09/2023 14:43
26	KC2300580-26	M/P 2/10 PPB GCSP9-39K @5X	J:\GC22\DATA\100923\1009F009.D	10/09/2023 15:15
27	KC2300580-27	M/P 5/25 PPB GCSP9-39K @2X	J:\GC22\DATA\100923\1009F010.D	10/09/2023 15:46
28	KC2300580-28	M/P 10/50 PPB GCSP9-39K	J:\GC22\DATA\100923\1009F011.D	10/09/2023 16:17
29	KC2300580-29	PERTH 100 PPB GCSP9-30E	J:\GC22\DATA\100923\1009F012.D	10/09/2023 16:48

Analyte

2,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.5152	02	0.500	0.6361	03	1.000	0.5566	04	2.000	0.5863
05	5.000	0.5766	06	10.000	0.5648						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Calibration Date: 9/29/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580
Instrument ID: K-GC-22

Signal ID: DB-35MS

Analyte

2,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.8445	02	0.500	0.8182	03	1.000	0.7537	04	2.000	0.7249
05	5.000	0.6867	06	10.000	0.6896						

2,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.58	02	0.500	0.5366	03	1.000	0.6274	04	2.000	0.5941
05	5.000	0.6107	06	10.000	0.6395						

4,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.335	33	0.500	1.082	34	1.000	1.042	35	2.000	1.095
36	5.000	0.9294	37	10.000	0.8611						

4,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.31	33	0.500	1.398	34	1.000	1.416	35	2.000	1.296
36	5.000	1.167	37	10.000	1.104						

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.025	33	0.500	1.065	34	1.000	1.015	35	2.000	0.9737
36	5.000	0.9381	37	10.000	0.9032						

Aldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.526	33	0.500	1.44	34	1.000	1.349	35	2.000	1.309
36	5.000	1.26	37	10.000	1.225						

Decachlorobiphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.305	33	0.500	1.095	34	1.000	1.044	35	2.000	1.016
36	5.000	0.9501	37	10.000	0.8846						

Dieldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.143	33	0.500	1.164	34	1.000	1.143	35	2.000	1.134
36	5.000	1.131	37	10.000	1.096						

Oxychlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
23	0.200	1.491	24	0.500	1.339	25	1.000	1.269	26	2.000	1.082
27	5.000	1.052	28	10.000	1.042						

Tetrachloro-m-xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.172	33	0.500	1.133	34	1.000	1.123	35	2.000	1.114
36	5.000	1.086	37	10.000	1.044						

Client: Floyd Snider **Service Request:** K2310181
Project: SmithKem **Calibration Date:** 9/29/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580 **Signal ID:** DB-35MS
Instrument ID: K-GC-22

Analyte

Toxaphene {1}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.02659	09	25.000	0.02425	10	50.000	0.02098	11	100.000	0.02097
12	250.000	0.01919	13	500.000	0.01957						

Toxaphene {2}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.01995	09	25.000	0.01817	10	50.000	0.01715	11	100.000	0.01583
12	250.000	0.01491	13	500.000	0.01543						

Toxaphene {3}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.01809	09	25.000	0.01831	10	50.000	0.01881	11	100.000	0.01884
12	250.000	0.01859	13	500.000	0.01883						

Toxaphene {4}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.01467	09	25.000	0.01374	10	50.000	0.01312	11	100.000	0.01346
12	250.000	0.01295	13	500.000	0.01287						

Toxaphene {5}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.02112	09	25.000	0.01924	10	50.000	0.01968	11	100.000	0.02034
12	250.000	0.02008	13	500.000	0.01989						

Toxaphene {6}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	10.000	0.02473	09	25.000	0.02289	10	50.000	0.0228	11	100.000	0.02532
12	250.000	0.02339	13	500.000	0.02703						

beta-BHC

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	0.7341	33	0.500	0.6882	34	1.000	0.726	35	2.000	0.6716
36	5.000	0.6455	37	10.000	0.6155						

cis-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.126	33	0.500	1.211	34	1.000	1.179	35	2.000	1.158
36	5.000	1.136	37	10.000	1.099						

cis-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
23	0.200	2.361	24	0.500	1.547	25	1.000	1.398	26	2.000	1.254
27	5.000	1.388	28	10.000	1.215						

trans-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	0.200	1.037	33	0.500	1.113	34	1.000	1.259	35	2.000	1.156
36	5.000	1.17	37	10.000	1.128						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Calibration Date: 9/29/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580
Instrument ID: K-GC-22

Signal ID: DB-35MS

Analyte

trans-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
23	0.200	1.877	24	0.500	1.476	25	1.000	1.275	26	2.000	1.152
27	5.000	1.13	28	10.000	1.122						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Calibration Date: 9/29/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580
Instrument ID: K-GC-22

Signal ID: DB-35MS

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	6.9	≤20	0.5726	
2,4'-DDE	TRG	Average RF	% RSD	8.8	≤20	0.7529	
2,4'-DDT	TRG	Average RF	% RSD	6.2	≤20	0.5981	
4,4'-DDD	TRG	Average RF	% RSD	15.5	≤20	1.057	
4,4'-DDE	TRG	Average RF	% RSD	9.7	≤20	1.282	
4,4'-DDT	TRG	Average RF	% RSD	6.1	≤20	0.9866	
Aldrin	TRG	Average RF	% RSD	8.4	≤20	1.351	
Decachlorobiphenyl	SURR	Average RF	% RSD	13.9	≤20	1.049	
Dieldrin	TRG	Average RF	% RSD	2.0	≤20	1.135	
Oxychlordane	TRG	Average RF	% RSD	15.1	≤20	1.212	
Tetrachloro-m-xylene	SURR	Average RF	% RSD	3.9	≤20	1.112	
Toxaphene {1}	MULTI	Average RF	% RSD	13.2	≤20	0.02192	
Toxaphene {2}	MULTI	Average RF	% RSD	11.3	≤20	0.01691	
Toxaphene {3}	MULTI	Average RF	% RSD	1.7	≤20	0.01858	
Toxaphene {4}	MULTI	Average RF	% RSD	5.0	≤20	0.01347	
Toxaphene {5}	MULTI	Average RF	% RSD	3.2	≤20	0.02006	
Toxaphene {6}	MULTI	Average RF	% RSD	6.8	≤20	0.02436	
beta-BHC	TRG	Average RF	% RSD	6.7	≤20	0.6801	
cis-Chlordane	TRG	Average RF	% RSD	3.5	≤20	1.151	
cis-Nonachlor	TRG	Linear	R2	0.9955	≥0.990	1.527	
trans-Chlordane	TRG	Average RF	% RSD	6.4	≤20	1.144	
trans-Nonachlor	TRG	Linear	R2	0.9999	≥0.990	1.339	

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Calibration Date: 10/10/2023

Initial Calibration Verification Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300590
Instrument ID: K-GC-37

Signal ID: DB XLB

#	Lab Code	Sample Name	File Location	Acquisition Date
07	KC2300590-07	8081 ICV 2 PPB GCPS9-32H	J:\GC37\DATA\101023ICAL\1010F011.D	10/10/2023 23:50
14	KC2300590-14	24 ICV 2 PPB GCPS9-27I	J:\GC37\DATA\101023ICAL\1010F018.D	10/11/2023 04:28
22	KC2300590-22	PERTH ICV 25 PPB GSP9-40J	J:\GC37\DATA\101023ICAL\1010F026.D	10/11/2023 09:46
23	KC2300590-23	MISC ICV 2 PPB GCPS9-40H	J:\GC37\DATA\101023ICAL\1010F027.D	10/11/2023 10:26
30	KC2300590-30	TOX ICV 100 PPB GCPS9-22I @5X	J:\GC37\DATA\101023ICAL\1010F034.D	10/11/2023 15:04
38	KC2300590-38	CHLOR ICV 50 PPB GCPS9-24H	J:\GC37\DATA\101023ICAL\1010F042.D	10/11/2023 20:21

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Aldrin	2.00	1.86	1.541E0	1.435E0	-6.939	±20	Average RF
beta-BHC	2.00	2.05	7.412E-1	7.6E-1	2.53	±20	Average RF
cis-Chlordane	2.00	1.88	1.465E0	1.376E0	-6.104	±20	Average RF
trans-Chlordane	2.00	1.89	1.442E0	1.361E0	-5.557	±20	Average RF
2,4'-DDD	2.00	1.84	7.629E-1	7.011E-1	-8.097	±20	Average RF
4,4'-DDD	2.00	1.94	9.655E-1	9.351E-1	-3.141	±20	Average RF
2,4'-DDE	2.00	1.92	1.192E0	9.982E-1	-4.246	±20	Quadratic
4,4'-DDE	2.00	1.91	1.425E0	1.358E0	-4.712	±20	Average RF
2,4'-DDT	2.00	1.71	9.039E-1	7.748E-1	-14.283	±20	Average RF
4,4'-DDT	2.00	1.90	1.004E0	9.552E-1	-4.851	±20	Average RF
Dieldrin	2.00	1.78	1.398E0	1.241E0	-11.222	±20	Average RF
cis-Nonachlor	2.00	1.83	1.731E0	1.303E0	-8.674	±20	Linear
trans-Nonachlor	2.00	2.03	1.628E0	1.388E0	1.60	±20	Linear
Oxychlordane	2.00	1.88	1.624E0	1.314E0	-6.127	±20	Quadratic
Toxaphene	100	94.1			-5.923	±20	NA

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Toxaphene {1}	100	97.7	6.964E-3	6.803E-3	-2.311	±100	Average RF
Toxaphene {2}	100	85.4	1.076E-2	7.931E-3	-14.635	±100	Linear
Toxaphene {3}	100	100	1.17E-2	1.173E-2	0.273	±100	Average RF
Toxaphene {4}	100	98.2	1.621E-2	1.592E-2	-1.799	±100	Average RF
Toxaphene {5}	100	92.0	2.793E-2	2.569E-2	-8.029	±100	Average RF
Toxaphene {6}	100	91.0	2.315E-2	2.106E-2	-9.037	±100	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Calibration Date: 10/10/2023

Initial Calibration Verification Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300590
Instrument ID: K-GC-37

Signal ID: DB-35MS

#	Lab Code	Sample Name	File Location	Acquisition Date
07	KC2300590-07	8081 ICV 2 PPB GCPS9-32H	J:\GC37\DATA\101023ICAL\1010F011.D	10/10/2023 23:50
14	KC2300590-14	24 ICV 2 PPB GCPS9-27I	J:\GC37\DATA\101023ICAL\1010F018.D	10/11/2023 04:28
22	KC2300590-22	PERTH ICV 25 PPB GSP9-40J	J:\GC37\DATA\101023ICAL\1010F026.D	10/11/2023 09:46
23	KC2300590-23	MISC ICV 2 PPB GCPS9-40H	J:\GC37\DATA\101023ICAL\1010F027.D	10/11/2023 10:26
30	KC2300590-30	TOX ICV 100 PPB GCPS9-22I @5X	J:\GC37\DATA\101023ICAL\1010F034.D	10/11/2023 15:04
38	KC2300590-38	CHLOR ICV 50 PPB GCPS9-24H	J:\GC37\DATA\101023ICAL\1010F042.D	10/11/2023 20:21

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Aldrin	2.00	1.86	1.569E0	1.463E0	-6.795	±20	Average RF
beta-BHC	2.00	1.84	8.266E-1	7.613E-1	-7.893	±20	Average RF
cis-Chlordane	2.00	1.87	1.466E0	1.368E0	-6.714	±20	Average RF
trans-Chlordane	2.00	1.76	1.56E0	1.373E0	-11.979	±20	Average RF
2,4'-DDD	2.00	1.70	7.869E-1	6.681E-1	-15.104	±20	Average RF
4,4'-DDD	2.00	1.87	9.584E-1	8.96E-1	-6.517	±20	Average RF
2,4'-DDE	2.00	1.88	1.016E0	9.57E-1	-5.778	±20	Average RF
4,4'-DDE	2.00	1.82	1.46E0	1.332E0	-8.761	±20	Average RF
2,4'-DDT	2.00	1.78	8.072E-1	7.176E-1	-11.103	±20	Average RF
4,4'-DDT	2.00	1.58	1.155E0	9.093E-1	-21.249*	±20	Average RF
Dieldrin	2.00	1.75	1.404E0	1.226E0	-12.678	±20	Average RF
cis-Nonachlor	2.00	1.76	1.701E0	1.286E0	-11.766	±20	Linear
trans-Nonachlor	2.00	1.96	1.612E0	1.381E0	-2.221	±20	Linear
Oxychlordane	2.00	1.68	1.456E0	1.226E0	-15.776	±20	Average RF
Toxaphene	100	93.3			-6.706	±20	NA

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Toxaphene {1}	100	92.3	2.289E-2	2.113E-2	-7.672	±100	Average RF
Toxaphene {2}	100	85.1	1.981E-2	1.687E-2	-14.853	±100	Average RF
Toxaphene {3}	100	88.9	2.509E-2	2.231E-2	-11.110	±100	Average RF
Toxaphene {4}	100	106	1.762E-2	1.864E-2	5.83	±100	Average RF
Toxaphene {5}	100	97.5	2.301E-2	2.243E-2	-2.521	±100	Average RF
Toxaphene {6}	100	90.1	3.08E-2	2.775E-2	-9.904	±100	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Calibration Date: 9/29/2023

Initial Calibration Verification Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580
Instrument ID: K-GC-22

Signal ID: DB XLB

#	Lab Code	Sample Name	File Location	Acquisition Date
38	KC2300580-38	8081 ICV 2 PPB GCSP9-32G	J:\GC22\DATA\092823ICAL\0929F014.D	09/29/2023 23:05
07	KC2300580-07	2,4 ICV 2 PPB GCSP9-27I	J:\GC22\DATA\100523ICAL\1005F012.D	10/05/2023 22:38
14	KC2300580-14	TOX ICV 100 PPB GCSP9-22I @5X	J:\GC22\DATA\100523ICAL\1005F028.D	10/06/2023 06:48
22	KC2300580-22	CHLOR ICV 50 PPB GCSP9-24H	J:\GC22\DATA\100523ICAL\1005F036.D	10/06/2023 10:54
30	KC2300580-30	PERTH ICV 25 PPB GCSP9-36D	J:\GC22\DATA\100923\1009F013.D	10/09/2023 17:20
31	KC2300580-31	MISC ICV 2 PPB GCSP9-30G	J:\GC22\DATA\100923\1009F014.D	10/09/2023 17:51

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Aldrin	2.00	1.94	1.367E0	1.325E0	-3.102	±20	Average RF
beta-BHC	2.00	1.92	8.186E-1	7.862E-1	-3.956	±20	Average RF
cis-Chlordane	2.00	1.98	1.25E0	1.24E0	-0.811	±20	Average RF
trans-Chlordane	2.00	1.95	1.288E0	1.258E0	-2.322	±20	Average RF
2,4'-DDD	2.00	1.92	6.344E-1	6.078E-1	-4.199	±20	Average RF
4,4'-DDD	2.00	2.15	9.927E-1	1.069E0	7.70	±20	Average RF
2,4'-DDE	2.00	1.93	7.314E-1	7.07E-1	-3.333	±20	Average RF
4,4'-DDE	2.00	1.94	1.16E0	1.127E0	-2.821	±20	Average RF
2,4'-DDT	2.00	1.98	6.658E-1	6.596E-1	-0.929	±20	Average RF
4,4'-DDT	2.00	1.60	8.736E-1	6.998E-1	-19.899	±20	Average RF
Dieldrin	2.00	1.89	1.202E0	1.139E0	-5.277	±20	Average RF
cis-Nonachlor	2.00	1.69	1.511E0	1.11E0	-15.284	±20	Linear
trans-Nonachlor	2.00	1.75	1.362E0	1.193E0	-12.368	±20	Average RF
Oxychlordane	2.00	1.70	1.295E0	1.101E0	-15.018	±20	Average RF
Toxaphene	100	100			0.090	±20	NA

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Toxaphene {1}	100	92.0	8.47E-3	7.788E-3	-8.047	±100	Average RF
Toxaphene {2}	100	96.7	9.997E-3	9.665E-3	-3.328	±100	Average RF
Toxaphene {3}	100	107	1.613E-2	1.73E-2	7.25	±100	Average RF
Toxaphene {4}	100	104	1.309E-2	1.367E-2	4.48	±100	Average RF
Toxaphene {5}	100	91.4	2.045E-2	1.868E-2	-8.642	±100	Average RF
Toxaphene {6}	100	114	1.866E-2	2.133E-2	14.32	±100	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Calibration Date: 9/29/2023

Initial Calibration Verification Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300580
Instrument ID: K-GC-22

Signal ID: DB-35MS

#	Lab Code	Sample Name	File Location	Acquisition Date
38	KC2300580-38	8081 ICV 2 PPB GCSP9-32G	J:\GC22\DATA\092823ICAL\0929F014.D	09/29/2023 23:05
07	KC2300580-07	2,4 ICV 2 PPB GCSP9-27I	J:\GC22\DATA\100523ICAL\1005F012.D	10/05/2023 22:38
14	KC2300580-14	TOX ICV 100 PPB GCSP9-22I @5X	J:\GC22\DATA\100523ICAL\1005F028.D	10/06/2023 06:48
22	KC2300580-22	CHLOR ICV 50 PPB GCSP9-24H	J:\GC22\DATA\100523ICAL\1005F036.D	10/06/2023 10:54
30	KC2300580-30	PERTH ICV 25 PPB GCSP9-36D	J:\GC22\DATA\100923\1009F013.D	10/09/2023 17:20
31	KC2300580-31	MISC ICV 2 PPB GCSP9-30G	J:\GC22\DATA\100923\1009F014.D	10/09/2023 17:51

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Aldrin	2.00	1.84	1.351E0	1.246E0	-7.832	±20	Average RF
beta-BHC	2.00	1.92	6.801E-1	6.524E-1	-4.074	±20	Average RF
cis-Chlordane	2.00	1.93	1.151E0	1.111E0	-3.498	±20	Average RF
trans-Chlordane	2.00	2.01	1.144E0	1.148E0	0.384	±20	Average RF
2,4'-DDD	2.00	1.98	5.726E-1	5.655E-1	-1.240	±20	Average RF
4,4'-DDD	2.00	1.76	1.057E0	9.287E-1	-12.172	±20	Average RF
2,4'-DDE	2.00	1.83	7.529E-1	6.89E-1	-8.494	±20	Average RF
4,4'-DDE	2.00	1.93	1.282E0	1.237E0	-3.487	±20	Average RF
2,4'-DDT	2.00	2.07	5.981E-1	6.191E-1	3.51	±20	Average RF
4,4'-DDT	2.00	1.68	9.866E-1	8.292E-1	-15.951	±20	Average RF
Dieldrin	2.00	1.85	1.135E0	1.051E0	-7.388	±20	Average RF
cis-Nonachlor	2.00	1.74	1.527E0	1.184E0	-12.923	±20	Linear
trans-Nonachlor	2.00	1.89	1.339E0	1.121E0	-5.368	±20	Linear
Oxychlordane	2.00	1.65	1.212E0	9.997E-1	-17.546	±20	Average RF
Toxaphene	100	98.4			-1.637	±20	NA

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Toxaphene {1}	100	91.6	2.192E-2	2.008E-2	-8.426	±100	Average RF
Toxaphene {2}	100	94.3	1.691E-2	1.594E-2	-5.739	±100	Average RF
Toxaphene {3}	100	112	1.858E-2	2.077E-2	11.79	±100	Average RF
Toxaphene {4}	100	95.8	1.347E-2	1.291E-2	-4.171	±100	Average RF
Toxaphene {5}	100	98.3	2.006E-2	1.972E-2	-1.689	±100	Average RF
Toxaphene {6}	100	109	2.436E-2	2.653E-2	8.92	±100	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Date Analyzed: 10/13/23 12:52

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC37\DATA\101323\1013F004.D\
Signal ID: DB-35MS

Calibration Date: 10/10/2023
Calibration ID: KC2300590
Analysis Lot: 821154
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	1.80	1.5693	1.4126	-10.0	NA	±20	Average RF
beta-BHC	2.00	1.78	0.8266	0.7366	-10.9	NA	±20	Average RF
cis-Chlordane	2.00	1.76	1.466	1.2878	-12.2	NA	±20	Average RF
trans-Chlordane	2.00	1.69	1.5604	1.3154	-15.7	NA	±20	Average RF
2,4'-DDD	2.00	1.55	0.7869	0.6106	-22.4*	NA	±20	Average RF
4,4'-DDD	2.00	1.79	0.9584	0.8561	-10.7	NA	±20	Average RF
2,4'-DDE	2.00	1.79	1.0157	0.9078	-10.6	NA	±20	Average RF
4,4'-DDE	2.00	1.78	1.4598	1.3022	-10.8	NA	±20	Average RF
2,4'-DDT	2.00	1.62	0.8072	0.6535	-19.0	NA	±20	Average RF
4,4'-DDT	2.00	1.68	1.1547	0.9685	-16.1	NA	±20	Average RF
Dieldrin	2.00	1.74	1.404	1.2217	-13.0	NA	±20	Average RF
cis-Nonachlor	2.00	2.03	1.7005	1.458	NA	1.3	±20	Linear
trans-Nonachlor	2.00	2.13	1.6122	1.4914	NA	6.5	±20	Linear
Oxychlordane	2.00	1.86	1.4562	1.3536	-7.0	NA	±20	Average RF
Toxaphene	100	95.7	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	92.5	0.0229	0.0212	-7.6	NA	±100	Average RF
Toxaphene {2}	100	95.6	0.0198	0.0189	-4.4	NA	±100	Average RF
Toxaphene {3}	100	88.5	0.0251	0.0222	-11.5	NA	±100	Average RF
Toxaphene {4}	100	106	0.0176	0.0188	6.4	NA	±100	Average RF
Toxaphene {5}	100	95.7	0.023	0.022	-4.3	NA	±100	Average RF
Toxaphene {6}	100	95.2	0.0308	0.0293	-4.8	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.84	1.5127	1.3891	-8.2	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.70	1.6065	1.3677	-14.9	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Date Analyzed: 10/13/23 12:52

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC37\DATA\101323\1013F004.D\
Signal ID: DB XLB

Calibration Date: 10/10/2023
Calibration ID: KC2300590
Analysis Lot: 821154
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	1.85	1.5415	1.4258	-7.5	NA	±20	Average RF
beta-BHC	2.00	2.03	0.7412	0.752	1.4	NA	±20	Average RF
cis-Chlordane	2.00	1.84	1.465	1.3452	-8.2	NA	±20	Average RF
trans-Chlordane	2.00	1.84	1.4416	1.3239	-8.2	NA	±20	Average RF
2,4'-DDD	2.00	1.76	0.7629	0.6726	-11.8	NA	±20	Average RF
4,4'-DDD	2.00	1.90	0.9655	0.9154	-5.2	NA	±20	Average RF
2,4'-DDE	2.00	1.76	1.1916	0.9263	NA	-12.0	±20	Quadratic
4,4'-DDE	2.00	1.88	1.4248	1.3423	-5.8	NA	±20	Average RF
2,4'-DDT	2.00	1.61	0.9039	0.7257	-19.7	NA	±20	Average RF
4,4'-DDT	2.00	1.84	1.0039	0.9216	-8.2	NA	±20	Average RF
Dieldrin	2.00	1.84	1.3982	1.2844	-8.1	NA	±20	Average RF
cis-Nonachlor	2.00	2.14	1.7311	1.4968	NA	7.1	±20	Linear
trans-Nonachlor	2.00	2.19	1.6285	1.4836	NA	9.6	±20	Linear
Oxychlordane	2.00	2.14	1.6242	1.4732	NA	6.9	±20	Quadratic
Toxaphene	100	99.3	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	96.2	0.007	0.0067	-3.8	NA	±100	Average RF
Toxaphene {2}	100	96.4	0.0108	0.0088	NA	-3.6	±100	Linear
Toxaphene {3}	100	92.7	0.0117	0.0108	-7.3	NA	±100	Average RF
Toxaphene {4}	100	102	0.0162	0.0166	2.2	NA	±100	Average RF
Toxaphene {5}	100	108	0.0279	0.0303	8.5	NA	±100	Average RF
Toxaphene {6}	100	100	0.0232	0.0231	0.0	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.98	1.2631	1.247	-1.3	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.86	1.5052	1.4031	-6.8	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Date Analyzed: 10/14/23 01:27

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC37\DATA\101323\1013F023.D\
Signal ID: DB-35MS

Calibration Date: 10/10/2023
Calibration ID: KC2300590
Analysis Lot: 821154
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	1.72	1.5693	1.3507	-13.9	NA	±20	Average RF
beta-BHC	2.00	1.71	0.8266	0.7078	-14.4	NA	±20	Average RF
cis-Chlordane	2.00	1.70	1.466	1.2432	-15.2	NA	±20	Average RF
trans-Chlordane	2.00	1.63	1.5604	1.2674	-18.8	NA	±20	Average RF
2,4'-DDD	2.00	1.47	0.7869	0.5764	-26.7*	NA	±20	Average RF
4,4'-DDD	2.00	1.72	0.9584	0.8233	-14.1	NA	±20	Average RF
2,4'-DDE	2.00	1.66	1.0157	0.8438	-16.9	NA	±20	Average RF
4,4'-DDE	2.00	1.68	1.4598	1.2278	-15.9	NA	±20	Average RF
2,4'-DDT	2.00	1.55	0.8072	0.6247	-22.6*	NA	±20	Average RF
4,4'-DDT	2.00	1.62	1.1547	0.9354	-19.0	NA	±20	Average RF
Dieldrin	2.00	1.66	1.404	1.1638	-17.1	NA	±20	Average RF
cis-Nonachlor	2.00	1.90	1.7005	1.3768	NA	-4.9	±20	Linear
trans-Nonachlor	2.00	2.04	1.6122	1.4319	NA	1.9	±20	Linear
Oxychlordane	2.00	1.78	1.4562	1.2939	-11.1	NA	±20	Average RF
Toxaphene	100	89.7	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	88.4	0.0229	0.0202	-11.6	NA	±100	Average RF
Toxaphene {2}	100	80.0	0.0198	0.0159	-20.0	NA	±100	Average RF
Toxaphene {3}	100	83.1	0.0251	0.0208	-16.9	NA	±100	Average RF
Toxaphene {4}	100	105	0.0176	0.0186	5.4	NA	±100	Average RF
Toxaphene {5}	100	90.9	0.023	0.0209	-9.1	NA	±100	Average RF
Toxaphene {6}	100	90.4	0.0308	0.0278	-9.6	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.73	1.5127	1.3077	-13.5	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.55	1.6065	1.2475	-22.3*	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Date Analyzed: 10/14/23 01:27

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC37\DATA\101323\1013F023.D\
Signal ID: DB XLB

Calibration Date: 10/10/2023
Calibration ID: KC2300590
Analysis Lot: 821154
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	1.72	1.5415	1.3286	-13.8	NA	±20	Average RF
beta-BHC	2.00	1.94	0.7412	0.7196	-2.9	NA	±20	Average RF
cis-Chlordane	2.00	1.72	1.465	1.2578	-14.1	NA	±20	Average RF
trans-Chlordane	2.00	1.73	1.4416	1.2477	-13.5	NA	±20	Average RF
2,4'-DDD	2.00	1.66	0.7629	0.6314	-17.2	NA	±20	Average RF
4,4'-DDD	2.00	1.74	0.9655	0.8408	-12.9	NA	±20	Average RF
2,4'-DDE	2.00	1.55	1.1916	0.8271	NA	-22.5*	±20	Quadratic
4,4'-DDE	2.00	1.73	1.4248	1.2349	-13.3	NA	±20	Average RF
2,4'-DDT	2.00	1.50	0.9039	0.6786	-24.9*	NA	±20	Average RF
4,4'-DDT	2.00	1.76	1.0039	0.8849	-11.9	NA	±20	Average RF
Dieldrin	2.00	1.72	1.3982	1.2024	-14.0	NA	±20	Average RF
cis-Nonachlor	2.00	1.98	1.7311	1.3947	NA	-1.2	±20	Linear
trans-Nonachlor	2.00	2.04	1.6285	1.3927	NA	2.0	±20	Linear
Oxychlordane	2.00	2.02	1.6242	1.3998	NA	0.9	±20	Quadratic
Toxaphene	100	92.0	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	93.3	0.007	0.0065	-6.7	NA	±100	Average RF
Toxaphene {2}	100	86.6	0.0108	0.008	NA	-13.4	±100	Linear
Toxaphene {3}	100	98.2	0.0117	0.0115	-1.8	NA	±100	Average RF
Toxaphene {4}	100	94.7	0.0162	0.0154	-5.3	NA	±100	Average RF
Toxaphene {5}	100	93.0	0.0279	0.026	-7.0	NA	±100	Average RF
Toxaphene {6}	100	85.9	0.0232	0.0199	-14.1	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.87	1.2631	1.1776	-6.8	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.72	1.5052	1.2927	-14.1	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Date Analyzed: 10/19/23 13:39

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC22\DATA\101923\1019F005.D\
Signal ID: DB-35MS

Calibration Date: 9/29/2023
Calibration ID: KC2300580
Analysis Lot: 821256
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	1.72	1.3514	1.1585	-14.3	NA	±20	Average RF
beta-BHC	2.00	1.78	0.6801	0.6044	-11.1	NA	±20	Average RF
cis-Chlordane	2.00	1.82	1.1513	1.0456	-9.2	NA	±20	Average RF
trans-Chlordane	2.00	1.81	1.1437	1.0355	-9.5	NA	±20	Average RF
2,4'-DDD	2.00	1.81	0.5726	0.5193	-9.3	NA	±20	Average RF
4,4'-DDD	2.00	1.65	1.0574	0.8716	-17.6	NA	±20	Average RF
2,4'-DDE	2.00	1.74	0.7529	0.6563	-12.8	NA	±20	Average RF
4,4'-DDE	2.00	1.75	1.2821	1.1196	-12.7	NA	±20	Average RF
2,4'-DDT	2.00	1.89	0.5981	0.5642	-5.7	NA	±20	Average RF
4,4'-DDT	2.00	1.70	0.9866	0.8407	-14.8	NA	±20	Average RF
Dieldrin	2.00	1.77	1.1352	1.0057	-11.4	NA	±20	Average RF
cis-Nonachlor	2.00	1.80	1.5272	1.2177	NA	-10.2	±20	Linear
trans-Nonachlor	2.00	1.94	1.3387	1.1472	NA	-3.0	±20	Linear
Oxychlordane	2.00	1.85	1.2125	1.1203	-7.6	NA	±20	Average RF
Toxaphene	100	89.0	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	86.9	0.0219	0.0191	-13.1	NA	±100	Average RF
Toxaphene {2}	100	88.2	0.0169	0.0149	-11.8	NA	±100	Average RF
Toxaphene {3}	100	92.2	0.0186	0.0171	-7.8	NA	±100	Average RF
Toxaphene {4}	100	88.3	0.0135	0.0119	-11.7	NA	±100	Average RF
Toxaphene {5}	100	90.2	0.0201	0.0181	-9.8	NA	±100	Average RF
Toxaphene {6}	100	88.1	0.0244	0.0215	-11.9	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.66	1.0491	0.869	-17.2	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.81	1.1122	1.009	-9.3	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310181
Date Analyzed: 10/19/23 13:39

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC22\DATA\101923\1019F005.D\
Signal ID: DB XLB

Calibration Date: 9/29/2023
Calibration ID: KC2300580
Analysis Lot: 821256
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	1.94	1.3675	1.3238	-3.2	NA	±20	Average RF
beta-BHC	2.00	1.88	0.8186	0.7707	-5.8	NA	±20	Average RF
cis-Chlordane	2.00	1.96	1.2503	1.2235	-2.1	NA	±20	Average RF
trans-Chlordane	2.00	1.92	1.2876	1.2388	-3.8	NA	±20	Average RF
2,4'-DDD	2.00	2.04	0.6344	0.6468	2.0	NA	±20	Average RF
4,4'-DDD	2.00	1.81	0.9927	0.8993	-9.4	NA	±20	Average RF
2,4'-DDE	2.00	2.02	0.7314	0.737	0.8	NA	±20	Average RF
4,4'-DDE	2.00	1.93	1.1596	1.1194	-3.5	NA	±20	Average RF
2,4'-DDT	2.00	2.01	0.6658	0.6688	0.4	NA	±20	Average RF
4,4'-DDT	2.00	1.99	0.8736	0.8682	-0.6	NA	±20	Average RF
Dieldrin	2.00	1.94	1.202	1.1685	-2.8	NA	±20	Average RF
cis-Nonachlor	2.00	2.03	1.5113	1.3109	NA	1.3	±20	Linear
trans-Nonachlor	2.00	1.91	1.3619	1.2988	-4.6	NA	±20	Average RF
Oxychlordane	2.00	1.91	1.295	1.2357	-4.6	NA	±20	Average RF
Toxaphene	100	111	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	99.4	0.0085	0.0084	-0.6	NA	±100	Average RF
Toxaphene {2}	100	112	0.01	0.0112	12.3	NA	±100	Average RF
Toxaphene {3}	100	111	0.0161	0.018	11.5	NA	±100	Average RF
Toxaphene {4}	100	113	0.0131	0.0148	12.9	NA	±100	Average RF
Toxaphene {5}	100	108	0.0204	0.0221	8.0	NA	±100	Average RF
Toxaphene {6}	100	123	0.0187	0.023	23.3	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.93	0.9677	0.9321	-3.7	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.98	1.2666	1.2542	-1.0	NA	±20	Average RF

Client: Floyd Snider **Service Request:**K2310181
Project: SmithKem

Analysis Run Log
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B **Analysis Lot:**821154
Instrument ID:K-GC-37

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC37\DATA\101323\1013F003.D\	Performance Evaluation	KQ2318580-01	10/13/2023	12:12:00	
J:\GC37\DATA\101323\1013F004.D\	Continuing Calibration Verification	KQ2318580-02	10/13/2023	12:52:00	
J:\GC37\DATA\101323\1013F005.D\	Continuing Calibration Verification	KQ2318580-02	10/13/2023	13:31:00	
J:\GC37\DATA\101323\1013F006.D\	Continuing Calibration Verification	KQ2318580-02	10/13/2023	14:11:00	
J:\GC37\DATA\101323\1013F007.D\	Continuing Calibration Verification	KQ2318580-02	10/13/2023	14:51:00	
J:\GC37\DATA\101323\1013F008.D\	Continuing Calibration Blank	KQ2318580-03	10/13/2023	15:31:00	
J:\GC37\DATA\101323\1013F009.D\	Method Blank	KQ2316103-10	10/13/2023	16:11:00	
J:\GC37\DATA\101323\1013F010.D\	Lab Control Sample	KQ2316103-07	10/13/2023	16:51:00	
J:\GC37\DATA\101323\1013F011.D\	Lab Control Sample	KQ2316103-08	10/13/2023	17:31:00	
J:\GC37\DATA\101323\1013F012.D\	Lab Control Sample	KQ2316103-09	10/13/2023	18:11:00	
J:\GC37\DATA\101323\1013F013.D\	AOC5-02-2.5 MS	KQ2316103-01	10/13/2023	18:50:00	
J:\GC37\DATA\101323\1013F014.D\	AOC5-02-2.5 DMS	KQ2316103-02	10/13/2023	19:30:00	
J:\GC37\DATA\101323\1013F015.D\	AOC5-02-2.5 MS	KQ2316103-03	10/13/2023	20:09:00	
J:\GC37\DATA\101323\1013F016.D\	AOC5-02-2.5 DMS	KQ2316103-04	10/13/2023	20:49:00	
J:\GC37\DATA\101323\1013F017.D\	AOC5-02-2.5 MS	KQ2316103-05	10/13/2023	21:29:00	
J:\GC37\DATA\101323\1013F018.D\	AOC5-02-2.5 DMS	KQ2316103-06	10/13/2023	22:09:00	
J:\GC37\DATA\101323\1013F019.D\	AOC5-101-05	K2310181-001	10/13/2023	22:49:00	
J:\GC37\DATA\101323\1013F020.D\	AOC5-02-2.5	K2310181-003	10/13/2023	23:28:00	
J:\GC37\DATA\101323\1013F022.D\	Performance Evaluation	KQ2318580-04	10/14/2023	00:48:00	
J:\GC37\DATA\101323\1013F023.D\	Continuing Calibration Verification	KQ2318580-05	10/14/2023	01:27:00	
J:\GC37\DATA\101323\1013F024.D\	Continuing Calibration Verification	KQ2318580-05	10/14/2023	02:07:00	
J:\GC37\DATA\101323\1013F025.D\	Continuing Calibration Verification	KQ2318580-05	10/14/2023	02:46:00	
J:\GC37\DATA\101323\1013F026.D\	Continuing Calibration Verification	KQ2318580-05	10/14/2023	03:26:00	
J:\GC37\DATA\101323\1013F027.D\	Continuing Calibration Blank	KQ2318580-06	10/14/2023	04:06:00	
J:\GC37\DATA\101323\1013F028.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	04:45:00	
J:\GC37\DATA\101323\1013F029.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	05:25:00	
J:\GC37\DATA\101323\1013F030.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	06:04:00	
J:\GC37\DATA\101323\1013F031.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	06:44:00	
J:\GC37\DATA\101323\1013F032.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	07:24:00	
J:\GC37\DATA\101323\1013F033.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	08:03:00	
J:\GC37\DATA\101323\1013F034.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	08:43:00	
J:\GC37\DATA\101323\1013F035.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	09:23:00	
J:\GC37\DATA\101323\1013F036.D\	AOC4-05-2.5	K2310181-018	10/14/2023	10:02:00	
J:\GC37\DATA\101323\1013F037.D\	AOC4-06-2.5	K2310181-020	10/14/2023	10:42:00	

Client: Floyd Snider **Service Request:**K2310181
Project: SmithKem

Analysis Run Log
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B **Analysis Lot:**821256
Instrument ID:K-GC-22

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC22\DATA\101923\1019F004.D\	Performance Evaluation	KQ2318628-01	10/19/2023	13:08:00	
J:\GC22\DATA\101923\1019F005.D\	Continuing Calibration Verification	KQ2318628-02	10/19/2023	13:39:00	
J:\GC22\DATA\101923\1019F006.D\	Continuing Calibration Verification	KQ2318628-02	10/19/2023	14:10:00	
J:\GC22\DATA\101923\1019F007.D\	Continuing Calibration Verification	KQ2318628-02	10/19/2023	14:41:00	
J:\GC22\DATA\101923\1019F008.D\	Continuing Calibration Verification	KQ2318628-02	10/19/2023	15:12:00	
J:\GC22\DATA\101923\1019F010.D\	Continuing Calibration Blank	KQ2318628-03	10/19/2023	16:14:00	
J:\GC22\DATA\101923\1019F015.D\	AOC5-02-05	K2310181-004	10/19/2023	18:48:00	
J:\GC22\DATA\101923\1019F016.D\	AOC5-03-2.5	K2310181-006	10/19/2023	19:19:00	
J:\GC22\DATA\101923\1019F017.D\	AOC5-04-2.5	K2310181-008	10/19/2023	19:50:00	
J:\GC22\DATA\101923\1019F018.D\	AOC5-04-05	K2310181-009	10/19/2023	20:21:00	
J:\GC22\DATA\101923\1019F019.D\	AOC4-01-2.5	K2310181-011	10/19/2023	20:51:00	
J:\GC22\DATA\101923\1019F020.D\	AOC4-03-2.0	K2310181-013	10/19/2023	21:22:00	
J:\GC22\DATA\101923\1019F021.D\	AOC4-103-2.0	K2310181-014	10/19/2023	21:52:00	
J:\GC22\DATA\101923\1019F022.D\	AOC4-04-2.5	K2310181-016	10/19/2023	22:23:00	
J:\GC22\DATA\101923\1019F024.D\	Performance Evaluation	KQ2318628-04	10/19/2023	23:25:00	
J:\GC22\DATA\101923\1019F025.D\	Continuing Calibration Verification	KQ2318628-05	10/19/2023	23:57:00	
J:\GC22\DATA\101923\1019F026.D\	Continuing Calibration Verification	KQ2318628-05	10/20/2023	00:28:00	
J:\GC22\DATA\101923\1019F027.D\	Continuing Calibration Verification	KQ2318628-05	10/20/2023	00:59:00	
J:\GC22\DATA\101923\1019F028.D\	Continuing Calibration Verification	KQ2318628-05	10/20/2023	01:30:00	
J:\GC22\DATA\101923\1019F030.D\	Continuing Calibration Blank	KQ2318628-06	10/20/2023	02:31:00	
J:\GC22\DATA\101923\1019F031.D\	ZZZZZZZ	ZZZZZZZ	10/20/2023	03:02:00	
J:\GC22\DATA\101923\1019F032.D\	ZZZZZZZ	ZZZZZZZ	10/20/2023	03:32:00	

Prep Summary Report

Client: Floyd Snider **Service Request:**K2310181
Project: SmithKem
Sample Matrix: Soil

Low Level Organochlorine Pesticides by GC

Prep Method: EPA 3546 **Extraction Lot:** 426452
Analytical Method: 8081B **Extraction Date:** 09/14/23 11:30

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
AOC5-101-05	K2310181-001	9/5/23	9/12/23	2.366 g	10 mL	91.1
AOC5-02-2.5	K2310181-003	9/5/23	9/12/23	2.741 g	10 mL	80.7
AOC5-02-05	K2310181-004	9/5/23	9/12/23	2.497 g	10 mL	96.1
AOC5-03-2.5	K2310181-006	9/5/23	9/12/23	2.383 g	10 mL	96.3
AOC5-04-2.5	K2310181-008	9/5/23	9/12/23	2.034 g	10 mL	88.4
AOC5-04-05	K2310181-009	9/5/23	9/12/23	2.408 g	10 mL	86.8
AOC4-01-2.5	K2310181-011	9/5/23	9/12/23	2.512 g	10 mL	96.2
AOC4-03-2.0	K2310181-013	9/5/23	9/12/23	2.423 g	10 mL	82.4
AOC4-103-2.0	K2310181-014	9/5/23	9/12/23	2.243 g	10 mL	83.7
AOC4-04-2.5	K2310181-016	9/5/23	9/12/23	2.190 g	10 mL	89.0
AOC4-05-2.5	K2310181-018	9/5/23	9/12/23	2.228 g	10 mL	86.8
AOC4-06-2.5	K2310181-020	9/5/23	9/12/23	2.124 g	10 mL	96.2
Matrix Spike	KQ2316103-01MS	9/5/23	9/12/23	2.003 g	10 mL	80.7
Duplicate Matrix Spike	KQ2316103-02DMS	9/5/23	9/12/23	2.701 g	10 mL	80.7
Matrix Spike	KQ2316103-03MS	9/5/23	9/12/23	2.867 g	10 mL	80.7
Duplicate Matrix Spike	KQ2316103-04DMS	9/5/23	9/12/23	2.512 g	10 mL	80.7
Matrix Spike	KQ2316103-05MS	9/5/23	9/12/23	2.581 g	10 mL	80.7
Duplicate Matrix Spike	KQ2316103-06DMS	9/5/23	9/12/23	2.190 g	10 mL	80.7
Lab Control Sample	KQ2316103-07LCS	NA	NA	2 g	10 mL	
Lab Control Sample	KQ2316103-08LCS	NA	NA	2 g	10 mL	
Lab Control Sample	KQ2316103-09LCS	NA	NA	2 g	10 mL	
Method Blank	KQ2316103-10MB	NA	NA	2.8670 g	10 mL	

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

January 11, 2024

Analytical Report for Service Request No: K2310183
Revised Service Request No: K2310183.01

Pamela Osterhout
Floyd Snider
601 Union Street, Suite 600
Seattle, WA 98101

RE: SmithKem

Dear Pamela,

Enclosed is the revised report for the sample(s) submitted to our laboratory September 12, 2023 For your reference, these analyses have been assigned our service request number **K2310183.**

The report has been revised to Level III.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at Mark.Harris@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Mark Harris
Project Manager

REVISED
10:38 am, Jan 11, 2024

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

ALS Environmental

Client: Floyd Snider
Project: SmithKem
Sample Matrix: Soil

Service Request: K2310183
Date Received: 09/12/2023

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier III level requested by the client.

Sample Receipt:

Twenty soil samples were received for analysis at ALS Environmental on 09/12/2023. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivoa GC:

Method 8081B, 10/13/2023:The analysis of EPA 8081B requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for cis-Nonachlor. The results were reported from the column with an acceptable CCV KQ2318307-02, -05, -08. The data quality was not affected. No further corrective action was necessary.
Method 8081B, 10/14/2023:The upper control criterion was exceeded for cis-Nonachlor in Continuing Calibration Verification (CCV) KQ2318307-08. Sample AOC2-01-4.0, analyzed in this sequence did not contain the analyte in question. Since the apparent problem indicated a potential high bias, the data quality was not affected. No further corrective action was required.

Method 8081B, 10/14/2023: Samples AOC1-03-2.0 and AOC1-04-2.0 required dilution due to the presence of elevated levels of several target analytes. In accordance with client instructions, all results from the undiluted and diluted analyses are reported. The reporting limits are adjusted to reflect the dilution.
Method 8081B, 10/18/2023: The detection limit was elevated for cis-Nonachlor in sample AOC1-04-4.0. The chromatogram indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compounds at the normal limit. The results were flagged to indicate the matrix interference.

Method 8081B, 10/18/2023: The detection limit was elevated for several analytes in the diluted analysis of samples AOC1-03-2.0 and AOC1-04-2.0. The chromatogram indicated the presence of non-target background components. The analytes in question exhibited poor peak resolution or poor peak separation. The matrix interference prevented adequate resolution of the target compounds at the normal limit. The results were flagged to indicate the matrix interference.
Method 8081B, 10/18/2023: The analysis of method EPA 8081B requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for cis-Nonachlor and 2,4-DDT. The results were reported from the column with an acceptable CCV. The data quality was not affected. No further corrective action was necessary.

Approved by Noe D. Dave Date 01/11/2024

Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

K2310183 ALS Kelso

Chain of Custody Record & Laboratory Analysis Request

~~Analytical Resources, Incorporated~~
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

ARI Assigned Number:	Turn-around Requested: Standard	Page: 5 of 11	
ARI Client Company: Floyd Snider	Phone:	Date: 9/5/23	Ice Present?
Client Contact: Pamela Osterhout		No. of Coolers:	Cooler Temps:
Client Project Name: Smith Kem			
Client Project #:	Samplers: PO/MTM/GS.		

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: 8 Pesticides 8081B-LL	Archive freeze upon receipt							Notes/Comments
ADC4-06-5.0	9/5/23	16:20	Soil	1	✓								
ADC4-06-6.5	"	16:25	"	1		✓							
ADC4-07-2.5	"	16:45	"	1	✓								
ADC4-07-2.5	"	16:47	"	1	✓								
ADC4-07-5.0	"	16:50	"	1	✓								
ADC4-07-6.5	"	16:55	"	1		✓							
ADC4-08-2.5	"	17:05	"	1	✓								
ADC4-08-5.0	"	17:10	"	1		✓							
ADC4-02-2.5	9/6/23	08:15	"	1	✓								
ADC4-02-4.5	"	08:20	"	1	✓								

Comments/Special Instructions
See page 1-4 for pesticide list

	Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature)				
Printed Name:	P.O.	Naomi Pedersen		
Company:	FIS	ALS		
Date & Time:	9/11/23 @ 09:00	9/12/23 0945		

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

K2310183

ALS Kelso

ARI Assigned Number:	Turn-around Requested: Standard	Page: 6 of 11	
ARI Client Company: Floyd Snyder	Phone: 206-805-2188	Date: 9/6/23	Ice Present?
Client Contact: Pamela Osterhout		No. of Coolers:	Cooler Temps:
Client Project Name: Smith Kem			
Client Project #:	Samplers: PO/MTM/GS.		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: * Pesticides 8081B-LL	Analysis Requested: Archive Freeze upon Request	Notes/Comments
ADC4-02-7.0	9/6/23	08:25	SO:1	1		✓	
ADC1-03-2.0	"	16:00	"	1	✓		
ADC1-03-4.0	"	16:05	"	1		✓	
ADC1-04-2.0	"	16:40	"	1	✓		
ADC1-04-4.0	"	16:45	"	1	✓		
ADC2-01-2.0	"	15:10	"	1	✓		
ADC2-01-4.0	"	15:15	"	1	✓		
ADC2-01-6.0	"	15:20	"	1		✓	
ADC2-02-2.0	"	15:30	"	1	✓		
ADC2-02-4.0	"	15:35	"	1		✓	

Comments/Special Instructions
* See pesticide list on pages 1-4

	Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature)				
Printed Name:	P.O.	Akemi Redersen		
Company:	F/S	AS		
Date & Time:	9/11/23 @ 09:00	9/12/23 0945		

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

PM MH

Cooler Receipt and Preservation Form

Client Pamela Osterhout Service Request K23 10183

Received: 9/12/23 Opened: 9/12/23 By: AR Unloaded: 9/12/23 By: AR

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (N) N If yes, how many and where? 1 Front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (N) N

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
4.2	5.0	1801	1 of 3			773374221969	
4.7	-	1801	2 of 3			773374227807	
3.1	3.4	1801	3 of 3			773374227900	

4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column above:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # above and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

6. Packing material: *Inserts* (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
14. Was C12/Res negative? (NA) Y N
15. Were samples received within the method specified time limit? If not, notate the error below and notify the PM (NA) Y N
16. Were 100ml sterile microbiology bottles filled exactly to the 100ml mark? (NA) Y N Underfilled Overfilled

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

Total Solids

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Collected:**	09/05/23 - 09/06/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	As Received

Solids, Total

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
AOC4-06-5.0	K2310183-001	**95.2**	-	-	1	09/14/23 12:00	
AOC4-07-2.5	K2310183-003	**93.3**	-	-	1	09/14/23 12:00	
AOC4-107-2.5	K2310183-004	**93.6**	-	-	1	09/14/23 12:00	
AOC4-07-5.0	K2310183-005	**78.0**	-	-	1	09/14/23 12:00	
AOC4-08-2.5	K2310183-007	**95.7**	-	-	1	09/14/23 12:00	
AOC4-02-2.5	K2310183-009	**95.7**	-	-	1	09/14/23 12:00	
AOC4-02-4.5	K2310183-010	**96.5**	-	-	1	09/14/23 12:00	
AOC1-03-2.0	K2310183-012	**88.8**	-	-	1	09/14/23 12:00	
AOC1-04-2.0	K2310183-014	**89.9**	-	-	1	09/14/23 12:00	
AOC1-04-4.0	K2310183-015	**89.6**	-	-	1	09/14/23 12:00	
AOC2-01-2.0	K2310183-016	**78.7**	-	-	1	09/14/23 12:00	
AOC2-01-4.0	K2310183-017	**93.1**	-	-	1	09/14/23 12:00	
AOC2-02-2.0	K2310183-019	**78.4**	-	-	1	09/14/23 12:00	

Client:	Floyd Snider	**Service Request:**	K2310183
Project	SmithKem	**Date Collected:**	09/05/23 - 09/06/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	As Received

Replicate Sample Summary
Inorganic Parameters

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
AOC4-06-5.0	K2310183-001DUP	-	95.2	95.2	95.2	<1	20	09/14/23
AOC2-02-2.0	K2310183-019DUP	-	78.4	78.3	78.4	<1	20	09/14/23

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Low Level Organochlorine Pesticides by GC

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Collected:**	09/05/23 16:20
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC4-06-5.0	**Units:**	ug/Kg
Lab Code:	K2310183-001	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/14/23 09:34	9/15/23	
beta-BHC	ND U	1.0	0.27	1	10/14/23 09:34	9/15/23	
cis-Chlordane	ND U	1.0	0.41	1	10/14/23 09:34	9/15/23	
trans-Chlordane	ND U	1.0	0.38	1	10/14/23 09:34	9/15/23	
2,4'-DDD	ND U	1.0	0.27	1	10/14/23 09:34	9/15/23	
4,4'-DDD	ND U	2.0	0.60	1	10/14/23 09:34	9/15/23	
2,4'-DDE	ND U	1.0	0.47	1	10/14/23 09:34	9/15/23	
4,4'-DDE	ND U	1.0	0.40	1	10/14/23 09:34	9/15/23	
2,4'-DDT	ND U	1.0	0.48	1	10/14/23 09:34	9/15/23	
4,4'-DDT	**0.74 J**	2.0	0.61	1	10/14/23 09:34	9/15/23	
Dieldrin	ND U	0.91	0.22	1	10/14/23 09:34	9/15/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/14/23 09:34	9/15/23	
trans-Nonachlor	ND U	2.0	0.71	1	10/14/23 09:34	9/15/23	
Oxychlordane	ND U	0.91	0.25	1	10/14/23 09:34	9/15/23	
Toxaphene	ND U	100	34	1	10/14/23 09:34	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	67	10 - 134	10/14/23 09:34	
Tetrachloro-m-xylene	60	10 - 121	10/14/23 09:34	

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Collected:**	09/05/23 16:45
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC4-07-2.5	**Units:**	ug/Kg
Lab Code:	K2310183-003	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/14/23 10:15	9/15/23	
beta-BHC	ND U	1.0	0.27	1	10/14/23 10:15	9/15/23	
cis-Chlordane	ND U	1.0	0.41	1	10/14/23 10:15	9/15/23	
trans-Chlordane	ND U	1.0	0.38	1	10/14/23 10:15	9/15/23	
2,4'-DDD	ND U	1.0	0.27	1	10/14/23 10:15	9/15/23	
4,4'-DDD	ND U	2.0	0.60	1	10/14/23 10:15	9/15/23	
2,4'-DDE	ND U	1.0	0.47	1	10/14/23 10:15	9/15/23	
4,4'-DDE	ND U	1.0	0.40	1	10/14/23 10:15	9/15/23	
2,4'-DDT	ND U	1.0	0.48	1	10/14/23 10:15	9/15/23	
4,4'-DDT	**0.63 J**	2.0	0.61	1	10/14/23 10:15	9/15/23	
Dieldrin	**0.64 J**	0.90	0.22	1	10/14/23 10:15	9/15/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/14/23 10:15	9/15/23	
trans-Nonachlor	ND U	2.0	0.71	1	10/14/23 10:15	9/15/23	
Oxychlordane	ND U	0.90	0.25	1	10/14/23 10:15	9/15/23	
Toxaphene	ND U	100	34	1	10/14/23 10:15	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	68	10 - 134	10/14/23 10:15	
Tetrachloro-m-xylene	62	10 - 121	10/14/23 10:15	

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Collected:**	09/05/23 16:47
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC4-107-2.5	**Units:**	ug/Kg
Lab Code:	K2310183-004	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/14/23 10:57	9/15/23	
beta-BHC	ND U	1.0	0.27	1	10/14/23 10:57	9/15/23	
cis-Chlordane	ND U	1.0	0.41	1	10/14/23 10:57	9/15/23	
trans-Chlordane	ND U	1.0	0.38	1	10/14/23 10:57	9/15/23	
2,4'-DDD	ND U	1.0	0.27	1	10/14/23 10:57	9/15/23	
4,4'-DDD	ND U	2.0	0.60	1	10/14/23 10:57	9/15/23	
2,4'-DDE	ND U	1.0	0.47	1	10/14/23 10:57	9/15/23	
4,4'-DDE	ND U	1.0	0.40	1	10/14/23 10:57	9/15/23	
2,4'-DDT	ND U	1.0	0.48	1	10/14/23 10:57	9/15/23	
4,4'-DDT	**0.65 J**	2.0	0.61	1	10/14/23 10:57	9/15/23	
Dieldrin	**0.87 J**	0.91	0.22	1	10/14/23 10:57	9/15/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/14/23 10:57	9/15/23	
trans-Nonachlor	ND U	2.0	0.71	1	10/14/23 10:57	9/15/23	
Oxychlordane	ND U	0.91	0.25	1	10/14/23 10:57	9/15/23	
Toxaphene	ND U	100	34	1	10/14/23 10:57	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	71	10 - 134	10/14/23 10:57	
Tetrachloro-m-xylene	66	10 - 121	10/14/23 10:57	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Collected:**	09/05/23 16:50
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC4-07-5.0	**Units:**	ug/Kg
Lab Code:	K2310183-005	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/14/23 11:38	9/15/23	
beta-BHC	ND U	1.0	0.27	1	10/14/23 11:38	9/15/23	
cis-Chlordane	ND U	1.0	0.41	1	10/14/23 11:38	9/15/23	
trans-Chlordane	ND U	1.0	0.38	1	10/14/23 11:38	9/15/23	
2,4'-DDD	ND U	1.0	0.27	1	10/14/23 11:38	9/15/23	
4,4'-DDD	ND U	2.0	0.60	1	10/14/23 11:38	9/15/23	
2,4'-DDE	ND U	1.0	0.47	1	10/14/23 11:38	9/15/23	
4,4'-DDE	ND U	1.0	0.40	1	10/14/23 11:38	9/15/23	
2,4'-DDT	ND U	1.0	0.48	1	10/14/23 11:38	9/15/23	
4,4'-DDT	**1.0 J**	2.0	0.61	1	10/14/23 11:38	9/15/23	
Dieldrin	**0.84 J**	0.94	0.22	1	10/14/23 11:38	9/15/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/14/23 11:38	9/15/23	
trans-Nonachlor	ND U	2.0	0.71	1	10/14/23 11:38	9/15/23	
Oxychlordane	ND U	0.94	0.25	1	10/14/23 11:38	9/15/23	
Toxaphene	ND U	100	34	1	10/14/23 11:38	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	75	10 - 134	10/14/23 11:38	
Tetrachloro-m-xylene	68	10 - 121	10/14/23 11:38	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Collected:**	09/05/23 17:05
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC4-08-2.5	**Units:**	ug/Kg
Lab Code:	K2310183-007	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/14/23 12:20	9/15/23	
beta-BHC	ND U	1.0	0.27	1	10/14/23 12:20	9/15/23	
cis-Chlordane	ND U	1.0	0.41	1	10/14/23 12:20	9/15/23	
trans-Chlordane	ND U	1.0	0.38	1	10/14/23 12:20	9/15/23	
2,4'-DDD	ND U	1.0	0.27	1	10/14/23 12:20	9/15/23	
4,4'-DDD	ND U	2.0	0.60	1	10/14/23 12:20	9/15/23	
2,4'-DDE	ND U	1.0	0.47	1	10/14/23 12:20	9/15/23	
4,4'-DDE	ND U	1.0	0.40	1	10/14/23 12:20	9/15/23	
2,4'-DDT	ND U	1.0	0.48	1	10/14/23 12:20	9/15/23	
4,4'-DDT	**0.72 J**	2.0	0.61	1	10/14/23 12:20	9/15/23	
Dieldrin	ND U	0.93	0.22	1	10/14/23 12:20	9/15/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/14/23 12:20	9/15/23	
trans-Nonachlor	ND U	2.0	0.71	1	10/14/23 12:20	9/15/23	
Oxychlordane	ND U	0.93	0.25	1	10/14/23 12:20	9/15/23	
Toxaphene	ND U	100	34	1	10/14/23 12:20	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	74	10 - 134	10/14/23 12:20	
Tetrachloro-m-xylene	66	10 - 121	10/14/23 12:20	

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Collected:**	09/06/23 08:15
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC4-02-2.5	**Units:**	ug/Kg
Lab Code:	K2310183-009	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/14/23 13:01	9/15/23	
beta-BHC	ND U	1.0	0.27	1	10/14/23 13:01	9/15/23	
cis-Chlordane	**14**	1.0	0.41	1	10/14/23 13:01	9/15/23	
trans-Chlordane	**19**	1.0	0.38	1	10/14/23 13:01	9/15/23	
2,4'-DDD	ND U	1.0	0.27	1	10/14/23 13:01	9/15/23	
4,4'-DDD	ND U	2.0	0.60	1	10/14/23 13:01	9/15/23	
2,4'-DDE	ND U	1.0	0.47	1	10/14/23 13:01	9/15/23	
4,4'-DDE	**0.41 JP**	1.0	0.40	1	10/14/23 13:01	9/15/23	
2,4'-DDT	ND U	1.0	0.48	1	10/14/23 13:01	9/15/23	
4,4'-DDT	ND U	2.0	0.61	1	10/14/23 13:01	9/15/23	
Dieldrin	**2.2**	0.91	0.22	1	10/14/23 13:01	9/15/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/14/23 13:01	9/15/23	
trans-Nonachlor	**8.2**	2.0	0.71	1	10/14/23 13:01	9/15/23	
Oxychlordane	ND U	0.91	0.25	1	10/14/23 13:01	9/15/23	
Toxaphene	ND U	100	34	1	10/14/23 13:01	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	73	10 - 134	10/14/23 13:01	
Tetrachloro-m-xylene	65	10 - 121	10/14/23 13:01	

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Collected:**	09/06/23 08:20
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC4-02-4.5	**Units:**	ug/Kg
Lab Code:	K2310183-010	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/14/23 13:43	9/15/23	
beta-BHC	ND U	1.0	0.27	1	10/14/23 13:43	9/15/23	
cis-Chlordane	**6.4**	1.0	0.41	1	10/14/23 13:43	9/15/23	
trans-Chlordane	**8.8**	1.0	0.38	1	10/14/23 13:43	9/15/23	
2,4'-DDD	ND U	1.0	0.27	1	10/14/23 13:43	9/15/23	
4,4'-DDD	ND U	2.0	0.60	1	10/14/23 13:43	9/15/23	
2,4'-DDE	ND U	1.0	0.47	1	10/14/23 13:43	9/15/23	
4,4'-DDE	ND U	1.0	0.40	1	10/14/23 13:43	9/15/23	
2,4'-DDT	ND U	1.0	0.48	1	10/14/23 13:43	9/15/23	
4,4'-DDT	ND U	2.0	0.61	1	10/14/23 13:43	9/15/23	
Dieldrin	**11**	0.89	0.22	1	10/14/23 13:43	9/15/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/14/23 13:43	9/15/23	
trans-Nonachlor	**3.6**	2.0	0.71	1	10/14/23 13:43	9/15/23	
Oxychlordane	ND U	0.89	0.25	1	10/14/23 13:43	9/15/23	
Toxaphene	ND U	100	34	1	10/14/23 13:43	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	74	10 - 134	10/14/23 13:43	
Tetrachloro-m-xylene	69	10 - 121	10/14/23 13:43	

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Collected:**	09/06/23 16:00
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC1-03-2.0	**Units:**	ug/Kg
Lab Code:	K2310183-012	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND	U	2.0	0.59	1	10/14/23 14:24	9/15/23	
beta-BHC	ND	U	1.0	0.27	1	10/14/23 14:24	9/15/23	
cis-Chlordane	**190**	**E**	1.0	0.41	1	10/14/23 14:24	9/15/23	
trans-Chlordane	**240**	**E**	1.0	0.38	1	10/14/23 14:24	9/15/23	
2,4'-DDD	ND	U	1.0	0.27	1	10/14/23 14:24	9/15/23	
4,4'-DDD	ND	U	2.0	0.60	1	10/14/23 14:24	9/15/23	
2,4'-DDE	ND	U	1.0	0.47	1	10/14/23 14:24	9/15/23	
4,4'-DDE	**42**	**E**	1.0	0.40	1	10/14/23 14:24	9/15/23	
2,4'-DDT	**66**	**E**	1.0	0.48	1	10/14/23 14:24	9/15/23	
4,4'-DDT	**470**	**E**	2.0	0.61	1	10/14/23 14:24	9/15/23	
Dieldrin	**300**	**E**	0.78	0.22	1	10/14/23 14:24	9/15/23	
cis-Nonachlor	**90**	**E**	1.0	0.29	1	10/14/23 14:24	9/15/23	
trans-Nonachlor	**160**	**E**	2.0	0.71	1	10/14/23 14:24	9/15/23	
Oxychlordane	ND	U	0.78	0.25	1	10/14/23 14:24	9/15/23	
Toxaphene	**4600**		100	34	1	10/14/23 14:24	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	75	10 - 134	10/14/23 14:24	
Tetrachloro-m-xylene	68	10 - 121	10/14/23 14:24	

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Collected:**	09/06/23 16:00
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC1-03-2.0	**Units:**	ug/Kg
Lab Code:	K2310183-012	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	40	12	20	10/18/23 10:02	9/15/23	
beta-BHC	ND U	20	5.4	20	10/18/23 10:02	9/15/23	
cis-Chlordane	**240**	20	8.2	20	10/18/23 10:02	9/15/23	
trans-Chlordane	**290**	20	7.6	20	10/18/23 10:02	9/15/23	
2,4'-DDD	ND U	20	5.4	20	10/18/23 10:02	9/15/23	
4,4'-DDD	**ND Ui**	43	43	20	10/18/23 10:02	9/15/23	
2,4'-DDE	ND U	20	9.4	20	10/18/23 10:02	9/15/23	
4,4'-DDE	**58**	20	8.0	20	10/18/23 10:02	9/15/23	
2,4'-DDT	**ND Ui**	130	130	20	10/18/23 10:02	9/15/23	
4,4'-DDT	**480**	40	13	20	10/18/23 10:02	9/15/23	
Dieldrin	**370**	16	4.4	20	10/18/23 10:02	9/15/23	
cis-Nonachlor	**ND Ui**	93	93	20	10/18/23 10:02	9/15/23	
trans-Nonachlor	**210**	40	15	20	10/18/23 10:02	9/15/23	
Oxychlordane	ND U	16	5.0	20	10/18/23 10:02	9/15/23	
Toxaphene	**6800**	2000	680	20	10/18/23 10:02	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	122	10 - 134	10/18/23 10:02	
Tetrachloro-m-xylene	105	10 - 121	10/18/23 10:02	

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Collected:**	09/06/23 16:40
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC1-04-2.0	**Units:**	ug/Kg
Lab Code:	K2310183-014	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND	U	2.1	0.63	1	10/14/23 15:05	9/15/23	
beta-BHC	**1.1**	**J**	1.1	0.29	1	10/14/23 15:05	9/15/23	
cis-Chlordane	**60**	**E**	1.1	0.44	1	10/14/23 15:05	9/15/23	
trans-Chlordane	**71**	**E**	1.1	0.41	1	10/14/23 15:05	9/15/23	
2,4'-DDD	ND	U	1.1	0.29	1	10/14/23 15:05	9/15/23	
4,4'-DDD	ND	U	2.1	0.64	1	10/14/23 15:05	9/15/23	
2,4'-DDE	ND	U	1.1	0.50	1	10/14/23 15:05	9/15/23	
4,4'-DDE	**30**		1.1	0.43	1	10/14/23 15:05	9/15/23	
2,4'-DDT	**30**		1.1	0.51	1	10/14/23 15:05	9/15/23	
4,4'-DDT	**58**	**E**	2.1	0.65	1	10/14/23 15:05	9/15/23	
Dieldrin	**85**	**E**	1.1	0.24	1	10/14/23 15:05	9/15/23	
cis-Nonachlor	**33**		1.1	0.31	1	10/14/23 15:05	9/15/23	
trans-Nonachlor	**51**		2.1	0.75	1	10/14/23 15:05	9/15/23	
Oxychlordane	ND	U	1.1	0.27	1	10/14/23 15:05	9/15/23	
Toxaphene	**1300**		110	36	1	10/14/23 15:05	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	69	10 - 134	10/14/23 15:05	
Tetrachloro-m-xylene	58	10 - 121	10/14/23 15:05	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Collected:**	09/06/23 16:40
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC1-04-2.0	**Units:**	ug/Kg
Lab Code:	K2310183-014	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	11	3.2	5	10/18/23 10:43	9/15/23	
beta-BHC	ND U	5.3	1.5	5	10/18/23 10:43	9/15/23	
cis-Chlordane	**75**	5.3	2.2	5	10/18/23 10:43	9/15/23	
trans-Chlordane	**88**	5.3	2.1	5	10/18/23 10:43	9/15/23	
2,4'-DDD	ND U	5.3	1.5	5	10/18/23 10:43	9/15/23	
4,4'-DDD	**ND Ui**	26	26	5	10/18/23 10:43	9/15/23	
2,4'-DDE	ND U	5.3	2.5	5	10/18/23 10:43	9/15/23	
4,4'-DDE	**33**	5.3	2.2	5	10/18/23 10:43	9/15/23	
2,4'-DDT	**ND Ui**	42	42	5	10/18/23 10:43	9/15/23	
4,4'-DDT	**74**	11	3.3	5	10/18/23 10:43	9/15/23	
Dieldrin	**110**	5.3	1.2	5	10/18/23 10:43	9/15/23	
cis-Nonachlor	**ND Ui**	33	33	5	10/18/23 10:43	9/15/23	
trans-Nonachlor	**67**	11	3.8	5	10/18/23 10:43	9/15/23	
Oxychlordane	ND U	5.3	1.4	5	10/18/23 10:43	9/15/23	
Toxaphene	**1900**	530	180	5	10/18/23 10:43	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	98	10 - 134	10/18/23 10:43	
Tetrachloro-m-xylene	91	10 - 121	10/18/23 10:43	

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Collected:**	09/06/23 16:45
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC1-04-4.0	**Units:**	ug/Kg
Lab Code:	K2310183-015	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.1	0.63	1	10/14/23 15:46	9/15/23	
beta-BHC	ND U	1.1	0.29	1	10/14/23 15:46	9/15/23	
cis-Chlordane	**13**	1.1	0.44	1	10/14/23 15:46	9/15/23	
trans-Chlordane	**19 P**	1.1	0.41	1	10/14/23 15:46	9/15/23	
2,4'-DDD	ND U	1.1	0.29	1	10/14/23 15:46	9/15/23	
4,4'-DDD	ND U	2.1	0.64	1	10/14/23 15:46	9/15/23	
2,4'-DDE	ND U	1.1	0.51	1	10/14/23 15:46	9/15/23	
4,4'-DDE	**2.7**	1.1	0.43	1	10/14/23 15:46	9/15/23	
2,4'-DDT	ND U	1.1	0.52	1	10/14/23 15:46	9/15/23	
4,4'-DDT	**1.3 JP**	2.1	0.65	1	10/14/23 15:46	9/15/23	
Dieldrin	**13**	1.1	0.24	1	10/14/23 15:46	9/15/23	
cis-Nonachlor	**ND Ui**	8.6	8.6	1	10/14/23 15:46	9/15/23	
trans-Nonachlor	**21**	2.1	0.76	1	10/14/23 15:46	9/15/23	
Oxychlordane	ND U	1.1	0.27	1	10/14/23 15:46	9/15/23	
Toxaphene	ND U	110	37	1	10/14/23 15:46	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	73	10 - 134	10/14/23 15:46	
Tetrachloro-m-xylene	68	10 - 121	10/14/23 15:46	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Collected:**	09/06/23 15:10
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC2-01-2.0	**Units:**	ug/Kg
Lab Code:	K2310183-016	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.3	0.69	1	10/14/23 21:16	9/15/23	
beta-BHC	ND U	1.2	0.32	1	10/14/23 21:16	9/15/23	
cis-Chlordane	ND U	1.2	0.48	1	10/14/23 21:16	9/15/23	
trans-Chlordane	ND U	1.2	0.45	1	10/14/23 21:16	9/15/23	
2,4'-DDD	ND U	1.2	0.32	1	10/14/23 21:16	9/15/23	
4,4'-DDD	ND U	2.3	0.71	1	10/14/23 21:16	9/15/23	
2,4'-DDE	ND U	1.2	0.55	1	10/14/23 21:16	9/15/23	
4,4'-DDE	ND U	1.2	0.47	1	10/14/23 21:16	9/15/23	
2,4'-DDT	ND U	1.2	0.57	1	10/14/23 21:16	9/15/23	
4,4'-DDT	ND U	2.3	0.72	1	10/14/23 21:16	9/15/23	
Dieldrin	ND U	1.2	0.26	1	10/14/23 21:16	9/15/23	
cis-Nonachlor	ND U	1.2	0.34	1	10/14/23 21:16	9/15/23	
trans-Nonachlor	ND U	2.3	0.83	1	10/14/23 21:16	9/15/23	
Oxychlordane	ND U	1.2	0.30	1	10/14/23 21:16	9/15/23	
Toxaphene	ND U	120	40	1	10/14/23 21:16	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	71	10 - 134	10/14/23 21:16	
Tetrachloro-m-xylene	65	10 - 121	10/14/23 21:16	

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Collected:**	09/06/23 15:15
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC2-01-4.0	**Units:**	ug/Kg
Lab Code:	K2310183-017	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/14/23 21:58	9/15/23	
beta-BHC	ND U	1.0	0.27	1	10/14/23 21:58	9/15/23	
cis-Chlordane	**2.1**	1.0	0.41	1	10/14/23 21:58	9/15/23	
trans-Chlordane	**2.4**	1.0	0.38	1	10/14/23 21:58	9/15/23	
2,4'-DDD	ND U	1.0	0.27	1	10/14/23 21:58	9/15/23	
4,4'-DDD	ND U	2.0	0.60	1	10/14/23 21:58	9/15/23	
2,4'-DDE	ND U	1.0	0.47	1	10/14/23 21:58	9/15/23	
4,4'-DDE	ND U	1.0	0.40	1	10/14/23 21:58	9/15/23	
2,4'-DDT	ND U	1.0	0.48	1	10/14/23 21:58	9/15/23	
4,4'-DDT	**1.2 J**	2.0	0.61	1	10/14/23 21:58	9/15/23	
Dieldrin	**2.3**	0.89	0.22	1	10/14/23 21:58	9/15/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/14/23 21:58	9/15/23	*
trans-Nonachlor	**2.2**	2.0	0.71	1	10/14/23 21:58	9/15/23	
Oxychlordane	ND U	0.89	0.25	1	10/14/23 21:58	9/15/23	
Toxaphene	ND U	100	34	1	10/14/23 21:58	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	65	10 - 134	10/14/23 21:58	
Tetrachloro-m-xylene	59	10 - 121	10/14/23 21:58	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Collected:**	09/06/23 15:30
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC2-02-2.0	**Units:**	ug/Kg
Lab Code:	K2310183-019	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.3	0.68	1	10/14/23 22:39	9/15/23	
beta-BHC	ND U	1.2	0.32	1	10/14/23 22:39	9/15/23	
cis-Chlordane	ND U	1.2	0.48	1	10/14/23 22:39	9/15/23	
trans-Chlordane	ND U	1.2	0.44	1	10/14/23 22:39	9/15/23	
2,4'-DDD	ND U	1.2	0.32	1	10/14/23 22:39	9/15/23	
4,4'-DDD	ND U	2.3	0.70	1	10/14/23 22:39	9/15/23	
2,4'-DDE	ND U	1.2	0.55	1	10/14/23 22:39	9/15/23	
4,4'-DDE	ND U	1.2	0.47	1	10/14/23 22:39	9/15/23	
2,4'-DDT	ND U	1.2	0.56	1	10/14/23 22:39	9/15/23	
4,4'-DDT	**1.3 JP**	2.3	0.71	1	10/14/23 22:39	9/15/23	
Dieldrin	ND U	1.2	0.26	1	10/14/23 22:39	9/15/23	
cis-Nonachlor	ND U	1.2	0.34	1	10/14/23 22:39	9/15/23	
trans-Nonachlor	ND U	2.3	0.82	1	10/14/23 22:39	9/15/23	
Oxychlordane	ND U	1.2	0.29	1	10/14/23 22:39	9/15/23	
Toxaphene	ND U	120	40	1	10/14/23 22:39	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	66	10 - 134	10/14/23 22:39	
Tetrachloro-m-xylene	61	10 - 121	10/14/23 22:39	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	KQ2316147-10	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/13/23 21:52	9/15/23	
beta-BHC	ND U	1.0	0.27	1	10/13/23 21:52	9/15/23	
cis-Chlordane	ND U	1.0	0.41	1	10/13/23 21:52	9/15/23	
trans-Chlordane	ND U	1.0	0.38	1	10/13/23 21:52	9/15/23	
2,4'-DDD	ND U	1.0	0.27	1	10/13/23 21:52	9/15/23	
4,4'-DDD	ND U	2.0	0.60	1	10/13/23 21:52	9/15/23	
2,4'-DDE	ND U	1.0	0.47	1	10/13/23 21:52	9/15/23	
4,4'-DDE	ND U	1.0	0.40	1	10/13/23 21:52	9/15/23	
2,4'-DDT	ND U	1.0	0.48	1	10/13/23 21:52	9/15/23	
4,4'-DDT	**0.62 J**	2.0	0.61	1	10/13/23 21:52	9/15/23	
Dieldrin	ND U	0.69	0.22	1	10/13/23 21:52	9/15/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/13/23 21:52	9/15/23	
trans-Nonachlor	ND U	2.0	0.71	1	10/13/23 21:52	9/15/23	
Oxychlordane	ND U	0.69	0.25	1	10/13/23 21:52	9/15/23	
Toxaphene	ND U	100	34	1	10/13/23 21:52	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	77	10 - 134	10/13/23 21:52	
Tetrachloro-m-xylene	72	10 - 121	10/13/23 21:52	

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310183
Date Collected: 09/05/23 16:20
Date Received: 9/12/23

Sample Name: AOC4-06-5.0
Lab Code: K2310183-001

Units: ug/Kg
Basis: Dry
Percent Solids: 95.2

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDT	0.61	0.74	0.85	14	J	1	10/14/23 09:34

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310183
Date Collected: 09/05/23 16:45
Date Received: 9/12/23

Sample Name: AOC4-07-2.5
Lab Code: K2310183-003

Units: ug/Kg
Basis: Dry
Percent Solids: 93.3

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDT	0.61	0.63	0.76	19	J	1	10/14/23 10:15
Dieldrin	0.22	0.64	0.67	5	J	1	10/14/23 10:15

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310183
Date Collected: 09/05/23 16:47
Date Received: 9/12/23

Sample Name: AOC4-107-2.5
Lab Code: K2310183-004

Units: ug/Kg
Basis: Dry
Percent Solids: 93.6

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDT	0.61	0.65	0.74	13	J	1	10/14/23 10:57
Dieldrin	0.22	0.87	0.89	2	J	1	10/14/23 10:57

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310183
Date Collected: 09/05/23 16:50
Date Received: 9/12/23

Sample Name: AOC4-07-5.0
Lab Code: K2310183-005

Units: ug/Kg
Basis: Dry
Percent Solids: 78.0

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDT	0.61	1.0	1.2	18	J	1	10/14/23 11:38
Dieldrin	0.22	0.84	1.0	17	J	1	10/14/23 11:38

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310183
Date Collected: 09/05/23 17:05
Date Received: 9/12/23

Sample Name: AOC4-08-2.5
Lab Code: K2310183-007

Units: ug/Kg
Basis: Dry
Percent Solids: 95.7

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDT	0.61	0.72	0.79	9	J	1	10/14/23 12:20

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310183
Date Collected: 09/06/23 08:15
Date Received: 9/12/23

Sample Name: AOC4-02-2.5
Lab Code: K2310183-009

Units: ug/Kg
Basis: Dry
Percent Solids: 95.7

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDE	0.40	0.41	0.64	44	JP	1	10/14/23 13:01
Dieldrin	0.22	2.2	2.4	9		1	10/14/23 13:01
cis-Chlordane	0.41	14	15	7		1	10/14/23 13:01
trans-Chlordane	0.38	19	19	<1		1	10/14/23 13:01
trans-Nonachlor	0.71	8.2	9.9	19		1	10/14/23 13:01

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310183
Date Collected: 09/06/23 08:20
Date Received: 9/12/23

Sample Name: AOC4-02-4.5
Lab Code: K2310183-010

Units: ug/Kg
Basis: Dry
Percent Solids: 96.5

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Dieldrin	0.22	11	12	9		1	10/14/23 13:43
cis-Chlordane	0.41	6.4	7.4	14		1	10/14/23 13:43
trans-Chlordane	0.38	8.8	8.9	1		1	10/14/23 13:43
trans-Nonachlor	0.71	3.6	4.2	15		1	10/14/23 13:43

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310183
Date Collected: 09/06/23 16:00
Date Received: 9/12/23

Sample Name: AOC1-03-2.0
Lab Code: K2310183-012

Units: ug/Kg
Basis: Dry
Percent Solids: 88.8

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDE	8.0	58	65	11		20	10/18/23 10:02
4,4'-DDT	13	480	530	10		20	10/18/23 10:02
Dieldrin	4.4	370	370	<1		20	10/18/23 10:02
Toxaphene	680	6800	8600	23		20	10/18/23 10:02
cis-Chlordane	8.2	240	250	4		20	10/18/23 10:02
trans-Chlordane	7.6	290	380	27		20	10/18/23 10:02
trans-Nonachlor	15	210	220	5		20	10/18/23 10:02
2,4'-DDT	0.48	66	77	15	E	1	10/14/23 14:24
4,4'-DDE	0.40	42	48	13	E	1	10/14/23 14:24
4,4'-DDT	0.61	470	530	12	E	1	10/14/23 14:24
Dieldrin	0.22	300	310	3	E	1	10/14/23 14:24
Toxaphene	34	4600	6200	30		1	10/14/23 14:24
cis-Chlordane	0.41	190	200	5	E	1	10/14/23 14:24
cis-Nonachlor	0.29	90	78	14	E	1	10/14/23 14:24
trans-Chlordane	0.38	240	320	29	E	1	10/14/23 14:24
trans-Nonachlor	0.71	160	170	6	E	1	10/14/23 14:24

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310183
Date Collected: 09/06/23 16:40
Date Received: 9/12/23

Sample Name: AOC1-04-2.0
Lab Code: K2310183-014

Units: ug/Kg
Basis: Dry
Percent Solids: 89.9

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDE	2.2	33	36	9		5	10/18/23 10:43
4,4'-DDT	3.3	74	76	3		5	10/18/23 10:43
Dieldrin	1.2	110	110	<1		5	10/18/23 10:43
Toxaphene	180	1900	2000	5		5	10/18/23 10:43
cis-Chlordane	2.2	75	77	3		5	10/18/23 10:43
trans-Chlordane	2.1	88	100	13		5	10/18/23 10:43
trans-Nonachlor	3.8	67	72	7		5	10/18/23 10:43
2,4'-DDT	0.51	30	31	3		1	10/14/23 15:05
4,4'-DDE	0.43	30	33	10		1	10/14/23 15:05
4,4'-DDT	0.65	58	62	7	E	1	10/14/23 15:05
Dieldrin	0.24	85	86	1	E	1	10/14/23 15:05
Toxaphene	36	1300	1400	7		1	10/14/23 15:05
beta-BHC	0.29	1.1	1.4	24	J	1	10/14/23 15:05
cis-Chlordane	0.44	60	63	5	E	1	10/14/23 15:05
cis-Nonachlor	0.31	33	30	10		1	10/14/23 15:05
trans-Chlordane	0.41	71	100	34	E	1	10/14/23 15:05
trans-Nonachlor	0.75	51	56	9		1	10/14/23 15:05

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310183
Date Collected: 09/06/23 16:45
Date Received: 9/12/23

Sample Name: AOC1-04-4.0
Lab Code: K2310183-015

Units: ug/Kg
Basis: Dry
Percent Solids: 89.6

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDE	0.43	2.7	2.8	4		1	10/14/23 15:46
4,4'-DDT	0.65	1.3	2.1	47	JP	1	10/14/23 15:46
Dieldrin	0.24	13	13	<1		1	10/14/23 15:46
cis-Chlordane	0.44	13	15	14		1	10/14/23 15:46
trans-Chlordane	0.41	19	29	42	P	1	10/14/23 15:46
trans-Nonachlor	0.76	21	24	13		1	10/14/23 15:46

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310183
Date Collected: 09/06/23 15:15
Date Received: 9/12/23

Sample Name: AOC2-01-4.0
Lab Code: K2310183-017

Units: ug/Kg
Basis: Dry
Percent Solids: 93.1

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDT	0.61	1.2	1.4	15	J	1	10/14/23 21:58
Dieldrin	0.22	2.3	2.6	12		1	10/14/23 21:58
cis-Chlordane	0.41	2.1	2.5	17		1	10/14/23 21:58
trans-Chlordane	0.38	2.4	3.1	25		1	10/14/23 21:58
trans-Nonachlor	0.71	2.2	2.5	13		1	10/14/23 21:58

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310183
Date Collected: 09/06/23 15:30
Date Received: 9/12/23

Sample Name: AOC2-02-2.0
Lab Code: K2310183-019

Units: ug/Kg
Basis: Dry
Percent Solids: 78.4

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDT	0.71	1.3	2.1	47	JP	1	10/14/23 22:39

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310183
Date Collected: 09/06/23 08:15
Date Received: 9/12/23

Sample Name: AOC4-02-2.5
Lab Code: KQ2316147-01

Units: ug/Kg
Basis: Dry
Percent Solids: 95.7

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDD	0.60	13.2	15.5	16		1	10/14/23 00:38
4,4'-DDE	0.40	14.6	17.6	19		1	10/14/23 00:38
4,4'-DDT	0.61	13.1	13.4	2		1	10/14/23 00:38
Aldrin	0.59	14.0	19.2	31		1	10/14/23 00:38
Dieldrin	0.22	17.1	19.4	13		1	10/14/23 00:38
Oxychlordane	0.25	14.1	15.0	6		1	10/14/23 00:38
beta-BHC	0.27	14.6	15.8	8		1	10/14/23 00:38
cis-Chlordane	0.41	25.7	30.3	16		1	10/14/23 00:38
cis-Nonachlor	0.29	19.9	21.7	9		1	10/14/23 00:38
trans-Chlordane	0.38	27.8	35.2	23		1	10/14/23 00:38
trans-Nonachlor	0.71	20.8	35.2	51	P	1	10/14/23 00:38

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310183
Date Collected: 09/06/23 08:15
Date Received: 9/12/23

Sample Name: AOC4-02-2.5
Lab Code: KQ2316147-02

Units: ug/Kg
Basis: Dry
Percent Solids: 95.7

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDD	0.60	15.3	16.1	5		1	10/14/23 01:18
4,4'-DDE	0.40	15.2	18.2	18		1	10/14/23 01:18
4,4'-DDT	0.61	13.4	13.5	<1		1	10/14/23 01:18
Aldrin	0.59	14.4	19.5	30		1	10/14/23 01:18
Dieldrin	0.22	17.0	19.5	14		1	10/14/23 01:18
Oxychlordane	0.25	14.6	15.0	3		1	10/14/23 01:18
beta-BHC	0.27	15.4	16.6	8		1	10/14/23 01:18
cis-Chlordane	0.41	24.4	28.6	16		1	10/14/23 01:18
cis-Nonachlor	0.29	20.4	21.0	3		1	10/14/23 01:18
trans-Chlordane	0.38	26.3	32.9	22		1	10/14/23 01:18
trans-Nonachlor	0.71	20.2	34.8	53	P	1	10/14/23 01:18

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310183
Date Collected: 09/06/23 08:15
Date Received: 9/12/23

Sample Name: AOC4-02-2.5
Lab Code: KQ2316147-03

Units: ug/Kg
Basis: Dry
Percent Solids: 95.7

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Toxaphene	34	700	780	11		1	10/14/23 01:59

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310183
Date Collected: 09/06/23 08:15
Date Received: 9/12/23

Sample Name: AOC4-02-2.5
Lab Code: KQ2316147-04

Units: ug/Kg
Basis: Dry
Percent Solids: 95.7

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Toxaphene	34	933	1040	11		1	10/14/23 02:40

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310183
Date Collected: 09/06/23 08:15
Date Received: 9/12/23

Sample Name: AOC4-02-2.5
Lab Code: KQ2316147-05

Units: ug/Kg
Basis: Dry
Percent Solids: 95.7

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
2,4'-DDD	0.27	19.7	23.8	19		1	10/14/23 03:22
2,4'-DDE	0.47	20.7	35.6	53	P	1	10/14/23 03:22
2,4'-DDT	0.48	19.3	22.0	13		1	10/14/23 03:22

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310183
Date Collected: 09/06/23 08:15
Date Received: 9/12/23

Sample Name: AOC4-02-2.5
Lab Code: KQ2316147-06

Units: ug/Kg
Basis: Dry
Percent Solids: 95.7

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
2,4'-DDD	0.27	17.1	21.0	20		1	10/14/23 04:03
2,4'-DDE	0.47	17.8	34.5	64	P	1	10/14/23 04:03
2,4'-DDT	0.48	16.9	27.9	49	P	1	10/14/23 04:03

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310183
Date Collected: NA
Date Received:

Sample Name: Lab Control Sample
Lab Code: KQ2316147-07

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDD	0.60	16.0	18.7	16		1	10/13/23 22:34
4,4'-DDE	0.40	16.0	16.8	5		1	10/13/23 22:34
4,4'-DDT	0.61	17.1	17.2	<1		1	10/13/23 22:34
Aldrin	0.59	16.8	17.1	2		1	10/13/23 22:34
Dieldrin	0.22	16.5	18.1	9		1	10/13/23 22:34
Oxychlordane	0.25	14.2	15.5	9		1	10/13/23 22:34
beta-BHC	0.27	17.7	17.8	<1		1	10/13/23 22:34
cis-Chlordane	0.41	16.9	17.7	5		1	10/13/23 22:34
cis-Nonachlor	0.29	18.7	19.2	3		1	10/13/23 22:34
trans-Chlordane	0.38	15.2	17.0	11		1	10/13/23 22:34
trans-Nonachlor	0.71	15.9	28.5	57	P	1	10/13/23 22:34

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310183
Date Collected: NA
Date Received:

Sample Name: Lab Control Sample
Lab Code: KQ2316147-08

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Toxaphene	34	709	835	16		1	10/13/23 23:15

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310183
Date Collected: NA
Date Received:

Sample Name: Lab Control Sample
Lab Code: KQ2316147-09

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
2,4'-DDD	0.27	18.7	19.3	3		1	10/13/23 23:57
2,4'-DDE	0.47	16.0	19.5	20		1	10/13/23 23:57
2,4'-DDT	0.48	18.1	18.8	4		1	10/13/23 23:57

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310183
Date Collected: NA
Date Received:

Sample Name: Method Blank
Lab Code: KQ2316147-10

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDT	0.61	0.62	0.68	9	J	1	10/13/23 21:52

Client: Floyd Snider **Service Request:** K2310183
Project: SmithKem
Sample Matrix: Soil

SURROGATE RECOVERY SUMMARY
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Extraction Method: EPA 3546

Sample Name	Lab Code	Decachlorobiphenyl 10 - 134	Tetrachloro-m-xylene 10 - 121
AOC4-06-5.0	K2310183-001	67	60
AOC4-07-2.5	K2310183-003	68	62
AOC4-107-2.5	K2310183-004	71	66
AOC4-07-5.0	K2310183-005	75	68
AOC4-08-2.5	K2310183-007	74	66
AOC4-02-2.5	K2310183-009	73	65
AOC4-02-4.5	K2310183-010	74	69
AOC1-03-2.0	K2310183-012	75	68
AOC1-03-2.0 DL1	K2310183-012	122	105
AOC1-04-2.0	K2310183-014	69	58
AOC1-04-2.0 DL1	K2310183-014	98	118
AOC1-04-4.0	K2310183-015	73	68
AOC2-01-2.0	K2310183-016	71	65
AOC2-01-4.0	K2310183-017	65	59
AOC2-02-2.0	K2310183-019	66	61
AOC4-02-2.5	KQ2316147-01	78	57
AOC4-02-2.5	KQ2316147-02	76	57
AOC4-02-2.5	KQ2316147-03	76	57
AOC4-02-2.5	KQ2316147-04	89	63
AOC4-02-2.5	KQ2316147-05	83	60
AOC4-02-2.5	KQ2316147-06	71	63
Lab Control Sample	KQ2316147-07	71	65
Lab Control Sample	KQ2316147-08	73	67
Lab Control Sample	KQ2316147-09	75	69
Method Blank	KQ2316147-10	77	72

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Date Analyzed: 10/13/23 18:26

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\101323\1013F004.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2318307-02
Analysis Lot: 820774
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	73,829,386	6.43	76,677,049	6.44	75,668,453	6.44
	Upper Limit ==>	147,658,772	6.93	153,354,098	6.94	151,336,906	6.94
	Lower Limit ==>	36,914,693	5.93	38,338,525	5.94	37,834,227	5.94
Associated Analyses							
Continuing Calibration Verification	KQ2318307-02	59,876,885	6.41	59,876,885	6.41	59,876,885	6.41
Continuing Calibration Verification	KQ2318307-02	59,118,073	6.41	0*	0.00*	59,118,073	6.41
Continuing Calibration Verification	KQ2318307-02	59,894,016	6.41	59,894,016	6.41	59,894,016	6.41
Continuing Calibration Verification	KQ2318307-02	59,382,735	6.41	59,382,735	6.41	59,382,735	6.41
Method Blank	KQ2316147-10	67,070,744	6.41	67,070,744	6.41	67,070,744	6.41
Lab Control Sample	KQ2316147-07	68,259,265	6.41	68,259,265	6.41	68,259,265	6.41
Lab Control Sample	KQ2316147-08	70,742,897	6.41	70,742,897	6.41	70,742,897	6.41
Lab Control Sample	KQ2316147-09	70,608,477	6.41	70,608,477	6.41	70,608,477	6.41
AOC4-02-2.5MS	KQ2316147-01	72,347,844	6.41	72,347,844	6.41	72,347,844	6.41
AOC4-02-2.5DMS	KQ2316147-02	70,941,777	6.41	70,941,777	6.41	70,941,777	6.41
AOC4-02-2.5MS	KQ2316147-03	71,460,860	6.41	71,460,860	6.41	71,460,860	6.41
AOC4-02-2.5DMS	KQ2316147-04	71,476,549	6.41	71,476,549	6.41	71,476,549	6.41
AOC4-02-2.5MS	KQ2316147-05	71,321,480	6.41	71,321,480	6.41	71,321,480	6.41
AOC4-02-2.5DMS	KQ2316147-06	75,604,846	6.41	75,604,846	6.41	75,604,846	6.41

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Date Analyzed: 10/13/23 18:26

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\101323\1013F004.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2318307-02
Analysis Lot: 820774
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	36,249,909	5.89	35,088,135	5.90	34,585,592	5.90
	Upper Limit ==>	72,499,818	6.39	70,176,270	6.40	69,171,184	6.40
	Lower Limit ==>	18,124,955	5.39	17,544,068	5.40	17,292,796	5.40
Associated Analyses							
Continuing Calibration Verification	KQ2318307-02	49,463,962	5.87	49,463,962	5.87	49,463,962	5.87
Continuing Calibration Verification	KQ2318307-02	48,683,564	5.87	0*	0.00*	48,683,564	5.87
Continuing Calibration Verification	KQ2318307-02	48,960,487	5.87	48,960,487	5.87	48,960,487	5.87
Continuing Calibration Verification	KQ2318307-02	48,615,001	5.87	48,615,001	5.87	48,615,001	5.87
Method Blank	KQ2316147-10	54,308,296	5.87	54,308,296	5.87	54,308,296	5.87
Lab Control Sample	KQ2316147-07	54,942,029	5.87	54,942,029	5.87	54,942,029	5.87
Lab Control Sample	KQ2316147-08	57,012,445	5.87	57,012,445	5.87	57,012,445	5.87
Lab Control Sample	KQ2316147-09	56,799,439	5.87	56,799,439	5.87	56,799,439	5.87
AOC4-02-2.5MS	KQ2316147-01	58,127,321	5.87	58,127,321	5.87	58,127,321	5.87
AOC4-02-2.5DMS	KQ2316147-02	57,087,575	5.87	57,087,575	5.87	57,087,575	5.87
AOC4-02-2.5MS	KQ2316147-03	57,160,910	5.87	57,160,910	5.87	57,160,910	5.87
AOC4-02-2.5DMS	KQ2316147-04	57,056,543	5.87	57,056,543	5.87	57,056,543	5.87
AOC4-02-2.5MS	KQ2316147-05	56,743,048	5.87	56,743,048	5.87	56,743,048	5.87
AOC4-02-2.5DMS	KQ2316147-06	60,256,254	5.87	60,256,254	5.87	60,256,254	5.87

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Date Analyzed: 10/14/23 06:07

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\101323\1013F021.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2318307-05
Analysis Lot: 820774
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	73,829,386	6.43	76,677,049	6.44	75,668,453	6.44
	Upper Limit ==>	147,658,772	6.93	153,354,098	6.94	151,336,906	6.94
	Lower Limit ==>	36,914,693	5.93	38,338,525	5.94	37,834,227	5.94
Associated Analyses							
Continuing Calibration Verification	KQ2318307-05	63,386,081	6.41	63,386,081	6.41	63,386,081	6.41
Continuing Calibration Verification	KQ2318307-05	62,635,981	6.41	0*	0.00*	62,635,981	6.41
Continuing Calibration Verification	KQ2318307-05	62,481,310	6.41	62,481,310	6.41	62,481,310	6.41
Continuing Calibration Verification	KQ2318307-05	62,916,911	6.41	62,916,911	6.41	62,916,911	6.41
AOC4-06-5.0	K2310183-001	75,144,577	6.41	75,144,577	6.41	75,144,577	6.41
AOC4-07-2.5	K2310183-003	75,335,472	6.41	75,335,472	6.41	75,335,472	6.41
AOC4-107-2.5	K2310183-004	75,860,569	6.41	75,860,569	6.41	75,860,569	6.41
AOC4-07-5.0	K2310183-005	76,565,381	6.41	76,565,381	6.41	76,565,381	6.41
AOC4-08-2.5	K2310183-007	76,078,643	6.41	76,078,643	6.41	76,078,643	6.41
AOC4-02-2.5	K2310183-009	77,167,129	6.41	77,167,129	6.41	77,167,129	6.41
AOC4-02-4.5	K2310183-010	79,107,504	6.41	79,107,504	6.41	79,107,504	6.41
AOC1-03-2.0	K2310183-012	80,096,778	6.41	80,096,778	6.41	80,096,778	6.41
AOC1-04-2.0	K2310183-014	79,839,083	6.41	79,839,083	6.41	79,839,083	6.41
AOC1-04-4.0	K2310183-015	76,345,393	6.41	76,345,393	6.41	76,345,393	6.41

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Date Analyzed: 10/14/23 06:07

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\101323\1013F021.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2318307-05
Analysis Lot: 820774
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	36,249,909	5.89	35,088,135	5.90	34,585,592	5.90
	Upper Limit ==>	72,499,818	6.39	70,176,270	6.40	69,171,184	6.40
	Lower Limit ==>	18,124,955	5.39	17,544,068	5.40	17,292,796	5.40
Associated Analyses							
Continuing Calibration Verification	KQ2318307-05	50,242,936	5.87	50,242,936	5.87	50,242,936	5.87
Continuing Calibration Verification	KQ2318307-05	49,676,201	5.87	0*	0.00*	49,676,201	5.87
Continuing Calibration Verification	KQ2318307-05	49,876,523	5.87	49,876,523	5.87	49,876,523	5.87
Continuing Calibration Verification	KQ2318307-05	49,713,118	5.87	49,713,118	5.87	49,713,118	5.87
AOC4-06-5.0	K2310183-001	59,377,161	5.87	59,377,161	5.87	59,377,161	5.87
AOC4-07-2.5	K2310183-003	59,745,104	5.87	59,745,104	5.87	59,745,104	5.87
AOC4-107-2.5	K2310183-004	59,664,677	5.87	59,664,677	5.87	59,664,677	5.87
AOC4-07-5.0	K2310183-005	60,428,823	5.87	60,428,823	5.87	60,428,823	5.87
AOC4-08-2.5	K2310183-007	59,636,374	5.87	59,636,374	5.87	59,636,374	5.87
AOC4-02-2.5	K2310183-009	60,430,350	5.87	60,430,350	5.87	60,430,350	5.87
AOC4-02-4.5	K2310183-010	62,034,245	5.87	62,034,245	5.87	62,034,245	5.87
AOC1-03-2.0	K2310183-012	62,790,791	5.87	62,790,791	5.87	62,790,791	5.87
AOC1-04-2.0	K2310183-014	62,867,650	5.87	62,867,650	5.87	62,867,650	5.87
AOC1-04-4.0	K2310183-015	60,094,363	5.87	60,094,363	5.87	60,094,363	5.87

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Date Analyzed: 10/14/23 17:50

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\101323\1013F038.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2318307-08
Analysis Lot: 820774
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	73,829,386	6.43	76,677,049	6.44	75,668,453	6.44
	Upper Limit ==>	147,658,772	6.93	153,354,098	6.94	151,336,906	6.94
	Lower Limit ==>	36,914,693	5.93	38,338,525	5.94	37,834,227	5.94
Associated Analyses							
Continuing Calibration Verification	KQ2318307-08	68,356,836	6.41	68,356,836	6.41	68,356,836	6.41
Continuing Calibration Verification	KQ2318307-08	68,027,821	6.41	68,027,821	6.41	68,027,821	6.41
Continuing Calibration Verification	KQ2318307-08	66,704,011	6.41	66,704,011	6.41	66,704,011	6.41
Continuing Calibration Verification	KQ2318307-08	68,842,344	6.41	68,842,344	6.41	68,842,344	6.41
AOC2-01-2.0	K2310183-016	71,472,807	6.41	71,472,807	6.41	71,472,807	6.41
AOC2-01-4.0	K2310183-017	82,058,327	6.41	82,058,327	6.41	82,058,327	6.41
AOC2-02-2.0	K2310183-019	81,166,304	6.41	81,166,304	6.41	81,166,304	6.41

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Date Analyzed: 10/14/23 17:50

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\101323\1013F038.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2318307-08
Analysis Lot: 820774
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	36,249,909	5.89	35,088,135	5.90	34,585,592	5.90
	Upper Limit ==>	72,499,818	6.39	70,176,270	6.40	69,171,184	6.40
	Lower Limit ==>	18,124,955	5.39	17,544,068	5.40	17,292,796	5.40
Associated Analyses							
Continuing Calibration Verification	KQ2318307-08	53,526,518	5.87	53,526,518	5.87	53,526,518	5.87
Continuing Calibration Verification	KQ2318307-08	53,233,759	5.87	53,233,759	5.87	53,233,759	5.87
Continuing Calibration Verification	KQ2318307-08	52,474,957	5.87	52,474,957	5.87	52,474,957	5.87
Continuing Calibration Verification	KQ2318307-08	54,001,251	5.87	54,001,251	5.87	54,001,251	5.87
AOC2-01-2.0	K2310183-016	55,719,922	5.87	55,719,922	5.87	55,719,922	5.87
AOC2-01-4.0	K2310183-017	64,254,640	5.87	64,254,640	5.87	64,254,640	5.87
AOC2-02-2.0	K2310183-019	63,564,557	5.87	63,564,557	5.87	63,564,557	5.87

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Date Analyzed: 10/18/23 03:10

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\101623\1016F056.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2318519-02
Analysis Lot: 821060
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	73,829,386	6.43	76,677,049	6.44	75,668,453	6.44
	Upper Limit ==>	147,658,772	6.93	153,354,098	6.94	151,336,906	6.94
	Lower Limit ==>	36,914,693	5.93	38,338,525	5.94	37,834,227	5.94
Associated Analyses							
Continuing Calibration Verification	KQ2318519-02	69,341,126	6.41	69,341,126	6.41	69,341,126	6.41
Continuing Calibration Verification	KQ2318519-02	68,550,225	6.41	68,550,225	6.41	68,550,225	6.41
Continuing Calibration Verification	KQ2318519-02	68,419,146	6.41	68,419,146	6.41	68,419,146	6.41
Continuing Calibration Verification	KQ2318519-02	65,904,762	6.41	65,904,762	6.41	65,904,762	6.41
AOC1-03-2.0DL	K2310183-012	63,760,572	6.41	63,760,572	6.41	63,760,572	6.41
AOC1-04-2.0DL	K2310183-014	70,242,661	6.41	70,242,661	6.41	70,242,661	6.41

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Date Analyzed: 10/18/23 03:10

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\101623\1016F056.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2318519-02
Analysis Lot: 821060
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	36,249,909	5.89	35,088,135	5.90	34,585,592	5.90
	Upper Limit ==>	72,499,818	6.39	70,176,270	6.40	69,171,184	6.40
	Lower Limit ==>	18,124,955	5.39	17,544,068	5.40	17,292,796	5.40
Associated Analyses							
Continuing Calibration Verification	KQ2318519-02	52,741,332	5.87	52,741,332	5.87	52,741,332	5.87
Continuing Calibration Verification	KQ2318519-02	52,030,694	5.87	52,030,694	5.87	52,030,694	5.87
Continuing Calibration Verification	KQ2318519-02	51,912,189	5.87	51,912,189	5.87	51,912,189	5.87
Continuing Calibration Verification	KQ2318519-02	49,787,417	5.87	49,787,417	5.87	49,787,417	5.87
AOC1-03-2.0DL	K2310183-012	47,667,912	5.87	47,667,912	5.87	47,667,912	5.87
AOC1-04-2.0DL	K2310183-014	52,501,933	5.87	52,501,933	5.87	52,501,933	5.87

Results flagged with an asterisk (*) indicate values outside control criteria.

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Collected:**	09/06/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
		Date Analyzed:	10/14/23
		Date Extracted:	09/15/23

Duplicate Matrix Spike Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	AOC4-02-2.5	**Units:**	ug/Kg
Lab Code:	K2310183-009	**Basis:**	Dry
Analysis Method:	8081B		
Prep Method:	EPA 3546		

		Matrix Spike KQ2316147-01			Duplicate Matrix Spike KQ2316147-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Aldrin	ND U	14.0	20.8	67	14.4	21.8	66	18-89	3	40
beta-BHC	ND U	14.6	20.8	70	15.4	21.8	71	16-106	5	40
cis-Chlordane	14	25.7	20.8	57	24.4	21.8	48	20-93	5	40
trans-Chlordane	19	27.8	20.8	42	26.3	21.8	33	10-103	6	40
4,4'-DDD	ND U	13.2	20.8	63	15.3	21.8	70	10-180	15	40
4,4'-DDE	0.41 J	14.6	20.8	68	15.2	21.8	68	17-94	4	40
4,4'-DDT	ND U	13.1	20.8	63	13.4	21.8	61	17-104	2	40
Dieldrin	2.2	17.1	20.8	72	17.0	21.8	68	19-88	<1	40
cis-Nonachlor	ND U	19.9	20.8	96	20.4	21.8	94	11-172	3	40
trans-Nonachlor	8.2	20.8 P	20.8	61	20.2 P	21.8	55	30-107	3	40
Oxychlordane	ND U	14.1	20.8	68	14.6	21.8	67	30-99	3	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Collected:**	09/06/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
		Date Analyzed:	10/14/23
		Date Extracted:	09/15/23

Duplicate Matrix Spike Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	AOC4-02-2.5	**Units:**	ug/Kg
Lab Code:	K2310183-009	**Basis:**	Dry
Analysis Method:	8081B		
Prep Method:	EPA 3546		

		Matrix Spike KQ2316147-03			Duplicate Matrix Spike KQ2316147-04					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Toxaphene	ND U	700	835	84	933	991	94	16-114	29	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Collected:**	09/06/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
		Date Analyzed:	10/14/23
		Date Extracted:	09/15/23

Duplicate Matrix Spike Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	AOC4-02-2.5	**Units:**	ug/Kg
Lab Code:	K2310183-009	**Basis:**	Dry
Analysis Method:	8081B		
Prep Method:	EPA 3546		

		Matrix Spike KQ2316147-05			Duplicate Matrix Spike KQ2316147-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
2,4'-DDD	ND U	19.7	23.4	84	17.1	22.0	78	35-109	14	40
2,4'-DDE	ND U	20.7 P	23.4	89	17.8 P	22.0	81	41-99	15	40
2,4'-DDT	ND U	19.3	23.4	83	16.9 P	22.0	77	34-122	14	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Analyzed:**	10/13/23
Sample Matrix:	Soil	**Date Extracted:**	09/15/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Analysis Method:	8081B	**Units:**	ug/Kg
Prep Method:	EPA 3546	**Basis:**	Dry
		Analysis Lot:	820774

Lab Control Sample
KQ2316147-07

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
4,4'-DDD	16.0	25.0	64	10-180
4,4'-DDE	16.0	25.0	64	17-94
4,4'-DDT	17.1	25.0	68	17-104
Aldrin	16.8	25.0	67	18-89
beta-BHC	17.7	25.0	71	16-106
cis-Chlordane	16.9	25.0	67	20-93
cis-Nonachlor	18.7	25.0	75	11-172
Dieldrin	16.5	25.0	66	19-88
Oxychlordane	14.2	25.0	57	30-99
trans-Chlordane	15.2	25.0	61	10-103
trans-Nonachlor	15.9 P	25.0	64	30-107

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Analyzed:**	10/13/23
Sample Matrix:	Soil	**Date Extracted:**	09/15/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Analysis Method:	8081B	**Units:**	ug/Kg
Prep Method:	EPA 3546	**Basis:**	Dry
		Analysis Lot:	820774

Lab Control Sample
KQ2316147-08

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Toxaphene	709	1000	71	16-114

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Analyzed:**	10/13/23
Sample Matrix:	Soil	**Date Extracted:**	09/15/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Analysis Method:	8081B	**Units:**	ug/Kg
Prep Method:	EPA 3546	**Basis:**	Dry
		Analysis Lot:	820774

Lab Control Sample
KQ2316147-09

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
2,4'-DDD	18.7	25.0	75	35-109
2,4'-DDE	16.0	25.0	64	41-99
2,4'-DDT	18.1	25.0	72	34-122

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QA/QC Report

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Analyzed:**	NA
Sample Matrix:	Soil	**Date Extracted:**	

Method Blank Summary
Low Level Organochlorine Pesticides by GC

Sample Name:		**Instrument ID:**	
Lab Code:		**File ID:**	
Analysis Method:	8081B	**Analysis Lot:**	820774
Prep Method:	None		

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Performance Evaluation	KQ2318307-01	J:\GC38\DATA\101323\1013F003.D\	10/13/23 17:45
Performance Evaluation	KQ2318307-04	J:\GC38\DATA\101323\1013F020.D\	10/14/23 05:26
Performance Evaluation	KQ2318307-07	J:\GC38\DATA\101323\1013F037.D\	10/14/23 17:09
Performance Evaluation	KQ2318519-01	J:\GC38\DATA\101623\1016F055.D\	10/18/23 02:29

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Analyzed:**	10/13/23 21:52
Sample Matrix:	Soil	**Date Extracted:**	09/15/23

Method Blank Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	Method Blank	**Instrument ID:**	K-GC-38
Lab Code:	KQ2316147-10	**File ID:**	J:\GC38\DATA\101323\1013F009.D\
Analysis Method:	8081B	**Analysis Lot:**	820774,821060
Prep Method:	EPA 3546	**Extraction Lot:**	426498

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ2316147-07	J:\GC38\DATA\101323\1013F010.D\	10/13/23 22:34
Lab Control Sample	KQ2316147-08	J:\GC38\DATA\101323\1013F011.D\	10/13/23 23:15
Lab Control Sample	KQ2316147-09	J:\GC38\DATA\101323\1013F012.D\	10/13/23 23:57
AOC4-02-2.5MS	KQ2316147-01	J:\GC38\DATA\101323\1013F013.D\	10/14/23 00:38
AOC4-02-2.5DMS	KQ2316147-02	J:\GC38\DATA\101323\1013F014.D\	10/14/23 01:18
AOC4-02-2.5MS	KQ2316147-03	J:\GC38\DATA\101323\1013F015.D\	10/14/23 01:59
AOC4-02-2.5DMS	KQ2316147-04	J:\GC38\DATA\101323\1013F016.D\	10/14/23 02:40
AOC4-02-2.5MS	KQ2316147-05	J:\GC38\DATA\101323\1013F017.D\	10/14/23 03:22
AOC4-02-2.5DMS	KQ2316147-06	J:\GC38\DATA\101323\1013F018.D\	10/14/23 04:03
AOC4-06-5.0	K2310183-001	J:\GC38\DATA\101323\1013F026.D\	10/14/23 09:34
AOC4-07-2.5	K2310183-003	J:\GC38\DATA\101323\1013F027.D\	10/14/23 10:15
AOC4-107-2.5	K2310183-004	J:\GC38\DATA\101323\1013F028.D\	10/14/23 10:57
AOC4-07-5.0	K2310183-005	J:\GC38\DATA\101323\1013F029.D\	10/14/23 11:38
AOC4-08-2.5	K2310183-007	J:\GC38\DATA\101323\1013F030.D\	10/14/23 12:20
AOC4-02-2.5	K2310183-009	J:\GC38\DATA\101323\1013F031.D\	10/14/23 13:01
AOC4-02-4.5	K2310183-010	J:\GC38\DATA\101323\1013F032.D\	10/14/23 13:43
AOC1-03-2.0	K2310183-012	J:\GC38\DATA\101323\1013F033.D\	10/14/23 14:24
AOC1-04-2.0	K2310183-014	J:\GC38\DATA\101323\1013F034.D\	10/14/23 15:05
AOC1-04-4.0	K2310183-015	J:\GC38\DATA\101323\1013F035.D\	10/14/23 15:46
AOC2-01-2.0	K2310183-016	J:\GC38\DATA\101323\1013F043.D\	10/14/23 21:16
AOC2-01-4.0	K2310183-017	J:\GC38\DATA\101323\1013F044.D\	10/14/23 21:58
AOC2-02-2.0	K2310183-019	J:\GC38\DATA\101323\1013F045.D\	10/14/23 22:39
AOC1-03-2.0	K2310183-012	J:\GC38\DATA\101623\1016F066.D\	10/18/23 10:02
AOC1-04-2.0	K2310183-014	J:\GC38\DATA\101623\1016F067.D\	10/18/23 10:43

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Analyzed:**	NA
Sample Matrix:	Soil	**Date Extracted:**	

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Sample Name:		**Instrument ID:**	
Lab Code:		**File ID:**	
Analysis Method:	8081B	**Analysis Lot:**	820774
Prep Method:	None		

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Performance Evaluation	KQ2318307-01	J:\GC38\DATA\101323\1013F003.D\	10/13/23 17:45
Performance Evaluation	KQ2318307-04	J:\GC38\DATA\101323\1013F020.D\	10/14/23 05:26
Performance Evaluation	KQ2318307-07	J:\GC38\DATA\101323\1013F037.D\	10/14/23 17:09
Performance Evaluation	KQ2318519-01	J:\GC38\DATA\101623\1016F055.D\	10/18/23 02:29

Client:	Floyd Snider	**Service Request:**	K2310183
Project:	SmithKem	**Date Analyzed:**	10/13/23 23:57
Sample Matrix:	Soil	**Date Extracted:**	09/15/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	Lab Control Sample	**Instrument ID:**	K-GC-38
Lab Code:	KQ2316147-09	**File ID:**	J:\GC38\DATA\101323\1013F012.D\
Analysis Method:	8081B	**Analysis Lot:**	820774,821060
Prep Method:	EPA 3546	**Extraction Lot:**	426498

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ2316147-10	J:\GC38\DATA\101323\1013F009.D\	10/13/23 21:52
AOC4-02-2.5MS	KQ2316147-01	J:\GC38\DATA\101323\1013F013.D\	10/14/23 00:38
AOC4-02-2.5DMS	KQ2316147-02	J:\GC38\DATA\101323\1013F014.D\	10/14/23 01:18
AOC4-02-2.5MS	KQ2316147-03	J:\GC38\DATA\101323\1013F015.D\	10/14/23 01:59
AOC4-02-2.5DMS	KQ2316147-04	J:\GC38\DATA\101323\1013F016.D\	10/14/23 02:40
AOC4-02-2.5MS	KQ2316147-05	J:\GC38\DATA\101323\1013F017.D\	10/14/23 03:22
AOC4-02-2.5DMS	KQ2316147-06	J:\GC38\DATA\101323\1013F018.D\	10/14/23 04:03
AOC4-06-5.0	K2310183-001	J:\GC38\DATA\101323\1013F026.D\	10/14/23 09:34
AOC4-07-2.5	K2310183-003	J:\GC38\DATA\101323\1013F027.D\	10/14/23 10:15
AOC4-107-2.5	K2310183-004	J:\GC38\DATA\101323\1013F028.D\	10/14/23 10:57
AOC4-07-5.0	K2310183-005	J:\GC38\DATA\101323\1013F029.D\	10/14/23 11:38
AOC4-08-2.5	K2310183-007	J:\GC38\DATA\101323\1013F030.D\	10/14/23 12:20
AOC4-02-2.5	K2310183-009	J:\GC38\DATA\101323\1013F031.D\	10/14/23 13:01
AOC4-02-4.5	K2310183-010	J:\GC38\DATA\101323\1013F032.D\	10/14/23 13:43
AOC1-03-2.0	K2310183-012	J:\GC38\DATA\101323\1013F033.D\	10/14/23 14:24
AOC1-04-2.0	K2310183-014	J:\GC38\DATA\101323\1013F034.D\	10/14/23 15:05
AOC1-04-4.0	K2310183-015	J:\GC38\DATA\101323\1013F035.D\	10/14/23 15:46
AOC2-01-2.0	K2310183-016	J:\GC38\DATA\101323\1013F043.D\	10/14/23 21:16
AOC2-01-4.0	K2310183-017	J:\GC38\DATA\101323\1013F044.D\	10/14/23 21:58
AOC2-02-2.0	K2310183-019	J:\GC38\DATA\101323\1013F045.D\	10/14/23 22:39
AOC1-03-2.0	K2310183-012	J:\GC38\DATA\101623\1016F066.D\	10/18/23 10:02
AOC1-04-2.0	K2310183-014	J:\GC38\DATA\101623\1016F067.D\	10/18/23 10:43

Client: Floyd Snider **Service Request:** K2310183
Project: SmithKem **Calibration Date:** 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558 **Signal ID:** DB XLB
Instrument ID: K-GC-38

#	Lab Code	Sample Name	File Location	Acquisition Date
08	KC2300558-08	24 .2 PPB GCPS9-27G @50X	J:\GC38\DATA\072123ICAL\0721F012.D	07/22/2023 00:03
09	KC2300558-09	24 .5 PPB GCPS9-27G @20X	J:\GC38\DATA\072123ICAL\0721F013.D	07/22/2023 00:48
10	KC2300558-10	24 1 PPB GCPS9-27G @10X	J:\GC38\DATA\072123ICAL\0721F014.D	07/22/2023 01:33
11	KC2300558-11	24 2 PPB GCPS9-27G @5X	J:\GC38\DATA\072123ICAL\0721F015.D	07/22/2023 02:17
12	KC2300558-12	24 5 PPB GCPS9-27G @2X	J:\GC38\DATA\072123ICAL\0721F016.D	07/22/2023 03:02
13	KC2300558-13	24 10 PPB GCPS9-27G	J:\GC38\DATA\072123ICAL\0721F017.D	07/22/2023 03:48
15	KC2300558-15	M/P .2/1 PPB GCPS9-33A @50X	J:\GC38\DATA\072123ICAL\0721F019.D	07/22/2023 05:19
16	KC2300558-16	M/P .5/2.5 PPB GCPS9-33A @20X	J:\GC38\DATA\072123ICAL\0721F020.D	07/22/2023 06:05
17	KC2300558-17	M/P 1/5 PPB GCPS9-33A@10X	J:\GC38\DATA\072123ICAL\0721F021.D	07/22/2023 06:50
18	KC2300558-18	M/P 2/10 PPB GCPS9-33A @5X	J:\GC38\DATA\072123ICAL\0721F022.D	07/22/2023 07:34
19	KC2300558-19	M/P 5/25 PPB GCPS9-33A @2X	J:\GC38\DATA\072123ICAL\0721F023.D	07/22/2023 08:19
20	KC2300558-20	M/P 10/50 PPB GCPS9-33A	J:\GC38\DATA\072123ICAL\0721F024.D	07/22/2023 09:04
21	KC2300558-21	PERTH 100 PPB GSP9-30E	J:\GC38\DATA\072123ICAL\0721F025.D	07/22/2023 09:50
24	KC2300558-24	TOX 10 PPB GCPS9-29E @50X	J:\GC38\DATA\072123ICAL\0721F028.D	07/22/2023 12:06
25	KC2300558-25	TOX 25 PPB GCPS9-29E @20X	J:\GC38\DATA\072123ICAL\0721F029.D	07/22/2023 12:51
26	KC2300558-26	TOX 50 PPB GCPS9-29E @10X	J:\GC38\DATA\072123ICAL\0721F030.D	07/22/2023 13:37
27	KC2300558-27	TOX 100 PPB GCPS9-29E @5X	J:\GC38\DATA\072123ICAL\0721F031.D	07/22/2023 14:22
28	KC2300558-28	TOX 250 PPB GCPS9-29E @2X	J:\GC38\DATA\072123ICAL\0721F032.D	07/22/2023 15:08
29	KC2300558-29	TOX 500 PPB GCPS9-29E	J:\GC38\DATA\072123ICAL\0721F033.D	07/22/2023 15:54
31	KC2300558-31	CHLOR 2 PPB GCPS9-34D @100X	J:\GC38\DATA\072123ICAL\0721F035.D	07/22/2023 17:25
32	KC2300558-32	CHLOR 5 PPB GCPS9-34D @40X	J:\GC38\DATA\072123ICAL\0721F036.D	07/22/2023 18:11
33	KC2300558-33	CHLOR 10 PPB GCPS9-34D @20X	J:\GC38\DATA\072123ICAL\0721F037.D	07/22/2023 18:57
34	KC2300558-34	CHLOR 20 PPB GCPS9-34D @10X	J:\GC38\DATA\072123ICAL\0721F038.D	07/22/2023 19:43
35	KC2300558-35	CHLOR 50 PPB GCPS9-34D @4X	J:\GC38\DATA\072123ICAL\0721F039.D	07/22/2023 20:28
36	KC2300558-36	CHLOR 100 PPB GCPS9-34D @2X	J:\GC38\DATA\072123ICAL\0721F040.D	07/22/2023 21:14
37	KC2300558-37	CHLOR 200 PPB GCPS9-34D	J:\GC38\DATA\072123ICAL\0721F041.D	07/22/2023 21:59
01	KC2300558-01	8081 .2 PPB GCPS9-38C @50X	J:\GC38\DATA\092523\0925F008.D	09/25/2023 16:31
02	KC2300558-02	8081 .5 PPB GCPS9-38C@20X	J:\GC38\DATA\092523\0925F009.D	09/25/2023 17:12
03	KC2300558-03	8081 1 PPB GCPS9-38C @10X	J:\GC38\DATA\092523\0925F010.D	09/25/2023 17:54
04	KC2300558-04	8081 2 PPB GCPS9-38C@5X	J:\GC38\DATA\092523\0925F011.D	09/25/2023 18:35
05	KC2300558-05	8081 5 PPB GCPS9-38C @2X	J:\GC38\DATA\092523\0925F012.D	09/25/2023 19:17
06	KC2300558-06	8081 10 PPB GCPS9-38C	J:\GC38\DATA\092523\0925F013.D	09/25/2023 19:58

Analyte

2,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	0.698	09	0.500	0.6697	10	1.000	0.621	11	2.000	0.6061
12	5.000	0.585	13	10.000	0.5571						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB XLB

Analyte

2,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	1.045	09	0.500	0.8357	10	1.000	0.7712	11	2.000	0.7237
12	5.000	0.6848	13	10.000	0.6543						

2,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	0.8021	09	0.500	0.7347	10	1.000	0.6775	11	2.000	0.6494
12	5.000	0.6344	13	10.000	0.6101						

4,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.8654	02	0.500	0.8605	03	1.000	0.8406	04	2.000	0.8503
05	5.000	0.8122	06	10.000	0.8601						

4,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.108	02	0.500	1.153	03	1.000	1.096	04	2.000	1.106
05	5.000	1.056	06	10.000	1.069						

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.6987	02	0.500	0.7168	03	1.000	0.6876	04	2.000	0.7525
05	5.000	0.7258	06	10.000	0.7471						

Aldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.252	02	0.500	1.26	03	1.000	1.172	04	2.000	1.171
05	5.000	1.123	06	10.000	1.148						

Decachlorobiphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.273	02	0.500	1.305	03	1.000	1.232	04	2.000	1.257
05	5.000	1.118	06	10.000	1.059						

Dieldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.138	02	0.500	1.153	03	1.000	1.087	04	2.000	1.107
05	5.000	1.041	06	10.000	1.053						

Oxychlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.335	16	0.500	1.255	17	1.000	1.428	18	2.000	1.103
19	5.000	1.08	20	10.000	1.009						

Tetrachloro-m-xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.438	02	0.500	1.496	03	1.000	1.391	04	2.000	1.411
05	5.000	1.305	06	10.000	1.308						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB XLB

Analyte

Toxaphene {1}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.008207	25	25.000	0.00774	26	50.000	0.007891	27	100.000	0.008052
28	250.000	0.007785	29	500.000	0.007234						

Toxaphene {2}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.007719	25	25.000	0.007011	26	50.000	0.006153	27	100.000	0.007946
28	250.000	0.005349	29	500.000	0.004933						

Toxaphene {3}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01009	25	25.000	0.01271	26	50.000	0.01197	27	100.000	0.01102
28	250.000	0.01028	29	500.000	0.01025						

Toxaphene {4}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01461	25	25.000	0.01391	26	50.000	0.01364	27	100.000	0.01356
28	250.000	0.01245	29	500.000	0.01183						

Toxaphene {5}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01706	25	25.000	0.01666	26	50.000	0.01741	27	100.000	0.01663
28	250.000	0.01569	29	500.000	0.01599						

Toxaphene {6}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.02109	25	25.000	0.02031	26	50.000	0.01826	27	100.000	0.01791
28	250.000	0.01688	29	500.000	0.01635						

beta-BHC

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.02	02	0.500	0.8943	03	1.000	0.7489	04	2.000	0.716
05	5.000	0.6344	06	10.000	0.6179						

cis-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.424	02	0.500	1.279	03	1.000	1.19	04	2.000	1.186
05	5.000	1.106	06	10.000	1.087						

cis-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.503	16	0.500	1.324	17	1.000	1.293	18	2.000	1.151
19	5.000	1.155	20	10.000	1.101						

trans-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.238	02	0.500	1.266	03	1.000	1.177	04	2.000	1.172
05	5.000	1.094	06	10.000	1.094						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB XLB

Analyte

trans-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.497	16	0.500	1.301	17	1.000	1.225	18	2.000	1.157
19	5.000	1.105	20	10.000	1.049						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB XLB

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	8.5	≤20	0.6228	
2,4'-DDE	TRG	Average RF	% RSD	18.1	≤20	0.7857	
2,4'-DDT	TRG	Average RF	% RSD	10.5	≤20	0.6847	
4,4'-DDD	TRG	Average RF	% RSD	2.3	≤20	0.8482	
4,4'-DDE	TRG	Average RF	% RSD	3.1	≤20	1.098	
4,4'-DDT	TRG	Average RF	% RSD	3.6	≤20	0.7214	
Aldrin	TRG	Average RF	% RSD	4.7	≤20	1.188	
Decachlorobiphenyl	SURR	Average RF	% RSD	8.0	≤20	1.207	
Dieldrin	TRG	Average RF	% RSD	4.1	≤20	1.097	
Oxychlordane	TRG	Average RF	% RSD	13.6	≤20	1.202	
Tetrachloro-m-xylene	SURR	Average RF	% RSD	5.4	≤20	1.391	
Toxaphene {1}	MULTI	Average RF	% RSD	4.3	≤20	0.007818	
Toxaphene {2}	MULTI	Average RF	% RSD	19.1	≤20	0.006518	
Toxaphene {3}	MULTI	Average RF	% RSD	9.7	≤20	0.01105	
Toxaphene {4}	MULTI	Average RF	% RSD	7.6	≤20	0.01333	
Toxaphene {5}	MULTI	Average RF	% RSD	3.9	≤20	0.01657	
Toxaphene {6}	MULTI	Average RF	% RSD	10.2	≤20	0.01847	
beta-BHC	TRG	Quadratic	COD	0.9997	≥0.990	0.7719	
cis-Chlordane	TRG	Average RF	% RSD	10.2	≤20	1.212	
cis-Nonachlor	TRG	Average RF	% RSD	11.9	≤20	1.255	
trans-Chlordane	TRG	Average RF	% RSD	6.1	≤20	1.173	
trans-Nonachlor	TRG	Average RF	% RSD	13.2	≤20	1.222	

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

#	Lab Code	Sample Name	File Location	Acquisition Date
08	KC2300558-08	24 .2 PPB GCPS9-27G @50X	J:\GC38\DATA\072123ICAL\0721F012.D	07/22/2023 00:03
09	KC2300558-09	24 .5 PPB GCPS9-27G @20X	J:\GC38\DATA\072123ICAL\0721F013.D	07/22/2023 00:48
10	KC2300558-10	24 1 PPB GCPS9-27G @10X	J:\GC38\DATA\072123ICAL\0721F014.D	07/22/2023 01:33
11	KC2300558-11	24 2 PPB GCPS9-27G @5X	J:\GC38\DATA\072123ICAL\0721F015.D	07/22/2023 02:17
12	KC2300558-12	24 5 PPB GCPS9-27G @2X	J:\GC38\DATA\072123ICAL\0721F016.D	07/22/2023 03:02
13	KC2300558-13	24 10 PPB GCPS9-27G	J:\GC38\DATA\072123ICAL\0721F017.D	07/22/2023 03:48
15	KC2300558-15	M/P .2/1 PPB GCPS9-33A @50X	J:\GC38\DATA\072123ICAL\0721F019.D	07/22/2023 05:19
16	KC2300558-16	M/P .5/2.5 PPB GCPS9-33A @20X	J:\GC38\DATA\072123ICAL\0721F020.D	07/22/2023 06:05
17	KC2300558-17	M/P 1/5 PPB GCPS9-33A@10X	J:\GC38\DATA\072123ICAL\0721F021.D	07/22/2023 06:50
18	KC2300558-18	M/P 2/10 PPB GCPS9-33A @5X	J:\GC38\DATA\072123ICAL\0721F022.D	07/22/2023 07:34
19	KC2300558-19	M/P 5/25 PPB GCPS9-33A @2X	J:\GC38\DATA\072123ICAL\0721F023.D	07/22/2023 08:19
20	KC2300558-20	M/P 10/50 PPB GCPS9-33A	J:\GC38\DATA\072123ICAL\0721F024.D	07/22/2023 09:04
21	KC2300558-21	PERTH 100 PPB GSP9-30E	J:\GC38\DATA\072123ICAL\0721F025.D	07/22/2023 09:50
24	KC2300558-24	TOX 10 PPB GCPS9-29E @50X	J:\GC38\DATA\072123ICAL\0721F028.D	07/22/2023 12:06
25	KC2300558-25	TOX 25 PPB GCPS9-29E @20X	J:\GC38\DATA\072123ICAL\0721F029.D	07/22/2023 12:51
26	KC2300558-26	TOX 50 PPB GCPS9-29E @10X	J:\GC38\DATA\072123ICAL\0721F030.D	07/22/2023 13:37
27	KC2300558-27	TOX 100 PPB GCPS9-29E @5X	J:\GC38\DATA\072123ICAL\0721F031.D	07/22/2023 14:22
28	KC2300558-28	TOX 250 PPB GCPS9-29E @2X	J:\GC38\DATA\072123ICAL\0721F032.D	07/22/2023 15:08
29	KC2300558-29	TOX 500 PPB GCPS9-29E	J:\GC38\DATA\072123ICAL\0721F033.D	07/22/2023 15:54
31	KC2300558-31	CHLOR 2 PPB GCPS9-34D @100X	J:\GC38\DATA\072123ICAL\0721F035.D	07/22/2023 17:25
32	KC2300558-32	CHLOR 5 PPB GCPS9-34D @40X	J:\GC38\DATA\072123ICAL\0721F036.D	07/22/2023 18:11
33	KC2300558-33	CHLOR 10 PPB GCPS9-34D @20X	J:\GC38\DATA\072123ICAL\0721F037.D	07/22/2023 18:57
34	KC2300558-34	CHLOR 20 PPB GCPS9-34D @10X	J:\GC38\DATA\072123ICAL\0721F038.D	07/22/2023 19:43
35	KC2300558-35	CHLOR 50 PPB GCPS9-34D @4X	J:\GC38\DATA\072123ICAL\0721F039.D	07/22/2023 20:28
36	KC2300558-36	CHLOR 100 PPB GCPS9-34D @2X	J:\GC38\DATA\072123ICAL\0721F040.D	07/22/2023 21:14
37	KC2300558-37	CHLOR 200 PPB GCPS9-34D	J:\GC38\DATA\072123ICAL\0721F041.D	07/22/2023 21:59
01	KC2300558-01	8081 .2 PPB GCPS9-38C @50X	J:\GC38\DATA\092523\0925F008.D	09/25/2023 16:31
02	KC2300558-02	8081 .5 PPB GCPS9-38C@20X	J:\GC38\DATA\092523\0925F009.D	09/25/2023 17:12
03	KC2300558-03	8081 1 PPB GCPS9-38C @10X	J:\GC38\DATA\092523\0925F010.D	09/25/2023 17:54
04	KC2300558-04	8081 2 PPB GCPS9-38C@5X	J:\GC38\DATA\092523\0925F011.D	09/25/2023 18:35
05	KC2300558-05	8081 5 PPB GCPS9-38C @2X	J:\GC38\DATA\092523\0925F012.D	09/25/2023 19:17
06	KC2300558-06	8081 10 PPB GCPS9-38C	J:\GC38\DATA\092523\0925F013.D	09/25/2023 19:58

Analyte

2,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	0.6367	09	0.500	0.6481	10	1.000	0.6173	11	2.000	0.6254
12	5.000	0.6207	13	10.000	0.5908						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

Analyte

2,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	1.218	09	0.500	0.9887	10	1.000	0.8944	11	2.000	0.8766
12	5.000	0.8416	13	10.000	0.7926						

2,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	0.8004	09	0.500	0.742	10	1.000	0.6857	11	2.000	0.6872
12	5.000	0.6657	13	10.000	0.6335						

4,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.6998	02	0.500	0.7666	03	1.000	0.7179	04	2.000	0.7734
05	5.000	0.767	06	10.000	0.7788						

4,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.092	02	0.500	1.103	03	1.000	1.056	04	2.000	1.11
05	5.000	1.078	06	10.000	1.082						

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.652	02	0.500	0.7295	03	1.000	0.6919	04	2.000	0.7718
05	5.000	0.7854	06	10.000	0.7974						

Aldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.144	02	0.500	1.18	03	1.000	1.092	04	2.000	1.167
05	5.000	1.124	06	10.000	1.146						

Decachlorobiphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.486	02	0.500	1.484	03	1.000	1.397	04	2.000	1.425
05	5.000	1.282	06	10.000	1.192						

Dieldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.218	02	0.500	1.112	03	1.000	1.021	04	2.000	1.082
05	5.000	1.065	06	10.000	1.048						

Oxychlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.334	16	0.500	1.219	17	1.000	1.327	18	2.000	1.162
19	5.000	1.162	20	10.000	1.068						

Tetrachloro-m-xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.431	02	0.500	1.44	03	1.000	1.317	04	2.000	1.369
05	5.000	1.266	06	10.000	1.272						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

Analyte

Toxaphene {1}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.0225	25	25.000	0.02183	26	50.000	0.02111	27	100.000	0.02184
28	250.000	0.02031	29	500.000	0.01977						

Toxaphene {2}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01439	25	25.000	0.01426	26	50.000	0.01486	27	100.000	0.01778
28	250.000	0.0138	29	500.000	0.01374						

Toxaphene {3}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.02047	25	25.000	0.02012	26	50.000	0.02108	27	100.000	0.02258
28	250.000	0.02085	29	500.000	0.0205						

Toxaphene {4}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01299	25	25.000	0.01518	26	50.000	0.01477	27	100.000	0.01464
28	250.000	0.01414	29	500.000	0.01422						

Toxaphene {5}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.02252	25	25.000	0.02798	26	50.000	0.02609	27	100.000	0.02517
28	250.000	0.02539	29	500.000	0.02503						

Toxaphene {6}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.004329	25	25.000	0.006344	26	50.000	0.006614	27	100.000	0.006822
28	250.000	0.006606	29	500.000	0.006504						

beta-BHC

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.7744	02	0.500	0.7237	03	1.000	0.6802	04	2.000	0.6875
05	5.000	0.6635	06	10.000	0.6553						

cis-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.156	02	0.500	1.195	03	1.000	1.154	04	2.000	1.181
05	5.000	1.112	06	10.000	1.111						

cis-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.517	16	0.500	1.494	17	1.000	1.412	18	2.000	1.308
19	5.000	1.314	20	10.000	1.225						

trans-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.341	02	0.500	1.26	03	1.000	1.114	04	2.000	1.18
05	5.000	1.114	06	10.000	1.117						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

Analyte

trans-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.578	16	0.500	1.417	17	1.000	1.378	18	2.000	1.253
19	5.000	1.252	20	10.000	1.163						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	3.1	≤20	0.6231	
2,4'-DDE	TRG	Average RF	% RSD	16.4	≤20	0.9353	
2,4'-DDT	TRG	Average RF	% RSD	8.5	≤20	0.7024	
4,4'-DDD	TRG	Average RF	% RSD	4.4	≤20	0.7506	
4,4'-DDE	TRG	Average RF	% RSD	1.8	≤20	1.087	
4,4'-DDT	TRG	Average RF	% RSD	7.8	≤20	0.738	
Aldrin	TRG	Average RF	% RSD	2.7	≤20	1.142	
Decachlorobiphenyl	SURR	Average RF	% RSD	8.5	≤20	1.378	
Dieldrin	TRG	Average RF	% RSD	6.4	≤20	1.091	
Oxychlordane	TRG	Average RF	% RSD	8.6	≤20	1.212	
Tetrachloro-m-xylene	SURR	Average RF	% RSD	5.7	≤20	1.349	
Toxaphene {1}	MULTI	Average RF	% RSD	4.9	≤20	0.02123	
Toxaphene {2}	MULTI	Average RF	% RSD	10.2	≤20	0.01481	
Toxaphene {3}	MULTI	Average RF	% RSD	4.2	≤20	0.02093	
Toxaphene {4}	MULTI	Average RF	% RSD	5.3	≤20	0.01432	
Toxaphene {5}	MULTI	Average RF	% RSD	7.0	≤20	0.02536	
Toxaphene {6}	MULTI	Average RF	% RSD	15.0	≤20	0.006203	
beta-BHC	TRG	Average RF	% RSD	6.4	≤20	0.6974	
cis-Chlordane	TRG	Average RF	% RSD	3.0	≤20	1.152	
cis-Nonachlor	TRG	Average RF	% RSD	8.3	≤20	1.378	
trans-Chlordane	TRG	Average RF	% RSD	8.0	≤20	1.188	
trans-Nonachlor	TRG	Average RF	% RSD	11.1	≤20	1.34	

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Calibration Date: 7/22/2023

Initial Calibration Verification Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB XLB

#	Lab Code	Sample Name	File Location	Acquisition Date
14	KC2300558-14	24 ICV 2 PPB GCPS9-27I	J:\GC38\DATA\072123ICAL\0721F018.D	07/22/2023 04:33
22	KC2300558-22	PERTH ICV 25 PPB GSP9-30I	J:\GC38\DATA\072123ICAL\0721F026.D	07/22/2023 10:36
23	KC2300558-23	MISC ICV 2 PPB GCPS9-30G	J:\GC38\DATA\072123ICAL\0721F027.D	07/22/2023 11:21
30	KC2300558-30	TOX ICV 100 PPB GCPS9-22H @5X	J:\GC38\DATA\072123ICAL\0721F034.D	07/22/2023 16:39
38	KC2300558-38	CHLOR ICV 50 PPB GCPS9-24H	J:\GC38\DATA\072123ICAL\0721F042.D	07/22/2023 22:44
39	KC2300558-39	TOX ICV 100 PPB GCPS9-22H @5X	J:\GC38\DATA\072423\0724F009.D	07/25/2023 01:24
40	KC2300558-40	PERTH ICV 25 PPB GSP9-24F	J:\GC38\DATA\072523\0725F007.D	07/25/2023 21:01
07	KC2300558-07	8081 ICV 2 PPB GCPS9-32H	J:\GC38\DATA\092523\0925F014.D	09/25/2023 20:39

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Aldrin	2.00	1.99	1.188E0	1.182E0	-0.503	±20	Average RF
beta-BHC	2.00	2.14	7.719E-1	7.306E-1	7.23	±20	Quadratic
cis-Chlordane	2.00	2.00	1.212E0	1.215E0	0.231	±20	Average RF
trans-Chlordane	2.00	2.04	1.173E0	1.197E0	2.00	±20	Average RF
2,4'-DDD	2.00	2.02	6.228E-1	6.297E-1	1.11	±20	Average RF
4,4'-DDD	2.00	2.01	8.482E-1	8.537E-1	0.647	±20	Average RF
2,4'-DDE	2.00	1.90	7.857E-1	7.465E-1	-4.998	±20	Average RF
4,4'-DDE	2.00	2.06	1.098E0	1.131E0	3.01	±20	Average RF
2,4'-DDT	2.00	1.99	6.847E-1	6.819E-1	-0.413	±20	Average RF
4,4'-DDT	2.00	1.90	7.214E-1	6.861E-1	-4.900	±20	Average RF
Dieldrin	2.00	1.96	1.097E0	1.073E0	-2.155	±20	Average RF
cis-Nonachlor	2.00	1.70	1.255E0	1.066E0	-15.045	±20	Average RF
trans-Nonachlor	2.00	1.82	1.222E0	1.11E0	-9.211	±20	Average RF
Oxychlordane	2.00	1.80	1.202E0	1.083E0	-9.848	±20	Average RF
Toxaphene	100	102			1.61	±20	NA

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Toxaphene {1}	100	109	7.818E-3	8.531E-3	9.11	±100	Average RF
Toxaphene {2}	100	89.2	6.518E-3	5.814E-3	-10.811	±100	Average RF
Toxaphene {3}	100	105	1.105E-2	1.16E-2	4.94	±100	Average RF
Toxaphene {4}	100	103	1.333E-2	1.367E-2	2.53	±100	Average RF
Toxaphene {5}	100	104	1.657E-2	1.722E-2	3.90	±100	Average RF
Toxaphene {6}	100	100	1.847E-2	1.847E-2	-0.013	±100	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Calibration Date: 7/22/2023

Initial Calibration Verification Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

#	Lab Code	Sample Name	File Location	Acquisition Date
14	KC2300558-14	24 ICV 2 PPB GCPS9-27I	J:\GC38\DATA\072123ICAL\0721F018.D	07/22/2023 04:33
22	KC2300558-22	PERTH ICV 25 PPB GSP9-30I	J:\GC38\DATA\072123ICAL\0721F026.D	07/22/2023 10:36
23	KC2300558-23	MISC ICV 2 PPB GCPS9-30G	J:\GC38\DATA\072123ICAL\0721F027.D	07/22/2023 11:21
30	KC2300558-30	TOX ICV 100 PPB GCPS9-22H @5X	J:\GC38\DATA\072123ICAL\0721F034.D	07/22/2023 16:39
38	KC2300558-38	CHLOR ICV 50 PPB GCPS9-24H	J:\GC38\DATA\072123ICAL\0721F042.D	07/22/2023 22:44
39	KC2300558-39	TOX ICV 100 PPB GCPS9-22H @5X	J:\GC38\DATA\072423\0724F009.D	07/25/2023 01:24
40	KC2300558-40	PERTH ICV 25 PPB GSP9-24F	J:\GC38\DATA\072523\0725F007.D	07/25/2023 21:01
07	KC2300558-07	8081 ICV 2 PPB GCPS9-32H	J:\GC38\DATA\092523\0925F014.D	09/25/2023 20:39

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Aldrin	2.00	2.05	1.142E0	1.173E0	2.66	±20	Average RF
beta-BHC	2.00	2.03	6.974E-1	7.083E-1	1.56	±20	Average RF
cis-Chlordane	2.00	2.10	1.152E0	1.209E0	4.96	±20	Average RF
trans-Chlordane	2.00	2.01	1.188E0	1.193E0	0.489	±20	Average RF
2,4'-DDD	2.00	2.05	6.231E-1	6.396E-1	2.64	±20	Average RF
4,4'-DDD	2.00	2.13	7.506E-1	7.986E-1	6.39	±20	Average RF
2,4'-DDE	2.00	1.92	9.353E-1	8.995E-1	-3.836	±20	Average RF
4,4'-DDE	2.00	2.06	1.087E0	1.119E0	2.96	±20	Average RF
2,4'-DDT	2.00	1.98	7.024E-1	6.94E-1	-1.192	±20	Average RF
4,4'-DDT	2.00	1.99	7.38E-1	7.326E-1	-0.722	±20	Average RF
Dieldrin	2.00	1.92	1.091E0	1.049E0	-3.879	±20	Average RF
cis-Nonachlor	2.00	1.79	1.378E0	1.23E0	-10.745	±20	Average RF
trans-Nonachlor	2.00	1.86	1.34E0	1.243E0	-7.225	±20	Average RF
Oxychlordane	2.00	1.89	1.212E0	1.143E0	-5.677	±20	Average RF
Toxaphene	100	109			8.68	±20	NA

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Toxaphene {1}	100	105	2.123E-2	2.229E-2	5.02	±100	Average RF
Toxaphene {2}	100	109	1.481E-2	1.607E-2	8.53	±100	Average RF
Toxaphene {3}	100	106	2.093E-2	2.211E-2	5.61	±100	Average RF
Toxaphene {4}	100	108	1.432E-2	1.554E-2	8.46	±100	Average RF
Toxaphene {5}	100	108	2.536E-2	2.746E-2	8.29	±100	Average RF
Toxaphene {6}	100	116	6.203E-3	7.205E-3	16.15	±100	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Date Analyzed: 10/13/23 18:26

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\101323\1013F004.D\
Signal ID: DB-35MS

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 820774
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.24	1.1423	1.2788	12.0	NA	±20	Average RF
beta-BHC	2.00	2.13	0.6974	0.7425	6.5	NA	±20	Average RF
cis-Chlordane	2.00	2.12	1.1517	1.2226	6.2	NA	±20	Average RF
trans-Chlordane	2.00	2.05	1.1876	1.2188	2.6	NA	±20	Average RF
2,4'-DDD	2.00	1.98	0.6231	0.6182	-0.8	NA	±20	Average RF
4,4'-DDD	2.00	2.30	0.7506	0.8629	15.0	NA	±20	Average RF
2,4'-DDE	2.00	1.75	0.9353	0.8188	-12.5	NA	±20	Average RF
4,4'-DDE	2.00	2.15	1.0867	1.1698	7.6	NA	±20	Average RF
2,4'-DDT	2.00	1.79	0.7024	0.6282	-10.6	NA	±20	Average RF
4,4'-DDT	2.00	2.02	0.738	0.7468	1.2	NA	±20	Average RF
Dieldrin	2.00	2.08	1.0912	1.1332	3.8	NA	±20	Average RF
cis-Nonachlor	2.00	2.26	1.3783	1.5554	12.8	NA	±20	Average RF
trans-Nonachlor	2.00	2.03	1.3402	1.3606	1.5	NA	±20	Average RF
Oxychlordane	2.00	2.10	1.2122	1.275	5.2	NA	±20	Average RF
Toxaphene	100	105	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	97.5	0.0212	0.0207	-2.5	NA	±100	Average RF
Toxaphene {2}	100	103	0.0148	0.0152	2.6	NA	±100	Average RF
Toxaphene {3}	100	109	0.0209	0.0228	9.1	NA	±100	Average RF
Toxaphene {4}	100	108	0.0143	0.0155	8.0	NA	±100	Average RF
Toxaphene {5}	100	113	0.0254	0.0287	13.1	NA	±100	Average RF
Toxaphene {6}	100	102	0.0062	0.0063	1.7	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.07	1.3777	1.4237	3.3	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	2.05	1.3493	1.3828	2.5	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Date Analyzed: 10/13/23 18:26

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\101323\1013F004.D\
Signal ID: DB XLB

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 820774
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.30	1.1876	1.3652	14.9	NA	±20	Average RF
beta-BHC	2.00	2.17	0.7719	0.7383	NA	8.5	±20	Quadratic
cis-Chlordane	2.00	2.17	1.2121	1.3129	8.3	NA	±20	Average RF
trans-Chlordane	2.00	2.20	1.1734	1.2912	10.0	NA	±20	Average RF
2,4'-DDD	2.00	2.13	0.6228	0.6622	6.3	NA	±20	Average RF
4,4'-DDD	2.00	2.19	0.8482	0.9282	9.4	NA	±20	Average RF
2,4'-DDE	2.00	2.26	0.7857	0.886	12.8	NA	±20	Average RF
4,4'-DDE	2.00	2.31	1.0981	1.2659	15.3	NA	±20	Average RF
2,4'-DDT	2.00	1.71	0.6847	0.5868	-14.3	NA	±20	Average RF
4,4'-DDT	2.00	1.95	0.7214	0.7044	-2.4	NA	±20	Average RF
Dieldrin	2.00	2.25	1.0966	1.2354	12.7	NA	±20	Average RF
cis-Nonachlor	2.00	2.58	1.2545	1.6155	28.8*	NA	±20	Average RF
trans-Nonachlor	2.00	2.34	1.2224	1.4309	17.1	NA	±20	Average RF
Oxychlordane	2.00	2.23	1.2018	1.3389	11.4	NA	±20	Average RF
Toxaphene	100	110	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	113	0.0078	0.0088	12.5	NA	±100	Average RF
Toxaphene {2}	100	100	0.0065	0.0065	0.4	NA	±100	Average RF
Toxaphene {3}	100	114	0.0111	0.0126	13.7	NA	±100	Average RF
Toxaphene {4}	100	110	0.0133	0.0147	9.9	NA	±100	Average RF
Toxaphene {5}	100	109	0.0166	0.018	8.9	NA	±100	Average RF
Toxaphene {6}	100	113	0.0185	0.0208	12.5	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.29	1.2072	1.3815	14.4	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	2.17	1.3913	1.5071	8.3	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Date Analyzed: 10/14/23 06:07

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\101323\1013F021.D\
Signal ID: DB-35MS

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 820774
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.23	1.1423	1.2723	11.4	NA	±20	Average RF
beta-BHC	2.00	2.13	0.6974	0.7409	6.2	NA	±20	Average RF
cis-Chlordane	2.00	2.12	1.1517	1.2195	5.9	NA	±20	Average RF
trans-Chlordane	2.00	2.04	1.1876	1.2108	2.0	NA	±20	Average RF
2,4'-DDD	2.00	1.96	0.6231	0.6098	-2.1	NA	±20	Average RF
4,4'-DDD	2.00	2.25	0.7506	0.846	12.7	NA	±20	Average RF
2,4'-DDE	2.00	1.75	0.9353	0.8161	-12.8	NA	±20	Average RF
4,4'-DDE	2.00	2.21	1.0867	1.2018	10.6	NA	±20	Average RF
2,4'-DDT	2.00	1.67	0.7024	0.5857	-16.6	NA	±20	Average RF
4,4'-DDT	2.00	1.95	0.738	0.7189	-2.6	NA	±20	Average RF
Dieldrin	2.00	2.11	1.0912	1.15	5.4	NA	±20	Average RF
cis-Nonachlor	2.00	2.22	1.3783	1.5309	11.1	NA	±20	Average RF
trans-Nonachlor	2.00	2.01	1.3402	1.3488	0.6	NA	±20	Average RF
Oxychlordane	2.00	2.09	1.2122	1.2677	4.6	NA	±20	Average RF
Toxaphene	100	104	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	97.4	0.0212	0.0207	-2.6	NA	±100	Average RF
Toxaphene {2}	100	100	0.0148	0.0149	0.4	NA	±100	Average RF
Toxaphene {3}	100	106	0.0209	0.0221	5.8	NA	±100	Average RF
Toxaphene {4}	100	109	0.0143	0.0157	9.4	NA	±100	Average RF
Toxaphene {5}	100	104	0.0254	0.0265	4.4	NA	±100	Average RF
Toxaphene {6}	100	106	0.0062	0.0066	5.9	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.13	1.3777	1.4666	6.5	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	2.04	1.3493	1.3756	2.0	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Date Analyzed: 10/14/23 06:07

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\101323\1013F021.D\
Signal ID: DB XLB

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 820774
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.27	1.1876	1.3457	13.3	NA	±20	Average RF
beta-BHC	2.00	2.15	0.7719	0.7331	NA	7.7	±20	Quadratic
cis-Chlordane	2.00	2.13	1.2121	1.2877	6.2	NA	±20	Average RF
trans-Chlordane	2.00	2.15	1.1734	1.2626	7.6	NA	±20	Average RF
2,4'-DDD	2.00	2.09	0.6228	0.6514	4.6	NA	±20	Average RF
4,4'-DDD	2.00	2.11	0.8482	0.8937	5.4	NA	±20	Average RF
2,4'-DDE	2.00	2.22	0.7857	0.8737	11.2	NA	±20	Average RF
4,4'-DDE	2.00	2.26	1.0981	1.2391	12.8	NA	±20	Average RF
2,4'-DDT	2.00	1.65	0.6847	0.5653	-17.4	NA	±20	Average RF
4,4'-DDT	2.00	1.84	0.7214	0.6619	-8.2	NA	±20	Average RF
Dieldrin	2.00	2.26	1.0966	1.2378	12.9	NA	±20	Average RF
cis-Nonachlor	2.00	2.52	1.2545	1.5783	25.8*	NA	±20	Average RF
trans-Nonachlor	2.00	2.33	1.2224	1.4252	16.6	NA	±20	Average RF
Oxychlordane	2.00	2.20	1.2018	1.3189	9.8	NA	±20	Average RF
Toxaphene	100	109	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	110	0.0078	0.0086	10.4	NA	±100	Average RF
Toxaphene {2}	100	103	0.0065	0.0067	3.4	NA	±100	Average RF
Toxaphene {3}	100	120	0.0111	0.0132	19.8	NA	±100	Average RF
Toxaphene {4}	100	102	0.0133	0.0136	1.6	NA	±100	Average RF
Toxaphene {5}	100	113	0.0166	0.0187	12.6	NA	±100	Average RF
Toxaphene {6}	100	106	0.0185	0.0196	6.1	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.30	1.2072	1.3853	14.7	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	2.10	1.3913	1.4626	5.1	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Date Analyzed: 10/14/23 17:50

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\101323\1013F038.D\
Signal ID: DB-35MS

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 820774
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.20	1.1423	1.2581	10.1	NA	±20	Average RF
beta-BHC	2.00	2.10	0.6974	0.732	5.0	NA	±20	Average RF
cis-Chlordane	2.00	2.09	1.1517	1.2027	4.4	NA	±20	Average RF
trans-Chlordane	2.00	2.02	1.1876	1.1972	0.8	NA	±20	Average RF
2,4'-DDD	2.00	1.98	0.6231	0.6175	-0.9	NA	±20	Average RF
4,4'-DDD	2.00	2.20	0.7506	0.8262	10.1	NA	±20	Average RF
2,4'-DDE	2.00	1.73	0.9353	0.8075	-13.7	NA	±20	Average RF
4,4'-DDE	2.00	2.10	1.0867	1.1431	5.2	NA	±20	Average RF
2,4'-DDT	2.00	1.63	0.7024	0.5712	-18.7	NA	±20	Average RF
4,4'-DDT	2.00	1.93	0.738	0.7112	-3.6	NA	±20	Average RF
Dieldrin	2.00	2.12	1.0912	1.1545	5.8	NA	±20	Average RF
cis-Nonachlor	2.00	2.17	1.3783	1.498	8.7	NA	±20	Average RF
trans-Nonachlor	2.00	1.99	1.3402	1.3343	-0.4	NA	±20	Average RF
Oxychlordane	2.00	2.06	1.2122	1.249	3.0	NA	±20	Average RF
Toxaphene	100	105	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	96.6	0.0212	0.0205	-3.4	NA	±100	Average RF
Toxaphene {2}	100	102	0.0148	0.0151	1.7	NA	±100	Average RF
Toxaphene {3}	100	106	0.0209	0.0222	5.9	NA	±100	Average RF
Toxaphene {4}	100	108	0.0143	0.0155	8.0	NA	±100	Average RF
Toxaphene {5}	100	112	0.0254	0.0284	12.2	NA	±100	Average RF
Toxaphene {6}	100	108	0.0062	0.0067	8.0	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.09	1.3777	1.4368	4.3	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.97	1.3493	1.3301	-1.4	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Date Analyzed: 10/14/23 17:50

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\101323\1013F038.D\
Signal ID: DB XLB

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 820774
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.25	1.1876	1.3329	12.2	NA	±20	Average RF
beta-BHC	2.00	2.15	0.7719	0.7333	NA	7.7	±20	Quadratic
cis-Chlordane	2.00	2.11	1.2121	1.2764	5.3	NA	±20	Average RF
trans-Chlordane	2.00	2.14	1.1734	1.2544	6.9	NA	±20	Average RF
2,4'-DDD	2.00	2.05	0.6228	0.6374	2.3	NA	±20	Average RF
4,4'-DDD	2.00	2.06	0.8482	0.8752	3.2	NA	±20	Average RF
2,4'-DDE	2.00	2.17	0.7857	0.8532	8.6	NA	±20	Average RF
4,4'-DDE	2.00	2.21	1.0981	1.2146	10.6	NA	±20	Average RF
2,4'-DDT	2.00	1.60	0.6847	0.549	-19.8	NA	±20	Average RF
4,4'-DDT	2.00	1.81	0.7214	0.6538	-9.4	NA	±20	Average RF
Dieldrin	2.00	2.21	1.0966	1.2136	10.7	NA	±20	Average RF
cis-Nonachlor	2.00	2.47	1.2545	1.547	23.3*	NA	±20	Average RF
trans-Nonachlor	2.00	2.27	1.2224	1.3889	13.6	NA	±20	Average RF
Oxychlordane	2.00	2.18	1.2018	1.3066	8.7	NA	±20	Average RF
Toxaphene	100	114	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	108	0.0078	0.0085	8.2	NA	±100	Average RF
Toxaphene {2}	100	100	0.0065	0.0065	0.2	NA	±100	Average RF
Toxaphene {3}	100	120	0.0111	0.0132	19.7	NA	±100	Average RF
Toxaphene {4}	100	107	0.0133	0.0142	6.7	NA	±100	Average RF
Toxaphene {5}	100	125	0.0166	0.0208	25.3	NA	±100	Average RF
Toxaphene {6}	100	122	0.0185	0.0226	22.2	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.23	1.2072	1.3445	11.4	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	2.05	1.3913	1.4225	2.2	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Date Analyzed: 10/18/23 03:10

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\101623\1016F056.D\
Signal ID: DB-35MS

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 821060
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.29	1.1423	1.3094	14.6	NA	±20	Average RF
beta-BHC	2.00	2.26	0.6974	0.7885	13.1	NA	±20	Average RF
cis-Chlordane	2.00	2.23	1.1517	1.2812	11.2	NA	±20	Average RF
trans-Chlordane	2.00	2.15	1.1876	1.2772	7.5	NA	±20	Average RF
2,4'-DDD	2.00	2.06	0.6231	0.6416	3.0	NA	±20	Average RF
4,4'-DDD	2.00	2.32	0.7506	0.8695	15.8	NA	±20	Average RF
2,4'-DDE	2.00	1.75	0.9353	0.816	-12.8	NA	±20	Average RF
4,4'-DDE	2.00	2.13	1.0867	1.1569	6.5	NA	±20	Average RF
2,4'-DDT	2.00	1.57	0.7024	0.5516	-21.5*	NA	±20	Average RF
4,4'-DDT	2.00	1.97	0.738	0.7258	-1.7	NA	±20	Average RF
Dieldrin	2.00	2.17	1.0912	1.1816	8.3	NA	±20	Average RF
cis-Nonachlor	2.00	2.15	1.3783	1.4781	7.2	NA	±20	Average RF
trans-Nonachlor	2.00	2.09	1.3402	1.4018	4.6	NA	±20	Average RF
Oxychlordane	2.00	2.14	1.2122	1.2979	7.1	NA	±20	Average RF
Toxaphene	100	105	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	99.2	0.0212	0.0211	-0.8	NA	±100	Average RF
Toxaphene {2}	100	107	0.0148	0.0159	7.1	NA	±100	Average RF
Toxaphene {3}	100	112	0.0209	0.0234	11.9	NA	±100	Average RF
Toxaphene {4}	100	112	0.0143	0.016	11.6	NA	±100	Average RF
Toxaphene {5}	100	99.4	0.0254	0.0252	-0.6	NA	±100	Average RF
Toxaphene {6}	100	100	0.0062	0.0062	0.0	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.13	1.3777	1.467	6.5	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	2.01	1.3493	1.3555	0.5	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310183
Date Analyzed: 10/18/23 03:10

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\101623\1016F056.D\
Signal ID: DB XLB

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 821060
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.31	1.1876	1.3726	15.6	NA	±20	Average RF
beta-BHC	2.00	2.27	0.7719	0.7695	NA	13.5	±20	Quadratic
cis-Chlordane	2.00	2.25	1.2121	1.3608	12.3	NA	±20	Average RF
trans-Chlordane	2.00	2.26	1.1734	1.328	13.2	NA	±20	Average RF
2,4'-DDD	2.00	2.16	0.6228	0.6722	7.9	NA	±20	Average RF
4,4'-DDD	2.00	2.21	0.8482	0.9388	10.7	NA	±20	Average RF
2,4'-DDE	2.00	2.17	0.7857	0.8534	8.6	NA	±20	Average RF
4,4'-DDE	2.00	2.25	1.0981	1.2341	12.4	NA	±20	Average RF
2,4'-DDT	2.00	1.67	0.6847	0.5699	-16.8	NA	±20	Average RF
4,4'-DDT	2.00	1.96	0.7214	0.7081	-1.8	NA	±20	Average RF
Dieldrin	2.00	2.35	1.0966	1.2862	17.3	NA	±20	Average RF
cis-Nonachlor	2.00	2.42	1.2545	1.517	20.9*	NA	±20	Average RF
trans-Nonachlor	2.00	2.35	1.2224	1.4373	17.6	NA	±20	Average RF
Oxychlordane	2.00	2.25	1.2018	1.3535	12.6	NA	±20	Average RF
Toxaphene	100	110	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	109	0.0078	0.0085	8.7	NA	±100	Average RF
Toxaphene {2}	100	107	0.0065	0.007	6.7	NA	±100	Average RF
Toxaphene {3}	100	118	0.0111	0.013	18.1	NA	±100	Average RF
Toxaphene {4}	100	104	0.0133	0.0139	4.2	NA	±100	Average RF
Toxaphene {5}	100	112	0.0166	0.0186	12.2	NA	±100	Average RF
Toxaphene {6}	100	108	0.0185	0.0199	7.8	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.28	1.2072	1.3731	13.7	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	2.07	1.3913	1.4407	3.5	NA	±20	Average RF

Client: Floyd Snider **Service Request:**K2310183
Project: SmithKem

Analysis Run Log
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B **Analysis Lot:**820774
Instrument ID:K-GC-38

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC38\DATA\101323\1013F003.D\	Performance Evaluation	KQ2318307-01	10/13/2023	17:45:00	
J:\GC38\DATA\101323\1013F004.D\	Continuing Calibration Verification	KQ2318307-02	10/13/2023	18:26:00	
J:\GC38\DATA\101323\1013F005.D\	Continuing Calibration Verification	KQ2318307-02	10/13/2023	19:07:00	
J:\GC38\DATA\101323\1013F006.D\	Continuing Calibration Verification	KQ2318307-02	10/13/2023	19:47:00	
J:\GC38\DATA\101323\1013F007.D\	Continuing Calibration Verification	KQ2318307-02	10/13/2023	20:29:00	
J:\GC38\DATA\101323\1013F008.D\	Continuing Calibration Blank	KQ2318307-03	10/13/2023	21:10:00	
J:\GC38\DATA\101323\1013F009.D\	Method Blank	KQ2316147-10	10/13/2023	21:52:00	
J:\GC38\DATA\101323\1013F010.D\	Lab Control Sample	KQ2316147-07	10/13/2023	22:34:00	
J:\GC38\DATA\101323\1013F011.D\	Lab Control Sample	KQ2316147-08	10/13/2023	23:15:00	
J:\GC38\DATA\101323\1013F012.D\	Lab Control Sample	KQ2316147-09	10/13/2023	23:57:00	
J:\GC38\DATA\101323\1013F013.D\	AOC4-02-2.5 MS	KQ2316147-01	10/14/2023	00:38:00	
J:\GC38\DATA\101323\1013F014.D\	AOC4-02-2.5 DMS	KQ2316147-02	10/14/2023	01:18:00	
J:\GC38\DATA\101323\1013F015.D\	AOC4-02-2.5 MS	KQ2316147-03	10/14/2023	01:59:00	
J:\GC38\DATA\101323\1013F016.D\	AOC4-02-2.5 DMS	KQ2316147-04	10/14/2023	02:40:00	
J:\GC38\DATA\101323\1013F017.D\	AOC4-02-2.5 MS	KQ2316147-05	10/14/2023	03:22:00	
J:\GC38\DATA\101323\1013F018.D\	AOC4-02-2.5 DMS	KQ2316147-06	10/14/2023	04:03:00	
J:\GC38\DATA\101323\1013F020.D\	Performance Evaluation	KQ2318307-04	10/14/2023	05:26:00	
J:\GC38\DATA\101323\1013F021.D\	Continuing Calibration Verification	KQ2318307-05	10/14/2023	06:07:00	
J:\GC38\DATA\101323\1013F022.D\	Continuing Calibration Verification	KQ2318307-05	10/14/2023	06:49:00	
J:\GC38\DATA\101323\1013F023.D\	Continuing Calibration Verification	KQ2318307-05	10/14/2023	07:30:00	
J:\GC38\DATA\101323\1013F024.D\	Continuing Calibration Verification	KQ2318307-05	10/14/2023	08:11:00	
J:\GC38\DATA\101323\1013F025.D\	Continuing Calibration Blank	KQ2318307-06	10/14/2023	08:53:00	
J:\GC38\DATA\101323\1013F026.D\	AOC4-06-5.0	K2310183-001	10/14/2023	09:34:00	
J:\GC38\DATA\101323\1013F027.D\	AOC4-07-2.5	K2310183-003	10/14/2023	10:15:00	
J:\GC38\DATA\101323\1013F028.D\	AOC4-107-2.5	K2310183-004	10/14/2023	10:57:00	
J:\GC38\DATA\101323\1013F029.D\	AOC4-07-5.0	K2310183-005	10/14/2023	11:38:00	
J:\GC38\DATA\101323\1013F030.D\	AOC4-08-2.5	K2310183-007	10/14/2023	12:20:00	
J:\GC38\DATA\101323\1013F031.D\	AOC4-02-2.5	K2310183-009	10/14/2023	13:01:00	
J:\GC38\DATA\101323\1013F032.D\	AOC4-02-4.5	K2310183-010	10/14/2023	13:43:00	
J:\GC38\DATA\101323\1013F033.D\	AOC1-03-2.0	K2310183-012	10/14/2023	14:24:00	
J:\GC38\DATA\101323\1013F034.D\	AOC1-04-2.0	K2310183-014	10/14/2023	15:05:00	
J:\GC38\DATA\101323\1013F035.D\	AOC1-04-4.0	K2310183-015	10/14/2023	15:46:00	
J:\GC38\DATA\101323\1013F037.D\	Performance Evaluation	KQ2318307-07	10/14/2023	17:09:00	
J:\GC38\DATA\101323\1013F038.D\	Continuing Calibration Verification	KQ2318307-08	10/14/2023	17:50:00	
J:\GC38\DATA\101323\1013F039.D\	Continuing Calibration Verification	KQ2318307-08	10/14/2023	18:32:00	
J:\GC38\DATA\101323\1013F040.D\	Continuing Calibration Verification	KQ2318307-08	10/14/2023	19:14:00	
J:\GC38\DATA\101323\1013F041.D\	Continuing Calibration Verification	KQ2318307-08	10/14/2023	19:54:00	
J:\GC38\DATA\101323\1013F042.D\	Continuing Calibration Blank	KQ2318307-09	10/14/2023	20:35:00	
J:\GC38\DATA\101323\1013F043.D\	AOC2-01-2.0	K2310183-016	10/14/2023	21:16:00	
J:\GC38\DATA\101323\1013F044.D\	AOC2-01-4.0	K2310183-017	10/14/2023	21:58:00	
J:\GC38\DATA\101323\1013F045.D\	AOC2-02-2.0	K2310183-019	10/14/2023	22:39:00	
J:\GC38\DATA\101323\1013F046.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	23:21:00	
J:\GC38\DATA\101323\1013F047.D\	ZZZZZZZ	ZZZZZZZ	10/15/2023	00:02:00	
J:\GC38\DATA\101323\1013F048.D\	ZZZZZZZ	ZZZZZZZ	10/15/2023	00:44:00	
J:\GC38\DATA\101323\1013F049.D\	ZZZZZZZ	ZZZZZZZ	10/15/2023	01:25:00	

Client: Floyd Snider **Service Request:**K2310183
Project: SmithKem

Analysis Run Log
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B **Analysis Lot:**821060
Instrument ID:K-GC-38

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC38\DATA\101623\1016F055.D\	Performance Evaluation	KQ2318519-01	10/18/2023	02:29:00	
J:\GC38\DATA\101623\1016F056.D\	Continuing Calibration Verification	KQ2318519-02	10/18/2023	03:10:00	
J:\GC38\DATA\101623\1016F057.D\	Continuing Calibration Verification	KQ2318519-02	10/18/2023	03:51:00	
J:\GC38\DATA\101623\1016F058.D\	Continuing Calibration Verification	KQ2318519-02	10/18/2023	04:33:00	
J:\GC38\DATA\101623\1016F059.D\	Continuing Calibration Verification	KQ2318519-02	10/18/2023	05:14:00	
J:\GC38\DATA\101623\1016F060.D\	Continuing Calibration Blank	KQ2318519-03	10/18/2023	05:55:00	
J:\GC38\DATA\101623\1016F066.D\	AOC1-03-2.0	K2310183-012	10/18/2023	10:02:00	
J:\GC38\DATA\101623\1016F067.D\	AOC1-04-2.0	K2310183-014	10/18/2023	10:43:00	

Prep Summary Report

Client: Floyd Snider **Service Request:**K2310183
Project: SmithKem
Sample Matrix: Soil

Low Level Organochlorine Pesticides by GC

Prep Method: EPA 3546 **Extraction Lot:** 426498
Analytical Method: 8081B **Extraction Date:** 09/15/23 11:35

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
AOC4-06-5.0	K2310183-001	9/5/23	9/12/23	2.303 g	10 mL	95.2
AOC4-07-2.5	K2310183-003	9/5/23	9/12/23	2.381 g	10 mL	93.3
AOC4-107-2.5	K2310183-004	9/5/23	9/12/23	2.357 g	10 mL	93.6
AOC4-07-5.0	K2310183-005	9/5/23	9/12/23	2.727 g	10 mL	78.0
AOC4-08-2.5	K2310183-007	9/5/23	9/12/23	2.244 g	10 mL	95.7
AOC4-02-2.5	K2310183-009	9/6/23	9/12/23	2.306 g	10 mL	95.7
AOC4-02-4.5	K2310183-010	9/6/23	9/12/23	2.327 g	10 mL	96.5
AOC1-03-2.0	K2310183-012	9/6/23	9/12/23	2.885 g	10 mL	88.8
AOC1-03-2.0	K2310183-012	9/6/23	9/12/23	2.885 g	10 mL	88.8
AOC1-04-2.0	K2310183-014	9/6/23	9/12/23	2.111 g	10 mL	89.9
AOC1-04-2.0	K2310183-014	9/6/23	9/12/23	2.111 g	10 mL	89.9
AOC1-04-4.0	K2310183-015	9/6/23	9/12/23	2.095 g	10 mL	89.6
AOC2-01-2.0	K2310183-016	9/6/23	9/12/23	2.174 g	10 mL	78.7
AOC2-01-4.0	K2310183-017	9/6/23	9/12/23	2.427 g	10 mL	93.1
AOC2-02-2.0	K2310183-019	9/6/23	9/12/23	2.215 g	10 mL	78.4
Matrix Spike	KQ2316147-01MS	9/6/23	9/12/23	2.513 g	10 mL	95.7
Duplicate Matrix Spike	KQ2316147-02DMS	9/6/23	9/12/23	2.400 g	10 mL	95.7
Matrix Spike	KQ2316147-03MS	9/6/23	9/12/23	2.502 g	10 mL	95.7
Duplicate Matrix Spike	KQ2316147-04DMS	9/6/23	9/12/23	2.109 g	10 mL	95.7
Matrix Spike	KQ2316147-05MS	9/6/23	9/12/23	2.237 g	10 mL	95.7
Duplicate Matrix Spike	KQ2316147-06DMS	9/6/23	9/12/23	2.374 g	10 mL	95.7
Lab Control Sample	KQ2316147-07LCS	NA	NA	2 g	10 mL	
Lab Control Sample	KQ2316147-08LCS	NA	NA	2 g	10 mL	
Lab Control Sample	KQ2316147-09LCS	NA	NA	2 g	10 mL	
Method Blank	KQ2316147-10MB	NA	NA	2.8850 g	10 mL	

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

January 11, 2024

Analytical Report for Service Request No: K2310186
Revised Service Request No: K2310186.01

Pamela Osterhout
Floyd Snider
601 Union Street, Suite 600
Seattle, WA 98101

RE: SmithKem

Dear Pamela,

Enclosed is the revised report for the sample(s) submitted to our laboratory September 12, 2023 For your reference, these analyses have been assigned our service request number **K2310186.**

The report has been revised to Level III.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at Mark.Harris@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Mark Harris
Project Manager

REVISED
10:45 am, Jan 11, 2024

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

Client: Floyd Snider
Project: SmithKem
Sample Matrix: Soil

Service Request: K2310186
Date Received: 09/12/2023

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier III level requested by the client.

Sample Receipt:

Twenty two soil samples were received for analysis at ALS Environmental on 09/12/2023. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivoa GC:

Method 8081B, 10/14/2023:The analysis of Chlorinated Pesticides by EPA 8081B requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for cis-Nonachlor. The results were reported from the column with an acceptable CCV KQ2318307-02, -05, -08. The data quality was not affected. No further corrective action was necessary.

Approved by _____ Date 01/11/2024

Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
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SAMPLE CHAIN OF CUSTODY

K2310186 ALS Kelso

Page # 9 of 11

Report To Pamela Osterhout
Company Floyd Snider
Address 601 Union Street, Suite 600
City, State, ZIP Seattle, WA 98101
Phone _____ Email _____

SAMPLERS (*signature*) Pam Osterhout
PROJECT NAME: Smith Kem
PO #:
REMARKS: * see pages 1-4 for pesticide list
Project specific RLs? - Yes / No
INVOICE TO:

TURNAROUND TIME
☑ Standard turnaround
☐ RUSH _____
Rush charges authorized by: _____

SAMPLE DISPOSAL
☒ Archive samples
☐ Other _____
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	* pesticides except 8 LL	Archive - freeze upon receipt			Notes
ADC3-02-2.0		9/7/23	08:30	Soil	1									✓			
ADC3-03-0.5-1.0			08:45		1								✓				
ADC3-103-0.5-1.0			08:47		1								✓				
ADC3-03-2.0			08:50		1									✓			
ADC3-04-0.5-1.0			09:00		1								✓				
ADC3-04-2.0			09:05		1									✓			
ADC3-05-0.5-1.0			09:15		1								✓				
ADC3-05-2.0			09:20		1									✓			
HAH-01-0.5-1.0			09:40		1									✓			
HAH-01-2.5			09:45		1									✓			

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Pam Osterhout	P.O.	F/S	9/6/23	0900
Received by:		Naomi Redersen	ALS	9/7/23	0945
Relinquished by:					
Received by:					

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SAMPLE CHAIN OF CUSTODY

VN23101860 ALS Kelso

Page # 10 of 11

Report To Pamela Osterhout
Company Floyd Snider
Address 601 Union St. Suite 600
City, State, ZIP Seattle, WA 98104
Phone _____ Email _____

SAMPLERS (*signature*)

PROJECT NAME: Smith Kem

PO #

REMARKS: * See pages 1-4 for pesticide list
Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
☑ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☑ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	* pesticides 8081B-LL	Archive - freeze upon receipt			Notes
H4H-02-0.5-1.0		9/7/23	10:00	Soil	1									✓			
H4H-02-2.0		"	10:05	"	1									✓			
H4H-03-0.5-1.0		"	10:10	"	1									✓			
H4H-03-2.0		"	10:15	"	1									✓			
H4H-04-0.5-1.0		"	10:20	"	1									✓			
H4H-04-2.0		"	10:25	"	1									✓			
H4H-05-0.5-1.0		"	10:35	"	1									✓			
H4H-05-2.0		"	10:40	"	1									✓			
H4H-06-0.5-1.0		"	10:50	"	1									✓			
H4H-06-2.0		"	10:55	"	1									✓			

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	P.O.	F/S	9/11/23	0900
Received by:	Naomi Pedersen	ALS	9/12/23	0945
Relinquished by:				
Received by:				

~~Friedman & Bruya, Inc~~
~~Ph. (206) 285-8282~~
ALS Kelso

ALS Kelso 1923101861

SAMPLE CHAIN OF CUSTODY

Report To Pamela Osterhout
Company Floyd Snider
Address 601 Union St
City, State, ZIP see page 1-10
Phone Email

SAMPLERS (signature)

PROJECT NAME: Smith Kem

PO #

REMARKS: * see pages 1-4 for pesticide list
Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	* pesticides 8081B-LL	Archive fee per upon receipt			Notes
H4H-07-0.5-1.0		9/7/23	11:05	Soil	1									✓			
H4H-07-2.0		9/7/23	11:10	Soil	1									✓			

ANALYSES REQUESTED

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	P.O.	F/S	9/11/23	09:20
Received by:	Naomi Pedersen	ALS	9/12/23	0945
Relinquished by:				
Received by:				

~~Friedman & Bruya, Inc.~~
~~Ph. (206) 285-8282~~
ALS Kelso

PM MH

Cooler Receipt and Preservation Form

Client Pamela Osterhout Service Request K23 10186

Received: 9/12/23 Opened: 9/12/23 By: AR Unloaded: 9/12/23 By: AR

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other*_____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 1 front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
4.2	5.0	IR01	1 of 3			773374221969	
4.7	-	IR01	2 of 3			773374227807	
3.1	3.4	IR01	3 of 3			773374227900	

4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column above:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # above and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

6. Packing material: *Inserts* (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
14. Was C12/Res negative? (NA) Y N
15. Were samples received within the method specified time limit? If not, notate the error below and notify the PM (NA) Y N
16. Were 100ml sterile microbiology bottles filled exactly to the 100ml mark? (NA) Y N Underfilled Overfilled

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

Total Solids

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310186
Project:	SmithKem	**Date Collected:**	09/7/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	As Received

Solids, Total

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
AOC3-02-2.0	K2310186-001	**86.4**	-	-	1	09/14/23 12:00	
AOC3-03-2.0	K2310186-004	**81.3**	-	-	1	09/14/23 12:00	
AOC3-04-2.0	K2310186-006	**81.5**	-	-	1	09/14/23 12:00	
AOC3-05-2.0	K2310186-008	**83.1**	-	-	1	09/14/23 12:00	

Low Level Organochlorine Pesticides by GC

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Client:	Floyd Snider	**Service Request:**	K2310186
Project:	SmithKem	**Date Collected:**	09/07/23 08:30
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC3-02-2.0	**Units:**	ug/Kg
Lab Code:	K2310186-001	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/14/23 23:21	9/15/23	
beta-BHC	ND U	1.0	0.27	1	10/14/23 23:21	9/15/23	
cis-Chlordane	**0.83 J**	1.0	0.41	1	10/14/23 23:21	9/15/23	
trans-Chlordane	**0.54 J**	1.0	0.38	1	10/14/23 23:21	9/15/23	
2,4'-DDD	ND U	1.0	0.27	1	10/14/23 23:21	9/15/23	
4,4'-DDD	ND U	2.0	0.60	1	10/14/23 23:21	9/15/23	
2,4'-DDE	ND U	1.0	0.47	1	10/14/23 23:21	9/15/23	
4,4'-DDE	**2.2**	1.0	0.40	1	10/14/23 23:21	9/15/23	
2,4'-DDT	ND U	1.0	0.48	1	10/14/23 23:21	9/15/23	
4,4'-DDT	**7.1**	2.0	0.61	1	10/14/23 23:21	9/15/23	
Dieldrin	ND U	0.98	0.22	1	10/14/23 23:21	9/15/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/14/23 23:21	9/15/23	
trans-Nonachlor	ND U	2.0	0.71	1	10/14/23 23:21	9/15/23	
Oxychlordane	ND U	0.98	0.25	1	10/14/23 23:21	9/15/23	
Toxaphene	ND U	100	34	1	10/14/23 23:21	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	65	10 - 134	10/14/23 23:21	
Tetrachloro-m-xylene	58	10 - 121	10/14/23 23:21	

Client:	Floyd Snider	**Service Request:**	K2310186
Project:	SmithKem	**Date Collected:**	09/07/23 08:50
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC3-03-2.0	**Units:**	ug/Kg
Lab Code:	K2310186-004	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.2	0.66	1	10/15/23 00:02	9/15/23	
beta-BHC	ND U	1.1	0.30	1	10/15/23 00:02	9/15/23	
cis-Chlordane	ND U	1.1	0.46	1	10/15/23 00:02	9/15/23	
trans-Chlordane	ND U	1.1	0.43	1	10/15/23 00:02	9/15/23	
2,4'-DDD	ND U	1.1	0.30	1	10/15/23 00:02	9/15/23	
4,4'-DDD	ND U	2.2	0.67	1	10/15/23 00:02	9/15/23	
2,4'-DDE	ND U	1.1	0.52	1	10/15/23 00:02	9/15/23	
4,4'-DDE	**0.55 J**	1.1	0.45	1	10/15/23 00:02	9/15/23	
2,4'-DDT	ND U	1.1	0.54	1	10/15/23 00:02	9/15/23	
4,4'-DDT	**1.4 J**	2.2	0.68	1	10/15/23 00:02	9/15/23	
Dieldrin	**4.7**	1.1	0.25	1	10/15/23 00:02	9/15/23	
cis-Nonachlor	ND U	1.1	0.33	1	10/15/23 00:02	9/15/23	
trans-Nonachlor	ND U	2.2	0.79	1	10/15/23 00:02	9/15/23	
Oxychlordane	ND U	1.1	0.28	1	10/15/23 00:02	9/15/23	
Toxaphene	ND U	110	38	1	10/15/23 00:02	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	65	10 - 134	10/15/23 00:02	
Tetrachloro-m-xylene	63	10 - 121	10/15/23 00:02	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310186
Project:	SmithKem	**Date Collected:**	09/07/23 09:05
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC3-04-2.0	**Units:**	ug/Kg
Lab Code:	K2310186-006	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.2	0.66	1	10/15/23 00:44	9/15/23	
beta-BHC	ND U	1.1	0.30	1	10/15/23 00:44	9/15/23	
cis-Chlordane	ND U	1.1	0.46	1	10/15/23 00:44	9/15/23	
trans-Chlordane	ND U	1.1	0.42	1	10/15/23 00:44	9/15/23	
2,4'-DDD	ND U	1.1	0.30	1	10/15/23 00:44	9/15/23	
4,4'-DDD	ND U	2.2	0.67	1	10/15/23 00:44	9/15/23	
2,4'-DDE	ND U	1.1	0.52	1	10/15/23 00:44	9/15/23	
4,4'-DDE	ND U	1.1	0.45	1	10/15/23 00:44	9/15/23	
2,4'-DDT	ND U	1.1	0.54	1	10/15/23 00:44	9/15/23	
4,4'-DDT	**0.86 J**	2.2	0.68	1	10/15/23 00:44	9/15/23	
Dieldrin	**9.4**	1.1	0.25	1	10/15/23 00:44	9/15/23	
cis-Nonachlor	ND U	1.1	0.33	1	10/15/23 00:44	9/15/23	
trans-Nonachlor	ND U	2.2	0.79	1	10/15/23 00:44	9/15/23	
Oxychlordane	ND U	1.1	0.28	1	10/15/23 00:44	9/15/23	
Toxaphene	ND U	110	38	1	10/15/23 00:44	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	68	10 - 134	10/15/23 00:44	
Tetrachloro-m-xylene	63	10 - 121	10/15/23 00:44	

Client:	Floyd Snider	**Service Request:**	K2310186
Project:	SmithKem	**Date Collected:**	09/07/23 09:20
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC3-05-2.0	**Units:**	ug/Kg
Lab Code:	K2310186-008	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.3	0.68	1	10/15/23 01:25	9/15/23	
beta-BHC	ND U	1.1	0.31	1	10/15/23 01:25	9/15/23	
cis-Chlordane	**0.56 J**	1.1	0.47	1	10/15/23 01:25	9/15/23	
trans-Chlordane	ND U	1.1	0.44	1	10/15/23 01:25	9/15/23	
2,4'-DDD	ND U	1.1	0.31	1	10/15/23 01:25	9/15/23	
4,4'-DDD	ND U	2.3	0.69	1	10/15/23 01:25	9/15/23	
2,4'-DDE	ND U	1.1	0.54	1	10/15/23 01:25	9/15/23	
4,4'-DDE	ND U	1.1	0.46	1	10/15/23 01:25	9/15/23	
2,4'-DDT	ND U	1.1	0.55	1	10/15/23 01:25	9/15/23	
4,4'-DDT	**0.96 J**	2.3	0.70	1	10/15/23 01:25	9/15/23	
Dieldrin	**20**	1.1	0.26	1	10/15/23 01:25	9/15/23	
cis-Nonachlor	ND U	1.1	0.34	1	10/15/23 01:25	9/15/23	
trans-Nonachlor	ND U	2.3	0.81	1	10/15/23 01:25	9/15/23	
Oxychlordane	ND U	1.1	0.29	1	10/15/23 01:25	9/15/23	
Toxaphene	ND U	110	39	1	10/15/23 01:25	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	63	10 - 134	10/15/23 01:25	
Tetrachloro-m-xylene	57	10 - 121	10/15/23 01:25	

Client:	Floyd Snider	**Service Request:**	K2310186
Project:	SmithKem	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	KQ2316147-10	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/13/23 21:52	9/15/23	
beta-BHC	ND U	1.0	0.27	1	10/13/23 21:52	9/15/23	
cis-Chlordane	ND U	1.0	0.41	1	10/13/23 21:52	9/15/23	
trans-Chlordane	ND U	1.0	0.38	1	10/13/23 21:52	9/15/23	
2,4'-DDD	ND U	1.0	0.27	1	10/13/23 21:52	9/15/23	
4,4'-DDD	ND U	2.0	0.60	1	10/13/23 21:52	9/15/23	
2,4'-DDE	ND U	1.0	0.47	1	10/13/23 21:52	9/15/23	
4,4'-DDE	ND U	1.0	0.40	1	10/13/23 21:52	9/15/23	
2,4'-DDT	ND U	1.0	0.48	1	10/13/23 21:52	9/15/23	
4,4'-DDT	**0.62 J**	2.0	0.61	1	10/13/23 21:52	9/15/23	
Dieldrin	ND U	0.69	0.22	1	10/13/23 21:52	9/15/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/13/23 21:52	9/15/23	
trans-Nonachlor	ND U	2.0	0.71	1	10/13/23 21:52	9/15/23	
Oxychlordane	ND U	0.69	0.25	1	10/13/23 21:52	9/15/23	
Toxaphene	ND U	100	34	1	10/13/23 21:52	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	77	10 - 134	10/13/23 21:52	
Tetrachloro-m-xylene	72	10 - 121	10/13/23 21:52	

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310186
Date Collected: 09/07/23 08:30
Date Received: 9/12/23

Sample Name: AOC3-02-2.0
Lab Code: K2310186-001

Units: ug/Kg
Basis: Dry
Percent Solids: 86.4

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDE	0.40	2.2	2.4	9		1	10/14/23 23:21
4,4'-DDT	0.61	7.1	8.3	16		1	10/14/23 23:21
cis-Chlordane	0.41	0.83	1.1	28	J	1	10/14/23 23:21
trans-Chlordane	0.38	0.54	0.68	23	J	1	10/14/23 23:21

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310186
Date Collected: 09/07/23 08:50
Date Received: 9/12/23

Sample Name: AOC3-03-2.0
Lab Code: K2310186-004

Units: ug/Kg
Basis: Dry
Percent Solids: 81.3

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDE	0.45	0.55	0.60	9	J	1	10/15/23 00:02
4,4'-DDT	0.68	1.4	2.0	35	J	1	10/15/23 00:02
Dieldrin	0.25	4.7	5.6	17		1	10/15/23 00:02

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310186
Date Collected: 09/07/23 09:05
Date Received: 9/12/23

Sample Name: AOC3-04-2.0
Lab Code: K2310186-006

Units: ug/Kg
Basis: Dry
Percent Solids: 81.5

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDT	0.68	0.86	0.93	8	J	1	10/15/23 00:44
Dieldrin	0.25	9.4	10	6		1	10/15/23 00:44

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310186
Date Collected: 09/07/23 09:20
Date Received: 9/12/23

Sample Name: AOC3-05-2.0
Lab Code: K2310186-008

Units: ug/Kg
Basis: Dry
Percent Solids: 83.1

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDT	0.70	0.96	1.0	4	J	1	10/15/23 01:25
Dieldrin	0.26	20	21	5		1	10/15/23 01:25
cis-Chlordane	0.47	0.56	0.64	13	J	1	10/15/23 01:25

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310186
Date Collected: NA
Date Received:

Sample Name: Lab Control Sample
Lab Code: KQ2316147-07

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDD	0.60	16.0	18.7	16		1	10/13/23 22:34
4,4'-DDE	0.40	16.0	16.8	5		1	10/13/23 22:34
4,4'-DDT	0.61	17.1	17.2	<1		1	10/13/23 22:34
Aldrin	0.59	16.8	17.1	2		1	10/13/23 22:34
Dieldrin	0.22	16.5	18.1	9		1	10/13/23 22:34
Oxychlordane	0.25	14.2	15.5	9		1	10/13/23 22:34
beta-BHC	0.27	17.7	17.8	<1		1	10/13/23 22:34
cis-Chlordane	0.41	16.9	17.7	5		1	10/13/23 22:34
cis-Nonachlor	0.29	18.7	19.2	3		1	10/13/23 22:34
trans-Chlordane	0.38	15.2	17.0	11		1	10/13/23 22:34
trans-Nonachlor	0.71	15.9	28.5	57	P	1	10/13/23 22:34

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310186
Date Collected: NA
Date Received:

Sample Name: Lab Control Sample
Lab Code: KQ2316147-08

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Toxaphene	34	709	835	16		1	10/13/23 23:15

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310186
Date Collected: NA
Date Received:

Sample Name: Lab Control Sample
Lab Code: KQ2316147-09

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
2,4'-DDD	0.27	18.7	19.3	3		1	10/13/23 23:57
2,4'-DDE	0.47	16.0	19.5	20		1	10/13/23 23:57
2,4'-DDT	0.48	18.1	18.8	4		1	10/13/23 23:57

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310186
Date Collected: NA
Date Received:

Sample Name: Method Blank
Lab Code: KQ2316147-10

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDT	0.61	0.62	0.68	9	J	1	10/13/23 21:52

Client: Floyd Snider **Service Request:** K2310186
Project: SmithKem
Sample Matrix: Soil

SURROGATE RECOVERY SUMMARY
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Extraction Method: EPA 3546

Sample Name	Lab Code	Decachlorobiphenyl 10 - 134	Tetrachloro-m-xylene 10 - 121
AOC3-02-2.0	K2310186-001	65	58
AOC3-03-2.0	K2310186-004	65	63
AOC3-04-2.0	K2310186-006	68	63
AOC3-05-2.0	K2310186-008	63	57
Lab Control Sample	KQ2316147-07	71	65
Lab Control Sample	KQ2316147-08	73	67
Lab Control Sample	KQ2316147-09	75	69
Method Blank	KQ2316147-10	77	72

Client: Floyd Snider
Project: SmithKem

Service Request: K2310186
Date Analyzed: 10/13/23 18:26

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\101323\1013F004.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2318307-02
Analysis Lot: 820774
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	73,829,386	6.43	76,677,049	6.44	75,668,453	6.44
	Upper Limit ==>	147,658,772	6.93	153,354,098	6.94	151,336,906	6.94
	Lower Limit ==>	36,914,693	5.93	38,338,525	5.94	37,834,227	5.94
Associated Analyses							
Continuing Calibration Verification	KQ2318307-02	59,876,885	6.41	59,876,885	6.41	59,876,885	6.41
Continuing Calibration Verification	KQ2318307-02	59,118,073	6.41	0*	0.00*	59,118,073	6.41
Continuing Calibration Verification	KQ2318307-02	59,894,016	6.41	59,894,016	6.41	59,894,016	6.41
Continuing Calibration Verification	KQ2318307-02	59,382,735	6.41	59,382,735	6.41	59,382,735	6.41
Method Blank	KQ2316147-10	67,070,744	6.41	67,070,744	6.41	67,070,744	6.41
Lab Control Sample	KQ2316147-07	68,259,265	6.41	68,259,265	6.41	68,259,265	6.41
Lab Control Sample	KQ2316147-08	70,742,897	6.41	70,742,897	6.41	70,742,897	6.41
Lab Control Sample	KQ2316147-09	70,608,477	6.41	70,608,477	6.41	70,608,477	6.41

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310186
Date Analyzed: 10/13/23 18:26

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\101323\1013F004.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2318307-02
Analysis Lot: 820774
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	36,249,909	5.89	35,088,135	5.90	34,585,592	5.90
	Upper Limit ==>	72,499,818	6.39	70,176,270	6.40	69,171,184	6.40
	Lower Limit ==>	18,124,955	5.39	17,544,068	5.40	17,292,796	5.40
Associated Analyses							
Continuing Calibration Verification	KQ2318307-02	49,463,962	5.87	49,463,962	5.87	49,463,962	5.87
Continuing Calibration Verification	KQ2318307-02	48,683,564	5.87	0*	0.00*	48,683,564	5.87
Continuing Calibration Verification	KQ2318307-02	48,960,487	5.87	48,960,487	5.87	48,960,487	5.87
Continuing Calibration Verification	KQ2318307-02	48,615,001	5.87	48,615,001	5.87	48,615,001	5.87
Method Blank	KQ2316147-10	54,308,296	5.87	54,308,296	5.87	54,308,296	5.87
Lab Control Sample	KQ2316147-07	54,942,029	5.87	54,942,029	5.87	54,942,029	5.87
Lab Control Sample	KQ2316147-08	57,012,445	5.87	57,012,445	5.87	57,012,445	5.87
Lab Control Sample	KQ2316147-09	56,799,439	5.87	56,799,439	5.87	56,799,439	5.87

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider **Service Request:** K2310186
Project: SmithKem **Date Analyzed:** 10/14/23 06:07

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\101323\1013F021.D\ **Lab Code:** KQ2318307-05
Instrument ID: K-GC-38 **Analysis Lot:** 820774
Analytical Method: 8081B **Signal ID:** DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	73,829,386	6.43	76,677,049	6.44	75,668,453	6.44
	Upper Limit ==>	147,658,772	6.93	153,354,098	6.94	151,336,906	6.94
	Lower Limit ==>	36,914,693	5.93	38,338,525	5.94	37,834,227	5.94
Associated Analyses							
Continuing Calibration Verification	KQ2318307-05	63,386,081	6.41	63,386,081	6.41	63,386,081	6.41
Continuing Calibration Verification	KQ2318307-05	62,635,981	6.41	0*	0.00*	62,635,981	6.41
Continuing Calibration Verification	KQ2318307-05	62,481,310	6.41	62,481,310	6.41	62,481,310	6.41
Continuing Calibration Verification	KQ2318307-05	62,916,911	6.41	62,916,911	6.41	62,916,911	6.41

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310186
Date Analyzed: 10/14/23 06:07

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\101323\1013F021.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2318307-05
Analysis Lot: 820774
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	36,249,909	5.89	35,088,135	5.90	34,585,592	5.90
	Upper Limit ==>	72,499,818	6.39	70,176,270	6.40	69,171,184	6.40
	Lower Limit ==>	18,124,955	5.39	17,544,068	5.40	17,292,796	5.40
Associated Analyses							
Continuing Calibration Verification	KQ2318307-05	50,242,936	5.87	50,242,936	5.87	50,242,936	5.87
Continuing Calibration Verification	KQ2318307-05	49,676,201	5.87	0*	0.00*	49,676,201	5.87
Continuing Calibration Verification	KQ2318307-05	49,876,523	5.87	49,876,523	5.87	49,876,523	5.87
Continuing Calibration Verification	KQ2318307-05	49,713,118	5.87	49,713,118	5.87	49,713,118	5.87

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310186
Date Analyzed: 10/14/23 17:50

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\101323\1013F038.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2318307-08
Analysis Lot: 820774
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	73,829,386	6.43	76,677,049	6.44	75,668,453	6.44
	Upper Limit ==>	147,658,772	6.93	153,354,098	6.94	151,336,906	6.94
	Lower Limit ==>	36,914,693	5.93	38,338,525	5.94	37,834,227	5.94
Associated Analyses							
Continuing Calibration Verification	KQ2318307-08	68,356,836	6.41	68,356,836	6.41	68,356,836	6.41
Continuing Calibration Verification	KQ2318307-08	68,027,821	6.41	68,027,821	6.41	68,027,821	6.41
Continuing Calibration Verification	KQ2318307-08	66,704,011	6.41	66,704,011	6.41	66,704,011	6.41
Continuing Calibration Verification	KQ2318307-08	68,842,344	6.41	68,842,344	6.41	68,842,344	6.41
AOC3-02-2.0	K2310186-001	83,960,028	6.41	83,960,028	6.41	83,960,028	6.41
AOC3-03-2.0	K2310186-004	84,951,724	6.41	84,951,724	6.41	84,951,724	6.41
AOC3-04-2.0	K2310186-006	78,991,795	6.41	78,991,795	6.41	78,991,795	6.41
AOC3-05-2.0	K2310186-008	86,486,713	6.41	86,486,713	6.41	86,486,713	6.41

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310186
Date Analyzed: 10/14/23 17:50

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\101323\1013F038.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2318307-08
Analysis Lot: 820774
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	36,249,909	5.89	35,088,135	5.90	34,585,592	5.90
	Upper Limit ==>	72,499,818	6.39	70,176,270	6.40	69,171,184	6.40
	Lower Limit ==>	18,124,955	5.39	17,544,068	5.40	17,292,796	5.40
Associated Analyses							
Continuing Calibration Verification	KQ2318307-08	53,526,518	5.87	53,526,518	5.87	53,526,518	5.87
Continuing Calibration Verification	KQ2318307-08	53,233,759	5.87	53,233,759	5.87	53,233,759	5.87
Continuing Calibration Verification	KQ2318307-08	52,474,957	5.87	52,474,957	5.87	52,474,957	5.87
Continuing Calibration Verification	KQ2318307-08	54,001,251	5.87	54,001,251	5.87	54,001,251	5.87
AOC3-02-2.0	K2310186-001	65,699,802	5.87	65,699,802	5.87	65,699,802	5.87
AOC3-03-2.0	K2310186-004	66,276,637	5.87	66,276,637	5.87	66,276,637	5.87
AOC3-04-2.0	K2310186-006	61,667,394	5.87	61,667,394	5.87	61,667,394	5.87
AOC3-05-2.0	K2310186-008	67,627,059	5.87	67,627,059	5.87	67,627,059	5.87

Results flagged with an asterisk (*) indicate values outside control criteria.

Client:	Floyd Snider	**Service Request:**	K2310186
Project:	SmithKem	**Date Analyzed:**	10/13/23
Sample Matrix:	Soil	**Date Extracted:**	09/15/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Analysis Method:	8081B	**Units:**	ug/Kg
Prep Method:	EPA 3546	**Basis:**	Dry
		Analysis Lot:	820774

Lab Control Sample
KQ2316147-07

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
4,4'-DDD	16.0	25.0	64	10-180
4,4'-DDE	16.0	25.0	64	17-94
4,4'-DDT	17.1	25.0	68	17-104
Aldrin	16.8	25.0	67	18-89
beta-BHC	17.7	25.0	71	16-106
cis-Chlordane	16.9	25.0	67	20-93
cis-Nonachlor	18.7	25.0	75	11-172
Dieldrin	16.5	25.0	66	19-88
Oxychlordane	14.2	25.0	57	30-99
trans-Chlordane	15.2	25.0	61	10-103
trans-Nonachlor	15.9 P	25.0	64	30-107

Client:	Floyd Snider	**Service Request:**	K2310186
Project:	SmithKem	**Date Analyzed:**	10/13/23
Sample Matrix:	Soil	**Date Extracted:**	09/15/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Analysis Method:	8081B	**Units:**	ug/Kg
Prep Method:	EPA 3546	**Basis:**	Dry
		Analysis Lot:	820774

Lab Control Sample
KQ2316147-08

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Toxaphene	709	1000	71	16-114

Client:	Floyd Snider	**Service Request:**	K2310186
Project:	SmithKem	**Date Analyzed:**	10/13/23
Sample Matrix:	Soil	**Date Extracted:**	09/15/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Analysis Method:	8081B	**Units:**	ug/Kg
Prep Method:	EPA 3546	**Basis:**	Dry
		Analysis Lot:	820774

Lab Control Sample
KQ2316147-09

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
2,4'-DDD	18.7	25.0	75	35-109
2,4'-DDE	16.0	25.0	64	41-99
2,4'-DDT	18.1	25.0	72	34-122

Client:	Floyd Snider	**Service Request:**	K2310186
Project:	SmithKem	**Date Analyzed:**	NA
Sample Matrix:	Soil	**Date Extracted:**	

Method Blank Summary
Low Level Organochlorine Pesticides by GC

Sample Name:		**Instrument ID:**	
Lab Code:		**File ID:**	
Analysis Method:	8081B	**Analysis Lot:**	820774
Prep Method:	None		

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Performance Evaluation	KQ2318307-01	J:\GC38\DATA\101323\1013F003.D\	10/13/23 17:45
Performance Evaluation	KQ2318307-04	J:\GC38\DATA\101323\1013F020.D\	10/14/23 05:26
Performance Evaluation	KQ2318307-07	J:\GC38\DATA\101323\1013F037.D\	10/14/23 17:09

Client:	Floyd Snider	**Service Request:**	K2310186
Project:	SmithKem	**Date Analyzed:**	10/13/23 21:52
Sample Matrix:	Soil	**Date Extracted:**	09/15/23

Method Blank Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	Method Blank	**Instrument ID:**	K-GC-38
Lab Code:	KQ2316147-10	**File ID:**	J:\GC38\DATA\101323\1013F009.D\
Analysis Method:	8081B	**Analysis Lot:**	820774
Prep Method:	EPA 3546	**Extraction Lot:**	426498

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ2316147-07	J:\GC38\DATA\101323\1013F010.D\	10/13/23 22:34
Lab Control Sample	KQ2316147-08	J:\GC38\DATA\101323\1013F011.D\	10/13/23 23:15
Lab Control Sample	KQ2316147-09	J:\GC38\DATA\101323\1013F012.D\	10/13/23 23:57
AOC3-02-2.0	K2310186-001	J:\GC38\DATA\101323\1013F046.D\	10/14/23 23:21
AOC3-03-2.0	K2310186-004	J:\GC38\DATA\101323\1013F047.D\	10/15/23 00:02
AOC3-04-2.0	K2310186-006	J:\GC38\DATA\101323\1013F048.D\	10/15/23 00:44
AOC3-05-2.0	K2310186-008	J:\GC38\DATA\101323\1013F049.D\	10/15/23 01:25

Client:	Floyd Snider	**Service Request:**	K2310186
Project:	SmithKem	**Date Analyzed:**	NA
Sample Matrix:	Soil	**Date Extracted:**	

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Sample Name:		**Instrument ID:**	
Lab Code:		**File ID:**	
Analysis Method:	8081B	**Analysis Lot:**	820774
Prep Method:	None		

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Performance Evaluation	KQ2318307-01	J:\GC38\DATA\101323\1013F003.D\	10/13/23 17:45
Performance Evaluation	KQ2318307-04	J:\GC38\DATA\101323\1013F020.D\	10/14/23 05:26
Performance Evaluation	KQ2318307-07	J:\GC38\DATA\101323\1013F037.D\	10/14/23 17:09

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Floyd Snider	**Service Request:**	K2310186
Project:	SmithKem	**Date Analyzed:**	10/13/23 23:57
Sample Matrix:	Soil	**Date Extracted:**	09/15/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	Lab Control Sample	**Instrument ID:**	K-GC-38
Lab Code:	KQ2316147-09	**File ID:**	J:\GC38\DATA\101323\1013F012.D\
Analysis Method:	8081B	**Analysis Lot:**	820774
Prep Method:	EPA 3546	**Extraction Lot:**	426498

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ2316147-10	J:\GC38\DATA\101323\1013F009.D\	10/13/23 21:52
AOC3-02-2.0	K2310186-001	J:\GC38\DATA\101323\1013F046.D\	10/14/23 23:21
AOC3-03-2.0	K2310186-004	J:\GC38\DATA\101323\1013F047.D\	10/15/23 00:02
AOC3-04-2.0	K2310186-006	J:\GC38\DATA\101323\1013F048.D\	10/15/23 00:44
AOC3-05-2.0	K2310186-008	J:\GC38\DATA\101323\1013F049.D\	10/15/23 01:25

Client: Floyd Snider
Project: SmithKem

Service Request: K2310186
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB XLB

#	Lab Code	Sample Name	File Location	Acquisition Date
08	KC2300558-08	24 .2 PPB GCPS9-27G @50X	J:\GC38\DATA\072123ICAL\0721F012.D	07/22/2023 00:03
09	KC2300558-09	24 .5 PPB GCPS9-27G @20X	J:\GC38\DATA\072123ICAL\0721F013.D	07/22/2023 00:48
10	KC2300558-10	24 1 PPB GCPS9-27G @10X	J:\GC38\DATA\072123ICAL\0721F014.D	07/22/2023 01:33
11	KC2300558-11	24 2 PPB GCPS9-27G @5X	J:\GC38\DATA\072123ICAL\0721F015.D	07/22/2023 02:17
12	KC2300558-12	24 5 PPB GCPS9-27G @2X	J:\GC38\DATA\072123ICAL\0721F016.D	07/22/2023 03:02
13	KC2300558-13	24 10 PPB GCPS9-27G	J:\GC38\DATA\072123ICAL\0721F017.D	07/22/2023 03:48
15	KC2300558-15	M/P .2/1 PPB GCPS9-33A @50X	J:\GC38\DATA\072123ICAL\0721F019.D	07/22/2023 05:19
16	KC2300558-16	M/P .5/2.5 PPB GCPS9-33A @20X	J:\GC38\DATA\072123ICAL\0721F020.D	07/22/2023 06:05
17	KC2300558-17	M/P 1/5 PPB GCPS9-33A@10X	J:\GC38\DATA\072123ICAL\0721F021.D	07/22/2023 06:50
18	KC2300558-18	M/P 2/10 PPB GCPS9-33A @5X	J:\GC38\DATA\072123ICAL\0721F022.D	07/22/2023 07:34
19	KC2300558-19	M/P 5/25 PPB GCPS9-33A @2X	J:\GC38\DATA\072123ICAL\0721F023.D	07/22/2023 08:19
20	KC2300558-20	M/P 10/50 PPB GCPS9-33A	J:\GC38\DATA\072123ICAL\0721F024.D	07/22/2023 09:04
21	KC2300558-21	PERTH 100 PPB GSP9-30E	J:\GC38\DATA\072123ICAL\0721F025.D	07/22/2023 09:50
24	KC2300558-24	TOX 10 PPB GCPS9-29E @50X	J:\GC38\DATA\072123ICAL\0721F028.D	07/22/2023 12:06
25	KC2300558-25	TOX 25 PPB GCPS9-29E @20X	J:\GC38\DATA\072123ICAL\0721F029.D	07/22/2023 12:51
26	KC2300558-26	TOX 50 PPB GCPS9-29E @10X	J:\GC38\DATA\072123ICAL\0721F030.D	07/22/2023 13:37
27	KC2300558-27	TOX 100 PPB GCPS9-29E @5X	J:\GC38\DATA\072123ICAL\0721F031.D	07/22/2023 14:22
28	KC2300558-28	TOX 250 PPB GCPS9-29E @2X	J:\GC38\DATA\072123ICAL\0721F032.D	07/22/2023 15:08
29	KC2300558-29	TOX 500 PPB GCPS9-29E	J:\GC38\DATA\072123ICAL\0721F033.D	07/22/2023 15:54
31	KC2300558-31	CHLOR 2 PPB GCPS9-34D @100X	J:\GC38\DATA\072123ICAL\0721F035.D	07/22/2023 17:25
32	KC2300558-32	CHLOR 5 PPB GCPS9-34D @40X	J:\GC38\DATA\072123ICAL\0721F036.D	07/22/2023 18:11
33	KC2300558-33	CHLOR 10 PPB GCPS9-34D @20X	J:\GC38\DATA\072123ICAL\0721F037.D	07/22/2023 18:57
34	KC2300558-34	CHLOR 20 PPB GCPS9-34D @10X	J:\GC38\DATA\072123ICAL\0721F038.D	07/22/2023 19:43
35	KC2300558-35	CHLOR 50 PPB GCPS9-34D @4X	J:\GC38\DATA\072123ICAL\0721F039.D	07/22/2023 20:28
36	KC2300558-36	CHLOR 100 PPB GCPS9-34D @2X	J:\GC38\DATA\072123ICAL\0721F040.D	07/22/2023 21:14
37	KC2300558-37	CHLOR 200 PPB GCPS9-34D	J:\GC38\DATA\072123ICAL\0721F041.D	07/22/2023 21:59
01	KC2300558-01	8081 .2 PPB GCPS9-38C @50X	J:\GC38\DATA\092523\0925F008.D	09/25/2023 16:31
02	KC2300558-02	8081 .5 PPB GCPS9-38C@20X	J:\GC38\DATA\092523\0925F009.D	09/25/2023 17:12
03	KC2300558-03	8081 1 PPB GCPS9-38C @10X	J:\GC38\DATA\092523\0925F010.D	09/25/2023 17:54
04	KC2300558-04	8081 2 PPB GCPS9-38C@5X	J:\GC38\DATA\092523\0925F011.D	09/25/2023 18:35
05	KC2300558-05	8081 5 PPB GCPS9-38C @2X	J:\GC38\DATA\092523\0925F012.D	09/25/2023 19:17
06	KC2300558-06	8081 10 PPB GCPS9-38C	J:\GC38\DATA\092523\0925F013.D	09/25/2023 19:58

Analyte

2,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	0.698	09	0.500	0.6697	10	1.000	0.621	11	2.000	0.6061
12	5.000	0.585	13	10.000	0.5571						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310186
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB XLB

Analyte

2,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	1.045	09	0.500	0.8357	10	1.000	0.7712	11	2.000	0.7237
12	5.000	0.6848	13	10.000	0.6543						

2,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	0.8021	09	0.500	0.7347	10	1.000	0.6775	11	2.000	0.6494
12	5.000	0.6344	13	10.000	0.6101						

4,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.8654	02	0.500	0.8605	03	1.000	0.8406	04	2.000	0.8503
05	5.000	0.8122	06	10.000	0.8601						

4,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.108	02	0.500	1.153	03	1.000	1.096	04	2.000	1.106
05	5.000	1.056	06	10.000	1.069						

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.6987	02	0.500	0.7168	03	1.000	0.6876	04	2.000	0.7525
05	5.000	0.7258	06	10.000	0.7471						

Aldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.252	02	0.500	1.26	03	1.000	1.172	04	2.000	1.171
05	5.000	1.123	06	10.000	1.148						

Decachlorobiphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.273	02	0.500	1.305	03	1.000	1.232	04	2.000	1.257
05	5.000	1.118	06	10.000	1.059						

Dieldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.138	02	0.500	1.153	03	1.000	1.087	04	2.000	1.107
05	5.000	1.041	06	10.000	1.053						

Oxychlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.335	16	0.500	1.255	17	1.000	1.428	18	2.000	1.103
19	5.000	1.08	20	10.000	1.009						

Tetrachloro-m-xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.438	02	0.500	1.496	03	1.000	1.391	04	2.000	1.411
05	5.000	1.305	06	10.000	1.308						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310186
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB XLB

Analyte

Toxaphene {1}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.008207	25	25.000	0.00774	26	50.000	0.007891	27	100.000	0.008052
28	250.000	0.007785	29	500.000	0.007234						

Toxaphene {2}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.007719	25	25.000	0.007011	26	50.000	0.006153	27	100.000	0.007946
28	250.000	0.005349	29	500.000	0.004933						

Toxaphene {3}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01009	25	25.000	0.01271	26	50.000	0.01197	27	100.000	0.01102
28	250.000	0.01028	29	500.000	0.01025						

Toxaphene {4}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01461	25	25.000	0.01391	26	50.000	0.01364	27	100.000	0.01356
28	250.000	0.01245	29	500.000	0.01183						

Toxaphene {5}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01706	25	25.000	0.01666	26	50.000	0.01741	27	100.000	0.01663
28	250.000	0.01569	29	500.000	0.01599						

Toxaphene {6}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.02109	25	25.000	0.02031	26	50.000	0.01826	27	100.000	0.01791
28	250.000	0.01688	29	500.000	0.01635						

beta-BHC

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.02	02	0.500	0.8943	03	1.000	0.7489	04	2.000	0.716
05	5.000	0.6344	06	10.000	0.6179						

cis-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.424	02	0.500	1.279	03	1.000	1.19	04	2.000	1.186
05	5.000	1.106	06	10.000	1.087						

cis-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.503	16	0.500	1.324	17	1.000	1.293	18	2.000	1.151
19	5.000	1.155	20	10.000	1.101						

trans-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.238	02	0.500	1.266	03	1.000	1.177	04	2.000	1.172
05	5.000	1.094	06	10.000	1.094						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310186
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB XLB

Analyte

trans-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.497	16	0.500	1.301	17	1.000	1.225	18	2.000	1.157
19	5.000	1.105	20	10.000	1.049						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310186
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB XLB

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	8.5	≤20	0.6228	
2,4'-DDE	TRG	Average RF	% RSD	18.1	≤20	0.7857	
2,4'-DDT	TRG	Average RF	% RSD	10.5	≤20	0.6847	
4,4'-DDD	TRG	Average RF	% RSD	2.3	≤20	0.8482	
4,4'-DDE	TRG	Average RF	% RSD	3.1	≤20	1.098	
4,4'-DDT	TRG	Average RF	% RSD	3.6	≤20	0.7214	
Aldrin	TRG	Average RF	% RSD	4.7	≤20	1.188	
Decachlorobiphenyl	SURR	Average RF	% RSD	8.0	≤20	1.207	
Dieldrin	TRG	Average RF	% RSD	4.1	≤20	1.097	
Oxychlordane	TRG	Average RF	% RSD	13.6	≤20	1.202	
Tetrachloro-m-xylene	SURR	Average RF	% RSD	5.4	≤20	1.391	
Toxaphene {1}	MULTI	Average RF	% RSD	4.3	≤20	0.007818	
Toxaphene {2}	MULTI	Average RF	% RSD	19.1	≤20	0.006518	
Toxaphene {3}	MULTI	Average RF	% RSD	9.7	≤20	0.01105	
Toxaphene {4}	MULTI	Average RF	% RSD	7.6	≤20	0.01333	
Toxaphene {5}	MULTI	Average RF	% RSD	3.9	≤20	0.01657	
Toxaphene {6}	MULTI	Average RF	% RSD	10.2	≤20	0.01847	
beta-BHC	TRG	Quadratic	COD	0.9997	≥0.990	0.7719	
cis-Chlordane	TRG	Average RF	% RSD	10.2	≤20	1.212	
cis-Nonachlor	TRG	Average RF	% RSD	11.9	≤20	1.255	
trans-Chlordane	TRG	Average RF	% RSD	6.1	≤20	1.173	
trans-Nonachlor	TRG	Average RF	% RSD	13.2	≤20	1.222	

Client: Floyd Snider **Service Request:** K2310186
Project: SmithKem **Calibration Date:** 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558 **Signal ID:** DB-35MS
Instrument ID: K-GC-38

#	Lab Code	Sample Name	File Location	Acquisition Date
08	KC2300558-08	24 .2 PPB GCPS9-27G @50X	J:\GC38\DATA\072123ICAL\0721F012.D	07/22/2023 00:03
09	KC2300558-09	24 .5 PPB GCPS9-27G @20X	J:\GC38\DATA\072123ICAL\0721F013.D	07/22/2023 00:48
10	KC2300558-10	24 1 PPB GCPS9-27G @10X	J:\GC38\DATA\072123ICAL\0721F014.D	07/22/2023 01:33
11	KC2300558-11	24 2 PPB GCPS9-27G @5X	J:\GC38\DATA\072123ICAL\0721F015.D	07/22/2023 02:17
12	KC2300558-12	24 5 PPB GCPS9-27G @2X	J:\GC38\DATA\072123ICAL\0721F016.D	07/22/2023 03:02
13	KC2300558-13	24 10 PPB GCPS9-27G	J:\GC38\DATA\072123ICAL\0721F017.D	07/22/2023 03:48
15	KC2300558-15	M/P .2/1 PPB GCPS9-33A @50X	J:\GC38\DATA\072123ICAL\0721F019.D	07/22/2023 05:19
16	KC2300558-16	M/P .5/2.5 PPB GCPS9-33A @20X	J:\GC38\DATA\072123ICAL\0721F020.D	07/22/2023 06:05
17	KC2300558-17	M/P 1/5 PPB GCPS9-33A@10X	J:\GC38\DATA\072123ICAL\0721F021.D	07/22/2023 06:50
18	KC2300558-18	M/P 2/10 PPB GCPS9-33A @5X	J:\GC38\DATA\072123ICAL\0721F022.D	07/22/2023 07:34
19	KC2300558-19	M/P 5/25 PPB GCPS9-33A @2X	J:\GC38\DATA\072123ICAL\0721F023.D	07/22/2023 08:19
20	KC2300558-20	M/P 10/50 PPB GCPS9-33A	J:\GC38\DATA\072123ICAL\0721F024.D	07/22/2023 09:04
21	KC2300558-21	PERTH 100 PPB GSP9-30E	J:\GC38\DATA\072123ICAL\0721F025.D	07/22/2023 09:50
24	KC2300558-24	TOX 10 PPB GCPS9-29E @50X	J:\GC38\DATA\072123ICAL\0721F028.D	07/22/2023 12:06
25	KC2300558-25	TOX 25 PPB GCPS9-29E @20X	J:\GC38\DATA\072123ICAL\0721F029.D	07/22/2023 12:51
26	KC2300558-26	TOX 50 PPB GCPS9-29E @10X	J:\GC38\DATA\072123ICAL\0721F030.D	07/22/2023 13:37
27	KC2300558-27	TOX 100 PPB GCPS9-29E @5X	J:\GC38\DATA\072123ICAL\0721F031.D	07/22/2023 14:22
28	KC2300558-28	TOX 250 PPB GCPS9-29E @2X	J:\GC38\DATA\072123ICAL\0721F032.D	07/22/2023 15:08
29	KC2300558-29	TOX 500 PPB GCPS9-29E	J:\GC38\DATA\072123ICAL\0721F033.D	07/22/2023 15:54
31	KC2300558-31	CHLOR 2 PPB GCPS9-34D @100X	J:\GC38\DATA\072123ICAL\0721F035.D	07/22/2023 17:25
32	KC2300558-32	CHLOR 5 PPB GCPS9-34D @40X	J:\GC38\DATA\072123ICAL\0721F036.D	07/22/2023 18:11
33	KC2300558-33	CHLOR 10 PPB GCPS9-34D @20X	J:\GC38\DATA\072123ICAL\0721F037.D	07/22/2023 18:57
34	KC2300558-34	CHLOR 20 PPB GCPS9-34D @10X	J:\GC38\DATA\072123ICAL\0721F038.D	07/22/2023 19:43
35	KC2300558-35	CHLOR 50 PPB GCPS9-34D @4X	J:\GC38\DATA\072123ICAL\0721F039.D	07/22/2023 20:28
36	KC2300558-36	CHLOR 100 PPB GCPS9-34D @2X	J:\GC38\DATA\072123ICAL\0721F040.D	07/22/2023 21:14
37	KC2300558-37	CHLOR 200 PPB GCPS9-34D	J:\GC38\DATA\072123ICAL\0721F041.D	07/22/2023 21:59
01	KC2300558-01	8081 .2 PPB GCPS9-38C @50X	J:\GC38\DATA\092523\0925F008.D	09/25/2023 16:31
02	KC2300558-02	8081 .5 PPB GCPS9-38C@20X	J:\GC38\DATA\092523\0925F009.D	09/25/2023 17:12
03	KC2300558-03	8081 1 PPB GCPS9-38C @10X	J:\GC38\DATA\092523\0925F010.D	09/25/2023 17:54
04	KC2300558-04	8081 2 PPB GCPS9-38C@5X	J:\GC38\DATA\092523\0925F011.D	09/25/2023 18:35
05	KC2300558-05	8081 5 PPB GCPS9-38C @2X	J:\GC38\DATA\092523\0925F012.D	09/25/2023 19:17
06	KC2300558-06	8081 10 PPB GCPS9-38C	J:\GC38\DATA\092523\0925F013.D	09/25/2023 19:58

Analyte

2,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	0.6367	09	0.500	0.6481	10	1.000	0.6173	11	2.000	0.6254
12	5.000	0.6207	13	10.000	0.5908						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310186
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

Analyte

2,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	1.218	09	0.500	0.9887	10	1.000	0.8944	11	2.000	0.8766
12	5.000	0.8416	13	10.000	0.7926						

2,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	0.8004	09	0.500	0.742	10	1.000	0.6857	11	2.000	0.6872
12	5.000	0.6657	13	10.000	0.6335						

4,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.6998	02	0.500	0.7666	03	1.000	0.7179	04	2.000	0.7734
05	5.000	0.767	06	10.000	0.7788						

4,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.092	02	0.500	1.103	03	1.000	1.056	04	2.000	1.11
05	5.000	1.078	06	10.000	1.082						

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.652	02	0.500	0.7295	03	1.000	0.6919	04	2.000	0.7718
05	5.000	0.7854	06	10.000	0.7974						

Aldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.144	02	0.500	1.18	03	1.000	1.092	04	2.000	1.167
05	5.000	1.124	06	10.000	1.146						

Decachlorobiphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.486	02	0.500	1.484	03	1.000	1.397	04	2.000	1.425
05	5.000	1.282	06	10.000	1.192						

Dieldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.218	02	0.500	1.112	03	1.000	1.021	04	2.000	1.082
05	5.000	1.065	06	10.000	1.048						

Oxychlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.334	16	0.500	1.219	17	1.000	1.327	18	2.000	1.162
19	5.000	1.162	20	10.000	1.068						

Tetrachloro-m-xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.431	02	0.500	1.44	03	1.000	1.317	04	2.000	1.369
05	5.000	1.266	06	10.000	1.272						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310186
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

Analyte

Toxaphene {1}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.0225	25	25.000	0.02183	26	50.000	0.02111	27	100.000	0.02184
28	250.000	0.02031	29	500.000	0.01977						

Toxaphene {2}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01439	25	25.000	0.01426	26	50.000	0.01486	27	100.000	0.01778
28	250.000	0.0138	29	500.000	0.01374						

Toxaphene {3}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.02047	25	25.000	0.02012	26	50.000	0.02108	27	100.000	0.02258
28	250.000	0.02085	29	500.000	0.0205						

Toxaphene {4}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01299	25	25.000	0.01518	26	50.000	0.01477	27	100.000	0.01464
28	250.000	0.01414	29	500.000	0.01422						

Toxaphene {5}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.02252	25	25.000	0.02798	26	50.000	0.02609	27	100.000	0.02517
28	250.000	0.02539	29	500.000	0.02503						

Toxaphene {6}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.004329	25	25.000	0.006344	26	50.000	0.006614	27	100.000	0.006822
28	250.000	0.006606	29	500.000	0.006504						

beta-BHC

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.7744	02	0.500	0.7237	03	1.000	0.6802	04	2.000	0.6875
05	5.000	0.6635	06	10.000	0.6553						

cis-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.156	02	0.500	1.195	03	1.000	1.154	04	2.000	1.181
05	5.000	1.112	06	10.000	1.111						

cis-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.517	16	0.500	1.494	17	1.000	1.412	18	2.000	1.308
19	5.000	1.314	20	10.000	1.225						

trans-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.341	02	0.500	1.26	03	1.000	1.114	04	2.000	1.18
05	5.000	1.114	06	10.000	1.117						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310186
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

Analyte

trans-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.578	16	0.500	1.417	17	1.000	1.378	18	2.000	1.253
19	5.000	1.252	20	10.000	1.163						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310186
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	3.1	≤20	0.6231	
2,4'-DDE	TRG	Average RF	% RSD	16.4	≤20	0.9353	
2,4'-DDT	TRG	Average RF	% RSD	8.5	≤20	0.7024	
4,4'-DDD	TRG	Average RF	% RSD	4.4	≤20	0.7506	
4,4'-DDE	TRG	Average RF	% RSD	1.8	≤20	1.087	
4,4'-DDT	TRG	Average RF	% RSD	7.8	≤20	0.738	
Aldrin	TRG	Average RF	% RSD	2.7	≤20	1.142	
Decachlorobiphenyl	SURR	Average RF	% RSD	8.5	≤20	1.378	
Dieldrin	TRG	Average RF	% RSD	6.4	≤20	1.091	
Oxychlordane	TRG	Average RF	% RSD	8.6	≤20	1.212	
Tetrachloro-m-xylene	SURR	Average RF	% RSD	5.7	≤20	1.349	
Toxaphene {1}	MULTI	Average RF	% RSD	4.9	≤20	0.02123	
Toxaphene {2}	MULTI	Average RF	% RSD	10.2	≤20	0.01481	
Toxaphene {3}	MULTI	Average RF	% RSD	4.2	≤20	0.02093	
Toxaphene {4}	MULTI	Average RF	% RSD	5.3	≤20	0.01432	
Toxaphene {5}	MULTI	Average RF	% RSD	7.0	≤20	0.02536	
Toxaphene {6}	MULTI	Average RF	% RSD	15.0	≤20	0.006203	
beta-BHC	TRG	Average RF	% RSD	6.4	≤20	0.6974	
cis-Chlordane	TRG	Average RF	% RSD	3.0	≤20	1.152	
cis-Nonachlor	TRG	Average RF	% RSD	8.3	≤20	1.378	
trans-Chlordane	TRG	Average RF	% RSD	8.0	≤20	1.188	
trans-Nonachlor	TRG	Average RF	% RSD	11.1	≤20	1.34	

Client: Floyd Snider
Project: SmithKem

Service Request: K2310186
Calibration Date: 7/22/2023

Initial Calibration Verification Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB XLB

#	Lab Code	Sample Name	File Location	Acquisition Date
14	KC2300558-14	24 ICV 2 PPB GCPS9-27I	J:\GC38\DATA\072123ICAL\0721F018.D	07/22/2023 04:33
22	KC2300558-22	PERTH ICV 25 PPB GSP9-30I	J:\GC38\DATA\072123ICAL\0721F026.D	07/22/2023 10:36
23	KC2300558-23	MISC ICV 2 PPB GCPS9-30G	J:\GC38\DATA\072123ICAL\0721F027.D	07/22/2023 11:21
30	KC2300558-30	TOX ICV 100 PPB GCPS9-22H @5X	J:\GC38\DATA\072123ICAL\0721F034.D	07/22/2023 16:39
38	KC2300558-38	CHLOR ICV 50 PPB GCPS9-24H	J:\GC38\DATA\072123ICAL\0721F042.D	07/22/2023 22:44
39	KC2300558-39	TOX ICV 100 PPB GCPS9-22H @5X	J:\GC38\DATA\072423\0724F009.D	07/25/2023 01:24
40	KC2300558-40	PERTH ICV 25 PPB GSP9-24F	J:\GC38\DATA\072523\0725F007.D	07/25/2023 21:01
07	KC2300558-07	8081 ICV 2 PPB GCPS9-32H	J:\GC38\DATA\092523\0925F014.D	09/25/2023 20:39

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Aldrin	2.00	1.99	1.188E0	1.182E0	-0.503	±20	Average RF
beta-BHC	2.00	2.14	7.719E-1	7.306E-1	7.23	±20	Quadratic
cis-Chlordane	2.00	2.00	1.212E0	1.215E0	0.231	±20	Average RF
trans-Chlordane	2.00	2.04	1.173E0	1.197E0	2.00	±20	Average RF
2,4'-DDD	2.00	2.02	6.228E-1	6.297E-1	1.11	±20	Average RF
4,4'-DDD	2.00	2.01	8.482E-1	8.537E-1	0.647	±20	Average RF
2,4'-DDE	2.00	1.90	7.857E-1	7.465E-1	-4.998	±20	Average RF
4,4'-DDE	2.00	2.06	1.098E0	1.131E0	3.01	±20	Average RF
2,4'-DDT	2.00	1.99	6.847E-1	6.819E-1	-0.413	±20	Average RF
4,4'-DDT	2.00	1.90	7.214E-1	6.861E-1	-4.900	±20	Average RF
Dieldrin	2.00	1.96	1.097E0	1.073E0	-2.155	±20	Average RF
cis-Nonachlor	2.00	1.70	1.255E0	1.066E0	-15.045	±20	Average RF
trans-Nonachlor	2.00	1.82	1.222E0	1.11E0	-9.211	±20	Average RF
Oxychlordane	2.00	1.80	1.202E0	1.083E0	-9.848	±20	Average RF
Toxaphene	100	102			1.61	±20	NA

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Toxaphene {1}	100	109	7.818E-3	8.531E-3	9.11	±100	Average RF
Toxaphene {2}	100	89.2	6.518E-3	5.814E-3	-10.811	±100	Average RF
Toxaphene {3}	100	105	1.105E-2	1.16E-2	4.94	±100	Average RF
Toxaphene {4}	100	103	1.333E-2	1.367E-2	2.53	±100	Average RF
Toxaphene {5}	100	104	1.657E-2	1.722E-2	3.90	±100	Average RF
Toxaphene {6}	100	100	1.847E-2	1.847E-2	-0.013	±100	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310186
Calibration Date: 7/22/2023

Initial Calibration Verification Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

#	Lab Code	Sample Name	File Location	Acquisition Date
14	KC2300558-14	24 ICV 2 PPB GCPS9-27I	J:\GC38\DATA\072123ICAL\0721F018.D	07/22/2023 04:33
22	KC2300558-22	PERTH ICV 25 PPB GSP9-30I	J:\GC38\DATA\072123ICAL\0721F026.D	07/22/2023 10:36
23	KC2300558-23	MISC ICV 2 PPB GCPS9-30G	J:\GC38\DATA\072123ICAL\0721F027.D	07/22/2023 11:21
30	KC2300558-30	TOX ICV 100 PPB GCPS9-22H @5X	J:\GC38\DATA\072123ICAL\0721F034.D	07/22/2023 16:39
38	KC2300558-38	CHLOR ICV 50 PPB GCPS9-24H	J:\GC38\DATA\072123ICAL\0721F042.D	07/22/2023 22:44
39	KC2300558-39	TOX ICV 100 PPB GCPS9-22H @5X	J:\GC38\DATA\072423\0724F009.D	07/25/2023 01:24
40	KC2300558-40	PERTH ICV 25 PPB GSP9-24F	J:\GC38\DATA\072523\0725F007.D	07/25/2023 21:01
07	KC2300558-07	8081 ICV 2 PPB GCPS9-32H	J:\GC38\DATA\092523\0925F014.D	09/25/2023 20:39

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Aldrin	2.00	2.05	1.142E0	1.173E0	2.66	±20	Average RF
beta-BHC	2.00	2.03	6.974E-1	7.083E-1	1.56	±20	Average RF
cis-Chlordane	2.00	2.10	1.152E0	1.209E0	4.96	±20	Average RF
trans-Chlordane	2.00	2.01	1.188E0	1.193E0	0.489	±20	Average RF
2,4'-DDD	2.00	2.05	6.231E-1	6.396E-1	2.64	±20	Average RF
4,4'-DDD	2.00	2.13	7.506E-1	7.986E-1	6.39	±20	Average RF
2,4'-DDE	2.00	1.92	9.353E-1	8.995E-1	-3.836	±20	Average RF
4,4'-DDE	2.00	2.06	1.087E0	1.119E0	2.96	±20	Average RF
2,4'-DDT	2.00	1.98	7.024E-1	6.94E-1	-1.192	±20	Average RF
4,4'-DDT	2.00	1.99	7.38E-1	7.326E-1	-0.722	±20	Average RF
Dieldrin	2.00	1.92	1.091E0	1.049E0	-3.879	±20	Average RF
cis-Nonachlor	2.00	1.79	1.378E0	1.23E0	-10.745	±20	Average RF
trans-Nonachlor	2.00	1.86	1.34E0	1.243E0	-7.225	±20	Average RF
Oxychlordane	2.00	1.89	1.212E0	1.143E0	-5.677	±20	Average RF
Toxaphene	100	109			8.68	±20	NA

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Toxaphene {1}	100	105	2.123E-2	2.229E-2	5.02	±100	Average RF
Toxaphene {2}	100	109	1.481E-2	1.607E-2	8.53	±100	Average RF
Toxaphene {3}	100	106	2.093E-2	2.211E-2	5.61	±100	Average RF
Toxaphene {4}	100	108	1.432E-2	1.554E-2	8.46	±100	Average RF
Toxaphene {5}	100	108	2.536E-2	2.746E-2	8.29	±100	Average RF
Toxaphene {6}	100	116	6.203E-3	7.205E-3	16.15	±100	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310186
Date Analyzed: 10/13/23 18:26

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\101323\1013F004.D\
Signal ID: DB-35MS

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 820774
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.24	1.1423	1.2788	12.0	NA	±20	Average RF
beta-BHC	2.00	2.13	0.6974	0.7425	6.5	NA	±20	Average RF
cis-Chlordane	2.00	2.12	1.1517	1.2226	6.2	NA	±20	Average RF
trans-Chlordane	2.00	2.05	1.1876	1.2188	2.6	NA	±20	Average RF
2,4'-DDD	2.00	1.98	0.6231	0.6182	-0.8	NA	±20	Average RF
4,4'-DDD	2.00	2.30	0.7506	0.8629	15.0	NA	±20	Average RF
2,4'-DDE	2.00	1.75	0.9353	0.8188	-12.5	NA	±20	Average RF
4,4'-DDE	2.00	2.15	1.0867	1.1698	7.6	NA	±20	Average RF
2,4'-DDT	2.00	1.79	0.7024	0.6282	-10.6	NA	±20	Average RF
4,4'-DDT	2.00	2.02	0.738	0.7468	1.2	NA	±20	Average RF
Dieldrin	2.00	2.08	1.0912	1.1332	3.8	NA	±20	Average RF
cis-Nonachlor	2.00	2.26	1.3783	1.5554	12.8	NA	±20	Average RF
trans-Nonachlor	2.00	2.03	1.3402	1.3606	1.5	NA	±20	Average RF
Oxychlordane	2.00	2.10	1.2122	1.275	5.2	NA	±20	Average RF
Toxaphene	100	105	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	97.5	0.0212	0.0207	-2.5	NA	±100	Average RF
Toxaphene {2}	100	103	0.0148	0.0152	2.6	NA	±100	Average RF
Toxaphene {3}	100	109	0.0209	0.0228	9.1	NA	±100	Average RF
Toxaphene {4}	100	108	0.0143	0.0155	8.0	NA	±100	Average RF
Toxaphene {5}	100	113	0.0254	0.0287	13.1	NA	±100	Average RF
Toxaphene {6}	100	102	0.0062	0.0063	1.7	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.07	1.3777	1.4237	3.3	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	2.05	1.3493	1.3828	2.5	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310186
Date Analyzed: 10/13/23 18:26

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\101323\1013F004.D\
Signal ID: DB XLB

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 820774
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.30	1.1876	1.3652	14.9	NA	±20	Average RF
beta-BHC	2.00	2.17	0.7719	0.7383	NA	8.5	±20	Quadratic
cis-Chlordane	2.00	2.17	1.2121	1.3129	8.3	NA	±20	Average RF
trans-Chlordane	2.00	2.20	1.1734	1.2912	10.0	NA	±20	Average RF
2,4'-DDD	2.00	2.13	0.6228	0.6622	6.3	NA	±20	Average RF
4,4'-DDD	2.00	2.19	0.8482	0.9282	9.4	NA	±20	Average RF
2,4'-DDE	2.00	2.26	0.7857	0.886	12.8	NA	±20	Average RF
4,4'-DDE	2.00	2.31	1.0981	1.2659	15.3	NA	±20	Average RF
2,4'-DDT	2.00	1.71	0.6847	0.5868	-14.3	NA	±20	Average RF
4,4'-DDT	2.00	1.95	0.7214	0.7044	-2.4	NA	±20	Average RF
Dieldrin	2.00	2.25	1.0966	1.2354	12.7	NA	±20	Average RF
cis-Nonachlor	2.00	2.58	1.2545	1.6155	28.8*	NA	±20	Average RF
trans-Nonachlor	2.00	2.34	1.2224	1.4309	17.1	NA	±20	Average RF
Oxychlordane	2.00	2.23	1.2018	1.3389	11.4	NA	±20	Average RF
Toxaphene	100	110	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	113	0.0078	0.0088	12.5	NA	±100	Average RF
Toxaphene {2}	100	100	0.0065	0.0065	0.4	NA	±100	Average RF
Toxaphene {3}	100	114	0.0111	0.0126	13.7	NA	±100	Average RF
Toxaphene {4}	100	110	0.0133	0.0147	9.9	NA	±100	Average RF
Toxaphene {5}	100	109	0.0166	0.018	8.9	NA	±100	Average RF
Toxaphene {6}	100	113	0.0185	0.0208	12.5	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.29	1.2072	1.3815	14.4	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	2.17	1.3913	1.5071	8.3	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310186
Date Analyzed: 10/14/23 06:07

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\101323\1013F021.D\
Signal ID: DB-35MS

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 820774
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.23	1.1423	1.2723	11.4	NA	±20	Average RF
beta-BHC	2.00	2.13	0.6974	0.7409	6.2	NA	±20	Average RF
cis-Chlordane	2.00	2.12	1.1517	1.2195	5.9	NA	±20	Average RF
trans-Chlordane	2.00	2.04	1.1876	1.2108	2.0	NA	±20	Average RF
2,4'-DDD	2.00	1.96	0.6231	0.6098	-2.1	NA	±20	Average RF
4,4'-DDD	2.00	2.25	0.7506	0.846	12.7	NA	±20	Average RF
2,4'-DDE	2.00	1.75	0.9353	0.8161	-12.8	NA	±20	Average RF
4,4'-DDE	2.00	2.21	1.0867	1.2018	10.6	NA	±20	Average RF
2,4'-DDT	2.00	1.67	0.7024	0.5857	-16.6	NA	±20	Average RF
4,4'-DDT	2.00	1.95	0.738	0.7189	-2.6	NA	±20	Average RF
Dieldrin	2.00	2.11	1.0912	1.15	5.4	NA	±20	Average RF
cis-Nonachlor	2.00	2.22	1.3783	1.5309	11.1	NA	±20	Average RF
trans-Nonachlor	2.00	2.01	1.3402	1.3488	0.6	NA	±20	Average RF
Oxychlordane	2.00	2.09	1.2122	1.2677	4.6	NA	±20	Average RF
Toxaphene	100	104	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	97.4	0.0212	0.0207	-2.6	NA	±100	Average RF
Toxaphene {2}	100	100	0.0148	0.0149	0.4	NA	±100	Average RF
Toxaphene {3}	100	106	0.0209	0.0221	5.8	NA	±100	Average RF
Toxaphene {4}	100	109	0.0143	0.0157	9.4	NA	±100	Average RF
Toxaphene {5}	100	104	0.0254	0.0265	4.4	NA	±100	Average RF
Toxaphene {6}	100	106	0.0062	0.0066	5.9	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.13	1.3777	1.4666	6.5	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	2.04	1.3493	1.3756	2.0	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310186
Date Analyzed: 10/14/23 06:07

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\101323\1013F021.D\
Signal ID: DB XLB

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 820774
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.27	1.1876	1.3457	13.3	NA	±20	Average RF
beta-BHC	2.00	2.15	0.7719	0.7331	NA	7.7	±20	Quadratic
cis-Chlordane	2.00	2.13	1.2121	1.2877	6.2	NA	±20	Average RF
trans-Chlordane	2.00	2.15	1.1734	1.2626	7.6	NA	±20	Average RF
2,4'-DDD	2.00	2.09	0.6228	0.6514	4.6	NA	±20	Average RF
4,4'-DDD	2.00	2.11	0.8482	0.8937	5.4	NA	±20	Average RF
2,4'-DDE	2.00	2.22	0.7857	0.8737	11.2	NA	±20	Average RF
4,4'-DDE	2.00	2.26	1.0981	1.2391	12.8	NA	±20	Average RF
2,4'-DDT	2.00	1.65	0.6847	0.5653	-17.4	NA	±20	Average RF
4,4'-DDT	2.00	1.84	0.7214	0.6619	-8.2	NA	±20	Average RF
Dieldrin	2.00	2.26	1.0966	1.2378	12.9	NA	±20	Average RF
cis-Nonachlor	2.00	2.52	1.2545	1.5783	25.8*	NA	±20	Average RF
trans-Nonachlor	2.00	2.33	1.2224	1.4252	16.6	NA	±20	Average RF
Oxychlordane	2.00	2.20	1.2018	1.3189	9.8	NA	±20	Average RF
Toxaphene	100	109	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	110	0.0078	0.0086	10.4	NA	±100	Average RF
Toxaphene {2}	100	103	0.0065	0.0067	3.4	NA	±100	Average RF
Toxaphene {3}	100	120	0.0111	0.0132	19.8	NA	±100	Average RF
Toxaphene {4}	100	102	0.0133	0.0136	1.6	NA	±100	Average RF
Toxaphene {5}	100	113	0.0166	0.0187	12.6	NA	±100	Average RF
Toxaphene {6}	100	106	0.0185	0.0196	6.1	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.30	1.2072	1.3853	14.7	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	2.10	1.3913	1.4626	5.1	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310186
Date Analyzed: 10/14/23 17:50

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\101323\1013F038.D\
Signal ID: DB-35MS

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 820774
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.20	1.1423	1.2581	10.1	NA	±20	Average RF
beta-BHC	2.00	2.10	0.6974	0.732	5.0	NA	±20	Average RF
cis-Chlordane	2.00	2.09	1.1517	1.2027	4.4	NA	±20	Average RF
trans-Chlordane	2.00	2.02	1.1876	1.1972	0.8	NA	±20	Average RF
2,4'-DDD	2.00	1.98	0.6231	0.6175	-0.9	NA	±20	Average RF
4,4'-DDD	2.00	2.20	0.7506	0.8262	10.1	NA	±20	Average RF
2,4'-DDE	2.00	1.73	0.9353	0.8075	-13.7	NA	±20	Average RF
4,4'-DDE	2.00	2.10	1.0867	1.1431	5.2	NA	±20	Average RF
2,4'-DDT	2.00	1.63	0.7024	0.5712	-18.7	NA	±20	Average RF
4,4'-DDT	2.00	1.93	0.738	0.7112	-3.6	NA	±20	Average RF
Dieldrin	2.00	2.12	1.0912	1.1545	5.8	NA	±20	Average RF
cis-Nonachlor	2.00	2.17	1.3783	1.498	8.7	NA	±20	Average RF
trans-Nonachlor	2.00	1.99	1.3402	1.3343	-0.4	NA	±20	Average RF
Oxychlordane	2.00	2.06	1.2122	1.249	3.0	NA	±20	Average RF
Toxaphene	100	105	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	96.6	0.0212	0.0205	-3.4	NA	±100	Average RF
Toxaphene {2}	100	102	0.0148	0.0151	1.7	NA	±100	Average RF
Toxaphene {3}	100	106	0.0209	0.0222	5.9	NA	±100	Average RF
Toxaphene {4}	100	108	0.0143	0.0155	8.0	NA	±100	Average RF
Toxaphene {5}	100	112	0.0254	0.0284	12.2	NA	±100	Average RF
Toxaphene {6}	100	108	0.0062	0.0067	8.0	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.09	1.3777	1.4368	4.3	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.97	1.3493	1.3301	-1.4	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310186
Date Analyzed: 10/14/23 17:50

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\101323\1013F038.D\
Signal ID: DB XLB

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 820774
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.25	1.1876	1.3329	12.2	NA	±20	Average RF
beta-BHC	2.00	2.15	0.7719	0.7333	NA	7.7	±20	Quadratic
cis-Chlordane	2.00	2.11	1.2121	1.2764	5.3	NA	±20	Average RF
trans-Chlordane	2.00	2.14	1.1734	1.2544	6.9	NA	±20	Average RF
2,4'-DDD	2.00	2.05	0.6228	0.6374	2.3	NA	±20	Average RF
4,4'-DDD	2.00	2.06	0.8482	0.8752	3.2	NA	±20	Average RF
2,4'-DDE	2.00	2.17	0.7857	0.8532	8.6	NA	±20	Average RF
4,4'-DDE	2.00	2.21	1.0981	1.2146	10.6	NA	±20	Average RF
2,4'-DDT	2.00	1.60	0.6847	0.549	-19.8	NA	±20	Average RF
4,4'-DDT	2.00	1.81	0.7214	0.6538	-9.4	NA	±20	Average RF
Dieldrin	2.00	2.21	1.0966	1.2136	10.7	NA	±20	Average RF
cis-Nonachlor	2.00	2.47	1.2545	1.547	23.3*	NA	±20	Average RF
trans-Nonachlor	2.00	2.27	1.2224	1.3889	13.6	NA	±20	Average RF
Oxychlordane	2.00	2.18	1.2018	1.3066	8.7	NA	±20	Average RF
Toxaphene	100	114	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	108	0.0078	0.0085	8.2	NA	±100	Average RF
Toxaphene {2}	100	100	0.0065	0.0065	0.2	NA	±100	Average RF
Toxaphene {3}	100	120	0.0111	0.0132	19.7	NA	±100	Average RF
Toxaphene {4}	100	107	0.0133	0.0142	6.7	NA	±100	Average RF
Toxaphene {5}	100	125	0.0166	0.0208	25.3	NA	±100	Average RF
Toxaphene {6}	100	122	0.0185	0.0226	22.2	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.23	1.2072	1.3445	11.4	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	2.05	1.3913	1.4225	2.2	NA	±20	Average RF

Client: Floyd Snider **Service Request:**K2310186
Project: SmithKem

Analysis Run Log
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B **Analysis Lot:**820774
Instrument ID:K-GC-38

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC38\DATA\101323\1013F003.D\	Performance Evaluation	KQ2318307-01	10/13/2023	17:45:00	
J:\GC38\DATA\101323\1013F004.D\	Continuing Calibration Verification	KQ2318307-02	10/13/2023	18:26:00	
J:\GC38\DATA\101323\1013F005.D\	Continuing Calibration Verification	KQ2318307-02	10/13/2023	19:07:00	
J:\GC38\DATA\101323\1013F006.D\	Continuing Calibration Verification	KQ2318307-02	10/13/2023	19:47:00	
J:\GC38\DATA\101323\1013F007.D\	Continuing Calibration Verification	KQ2318307-02	10/13/2023	20:29:00	
J:\GC38\DATA\101323\1013F008.D\	Continuing Calibration Blank	KQ2318307-03	10/13/2023	21:10:00	
J:\GC38\DATA\101323\1013F009.D\	Method Blank	KQ2316147-10	10/13/2023	21:52:00	
J:\GC38\DATA\101323\1013F010.D\	Lab Control Sample	KQ2316147-07	10/13/2023	22:34:00	
J:\GC38\DATA\101323\1013F011.D\	Lab Control Sample	KQ2316147-08	10/13/2023	23:15:00	
J:\GC38\DATA\101323\1013F012.D\	Lab Control Sample	KQ2316147-09	10/13/2023	23:57:00	
J:\GC38\DATA\101323\1013F013.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	00:38:00	
J:\GC38\DATA\101323\1013F014.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	01:18:00	
J:\GC38\DATA\101323\1013F015.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	01:59:00	
J:\GC38\DATA\101323\1013F016.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	02:40:00	
J:\GC38\DATA\101323\1013F017.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	03:22:00	
J:\GC38\DATA\101323\1013F018.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	04:03:00	
J:\GC38\DATA\101323\1013F020.D\	Performance Evaluation	KQ2318307-04	10/14/2023	05:26:00	
J:\GC38\DATA\101323\1013F021.D\	Continuing Calibration Verification	KQ2318307-05	10/14/2023	06:07:00	
J:\GC38\DATA\101323\1013F022.D\	Continuing Calibration Verification	KQ2318307-05	10/14/2023	06:49:00	
J:\GC38\DATA\101323\1013F023.D\	Continuing Calibration Verification	KQ2318307-05	10/14/2023	07:30:00	
J:\GC38\DATA\101323\1013F024.D\	Continuing Calibration Verification	KQ2318307-05	10/14/2023	08:11:00	
J:\GC38\DATA\101323\1013F025.D\	Continuing Calibration Blank	KQ2318307-06	10/14/2023	08:53:00	
J:\GC38\DATA\101323\1013F026.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	09:34:00	
J:\GC38\DATA\101323\1013F027.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	10:15:00	
J:\GC38\DATA\101323\1013F028.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	10:57:00	
J:\GC38\DATA\101323\1013F029.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	11:38:00	
J:\GC38\DATA\101323\1013F030.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	12:20:00	
J:\GC38\DATA\101323\1013F031.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	13:01:00	
J:\GC38\DATA\101323\1013F032.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	13:43:00	
J:\GC38\DATA\101323\1013F033.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	14:24:00	
J:\GC38\DATA\101323\1013F034.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	15:05:00	
J:\GC38\DATA\101323\1013F035.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	15:46:00	
J:\GC38\DATA\101323\1013F037.D\	Performance Evaluation	KQ2318307-07	10/14/2023	17:09:00	
J:\GC38\DATA\101323\1013F038.D\	Continuing Calibration Verification	KQ2318307-08	10/14/2023	17:50:00	
J:\GC38\DATA\101323\1013F039.D\	Continuing Calibration Verification	KQ2318307-08	10/14/2023	18:32:00	
J:\GC38\DATA\101323\1013F040.D\	Continuing Calibration Verification	KQ2318307-08	10/14/2023	19:14:00	
J:\GC38\DATA\101323\1013F041.D\	Continuing Calibration Verification	KQ2318307-08	10/14/2023	19:54:00	
J:\GC38\DATA\101323\1013F042.D\	Continuing Calibration Blank	KQ2318307-09	10/14/2023	20:35:00	
J:\GC38\DATA\101323\1013F043.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	21:16:00	
J:\GC38\DATA\101323\1013F044.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	21:58:00	
J:\GC38\DATA\101323\1013F045.D\	ZZZZZZZ	ZZZZZZZ	10/14/2023	22:39:00	
J:\GC38\DATA\101323\1013F046.D\	AOC3-02-2.0	K2310186-001	10/14/2023	23:21:00	
J:\GC38\DATA\101323\1013F047.D\	AOC3-03-2.0	K2310186-004	10/15/2023	00:02:00	
J:\GC38\DATA\101323\1013F048.D\	AOC3-04-2.0	K2310186-006	10/15/2023	00:44:00	
J:\GC38\DATA\101323\1013F049.D\	AOC3-05-2.0	K2310186-008	10/15/2023	01:25:00	

Prep Summary Report

Client: Floyd Snider **Service Request:**K2310186
Project: SmithKem
Sample Matrix: Soil

Low Level Organochlorine Pesticides by GC

Prep Method: EPA 3546 **Extraction Lot:** 426498
Analytical Method: 8081B **Extraction Date:** 09/15/23 11:35

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
AOC3-02-2.0	K2310186-001	9/7/23	9/12/23	2.363 g	10 mL	86.4
AOC3-03-2.0	K2310186-004	9/7/23	9/12/23	2.224 g	10 mL	81.3
AOC3-04-2.0	K2310186-006	9/7/23	9/12/23	2.221 g	10 mL	81.5
AOC3-05-2.0	K2310186-008	9/7/23	9/12/23	2.111 g	10 mL	83.1
Lab Control Sample	KQ2316147-07LCS	NA	NA	2 g	10 mL	
Lab Control Sample	KQ2316147-08LCS	NA	NA	2 g	10 mL	
Lab Control Sample	KQ2316147-09LCS	NA	NA	2 g	10 mL	
Method Blank	KQ2316147-10MB	NA	NA	2.8850 g	10 mL	

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

January 11, 2024

Analytical Report for Service Request No: K2310188
Revised Service Request No: K2310188.01

Pamela Osterhout
Floyd Snider
601 Union Street, Suite 600
Seattle, WA 98101

RE: SmithKem

Dear Pamela,

Enclosed is the revised report for the sample(s) submitted to our laboratory September 12, 2023 For your reference, these analyses have been assigned our service request number **K2310188.**

The report has been revised to Level III.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at Mark.Harris@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Mark Harris
Project Manager

REVISED
10:42 am, Jan 11, 2024

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
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ALS Environmental

Client: Floyd Snider
Project: SmithKem
Sample Matrix: Soil

Service Request: K2310188
Date Received: 09/12/2023

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier III level requested by the client.

Sample Receipt:

Nineteen soil samples were received for analysis at ALS Environmental on 09/12/2023. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivoa GC:

Method 8081B, 10/17/2023: The analysis of Chlorinated Pesticides by EPA 8081B requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for cis-Nonachlor in CCV KQ2319084-05. The results were reported from the column with an acceptable CCV. The data quality was not affected. No further corrective action was necessary.
Method 8081B, 10/17/2023: The analysis of Chlorinated Pesticides by EPA 8081B requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for 2,4'-DDT in CCV KQ2319084-08. The results were reported from the column with an acceptable CCV. The data quality was not affected. No further corrective action was necessary.
Method 8081B, 10/16/2023: The analysis of Chlorinated Pesticides by EPA 8081B requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for 4,4'-DDE, cis-Nonachlor, and Decachlorobiphenyl in CCV KQ2319084-02. The results were reported from the column with an acceptable CCV. The data quality was not affected. No further corrective action was necessary.
Method 8081B, 10/17/2023: The detection limit was elevated for cis-Nonachlor in sample AOC2-07-2.0. The chromatogram indicated the presence of non-target background components. The chromatogram exhibited poor peak shape for the analyte in question. The matrix interference prevented adequate resolution of the target compound at the normal limit. The result was flagged to indicate the matrix interference.
Method 8081B, 10/17/2023: The control criteria were exceeded for Decachlorobiphenyl in the undiluted analysis of sample AOC2-08-2.0 due to matrix interference. The presence of non-target background components prevented adequate resolution of the surrogate. The sample in question was reanalyzed at multiple dilution levels, but produced similar results. Accurate quantitation was not possible. No further corrective action was appropriate.

Method 8081B, 10/17/2023: The result for several target analytes in sample AOC2-08-2.0 was above the range of the associated calibration in the undiluted analysis. The sample was also reanalyzed at multiple dilution levels to bring the analytes within the range of the associated calibration. In accordance with client instructions, all results from each injection are reported. The results above the range of the calibration were flagged with "E" to indicate the issue.

Method 8081B, 10/30/2023: The analysis of Chlorinated Pesticides by EPA 8081B requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for Tetrachloro-m-xylene in CCV KQ2319327-02. The results were reported from the column with an acceptable CCV. The data quality was not affected. No further corrective action was necessary.
Method 8081B, 10/30/2023: CCV KQ2319327-02 was not not spiked with all target analytes. The CCV was processed with the spike list that included Dieldrin because it is the only analyte scheduled for 200X dilution. Dieldrin was above ICAL range on one column for both 100X analyses.

Approved by Noe D. Dan Date 01/11/2024

Method 8081B, 10/28/2023: The analysis of sample AOC2-08-2.0 for all compounds was initially performed within the recommended holding time. Reanalysis at dilutions was required. The re-analyses were performed 3-5 days past the recommended holding time. In accordance with client instructions, all results from each injection are reported.
Method 8081B, 10/30/2023: The analysis of Chlorinated Pesticides by EPA 8081B requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for 2,4'-DDE, cis-Nonachlor, and 4,4'-DDT in CCV KQ2319283-02. The results were reported from the column with an acceptable CCV. The data quality was not affected. No further corrective action was necessary.
Method 8081B, 10/28/2023: CCV KQ2319283-02 was not not spiked with all target analytes. The CCV was processed with the spike list for all analytes requiring a 10X dilution for sample AOC2-08-2.0. Several analytes requiring a 100X dilution for sample AOC2-08-2.0 are not included. The 100X was re-analyzed 10/30/23 with a CCV spiked with all target analytes.

Organic LC:
Method 1694M, 09/27/2023: All samples were received past holding time. The analysis was performed as soon as possible after receipt by the laboratory. The data was flagged to indicate the holding time violation.

Approved by Noe D. Diaz Date 01/11/2024

Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
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Chain of Custody Record & Laboratory Analysis Request

K2310188

ALS Kelso

ARI Assigned Number:	Turn-around Requested: Standard	Page: 7 of 11	
ARI Client Company: Floyd Snider	Phone: 206-805-2188	Date: 9/6/23	Ice Present?
Client Contact: Pamela Osterhout		No. of Coolers:	Cooler Temps:
Client Project Name: Smith Kem			
Client Project #:	Samplers: PO/MTM/G.S.		

Analytical Resources, LLC
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: # Pesticides 8081B-LL	Archive Freeze upon receipt	Atrazine method 1629	Notes/Comments
AOC2-03-2.0	9/6/23	10:45	Soil	1	✓			
AOC2-03-4.0		10:50	Soil	1	✓			
AOC2-03-7.5		10:55		1		✓		
AOC2-04-3.0		09:50		1	✓		✓	
~~AOC2~~								P.O.
AOC2-04-7.0		09:55		1		✓		
AOC2-05-3.0		09:30		1	✓		✓	
AOC2-05-6.0		09:35		1	✓		✓	
AOC2-05-7.0		09:40		1		✓		
AOC2-105-3.0		09:32		1	✓		✓	

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by (Signature)	Received by (Signature)
*See pages 1-4 for pesticide list	Printed Name: P.O.	Printed Name: Naomi Pedersen	Printed Name:	Printed Name:
	Company: F/S.	Company: ALS	Company:	Company:
	Date & Time: 9/6/23 @ 09:00	Date & Time: 9/12/23 0945	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

SAMPLE CHAIN OF CUSTODY

ALS Kelso 1723101 88

Page # 8 of 11

Report To Pamela Osterhout
Company Floyd Snider
Address 601 Union St, Suite 600
City, State, ZIP Seattle, WA 98101
Phone 206 805-2188 Email

SAMPLERS (*signature*)

PROJECT NAME: Smith Kem

PO #

REMARKS: * See pages 1-4 for pesticide list
Project specific RLs? - Yes / No

INVOICE TO: Floyd Snider

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	* Pesticides 8081B-LL	Archive - freeze upon receipt	Method 1694 Atrazine		Notes
ADC2-06-2.0		9/6/23	09:15	Soil	1								✓		✓		
ADC2-06-4.0		"	09:20	"	1									✓			
ADC2-07-2.0		"	11:00	"	1								✓				
ADC2-07-4.0		"	11:05	"	1									✓			
ADC2-08-2.0		"	15:00	"	1								✓				
ADC2-08-4.0		"	15:05	"	1								✓				
ADC2-08-6.0		"	15:10	"	1									✓			
ADC3-01-0.5-1.0		9/7/23	08:05	"	1								✓				
ADC3-01-2.0		"	08:10	"	1									✓			
ADC3-02-0.5-1.0		"	08:25	"	1								✓				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	P.O.	F/S	9/11/23	0900
Received by: ~~P.O.~~ NR	Naomi Redberg	ALS	9/12/23	0945
Relinquished by: ~~F/S~~				
Received by:				

~~Friedman & Bruya, Inc.~~
~~Ph. (206) 285-8282~~
ALS Kelso

PM MH

Cooler Receipt and Preservation Form

Client Pamela Osterhout Service Request K23 10188

Received: 9/12/23 Opened: 9/12/23 By: AR Unloaded: 9/12/23 By: AP

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 1 front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
4.2	5.0	IR01	1 of 3			7733 7422 1969	
4.7	-	IR01	2 of 3			7733 7422 7807	
3.1	3.4	IR01	3 of 3			7733 7422 7900	

4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column above:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # above and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

6. Packing material: *Inserts* (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
14. Was C12/Res negative? (NA) Y N
15. Were samples received within the method specified time limit? If not, notate the error below and notify the PM (NA) Y N
16. Were 100ml sterile microbiology bottles filled exactly to the 100ml mark? (NA) Y N Underfilled Overfilled

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

Total Solids

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23 - 09/07/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	As Received

Solids, Total

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
AOC2--03-2.0	K2310188-001	**79.0**	-	-	1	09/14/23 15:44	
AOC2-03-4.0	K2310188-002	**82.2**	-	-	1	09/14/23 15:44	
AOC2-04-3.0	K2310188-004	**75.1**	-	-	1	09/14/23 15:44	
AOC2-05-3.0	K2310188-006	**88.2**	-	-	1	09/14/23 15:44	
AOC2-05-6.0	K2310188-007	**91.3**	-	-	1	09/14/23 15:44	
AOC2-105-3.0	K2310188-009	**87.9**	-	-	1	09/14/23 15:44	
AOC2-06-2.0	K2310188-010	**90.8**	-	-	1	09/14/23 15:44	
AOC2-07-2.0	K2310188-012	**88.9**	-	-	1	09/14/23 15:44	
AOC2-08-2.0	K2310188-014	**84.5**	-	-	1	09/14/23 15:44	
AOC2-08-4.0	K2310188-015	**92.9**	-	-	1	09/14/23 15:44	
AOC3-01-2.0	K2310188-018	**88.6**	-	-	1	09/14/23 15:44	

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QA/QC Report

Client:	Floyd Snider	**Service Request:**	K2310188
Project	SmithKem	**Date Collected:**	09/06/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
		Date Analyzed:	09/14/23

Replicate Sample Summary
Inorganic Parameters

Sample Name:	AOC2--03-2.0	**Units:**	Percent
Lab Code:	K2310188-001	**Basis:**	As Received

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K2310188-001DUP Result	Average	RPD	RPD Limit
Solids, Total	160.3 Modified	-	79.0	79.3	79.2	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Steroids and Endocrine Disrupting Compounds

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23 09:50
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC2-04-3.0	**Units:**	ug/Kg
Lab Code:	K2310188-004	**Basis:**	Dry

Steroids and Endocrine Disrupting Compounds

Analysis Method: 1694M
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Atrazine	ND U	1.3	0.82	1	09/27/23 14:39	9/18/23	*

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23 09:30
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC2-05-3.0	**Units:**	ug/Kg
Lab Code:	K2310188-006	**Basis:**	Dry

Steroids and Endocrine Disrupting Compounds

Analysis Method: 1694M
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Atrazine	ND U	1.0	0.63	1	09/27/23 15:42	9/18/23	*

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23 09:35
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC2-05-6.0	**Units:**	ug/Kg
Lab Code:	K2310188-007	**Basis:**	Dry

Steroids and Endocrine Disrupting Compounds

Analysis Method: 1694M
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Atrazine	ND U	1.0	0.64	1	09/27/23 16:03	9/18/23	*

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23 09:32
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC2-105-3.0	**Units:**	ug/Kg
Lab Code:	K2310188-009	**Basis:**	Dry

Steroids and Endocrine Disrupting Compounds

Analysis Method: 1694M
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Atrazine	ND U	1.1	0.69	1	09/27/23 16:23	9/18/23	*

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23 09:15
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC2-06-2.0	**Units:**	ug/Kg
Lab Code:	K2310188-010	**Basis:**	Dry

Steroids and Endocrine Disrupting Compounds

Analysis Method: 1694M
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Atrazine	**4.4**	1.1	0.67	1	09/27/23 16:44	9/18/23	*

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	KQ2316305-06	**Basis:**	Dry

Steroids and Endocrine Disrupting Compounds

Analysis Method: 1694M
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Atrazine	ND U	1.0	0.61	1	09/27/23 14:18	9/18/23	

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QA/QC Report

Client: Floyd Snider **Service Request:**K2310188
Project: SmithKem **Date Analyzed:**09/27/23 11:10

Internal Standard Area and RT SUMMARY
Steroids and Endocrine Disrupting Compounds

File ID: J:\LCMS03\DATA\230927L_B1\230927L-0001.wiff **Lab Code:**KQ2317073-03
Instrument ID: K-LCMS-03 **Analysis Lot:**818766
Analysis Method: 1694M **Signal ID:**1

		13C3-Atrazine	
		Area	**RT**
	Result ==>	84,337,000	10.8
	Upper Limit ==>	168,674,000	11.05
	Lower Limit ==>	25,301,100	10.55
Associated Analyses			
Continuing Calibration Verification	KQ2317073-03	84337000	10.8
Continuing Calibration Blank	KQ2317073-04	85441000	10.8
Lab Control Sample	KQ2316305-05	97518000	10.8
Method Blank	KQ2316305-06	92292000	10.8
AOC2-04-3.0	K2310188-004	86759000	10.8
AOC2-04-3.0MS	KQ2316305-01	81725000	10.8
AOC2-04-3.0DMS	KQ2316305-02	87120000	10.8
AOC2-05-3.0	K2310188-006	89086000	10.8
AOC2-05-6.0	K2310188-007	89434000	10.8
AOC2-105-3.0	K2310188-009	92602000	10.8
AOC2-06-2.0	K2310188-010	82925000	10.8

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
		Date Analyzed:	09/27/23
		Date Extracted:	09/18/23

Duplicate Matrix Spike Summary
Steroids and Endocrine Disrupting Compounds

Sample Name:	AOC2-04-3.0	**Units:**	ug/Kg
Lab Code:	K2310188-004	**Basis:**	Dry
Analysis Method:	1694M		
Prep Method:	Method		

		Matrix Spike KQ2316305-01			Duplicate Matrix Spike KQ2316305-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Atrazine	ND U	47.3	66.2	71	47.5	65.0	73	21-123	<1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Analyzed:**	09/27/23
Sample Matrix:	Soil	**Date Extracted:**	09/18/23

Lab Control Sample Summary
Steroids and Endocrine Disrupting Compounds

Analysis Method:	1694M	**Units:**	ug/Kg
Prep Method:	Method	**Basis:**	Dry
		Analysis Lot:	818766

Lab Control Sample
KQ2316305-05

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Atrazine	42.1	50.0	84	21-123

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Analyzed:**	09/27/23 14:18
Sample Matrix:	Soil	**Date Extracted:**	09/18/23

Method Blank Summary
Steroids and Endocrine Disrupting Compounds

Sample Name:	Method Blank	**Instrument ID:**	K-LCMS-03
Lab Code:	KQ2316305-06	**File ID:**	J:\LCMS03\DATA\230927L_B1\230927L-0010.wiff
Analysis Method:	1694M	**Analysis Lot:**	818766
Prep Method:	Method	**Extraction Lot:**	426514

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ2316305-05	J:\LCMS03\DATA\230927L_B1\230927L-0009.wiff	09/27/23 13:57
AOC2-04-3.0	K2310188-004	J:\LCMS03\DATA\230927L_B1\230927L-0011.wiff	09/27/23 14:39
AOC2-04-3.0MS	KQ2316305-01	J:\LCMS03\DATA\230927L_B1\230927L-0012.wiff	09/27/23 15:00
AOC2-04-3.0DMS	KQ2316305-02	J:\LCMS03\DATA\230927L_B1\230927L-0013.wiff	09/27/23 15:21
AOC2-05-3.0	K2310188-006	J:\LCMS03\DATA\230927L_B1\230927L-0014.wiff	09/27/23 15:42
AOC2-05-6.0	K2310188-007	J:\LCMS03\DATA\230927L_B1\230927L-0015.wiff	09/27/23 16:03
AOC2-105-3.0	K2310188-009	J:\LCMS03\DATA\230927L_B1\230927L-0016.wiff	09/27/23 16:23
AOC2-06-2.0	K2310188-010	J:\LCMS03\DATA\230927L_B1\230927L-0017.wiff	09/27/23 16:44

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Analyzed:**	09/27/23 13:57
Sample Matrix:	Soil	**Date Extracted:**	09/18/23

Lab Control Sample Summary
Steroids and Endocrine Disrupting Compounds

Sample Name:	Lab Control Sample	**Instrument ID:**	K-LCMS-03
Lab Code:	KQ2316305-05	**File ID:**	J:\LCMS03\DATA\230927L_B1\230927L-0009.wiff
Analysis Method:	1694M	**Analysis Lot:**	818766
Prep Method:	Method	**Extraction Lot:**	426514

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ2316305-06	J:\LCMS03\DATA\230927L_B1\230927L-0010.wiff	09/27/23 14:18
AOC2-04-3.0	K2310188-004	J:\LCMS03\DATA\230927L_B1\230927L-0011.wiff	09/27/23 14:39
AOC2-04-3.0MS	KQ2316305-01	J:\LCMS03\DATA\230927L_B1\230927L-0012.wiff	09/27/23 15:00
AOC2-04-3.0DMS	KQ2316305-02	J:\LCMS03\DATA\230927L_B1\230927L-0013.wiff	09/27/23 15:21
AOC2-05-3.0	K2310188-006	J:\LCMS03\DATA\230927L_B1\230927L-0014.wiff	09/27/23 15:42
AOC2-05-6.0	K2310188-007	J:\LCMS03\DATA\230927L_B1\230927L-0015.wiff	09/27/23 16:03
AOC2-105-3.0	K2310188-009	J:\LCMS03\DATA\230927L_B1\230927L-0016.wiff	09/27/23 16:23
AOC2-06-2.0	K2310188-010	J:\LCMS03\DATA\230927L_B1\230927L-0017.wiff	09/27/23 16:44

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Calibration Date: 9/26/2023

Initial Calibration Summary
Steroids and Endocrine Disrupting Compounds

Calibration ID: KC2300564
Instrument ID: K-LCMS-03

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC2300564-01	PPCP CAL 0.50ppb	230926L\0002.wiff	09/26/2023 14:42
02	KC2300564-02	PPCP CAL 1.0ppb	230926L\0003.wiff	09/26/2023 15:03
03	KC2300564-03	PPCP CAL 2.0ppb	230926L\0004.wiff	09/26/2023 15:24
04	KC2300564-04	PPCP CAL 3.0ppb	230926L\0005.wiff	09/26/2023 15:44
05	KC2300564-05	PPCP CAL 4.0ppb	230926L\0006.wiff	09/26/2023 16:05
06	KC2300564-06	PPCP CAL 5.0ppb	230926L\0007.wiff	09/26/2023 16:26
07	KC2300564-07	PPCP CAL 10ppb	230926L\0008.wiff	09/26/2023 16:47
08	KC2300564-08	PPCP CAL 20ppb	230926L\0009.wiff	09/26/2023 17:08
09	KC2300564-09	PPCP CAL 50ppb	230926L\0010.wiff	09/26/2023 17:29
10	KC2300564-10	PPCP CAL 100ppb	230926L\0011.wiff	09/26/2023 17:50
11	KC2300564-11	PPCP CAL 200ppb	230926L\0012.wiff	09/26/2023 18:11

Analyte

Atrazine

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	0.09335	02	1.00	0.1139	03	2.00	0.0887	06	5.00	0.1073
07	10.0	0.09802	08	20.0	0.09971	09	50.0	0.0952	10	100.	0.09849
11	200.	0.08298									

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Calibration Date: 9/26/2023

Initial Calibration Summary
Steroids and Endocrine Disrupting Compounds

Calibration ID: KC2300564
Instrument ID: K-LCMS-03

Signal ID: 1

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Atrazine	TRG	Average RF	% RSD	9.5	≤35	0.09753	

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Calibration Date: 9/26/2023

Initial Calibration Verification Summary
Steroids and Endocrine Disrupting Compounds

Calibration ID: KC2300564
Instrument ID: K-LCMS-03

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
12	KC2300564-12	ICV MIX (A&B)	230926L\0014.wiff	09/26/2023 18:53

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Atrazine	10.0	7.18	9.753E-2	6.998E-2	-28.242	±30	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 09/27/23 11:10

Continuing Calibration Verification (CCV) Summary
Steroids and Endocrine Disrupting Compounds

Analysis Method: 1694M
File ID: J:\LCMS03\DATA\230927L_B1\230927L-0001.wiff
Signal ID: 1

Calibration Date: 9/26/2023
Calibration ID: KC2300564
Analysis Lot: 818766
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
Atrazine	10.0	9.57	0.098	0.093	95.7	NA	±30	Average RF

Client: Floyd Snider **Service Request:**K2310188
Project: SmithKem

Analysis Run Log
Steroids and Endocrine Disrupting Compounds

Analysis Method: 1694M **Analysis Lot:**818766
Instrument ID:K-LCMS-03

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\LCMS03\DATA\230927L_B1\230927L-0001.wiff	Continuing Calibration Verification	KQ2317073-03	9/27/2023	11:10:29	
J:\LCMS03\DATA\230927L_B1\230927L-0002.wiff	Continuing Calibration Blank	KQ2317073-04	9/27/2023	11:31:20	
J:\LCMS03\DATA\230927L_B1\230927L-0009.wiff	Lab Control Sample	KQ2316305-05	9/27/2023	13:57:40	
J:\LCMS03\DATA\230927L_B1\230927L-0010.wiff	Method Blank	KQ2316305-06	9/27/2023	14:18:33	
J:\LCMS03\DATA\230927L_B1\230927L-0011.wiff	AOC2-04-3.0	K2310188-004	9/27/2023	14:39:24	
J:\LCMS03\DATA\230927L_B1\230927L-0012.wiff	AOC2-04-3.0 MS	KQ2316305-01	9/27/2023	15:00:19	
J:\LCMS03\DATA\230927L_B1\230927L-0013.wiff	AOC2-04-3.0 DMS	KQ2316305-02	9/27/2023	15:21:13	
J:\LCMS03\DATA\230927L_B1\230927L-0014.wiff	AOC2-05-3.0	K2310188-006	9/27/2023	15:42:08	
J:\LCMS03\DATA\230927L_B1\230927L-0015.wiff	AOC2-05-6.0	K2310188-007	9/27/2023	16:03:03	
J:\LCMS03\DATA\230927L_B1\230927L-0016.wiff	AOC2-105-3.0	K2310188-009	9/27/2023	16:23:53	
J:\LCMS03\DATA\230927L_B1\230927L-0017.wiff	AOC2-06-2.0	K2310188-010	9/27/2023	16:44:49	

Prep Summary Report

Client: Floyd Snider **Service Request:** K2310188
Project: SmithKem
Sample Matrix: Soil

Steroids and Endocrine Disrupting Compounds

Prep Method: Method **Extraction Lot:** 426514
Analytical Method: 1694M **Extraction Date:** 09/18/23 10:00

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
AOC2-04-3.0	K2310188-004	9/6/23	9/12/23	2.0000 g	2 mL	75.1
AOC2-05-3.0	K2310188-006	9/6/23	9/12/23	2.2200 g	2 mL	88.2
AOC2-05-6.0	K2310188-007	9/6/23	9/12/23	2.0900 g	2 mL	91.3
AOC2-105-3.0	K2310188-009	9/6/23	9/12/23	2.0300 g	2 mL	87.9
AOC2-06-2.0	K2310188-010	9/6/23	9/12/23	2.0200 g	2 mL	90.8
Matrix Spike	KQ2316305-01MS	9/6/23	9/12/23	2.0100 g	2 mL	75.1
Duplicate Matrix Spike	KQ2316305-02DMS	9/6/23	9/12/23	2.0500 g	2 mL	75.1
Lab Control Sample	KQ2316305-05LCS	NA	NA	2 g	2 mL	
Method Blank	KQ2316305-06MB	NA	NA	2 g	2 mL	

Low Level Organochlorine Pesticides by GC

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23 10:45
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC2--03-2.0	**Units:**	ug/Kg
Lab Code:	K2310188-001	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.2	0.65	1	10/17/23 07:56	9/15/23	
beta-BHC	ND U	1.1	0.30	1	10/17/23 07:56	9/15/23	
cis-Chlordane	ND U	1.1	0.46	1	10/17/23 07:56	9/15/23	
trans-Chlordane	ND U	1.1	0.42	1	10/17/23 07:56	9/15/23	
2,4'-DDD	ND U	1.1	0.30	1	10/17/23 07:56	9/15/23	
4,4'-DDD	ND U	2.2	0.66	1	10/17/23 07:56	9/15/23	
2,4'-DDE	ND U	1.1	0.52	1	10/17/23 07:56	9/15/23	
4,4'-DDE	ND U	1.1	0.44	1	10/17/23 07:56	9/15/23	
2,4'-DDT	ND U	1.1	0.53	1	10/17/23 07:56	9/15/23	
4,4'-DDT	ND U	2.2	0.67	1	10/17/23 07:56	9/15/23	
Dieldrin	ND U	1.1	0.25	1	10/17/23 07:56	9/15/23	
cis-Nonachlor	ND U	1.1	0.32	1	10/17/23 07:56	9/15/23	
trans-Nonachlor	ND U	2.2	0.78	1	10/17/23 07:56	9/15/23	
Oxychlordane	ND U	1.1	0.28	1	10/17/23 07:56	9/15/23	
Toxaphene	ND U	110	38	1	10/17/23 07:56	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	71	10 - 134	10/17/23 07:56	
Tetrachloro-m-xylene	68	10 - 121	10/17/23 07:56	

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23 10:50
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC2-03-4.0	**Units:**	ug/Kg
Lab Code:	K2310188-002	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.1	0.63	1	10/17/23 08:37	9/15/23	
beta-BHC	ND U	1.1	0.29	1	10/17/23 08:37	9/15/23	
cis-Chlordane	ND U	1.1	0.44	1	10/17/23 08:37	9/15/23	
trans-Chlordane	ND U	1.1	0.41	1	10/17/23 08:37	9/15/23	
2,4'-DDD	ND U	1.1	0.29	1	10/17/23 08:37	9/15/23	
4,4'-DDD	ND U	2.1	0.64	1	10/17/23 08:37	9/15/23	
2,4'-DDE	ND U	1.1	0.50	1	10/17/23 08:37	9/15/23	
4,4'-DDE	ND U	1.1	0.43	1	10/17/23 08:37	9/15/23	
2,4'-DDT	ND U	1.1	0.52	1	10/17/23 08:37	9/15/23	
4,4'-DDT	**0.71 J**	2.1	0.65	1	10/17/23 08:37	9/15/23	
Dieldrin	ND U	1.1	0.24	1	10/17/23 08:37	9/15/23	
cis-Nonachlor	ND U	1.1	0.31	1	10/17/23 08:37	9/15/23	
trans-Nonachlor	ND U	2.1	0.76	1	10/17/23 08:37	9/15/23	
Oxychlordane	ND U	1.1	0.27	1	10/17/23 08:37	9/15/23	
Toxaphene	ND U	110	37	1	10/17/23 08:37	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	72	10 - 134	10/17/23 08:37	
Tetrachloro-m-xylene	69	10 - 121	10/17/23 08:37	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23 09:50
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC2-04-3.0	**Units:**	ug/Kg
Lab Code:	K2310188-004	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.5	0.73	1	10/17/23 09:19	9/15/23	
beta-BHC	ND U	1.2	0.34	1	10/17/23 09:19	9/15/23	
cis-Chlordane	ND U	1.2	0.51	1	10/17/23 09:19	9/15/23	
trans-Chlordane	ND U	1.2	0.47	1	10/17/23 09:19	9/15/23	
2,4'-DDD	ND U	1.2	0.34	1	10/17/23 09:19	9/15/23	
4,4'-DDD	ND U	2.5	0.75	1	10/17/23 09:19	9/15/23	
2,4'-DDE	ND U	1.2	0.59	1	10/17/23 09:19	9/15/23	
4,4'-DDE	**1.7**	1.2	0.50	1	10/17/23 09:19	9/15/23	
2,4'-DDT	ND U	1.2	0.60	1	10/17/23 09:19	9/15/23	
4,4'-DDT	ND U	2.5	0.76	1	10/17/23 09:19	9/15/23	
Dieldrin	ND U	1.2	0.28	1	10/17/23 09:19	9/15/23	
cis-Nonachlor	ND U	1.2	0.36	1	10/17/23 09:19	9/15/23	
trans-Nonachlor	ND U	2.5	0.88	1	10/17/23 09:19	9/15/23	
Oxychlordane	ND U	1.2	0.31	1	10/17/23 09:19	9/15/23	
Toxaphene	ND U	120	42	1	10/17/23 09:19	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	64	10 - 134	10/17/23 09:19	
Tetrachloro-m-xylene	62	10 - 121	10/17/23 09:19	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23 09:30
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC2-05-3.0	**Units:**	ug/Kg
Lab Code:	K2310188-006	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/17/23 10:00	9/15/23	
beta-BHC	ND U	1.0	0.27	1	10/17/23 10:00	9/15/23	
cis-Chlordane	ND U	1.0	0.41	1	10/17/23 10:00	9/15/23	
trans-Chlordane	ND U	1.0	0.38	1	10/17/23 10:00	9/15/23	
2,4'-DDD	ND U	1.0	0.27	1	10/17/23 10:00	9/15/23	
4,4'-DDD	ND U	2.0	0.60	1	10/17/23 10:00	9/15/23	
2,4'-DDE	ND U	1.0	0.47	1	10/17/23 10:00	9/15/23	
4,4'-DDE	ND U	1.0	0.40	1	10/17/23 10:00	9/15/23	
2,4'-DDT	ND U	1.0	0.48	1	10/17/23 10:00	9/15/23	
4,4'-DDT	ND U	2.0	0.61	1	10/17/23 10:00	9/15/23	
Dieldrin	ND U	0.97	0.22	1	10/17/23 10:00	9/15/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/17/23 10:00	9/15/23	
trans-Nonachlor	ND U	2.0	0.71	1	10/17/23 10:00	9/15/23	
Oxychlordane	ND U	0.97	0.25	1	10/17/23 10:00	9/15/23	
Toxaphene	ND U	100	34	1	10/17/23 10:00	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	71	10 - 134	10/17/23 10:00	
Tetrachloro-m-xylene	66	10 - 121	10/17/23 10:00	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23 09:35
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC2-05-6.0	**Units:**	ug/Kg
Lab Code:	K2310188-007	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.61	1	10/17/23 10:41	9/15/23	
beta-BHC	ND U	1.0	0.28	1	10/17/23 10:41	9/15/23	
cis-Chlordane	ND U	1.0	0.42	1	10/17/23 10:41	9/15/23	
trans-Chlordane	ND U	1.0	0.39	1	10/17/23 10:41	9/15/23	
2,4'-DDD	ND U	1.0	0.28	1	10/17/23 10:41	9/15/23	
4,4'-DDD	ND U	2.0	0.62	1	10/17/23 10:41	9/15/23	
2,4'-DDE	ND U	1.0	0.49	1	10/17/23 10:41	9/15/23	
4,4'-DDE	ND U	1.0	0.41	1	10/17/23 10:41	9/15/23	
2,4'-DDT	ND U	1.0	0.50	1	10/17/23 10:41	9/15/23	
4,4'-DDT	ND U	2.0	0.63	1	10/17/23 10:41	9/15/23	
Dieldrin	ND U	1.0	0.23	1	10/17/23 10:41	9/15/23	
cis-Nonachlor	ND U	1.0	0.30	1	10/17/23 10:41	9/15/23	
trans-Nonachlor	ND U	2.0	0.73	1	10/17/23 10:41	9/15/23	
Oxychlordane	ND U	1.0	0.26	1	10/17/23 10:41	9/15/23	
Toxaphene	ND U	100	35	1	10/17/23 10:41	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	74	10 - 134	10/17/23 10:41	
Tetrachloro-m-xylene	67	10 - 121	10/17/23 10:41	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23 09:32
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC2-105-3.0	**Units:**	ug/Kg
Lab Code:	K2310188-009	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.1	0.62	1	10/17/23 11:23	9/15/23	
beta-BHC	ND U	1.0	0.29	1	10/17/23 11:23	9/15/23	
cis-Chlordane	ND U	1.0	0.43	1	10/17/23 11:23	9/15/23	
trans-Chlordane	ND U	1.0	0.40	1	10/17/23 11:23	9/15/23	
2,4'-DDD	ND U	1.0	0.29	1	10/17/23 11:23	9/15/23	
4,4'-DDD	ND U	2.1	0.63	1	10/17/23 11:23	9/15/23	
2,4'-DDE	ND U	1.0	0.50	1	10/17/23 11:23	9/15/23	
4,4'-DDE	ND U	1.0	0.42	1	10/17/23 11:23	9/15/23	
2,4'-DDT	ND U	1.0	0.51	1	10/17/23 11:23	9/15/23	
4,4'-DDT	ND U	2.1	0.64	1	10/17/23 11:23	9/15/23	
Dieldrin	ND U	1.0	0.24	1	10/17/23 11:23	9/15/23	
cis-Nonachlor	ND U	1.0	0.31	1	10/17/23 11:23	9/15/23	
trans-Nonachlor	ND U	2.1	0.75	1	10/17/23 11:23	9/15/23	
Oxychlordane	ND U	1.0	0.27	1	10/17/23 11:23	9/15/23	
Toxaphene	ND U	100	36	1	10/17/23 11:23	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	75	10 - 134	10/17/23 11:23	
Tetrachloro-m-xylene	64	10 - 121	10/17/23 11:23	

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23 09:15
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC2-06-2.0	**Units:**	ug/Kg
Lab Code:	K2310188-010	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/17/23 12:04	9/15/23	
beta-BHC	ND U	1.0	0.27	1	10/17/23 12:04	9/15/23	
cis-Chlordane	**9.6**	1.0	0.41	1	10/17/23 12:04	9/15/23	
trans-Chlordane	**14**	1.0	0.38	1	10/17/23 12:04	9/15/23	
2,4'-DDD	ND U	1.0	0.27	1	10/17/23 12:04	9/15/23	
4,4'-DDD	ND U	2.0	0.60	1	10/17/23 12:04	9/15/23	
2,4'-DDE	ND U	1.0	0.47	1	10/17/23 12:04	9/15/23	
4,4'-DDE	**18**	1.0	0.40	1	10/17/23 12:04	9/15/23	
2,4'-DDT	ND U	1.0	0.48	1	10/17/23 12:04	9/15/23	
4,4'-DDT	**17**	2.0	0.61	1	10/17/23 12:04	9/15/23	
Dieldrin	**39**	0.86	0.22	1	10/17/23 12:04	9/15/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/17/23 12:04	9/15/23	
trans-Nonachlor	**8.8**	2.0	0.71	1	10/17/23 12:04	9/15/23	
Oxychlordane	ND U	0.86	0.25	1	10/17/23 12:04	9/15/23	
Toxaphene	**530**	100	34	1	10/17/23 12:04	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	69	10 - 134	10/17/23 12:04	
Tetrachloro-m-xylene	66	10 - 121	10/17/23 12:04	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23 11:00
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC2-07-2.0	**Units:**	ug/Kg
Lab Code:	K2310188-012	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/17/23 12:46	9/15/23	
beta-BHC	ND U	1.0	0.27	1	10/17/23 12:46	9/15/23	
cis-Chlordane	**3.6**	1.0	0.41	1	10/17/23 12:46	9/15/23	
trans-Chlordane	**3.5**	1.0	0.38	1	10/17/23 12:46	9/15/23	
2,4'-DDD	ND U	1.0	0.27	1	10/17/23 12:46	9/15/23	
4,4'-DDD	ND U	2.0	0.60	1	10/17/23 12:46	9/15/23	
2,4'-DDE	ND U	1.0	0.47	1	10/17/23 12:46	9/15/23	
4,4'-DDE	**0.45 J**	1.0	0.40	1	10/17/23 12:46	9/15/23	
2,4'-DDT	ND U	1.0	0.48	1	10/17/23 12:46	9/15/23	
4,4'-DDT	ND U	2.0	0.61	1	10/17/23 12:46	9/15/23	
Dieldrin	**5.3**	0.89	0.22	1	10/17/23 12:46	9/15/23	
cis-Nonachlor	**ND Ui**	1.2	1.2	1	10/17/23 12:46	9/15/23	
trans-Nonachlor	**2.5**	2.0	0.71	1	10/17/23 12:46	9/15/23	
Oxychlordane	ND U	0.89	0.25	1	10/17/23 12:46	9/15/23	
Toxaphene	ND U	100	34	1	10/17/23 12:46	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	66	10 - 134	10/17/23 12:46	
Tetrachloro-m-xylene	64	10 - 121	10/17/23 12:46	

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23 15:00
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC2-08-2.0	**Units:**	ug/Kg
Lab Code:	K2310188-014	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND	U	2.1	0.62	1	10/17/23 13:27	9/15/23	
beta-BHC	**77**	**E**	1.1	0.29	1	10/17/23 13:27	9/15/23	
cis-Chlordane	**1600**	**E**	1.1	0.44	1	10/17/23 13:27	9/15/23	
trans-Chlordane	**2000**	**E**	1.1	0.40	1	10/17/23 13:27	9/15/23	
2,4'-DDD	ND	U	1.1	0.29	1	10/17/23 13:27	9/15/23	
4,4'-DDD	ND	U	2.1	0.64	1	10/17/23 13:27	9/15/23	
2,4'-DDE	ND	U	1.1	0.50	1	10/17/23 13:27	9/15/23	
4,4'-DDE	**520**	**E**	1.1	0.43	1	10/17/23 13:27	9/15/23	
2,4'-DDT	**1000**	**E**	1.1	0.51	1	10/17/23 13:27	9/15/23	
4,4'-DDT	**1100**	**E**	2.1	0.65	1	10/17/23 13:27	9/15/23	
Dieldrin	**4400**	**E**	1.1	0.24	1	10/17/23 13:27	9/15/23	
cis-Nonachlor	ND	U	1.1	0.31	1	10/17/23 13:27	9/15/23	
trans-Nonachlor	**1100**	**E**	2.1	0.75	1	10/17/23 13:27	9/15/23	
Oxychlordane	ND	U	1.1	0.27	1	10/17/23 13:27	9/15/23	
Toxaphene	**85000**	**P**	110	36	1	10/17/23 13:27	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	0	10 - 134	10/17/23 13:27	*
Tetrachloro-m-xylene	67	10 - 121	10/17/23 13:27	

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23 15:00
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC2-08-2.0	**Units:**	ug/Kg
Lab Code:	K2310188-014	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND	U	210	62	100	10/28/23 05:55	9/15/23	*
beta-BHC	**61**	**JP**	110	29	100	10/28/23 05:55	9/15/23	*
cis-Chlordane	**1900**		110	44	100	10/28/23 05:55	9/15/23	*
trans-Chlordane	**2300**		110	40	100	10/28/23 05:55	9/15/23	*
2,4'-DDD	ND	U	110	29	100	10/28/23 05:55	9/15/23	*
4,4'-DDD	ND	U	210	64	100	10/28/23 05:55	9/15/23	*
2,4'-DDE	ND	U	110	50	100	10/28/23 05:55	9/15/23	*
4,4'-DDE	**560**		110	43	100	10/28/23 05:55	9/15/23	*
2,4'-DDT	**1300**		110	51	100	10/28/23 05:55	9/15/23	*
4,4'-DDT	**1000**		210	65	100	10/28/23 05:55	9/15/23	*
Dieldrin	**4700**		110	24	100	10/28/23 05:55	9/15/23	*
cis-Nonachlor	ND	U	110	31	100	10/28/23 05:55	9/15/23	*
trans-Nonachlor	**1300**		210	75	100	10/28/23 05:55	9/15/23	*
Oxychlordane	ND	U	110	27	100	10/28/23 05:55	9/15/23	*
Toxaphene	**100000**		11000	3600	100	10/28/23 05:55	9/15/23	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	98	10 - 134	10/28/23 05:55	
Tetrachloro-m-xylene	110	10 - 121	10/28/23 05:55	

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23 15:00
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC2-08-2.0	**Units:**	ug/Kg
Lab Code:	K2310188-014	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND	U	210	62	100	10/30/23 17:40	9/15/23	*
beta-BHC	ND	U	110	29	100	10/30/23 17:40	9/15/23	*
cis-Chlordane	**1900**		110	44	100	10/30/23 17:40	9/15/23	*
trans-Chlordane	**2400**		110	40	100	10/30/23 17:40	9/15/23	*
2,4'-DDD	ND	U	110	29	100	10/30/23 17:40	9/15/23	*
4,4'-DDD	ND	U	210	64	100	10/30/23 17:40	9/15/23	*
2,4'-DDE	ND	U	110	50	100	10/30/23 17:40	9/15/23	*
4,4'-DDE	**580**		110	43	100	10/30/23 17:40	9/15/23	*
2,4'-DDT	**1200**		110	51	100	10/30/23 17:40	9/15/23	*
4,4'-DDT	**1000**		210	65	100	10/30/23 17:40	9/15/23	*
Dieldrin	**4900**		110	24	100	10/30/23 17:40	9/15/23	*
cis-Nonachlor	ND	U	110	31	100	10/30/23 17:40	9/15/23	*
trans-Nonachlor	**1200**		210	75	100	10/30/23 17:40	9/15/23	*
Oxychlordane	ND	U	110	27	100	10/30/23 17:40	9/15/23	*
Toxaphene	**90000**	**P**	11000	3600	100	10/30/23 17:40	9/15/23	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	140	10 - 134	10/30/23 17:40	*
Tetrachloro-m-xylene	105	10 - 121	10/30/23 17:40	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23 15:00
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC2-08-2.0	**Units:**	ug/Kg
Lab Code:	K2310188-014	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND	U	420	130	200	10/31/23 11:32	9/15/23	*
beta-BHC	**160**	**JP**	210	57	200	10/31/23 11:32	9/15/23	*
cis-Chlordane	**1800**		210	87	200	10/31/23 11:32	9/15/23	*
trans-Chlordane	**2200**		210	80	200	10/31/23 11:32	9/15/23	*
2,4'-DDD	ND	U	210	57	200	10/31/23 11:32	9/15/23	*
4,4'-DDD	ND	U	420	130	200	10/31/23 11:32	9/15/23	*
2,4'-DDE	ND	U	210	99	200	10/31/23 11:32	9/15/23	*
4,4'-DDE	**590**		210	85	200	10/31/23 11:32	9/15/23	*
2,4'-DDT	**1300**		210	110	200	10/31/23 11:32	9/15/23	*
4,4'-DDT	ND	U	420	130	200	10/31/23 11:32	9/15/23	*
Dieldrin	**4700**		210	47	200	10/31/23 11:32	9/15/23	*
cis-Nonachlor	ND	U	210	61	200	10/31/23 11:32	9/15/23	*
trans-Nonachlor	**1000**		420	150	200	10/31/23 11:32	9/15/23	*
Oxychlordane	ND	U	210	53	200	10/31/23 11:32	9/15/23	*
Toxaphene	**76000**		21000	7200	200	10/31/23 11:32	9/15/23	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	0	10 - 134	10/31/23 11:32	*
Tetrachloro-m-xylene	0	10 - 121	10/31/23 11:32	*

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23 15:00
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC2-08-2.0	**Units:**	ug/Kg
Lab Code:	K2310188-014	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND	U	21	6.2	10	10/28/23 05:14	9/15/23	*
beta-BHC	**110**		11	2.9	10	10/28/23 05:14	9/15/23	*
cis-Chlordane	**1700**	**E**	11	4.4	10	10/28/23 05:14	9/15/23	*
trans-Chlordane	**2200**	**E**	11	4.0	10	10/28/23 05:14	9/15/23	*
2,4'-DDD	ND	U	11	2.9	10	10/28/23 05:14	9/15/23	*
4,4'-DDD	ND	U	21	6.4	10	10/28/23 05:14	9/15/23	*
2,4'-DDE	ND	U	11	5.0	10	10/28/23 05:14	9/15/23	*
4,4'-DDE	**470**		11	4.3	10	10/28/23 05:14	9/15/23	*
2,4'-DDT	**1100**	**E**	11	5.1	10	10/28/23 05:14	9/15/23	*
4,4'-DDT	**990**	**E**	21	6.5	10	10/28/23 05:14	9/15/23	*
Dieldrin	**4900**	**E**	11	2.4	10	10/28/23 05:14	9/15/23	*
cis-Nonachlor	ND	U	11	3.1	10	10/28/23 05:14	9/15/23	*
trans-Nonachlor	**1100**	**E**	21	7.5	10	10/28/23 05:14	9/15/23	*
Oxychlordane	ND	U	11	2.7	10	10/28/23 05:14	9/15/23	*
Toxaphene	**83000**	**P**	1100	360	10	10/28/23 05:14	9/15/23	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	0	10 - 134	10/28/23 05:14	*
Tetrachloro-m-xylene	82	10 - 121	10/28/23 05:14	

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23 15:05
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC2-08-4.0	**Units:**	ug/Kg
Lab Code:	K2310188-015	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/17/23 18:56	9/15/23	
beta-BHC	ND U	1.0	0.27	1	10/17/23 18:56	9/15/23	
cis-Chlordane	**9.3**	1.0	0.41	1	10/17/23 18:56	9/15/23	
trans-Chlordane	**13**	1.0	0.38	1	10/17/23 18:56	9/15/23	
2,4'-DDD	ND U	1.0	0.27	1	10/17/23 18:56	9/15/23	
4,4'-DDD	ND U	2.0	0.60	1	10/17/23 18:56	9/15/23	
2,4'-DDE	ND U	1.0	0.47	1	10/17/23 18:56	9/15/23	
4,4'-DDE	**0.95 J**	1.0	0.40	1	10/17/23 18:56	9/15/23	
2,4'-DDT	ND U	1.0	0.48	1	10/17/23 18:56	9/15/23	
4,4'-DDT	**1.8 J**	2.0	0.61	1	10/17/23 18:56	9/15/23	
Dieldrin	**3.7**	1.0	0.22	1	10/17/23 18:56	9/15/23	
cis-Nonachlor	**8.6**	1.0	0.29	1	10/17/23 18:56	9/15/23	
trans-Nonachlor	**14**	2.0	0.71	1	10/17/23 18:56	9/15/23	
Oxychlordane	ND U	1.0	0.25	1	10/17/23 18:56	9/15/23	
Toxaphene	**150**	100	34	1	10/17/23 18:56	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	77	10 - 134	10/17/23 18:56	
Tetrachloro-m-xylene	68	10 - 121	10/17/23 18:56	

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/07/23 08:10
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC3-01-2.0	**Units:**	ug/Kg
Lab Code:	K2310188-018	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND	U	2.1	0.64	1	10/17/23 19:37	9/15/23	
beta-BHC	ND	U	1.1	0.29	1	10/17/23 19:37	9/15/23	
cis-Chlordane	**3.2**		1.1	0.44	1	10/17/23 19:37	9/15/23	
trans-Chlordane	**2.6**		1.1	0.41	1	10/17/23 19:37	9/15/23	
2,4'-DDD	ND	U	1.1	0.29	1	10/17/23 19:37	9/15/23	
4,4'-DDD	ND	U	2.1	0.65	1	10/17/23 19:37	9/15/23	
2,4'-DDE	ND	U	1.1	0.51	1	10/17/23 19:37	9/15/23	
4,4'-DDE	**7.0**		1.1	0.43	1	10/17/23 19:37	9/15/23	
2,4'-DDT	ND	U	1.1	0.52	1	10/17/23 19:37	9/15/23	
4,4'-DDT	**22**		2.1	0.66	1	10/17/23 19:37	9/15/23	
Dieldrin	**18**	**P**	1.1	0.24	1	10/17/23 19:37	9/15/23	
cis-Nonachlor	ND	U	1.1	0.31	1	10/17/23 19:37	9/15/23	
trans-Nonachlor	**1.2**	**JP**	2.1	0.76	1	10/17/23 19:37	9/15/23	
Oxychlordane	ND	U	1.1	0.27	1	10/17/23 19:37	9/15/23	
Toxaphene	**540**		110	37	1	10/17/23 19:37	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	52	10 - 134	10/17/23 19:37	
Tetrachloro-m-xylene	59	10 - 121	10/17/23 19:37	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	KQ2316174-10	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aldrin	ND U	2.0	0.59	1	10/16/23 20:16	9/15/23	
beta-BHC	ND U	1.0	0.27	1	10/16/23 20:16	9/15/23	
cis-Chlordane	ND U	1.0	0.41	1	10/16/23 20:16	9/15/23	
trans-Chlordane	ND U	1.0	0.38	1	10/16/23 20:16	9/15/23	
2,4'-DDD	ND U	1.0	0.27	1	10/16/23 20:16	9/15/23	
4,4'-DDD	ND U	2.0	0.60	1	10/16/23 20:16	9/15/23	
2,4'-DDE	ND U	1.0	0.47	1	10/16/23 20:16	9/15/23	
4,4'-DDE	ND U	1.0	0.40	1	10/16/23 20:16	9/15/23	
2,4'-DDT	ND U	1.0	0.48	1	10/16/23 20:16	9/15/23	
4,4'-DDT	ND U	2.0	0.61	1	10/16/23 20:16	9/15/23	
Dieldrin	ND U	0.78	0.22	1	10/16/23 20:16	9/15/23	
cis-Nonachlor	ND U	1.0	0.29	1	10/16/23 20:16	9/15/23	
trans-Nonachlor	ND U	2.0	0.71	1	10/16/23 20:16	9/15/23	
Oxychlordane	ND U	0.78	0.25	1	10/16/23 20:16	9/15/23	
Toxaphene	ND U	100	34	1	10/16/23 20:16	9/15/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	75	10 - 134	10/16/23 20:16	
Tetrachloro-m-xylene	70	10 - 121	10/16/23 20:16	

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310188
Date Collected: 09/06/23 10:50
Date Received: 9/12/23

Sample Name: AOC2-03-4.0
Lab Code: K2310188-002

Units: ug/Kg
Basis: Dry
Percent Solids: 82.2

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDT	0.65	0.71	0.76	7	J	1	10/17/23 08:37

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310188
Date Collected: 09/06/23 09:50
Date Received: 9/12/23

Sample Name: AOC2-04-3.0
Lab Code: K2310188-004

Units: ug/Kg
Basis: Dry
Percent Solids: 75.1

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDE	0.50	1.7	2.0	16		1	10/17/23 09:19

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310188
Date Collected: 09/06/23 09:15
Date Received: 9/12/23

Sample Name: AOC2-06-2.0
Lab Code: K2310188-010

Units: ug/Kg
Basis: Dry
Percent Solids: 90.8

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDE	0.40	18	19	5		1	10/17/23 12:04
4,4'-DDT	0.61	17	17	<1		1	10/17/23 12:04
Dieldrin	0.22	39	41	5		1	10/17/23 12:04
Toxaphene	34	530	590	11		1	10/17/23 12:04
cis-Chlordane	0.41	9.6	11	14		1	10/17/23 12:04
trans-Chlordane	0.38	14	15	7		1	10/17/23 12:04
trans-Nonachlor	0.71	8.8	8.9	1		1	10/17/23 12:04

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310188
Date Collected: 09/06/23 11:00
Date Received: 9/12/23

Sample Name: AOC2-07-2.0
Lab Code: K2310188-012

Units: ug/Kg
Basis: Dry
Percent Solids: 88.9

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDE	0.40	0.45	0.45	<1	J	1	10/17/23 12:46
Dieldrin	0.22	5.3	5.9	11		1	10/17/23 12:46
cis-Chlordane	0.41	3.6	4.4	20		1	10/17/23 12:46
trans-Chlordane	0.38	3.5	4.7	29		1	10/17/23 12:46
trans-Nonachlor	0.71	2.5	2.6	4		1	10/17/23 12:46

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310188
Date Collected: 09/06/23 15:00
Date Received: 9/12/23

Sample Name: AOC2-08-2.0
Lab Code: K2310188-014

Units: ug/Kg
Basis: Dry
Percent Solids: 84.5

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
2,4'-DDT	110	1300	1800	32		200	10/31/23 11:32
4,4'-DDE	85	590	620	5		200	10/31/23 11:32
Dieldrin	47	4700	5100	8		200	10/31/23 11:32
Toxaphene	7200	76000	78000	3		200	10/31/23 11:32
beta-BHC	57	160	270	51	JP	200	10/31/23 11:32
cis-Chlordane	87	1800	2000	11		200	10/31/23 11:32
trans-Chlordane	80	2200	2400	9		200	10/31/23 11:32
trans-Nonachlor	150	1000	1100	10		200	10/31/23 11:32
2,4'-DDT	0.51	1000	1000	<1	E	1	10/17/23 13:27
4,4'-DDE	0.43	520	640	21	E	1	10/17/23 13:27
4,4'-DDT	0.65	1100	1500	31	E	1	10/17/23 13:27
Dieldrin	0.24	4400	4700	7	E	1	10/17/23 13:27
Toxaphene	36	85000	130000	42	P	1	10/17/23 13:27
beta-BHC	0.29	77	110	35	E	1	10/17/23 13:27
cis-Chlordane	0.44	1600	1700	6	E	1	10/17/23 13:27
trans-Chlordane	0.40	2000	2400	18	E	1	10/17/23 13:27
trans-Nonachlor	0.75	1100	1100	<1	E	1	10/17/23 13:27
2,4'-DDT	5.1	1100	1200	9	E	10	10/28/23 05:14
4,4'-DDE	4.3	470	550	16		10	10/28/23 05:14
4,4'-DDT	6.5	990	1400	34	E	10	10/28/23 05:14
Dieldrin	2.4	4900	5700	15	E	10	10/28/23 05:14
Toxaphene	360	83000	140000	51	P	10	10/28/23 05:14
beta-BHC	2.9	110	120	9		10	10/28/23 05:14
cis-Chlordane	4.4	1700	1800	6	E	10	10/28/23 05:14
trans-Chlordane	4.0	2200	2500	13	E	10	10/28/23 05:14
trans-Nonachlor	7.5	1100	1200	9	E	10	10/28/23 05:14
2,4'-DDT	51	1200	1300	8		100	10/30/23 17:40
4,4'-DDE	43	580	670	14		100	10/30/23 17:40

4,4'-DDT	65	1000	1500	40		100	10/30/23 17:40
Dieldrin	24	4900	5500	12		100	10/30/23 17:40
Toxaphene	3600	90000	150000	50	P	100	10/30/23 17:40
cis-Chlordane	44	1900	2000	5		100	10/30/23 17:40
trans-Chlordane	40	2400	2700	12		100	10/30/23 17:40
trans-Nonachlor	75	1200	1300	8		100	10/30/23 17:40
2,4'-DDT	51	1300	1500	14		100	10/28/23 05:55
4,4'-DDE	43	560	590	5		100	10/28/23 05:55
4,4'-DDT	65	1000	1500	40		100	10/28/23 05:55
Dieldrin	24	4700	5300	12		100	10/28/23 05:55
Toxaphene	3600	100000	100000	<1		100	10/28/23 05:55
beta-BHC	29	61	140	79	JP	100	10/28/23 05:55
cis-Chlordane	44	1900	1900	<1		100	10/28/23 05:55
trans-Chlordane	40	2300	2400	4		100	10/28/23 05:55
trans-Nonachlor	75	1300	1300	<1		100	10/28/23 05:55

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310188
Date Collected: 09/06/23 15:05
Date Received: 9/12/23

Sample Name: AOC2-08-4.0
Lab Code: K2310188-015

Units: ug/Kg
Basis: Dry
Percent Solids: 92.9

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDE	0.40	0.95	1.3	31	J	1	10/17/23 18:56
4,4'-DDT	0.61	1.8	2.2	20	J	1	10/17/23 18:56
Dieldrin	0.22	3.7	4.2	13		1	10/17/23 18:56
Toxaphene	34	150	170	12		1	10/17/23 18:56
cis-Chlordane	0.41	9.3	9.8	5		1	10/17/23 18:56
cis-Nonachlor	0.29	8.6	9.4	9		1	10/17/23 18:56
trans-Chlordane	0.38	13	16	21		1	10/17/23 18:56
trans-Nonachlor	0.71	14	15	7		1	10/17/23 18:56

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310188
Date Collected: 09/07/23 08:10
Date Received: 9/12/23

Sample Name: AOC3-01-2.0
Lab Code: K2310188-018

Units: ug/Kg
Basis: Dry
Percent Solids: 88.6

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDE	0.43	7.0	7.2	3		1	10/17/23 19:37
4,4'-DDT	0.66	22	23	4		1	10/17/23 19:37
Dieldrin	0.24	18	28	43	P	1	10/17/23 19:37
Toxaphene	37	540	600	11		1	10/17/23 19:37
cis-Chlordane	0.44	3.2	3.9	20		1	10/17/23 19:37
trans-Chlordane	0.41	2.6	3.2	21		1	10/17/23 19:37
trans-Nonachlor	0.76	1.2	2.0	50	JP	1	10/17/23 19:37

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310188
Date Collected: 09/06/23 10:50
Date Received: 9/12/23

Sample Name: AOC2-03-4.0
Lab Code: KQ2316174-01

Units: ug/Kg
Basis: Dry
Percent Solids: 82.2

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDD	0.69	18.7	22.0	16		1	10/16/23 23:02
4,4'-DDE	0.46	18.5	19.5	5		1	10/16/23 23:02
4,4'-DDT	0.70	20.8	21.6	4		1	10/16/23 23:02
Aldrin	0.67	19.6	20.5	4		1	10/16/23 23:02
Dieldrin	0.25	20.3	21.2	4		1	10/16/23 23:02
Oxychlordane	0.29	17.8	19.3	8		1	10/16/23 23:02
beta-BHC	0.31	20.6	22.1	7		1	10/16/23 23:02
cis-Chlordane	0.47	19.3	20.9	8		1	10/16/23 23:02
cis-Nonachlor	0.33	22.3	23.8	7		1	10/16/23 23:02
trans-Chlordane	0.44	21.9	21.9	<1		1	10/16/23 23:02
trans-Nonachlor	0.81	17.9	34.4	63	P	1	10/16/23 23:02

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310188
Date Collected: 09/06/23 10:50
Date Received: 9/12/23

Sample Name: AOC2-03-4.0
Lab Code: KQ2316174-02

Units: ug/Kg
Basis: Dry
Percent Solids: 82.2

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDD	0.68	18.8	25.4	30		1	10/16/23 23:43
4,4'-DDE	0.45	18.4	19.4	5		1	10/16/23 23:43
4,4'-DDT	0.69	20.2	20.7	2		1	10/16/23 23:43
Aldrin	0.67	19.6	20.1	3		1	10/16/23 23:43
Dieldrin	0.25	20.0	21.5	7		1	10/16/23 23:43
Oxychlordane	0.29	17.8	19.5	9		1	10/16/23 23:43
beta-BHC	0.31	20.4	21.6	6		1	10/16/23 23:43
cis-Chlordane	0.47	19.1	19.7	3		1	10/16/23 23:43
cis-Nonachlor	0.33	22.7	23.8	5		1	10/16/23 23:43
trans-Chlordane	0.43	19.9	22.2	11		1	10/16/23 23:43
trans-Nonachlor	0.80	17.7	33.8	63	P	1	10/16/23 23:43

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310188
Date Collected: 09/06/23 10:50
Date Received: 9/12/23

Sample Name: AOC2-03-4.0
Lab Code: KQ2316174-03

Units: ug/Kg
Basis: Dry
Percent Solids: 82.2

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Toxaphene	37	784	862	9		1	10/17/23 00:24

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310188
Date Collected: 09/06/23 10:50
Date Received: 9/12/23

Sample Name: AOC2-03-4.0
Lab Code: KQ2316174-04

Units: ug/Kg
Basis: Dry
Percent Solids: 82.2

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Toxaphene	38	791	899	13		1	10/17/23 01:05

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310188
Date Collected: 09/06/23 10:50
Date Received: 9/12/23

Sample Name: AOC2-03-4.0
Lab Code: KQ2316174-05

Units: ug/Kg
Basis: Dry
Percent Solids: 82.2

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
2,4'-DDD	0.32	23.8	25.3	6		1	10/17/23 01:46
2,4'-DDE	0.55	19.7	23.5	18		1	10/17/23 01:46
2,4'-DDT	0.56	22.7	30.7	30		1	10/17/23 01:46

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310188
Date Collected: 09/06/23 10:50
Date Received: 9/12/23

Sample Name: AOC2-03-4.0
Lab Code: KQ2316174-06

Units: ug/Kg
Basis: Dry
Percent Solids: 82.2

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
2,4'-DDD	0.30	22.3	23.6	6		1	10/17/23 07:15
2,4'-DDE	0.52	22.3	23.4	5		1	10/17/23 07:15
2,4'-DDT	0.53	21.8	21.8	<1		1	10/17/23 07:15

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310188
Date Collected: NA
Date Received:

Sample Name: Lab Control Sample
Lab Code: KQ2316174-07

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
4,4'-DDD	0.60	17.6	20.5	15		1	10/16/23 20:58
4,4'-DDE	0.40	18.4	19.0	3		1	10/16/23 20:58
4,4'-DDT	0.61	19.6	19.8	1		1	10/16/23 20:58
Aldrin	0.59	19.3	20.0	4		1	10/16/23 20:58
Dieldrin	0.22	19.4	20.1	4		1	10/16/23 20:58
Oxychlordane	0.25	17.3	18.5	7		1	10/16/23 20:58
beta-BHC	0.27	20.7	21.6	4		1	10/16/23 20:58
cis-Chlordane	0.41	18.9	18.9	<1		1	10/16/23 20:58
cis-Nonachlor	0.29	19.8	22.1	11		1	10/16/23 20:58
trans-Chlordane	0.38	19.2	19.4	1		1	10/16/23 20:58
trans-Nonachlor	0.71	17.8	32.9	60	P	1	10/16/23 20:58

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310188
Date Collected: NA
Date Received:

Sample Name: Lab Control Sample
Lab Code: KQ2316174-08

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Toxaphene	34	818	900	10		1	10/16/23 21:39

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2310188
Date Collected: NA
Date Received:

Sample Name: Lab Control Sample
Lab Code: KQ2316174-09

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
2,4'-DDD	0.27	19.8	21.0	6		1	10/16/23 22:20
2,4'-DDE	0.47	16.5	20.2	20		1	10/16/23 22:20
2,4'-DDT	0.48	19.0	24.4	25		1	10/16/23 22:20

Client: Floyd Snider **Service Request:** K2310188
Project: SmithKem
Sample Matrix: Soil

SURROGATE RECOVERY SUMMARY
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Extraction Method: EPA 3546

Sample Name	Lab Code	Decachlorobiphenyl 10 - 134	Tetrachloro-m-xylene 10 - 121
AOC2--03-2.0	K2310188-001	71	68
AOC2-03-4.0	K2310188-002	72	69
AOC2-04-3.0	K2310188-004	64	62
AOC2-05-3.0	K2310188-006	71	66
AOC2-05-6.0	K2310188-007	74	67
AOC2-105-3.0	K2310188-009	75	64
AOC2-06-2.0	K2310188-010	69	66
AOC2-07-2.0	K2310188-012	66	64
AOC2-08-2.0	K2310188-014	0 *	67
AOC2-08-2.0 DL1	K2310188-014	0 *	82
AOC2-08-2.0 DL2	K2310188-014	105	170 *
AOC2-08-2.0 DL3	K2310188-014	140 *	105
AOC2-08-2.0 DL4	K2310188-014	0 *	0 *
AOC2-08-4.0	K2310188-015	77	68
AOC3-01-2.0	K2310188-018	52	59
AOC2-03-4.0	KQ2316174-01	71	65
AOC2-03-4.0	KQ2316174-02	69	66
AOC2-03-4.0	KQ2316174-03	67	64
AOC2-03-4.0	KQ2316174-04	72	66
AOC2-03-4.0	KQ2316174-05	73	70
AOC2-03-4.0	KQ2316174-06	76	68
Lab Control Sample	KQ2316174-07	79	71
Lab Control Sample	KQ2316174-08	78	72
Lab Control Sample	KQ2316174-09	74	66
Method Blank	KQ2316174-10	75	70

Client: Floyd Snider **Service Request:** K2310188
Project: SmithKem **Date Analyzed:** 10/16/23 16:10

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\101623\1016F005.D\ **Lab Code:** KQ2319084-02
Instrument ID: K-GC-38 **Analysis Lot:** 821954
Analytical Method: 8081B **Signal ID:** DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	73,829,386	6.43	76,677,049	6.44	75,668,453	6.44
	Upper Limit ==>	147,658,772	6.93	153,354,098	6.94	151,336,906	6.94
	Lower Limit ==>	36,914,693	5.93	38,338,525	5.94	37,834,227	5.94
Associated Analyses							
Continuing Calibration Verification	KQ2319084-02	55,646,308	6.41	55,646,308	6.41	55,646,308	6.41
Continuing Calibration Verification	KQ2319084-02	55,726,991	6.41	55,726,991	6.41	55,726,991	6.41
Continuing Calibration Verification	KQ2319084-02	57,669,756	6.41	57,669,756	6.41	57,669,756	6.41
Continuing Calibration Verification	KQ2319084-02	57,252,491	6.41	57,252,491	6.41	57,252,491	6.41
Method Blank	KQ2316174-10	65,820,519	6.41	65,820,519	6.41	65,820,519	6.41
Lab Control Sample	KQ2316174-07	65,163,989	6.41	65,163,989	6.41	65,163,989	6.41
Lab Control Sample	KQ2316174-08	66,015,233	6.41	66,015,233	6.41	66,015,233	6.41
Lab Control Sample	KQ2316174-09	69,768,997	6.41	69,768,997	6.41	69,768,997	6.41
AOC2-03-4.0MS	KQ2316174-01	68,967,443	6.41	68,967,443	6.41	68,967,443	6.41
AOC2-03-4.0DMS	KQ2316174-02	67,865,545	6.41	67,865,545	6.41	67,865,545	6.41
AOC2-03-4.0MS	KQ2316174-03	70,711,131	6.41	70,711,131	6.41	70,711,131	6.41
AOC2-03-4.0DMS	KQ2316174-04	69,813,145	6.41	69,813,145	6.41	69,813,145	6.41
AOC2-03-4.0MS	KQ2316174-05	68,370,381	6.41	68,370,381	6.41	68,370,381	6.41

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/16/23 16:10

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\101623\1016F005.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2319084-02
Analysis Lot: 821954
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	36,249,909	5.89	35,088,135	5.90	34,585,592	5.90
	Upper Limit ==>	72,499,818	6.39	70,176,270	6.40	69,171,184	6.40
	Lower Limit ==>	18,124,955	5.39	17,544,068	5.40	17,292,796	5.40
Associated Analyses							
Continuing Calibration Verification	KQ2319084-02	45,292,210	5.87	45,292,210	5.87	45,292,210	5.87
Continuing Calibration Verification	KQ2319084-02	45,216,296	5.87	45,216,296	5.87	45,216,296	5.87
Continuing Calibration Verification	KQ2319084-02	46,526,014	5.87	46,526,014	5.87	46,526,014	5.87
Continuing Calibration Verification	KQ2319084-02	46,044,320	5.87	46,044,320	5.87	46,044,320	5.87
Method Blank	KQ2316174-10	53,034,673	5.87	53,034,673	5.87	53,034,673	5.87
Lab Control Sample	KQ2316174-07	51,644,559	5.87	51,644,559	5.87	51,644,559	5.87
Lab Control Sample	KQ2316174-08	52,251,713	5.87	52,251,713	5.87	52,251,713	5.87
Lab Control Sample	KQ2316174-09	55,444,188	5.87	55,444,188	5.87	55,444,188	5.87
AOC2-03-4.0MS	KQ2316174-01	54,399,436	5.87	54,399,436	5.87	54,399,436	5.87
AOC2-03-4.0DMS	KQ2316174-02	53,610,896	5.87	53,610,896	5.87	53,610,896	5.87
AOC2-03-4.0MS	KQ2316174-03	55,831,191	5.87	55,831,191	5.87	55,831,191	5.87
AOC2-03-4.0DMS	KQ2316174-04	55,035,726	5.87	55,035,726	5.87	55,035,726	5.87
AOC2-03-4.0MS	KQ2316174-05	53,690,079	5.87	53,690,079	5.87	53,690,079	5.87

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/17/23 03:50

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\101623\1016F022.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2319084-05
Analysis Lot: 821954
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	73,829,386	6.43	76,677,049	6.44	75,668,453	6.44
	Upper Limit ==>	147,658,772	6.93	153,354,098	6.94	151,336,906	6.94
	Lower Limit ==>	36,914,693	5.93	38,338,525	5.94	37,834,227	5.94
Associated Analyses							
Continuing Calibration Verification	KQ2319084-05	61,372,650	6.41	61,372,650	6.41	61,372,650	6.41
Continuing Calibration Verification	KQ2319084-05	60,472,720	6.41	60,472,720	6.41	60,472,720	6.41
Continuing Calibration Verification	KQ2319084-05	61,802,535	6.41	61,802,535	6.41	61,802,535	6.41
Continuing Calibration Verification	KQ2319084-05	60,375,894	6.41	60,375,894	6.41	60,375,894	6.41
AOC2-03-4.0DMS	KQ2316174-06	70,939,277	6.41	70,939,277	6.41	70,939,277	6.41
AOC2--03-2.0	K2310188-001	71,322,264	6.41	71,322,264	6.41	71,322,264	6.41
AOC2-03-4.0	K2310188-002	71,629,688	6.41	71,629,688	6.41	71,629,688	6.41
AOC2-04-3.0	K2310188-004	71,820,412	6.41	71,820,412	6.41	71,820,412	6.41
AOC2-05-3.0	K2310188-006	71,619,570	6.41	71,619,570	6.41	71,619,570	6.41
AOC2-05-6.0	K2310188-007	75,170,309	6.41	75,170,309	6.41	75,170,309	6.41
AOC2-105-3.0	K2310188-009	73,928,871	6.41	73,928,871	6.41	73,928,871	6.41
AOC2-06-2.0	K2310188-010	77,936,982	6.41	77,936,982	6.41	77,936,982	6.41
AOC2-07-2.0	K2310188-012	74,212,216	6.41	74,212,216	6.41	74,212,216	6.41
AOC2-08-2.0	K2310188-014	75,584,735	6.41	75,584,735	6.41	75,584,735	6.41

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider **Service Request:** K2310188
Project: SmithKem **Date Analyzed:** 10/17/23 03:50

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\101623\1016F022.D\ **Lab Code:** KQ2319084-05
Instrument ID: K-GC-38 **Analysis Lot:** 821954
Analytical Method: 8081B **Signal ID:** DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	36,249,909	5.89	35,088,135	5.90	34,585,592	5.90
	Upper Limit ==>	72,499,818	6.39	70,176,270	6.40	69,171,184	6.40
	Lower Limit ==>	18,124,955	5.39	17,544,068	5.40	17,292,796	5.40
Associated Analyses							
Continuing Calibration Verification	KQ2319084-05	47,936,326	5.87	47,936,326	5.87	47,936,326	5.87
Continuing Calibration Verification	KQ2319084-05	47,102,869	5.87	47,102,869	5.87	47,102,869	5.87
Continuing Calibration Verification	KQ2319084-05	48,415,452	5.87	48,415,452	5.87	48,415,452	5.87
Continuing Calibration Verification	KQ2319084-05	46,913,740	5.87	46,913,740	5.87	46,913,740	5.87
AOC2-03-4.0DMS	KQ2316174-06	55,378,205	5.87	55,378,205	5.87	55,378,205	5.87
AOC2--03-2.0	K2310188-001	54,838,484	5.87	54,838,484	5.87	54,838,484	5.87
AOC2-03-4.0	K2310188-002	55,705,628	5.87	55,705,628	5.87	55,705,628	5.87
AOC2-04-3.0	K2310188-004	54,532,477	5.87	54,532,477	5.87	54,532,477	5.87
AOC2-05-3.0	K2310188-006	54,652,421	5.87	54,652,421	5.87	54,652,421	5.87
AOC2-05-6.0	K2310188-007	57,769,465	5.87	57,769,465	5.87	57,769,465	5.87
AOC2-105-3.0	K2310188-009	56,724,892	5.87	56,724,892	5.87	56,724,892	5.87
AOC2-06-2.0	K2310188-010	58,895,807	5.87	58,895,807	5.87	58,895,807	5.87
AOC2-07-2.0	K2310188-012	56,454,379	5.87	56,454,379	5.87	56,454,379	5.87
AOC2-08-2.0	K2310188-014	58,393,332	5.87	58,393,332	5.87	58,393,332	5.87

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/17/23 15:30

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\101623\1016F039.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2319084-08
Analysis Lot: 821954
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	73,829,386	6.43	76,677,049	6.44	75,668,453	6.44
	Upper Limit ==>	147,658,772	6.93	153,354,098	6.94	151,336,906	6.94
	Lower Limit ==>	36,914,693	5.93	38,338,525	5.94	37,834,227	5.94
Associated Analyses							
Continuing Calibration Verification	KQ2319084-08	67,020,225	6.41	67,020,225	6.41	67,020,225	6.41
Continuing Calibration Verification	KQ2319084-08	65,920,601	6.41	65,920,601	6.41	65,920,601	6.41
Continuing Calibration Verification	KQ2319084-08	66,173,424	6.41	66,173,424	6.41	66,173,424	6.41
Continuing Calibration Verification	KQ2319084-08	65,151,295	6.41	65,151,295	6.41	65,151,295	6.41
AOC2-08-4.0	K2310188-015	74,484,707	6.41	74,484,707	6.41	74,484,707	6.41
AOC3-01-2.0	K2310188-018	81,905,755	6.41	81,905,755	6.41	81,905,755	6.41

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/17/23 15:30

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\101623\1016F039.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2319084-08
Analysis Lot: 821954
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	36,249,909	5.89	35,088,135	5.90	34,585,592	5.90
	Upper Limit ==>	72,499,818	6.39	70,176,270	6.40	69,171,184	6.40
	Lower Limit ==>	18,124,955	5.39	17,544,068	5.40	17,292,796	5.40
Associated Analyses							
Continuing Calibration Verification	KQ2319084-08	51,440,971	5.87	51,440,971	5.87	51,440,971	5.87
Continuing Calibration Verification	KQ2319084-08	50,264,140	5.87	50,264,140	5.87	50,264,140	5.87
Continuing Calibration Verification	KQ2319084-08	50,452,627	5.87	50,452,627	5.87	50,452,627	5.87
Continuing Calibration Verification	KQ2319084-08	49,414,633	5.87	49,414,633	5.87	49,414,633	5.87
AOC2-08-4.0	K2310188-015	56,764,344	5.87	56,764,344	5.87	56,764,344	5.87
AOC3-01-2.0	K2310188-018	62,181,146	5.87	62,181,146	5.87	62,181,146	5.87

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider **Service Request:** K2310188
Project: SmithKem **Date Analyzed:** 10/27/23 23:44

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\102623\1026F053.D\ **Lab Code:** KQ2319202-02
Instrument ID: K-GC-38 **Analysis Lot:** 822173
Analytical Method: 8081B **Signal ID:** DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	73,829,386	6.43	76,677,049	6.44	75,668,453	6.44
	Upper Limit ==>	147,658,772	6.93	153,354,098	6.94	151,336,906	6.94
	Lower Limit ==>	36,914,693	5.93	38,338,525	5.94	37,834,227	5.94
Associated Analyses							
Continuing Calibration Verification	KQ2319202-02	74,554,623	6.41	74,554,623	6.41	74,554,623	6.41
Continuing Calibration Verification	KQ2319202-02	91,727,555	6.41	91,727,555	6.41	91,727,555	6.41
AOC2-08-2.0DL	K2310188-014	75,949,193	6.41	75,949,193	6.41	75,949,193	6.41
AOC2-08-2.0DL	K2310188-014	67,295,563	6.41	67,295,563	6.41	67,295,563	6.41

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/27/23 23:44

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\102623\1026F053.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2319202-02
Analysis Lot: 822173
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	36,249,909	5.89	35,088,135	5.90	34,585,592	5.90
	Upper Limit ==>	72,499,818	6.39	70,176,270	6.40	69,171,184	6.40
	Lower Limit ==>	18,124,955	5.39	17,544,068	5.40	17,292,796	5.40
Associated Analyses							
Continuing Calibration Verification	KQ2319202-02	46,724,622	5.86	46,724,622	5.86	46,724,622	5.86
Continuing Calibration Verification	KQ2319202-02	57,684,572	5.86	57,684,572	5.86	57,684,572	5.86
AOC2-08-2.0DL	K2310188-014	48,244,119	5.86	48,244,119	5.86	48,244,119	5.86
AOC2-08-2.0DL	K2310188-014	42,652,229	5.86	42,652,229	5.86	42,652,229	5.86

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/28/23 00:26

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\102623\1026F054.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2319202-02
Analysis Lot: 822173
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	73,829,386	6.43	76,677,049	6.44	75,668,453	6.44
	Upper Limit ==>	147,658,772	6.93	153,354,098	6.94	151,336,906	6.94
	Lower Limit ==>	36,914,693	5.93	38,338,525	5.94	37,834,227	5.94
Associated Analyses							
Continuing Calibration Verification	KQ2319202-02	91,727,555	6.41	91,727,555	6.41	91,727,555	6.41
AOC2-08-2.0DL	K2310188-014	75,949,193	6.41	75,949,193	6.41	75,949,193	6.41
AOC2-08-2.0DL	K2310188-014	67,295,563	6.41	67,295,563	6.41	67,295,563	6.41

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider **Service Request:** K2310188
Project: SmithKem **Date Analyzed:** 10/28/23 00:26

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\102623\1026F054.D\ **Lab Code:** KQ2319202-02
Instrument ID: K-GC-38 **Analysis Lot:** 822173
Analytical Method: 8081B **Signal ID:** DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	36,249,909	5.89	35,088,135	5.90	34,585,592	5.90
	Upper Limit ==>	72,499,818	6.39	70,176,270	6.40	69,171,184	6.40
	Lower Limit ==>	18,124,955	5.39	17,544,068	5.40	17,292,796	5.40
Associated Analyses							
Continuing Calibration Verification	KQ2319202-02	57,684,572	5.86	57,684,572	5.86	57,684,572	5.86
AOC2-08-2.0DL	K2310188-014	48,244,119	5.86	48,244,119	5.86	48,244,119	5.86
AOC2-08-2.0DL	K2310188-014	42,652,229	5.86	42,652,229	5.86	42,652,229	5.86

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/30/23 13:31

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\103023\1030F004.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2319283-02
Analysis Lot: 822348
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	73,829,386	6.43	76,677,049	6.44	75,668,453	6.44
	Upper Limit ==>	147,658,772	6.93	153,354,098	6.94	151,336,906	6.94
	Lower Limit ==>	36,914,693	5.93	38,338,525	5.94	37,834,227	5.94
Associated Analyses							
Continuing Calibration Verification	KQ2319283-02	59,069,487	6.41	59,069,487	6.41	59,069,487	6.41
Continuing Calibration Verification	KQ2319283-02	58,946,110	6.41	58,946,110	6.41	58,946,110	6.41
Continuing Calibration Verification	KQ2319283-02	60,916,059	6.41	60,916,059	6.41	60,916,059	6.41
Continuing Calibration Verification	KQ2319283-02	61,031,886	6.41	61,031,886	6.41	61,031,886	6.41
AOC2-08-2.0DL	K2310188-014	75,082,874	6.41	75,082,874	6.41	75,082,874	6.41

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/30/23 13:31

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\103023\1030F004.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2319283-02
Analysis Lot: 822348
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	36,249,909	5.89	35,088,135	5.90	34,585,592	5.90
	Upper Limit ==>	72,499,818	6.39	70,176,270	6.40	69,171,184	6.40
	Lower Limit ==>	18,124,955	5.39	17,544,068	5.40	17,292,796	5.40
Associated Analyses							
Continuing Calibration Verification	KQ2319283-02	36,784,814	5.86	36,784,814	5.86	36,784,814	5.86
Continuing Calibration Verification	KQ2319283-02	37,011,351	5.86	37,011,351	5.86	37,011,351	5.86
Continuing Calibration Verification	KQ2319283-02	38,288,061	5.86	38,288,061	5.86	38,288,061	5.86
Continuing Calibration Verification	KQ2319283-02	38,414,503	5.86	38,414,503	5.86	38,414,503	5.86
AOC2-08-2.0DL	K2310188-014	47,957,490	5.86	47,957,490	5.86	47,957,490	5.86

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/31/23 01:18

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\103023\1030F021.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2319283-05
Analysis Lot: 822348
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	73,829,386	6.43	76,677,049	6.44	75,668,453	6.44
	Upper Limit ==>	147,658,772	6.93	153,354,098	6.94	151,336,906	6.94
	Lower Limit ==>	36,914,693	5.93	38,338,525	5.94	37,834,227	5.94
Associated Analyses							
Continuing Calibration Verification	KQ2319283-05	63,955,641	6.41	63,955,641	6.41	63,955,641	6.41
Continuing Calibration Verification	KQ2319283-05	63,274,315	6.41	63,274,315	6.41	63,274,315	6.41
Continuing Calibration Verification	KQ2319283-05	65,206,020	6.41	65,206,020	6.41	65,206,020	6.41
Continuing Calibration Verification	KQ2319283-05	64,277,263	6.41	64,277,263	6.41	64,277,263	6.41

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/31/23 01:18

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\103023\1030F021.D\
Instrument ID: K-GC-38
Analytical Method: 8081B

Lab Code: KQ2319283-05
Analysis Lot: 822348
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	36,249,909	5.89	35,088,135	5.90	34,585,592	5.90
	Upper Limit ==>	72,499,818	6.39	70,176,270	6.40	69,171,184	6.40
	Lower Limit ==>	18,124,955	5.39	17,544,068	5.40	17,292,796	5.40
Associated Analyses							
Continuing Calibration Verification	KQ2319283-05	40,195,696	5.86	40,195,696	5.86	40,195,696	5.86
Continuing Calibration Verification	KQ2319283-05	39,984,124	5.86	39,984,124	5.86	39,984,124	5.86
Continuing Calibration Verification	KQ2319283-05	41,190,426	5.86	41,190,426	5.86	41,190,426	5.86
Continuing Calibration Verification	KQ2319283-05	40,400,890	5.86	40,400,890	5.86	40,400,890	5.86

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/31/23 04:58

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC37\DATA\103023\1030F022.D\
Instrument ID: K-GC-37
Analytical Method: 8081B

Lab Code: KQ2319327-02
Analysis Lot: 822429
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	57,970,373	6.37	54,473,636	6.39	53,703,628	6.39
	Upper Limit ==>	115,940,746	6.87	108,947,272	6.89	107,407,256	6.89
	Lower Limit ==>	28,985,187	5.87	27,236,818	5.89	26,851,814	5.89
Associated Analyses							
Continuing Calibration Verification	KQ2319327-02	62,543,465	6.37	62,543,465	6.37	62,543,465	6.37
AOC2-08-2.0DL	K2310188-014	62,897,784	6.37	62,897,784	6.37	62,897,784	6.37

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/31/23 04:58

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC37\DATA\103023\1030F022.D\
Instrument ID: K-GC-37
Analytical Method: 8081B

Lab Code: KQ2319327-02
Analysis Lot: 822429
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}		1-Bromo-2-nitrobenzene {4}	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	ICAL Average ==>	175,884,548	5.38	164,718,608	5.40	162,032,942	5.40
	Upper Limit ==>	351,769,096	5.88	329,437,216	5.90	324,065,884	5.90
	Lower Limit ==>	87,942,274	4.88	82,359,304	4.90	81,016,471	4.90
Associated Analyses							
Continuing Calibration Verification	KQ2319327-02	201,181,294	5.38	201,181,294	5.38	201,181,294	5.38
AOC2-08-2.0DL	K2310188-014	205,022,471	5.38	205,022,471	5.38	205,022,471	5.38

Results flagged with an asterisk (*) indicate values outside control criteria.

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
		Date Analyzed:	10/16/23
		Date Extracted:	09/15/23

Duplicate Matrix Spike Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	AOC2-03-4.0	**Units:**	ug/Kg
Lab Code:	K2310188-002	**Basis:**	Dry
Analysis Method:	8081B		
Prep Method:	EPA 3546		

		Matrix Spike KQ2316174-01			Duplicate Matrix Spike KQ2316174-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Aldrin	ND U	19.6	28.3	69	19.6	28.1	70	18-89	<1	40
beta-BHC	ND U	20.6	28.3	73	20.4	28.1	73	16-106	<1	40
cis-Chlordane	ND U	19.3	28.3	68	19.1	28.1	68	20-93	<1	40
trans-Chlordane	ND U	21.9	28.3	77	19.9	28.1	71	10-103	9	40
4,4'-DDD	ND U	18.7	28.3	66	18.8	28.1	67	10-180	<1	40
4,4'-DDE	ND U	18.5	28.3	65	18.4	28.1	65	17-94	1	40
4,4'-DDT	0.71 J	20.8	28.3	71	20.2	28.1	69	17-104	3	40
Dieldrin	ND U	20.3	28.3	72	20.0	28.1	71	19-88	1	40
cis-Nonachlor	ND U	22.3	28.3	79	22.7	28.1	81	11-172	2	40
trans-Nonachlor	ND U	17.9 P	28.3	63	17.7 P	28.1	63	30-107	1	40
Oxychlordane	ND U	17.8	28.3	63	17.8	28.1	63	30-99	<1	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
		Date Analyzed:	10/17/23
		Date Extracted:	09/15/23

Duplicate Matrix Spike Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	AOC2-03-4.0	**Units:**	ug/Kg
Lab Code:	K2310188-002	**Basis:**	Dry
Analysis Method:	8081B		
Prep Method:	EPA 3546		

		Matrix Spike KQ2316174-03			Duplicate Matrix Spike KQ2316174-04					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Toxaphene	ND U	784	1060	74	791	1090	73	16-114	<1	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Collected:**	09/06/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
		Date Analyzed:	10/17/23
		Date Extracted:	09/15/23

Duplicate Matrix Spike Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	AOC2-03-4.0	**Units:**	ug/Kg
Lab Code:	K2310188-002	**Basis:**	Dry
Analysis Method:	8081B		
Prep Method:	EPA 3546		

		Matrix Spike KQ2316174-05			Duplicate Matrix Spike KQ2316174-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
2,4'-DDD	ND U	23.8	28.8	83	22.3	27.6	81	35-109	6	40
2,4'-DDE	ND U	19.7	28.8	68	22.3	27.6	81	41-99	13	40
2,4'-DDT	ND U	22.7	28.8	79	21.8	27.6	79	34-122	4	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Analyzed:**	10/16/23
Sample Matrix:	Soil	**Date Extracted:**	09/15/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Analysis Method:	8081B	**Units:**	ug/Kg
Prep Method:	EPA 3546	**Basis:**	Dry
		Analysis Lot:	821954

Lab Control Sample
KQ2316174-07

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
4,4'-DDD	17.6	25.0	70	10-180
4,4'-DDE	18.4	25.0	73	17-94
4,4'-DDT	19.6	25.0	78	17-104
Aldrin	19.3	25.0	77	18-89
beta-BHC	20.7	25.0	83	16-106
cis-Chlordane	18.9	25.0	76	20-93
cis-Nonachlor	19.8	25.0	79	11-172
Dieldrin	19.4	25.0	78	19-88
Oxychlordane	17.3	25.0	69	30-99
trans-Chlordane	19.2	25.0	77	10-103
trans-Nonachlor	17.8 P	25.0	71	30-107

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Analyzed:**	10/16/23
Sample Matrix:	Soil	**Date Extracted:**	09/15/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Analysis Method:	8081B	**Units:**	ug/Kg
Prep Method:	EPA 3546	**Basis:**	Dry
		Analysis Lot:	821954

Lab Control Sample
KQ2316174-08

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Toxaphene	818	1000	82	16-114

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Analyzed:**	10/16/23
Sample Matrix:	Soil	**Date Extracted:**	09/15/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Analysis Method:	8081B	**Units:**	ug/Kg
Prep Method:	EPA 3546	**Basis:**	Dry
		Analysis Lot:	821954

Lab Control Sample
KQ2316174-09

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
2,4'-DDD	19.8	25.0	79	35-109
2,4'-DDE	16.5	25.0	66	41-99
2,4'-DDT	19.0	25.0	76	34-122

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QA/QC Report

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Analyzed:**	NA
Sample Matrix:	Soil	**Date Extracted:**	

Method Blank Summary
Low Level Organochlorine Pesticides by GC

Sample Name:		**Instrument ID:**	
Lab Code:		**File ID:**	
Analysis Method:	8081B	**Analysis Lot:**	821954
Prep Method:	None		

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Performance Evaluation	KQ2319084-01	J:\GC38\DATA\101623\1016F004.D\	10/16/23 15:29
Performance Evaluation	KQ2319084-04	J:\GC38\DATA\101623\1016F021.D\	10/17/23 03:08
Performance Evaluation	KQ2319084-07	J:\GC38\DATA\101623\1016F038.D\	10/17/23 14:49
Performance Evaluation	KQ2319202-01	J:\GC38\DATA\102623\1026F052.D\	10/27/23 23:03
Performance Evaluation	KQ2319283-01	J:\GC38\DATA\103023\1030F003.D\	10/30/23 12:49
Performance Evaluation	KQ2319283-04	J:\GC38\DATA\103023\1030F020.D\	10/31/23 00:37
Performance Evaluation	KQ2319327-01	J:\GC37\DATA\103023\1030F021.D\	10/31/23 04:18
Performance Evaluation	KQ2319283-07	J:\GC38\DATA\103023\1030F037.D\	10/31/23 12:21

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QA/QC Report

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Analyzed:**	10/16/23 20:16
Sample Matrix:	Soil	**Date Extracted:**	09/15/23

Method Blank Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	Method Blank	**Instrument ID:**	K-GC-38
Lab Code:	KQ2316174-10	**File ID:**	J:\GC38\DATA\101623\1016F011.D\
Analysis Method:	8081B	**Analysis Lot:**	821954,822173,822348,822429
Prep Method:	EPA 3546	**Extraction Lot:**	426513

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ2316174-07	J:\GC38\DATA\101623\1016F012.D\	10/16/23 20:58
Lab Control Sample	KQ2316174-08	J:\GC38\DATA\101623\1016F013.D\	10/16/23 21:39
Lab Control Sample	KQ2316174-09	J:\GC38\DATA\101623\1016F014.D\	10/16/23 22:20
AOC2-03-4.0MS	KQ2316174-01	J:\GC38\DATA\101623\1016F015.D\	10/16/23 23:02
AOC2-03-4.0DMS	KQ2316174-02	J:\GC38\DATA\101623\1016F016.D\	10/16/23 23:43
AOC2-03-4.0MS	KQ2316174-03	J:\GC38\DATA\101623\1016F017.D\	10/17/23 00:24
AOC2-03-4.0DMS	KQ2316174-04	J:\GC38\DATA\101623\1016F018.D\	10/17/23 01:05
AOC2-03-4.0MS	KQ2316174-05	J:\GC38\DATA\101623\1016F019.D\	10/17/23 01:46
AOC2-03-4.0DMS	KQ2316174-06	J:\GC38\DATA\101623\1016F027.D\	10/17/23 07:15
AOC2--03-2.0	K2310188-001	J:\GC38\DATA\101623\1016F028.D\	10/17/23 07:56
AOC2-03-4.0	K2310188-002	J:\GC38\DATA\101623\1016F029.D\	10/17/23 08:37
AOC2-04-3.0	K2310188-004	J:\GC38\DATA\101623\1016F030.D\	10/17/23 09:19
AOC2-05-3.0	K2310188-006	J:\GC38\DATA\101623\1016F031.D\	10/17/23 10:00
AOC2-05-6.0	K2310188-007	J:\GC38\DATA\101623\1016F032.D\	10/17/23 10:41
AOC2-105-3.0	K2310188-009	J:\GC38\DATA\101623\1016F033.D\	10/17/23 11:23
AOC2-06-2.0	K2310188-010	J:\GC38\DATA\101623\1016F034.D\	10/17/23 12:04
AOC2-07-2.0	K2310188-012	J:\GC38\DATA\101623\1016F035.D\	10/17/23 12:46
AOC2-08-2.0	K2310188-014	J:\GC38\DATA\101623\1016F036.D\	10/17/23 13:27
AOC2-08-4.0	K2310188-015	J:\GC38\DATA\101623\1016F044.D\	10/17/23 18:56
AOC3-01-2.0	K2310188-018	J:\GC38\DATA\101623\1016F045.D\	10/17/23 19:37
AOC2-08-2.0	K2310188-014	J:\GC38\DATA\102623\1026F061.D\	10/28/23 05:14
AOC2-08-2.0	K2310188-014	J:\GC38\DATA\102623\1026F062.D\	10/28/23 05:55
AOC2-08-2.0	K2310188-014	J:\GC38\DATA\103023\1030F010.D\	10/30/23 17:40
AOC2-08-2.0	K2310188-014	J:\GC37\DATA\103023\1030F032.D\	10/31/23 11:32

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QA/QC Report

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Analyzed:**	NA
Sample Matrix:	Soil	**Date Extracted:**	

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Sample Name:		**Instrument ID:**	
Lab Code:		**File ID:**	
Analysis Method:	8081B	**Analysis Lot:**	821954
Prep Method:	None		

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Performance Evaluation	KQ2319084-01	J:\GC38\DATA\101623\1016F004.D\	10/16/23 15:29
Performance Evaluation	KQ2319084-04	J:\GC38\DATA\101623\1016F021.D\	10/17/23 03:08
Performance Evaluation	KQ2319084-07	J:\GC38\DATA\101623\1016F038.D\	10/17/23 14:49
Performance Evaluation	KQ2319202-01	J:\GC38\DATA\102623\1026F052.D\	10/27/23 23:03
Performance Evaluation	KQ2319283-01	J:\GC38\DATA\103023\1030F003.D\	10/30/23 12:49
Performance Evaluation	KQ2319283-04	J:\GC38\DATA\103023\1030F020.D\	10/31/23 00:37
Performance Evaluation	KQ2319327-01	J:\GC37\DATA\103023\1030F021.D\	10/31/23 04:18
Performance Evaluation	KQ2319283-07	J:\GC38\DATA\103023\1030F037.D\	10/31/23 12:21

Client:	Floyd Snider	**Service Request:**	K2310188
Project:	SmithKem	**Date Analyzed:**	10/16/23 22:20
Sample Matrix:	Soil	**Date Extracted:**	09/15/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	Lab Control Sample	**Instrument ID:**	K-GC-38
Lab Code:	KQ2316174-09	**File ID:**	J:\GC38\DATA\101623\1016F014.D\
Analysis Method:	8081B	**Analysis Lot:**	821954,822173,822348,822429
Prep Method:	EPA 3546	**Extraction Lot:**	426513

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ2316174-10	J:\GC38\DATA\101623\1016F011.D\	10/16/23 20:16
AOC2-03-4.0MS	KQ2316174-01	J:\GC38\DATA\101623\1016F015.D\	10/16/23 23:02
AOC2-03-4.0DMS	KQ2316174-02	J:\GC38\DATA\101623\1016F016.D\	10/16/23 23:43
AOC2-03-4.0MS	KQ2316174-03	J:\GC38\DATA\101623\1016F017.D\	10/17/23 00:24
AOC2-03-4.0DMS	KQ2316174-04	J:\GC38\DATA\101623\1016F018.D\	10/17/23 01:05
AOC2-03-4.0MS	KQ2316174-05	J:\GC38\DATA\101623\1016F019.D\	10/17/23 01:46
AOC2-03-4.0DMS	KQ2316174-06	J:\GC38\DATA\101623\1016F027.D\	10/17/23 07:15
AOC2--03-2.0	K2310188-001	J:\GC38\DATA\101623\1016F028.D\	10/17/23 07:56
AOC2-03-4.0	K2310188-002	J:\GC38\DATA\101623\1016F029.D\	10/17/23 08:37
AOC2-04-3.0	K2310188-004	J:\GC38\DATA\101623\1016F030.D\	10/17/23 09:19
AOC2-05-3.0	K2310188-006	J:\GC38\DATA\101623\1016F031.D\	10/17/23 10:00
AOC2-05-6.0	K2310188-007	J:\GC38\DATA\101623\1016F032.D\	10/17/23 10:41
AOC2-105-3.0	K2310188-009	J:\GC38\DATA\101623\1016F033.D\	10/17/23 11:23
AOC2-06-2.0	K2310188-010	J:\GC38\DATA\101623\1016F034.D\	10/17/23 12:04
AOC2-07-2.0	K2310188-012	J:\GC38\DATA\101623\1016F035.D\	10/17/23 12:46
AOC2-08-2.0	K2310188-014	J:\GC38\DATA\101623\1016F036.D\	10/17/23 13:27
AOC2-08-4.0	K2310188-015	J:\GC38\DATA\101623\1016F044.D\	10/17/23 18:56
AOC3-01-2.0	K2310188-018	J:\GC38\DATA\101623\1016F045.D\	10/17/23 19:37
AOC2-08-2.0	K2310188-014	J:\GC38\DATA\102623\1026F061.D\	10/28/23 05:14
AOC2-08-2.0	K2310188-014	J:\GC38\DATA\102623\1026F062.D\	10/28/23 05:55
AOC2-08-2.0	K2310188-014	J:\GC38\DATA\103023\1030F010.D\	10/30/23 17:40
AOC2-08-2.0	K2310188-014	J:\GC37\DATA\103023\1030F032.D\	10/31/23 11:32

Client: Floyd Snider **Service Request:** K2310188
Project: SmithKem **Calibration Date:** 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558 **Signal ID:** DB XLB
Instrument ID: K-GC-38

#	Lab Code	Sample Name	File Location	Acquisition Date
08	KC2300558-08	24 .2 PPB GCPS9-27G @50X	J:\GC38\DATA\072123ICAL\0721F012.D	07/22/2023 00:03
09	KC2300558-09	24 .5 PPB GCPS9-27G @20X	J:\GC38\DATA\072123ICAL\0721F013.D	07/22/2023 00:48
10	KC2300558-10	24 1 PPB GCPS9-27G @10X	J:\GC38\DATA\072123ICAL\0721F014.D	07/22/2023 01:33
11	KC2300558-11	24 2 PPB GCPS9-27G @5X	J:\GC38\DATA\072123ICAL\0721F015.D	07/22/2023 02:17
12	KC2300558-12	24 5 PPB GCPS9-27G @2X	J:\GC38\DATA\072123ICAL\0721F016.D	07/22/2023 03:02
13	KC2300558-13	24 10 PPB GCPS9-27G	J:\GC38\DATA\072123ICAL\0721F017.D	07/22/2023 03:48
15	KC2300558-15	M/P .2/1 PPB GCPS9-33A @50X	J:\GC38\DATA\072123ICAL\0721F019.D	07/22/2023 05:19
16	KC2300558-16	M/P .5/2.5 PPB GCPS9-33A @20X	J:\GC38\DATA\072123ICAL\0721F020.D	07/22/2023 06:05
17	KC2300558-17	M/P 1/5 PPB GCPS9-33A@10X	J:\GC38\DATA\072123ICAL\0721F021.D	07/22/2023 06:50
18	KC2300558-18	M/P 2/10 PPB GCPS9-33A @5X	J:\GC38\DATA\072123ICAL\0721F022.D	07/22/2023 07:34
19	KC2300558-19	M/P 5/25 PPB GCPS9-33A @2X	J:\GC38\DATA\072123ICAL\0721F023.D	07/22/2023 08:19
20	KC2300558-20	M/P 10/50 PPB GCPS9-33A	J:\GC38\DATA\072123ICAL\0721F024.D	07/22/2023 09:04
21	KC2300558-21	PERTH 100 PPB GSP9-30E	J:\GC38\DATA\072123ICAL\0721F025.D	07/22/2023 09:50
24	KC2300558-24	TOX 10 PPB GCPS9-29E @50X	J:\GC38\DATA\072123ICAL\0721F028.D	07/22/2023 12:06
25	KC2300558-25	TOX 25 PPB GCPS9-29E @20X	J:\GC38\DATA\072123ICAL\0721F029.D	07/22/2023 12:51
26	KC2300558-26	TOX 50 PPB GCPS9-29E @10X	J:\GC38\DATA\072123ICAL\0721F030.D	07/22/2023 13:37
27	KC2300558-27	TOX 100 PPB GCPS9-29E @5X	J:\GC38\DATA\072123ICAL\0721F031.D	07/22/2023 14:22
28	KC2300558-28	TOX 250 PPB GCPS9-29E @2X	J:\GC38\DATA\072123ICAL\0721F032.D	07/22/2023 15:08
29	KC2300558-29	TOX 500 PPB GCPS9-29E	J:\GC38\DATA\072123ICAL\0721F033.D	07/22/2023 15:54
31	KC2300558-31	CHLOR 2 PPB GCPS9-34D @100X	J:\GC38\DATA\072123ICAL\0721F035.D	07/22/2023 17:25
32	KC2300558-32	CHLOR 5 PPB GCPS9-34D @40X	J:\GC38\DATA\072123ICAL\0721F036.D	07/22/2023 18:11
33	KC2300558-33	CHLOR 10 PPB GCPS9-34D @20X	J:\GC38\DATA\072123ICAL\0721F037.D	07/22/2023 18:57
34	KC2300558-34	CHLOR 20 PPB GCPS9-34D @10X	J:\GC38\DATA\072123ICAL\0721F038.D	07/22/2023 19:43
35	KC2300558-35	CHLOR 50 PPB GCPS9-34D @4X	J:\GC38\DATA\072123ICAL\0721F039.D	07/22/2023 20:28
36	KC2300558-36	CHLOR 100 PPB GCPS9-34D @2X	J:\GC38\DATA\072123ICAL\0721F040.D	07/22/2023 21:14
37	KC2300558-37	CHLOR 200 PPB GCPS9-34D	J:\GC38\DATA\072123ICAL\0721F041.D	07/22/2023 21:59
01	KC2300558-01	8081 .2 PPB GCPS9-38C @50X	J:\GC38\DATA\092523\0925F008.D	09/25/2023 16:31
02	KC2300558-02	8081 .5 PPB GCPS9-38C@20X	J:\GC38\DATA\092523\0925F009.D	09/25/2023 17:12
03	KC2300558-03	8081 1 PPB GCPS9-38C @10X	J:\GC38\DATA\092523\0925F010.D	09/25/2023 17:54
04	KC2300558-04	8081 2 PPB GCPS9-38C@5X	J:\GC38\DATA\092523\0925F011.D	09/25/2023 18:35
05	KC2300558-05	8081 5 PPB GCPS9-38C @2X	J:\GC38\DATA\092523\0925F012.D	09/25/2023 19:17
06	KC2300558-06	8081 10 PPB GCPS9-38C	J:\GC38\DATA\092523\0925F013.D	09/25/2023 19:58

Analyte

2,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	0.698	09	0.500	0.6697	10	1.000	0.621	11	2.000	0.6061
12	5.000	0.585	13	10.000	0.5571						

Client: Floyd Snider **Service Request:** K2310188
Project: SmithKem **Calibration Date:** 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558 **Signal ID:** DB XLB
Instrument ID: K-GC-38

Analyte

2,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	1.045	09	0.500	0.8357	10	1.000	0.7712	11	2.000	0.7237
12	5.000	0.6848	13	10.000	0.6543						

2,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	0.8021	09	0.500	0.7347	10	1.000	0.6775	11	2.000	0.6494
12	5.000	0.6344	13	10.000	0.6101						

4,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.8654	02	0.500	0.8605	03	1.000	0.8406	04	2.000	0.8503
05	5.000	0.8122	06	10.000	0.8601						

4,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.108	02	0.500	1.153	03	1.000	1.096	04	2.000	1.106
05	5.000	1.056	06	10.000	1.069						

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.6987	02	0.500	0.7168	03	1.000	0.6876	04	2.000	0.7525
05	5.000	0.7258	06	10.000	0.7471						

Aldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.252	02	0.500	1.26	03	1.000	1.172	04	2.000	1.171
05	5.000	1.123	06	10.000	1.148						

Decachlorobiphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.273	02	0.500	1.305	03	1.000	1.232	04	2.000	1.257
05	5.000	1.118	06	10.000	1.059						

Dieldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.138	02	0.500	1.153	03	1.000	1.087	04	2.000	1.107
05	5.000	1.041	06	10.000	1.053						

Oxychlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.335	16	0.500	1.255	17	1.000	1.428	18	2.000	1.103
19	5.000	1.08	20	10.000	1.009						

Tetrachloro-m-xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.438	02	0.500	1.496	03	1.000	1.391	04	2.000	1.411
05	5.000	1.305	06	10.000	1.308						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB XLB

Analyte

Toxaphene {1}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.008207	25	25.000	0.00774	26	50.000	0.007891	27	100.000	0.008052
28	250.000	0.007785	29	500.000	0.007234						

Toxaphene {2}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.007719	25	25.000	0.007011	26	50.000	0.006153	27	100.000	0.007946
28	250.000	0.005349	29	500.000	0.004933						

Toxaphene {3}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01009	25	25.000	0.01271	26	50.000	0.01197	27	100.000	0.01102
28	250.000	0.01028	29	500.000	0.01025						

Toxaphene {4}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01461	25	25.000	0.01391	26	50.000	0.01364	27	100.000	0.01356
28	250.000	0.01245	29	500.000	0.01183						

Toxaphene {5}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01706	25	25.000	0.01666	26	50.000	0.01741	27	100.000	0.01663
28	250.000	0.01569	29	500.000	0.01599						

Toxaphene {6}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.02109	25	25.000	0.02031	26	50.000	0.01826	27	100.000	0.01791
28	250.000	0.01688	29	500.000	0.01635						

beta-BHC

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.02	02	0.500	0.8943	03	1.000	0.7489	04	2.000	0.716
05	5.000	0.6344	06	10.000	0.6179						

cis-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.424	02	0.500	1.279	03	1.000	1.19	04	2.000	1.186
05	5.000	1.106	06	10.000	1.087						

cis-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.503	16	0.500	1.324	17	1.000	1.293	18	2.000	1.151
19	5.000	1.155	20	10.000	1.101						

trans-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.238	02	0.500	1.266	03	1.000	1.177	04	2.000	1.172
05	5.000	1.094	06	10.000	1.094						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB XLB

Analyte

trans-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.497	16	0.500	1.301	17	1.000	1.225	18	2.000	1.157
19	5.000	1.105	20	10.000	1.049						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB XLB

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	8.5	≤20	0.6228	
2,4'-DDE	TRG	Average RF	% RSD	18.1	≤20	0.7857	
2,4'-DDT	TRG	Average RF	% RSD	10.5	≤20	0.6847	
4,4'-DDD	TRG	Average RF	% RSD	2.3	≤20	0.8482	
4,4'-DDE	TRG	Average RF	% RSD	3.1	≤20	1.098	
4,4'-DDT	TRG	Average RF	% RSD	3.6	≤20	0.7214	
Aldrin	TRG	Average RF	% RSD	4.7	≤20	1.188	
Decachlorobiphenyl	SURR	Average RF	% RSD	8.0	≤20	1.207	
Dieldrin	TRG	Average RF	% RSD	4.1	≤20	1.097	
Oxychlordane	TRG	Average RF	% RSD	13.6	≤20	1.202	
Tetrachloro-m-xylene	SURR	Average RF	% RSD	5.4	≤20	1.391	
Toxaphene {1}	MULTI	Average RF	% RSD	4.3	≤20	0.007818	
Toxaphene {2}	MULTI	Average RF	% RSD	19.1	≤20	0.006518	
Toxaphene {3}	MULTI	Average RF	% RSD	9.7	≤20	0.01105	
Toxaphene {4}	MULTI	Average RF	% RSD	7.6	≤20	0.01333	
Toxaphene {5}	MULTI	Average RF	% RSD	3.9	≤20	0.01657	
Toxaphene {6}	MULTI	Average RF	% RSD	10.2	≤20	0.01847	
beta-BHC	TRG	Quadratic	COD	0.9997	≥0.990	0.7719	
cis-Chlordane	TRG	Average RF	% RSD	10.2	≤20	1.212	
cis-Nonachlor	TRG	Average RF	% RSD	11.9	≤20	1.255	
trans-Chlordane	TRG	Average RF	% RSD	6.1	≤20	1.173	
trans-Nonachlor	TRG	Average RF	% RSD	13.2	≤20	1.222	

Client: Floyd Snider **Service Request:** K2310188
Project: SmithKem **Calibration Date:** 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558 **Signal ID:** DB-35MS
Instrument ID: K-GC-38

#	Lab Code	Sample Name	File Location	Acquisition Date
08	KC2300558-08	24 .2 PPB GCPS9-27G @50X	J:\GC38\DATA\072123ICAL\0721F012.D	07/22/2023 00:03
09	KC2300558-09	24 .5 PPB GCPS9-27G @20X	J:\GC38\DATA\072123ICAL\0721F013.D	07/22/2023 00:48
10	KC2300558-10	24 1 PPB GCPS9-27G @10X	J:\GC38\DATA\072123ICAL\0721F014.D	07/22/2023 01:33
11	KC2300558-11	24 2 PPB GCPS9-27G @5X	J:\GC38\DATA\072123ICAL\0721F015.D	07/22/2023 02:17
12	KC2300558-12	24 5 PPB GCPS9-27G @2X	J:\GC38\DATA\072123ICAL\0721F016.D	07/22/2023 03:02
13	KC2300558-13	24 10 PPB GCPS9-27G	J:\GC38\DATA\072123ICAL\0721F017.D	07/22/2023 03:48
15	KC2300558-15	M/P .2/1 PPB GCPS9-33A @50X	J:\GC38\DATA\072123ICAL\0721F019.D	07/22/2023 05:19
16	KC2300558-16	M/P .5/2.5 PPB GCPS9-33A @20X	J:\GC38\DATA\072123ICAL\0721F020.D	07/22/2023 06:05
17	KC2300558-17	M/P 1/5 PPB GCPS9-33A@10X	J:\GC38\DATA\072123ICAL\0721F021.D	07/22/2023 06:50
18	KC2300558-18	M/P 2/10 PPB GCPS9-33A @5X	J:\GC38\DATA\072123ICAL\0721F022.D	07/22/2023 07:34
19	KC2300558-19	M/P 5/25 PPB GCPS9-33A @2X	J:\GC38\DATA\072123ICAL\0721F023.D	07/22/2023 08:19
20	KC2300558-20	M/P 10/50 PPB GCPS9-33A	J:\GC38\DATA\072123ICAL\0721F024.D	07/22/2023 09:04
21	KC2300558-21	PERTH 100 PPB GSP9-30E	J:\GC38\DATA\072123ICAL\0721F025.D	07/22/2023 09:50
24	KC2300558-24	TOX 10 PPB GCPS9-29E @50X	J:\GC38\DATA\072123ICAL\0721F028.D	07/22/2023 12:06
25	KC2300558-25	TOX 25 PPB GCPS9-29E @20X	J:\GC38\DATA\072123ICAL\0721F029.D	07/22/2023 12:51
26	KC2300558-26	TOX 50 PPB GCPS9-29E @10X	J:\GC38\DATA\072123ICAL\0721F030.D	07/22/2023 13:37
27	KC2300558-27	TOX 100 PPB GCPS9-29E @5X	J:\GC38\DATA\072123ICAL\0721F031.D	07/22/2023 14:22
28	KC2300558-28	TOX 250 PPB GCPS9-29E @2X	J:\GC38\DATA\072123ICAL\0721F032.D	07/22/2023 15:08
29	KC2300558-29	TOX 500 PPB GCPS9-29E	J:\GC38\DATA\072123ICAL\0721F033.D	07/22/2023 15:54
31	KC2300558-31	CHLOR 2 PPB GCPS9-34D @100X	J:\GC38\DATA\072123ICAL\0721F035.D	07/22/2023 17:25
32	KC2300558-32	CHLOR 5 PPB GCPS9-34D @40X	J:\GC38\DATA\072123ICAL\0721F036.D	07/22/2023 18:11
33	KC2300558-33	CHLOR 10 PPB GCPS9-34D @20X	J:\GC38\DATA\072123ICAL\0721F037.D	07/22/2023 18:57
34	KC2300558-34	CHLOR 20 PPB GCPS9-34D @10X	J:\GC38\DATA\072123ICAL\0721F038.D	07/22/2023 19:43
35	KC2300558-35	CHLOR 50 PPB GCPS9-34D @4X	J:\GC38\DATA\072123ICAL\0721F039.D	07/22/2023 20:28
36	KC2300558-36	CHLOR 100 PPB GCPS9-34D @2X	J:\GC38\DATA\072123ICAL\0721F040.D	07/22/2023 21:14
37	KC2300558-37	CHLOR 200 PPB GCPS9-34D	J:\GC38\DATA\072123ICAL\0721F041.D	07/22/2023 21:59
01	KC2300558-01	8081 .2 PPB GCPS9-38C @50X	J:\GC38\DATA\092523\0925F008.D	09/25/2023 16:31
02	KC2300558-02	8081 .5 PPB GCPS9-38C@20X	J:\GC38\DATA\092523\0925F009.D	09/25/2023 17:12
03	KC2300558-03	8081 1 PPB GCPS9-38C @10X	J:\GC38\DATA\092523\0925F010.D	09/25/2023 17:54
04	KC2300558-04	8081 2 PPB GCPS9-38C@5X	J:\GC38\DATA\092523\0925F011.D	09/25/2023 18:35
05	KC2300558-05	8081 5 PPB GCPS9-38C @2X	J:\GC38\DATA\092523\0925F012.D	09/25/2023 19:17
06	KC2300558-06	8081 10 PPB GCPS9-38C	J:\GC38\DATA\092523\0925F013.D	09/25/2023 19:58

Analyte

2,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	0.6367	09	0.500	0.6481	10	1.000	0.6173	11	2.000	0.6254
12	5.000	0.6207	13	10.000	0.5908						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

Analyte

2,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	1.218	09	0.500	0.9887	10	1.000	0.8944	11	2.000	0.8766
12	5.000	0.8416	13	10.000	0.7926						

2,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	0.8004	09	0.500	0.742	10	1.000	0.6857	11	2.000	0.6872
12	5.000	0.6657	13	10.000	0.6335						

4,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.6998	02	0.500	0.7666	03	1.000	0.7179	04	2.000	0.7734
05	5.000	0.767	06	10.000	0.7788						

4,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.092	02	0.500	1.103	03	1.000	1.056	04	2.000	1.11
05	5.000	1.078	06	10.000	1.082						

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.652	02	0.500	0.7295	03	1.000	0.6919	04	2.000	0.7718
05	5.000	0.7854	06	10.000	0.7974						

Aldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.144	02	0.500	1.18	03	1.000	1.092	04	2.000	1.167
05	5.000	1.124	06	10.000	1.146						

Decachlorobiphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.486	02	0.500	1.484	03	1.000	1.397	04	2.000	1.425
05	5.000	1.282	06	10.000	1.192						

Dieldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.218	02	0.500	1.112	03	1.000	1.021	04	2.000	1.082
05	5.000	1.065	06	10.000	1.048						

Oxychlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.334	16	0.500	1.219	17	1.000	1.327	18	2.000	1.162
19	5.000	1.162	20	10.000	1.068						

Tetrachloro-m-xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.431	02	0.500	1.44	03	1.000	1.317	04	2.000	1.369
05	5.000	1.266	06	10.000	1.272						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

Analyte

Toxaphene {1}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.0225	25	25.000	0.02183	26	50.000	0.02111	27	100.000	0.02184
28	250.000	0.02031	29	500.000	0.01977						

Toxaphene {2}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01439	25	25.000	0.01426	26	50.000	0.01486	27	100.000	0.01778
28	250.000	0.0138	29	500.000	0.01374						

Toxaphene {3}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.02047	25	25.000	0.02012	26	50.000	0.02108	27	100.000	0.02258
28	250.000	0.02085	29	500.000	0.0205						

Toxaphene {4}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01299	25	25.000	0.01518	26	50.000	0.01477	27	100.000	0.01464
28	250.000	0.01414	29	500.000	0.01422						

Toxaphene {5}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.02252	25	25.000	0.02798	26	50.000	0.02609	27	100.000	0.02517
28	250.000	0.02539	29	500.000	0.02503						

Toxaphene {6}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.004329	25	25.000	0.006344	26	50.000	0.006614	27	100.000	0.006822
28	250.000	0.006606	29	500.000	0.006504						

beta-BHC

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.7744	02	0.500	0.7237	03	1.000	0.6802	04	2.000	0.6875
05	5.000	0.6635	06	10.000	0.6553						

cis-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.156	02	0.500	1.195	03	1.000	1.154	04	2.000	1.181
05	5.000	1.112	06	10.000	1.111						

cis-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.517	16	0.500	1.494	17	1.000	1.412	18	2.000	1.308
19	5.000	1.314	20	10.000	1.225						

trans-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.341	02	0.500	1.26	03	1.000	1.114	04	2.000	1.18
05	5.000	1.114	06	10.000	1.117						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

Analyte

trans-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.578	16	0.500	1.417	17	1.000	1.378	18	2.000	1.253
19	5.000	1.252	20	10.000	1.163						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	3.1	≤20	0.6231	
2,4'-DDE	TRG	Average RF	% RSD	16.4	≤20	0.9353	
2,4'-DDT	TRG	Average RF	% RSD	8.5	≤20	0.7024	
4,4'-DDD	TRG	Average RF	% RSD	4.4	≤20	0.7506	
4,4'-DDE	TRG	Average RF	% RSD	1.8	≤20	1.087	
4,4'-DDT	TRG	Average RF	% RSD	7.8	≤20	0.738	
Aldrin	TRG	Average RF	% RSD	2.7	≤20	1.142	
Decachlorobiphenyl	SURR	Average RF	% RSD	8.5	≤20	1.378	
Dieldrin	TRG	Average RF	% RSD	6.4	≤20	1.091	
Oxychlordane	TRG	Average RF	% RSD	8.6	≤20	1.212	
Tetrachloro-m-xylene	SURR	Average RF	% RSD	5.7	≤20	1.349	
Toxaphene {1}	MULTI	Average RF	% RSD	4.9	≤20	0.02123	
Toxaphene {2}	MULTI	Average RF	% RSD	10.2	≤20	0.01481	
Toxaphene {3}	MULTI	Average RF	% RSD	4.2	≤20	0.02093	
Toxaphene {4}	MULTI	Average RF	% RSD	5.3	≤20	0.01432	
Toxaphene {5}	MULTI	Average RF	% RSD	7.0	≤20	0.02536	
Toxaphene {6}	MULTI	Average RF	% RSD	15.0	≤20	0.006203	
beta-BHC	TRG	Average RF	% RSD	6.4	≤20	0.6974	
cis-Chlordane	TRG	Average RF	% RSD	3.0	≤20	1.152	
cis-Nonachlor	TRG	Average RF	% RSD	8.3	≤20	1.378	
trans-Chlordane	TRG	Average RF	% RSD	8.0	≤20	1.188	
trans-Nonachlor	TRG	Average RF	% RSD	11.1	≤20	1.34	

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Calibration Date: 10/11/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300615
Instrument ID: K-GC-37

Signal ID: DB XLB

#	Lab Code	Sample Name	File Location	Acquisition Date
15	KC2300615-15	M/P .2/1 PPB GCPS9-40L @50X	J:\GC37\DATA\101023ICAL\1010F019.D	10/11/2023 05:08
16	KC2300615-16	M/P .5/2.5 PPB GCPS9-40L@20X	J:\GC37\DATA\101023ICAL\1010F020.D	10/11/2023 05:48
17	KC2300615-17	M/P 1/5 PPB GCPS9-40L@10X	J:\GC37\DATA\101023ICAL\1010F021.D	10/11/2023 06:27
18	KC2300615-18	M/P 2/10 PPB GCPS9-40L@5X	J:\GC37\DATA\101023ICAL\1010F022.D	10/11/2023 07:07
19	KC2300615-19	M/P 5/25 PPB GCPS9-40L @2X	J:\GC37\DATA\101023ICAL\1010F023.D	10/11/2023 07:47
20	KC2300615-20	M/P 10/50 PPB GCPS9-40L	J:\GC37\DATA\101023ICAL\1010F024.D	10/11/2023 08:26
21	KC2300615-21	PERTH 100 PPB GSP9-40E	J:\GC37\DATA\101023ICAL\1010F025.D	10/11/2023 09:06
24	KC2300615-24	TOX 10 PPB GCPS9-40A @50X	J:\GC37\DATA\101023ICAL\1010F028.D	10/11/2023 11:06
25	KC2300615-25	TOX 25 PPB GCPS9-40A @20X	J:\GC37\DATA\101023ICAL\1010F029.D	10/11/2023 11:45
26	KC2300615-26	TOX 50 PPB GCPS9-40A@10X	J:\GC37\DATA\101023ICAL\1010F030.D	10/11/2023 12:25
27	KC2300615-27	TOX 100 PPB GCPS9-40A @5X	J:\GC37\DATA\101023ICAL\1010F031.D	10/11/2023 13:05
28	KC2300615-28	TOX 250 PPB GCPS9-40A@2X	J:\GC37\DATA\101023ICAL\1010F032.D	10/11/2023 13:45
29	KC2300615-29	TOX 500 PPB GCPS9-40A	J:\GC37\DATA\101023ICAL\1010F033.D	10/11/2023 14:25
31	KC2300615-31	CHLOR 2 PPB GCPS9-40B @100X	J:\GC37\DATA\101023ICAL\1010F035.D	10/11/2023 15:44
32	KC2300615-32	CHLOR 5 PPB GCPS9-40B@40X	J:\GC37\DATA\101023ICAL\1010F036.D	10/11/2023 16:23
33	KC2300615-33	CHLOR 10 PPB GCPS9-40B @20X	J:\GC37\DATA\101023ICAL\1010F037.D	10/11/2023 17:03
34	KC2300615-34	CHLOR 20 PPB GCPS9-40B @10X	J:\GC37\DATA\101023ICAL\1010F038.D	10/11/2023 17:43
35	KC2300615-35	CHLOR 50 PPB GCPS9-40B@4X	J:\GC37\DATA\101023ICAL\1010F039.D	10/11/2023 18:23
36	KC2300615-36	CHLOR 100 PPB GCPS9-40B @2X	J:\GC37\DATA\101023ICAL\1010F040.D	10/11/2023 19:02
37	KC2300615-37	CHLOR 200 PPB GCPS9-40B	J:\GC37\DATA\101023ICAL\1010F041.D	10/11/2023 19:42
01	KC2300615-01	8081 .2 PPB GCPS9-39H @50X	J:\GC37\DATA\102323\1023F005.D	10/23/2023 20:55
02	KC2300615-02	8081 .5 PPB GCPS9-39H @20X	J:\GC37\DATA\102323\1023F006.D	10/23/2023 21:34
03	KC2300615-03	8081 1 PPB GCPS9-39H-@10X	J:\GC37\DATA\102323\1023F007.D	10/23/2023 22:13
04	KC2300615-04	8081 2 PPB GCPS9-39H @5X	J:\GC37\DATA\102323\1023F008.D	10/23/2023 22:52
05	KC2300615-05	8081 5 PPB GCPS9-39H @2X	J:\GC37\DATA\102323\1023F009.D	10/23/2023 23:32
06	KC2300615-06	8081 10 PPB GCPS9-39H	J:\GC37\DATA\102323\1023F010.D	10/24/2023 00:11
08	KC2300615-08	24 .2 PPB GCPS9-39J @50X	J:\GC37\DATA\102323\1023F012.D	10/24/2023 01:29
09	KC2300615-09	24 .5 PPB GCPS9-39J @20X	J:\GC37\DATA\102323\1023F013.D	10/24/2023 02:08
10	KC2300615-10	24 1 PPB GCPS9-39J @10X	J:\GC37\DATA\102323\1023F014.D	10/24/2023 02:47
11	KC2300615-11	24 2 PPB GCPS9-39J @5X	J:\GC37\DATA\102323\1023F015.D	10/24/2023 03:27
12	KC2300615-12	24 5 PPB GCPS9-39J @2X	J:\GC37\DATA\102323\1023F016.D	10/24/2023 04:06
13	KC2300615-13	24 10 PPB GCPS9-39J	J:\GC37\DATA\102323\1023F017.D	10/24/2023 04:45

Analyte

2,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	0.7318	09	0.500	0.7753	10	1.000	0.7074	11	2.000	0.5973
12	5.000	0.6479	13	10.000	0.5859						

Client: Floyd Snider **Service Request:** K2310188
Project: SmithKem **Calibration Date:** 10/11/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300615 **Signal ID:** DB XLB
Instrument ID: K-GC-37

Analyte

2,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	1.125	09	0.500	1.037	10	1.000	0.954	11	2.000	0.8957
12	5.000	0.8522	13	10.000	0.7744						

2,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	0.8591	09	0.500	0.8554	10	1.000	0.7957	11	2.000	0.6593
12	5.000	0.7096	13	10.000	0.6454						

4,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.141	02	0.500	0.9317	03	1.000	1.052	04	2.000	0.8195
05	5.000	0.8146	06	10.000	0.7842						

4,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.493	02	0.500	1.372	03	1.000	1.273	04	2.000	1.223
05	5.000	1.092	06	10.000	1.068						

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.9194	02	0.500	1.084	03	1.000	0.9323	04	2.000	0.8941
05	5.000	0.795	06	10.000	0.8148						

Aldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.184	02	0.500	1.521	03	1.000	1.267	04	2.000	1.192
05	5.000	1.124	06	10.000	1.113						

Decachlorobiphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.9451	02	0.500	0.9947	03	1.000	0.9785	04	2.000	0.9773
05	5.000	0.9207	06	10.000	0.9158						

Dieldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.305	02	0.500	1.312	03	1.000	1.213	04	2.000	1.129
05	5.000	1.031	06	10.000	1.007						

Oxychlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	2.499	16	0.500	1.891	17	1.000	1.527	18	2.000	1.381
19	5.000	1.271	20	10.000	1.176						

Tetrachloro-m-xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.335	02	0.500	1.329	03	1.000	1.345	04	2.000	1.464
05	5.000	1.274	06	10.000	1.254						

Client: Floyd Snider **Service Request:** K2310188
Project: SmithKem **Calibration Date:** 10/11/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300615 **Signal ID:** DB XLB
Instrument ID: K-GC-37

Analyte

Toxaphene {1}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.00658	25	25.000	0.008302	26	50.000	0.007774	27	100.000	0.006283
28	250.000	0.006617	29	500.000	0.006228						

Toxaphene {2}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01827	25	25.000	0.01023	26	50.000	0.00966	27	100.000	0.009149
28	250.000	0.009005	29	500.000	0.008221						

Toxaphene {3}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.009079	25	25.000	0.01458	26	50.000	0.0129	27	100.000	0.01086
28	250.000	0.01215	29	500.000	0.01063						

Toxaphene {4}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01232	25	25.000	0.02038	26	50.000	0.01681	27	100.000	0.01591
28	250.000	0.01687	29	500.000	0.015						

Toxaphene {5}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.02657	25	25.000	0.02494	26	50.000	0.02633	27	100.000	0.02876
28	250.000	0.02921	29	500.000	0.03175						

Toxaphene {6}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.02497	25	25.000	0.02481	26	50.000	0.02323	27	100.000	0.02083
28	250.000	0.02224	29	500.000	0.02283						

beta-BHC

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.6733	02	0.500	0.6756	03	1.000	0.6467	04	2.000	0.6098
05	5.000	0.579	06	10.000	0.5518						

cis-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.376	02	0.500	1.361	03	1.000	1.237	04	2.000	1.161
05	5.000	1.052	06	10.000	1.023						

cis-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	2.872	16	0.500	1.97	17	1.000	1.54	18	2.000	1.426
19	5.000	1.32	20	10.000	1.259						

trans-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.355	02	0.500	1.352	03	1.000	1.229	04	2.000	1.162
05	5.000	1.057	06	10.000	1.042						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Calibration Date: 10/11/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300615
Instrument ID: K-GC-37

Signal ID: DB XLB

Analyte

trans-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	2.48	16	0.500	1.85	17	1.000	1.519	18	2.000	1.406
19	5.000	1.294	20	10.000	1.222						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Calibration Date: 10/11/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300615
Instrument ID: K-GC-37

Signal ID: DB XLB

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	11.3	≤20	0.6743	
2,4'-DDE	TRG	Average RF	% RSD	13.5	≤20	0.9397	
2,4'-DDT	TRG	Average RF	% RSD	12.7	≤20	0.7541	
4,4'-DDD	TRG	Average RF	% RSD	15.7	≤20	0.9238	
4,4'-DDE	TRG	Average RF	% RSD	13.0	≤20	1.254	
4,4'-DDT	TRG	Average RF	% RSD	11.4	≤20	0.9067	
Aldrin	TRG	Average RF	% RSD	12.3	≤20	1.233	
Decachlorobiphenyl	SURR	Average RF	% RSD	3.5	≤20	0.9553	
Dieldrin	TRG	Average RF	% RSD	11.4	≤20	1.166	
Oxychlordane	TRG	Quadratic	COD	1.0000	≥0.990	1.624	
Tetrachloro-m-xylene	SURR	Average RF	% RSD	5.5	≤20	1.333	
Toxaphene {1}	MULTI	Average RF	% RSD	12.4	≤20	0.006964	
Toxaphene {2}	MULTI	Linear	R2	0.9983	≥0.990	0.01076	
Toxaphene {3}	MULTI	Average RF	% RSD	16.5	≤20	0.0117	
Toxaphene {4}	MULTI	Average RF	% RSD	16.3	≤20	0.01621	
Toxaphene {5}	MULTI	Average RF	% RSD	8.8	≤20	0.02793	
Toxaphene {6}	MULTI	Average RF	% RSD	6.8	≤20	0.02315	
beta-BHC	TRG	Average RF	% RSD	8.2	≤20	0.6227	
cis-Chlordane	TRG	Average RF	% RSD	12.5	≤20	1.202	
cis-Nonachlor	TRG	Linear	R2	0.9998	≥0.990	1.731	
trans-Chlordane	TRG	Average RF	% RSD	11.5	≤20	1.199	
trans-Nonachlor	TRG	Linear	R2	0.9996	≥0.990	1.628	

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Calibration Date: 10/11/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300615
Instrument ID: K-GC-37

Signal ID: DB-35MS

#	Lab Code	Sample Name	File Location	Acquisition Date
15	KC2300615-15	M/P .2/1 PPB GCPS9-40L @50X	J:\GC37\DATA\101023ICAL\1010F019.D	10/11/2023 05:08
16	KC2300615-16	M/P .5/2.5 PPB GCPS9-40L@20X	J:\GC37\DATA\101023ICAL\1010F020.D	10/11/2023 05:48
17	KC2300615-17	M/P 1/5 PPB GCPS9-40L@10X	J:\GC37\DATA\101023ICAL\1010F021.D	10/11/2023 06:27
18	KC2300615-18	M/P 2/10 PPB GCPS9-40L@5X	J:\GC37\DATA\101023ICAL\1010F022.D	10/11/2023 07:07
19	KC2300615-19	M/P 5/25 PPB GCPS9-40L @2X	J:\GC37\DATA\101023ICAL\1010F023.D	10/11/2023 07:47
20	KC2300615-20	M/P 10/50 PPB GCPS9-40L	J:\GC37\DATA\101023ICAL\1010F024.D	10/11/2023 08:26
21	KC2300615-21	PERTH 100 PPB GSP9-40E	J:\GC37\DATA\101023ICAL\1010F025.D	10/11/2023 09:06
24	KC2300615-24	TOX 10 PPB GCPS9-40A @50X	J:\GC37\DATA\101023ICAL\1010F028.D	10/11/2023 11:06
25	KC2300615-25	TOX 25 PPB GCPS9-40A @20X	J:\GC37\DATA\101023ICAL\1010F029.D	10/11/2023 11:45
26	KC2300615-26	TOX 50 PPB GCPS9-40A@10X	J:\GC37\DATA\101023ICAL\1010F030.D	10/11/2023 12:25
27	KC2300615-27	TOX 100 PPB GCPS9-40A @5X	J:\GC37\DATA\101023ICAL\1010F031.D	10/11/2023 13:05
28	KC2300615-28	TOX 250 PPB GCPS9-40A@2X	J:\GC37\DATA\101023ICAL\1010F032.D	10/11/2023 13:45
29	KC2300615-29	TOX 500 PPB GCPS9-40A	J:\GC37\DATA\101023ICAL\1010F033.D	10/11/2023 14:25
31	KC2300615-31	CHLOR 2 PPB GCPS9-40B @100X	J:\GC37\DATA\101023ICAL\1010F035.D	10/11/2023 15:44
32	KC2300615-32	CHLOR 5 PPB GCPS9-40B@40X	J:\GC37\DATA\101023ICAL\1010F036.D	10/11/2023 16:23
33	KC2300615-33	CHLOR 10 PPB GCPS9-40B @20X	J:\GC37\DATA\101023ICAL\1010F037.D	10/11/2023 17:03
34	KC2300615-34	CHLOR 20 PPB GCPS9-40B @10X	J:\GC37\DATA\101023ICAL\1010F038.D	10/11/2023 17:43
35	KC2300615-35	CHLOR 50 PPB GCPS9-40B@4X	J:\GC37\DATA\101023ICAL\1010F039.D	10/11/2023 18:23
36	KC2300615-36	CHLOR 100 PPB GCPS9-40B @2X	J:\GC37\DATA\101023ICAL\1010F040.D	10/11/2023 19:02
37	KC2300615-37	CHLOR 200 PPB GCPS9-40B	J:\GC37\DATA\101023ICAL\1010F041.D	10/11/2023 19:42
01	KC2300615-01	8081 .2 PPB GCPS9-39H @50X	J:\GC37\DATA\102323\1023F005.D	10/23/2023 20:55
02	KC2300615-02	8081 .5 PPB GCPS9-39H @20X	J:\GC37\DATA\102323\1023F006.D	10/23/2023 21:34
03	KC2300615-03	8081 1 PPB GCPS9-39H-@10X	J:\GC37\DATA\102323\1023F007.D	10/23/2023 22:13
04	KC2300615-04	8081 2 PPB GCPS9-39H @5X	J:\GC37\DATA\102323\1023F008.D	10/23/2023 22:52
05	KC2300615-05	8081 5 PPB GCPS9-39H @2X	J:\GC37\DATA\102323\1023F009.D	10/23/2023 23:32
06	KC2300615-06	8081 10 PPB GCPS9-39H	J:\GC37\DATA\102323\1023F010.D	10/24/2023 00:11
08	KC2300615-08	24 .2 PPB GCPS9-39J @50X	J:\GC37\DATA\102323\1023F012.D	10/24/2023 01:29
09	KC2300615-09	24 .5 PPB GCPS9-39J @20X	J:\GC37\DATA\102323\1023F013.D	10/24/2023 02:08
10	KC2300615-10	24 1 PPB GCPS9-39J @10X	J:\GC37\DATA\102323\1023F014.D	10/24/2023 02:47
11	KC2300615-11	24 2 PPB GCPS9-39J @5X	J:\GC37\DATA\102323\1023F015.D	10/24/2023 03:27
12	KC2300615-12	24 5 PPB GCPS9-39J @2X	J:\GC37\DATA\102323\1023F016.D	10/24/2023 04:06
13	KC2300615-13	24 10 PPB GCPS9-39J	J:\GC37\DATA\102323\1023F017.D	10/24/2023 04:45

Analyte

2,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	0.6522	09	0.500	0.6236	10	1.000	0.5828	11	2.000	0.5751
12	5.000	0.5781	13	10.000	0.549						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Calibration Date: 10/11/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300615
Instrument ID: K-GC-37

Signal ID: DB-35MS

Analyte

2,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	0.8341	09	0.500	0.8653	10	1.000	0.8152	11	2.000	0.7873
12	5.000	0.8064	13	10.000	0.7502						

2,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	0.200	0.8846	09	0.500	0.6452	10	1.000	0.5694	11	2.000	0.5631
12	5.000	0.6209	13	10.000	0.5892						

4,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.7665	02	0.500	0.7516	03	1.000	0.7305	04	2.000	0.7231
05	5.000	0.698	06	10.000	0.7021						

4,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.154	02	0.500	1.141	03	1.000	1.102	04	2.000	1.071
05	5.000	1.039	06	10.000	1.042						

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.8439	02	0.500	0.7863	03	1.000	0.8156	04	2.000	0.8461
05	5.000	0.7687	06	10.000	0.765						

Aldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.299	02	0.500	1.304	03	1.000	1.213	04	2.000	1.189
05	5.000	1.144	06	10.000	1.16						

Decachlorobiphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.228	02	0.500	1.218	03	1.000	1.13	04	2.000	1.071
05	5.000	0.9869	06	10.000	0.9493						

Dieldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.17	02	0.500	1.084	03	1.000	1.055	04	2.000	1.033
05	5.000	0.9881	06	10.000	0.9854						

Oxychlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	1.981	16	0.500	1.583	17	1.000	1.384	18	2.000	1.323
19	5.000	1.25	20	10.000	1.218						

Tetrachloro-m-xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.494	02	0.500	1.401	03	1.000	1.401	04	2.000	1.463
05	5.000	1.268	06	10.000	1.258						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Calibration Date: 10/11/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300615
Instrument ID: K-GC-37

Signal ID: DB-35MS

Analyte

Toxaphene {1}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.02399	25	25.000	0.02359	26	50.000	0.02337	27	100.000	0.0212
28	250.000	0.02434	29	500.000	0.02084						

Toxaphene {2}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.02313	25	25.000	0.02091	26	50.000	0.01907	27	100.000	0.01673
28	250.000	0.02171	29	500.000	0.01732						

Toxaphene {3}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.0293	25	25.000	0.02572	26	50.000	0.02493	27	100.000	0.02235
28	250.000	0.0256	29	500.000	0.02267						

Toxaphene {4}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01919	25	25.000	0.01548	26	50.000	0.01903	27	100.000	0.01796
28	250.000	0.01486	29	500.000	0.01919						

Toxaphene {5}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01914	25	25.000	0.02488	26	50.000	0.02435	27	100.000	0.02239
28	250.000	0.02434	29	500.000	0.02298						

Toxaphene {6}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.03215	25	25.000	0.03093	26	50.000	0.03164	27	100.000	0.02959
28	250.000	0.02972	29	500.000	0.03079						

beta-BHC

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	0.6453	02	0.500	0.6809	03	1.000	0.6401	04	2.000	0.6165
05	5.000	0.5881	06	10.000	0.5734						

cis-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.219	02	0.500	1.197	03	1.000	1.118	04	2.000	1.099
05	5.000	1.039	06	10.000	1.024						

cis-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	2.639	16	0.500	1.913	17	1.000	1.516	18	2.000	1.425
19	5.000	1.371	20	10.000	1.339						

trans-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.381	02	0.500	1.273	03	1.000	1.237	04	2.000	1.174
05	5.000	1.053	06	10.000	1.044						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Calibration Date: 10/11/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300615
Instrument ID: K-GC-37

Signal ID: DB-35MS

Analyte

trans-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
15	0.200	2.295	16	0.500	1.716	17	1.000	1.58	18	2.000	1.454
19	5.000	1.335	20	10.000	1.292						

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Calibration Date: 10/11/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300615
Instrument ID: K-GC-37

Signal ID: DB-35MS

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	6.3	≤20	0.5935	
2,4'-DDE	TRG	Average RF	% RSD	4.9	≤20	0.8098	
2,4'-DDT	TRG	Average RF	% RSD	18.8	≤20	0.6454	
4,4'-DDD	TRG	Average RF	% RSD	3.7	≤20	0.7286	
4,4'-DDE	TRG	Average RF	% RSD	4.5	≤20	1.091	
4,4'-DDT	TRG	Average RF	% RSD	4.5	≤20	0.8043	
Aldrin	TRG	Average RF	% RSD	5.7	≤20	1.218	
Decachlorobiphenyl	SURR	Average RF	% RSD	10.6	≤20	1.097	
Dieldrin	TRG	Average RF	% RSD	6.6	≤20	1.053	
Oxychlordane	TRG	Average RF	% RSD	19.8	≤20	1.456	
Tetrachloro-m-xylene	SURR	Average RF	% RSD	7.1	≤20	1.381	
Toxaphene {1}	MULTI	Average RF	% RSD	6.5	≤20	0.02289	
Toxaphene {2}	MULTI	Average RF	% RSD	12.8	≤20	0.01981	
Toxaphene {3}	MULTI	Average RF	% RSD	10.1	≤20	0.02509	
Toxaphene {4}	MULTI	Average RF	% RSD	11.1	≤20	0.01762	
Toxaphene {5}	MULTI	Average RF	% RSD	9.2	≤20	0.02301	
Toxaphene {6}	MULTI	Average RF	% RSD	3.3	≤20	0.0308	
beta-BHC	TRG	Average RF	% RSD	6.4	≤20	0.6241	
cis-Chlordane	TRG	Average RF	% RSD	7.1	≤20	1.116	
cis-Nonachlor	TRG	Linear	R2	0.9999	≥0.990	1.701	
trans-Chlordane	TRG	Average RF	% RSD	11.0	≤20	1.194	
trans-Nonachlor	TRG	Linear	R2	0.9998	≥0.990	1.612	

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Calibration Date: 7/22/2023

Initial Calibration Verification Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB XLB

#	Lab Code	Sample Name	File Location	Acquisition Date
14	KC2300558-14	24 ICV 2 PPB GCPS9-27I	J:\GC38\DATA\072123ICAL\0721F018.D	07/22/2023 04:33
22	KC2300558-22	PERTH ICV 25 PPB GSP9-30I	J:\GC38\DATA\072123ICAL\0721F026.D	07/22/2023 10:36
23	KC2300558-23	MISC ICV 2 PPB GCPS9-30G	J:\GC38\DATA\072123ICAL\0721F027.D	07/22/2023 11:21
30	KC2300558-30	TOX ICV 100 PPB GCPS9-22H @5X	J:\GC38\DATA\072123ICAL\0721F034.D	07/22/2023 16:39
38	KC2300558-38	CHLOR ICV 50 PPB GCPS9-24H	J:\GC38\DATA\072123ICAL\0721F042.D	07/22/2023 22:44
39	KC2300558-39	TOX ICV 100 PPB GCPS9-22H @5X	J:\GC38\DATA\072423\0724F009.D	07/25/2023 01:24
40	KC2300558-40	PERTH ICV 25 PPB GSP9-24F	J:\GC38\DATA\072523\0725F007.D	07/25/2023 21:01
07	KC2300558-07	8081 ICV 2 PPB GCPS9-32H	J:\GC38\DATA\092523\0925F014.D	09/25/2023 20:39

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Aldrin	2.00	1.99	1.188E0	1.182E0	-0.503	±20	Average RF
beta-BHC	2.00	2.14	7.719E-1	7.306E-1	7.23	±20	Quadratic
cis-Chlordane	2.00	2.00	1.212E0	1.215E0	0.231	±20	Average RF
trans-Chlordane	2.00	2.04	1.173E0	1.197E0	2.00	±20	Average RF
2,4'-DDD	2.00	2.02	6.228E-1	6.297E-1	1.11	±20	Average RF
4,4'-DDD	2.00	2.01	8.482E-1	8.537E-1	0.647	±20	Average RF
2,4'-DDE	2.00	1.90	7.857E-1	7.465E-1	-4.998	±20	Average RF
4,4'-DDE	2.00	2.06	1.098E0	1.131E0	3.01	±20	Average RF
2,4'-DDT	2.00	1.99	6.847E-1	6.819E-1	-0.413	±20	Average RF
4,4'-DDT	2.00	1.90	7.214E-1	6.861E-1	-4.900	±20	Average RF
Dieldrin	2.00	1.96	1.097E0	1.073E0	-2.155	±20	Average RF
cis-Nonachlor	2.00	1.70	1.255E0	1.066E0	-15.045	±20	Average RF
trans-Nonachlor	2.00	1.82	1.222E0	1.11E0	-9.211	±20	Average RF
Oxychlordane	2.00	1.80	1.202E0	1.083E0	-9.848	±20	Average RF
Toxaphene	100	102			1.61	±20	NA

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Toxaphene {1}	100	109	7.818E-3	8.531E-3	9.11	±100	Average RF
Toxaphene {2}	100	89.2	6.518E-3	5.814E-3	-10.811	±100	Average RF
Toxaphene {3}	100	105	1.105E-2	1.16E-2	4.94	±100	Average RF
Toxaphene {4}	100	103	1.333E-2	1.367E-2	2.53	±100	Average RF
Toxaphene {5}	100	104	1.657E-2	1.722E-2	3.90	±100	Average RF
Toxaphene {6}	100	100	1.847E-2	1.847E-2	-0.013	±100	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Calibration Date: 7/22/2023

Initial Calibration Verification Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

#	Lab Code	Sample Name	File Location	Acquisition Date
14	KC2300558-14	24 ICV 2 PPB GCPS9-27I	J:\GC38\DATA\072123ICAL\0721F018.D	07/22/2023 04:33
22	KC2300558-22	PERTH ICV 25 PPB GSP9-30I	J:\GC38\DATA\072123ICAL\0721F026.D	07/22/2023 10:36
23	KC2300558-23	MISC ICV 2 PPB GCPS9-30G	J:\GC38\DATA\072123ICAL\0721F027.D	07/22/2023 11:21
30	KC2300558-30	TOX ICV 100 PPB GCPS9-22H @5X	J:\GC38\DATA\072123ICAL\0721F034.D	07/22/2023 16:39
38	KC2300558-38	CHLOR ICV 50 PPB GCPS9-24H	J:\GC38\DATA\072123ICAL\0721F042.D	07/22/2023 22:44
39	KC2300558-39	TOX ICV 100 PPB GCPS9-22H @5X	J:\GC38\DATA\072423\0724F009.D	07/25/2023 01:24
40	KC2300558-40	PERTH ICV 25 PPB GSP9-24F	J:\GC38\DATA\072523\0725F007.D	07/25/2023 21:01
07	KC2300558-07	8081 ICV 2 PPB GCPS9-32H	J:\GC38\DATA\092523\0925F014.D	09/25/2023 20:39

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Aldrin	2.00	2.05	1.142E0	1.173E0	2.66	±20	Average RF
beta-BHC	2.00	2.03	6.974E-1	7.083E-1	1.56	±20	Average RF
cis-Chlordane	2.00	2.10	1.152E0	1.209E0	4.96	±20	Average RF
trans-Chlordane	2.00	2.01	1.188E0	1.193E0	0.489	±20	Average RF
2,4'-DDD	2.00	2.05	6.231E-1	6.396E-1	2.64	±20	Average RF
4,4'-DDD	2.00	2.13	7.506E-1	7.986E-1	6.39	±20	Average RF
2,4'-DDE	2.00	1.92	9.353E-1	8.995E-1	-3.836	±20	Average RF
4,4'-DDE	2.00	2.06	1.087E0	1.119E0	2.96	±20	Average RF
2,4'-DDT	2.00	1.98	7.024E-1	6.94E-1	-1.192	±20	Average RF
4,4'-DDT	2.00	1.99	7.38E-1	7.326E-1	-0.722	±20	Average RF
Dieldrin	2.00	1.92	1.091E0	1.049E0	-3.879	±20	Average RF
cis-Nonachlor	2.00	1.79	1.378E0	1.23E0	-10.745	±20	Average RF
trans-Nonachlor	2.00	1.86	1.34E0	1.243E0	-7.225	±20	Average RF
Oxychlordane	2.00	1.89	1.212E0	1.143E0	-5.677	±20	Average RF
Toxaphene	100	109			8.68	±20	NA

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Toxaphene {1}	100	105	2.123E-2	2.229E-2	5.02	±100	Average RF
Toxaphene {2}	100	109	1.481E-2	1.607E-2	8.53	±100	Average RF
Toxaphene {3}	100	106	2.093E-2	2.211E-2	5.61	±100	Average RF
Toxaphene {4}	100	108	1.432E-2	1.554E-2	8.46	±100	Average RF
Toxaphene {5}	100	108	2.536E-2	2.746E-2	8.29	±100	Average RF
Toxaphene {6}	100	116	6.203E-3	7.205E-3	16.15	±100	Average RF

QA/QC Report

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Calibration Date: 10/11/2023

Initial Calibration Verification Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300615
Instrument ID: K-GC-37

Signal ID: DB XLB

#	Lab Code	Sample Name	File Location	Acquisition Date
22	KC2300615-22	PERTH ICV 25 PPB GSP9-40J	J:\GC37\DATA\101023ICAL\1010F026.D	10/11/2023 09:46
23	KC2300615-23	MISC ICV 2 PPB GCPS9-40H	J:\GC37\DATA\101023ICAL\1010F027.D	10/11/2023 10:26
30	KC2300615-30	TOX ICV 100 PPB GCPS9-22I @5X	J:\GC37\DATA\101023ICAL\1010F034.D	10/11/2023 15:04
38	KC2300615-38	CHLOR ICV 50 PPB GCPS9-24H	J:\GC37\DATA\101023ICAL\1010F042.D	10/11/2023 20:21
07	KC2300615-07	8081 ICV 2 PPB GCPS9-32H	J:\GC37\DATA\102323\1023F011.D	10/24/2023 00:50
14	KC2300615-14	24 ICV 2 PPB GCPS9-27I	J:\GC37\DATA\102323\1023F018.D	10/24/2023 05:24

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Aldrin	2.00	2.17	1.233E0	1.335E0	8.26	±20	Average RF
beta-BHC	2.00	2.08	6.227E-1	6.475E-1	3.99	±20	Average RF
cis-Chlordane	2.00	2.09	1.202E0	1.257E0	4.60	±20	Average RF
trans-Chlordane	2.00	2.08	1.199E0	1.247E0	3.97	±20	Average RF
2,4'-DDD	2.00	1.98	6.743E-1	6.663E-1	-1.180	±20	Average RF
4,4'-DDD	2.00	2.14	9.238E-1	9.872E-1	6.87	±20	Average RF
2,4'-DDE	2.00	1.85	9.397E-1	8.716E-1	-7.257	±20	Average RF
4,4'-DDE	2.00	2.06	1.254E0	1.294E0	3.24	±20	Average RF
2,4'-DDT	2.00	1.95	7.541E-1	7.361E-1	-2.388	±20	Average RF
4,4'-DDT	2.00	2.17	9.067E-1	9.818E-1	8.29	±20	Average RF
Dieldrin	2.00	2.01	1.166E0	1.171E0	0.411	±20	Average RF
cis-Nonachlor	2.00	1.83	1.731E0	1.303E0	-8.674	±20	Linear
trans-Nonachlor	2.00	2.03	1.628E0	1.388E0	1.60	±20	Linear
Oxychlordane	2.00	1.87	1.624E0	1.314E0	-6.360	±20	Quadratic
Toxaphene	100	94.1			-5.923	±20	NA

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Toxaphene {1}	100	97.7	6.964E-3	6.803E-3	-2.311	±100	Average RF
Toxaphene {2}	100	85.4	1.076E-2	7.931E-3	-14.635	±100	Linear
Toxaphene {3}	100	100	1.17E-2	1.173E-2	0.273	±100	Average RF
Toxaphene {4}	100	98.2	1.621E-2	1.592E-2	-1.799	±100	Average RF
Toxaphene {5}	100	92.0	2.793E-2	2.569E-2	-8.029	±100	Average RF
Toxaphene {6}	100	91.0	2.315E-2	2.106E-2	-9.037	±100	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Calibration Date: 10/11/2023

Initial Calibration Verification Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300615
Instrument ID: K-GC-37

Signal ID: DB-35MS

#	Lab Code	Sample Name	File Location	Acquisition Date
22	KC2300615-22	PERTH ICV 25 PPB GSP9-40J	J:\GC37\DATA\101023ICAL\1010F026.D	10/11/2023 09:46
23	KC2300615-23	MISC ICV 2 PPB GCPS9-40H	J:\GC37\DATA\101023ICAL\1010F027.D	10/11/2023 10:26
30	KC2300615-30	TOX ICV 100 PPB GCPS9-22I @5X	J:\GC37\DATA\101023ICAL\1010F034.D	10/11/2023 15:04
38	KC2300615-38	CHLOR ICV 50 PPB GCPS9-24H	J:\GC37\DATA\101023ICAL\1010F042.D	10/11/2023 20:21
07	KC2300615-07	8081 ICV 2 PPB GCPS9-32H	J:\GC37\DATA\102323\1023F011.D	10/24/2023 00:50
14	KC2300615-14	24 ICV 2 PPB GCPS9-27I	J:\GC37\DATA\102323\1023F018.D	10/24/2023 05:24

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Aldrin	2.00	2.07	1.218E0	1.259E0	3.37	±20	Average RF
beta-BHC	2.00	2.13	6.241E-1	6.657E-1	6.67	±20	Average RF
cis-Chlordane	2.00	2.09	1.116E0	1.164E0	4.33	±20	Average RF
trans-Chlordane	2.00	2.03	1.194E0	1.209E0	1.28	±20	Average RF
2,4'-DDD	2.00	1.93	5.935E-1	5.718E-1	-3.645	±20	Average RF
4,4'-DDD	2.00	2.17	7.286E-1	7.906E-1	8.51	±20	Average RF
2,4'-DDE	2.00	2.03	8.098E-1	8.214E-1	1.45	±20	Average RF
4,4'-DDE	2.00	2.09	1.091E0	1.141E0	4.57	±20	Average RF
2,4'-DDT	2.00	1.83	6.454E-1	5.916E-1	-8.334	±20	Average RF
4,4'-DDT	2.00	1.97	8.043E-1	7.927E-1	-1.446	±20	Average RF
Dieldrin	2.00	1.99	1.053E0	1.048E0	-0.413	±20	Average RF
cis-Nonachlor	2.00	1.76	1.701E0	1.286E0	-11.766	±20	Linear
trans-Nonachlor	2.00	1.96	1.612E0	1.381E0	-2.221	±20	Linear
Oxychlordane	2.00	1.68	1.456E0	1.226E0	-15.776	±20	Average RF
Toxaphene	100	93.3			-6.706	±20	NA

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Toxaphene {1}	100	92.3	2.289E-2	2.113E-2	-7.672	±100	Average RF
Toxaphene {2}	100	85.1	1.981E-2	1.687E-2	-14.853	±100	Average RF
Toxaphene {3}	100	88.9	2.509E-2	2.231E-2	-11.110	±100	Average RF
Toxaphene {4}	100	106	1.762E-2	1.864E-2	5.83	±100	Average RF
Toxaphene {5}	100	97.5	2.301E-2	2.243E-2	-2.521	±100	Average RF
Toxaphene {6}	100	90.1	3.08E-2	2.775E-2	-9.904	±100	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/16/23 16:10

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\101623\1016F005.D\
Signal ID: DB-35MS

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 821954
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.36	1.1423	1.3499	18.2	NA	±20	Average RF
beta-BHC	2.00	2.27	0.6974	0.7906	13.4	NA	±20	Average RF
cis-Chlordane	2.00	2.25	1.1517	1.2936	12.3	NA	±20	Average RF
trans-Chlordane	2.00	2.16	1.1876	1.2848	8.2	NA	±20	Average RF
2,4'-DDD	2.00	2.08	0.6231	0.6468	3.8	NA	±20	Average RF
4,4'-DDD	2.00	2.33	0.7506	0.8733	16.3	NA	±20	Average RF
2,4'-DDE	2.00	1.85	0.9353	0.8629	-7.7	NA	±20	Average RF
4,4'-DDE	2.00	2.26	1.0867	1.2273	12.9	NA	±20	Average RF
2,4'-DDT	2.00	1.67	0.7024	0.587	-16.4	NA	±20	Average RF
4,4'-DDT	2.00	1.96	0.738	0.7235	-2.0	NA	±20	Average RF
Dieldrin	2.00	2.23	1.0912	1.2177	11.6	NA	±20	Average RF
cis-Nonachlor	2.00	2.15	1.3783	1.4842	7.7	NA	±20	Average RF
trans-Nonachlor	2.00	2.08	1.3402	1.3964	4.2	NA	±20	Average RF
Oxychlordane	2.00	2.15	1.2122	1.3041	7.6	NA	±20	Average RF
Toxaphene	100	106	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	97.9	0.0212	0.0208	-2.1	NA	±100	Average RF
Toxaphene {2}	100	109	0.0148	0.0161	9.1	NA	±100	Average RF
Toxaphene {3}	100	106	0.0209	0.0222	6.1	NA	±100	Average RF
Toxaphene {4}	100	107	0.0143	0.0154	7.2	NA	±100	Average RF
Toxaphene {5}	100	114	0.0254	0.029	14.4	NA	±100	Average RF
Toxaphene {6}	100	103	0.0062	0.0064	3.3	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.27	1.3777	1.5624	13.4	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	2.18	1.3493	1.467	8.7	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/16/23 16:10

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\101623\1016F005.D\
Signal ID: DB XLB

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 821954
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.39	1.1876	1.4204	19.6	NA	±20	Average RF
beta-BHC	2.00	2.33	0.7719	0.7865	NA	16.3	±20	Quadratic
cis-Chlordane	2.00	2.28	1.2121	1.3794	13.8	NA	±20	Average RF
trans-Chlordane	2.00	2.31	1.1734	1.354	15.4	NA	±20	Average RF
2,4'-DDD	2.00	2.22	0.6228	0.6917	11.1	NA	±20	Average RF
4,4'-DDD	2.00	2.30	0.8482	0.9746	14.9	NA	±20	Average RF
2,4'-DDE	2.00	2.34	0.7857	0.9188	16.9	NA	±20	Average RF
4,4'-DDE	2.00	2.43	1.0981	1.332	21.3*	NA	±20	Average RF
2,4'-DDT	2.00	1.70	0.6847	0.5817	-15.0	NA	±20	Average RF
4,4'-DDT	2.00	1.86	0.7214	0.6701	-7.1	NA	±20	Average RF
Dieldrin	2.00	2.40	1.0966	1.3161	20.0	NA	±20	Average RF
cis-Nonachlor	2.00	2.45	1.2545	1.5334	22.2*	NA	±20	Average RF
trans-Nonachlor	2.00	2.38	1.2224	1.455	19.0	NA	±20	Average RF
Oxychlordane	2.00	2.30	1.2018	1.3808	14.9	NA	±20	Average RF
Toxaphene	100	115	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	115	0.0078	0.009	14.8	NA	±100	Average RF
Toxaphene {2}	100	111	0.0065	0.0072	11.2	NA	±100	Average RF
Toxaphene {3}	100	113	0.0111	0.0125	13.4	NA	±100	Average RF
Toxaphene {4}	100	112	0.0133	0.0149	11.8	NA	±100	Average RF
Toxaphene {5}	100	118	0.0166	0.0195	17.7	NA	±100	Average RF
Toxaphene {6}	100	122	0.0185	0.0225	21.7	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.48	1.2072	1.4978	24.1*	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	2.25	1.3913	1.5622	12.3	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/17/23 03:50

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\101623\1016F022.D\
Signal ID: DB-35MS

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 821954
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.33	1.1423	1.3296	16.4	NA	±20	Average RF
beta-BHC	2.00	2.27	0.6974	0.7902	13.3	NA	±20	Average RF
cis-Chlordane	2.00	2.24	1.1517	1.2871	11.8	NA	±20	Average RF
trans-Chlordane	2.00	2.15	1.1876	1.2756	7.4	NA	±20	Average RF
2,4'-DDD	2.00	2.03	0.6231	0.6338	1.7	NA	±20	Average RF
4,4'-DDD	2.00	2.27	0.7506	0.8521	13.5	NA	±20	Average RF
2,4'-DDE	2.00	1.79	0.9353	0.8385	-10.4	NA	±20	Average RF
4,4'-DDE	2.00	2.19	1.0867	1.1873	9.3	NA	±20	Average RF
2,4'-DDT	2.00	1.63	0.7024	0.5714	-18.7	NA	±20	Average RF
4,4'-DDT	2.00	1.98	0.738	0.7309	-1.0	NA	±20	Average RF
Dieldrin	2.00	2.23	1.0912	1.2174	11.6	NA	±20	Average RF
cis-Nonachlor	2.00	2.15	1.3783	1.4781	7.2	NA	±20	Average RF
trans-Nonachlor	2.00	2.06	1.3402	1.3804	3.0	NA	±20	Average RF
Oxychlordane	2.00	2.14	1.2122	1.294	6.7	NA	±20	Average RF
Toxaphene	100	105	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	97.9	0.0212	0.0208	-2.1	NA	±100	Average RF
Toxaphene {2}	100	113	0.0148	0.0167	12.7	NA	±100	Average RF
Toxaphene {3}	100	105	0.0209	0.022	5.2	NA	±100	Average RF
Toxaphene {4}	100	111	0.0143	0.0159	10.8	NA	±100	Average RF
Toxaphene {5}	100	99.3	0.0254	0.0252	-0.7	NA	±100	Average RF
Toxaphene {6}	100	102	0.0062	0.0063	2.0	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.22	1.3777	1.5282	10.9	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	2.13	1.3493	1.4396	6.7	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/17/23 03:50

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\101623\1016F022.D\
Signal ID: DB XLB

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 821954
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.36	1.1876	1.4034	18.2	NA	±20	Average RF
beta-BHC	2.00	2.32	0.7719	0.7848	NA	16.0	±20	Quadratic
cis-Chlordane	2.00	2.26	1.2121	1.3711	13.1	NA	±20	Average RF
trans-Chlordane	2.00	2.25	1.1734	1.3213	12.6	NA	±20	Average RF
2,4'-DDD	2.00	2.18	0.6228	0.6789	9.0	NA	±20	Average RF
4,4'-DDD	2.00	2.23	0.8482	0.9438	11.3	NA	±20	Average RF
2,4'-DDE	2.00	2.26	0.7857	0.8868	12.9	NA	±20	Average RF
4,4'-DDE	2.00	2.30	1.0981	1.2637	15.1	NA	±20	Average RF
2,4'-DDT	2.00	1.66	0.6847	0.5665	-17.3	NA	±20	Average RF
4,4'-DDT	2.00	1.89	0.7214	0.682	-5.5	NA	±20	Average RF
Dieldrin	2.00	2.36	1.0966	1.2916	17.8	NA	±20	Average RF
cis-Nonachlor	2.00	2.44	1.2545	1.5274	21.8*	NA	±20	Average RF
trans-Nonachlor	2.00	2.35	1.2224	1.4356	17.4	NA	±20	Average RF
Oxychlordane	2.00	2.26	1.2018	1.3593	13.1	NA	±20	Average RF
Toxaphene	100	112	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	112	0.0078	0.0087	11.5	NA	±100	Average RF
Toxaphene {2}	100	108	0.0065	0.007	7.6	NA	±100	Average RF
Toxaphene {3}	100	118	0.0111	0.013	17.5	NA	±100	Average RF
Toxaphene {4}	100	106	0.0133	0.0141	5.8	NA	±100	Average RF
Toxaphene {5}	100	117	0.0166	0.0193	16.7	NA	±100	Average RF
Toxaphene {6}	100	114	0.0185	0.0211	14.3	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.36	1.2072	1.4232	17.9	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	2.15	1.3913	1.4974	7.6	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/17/23 15:30

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\101623\1016F039.D\
Signal ID: DB-35MS

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 821954
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.31	1.1423	1.3183	15.4	NA	±20	Average RF
beta-BHC	2.00	2.21	0.6974	0.7718	10.7	NA	±20	Average RF
cis-Chlordane	2.00	2.21	1.1517	1.2729	10.5	NA	±20	Average RF
trans-Chlordane	2.00	2.14	1.1876	1.2675	6.7	NA	±20	Average RF
2,4'-DDD	2.00	2.05	0.6231	0.6401	2.7	NA	±20	Average RF
4,4'-DDD	2.00	2.26	0.7506	0.8485	13.0	NA	±20	Average RF
2,4'-DDE	2.00	1.76	0.9353	0.8238	-11.9	NA	±20	Average RF
4,4'-DDE	2.00	2.14	1.0867	1.16	6.7	NA	±20	Average RF
2,4'-DDT	2.00	1.57	0.7024	0.5523	-21.4*	NA	±20	Average RF
4,4'-DDT	2.00	1.94	0.738	0.7153	-3.1	NA	±20	Average RF
Dieldrin	2.00	2.20	1.0912	1.2006	10.0	NA	±20	Average RF
cis-Nonachlor	2.00	2.15	1.3783	1.4798	7.4	NA	±20	Average RF
trans-Nonachlor	2.00	2.08	1.3402	1.3923	3.9	NA	±20	Average RF
Oxychlordane	2.00	2.17	1.2122	1.317	8.6	NA	±20	Average RF
Toxaphene	100	102	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	98.6	0.0212	0.0209	-1.4	NA	±100	Average RF
Toxaphene {2}	100	102	0.0148	0.015	1.5	NA	±100	Average RF
Toxaphene {3}	100	106	0.0209	0.0223	6.5	NA	±100	Average RF
Toxaphene {4}	100	110	0.0143	0.0157	9.9	NA	±100	Average RF
Toxaphene {5}	100	98.4	0.0254	0.025	-1.6	NA	±100	Average RF
Toxaphene {6}	100	97.9	0.0062	0.0061	-2.1	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.15	1.3777	1.4826	7.6	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	2.05	1.3493	1.384	2.6	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/17/23 15:30

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\101623\1016F039.D\
Signal ID: DB XLB

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 821954
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.31	1.1876	1.3714	15.5	NA	±20	Average RF
beta-BHC	2.00	2.27	0.7719	0.7687	NA	13.4	±20	Quadratic
cis-Chlordane	2.00	2.23	1.2121	1.3492	11.3	NA	±20	Average RF
trans-Chlordane	2.00	2.26	1.1734	1.3277	13.1	NA	±20	Average RF
2,4'-DDD	2.00	2.11	0.6228	0.6578	5.6	NA	±20	Average RF
4,4'-DDD	2.00	2.14	0.8482	0.9062	6.8	NA	±20	Average RF
2,4'-DDE	2.00	2.22	0.7857	0.8713	10.9	NA	±20	Average RF
4,4'-DDE	2.00	2.24	1.0981	1.232	12.2	NA	±20	Average RF
2,4'-DDT	2.00	1.64	0.6847	0.56	-18.2	NA	±20	Average RF
4,4'-DDT	2.00	1.89	0.7214	0.6825	-5.4	NA	±20	Average RF
Dieldrin	2.00	2.34	1.0966	1.2827	17.0	NA	±20	Average RF
cis-Nonachlor	2.00	2.39	1.2545	1.5002	19.6	NA	±20	Average RF
trans-Nonachlor	2.00	2.34	1.2224	1.4277	16.8	NA	±20	Average RF
Oxychlordane	2.00	2.25	1.2018	1.3532	12.6	NA	±20	Average RF
Toxaphene	100	108	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	111	0.0078	0.0087	10.9	NA	±100	Average RF
Toxaphene {2}	100	106	0.0065	0.0069	6.3	NA	±100	Average RF
Toxaphene {3}	100	111	0.0111	0.0122	10.8	NA	±100	Average RF
Toxaphene {4}	100	98.4	0.0133	0.0131	-1.6	NA	±100	Average RF
Toxaphene {5}	100	117	0.0166	0.0194	17.2	NA	±100	Average RF
Toxaphene {6}	100	105	0.0185	0.0194	5.2	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.19	1.2072	1.3199	9.3	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	2.09	1.3913	1.4552	4.6	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/27/23 23:44

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\102623\1026F053.D\
Signal ID: DB XLB

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 822173
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	1.98	1.1876	1.1756	-1.0	NA	±20	Average RF
beta-BHC	2.00	1.86	0.7719	0.6406	NA	-7.3	±20	Quadratic
cis-Chlordane	2.00	1.92	1.2121	1.1652	-3.9	NA	±20	Average RF
trans-Chlordane	2.00	1.90	1.1734	1.1173	-4.8	NA	±20	Average RF
4,4'-DDD	2.00	1.94	0.8482	0.8205	-3.3	NA	±20	Average RF
4,4'-DDE	2.00	2.03	1.0981	1.1138	1.4	NA	±20	Average RF
4,4'-DDT	2.00	1.83	0.7214	0.6593	-8.6	NA	±20	Average RF
Dieldrin	2.00	2.01	1.0966	1.1041	0.7	NA	±20	Average RF
Toxaphene	100	97.2	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	102	0.0078	0.008	2.0	NA	±100	Average RF
Toxaphene {2}	100	89.4	0.0065	0.0058	-10.6	NA	±100	Average RF
Toxaphene {3}	100	102	0.0111	0.0113	2.0	NA	±100	Average RF
Toxaphene {4}	100	93.3	0.0133	0.0124	-6.7	NA	±100	Average RF
Toxaphene {5}	100	99.3	0.0166	0.0165	-0.7	NA	±100	Average RF
Toxaphene {6}	100	96.9	0.0185	0.0179	-3.1	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.05	1.2072	1.2378	2.5	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.82	1.3913	1.2679	-8.9	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/27/23 23:44

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\102623\1026F053.D\
Signal ID: DB-35MS

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 822173
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.16	1.1423	1.235	8.1	NA	±20	Average RF
beta-BHC	2.00	1.87	0.6974	0.6503	-6.7	NA	±20	Average RF
cis-Chlordane	2.00	2.10	1.1517	1.2066	4.8	NA	±20	Average RF
trans-Chlordane	2.00	2.00	1.1876	1.187	-0.1	NA	±20	Average RF
4,4'-DDD	2.00	2.14	0.7506	0.8027	6.9	NA	±20	Average RF
4,4'-DDE	2.00	2.02	1.0867	1.0962	0.9	NA	±20	Average RF
4,4'-DDT	2.00	2.27	0.738	0.838	13.6	NA	±20	Average RF
Dieldrin	2.00	2.05	1.0912	1.1208	2.7	NA	±20	Average RF
Toxaphene	100	104	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	99.6	0.0212	0.0211	-0.4	NA	±100	Average RF
Toxaphene {2}	100	106	0.0148	0.0157	5.8	NA	±100	Average RF
Toxaphene {3}	100	108	0.0209	0.0226	8.1	NA	±100	Average RF
Toxaphene {4}	100	105	0.0143	0.0151	5.3	NA	±100	Average RF
Toxaphene {5}	100	105	0.0254	0.0266	4.7	NA	±100	Average RF
Toxaphene {6}	100	103	0.0062	0.0064	2.9	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.98	1.3777	1.363	-1.1	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.82	1.3493	1.2272	-9.0	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/30/23 13:31

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\103023\1030F004.D\
Signal ID: DB XLB

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 822348
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.16	1.1876	1.2804	7.8	NA	±20	Average RF
beta-BHC	2.00	1.99	0.7719	0.6816	NA	-0.7	±20	Quadratic
cis-Chlordane	2.00	2.08	1.2121	1.2588	3.9	NA	±20	Average RF
trans-Chlordane	2.00	2.08	1.1734	1.218	3.8	NA	±20	Average RF
2,4'-DDD	2.00	2.24	0.6228	0.698	12.1	NA	±20	Average RF
4,4'-DDD	2.00	2.02	0.8482	0.8565	1.0	NA	±20	Average RF
2,4'-DDE	2.00	2.45	0.7857	0.9634	22.6*	NA	±20	Average RF
4,4'-DDE	2.00	2.17	1.0981	1.1926	8.6	NA	±20	Average RF
2,4'-DDT	2.00	1.81	0.6847	0.6186	-9.7	NA	±20	Average RF
4,4'-DDT	2.00	1.84	0.7214	0.663	-8.1	NA	±20	Average RF
Dieldrin	2.00	2.15	1.0966	1.1773	7.4	NA	±20	Average RF
cis-Nonachlor	2.00	2.49	1.2545	1.5638	24.7*	NA	±20	Average RF
trans-Nonachlor	2.00	2.38	1.2224	1.457	19.2	NA	±20	Average RF
Oxychlordane	2.00	2.30	1.2018	1.3825	15.0	NA	±20	Average RF
Toxaphene	100	112	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	114	0.0078	0.0089	13.9	NA	±100	Average RF
Toxaphene {2}	100	106	0.0065	0.0069	6.3	NA	±100	Average RF
Toxaphene {3}	100	116	0.0111	0.0128	16.1	NA	±100	Average RF
Toxaphene {4}	100	111	0.0133	0.0148	10.7	NA	±100	Average RF
Toxaphene {5}	100	109	0.0166	0.018	8.5	NA	±100	Average RF
Toxaphene {6}	100	115	0.0185	0.0212	15.0	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.23	1.2072	1.3456	11.5	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.97	1.3913	1.3721	-1.4	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/30/23 13:31

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\103023\1030F004.D\
Signal ID: DB-35MS

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 822348
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.33	1.1423	1.329	16.3	NA	±20	Average RF
beta-BHC	2.00	1.94	0.6974	0.6778	-2.8	NA	±20	Average RF
cis-Chlordane	2.00	2.22	1.1517	1.277	10.9	NA	±20	Average RF
trans-Chlordane	2.00	2.11	1.1876	1.2531	5.5	NA	±20	Average RF
2,4'-DDD	2.00	2.19	0.6231	0.6826	9.5	NA	±20	Average RF
4,4'-DDD	2.00	2.22	0.7506	0.8319	10.8	NA	±20	Average RF
2,4'-DDE	2.00	1.96	0.9353	0.9154	-2.1	NA	±20	Average RF
4,4'-DDE	2.00	2.18	1.0867	1.1817	8.7	NA	±20	Average RF
2,4'-DDT	2.00	2.07	0.7024	0.7257	3.3	NA	±20	Average RF
4,4'-DDT	2.00	2.51	0.738	0.9255	25.4*	NA	±20	Average RF
Dieldrin	2.00	2.15	1.0912	1.1712	7.3	NA	±20	Average RF
cis-Nonachlor	2.00	2.39	1.3783	1.6469	19.5	NA	±20	Average RF
trans-Nonachlor	2.00	2.28	1.3402	1.5251	13.8	NA	±20	Average RF
Oxychlordane	2.00	2.33	1.2122	1.412	16.5	NA	±20	Average RF
Toxaphene	100	114	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	108	0.0212	0.023	8.3	NA	±100	Average RF
Toxaphene {2}	100	114	0.0148	0.0169	14.0	NA	±100	Average RF
Toxaphene {3}	100	113	0.0209	0.0237	13.0	NA	±100	Average RF
Toxaphene {4}	100	115	0.0143	0.0165	15.0	NA	±100	Average RF
Toxaphene {5}	100	115	0.0254	0.0292	15.2	NA	±100	Average RF
Toxaphene {6}	100	119	0.0062	0.0074	19.2	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.09	1.3777	1.4383	4.4	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.96	1.3493	1.3225	-2.0	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/31/23 04:58

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC37\DATA\103023\1030F022.D\
Signal ID: DB-35MS

Calibration Date: 10/11/2023
Calibration ID: KC2300615
Analysis Lot: 822429
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	1.99	1.218	1.2144	-0.3	NA	±20	Average RF
beta-BHC	2.00	2.08	0.6241	0.6474	3.7	NA	±20	Average RF
cis-Chlordane	2.00	1.96	1.116	1.0936	-2.0	NA	±20	Average RF
trans-Chlordane	2.00	1.91	1.1936	1.1401	-4.5	NA	±20	Average RF
4,4'-DDD	2.00	2.08	0.7286	0.757	3.9	NA	±20	Average RF
4,4'-DDE	2.00	1.93	1.0913	1.0516	-3.6	NA	±20	Average RF
4,4'-DDT	2.00	1.84	0.8043	0.741	-7.9	NA	±20	Average RF
Dieldrin	2.00	2.03	1.0525	1.0659	1.3	NA	±20	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.97	1.0971	1.0825	-1.3	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.59	1.3809	1.0973	-20.5*	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2310188
Date Analyzed: 10/31/23 04:58

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC37\DATA\103023\1030F022.D\
Signal ID: DB XLB

Calibration Date: 10/11/2023
Calibration ID: KC2300615
Analysis Lot: 822429
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Aldrin	2.00	2.04	1.2333	1.2565	1.9	NA	±20	Average RF
beta-BHC	2.00	2.20	0.6227	0.6836	9.8	NA	±20	Average RF
cis-Chlordane	2.00	1.95	1.2019	1.1698	-2.7	NA	±20	Average RF
trans-Chlordane	2.00	1.99	1.1994	1.1955	-0.3	NA	±20	Average RF
4,4'-DDD	2.00	1.79	0.9238	0.8283	-10.3	NA	±20	Average RF
4,4'-DDE	2.00	1.90	1.2535	1.1897	-5.1	NA	±20	Average RF
4,4'-DDT	2.00	1.74	0.9067	0.7891	-13.0	NA	±20	Average RF
Dieldrin	2.00	2.02	1.1663	1.1774	1.0	NA	±20	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.13	0.9553	1.0186	6.6	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.73	1.3335	1.1511	-13.7	NA	±20	Average RF

Client: Floyd Snider **Service Request:**K2310188
Project: SmithKem

Analysis Run Log
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B **Analysis Lot:**821954
Instrument ID:K-GC-38

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC38\DATA\101623\1016F004.D\	Performance Evaluation	KQ2319084-01	10/16/2023	15:29:00	
J:\GC38\DATA\101623\1016F005.D\	Continuing Calibration Verification	KQ2319084-02	10/16/2023	16:10:00	
J:\GC38\DATA\101623\1016F006.D\	Continuing Calibration Verification	KQ2319084-02	10/16/2023	16:51:00	
J:\GC38\DATA\101623\1016F007.D\	Continuing Calibration Verification	KQ2319084-02	10/16/2023	17:32:00	
J:\GC38\DATA\101623\1016F008.D\	Continuing Calibration Verification	KQ2319084-02	10/16/2023	18:13:00	
J:\GC38\DATA\101623\1016F009.D\	Continuing Calibration Blank	KQ2319084-03	10/16/2023	18:55:00	
J:\GC38\DATA\101623\1016F011.D\	Method Blank	KQ2316174-10	10/16/2023	20:16:00	
J:\GC38\DATA\101623\1016F012.D\	Lab Control Sample	KQ2316174-07	10/16/2023	20:58:00	
J:\GC38\DATA\101623\1016F013.D\	Lab Control Sample	KQ2316174-08	10/16/2023	21:39:00	
J:\GC38\DATA\101623\1016F014.D\	Lab Control Sample	KQ2316174-09	10/16/2023	22:20:00	
J:\GC38\DATA\101623\1016F015.D\	AOC2-03-4.0 MS	KQ2316174-01	10/16/2023	23:02:00	
J:\GC38\DATA\101623\1016F016.D\	AOC2-03-4.0 DMS	KQ2316174-02	10/16/2023	23:43:00	
J:\GC38\DATA\101623\1016F017.D\	AOC2-03-4.0 MS	KQ2316174-03	10/17/2023	00:24:00	
J:\GC38\DATA\101623\1016F018.D\	AOC2-03-4.0 DMS	KQ2316174-04	10/17/2023	01:05:00	
J:\GC38\DATA\101623\1016F019.D\	AOC2-03-4.0 MS	KQ2316174-05	10/17/2023	01:46:00	
J:\GC38\DATA\101623\1016F021.D\	Performance Evaluation	KQ2319084-04	10/17/2023	03:08:00	
J:\GC38\DATA\101623\1016F022.D\	Continuing Calibration Verification	KQ2319084-05	10/17/2023	03:50:00	
J:\GC38\DATA\101623\1016F023.D\	Continuing Calibration Verification	KQ2319084-05	10/17/2023	04:31:00	
J:\GC38\DATA\101623\1016F024.D\	Continuing Calibration Verification	KQ2319084-05	10/17/2023	05:12:00	
J:\GC38\DATA\101623\1016F025.D\	Continuing Calibration Verification	KQ2319084-05	10/17/2023	05:53:00	
J:\GC38\DATA\101623\1016F026.D\	Continuing Calibration Blank	KQ2319084-06	10/17/2023	06:34:00	
J:\GC38\DATA\101623\1016F027.D\	AOC2-03-4.0 DMS	KQ2316174-06	10/17/2023	07:15:00	
J:\GC38\DATA\101623\1016F028.D\	AOC2--03-2.0	K2310188-001	10/17/2023	07:56:00	
J:\GC38\DATA\101623\1016F029.D\	AOC2-03-4.0	K2310188-002	10/17/2023	08:37:00	
J:\GC38\DATA\101623\1016F030.D\	AOC2-04-3.0	K2310188-004	10/17/2023	09:19:00	
J:\GC38\DATA\101623\1016F031.D\	AOC2-05-3.0	K2310188-006	10/17/2023	10:00:00	
J:\GC38\DATA\101623\1016F032.D\	AOC2-05-6.0	K2310188-007	10/17/2023	10:41:00	
J:\GC38\DATA\101623\1016F033.D\	AOC2-105-3.0	K2310188-009	10/17/2023	11:23:00	
J:\GC38\DATA\101623\1016F034.D\	AOC2-06-2.0	K2310188-010	10/17/2023	12:04:00	
J:\GC38\DATA\101623\1016F035.D\	AOC2-07-2.0	K2310188-012	10/17/2023	12:46:00	
J:\GC38\DATA\101623\1016F036.D\	AOC2-08-2.0	K2310188-014	10/17/2023	13:27:00	
J:\GC38\DATA\101623\1016F038.D\	Performance Evaluation	KQ2319084-07	10/17/2023	14:49:00	
J:\GC38\DATA\101623\1016F039.D\	Continuing Calibration Verification	KQ2319084-08	10/17/2023	15:30:00	
J:\GC38\DATA\101623\1016F040.D\	Continuing Calibration Verification	KQ2319084-08	10/17/2023	16:11:00	
J:\GC38\DATA\101623\1016F041.D\	Continuing Calibration Verification	KQ2319084-08	10/17/2023	16:53:00	
J:\GC38\DATA\101623\1016F042.D\	Continuing Calibration Verification	KQ2319084-08	10/17/2023	17:34:00	
J:\GC38\DATA\101623\1016F043.D\	Continuing Calibration Blank	KQ2319084-09	10/17/2023	18:15:00	
J:\GC38\DATA\101623\1016F044.D\	AOC2-08-4.0	K2310188-015	10/17/2023	18:56:00	
J:\GC38\DATA\101623\1016F045.D\	AOC3-01-2.0	K2310188-018	10/17/2023	19:37:00	

Client: Floyd Snider **Service Request:**K2310188
Project: SmithKem

Analysis Run Log
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B **Analysis Lot:**822173
Instrument ID:K-GC-38

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC38\DATA\102623\1026F052.D\	Performance Evaluation	KQ2319202-01	10/27/2023	23:03:00	
J:\GC38\DATA\102623\1026F053.D\	Continuing Calibration Verification	KQ2319202-02	10/27/2023	23:44:00	
J:\GC38\DATA\102623\1026F054.D\	Continuing Calibration Verification	KQ2319202-02	10/28/2023	00:26:00	
J:\GC38\DATA\102623\1026F056.D\	Continuing Calibration Blank	KQ2319202-03	10/28/2023	01:48:00	
J:\GC38\DATA\102623\1026F061.D\	AOC2-08-2.0	K2310188-014	10/28/2023	05:14:00	*
J:\GC38\DATA\102623\1026F062.D\	AOC2-08-2.0	K2310188-014	10/28/2023	05:55:00	*

Client: Floyd Snider **Service Request:**K2310188
Project: SmithKem

Analysis Run Log
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B **Analysis Lot:**822348
Instrument ID:K-GC-38

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC38\DATA\103023\1030F003.D\	Performance Evaluation	KQ2319283-01	10/30/2023	12:49:00	
J:\GC38\DATA\103023\1030F004.D\	Continuing Calibration Verification	KQ2319283-02	10/30/2023	13:31:00	
J:\GC38\DATA\103023\1030F005.D\	Continuing Calibration Verification	KQ2319283-02	10/30/2023	14:13:00	
J:\GC38\DATA\103023\1030F006.D\	Continuing Calibration Verification	KQ2319283-02	10/30/2023	14:54:00	
J:\GC38\DATA\103023\1030F007.D\	Continuing Calibration Verification	KQ2319283-02	10/30/2023	15:36:00	
J:\GC38\DATA\103023\1030F009.D\	Continuing Calibration Blank	KQ2319283-03	10/30/2023	16:59:00	
J:\GC38\DATA\103023\1030F010.D\	AOC2-08-2.0	K2310188-014	10/30/2023	17:40:00	*
J:\GC38\DATA\103023\1030F012.D\	ZZZZZZZ	ZZZZZZZ	10/30/2023	19:04:00	
J:\GC38\DATA\103023\1030F013.D\	ZZZZZZZ	ZZZZZZZ	10/30/2023	19:45:00	
J:\GC38\DATA\103023\1030F014.D\	ZZZZZZZ	ZZZZZZZ	10/30/2023	20:27:00	
J:\GC38\DATA\103023\1030F015.D\	ZZZZZZZ	ZZZZZZZ	10/30/2023	21:09:00	
J:\GC38\DATA\103023\1030F016.D\	ZZZZZZZ	ZZZZZZZ	10/30/2023	21:50:00	
J:\GC38\DATA\103023\1030F017.D\	ZZZZZZZ	ZZZZZZZ	10/30/2023	22:32:00	
J:\GC38\DATA\103023\1030F018.D\	ZZZZZZZ	ZZZZZZZ	10/30/2023	23:14:00	
J:\GC38\DATA\103023\1030F020.D\	Performance Evaluation	KQ2319283-04	10/31/2023	00:37:00	
J:\GC38\DATA\103023\1030F021.D\	Continuing Calibration Verification	KQ2319283-05	10/31/2023	01:18:00	
J:\GC38\DATA\103023\1030F022.D\	Continuing Calibration Verification	KQ2319283-05	10/31/2023	02:00:00	
J:\GC38\DATA\103023\1030F023.D\	Continuing Calibration Verification	KQ2319283-05	10/31/2023	02:41:00	
J:\GC38\DATA\103023\1030F024.D\	Continuing Calibration Verification	KQ2319283-05	10/31/2023	03:22:00	
J:\GC38\DATA\103023\1030F026.D\	Continuing Calibration Blank	KQ2319283-06	10/31/2023	04:45:00	
J:\GC38\DATA\103023\1030F027.D\	ZZZZZZZ	ZZZZZZZ	10/31/2023	05:27:00	
J:\GC38\DATA\103023\1030F028.D\	ZZZZZZZ	ZZZZZZZ	10/31/2023	06:08:00	
J:\GC38\DATA\103023\1030F029.D\	ZZZZZZZ	ZZZZZZZ	10/31/2023	06:49:00	
J:\GC38\DATA\103023\1030F030.D\	ZZZZZZZ	ZZZZZZZ	10/31/2023	07:30:00	
J:\GC38\DATA\103023\1030F031.D\	ZZZZZZZ	ZZZZZZZ	10/31/2023	08:12:00	
J:\GC38\DATA\103023\1030F037.D\	Performance Evaluation	KQ2319283-07	10/31/2023	12:21:00	
J:\GC38\DATA\103023\1030F038.D\	ZZZZZZZ	ZZZZZZZ	10/31/2023	13:03:00	
J:\GC38\DATA\103023\1030F039.D\	ZZZZZZZ	ZZZZZZZ	10/31/2023	13:45:00	
J:\GC38\DATA\103023\1030F041.D\	Continuing Calibration Blank	KQ2319283-09	10/31/2023	15:09:00	
J:\GC38\DATA\103023\1030F042.D\	ZZZZZZZ	ZZZZZZZ	10/31/2023	15:50:00	

Client: Floyd Snider **Service Request:** K2310188
Project: SmithKem

Analysis Run Log
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B **Analysis Lot:** 822429
Instrument ID: K-GC-37

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC37\DATA\103023\1030F021.D\	Performance Evaluation	KQ2319327-01	10/31/2023	04:18:00	
J:\GC37\DATA\103023\1030F022.D\	Continuing Calibration Verification	KQ2319327-02	10/31/2023	04:58:00	
J:\GC37\DATA\103023\1030F024.D\	Continuing Calibration Blank	KQ2319327-03	10/31/2023	06:16:00	
J:\GC37\DATA\103023\1030F032.D\	AOC2-08-2.0	K2310188-014	10/31/2023	11:32:00	*

Prep Summary Report

Client: Floyd Snider **Service Request:** K2310188
Project: SmithKem
Sample Matrix: Soil

Low Level Organochlorine Pesticides by GC

Prep Method: EPA 3546 **Extraction Lot:** 426513
Analytical Method: 8081B **Extraction Date:** 09/15/23 11:35

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
AOC2--03-2.0	K2310188-001	9/6/23	9/12/23	2.306 g	10 mL	79.0
AOC2-03-4.0	K2310188-002	9/6/23	9/12/23	2.288 g	10 mL	82.2
AOC2-04-3.0	K2310188-004	9/6/23	9/12/23	2.157 g	10 mL	75.1
AOC2-05-3.0	K2310188-006	9/6/23	9/12/23	2.339 g	10 mL	88.2
AOC2-05-6.0	K2310188-007	9/6/23	9/12/23	2.139 g	10 mL	91.3
AOC2-105-3.0	K2310188-009	9/6/23	9/12/23	2.174 g	10 mL	87.9
AOC2-06-2.0	K2310188-010	9/6/23	9/12/23	2.553 g	10 mL	90.8
AOC2-07-2.0	K2310188-012	9/6/23	9/12/23	2.527 g	10 mL	88.9
AOC2-08-2.0	K2310188-014	9/6/23	9/12/23	2.254 g	10 mL	84.5
AOC2-08-2.0	K2310188-014	9/6/23	9/12/23	2.254 g	10 mL	84.5
AOC2-08-4.0	K2310188-015	9/6/23	9/12/23	2.159 g	10 mL	92.9
AOC3-01-2.0	K2310188-018	9/7/23	9/12/23	2.114 g	10 mL	88.6
Matrix Spike	KQ2316174-01MS	9/6/23	9/12/23	2.146 g	10 mL	82.2
Duplicate Matrix Spike	KQ2316174-02DMS	9/6/23	9/12/23	2.165 g	10 mL	82.2
Matrix Spike	KQ2316174-03MS	9/6/23	9/12/23	2.288 g	10 mL	82.2
Duplicate Matrix Spike	KQ2316174-04DMS	9/6/23	9/12/23	2.233 g	10 mL	82.2
Matrix Spike	KQ2316174-05MS	9/6/23	9/12/23	2.113 g	10 mL	82.2
Duplicate Matrix Spike	KQ2316174-06DMS	9/6/23	9/12/23	2.206 g	10 mL	82.2
Lab Control Sample	KQ2316174-07LCS	NA	NA	2 g	10 mL	
Lab Control Sample	KQ2316174-08LCS	NA	NA	2 g	10 mL	
Lab Control Sample	KQ2316174-09LCS	NA	NA	2 g	10 mL	
Method Blank	KQ2316174-10MB	NA	NA	2.5530 g	10 mL	

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

January 11, 2024

Analytical Report for Service Request No: K2312104
Revised Service Request No: K2312104.01

Pamela Osterhout
Floyd Snider
601 Union Street, Suite 600
Seattle, WA 98101

RE: SmithKem

Dear Pamela,

Enclosed is the revised report for the sample(s) submitted to our laboratory September 12, 2023 For your reference, these analyses have been assigned our service request number **K2312104.**

The report has been revised to Level III.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at Mark.Harris@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Mark Harris
Project Manager

REVISED
10:47 am, Jan 11, 2024

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	[illegible]	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Client: Floyd Snider
Project: SmithKem
Sample Matrix: Soil

Service Request: K2312104
Date Received: 09/12/2023

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier III level requested by the client.

Sample Receipt:

One soil sample was received for analysis at ALS Environmental on 09/12/2023. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivoa GC:

Method 8081B, 10/31/2023:Sample AOC1-03-4.0 required dilution due to the presence of elevated levels of target analyte. The reporting limits are adjusted to reflect the dilution.

Approved by Noe D. Diaz Date 01/11/2024

Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

K2310183 2104

ALS Kelso

Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

ARI Assigned Number:	Turn-around Requested: Standard	Page: 5 of 11	
ARI Client Company: Floyd Snider	Phone:	Date: 9/5/23	Ice Present?
Client Contact: Pamela Osterhout		No. of Coolers:	Cooler Temps:
Client Project Name: Smith Kem			
Client Project #:	Samplers: DO/MTM/GS		

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: # Pesticides 8081B-LL	Analysis Requested: Archive Freeze upon Receipt	Notes/Comments
ADC4-06-5.0	9/5/23	16:20	Soil	1	✓		
ADC4-06-6.5	"	16:25	"	1		✓	
ADC4-07-2.5	"	16:45	"	1	✓		
ADC4-07-2.5	"	16:47	"	1	✓		
ADC4-07-5.0	"	16:50	"	1	✓		
ADC4-07-6.5	"	16:55	"	1		✓	
ADC4-08-2.5	"	17:05	"	1	✓		
ADC4-08-5.0	"	17:10	"	1		✓	
ADC4-02-2.5	9/6/23	08:15	"	1	✓		
ADC4-02-4.5	"	08:20	"	1	✓		

Comments/Special Instructions: See page 1-4 for pesticide list

	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Printed Name:	P.O.	Naomi Pedersen		
Company:	FIS	ALS		
Date & Time:	9/11/23 @ 09:00	9/12/23 0945		

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

2104
K2310183

ALS Kelso

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested: Standard	Page: 6 of 11	
ARI Client Company: Floyd Snider	Phone: 206-805-2188	Date: 9/6/23	Ice Present?
Client Contact: Pamela Osterhout		No. of Coolers:	Cooler Temps:
Client Project Name: Smith Kem			
Client Project #:	Samplers: PO/MTM/GS.		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: # Pesticides 8081B-LL	Analysis Requested: Archive frozen upon request	Notes/Comments
ADC4-02-7.0	9/6/23	08:25	Soil	1		✓	
ADC1-03-2.0	"	16:00	"	1	✓		
ADC1-03-4.0	"	16:05	"	1		✓	
ADC1-04-2.0	"	16:40	"	1	✓		
ADC1-04-4.0	"	16:45	"	1	✓		
ADC2-01-2.0	"	15:10	"	1	✓		
ADC2-01-4.0	"	15:15	"	1	✓		
ADC2-01-6.0	"	15:20	"	1		✓	
ADC2-02-2.0	"	15:30	"	1	✓		
ADC2-02-4.0	"	15:35	"	1		✓	

Comments/Special Instructions
* See pesticide list on pages 1-4

Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Printed Name: P.O.	Printed Name: Akemi Reckeweg	Printed Name:	Printed Name:
Company: F/S	Company: ALS	Company:	Company:
Date & Time: 9/11/23 @ 09:00	Date & Time: 9/12/23 0945	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Cooler Receipt and Preservation Form

2104

PM: MH

Client: Pamela Osterhout Service Request: K23 10783

Received: 9/12/23 Opened: 9/12/23 By: AP Unloaded: 9/12/23 By: AP

1. Samples were received via? CSPS (Fed Ex) UPS DHL PDX Courier *Hand Delivered*
2. Samples were received in: (circle) (Cooler) *Box* *Envelope* Other: _____ *NA*
3. Were custody seals on coolers? NA (N) If yes, how many and where? 1 front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (N) N

Temp Blank	Sample Temp	IR Gun	Cooler ID (SCDC ID / NA)	Observed Temp (indicate with "C"	PM Notified (If out of temp	Tracking Number NA	Filed
4.2	5.0	IR01	1 of 3			773374221969	
4.7	-	IR01	2 of 3			773374227807	
3.1	3.4	IR01	3 of 3			773 7422 7900	

4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column above:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # above and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

5. Packing material: *Inserts* (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
14. Was C12/Res negative? (NA) Y N
15. Were samples received within the method specified time limit? If not, notate the error below and notify the PM (NA) Y N
16. Were 100ml sterile microbiology bottles filled exactly to the 100ml mark? (NA) Y N Underfilled Overfilled

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

Total Solids

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Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2312104
Project:	SmithKem	**Date Collected:**	09/6/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	As Received

Solids, Total

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
AOC1-03-4.0	K2312104-001	**91.6**	-	-	1	10/24/23 12:25	

Client:	Floyd Snider	**Service Request:**	K2312104
Project	SmithKem	**Date Collected:**	09/06/23
Sample Matrix:	Soil	**Date Received:**	09/12/23
		Date Analyzed:	10/24/23

Replicate Sample Summary
Inorganic Parameters

Sample Name:	AOC1-03-4.0	**Units:**	Percent
Lab Code:	K2312104-001	**Basis:**	As Received

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K2312104-001DUP Result	Average	RPD	RPD Limit
Solids, Total	160.3 Modified	-	91.6	89.8	90.7	2	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Low Level Organochlorine Pesticides by GC

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Analytical Report

Client:	Floyd Snider	**Service Request:**	K2312104
Project:	SmithKem	**Date Collected:**	09/06/23 16:05
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC1-03-4.0	**Units:**	ug/Kg
Lab Code:	K2312104-001	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Dieldrin	**120**	**E**	1.1	0.24	1	10/31/23 08:12	10/26/23	
Toxaphene	**3000**		110	37	1	10/31/23 08:12	10/26/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	70	10 - 134	10/31/23 08:12	
Tetrachloro-m-xylene	64	10 - 121	10/31/23 08:12	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2312104
Project:	SmithKem	**Date Collected:**	09/06/23 16:05
Sample Matrix:	Soil	**Date Received:**	09/12/23 09:45
Sample Name:	AOC1-03-4.0	**Units:**	ug/Kg
Lab Code:	K2312104-001	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Dieldrin	**140**	5.3	1.2	5	10/31/23 15:50	10/26/23	
Toxaphene	**4100**	530	190	5	10/31/23 15:50	10/26/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	93	10 - 134	10/31/23 15:50	
Tetrachloro-m-xylene	76	10 - 121	10/31/23 15:50	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2312104
Project:	SmithKem	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	KQ2318802-10	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Dieldrin	ND U	0.86	0.22	1	10/30/23 19:04	10/26/23	
Toxaphene	ND U	100	34	1	10/30/23 19:04	10/26/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	75	10 - 134	10/30/23 19:04	
Tetrachloro-m-xylene	70	10 - 121	10/30/23 19:04	

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2312104
Date Collected: 09/06/23 16:05
Date Received: 9/12/23

Sample Name: AOC1-03-4.0
Lab Code: K2312104-001

Units: ug/Kg
Basis: Dry
Percent Solids: 91.6

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Dieldrin	1.2	140	160	13		5	10/31/23 15:50
Toxaphene	190	4100	4100	<1		5	10/31/23 15:50
Dieldrin	0.24	120	140	15	E	1	10/31/23 08:12
Toxaphene	37	3000	4400	38		1	10/31/23 08:12

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2312104
Date Collected: NA
Date Received:

Sample Name: Lab Control Sample
Lab Code: KQ2318802-07

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Dieldrin	0.22	18.4	19.0	3		1	10/30/23 19:45

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2312104
Date Collected: NA
Date Received:

Sample Name: Lab Control Sample
Lab Code: KQ2318802-09

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Toxaphene	34	657	660	<1		1	10/30/23 21:09

Client: Floyd Snider **Service Request:** K2312104
Project: SmithKem
Sample Matrix: Soil

SURROGATE RECOVERY SUMMARY
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Extraction Method: EPA 3546

Sample Name	Lab Code	Decachlorobiphenyl 10 - 134	Tetrachloro-m-xylene 10 - 121
AOC1-03-4.0	K2312104-001	70	71
AOC1-03-4.0 DL1	K2312104-001	93	76
Lab Control Sample	KQ2318802-07	70	66
Lab Control Sample	KQ2318802-08	69	64
Lab Control Sample	KQ2318802-09	67	60
Method Blank	KQ2318802-10	75	70

Client: Floyd Snider **Service Request:** K2312104
Project: SmithKem **Date Analyzed:** 10/30/23 13:31

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\103023\1030F004.D\ **Lab Code:** KQ2319283-02
Instrument ID: K-GC-38 **Analysis Lot:** 822348
Analytical Method: 8081B **Signal ID:** DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}	
		Area	**RT**	**Area**	**RT**
	ICAL Average ==>	73,829,386	6.43	76,677,049	6.44
	Upper Limit ==>	147,658,772	6.93	153,354,098	6.94
	Lower Limit ==>	36,914,693	5.93	38,338,525	5.94
Associated Analyses					
Continuing Calibration Verification	KQ2319283-02	59,069,487	6.41	59,069,487	6.41
Continuing Calibration Verification	KQ2319283-02	58,946,110	6.41	58,946,110	6.41
Continuing Calibration Verification	KQ2319283-02	60,916,059	6.41	60,916,059	6.41
Continuing Calibration Verification	KQ2319283-02	61,031,886	6.41	61,031,886	6.41
Method Blank	KQ2318802-10	62,561,411	6.41	62,561,411	6.41
Lab Control Sample	KQ2318802-07	68,560,922	6.41	68,560,922	6.41
Lab Control Sample	KQ2318802-08	70,900,773	6.41	70,900,773	6.41
Lab Control Sample	KQ2318802-09	69,378,481	6.41	69,378,481	6.41

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider **Service Request:** K2312104
Project: SmithKem **Date Analyzed:** 10/30/23 13:31

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\103023\1030F004.D\ **Lab Code:** KQ2319283-02
Instrument ID: K-GC-38 **Analysis Lot:** 822348
Analytical Method: 8081B **Signal ID:** DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}	
		Area	**RT**	**Area**	**RT**
	ICAL Average ==>	36,249,909	5.89	35,088,135	5.90
	Upper Limit ==>	72,499,818	6.39	70,176,270	6.40
	Lower Limit ==>	18,124,955	5.39	17,544,068	5.40
Associated Analyses					
Continuing Calibration Verification	KQ2319283-02	36,784,814	5.86	36,784,814	5.86
Continuing Calibration Verification	KQ2319283-02	37,011,351	5.86	37,011,351	5.86
Continuing Calibration Verification	KQ2319283-02	38,288,061	5.86	38,288,061	5.86
Continuing Calibration Verification	KQ2319283-02	38,414,503	5.86	38,414,503	5.86
Method Blank	KQ2318802-10	39,497,994	5.86	39,497,994	5.86
Lab Control Sample	KQ2318802-07	43,436,535	5.86	43,436,535	5.86
Lab Control Sample	KQ2318802-08	45,023,064	5.86	45,023,064	5.86
Lab Control Sample	KQ2318802-09	43,837,184	5.86	43,837,184	5.86

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider **Service Request:** K2312104
Project: SmithKem **Date Analyzed:** 10/31/23 01:18

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\103023\1030F021.D\ **Lab Code:** KQ2319283-05
Instrument ID: K-GC-38 **Analysis Lot:** 822348
Analytical Method: 8081B **Signal ID:** DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}	
		Area	**RT**	**Area**	**RT**
	ICAL Average ==>	73,829,386	6.43	76,677,049	6.44
	Upper Limit ==>	147,658,772	6.93	153,354,098	6.94
	Lower Limit ==>	36,914,693	5.93	38,338,525	5.94
Associated Analyses					
Continuing Calibration Verification	KQ2319283-05	63,955,641	6.41	63,955,641	6.41
Continuing Calibration Verification	KQ2319283-05	63,274,315	6.41	63,274,315	6.41
Continuing Calibration Verification	KQ2319283-05	65,206,020	6.41	65,206,020	6.41
Continuing Calibration Verification	KQ2319283-05	64,277,263	6.41	64,277,263	6.41
AOC1-03-4.0	K2312104-001	73,205,433	6.41	73,205,433	6.41

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider **Service Request:** K2312104
Project: SmithKem **Date Analyzed:** 10/31/23 01:18

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\103023\1030F021.D\ **Lab Code:** KQ2319283-05
Instrument ID: K-GC-38 **Analysis Lot:** 822348
Analytical Method: 8081B **Signal ID:** DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}	
		Area	**RT**	**Area**	**RT**
	ICAL Average ==>	36,249,909	5.89	35,088,135	5.90
	Upper Limit ==>	72,499,818	6.39	70,176,270	6.40
	Lower Limit ==>	18,124,955	5.39	17,544,068	5.40
Associated Analyses					
Continuing Calibration Verification	KQ2319283-05	40,195,696	5.86	40,195,696	5.86
Continuing Calibration Verification	KQ2319283-05	39,984,124	5.86	39,984,124	5.86
Continuing Calibration Verification	KQ2319283-05	41,190,426	5.86	41,190,426	5.86
Continuing Calibration Verification	KQ2319283-05	40,400,890	5.86	40,400,890	5.86
AOC1-03-4.0	K2312104-001	46,456,417	5.86	46,456,417	5.86

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider **Service Request:** K2312104
Project: SmithKem **Date Analyzed:** 10/31/23 13:03

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\103023\1030F038.D\ **Lab Code:** KQ2319283-08
Instrument ID: K-GC-38 **Analysis Lot:** 822348
Analytical Method: 8081B **Signal ID:** DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}	
		Area	**RT**	**Area**	**RT**
	ICAL Average ==>	73,829,386	6.43	76,677,049	6.44
	Upper Limit ==>	147,658,772	6.93	153,354,098	6.94
	Lower Limit ==>	36,914,693	5.93	38,338,525	5.94
Associated Analyses					
Continuing Calibration Verification	KQ2319283-08	69,318,922	6.41	69,318,922	6.41
Continuing Calibration Verification	KQ2319283-08	70,166,783	6.41	70,166,783	6.41
AOC1-03-4.0DL	K2312104-001	67,782,410	6.41	67,782,410	6.41

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider **Service Request:** K2312104
Project: SmithKem **Date Analyzed:** 10/31/23 13:03

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC38\DATA\103023\1030F038.D\ **Lab Code:** KQ2319283-08
Instrument ID: K-GC-38 **Analysis Lot:** 822348
Analytical Method: 8081B **Signal ID:** DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}	
		Area	**RT**	**Area**	**RT**
	ICAL Average ==>	36,249,909	5.89	35,088,135	5.90
	Upper Limit ==>	72,499,818	6.39	70,176,270	6.40
	Lower Limit ==>	18,124,955	5.39	17,544,068	5.40
Associated Analyses					
Continuing Calibration Verification	KQ2319283-08	42,866,564	5.86	42,866,564	5.86
Continuing Calibration Verification	KQ2319283-08	43,277,024	5.86	43,277,024	5.86
AOC1-03-4.0DL	K2312104-001	41,977,562	5.86	41,977,562	5.86

Results flagged with an asterisk (*) indicate values outside control criteria.

Client:	Floyd Snider	**Service Request:**	K2312104
Project:	SmithKem	**Date Analyzed:**	10/30/23
Sample Matrix:	Soil	**Date Extracted:**	10/26/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Analysis Method:	8081B	**Units:**	ug/Kg
Prep Method:	EPA 3546	**Basis:**	Dry
		Analysis Lot:	822348

Lab Control Sample
KQ2318802-07

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dieldrin	18.4	25.0	74	19-88

Client:	Floyd Snider	**Service Request:**	K2312104
Project:	SmithKem	**Date Analyzed:**	10/30/23
Sample Matrix:	Soil	**Date Extracted:**	10/26/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Analysis Method:	8081B	**Units:**	ug/Kg
Prep Method:	EPA 3546	**Basis:**	Dry
		Analysis Lot:	822348

Lab Control Sample
KQ2318802-09

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Toxaphene	657	1000	66	16-114

Client:	Floyd Snider	**Service Request:**	K2312104
Project:	SmithKem	**Date Analyzed:**	NA
Sample Matrix:	Soil	**Date Extracted:**	

Method Blank Summary
Low Level Organochlorine Pesticides by GC

Sample Name:		**Instrument ID:**	
Lab Code:		**File ID:**	
Analysis Method:	8081B	**Analysis Lot:**	822348
Prep Method:	None		

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Performance Evaluation	KQ2319283-01	J:\GC38\DATA\103023\1030F003.D\	10/30/23 12:49
Performance Evaluation	KQ2319283-04	J:\GC38\DATA\103023\1030F020.D\	10/31/23 00:37
Performance Evaluation	KQ2319283-07	J:\GC38\DATA\103023\1030F037.D\	10/31/23 12:21

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QA/QC Report

Client:	Floyd Snider	**Service Request:**	K2312104
Project:	SmithKem	**Date Analyzed:**	10/30/23 19:04
Sample Matrix:	Soil	**Date Extracted:**	10/26/23

Method Blank Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	Method Blank	**Instrument ID:**	K-GC-38
Lab Code:	KQ2318802-10	**File ID:**	J:\GC38\DATA\103023\1030F012.D\
Analysis Method:	8081B	**Analysis Lot:**	822348
Prep Method:	EPA 3546	**Extraction Lot:**	428783

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ2318802-07	J:\GC38\DATA\103023\1030F013.D\	10/30/23 19:45
Lab Control Sample	KQ2318802-08	J:\GC38\DATA\103023\1030F014.D\	10/30/23 20:27
Lab Control Sample	KQ2318802-09	J:\GC38\DATA\103023\1030F015.D\	10/30/23 21:09
AOC1-03-4.0	K2312104-001	J:\GC38\DATA\103023\1030F031.D\	10/31/23 08:12
AOC1-03-4.0	K2312104-001	J:\GC38\DATA\103023\1030F042.D\	10/31/23 15:50

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Floyd Snider	**Service Request:**	K2312104
Project:	SmithKem	**Date Analyzed:**	NA
Sample Matrix:	Soil	**Date Extracted:**	

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Sample Name:		**Instrument ID:**	
Lab Code:		**File ID:**	
Analysis Method:	8081B	**Analysis Lot:**	822348
Prep Method:	None		

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Performance Evaluation	KQ2319283-01	J:\GC38\DATA\103023\1030F003.D\	10/30/23 12:49
Performance Evaluation	KQ2319283-04	J:\GC38\DATA\103023\1030F020.D\	10/31/23 00:37
Performance Evaluation	KQ2319283-07	J:\GC38\DATA\103023\1030F037.D\	10/31/23 12:21

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Floyd Snider	**Service Request:**	K2312104
Project:	SmithKem	**Date Analyzed:**	10/30/23 21:09
Sample Matrix:	Soil	**Date Extracted:**	10/26/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	Lab Control Sample	**Instrument ID:**	K-GC-38
Lab Code:	KQ2318802-09	**File ID:**	J:\GC38\DATA\103023\1030F015.D\
Analysis Method:	8081B	**Analysis Lot:**	822348
Prep Method:	EPA 3546	**Extraction Lot:**	428783

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ2318802-10	J:\GC38\DATA\103023\1030F012.D\	10/30/23 19:04
AOC1-03-4.0	K2312104-001	J:\GC38\DATA\103023\1030F031.D\	10/31/23 08:12
AOC1-03-4.0	K2312104-001	J:\GC38\DATA\103023\1030F042.D\	10/31/23 15:50

Client: Floyd Snider **Service Request:** K2312104
Project: SmithKem **Calibration Date:** 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558 **Signal ID:** DB XLB
Instrument ID: K-GC-38

#	Lab Code	Sample Name	File Location	Acquisition Date
08	KC2300558-08	24 .2 PPB GCPS9-27G @50X	J:\GC38\DATA\072123ICAL\0721F012.D	07/22/2023 00:03
09	KC2300558-09	24 .5 PPB GCPS9-27G @20X	J:\GC38\DATA\072123ICAL\0721F013.D	07/22/2023 00:48
10	KC2300558-10	24 1 PPB GCPS9-27G @10X	J:\GC38\DATA\072123ICAL\0721F014.D	07/22/2023 01:33
11	KC2300558-11	24 2 PPB GCPS9-27G @5X	J:\GC38\DATA\072123ICAL\0721F015.D	07/22/2023 02:17
12	KC2300558-12	24 5 PPB GCPS9-27G @2X	J:\GC38\DATA\072123ICAL\0721F016.D	07/22/2023 03:02
13	KC2300558-13	24 10 PPB GCPS9-27G	J:\GC38\DATA\072123ICAL\0721F017.D	07/22/2023 03:48
15	KC2300558-15	M/P .2/1 PPB GCPS9-33A @50X	J:\GC38\DATA\072123ICAL\0721F019.D	07/22/2023 05:19
16	KC2300558-16	M/P .5/2.5 PPB GCPS9-33A @20X	J:\GC38\DATA\072123ICAL\0721F020.D	07/22/2023 06:05
17	KC2300558-17	M/P 1/5 PPB GCPS9-33A@10X	J:\GC38\DATA\072123ICAL\0721F021.D	07/22/2023 06:50
18	KC2300558-18	M/P 2/10 PPB GCPS9-33A @5X	J:\GC38\DATA\072123ICAL\0721F022.D	07/22/2023 07:34
19	KC2300558-19	M/P 5/25 PPB GCPS9-33A @2X	J:\GC38\DATA\072123ICAL\0721F023.D	07/22/2023 08:19
20	KC2300558-20	M/P 10/50 PPB GCPS9-33A	J:\GC38\DATA\072123ICAL\0721F024.D	07/22/2023 09:04
21	KC2300558-21	PERTH 100 PPB GSP9-30E	J:\GC38\DATA\072123ICAL\0721F025.D	07/22/2023 09:50
24	KC2300558-24	TOX 10 PPB GCPS9-29E @50X	J:\GC38\DATA\072123ICAL\0721F028.D	07/22/2023 12:06
25	KC2300558-25	TOX 25 PPB GCPS9-29E @20X	J:\GC38\DATA\072123ICAL\0721F029.D	07/22/2023 12:51
26	KC2300558-26	TOX 50 PPB GCPS9-29E @10X	J:\GC38\DATA\072123ICAL\0721F030.D	07/22/2023 13:37
27	KC2300558-27	TOX 100 PPB GCPS9-29E @5X	J:\GC38\DATA\072123ICAL\0721F031.D	07/22/2023 14:22
28	KC2300558-28	TOX 250 PPB GCPS9-29E @2X	J:\GC38\DATA\072123ICAL\0721F032.D	07/22/2023 15:08
29	KC2300558-29	TOX 500 PPB GCPS9-29E	J:\GC38\DATA\072123ICAL\0721F033.D	07/22/2023 15:54
31	KC2300558-31	CHLOR 2 PPB GCPS9-34D @100X	J:\GC38\DATA\072123ICAL\0721F035.D	07/22/2023 17:25
32	KC2300558-32	CHLOR 5 PPB GCPS9-34D @40X	J:\GC38\DATA\072123ICAL\0721F036.D	07/22/2023 18:11
33	KC2300558-33	CHLOR 10 PPB GCPS9-34D @20X	J:\GC38\DATA\072123ICAL\0721F037.D	07/22/2023 18:57
34	KC2300558-34	CHLOR 20 PPB GCPS9-34D @10X	J:\GC38\DATA\072123ICAL\0721F038.D	07/22/2023 19:43
35	KC2300558-35	CHLOR 50 PPB GCPS9-34D @4X	J:\GC38\DATA\072123ICAL\0721F039.D	07/22/2023 20:28
36	KC2300558-36	CHLOR 100 PPB GCPS9-34D @2X	J:\GC38\DATA\072123ICAL\0721F040.D	07/22/2023 21:14
37	KC2300558-37	CHLOR 200 PPB GCPS9-34D	J:\GC38\DATA\072123ICAL\0721F041.D	07/22/2023 21:59
01	KC2300558-01	8081 .2 PPB GCPS9-38C @50X	J:\GC38\DATA\092523\0925F008.D	09/25/2023 16:31
02	KC2300558-02	8081 .5 PPB GCPS9-38C@20X	J:\GC38\DATA\092523\0925F009.D	09/25/2023 17:12
03	KC2300558-03	8081 1 PPB GCPS9-38C @10X	J:\GC38\DATA\092523\0925F010.D	09/25/2023 17:54
04	KC2300558-04	8081 2 PPB GCPS9-38C@5X	J:\GC38\DATA\092523\0925F011.D	09/25/2023 18:35
05	KC2300558-05	8081 5 PPB GCPS9-38C @2X	J:\GC38\DATA\092523\0925F012.D	09/25/2023 19:17
06	KC2300558-06	8081 10 PPB GCPS9-38C	J:\GC38\DATA\092523\0925F013.D	09/25/2023 19:58

Analyte

Decachlorobiphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.273	02	0.500	1.305	03	1.000	1.232	04	2.000	1.257
05	5.000	1.118	06	10.000	1.059						

Client: Floyd Snider
Project: SmithKem

Service Request: K2312104
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB XLB

Analyte

Dieldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.138	02	0.500	1.153	03	1.000	1.087	04	2.000	1.107
05	5.000	1.041	06	10.000	1.053						

Tetrachloro-m-xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.438	02	0.500	1.496	03	1.000	1.391	04	2.000	1.411
05	5.000	1.305	06	10.000	1.308						

Toxaphene {1}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.008207	25	25.000	0.00774	26	50.000	0.007891	27	100.000	0.008052
28	250.000	0.007785	29	500.000	0.007234						

Toxaphene {2}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.007719	25	25.000	0.007011	26	50.000	0.006153	27	100.000	0.007946
28	250.000	0.005349	29	500.000	0.004933						

Toxaphene {3}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01009	25	25.000	0.01271	26	50.000	0.01197	27	100.000	0.01102
28	250.000	0.01028	29	500.000	0.01025						

Toxaphene {4}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01461	25	25.000	0.01391	26	50.000	0.01364	27	100.000	0.01356
28	250.000	0.01245	29	500.000	0.01183						

Toxaphene {5}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01706	25	25.000	0.01666	26	50.000	0.01741	27	100.000	0.01663
28	250.000	0.01569	29	500.000	0.01599						

Toxaphene {6}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.02109	25	25.000	0.02031	26	50.000	0.01826	27	100.000	0.01791
28	250.000	0.01688	29	500.000	0.01635						

Client: Floyd Snider
Project: SmithKem

Service Request: K2312104
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB XLB

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Decachlorobiphenyl	SURR	Average RF	% RSD	8.0	≤20	1.207	
Dieldrin	TRG	Average RF	% RSD	4.1	≤20	1.097	
Tetrachloro-m-xylene	SURR	Average RF	% RSD	5.4	≤20	1.391	
Toxaphene {1}	MULTI	Average RF	% RSD	4.3	≤20	0.007818	
Toxaphene {2}	MULTI	Average RF	% RSD	19.1	≤20	0.006518	
Toxaphene {3}	MULTI	Average RF	% RSD	9.7	≤20	0.01105	
Toxaphene {4}	MULTI	Average RF	% RSD	7.6	≤20	0.01333	
Toxaphene {5}	MULTI	Average RF	% RSD	3.9	≤20	0.01657	
Toxaphene {6}	MULTI	Average RF	% RSD	10.2	≤20	0.01847	

Client: Floyd Snider
Project: SmithKem

Service Request: K2312104
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

#	Lab Code	Sample Name	File Location	Acquisition Date
08	KC2300558-08	24 .2 PPB GCPS9-27G @50X	J:\GC38\DATA\072123ICAL\0721F012.D	07/22/2023 00:03
09	KC2300558-09	24 .5 PPB GCPS9-27G @20X	J:\GC38\DATA\072123ICAL\0721F013.D	07/22/2023 00:48
10	KC2300558-10	24 1 PPB GCPS9-27G @10X	J:\GC38\DATA\072123ICAL\0721F014.D	07/22/2023 01:33
11	KC2300558-11	24 2 PPB GCPS9-27G @5X	J:\GC38\DATA\072123ICAL\0721F015.D	07/22/2023 02:17
12	KC2300558-12	24 5 PPB GCPS9-27G @2X	J:\GC38\DATA\072123ICAL\0721F016.D	07/22/2023 03:02
13	KC2300558-13	24 10 PPB GCPS9-27G	J:\GC38\DATA\072123ICAL\0721F017.D	07/22/2023 03:48
15	KC2300558-15	M/P .2/1 PPB GCPS9-33A @50X	J:\GC38\DATA\072123ICAL\0721F019.D	07/22/2023 05:19
16	KC2300558-16	M/P .5/2.5 PPB GCPS9-33A @20X	J:\GC38\DATA\072123ICAL\0721F020.D	07/22/2023 06:05
17	KC2300558-17	M/P 1/5 PPB GCPS9-33A@10X	J:\GC38\DATA\072123ICAL\0721F021.D	07/22/2023 06:50
18	KC2300558-18	M/P 2/10 PPB GCPS9-33A @5X	J:\GC38\DATA\072123ICAL\0721F022.D	07/22/2023 07:34
19	KC2300558-19	M/P 5/25 PPB GCPS9-33A @2X	J:\GC38\DATA\072123ICAL\0721F023.D	07/22/2023 08:19
20	KC2300558-20	M/P 10/50 PPB GCPS9-33A	J:\GC38\DATA\072123ICAL\0721F024.D	07/22/2023 09:04
21	KC2300558-21	PERTH 100 PPB GSP9-30E	J:\GC38\DATA\072123ICAL\0721F025.D	07/22/2023 09:50
24	KC2300558-24	TOX 10 PPB GCPS9-29E @50X	J:\GC38\DATA\072123ICAL\0721F028.D	07/22/2023 12:06
25	KC2300558-25	TOX 25 PPB GCPS9-29E @20X	J:\GC38\DATA\072123ICAL\0721F029.D	07/22/2023 12:51
26	KC2300558-26	TOX 50 PPB GCPS9-29E @10X	J:\GC38\DATA\072123ICAL\0721F030.D	07/22/2023 13:37
27	KC2300558-27	TOX 100 PPB GCPS9-29E @5X	J:\GC38\DATA\072123ICAL\0721F031.D	07/22/2023 14:22
28	KC2300558-28	TOX 250 PPB GCPS9-29E @2X	J:\GC38\DATA\072123ICAL\0721F032.D	07/22/2023 15:08
29	KC2300558-29	TOX 500 PPB GCPS9-29E	J:\GC38\DATA\072123ICAL\0721F033.D	07/22/2023 15:54
31	KC2300558-31	CHLOR 2 PPB GCPS9-34D @100X	J:\GC38\DATA\072123ICAL\0721F035.D	07/22/2023 17:25
32	KC2300558-32	CHLOR 5 PPB GCPS9-34D @40X	J:\GC38\DATA\072123ICAL\0721F036.D	07/22/2023 18:11
33	KC2300558-33	CHLOR 10 PPB GCPS9-34D @20X	J:\GC38\DATA\072123ICAL\0721F037.D	07/22/2023 18:57
34	KC2300558-34	CHLOR 20 PPB GCPS9-34D @10X	J:\GC38\DATA\072123ICAL\0721F038.D	07/22/2023 19:43
35	KC2300558-35	CHLOR 50 PPB GCPS9-34D @4X	J:\GC38\DATA\072123ICAL\0721F039.D	07/22/2023 20:28
36	KC2300558-36	CHLOR 100 PPB GCPS9-34D @2X	J:\GC38\DATA\072123ICAL\0721F040.D	07/22/2023 21:14
37	KC2300558-37	CHLOR 200 PPB GCPS9-34D	J:\GC38\DATA\072123ICAL\0721F041.D	07/22/2023 21:59
01	KC2300558-01	8081 .2 PPB GCPS9-38C @50X	J:\GC38\DATA\092523\0925F008.D	09/25/2023 16:31
02	KC2300558-02	8081 .5 PPB GCPS9-38C@20X	J:\GC38\DATA\092523\0925F009.D	09/25/2023 17:12
03	KC2300558-03	8081 1 PPB GCPS9-38C @10X	J:\GC38\DATA\092523\0925F010.D	09/25/2023 17:54
04	KC2300558-04	8081 2 PPB GCPS9-38C@5X	J:\GC38\DATA\092523\0925F011.D	09/25/2023 18:35
05	KC2300558-05	8081 5 PPB GCPS9-38C @2X	J:\GC38\DATA\092523\0925F012.D	09/25/2023 19:17
06	KC2300558-06	8081 10 PPB GCPS9-38C	J:\GC38\DATA\092523\0925F013.D	09/25/2023 19:58

Analyte

Decachlorobiphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.486	02	0.500	1.484	03	1.000	1.397	04	2.000	1.425
05	5.000	1.282	06	10.000	1.192						

Client: Floyd Snider
Project: SmithKem

Service Request: K2312104
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

Analyte

Dieldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.218	02	0.500	1.112	03	1.000	1.021	04	2.000	1.082
05	5.000	1.065	06	10.000	1.048						

Tetrachloro-m-xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.431	02	0.500	1.44	03	1.000	1.317	04	2.000	1.369
05	5.000	1.266	06	10.000	1.272						

Toxaphene {1}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.0225	25	25.000	0.02183	26	50.000	0.02111	27	100.000	0.02184
28	250.000	0.02031	29	500.000	0.01977						

Toxaphene {2}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01439	25	25.000	0.01426	26	50.000	0.01486	27	100.000	0.01778
28	250.000	0.0138	29	500.000	0.01374						

Toxaphene {3}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.02047	25	25.000	0.02012	26	50.000	0.02108	27	100.000	0.02258
28	250.000	0.02085	29	500.000	0.0205						

Toxaphene {4}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.01299	25	25.000	0.01518	26	50.000	0.01477	27	100.000	0.01464
28	250.000	0.01414	29	500.000	0.01422						

Toxaphene {5}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.02252	25	25.000	0.02798	26	50.000	0.02609	27	100.000	0.02517
28	250.000	0.02539	29	500.000	0.02503						

Toxaphene {6}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
24	10.000	0.004329	25	25.000	0.006344	26	50.000	0.006614	27	100.000	0.006822
28	250.000	0.006606	29	500.000	0.006504						

Client: Floyd Snider
Project: SmithKem

Service Request: K2312104
Calibration Date: 7/22/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558
Instrument ID: K-GC-38

Signal ID: DB-35MS

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Decachlorobiphenyl	SURR	Average RF	% RSD	8.5	≤20	1.378	
Dieldrin	TRG	Average RF	% RSD	6.4	≤20	1.091	
Tetrachloro-m-xylene	SURR	Average RF	% RSD	5.7	≤20	1.349	
Toxaphene {1}	MULTI	Average RF	% RSD	4.9	≤20	0.02123	
Toxaphene {2}	MULTI	Average RF	% RSD	10.2	≤20	0.01481	
Toxaphene {3}	MULTI	Average RF	% RSD	4.2	≤20	0.02093	
Toxaphene {4}	MULTI	Average RF	% RSD	5.3	≤20	0.01432	
Toxaphene {5}	MULTI	Average RF	% RSD	7.0	≤20	0.02536	
Toxaphene {6}	MULTI	Average RF	% RSD	15.0	≤20	0.006203	

Client: Floyd Snider **Service Request:** K2312104
Project: SmithKem **Calibration Date:** 7/22/2023

Initial Calibration Verification Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558 **Signal ID:** DB XLB
Instrument ID: K-GC-38

#	Lab Code	Sample Name	File Location	Acquisition Date
14	KC2300558-14	24 ICV 2 PPB GCPS9-27I	J:\GC38\DATA\072123ICAL\0721F018.D	07/22/2023 04:33
22	KC2300558-22	PERTH ICV 25 PPB GSP9-30I	J:\GC38\DATA\072123ICAL\0721F026.D	07/22/2023 10:36
23	KC2300558-23	MISC ICV 2 PPB GCPS9-30G	J:\GC38\DATA\072123ICAL\0721F027.D	07/22/2023 11:21
30	KC2300558-30	TOX ICV 100 PPB GCPS9-22H @5X	J:\GC38\DATA\072123ICAL\0721F034.D	07/22/2023 16:39
38	KC2300558-38	CHLOR ICV 50 PPB GCPS9-24H	J:\GC38\DATA\072123ICAL\0721F042.D	07/22/2023 22:44
39	KC2300558-39	TOX ICV 100 PPB GCPS9-22H @5X	J:\GC38\DATA\072423\0724F009.D	07/25/2023 01:24
40	KC2300558-40	PERTH ICV 25 PPB GSP9-24F	J:\GC38\DATA\072523\0725F007.D	07/25/2023 21:01
07	KC2300558-07	8081 ICV 2 PPB GCPS9-32H	J:\GC38\DATA\092523\0925F014.D	09/25/2023 20:39

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Dieldrin	2.00	1.96	1.097E0	1.073E0	-2.155	±20	Average RF
Toxaphene	100	102			1.61	±20	NA

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Toxaphene {1}	100	109	7.818E-3	8.531E-3	9.11	±100	Average RF
Toxaphene {2}	100	89.2	6.518E-3	5.814E-3	-10.811	±100	Average RF
Toxaphene {3}	100	105	1.105E-2	1.16E-2	4.94	±100	Average RF
Toxaphene {4}	100	103	1.333E-2	1.367E-2	2.53	±100	Average RF
Toxaphene {5}	100	104	1.657E-2	1.722E-2	3.90	±100	Average RF
Toxaphene {6}	100	100	1.847E-2	1.847E-2	-0.013	±100	Average RF

Client: Floyd Snider **Service Request:** K2312104
Project: SmithKem **Calibration Date:** 7/22/2023

Initial Calibration Verification Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300558 **Signal ID:** DB-35MS
Instrument ID: K-GC-38

#	Lab Code	Sample Name	File Location	Acquisition Date
14	KC2300558-14	24 ICV 2 PPB GCPS9-27I	J:\GC38\DATA\072123ICAL\0721F018.D	07/22/2023 04:33
22	KC2300558-22	PERTH ICV 25 PPB GSP9-30I	J:\GC38\DATA\072123ICAL\0721F026.D	07/22/2023 10:36
23	KC2300558-23	MISC ICV 2 PPB GCPS9-30G	J:\GC38\DATA\072123ICAL\0721F027.D	07/22/2023 11:21
30	KC2300558-30	TOX ICV 100 PPB GCPS9-22H @5X	J:\GC38\DATA\072123ICAL\0721F034.D	07/22/2023 16:39
38	KC2300558-38	CHLOR ICV 50 PPB GCPS9-24H	J:\GC38\DATA\072123ICAL\0721F042.D	07/22/2023 22:44
39	KC2300558-39	TOX ICV 100 PPB GCPS9-22H @5X	J:\GC38\DATA\072423\0724F009.D	07/25/2023 01:24
40	KC2300558-40	PERTH ICV 25 PPB GSP9-24F	J:\GC38\DATA\072523\0725F007.D	07/25/2023 21:01
07	KC2300558-07	8081 ICV 2 PPB GCPS9-32H	J:\GC38\DATA\092523\0925F014.D	09/25/2023 20:39

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Dieldrin	2.00	1.92	1.091E0	1.049E0	-3.879	±20	Average RF
Toxaphene	100	109			8.68	±20	NA

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Toxaphene {1}	100	105	2.123E-2	2.229E-2	5.02	±100	Average RF
Toxaphene {2}	100	109	1.481E-2	1.607E-2	8.53	±100	Average RF
Toxaphene {3}	100	106	2.093E-2	2.211E-2	5.61	±100	Average RF
Toxaphene {4}	100	108	1.432E-2	1.554E-2	8.46	±100	Average RF
Toxaphene {5}	100	108	2.536E-2	2.746E-2	8.29	±100	Average RF
Toxaphene {6}	100	116	6.203E-3	7.205E-3	16.15	±100	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2312104
Date Analyzed: 10/30/23 13:31

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\103023\1030F004.D\
Signal ID: DB XLB

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 822348
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Dieldrin	2.00	2.15	1.0966	1.1773	7.4	NA	±20	Average RF
Toxaphene	100	112	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	114	0.0078	0.0089	13.9	NA	±100	Average RF
Toxaphene {2}	100	106	0.0065	0.0069	6.3	NA	±100	Average RF
Toxaphene {3}	100	116	0.0111	0.0128	16.1	NA	±100	Average RF
Toxaphene {4}	100	111	0.0133	0.0148	10.7	NA	±100	Average RF
Toxaphene {5}	100	109	0.0166	0.018	8.5	NA	±100	Average RF
Toxaphene {6}	100	115	0.0185	0.0212	15.0	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.23	1.2072	1.3456	11.5	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.97	1.3913	1.3721	-1.4	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2312104
Date Analyzed: 10/30/23 13:31

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\103023\1030F004.D\
Signal ID: DB-35MS

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 822348
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Dieldrin	2.00	2.15	1.0912	1.1712	7.3	NA	±20	Average RF
Toxaphene	100	114	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	108	0.0212	0.023	8.3	NA	±100	Average RF
Toxaphene {2}	100	114	0.0148	0.0169	14.0	NA	±100	Average RF
Toxaphene {3}	100	113	0.0209	0.0237	13.0	NA	±100	Average RF
Toxaphene {4}	100	115	0.0143	0.0165	15.0	NA	±100	Average RF
Toxaphene {5}	100	115	0.0254	0.0292	15.2	NA	±100	Average RF
Toxaphene {6}	100	119	0.0062	0.0074	19.2	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.09	1.3777	1.4383	4.4	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.96	1.3493	1.3225	-2.0	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2312104
Date Analyzed: 10/31/23 01:18

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\103023\1030F021.D\
Signal ID: DB XLB

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 822348
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Dieldrin	2.00	2.14	1.0966	1.1756	7.2	NA	±20	Average RF
Toxaphene	100	110	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	115	0.0078	0.009	14.9	NA	±100	Average RF
Toxaphene {2}	100	99.7	0.0065	0.0065	-0.3	NA	±100	Average RF
Toxaphene {3}	100	117	0.0111	0.0129	16.5	NA	±100	Average RF
Toxaphene {4}	100	108	0.0133	0.0144	7.7	NA	±100	Average RF
Toxaphene {5}	100	110	0.0166	0.0183	10.3	NA	±100	Average RF
Toxaphene {6}	100	110	0.0185	0.0203	10.1	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.19	1.2072	1.3199	9.3	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.93	1.3913	1.3457	-3.3	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2312104
Date Analyzed: 10/31/23 01:18

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\103023\1030F021.D\
Signal ID: DB-35MS

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 822348
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Dieldrin	2.00	2.26	1.0912	1.2302	12.7	NA	±20	Average RF
Toxaphene	100	117	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	111	0.0212	0.0235	10.7	NA	±100	Average RF
Toxaphene {2}	100	120	0.0148	0.0177	19.7	NA	±100	Average RF
Toxaphene {3}	100	117	0.0209	0.0245	16.8	NA	±100	Average RF
Toxaphene {4}	100	116	0.0143	0.0166	15.6	NA	±100	Average RF
Toxaphene {5}	100	116	0.0254	0.0294	16.0	NA	±100	Average RF
Toxaphene {6}	100	121	0.0062	0.0075	20.9	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.09	1.3777	1.4392	4.5	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.88	1.3493	1.2697	-5.9	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2312104
Date Analyzed: 10/31/23 13:03

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\103023\1030F038.D\
Signal ID: DB XLB

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 822348
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Dieldrin	2.00	2.13	1.0966	1.1701	6.7	NA	±20	Average RF
Toxaphene	100	106	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	105	0.0078	0.0082	4.9	NA	±100	Average RF
Toxaphene {2}	100	103	0.0065	0.0067	3.1	NA	±100	Average RF
Toxaphene {3}	100	115	0.0111	0.0127	14.5	NA	±100	Average RF
Toxaphene {4}	100	98.3	0.0133	0.0131	-1.7	NA	±100	Average RF
Toxaphene {5}	100	111	0.0166	0.0183	10.6	NA	±100	Average RF
Toxaphene {6}	100	105	0.0185	0.0194	4.8	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.05	1.2072	1.2383	2.6	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.88	1.3913	1.3084	-6.0	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2312104
Date Analyzed: 10/31/23 13:03

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC38\DATA\103023\1030F038.D\
Signal ID: DB-35MS

Calibration Date: 7/22/2023
Calibration ID: KC2300558
Analysis Lot: 822348
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Dieldrin	2.00	2.14	1.0912	1.1681	7.0	NA	±20	Average RF
Toxaphene	100	115	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	109	0.0212	0.0231	8.9	NA	±100	Average RF
Toxaphene {2}	100	119	0.0148	0.0176	19.1	NA	±100	Average RF
Toxaphene {3}	100	119	0.0209	0.0248	18.5	NA	±100	Average RF
Toxaphene {4}	100	118	0.0143	0.0168	17.5	NA	±100	Average RF
Toxaphene {5}	100	116	0.0254	0.0294	15.9	NA	±100	Average RF
Toxaphene {6}	100	108	0.0062	0.0067	7.6	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	2.02	1.3777	1.3916	1.0	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.90	1.3493	1.2798	-5.2	NA	±20	Average RF

Client: Floyd Snider **Service Request:**K2312104
Project: SmithKem

Analysis Run Log
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B **Analysis Lot:**822348
Instrument ID:K-GC-38

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC38\DATA\103023\1030F003.D\	Performance Evaluation	KQ2319283-01	10/30/2023	12:49:00	
J:\GC38\DATA\103023\1030F004.D\	Continuing Calibration Verification	KQ2319283-02	10/30/2023	13:31:00	
J:\GC38\DATA\103023\1030F005.D\	Continuing Calibration Verification	KQ2319283-02	10/30/2023	14:13:00	
J:\GC38\DATA\103023\1030F006.D\	Continuing Calibration Verification	KQ2319283-02	10/30/2023	14:54:00	
J:\GC38\DATA\103023\1030F007.D\	Continuing Calibration Verification	KQ2319283-02	10/30/2023	15:36:00	
J:\GC38\DATA\103023\1030F009.D\	Continuing Calibration Blank	KQ2319283-03	10/30/2023	16:59:00	
J:\GC38\DATA\103023\1030F010.D\	ZZZZZZZ	ZZZZZZZ	10/30/2023	17:40:00	
J:\GC38\DATA\103023\1030F012.D\	Method Blank	KQ2318802-10	10/30/2023	19:04:00	
J:\GC38\DATA\103023\1030F013.D\	Lab Control Sample	KQ2318802-07	10/30/2023	19:45:00	
J:\GC38\DATA\103023\1030F014.D\	Lab Control Sample	KQ2318802-08	10/30/2023	20:27:00	
J:\GC38\DATA\103023\1030F015.D\	Lab Control Sample	KQ2318802-09	10/30/2023	21:09:00	
J:\GC38\DATA\103023\1030F016.D\	ZZZZZZZ	ZZZZZZZ	10/30/2023	21:50:00	
J:\GC38\DATA\103023\1030F017.D\	ZZZZZZZ	ZZZZZZZ	10/30/2023	22:32:00	
J:\GC38\DATA\103023\1030F018.D\	ZZZZZZZ	ZZZZZZZ	10/30/2023	23:14:00	
J:\GC38\DATA\103023\1030F020.D\	Performance Evaluation	KQ2319283-04	10/31/2023	00:37:00	
J:\GC38\DATA\103023\1030F021.D\	Continuing Calibration Verification	KQ2319283-05	10/31/2023	01:18:00	
J:\GC38\DATA\103023\1030F022.D\	Continuing Calibration Verification	KQ2319283-05	10/31/2023	02:00:00	
J:\GC38\DATA\103023\1030F023.D\	Continuing Calibration Verification	KQ2319283-05	10/31/2023	02:41:00	
J:\GC38\DATA\103023\1030F024.D\	Continuing Calibration Verification	KQ2319283-05	10/31/2023	03:22:00	
J:\GC38\DATA\103023\1030F026.D\	Continuing Calibration Blank	KQ2319283-06	10/31/2023	04:45:00	
J:\GC38\DATA\103023\1030F027.D\	ZZZZZZZ	ZZZZZZZ	10/31/2023	05:27:00	
J:\GC38\DATA\103023\1030F028.D\	ZZZZZZZ	ZZZZZZZ	10/31/2023	06:08:00	
J:\GC38\DATA\103023\1030F029.D\	ZZZZZZZ	ZZZZZZZ	10/31/2023	06:49:00	
J:\GC38\DATA\103023\1030F030.D\	ZZZZZZZ	ZZZZZZZ	10/31/2023	07:30:00	
J:\GC38\DATA\103023\1030F031.D\	AOC1-03-4.0	K2312104-001	10/31/2023	08:12:00	
J:\GC38\DATA\103023\1030F037.D\	Performance Evaluation	KQ2319283-07	10/31/2023	12:21:00	
J:\GC38\DATA\103023\1030F038.D\	Continuing Calibration Verification	KQ2319283-08	10/31/2023	13:03:00	
J:\GC38\DATA\103023\1030F039.D\	Continuing Calibration Verification	KQ2319283-08	10/31/2023	13:45:00	
J:\GC38\DATA\103023\1030F041.D\	Continuing Calibration Blank	KQ2319283-09	10/31/2023	15:09:00	
J:\GC38\DATA\103023\1030F042.D\	AOC1-03-4.0	K2312104-001	10/31/2023	15:50:00	

Client: Floyd Snider **Service Request:** K2312104
Project: SmithKem
Sample Matrix: Soil

Low Level Organochlorine Pesticides by GC

Prep Method: EPA 3546 **Extraction Lot:** 428783
Analytical Method: 8081B **Extraction Date:** 10/26/23 11:00

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
AOC1-03-4.0	K2312104-001	9/6/23	9/12/23	2.043 g	10 mL	91.6
AOC1-03-4.0	K2312104-001	9/6/23	9/12/23	2.043 g	10 mL	91.6
Lab Control Sample	KQ2318802-07LCS	NA	NA	2 g	10 mL	
Lab Control Sample	KQ2318802-08LCS	NA	NA	2 g	10 mL	
Lab Control Sample	KQ2318802-09LCS	NA	NA	2 g	10 mL	
Method Blank	KQ2318802-10MB	NA	NA	2.3180 g	10 mL	

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

January 10, 2024

Analytical Report for Service Request No: K2314243

Pamela Osterhout
Floyd Snider
601 Union Street, Suite 600
Seattle, WA 98101

RE: SmithKem

Dear Pamela,

Enclosed are the results of the sample(s) submitted to our laboratory December 19, 2023
For your reference, these analyses have been assigned our service request number **K2314243.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at Mark.Harris@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental



Mark Harris
Project Manager

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

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Low Level Organochlorine Pesticides by GC

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

Client: Floyd Snider
Project: SmithKem
Sample Matrix: Soil

Service Request: K2314243
Date Received: 12/19/2023

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier III level requested by the client.

Sample Receipt:

Five soil samples were received for analysis at ALS Environmental on 12/19/2023. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivoa GC:

No significant anomalies were noted with this analysis.

Approved by _____ Date 01/10/2024

Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

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12/15/23 GI

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SR# K2314243

COC Set 1 of 1

COC#

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ALS Environmental

CHAIN OF CUSTODY
134836

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: Smith Kem	Project Number:
Project Manager: Pamela Osterhout	
Company: Floyd Snider	
Address, City, State, Zip: 601 Union St, Suite 600	
Phone #: 206-205-2108	email: pamela.osterhout@floydsnider.com
Sampler Signature:	Sampler Printed Name: Pamela Osterhout

CLIENT SAMPLE ID	LABID	SAMPLING Date Time State	Matrix	NUMBER OF CONTAINERS	14D 8081B / Pest OC LL	8270D / SVO LL	999D 160.3 Modified / TS					Remarks
1. ADC2-09-2.0	01	12/14/23 09:05	Soil		X							Dieldrin and Toxaphene only
2. ADC2-09-4.0	02	09:10			X							Dieldrin and Toxaphene only
3. ADC2-10-2.0	03	08:50										Archive Frozen upon reciept
4. ADC2-10-4.0	04	0955										Archive Frozen upon reciept
5. ADC2-110-2.0	05	0853										Archive Frozen upon reciept
6.												
7.												
8.												
9.												
10.												

Report Requirements

- ✓ I. Routine Report: Method Blank, Surrogate, as required
- ✓ II. Report Dup., MS, MSD as required
- ___ III. CLP Like Summary (no raw data)
- ___ IV. Data Validation Report
- ✓ V. EDD

Invoice Information

P.O.#

Bill To: Floyd Snider
AP@FloydSnider.com

Turnaround Requirements

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other ____ (Circle One)

Samples received at 2 °C

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name: P Osterhout	Printed Name: ANH PHAN	Printed Name: Nhan Phan	Printed Name:	Printed Name	Printed Name
Firm: Floyd Snider	Firm: FSA	Firm: FEBT	Firm:	Firm	Firm
Date/Time: 12/15/23 8:19	Date/Time: 12/15/23 @ 08:18	Date/Time: ~~12/15/23 0950~~ 12/18/23 1000	Date/Time: 12/19/23 1015	Date/Time	Date/Time

PM MH

Cooler Receipt and Preservation Form

Client Floyd Snyder Service Request K23 14243

Received: 12/19/23 Opened: 12/19/23 By: AP Unloaded: 12/19/23 By: AP

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 1 Right 1 left
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp Indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
2.9	2.3	IR06				774524544704	

4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column above:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # above and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

6. Packing material: *Inserts* *Baggies* (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
14. Was C12/Res negative? (NA) Y N
15. Were samples received within the method specified time limit? If not, notate the error below and notify the PM (NA) Y N
16. Were 100ml sterile microbiology bottles filled exactly to the 100ml mark? (NA) Y N Underfilled Overfilled

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

Total Solids

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2314243
Project:	SmithKem	**Date Collected:**	12/14/23
Sample Matrix:	Soil	**Date Received:**	12/19/23
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	As Received

Solids, Total

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
AOC2-09-2.0	K2314243-001	**91.7**	-	-	1	12/21/23 12:00	
AOC2-09-4.0	K2314243-002	**92.0**	-	-	1	12/21/23 12:00	

Low Level Organochlorine Pesticides by GC

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2314243
Project:	SmithKem	**Date Collected:**	12/14/23 09:05
Sample Matrix:	Soil	**Date Received:**	12/19/23 10:15
Sample Name:	AOC2-09-2.0	**Units:**	ug/Kg
Lab Code:	K2314243-001	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Dieldrin	**25**	1.0	0.23	1	01/05/24 20:42	12/26/23	
Toxaphene	**790**	100	35	1	01/05/24 20:42	12/26/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	68	10 - 134	01/05/24 20:42	
Tetrachloro-m-xylene	57	10 - 121	01/05/24 20:42	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2314243
Project:	SmithKem	**Date Collected:**	12/14/23 09:10
Sample Matrix:	Soil	**Date Received:**	12/19/23 10:15
Sample Name:	AOC2-09-4.0	**Units:**	ug/Kg
Lab Code:	K2314243-002	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Dieldrin	**0.37 J**	0.94	0.22	1	01/05/24 21:22	12/26/23	
Toxaphene	ND U	100	34	1	01/05/24 21:22	12/26/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	67	10 - 134	01/05/24 21:22	
Tetrachloro-m-xylene	61	10 - 121	01/05/24 21:22	

Analytical Report

Client:	Floyd Snider	**Service Request:**	K2314243
Project:	SmithKem	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	KQ2322283-07	**Basis:**	Dry

Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Prep Method: EPA 3546

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Dieldrin	ND U	0.85	0.22	1	01/05/24 12:02	12/26/23	
Toxaphene	ND U	100	34	1	01/05/24 12:02	12/26/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	74	10 - 134	01/05/24 12:02	
Tetrachloro-m-xylene	71	10 - 121	01/05/24 12:02	

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2314243
Date Collected: 12/14/23 09:05
Date Received: 12/19/23

Sample Name: AOC2-09-2.0
Lab Code: K2314243-001

Units: ug/Kg
Basis: Dry
Percent Solids: 91.7

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Dieldrin	0.23	25	29	15		1	01/05/24 20:42
Toxaphene	35	790	840	6		1	01/05/24 20:42

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2314243
Date Collected: 12/14/23 09:10
Date Received: 12/19/23

Sample Name: AOC2-09-4.0
Lab Code: K2314243-002

Units: ug/Kg
Basis: Dry
Percent Solids: 92.0

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Dieldrin	0.22	0.37	0.37	<1	J	1	01/05/24 21:22

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2314243
Date Collected: 12/14/23 09:05
Date Received: 12/19/23

Sample Name: AOC2-09-2.0
Lab Code: KQ2322283-01

Units: ug/Kg
Basis: Dry
Percent Solids: 91.7

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Dieldrin	0.23	45.4	46.0	1		1	01/05/24 14:00

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2314243
Date Collected: 12/14/23 09:05
Date Received: 12/19/23

Sample Name: AOC2-09-2.0
Lab Code: KQ2322283-02

Units: ug/Kg
Basis: Dry
Percent Solids: 91.7

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Dieldrin	0.24	48.0	51.6	7		1	01/05/24 18:40

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2314243
Date Collected: 12/14/23 09:05
Date Received: 12/19/23

Sample Name: AOC2-09-2.0
Lab Code: KQ2322283-03

Units: ug/Kg
Basis: Dry
Percent Solids: 91.7

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Toxaphene	34	1750	1880	7		1	01/05/24 19:20

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2314243
Date Collected: 12/14/23 09:05
Date Received: 12/19/23

Sample Name: AOC2-09-2.0
Lab Code: KQ2322283-04

Units: ug/Kg
Basis: Dry
Percent Solids: 91.7

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Toxaphene	34	1580	1660	5		1	01/05/24 20:01

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2314243
Date Collected: NA
Date Received:

Sample Name: Lab Control Sample
Lab Code: KQ2322283-05

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Dieldrin	0.22	17.9	18.1	1		1	01/05/24 12:41

Confirmation Results

Client: Floyd Snider
Project: SmithKem
Matrix: Soil

Service Request: K2314243
Date Collected: NA
Date Received:

Sample Name: Lab Control Sample
Lab Code: KQ2322283-06

Units: ug/Kg
Basis: Dry

Low Level Organochlorine Pesticides by GC

Analytical Method: 8081B
Prep Method: EPA 3546

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Toxaphene	34	641	678	6		1	01/05/24 13:21

Client: Floyd Snider **Service Request:** K2314243
Project: SmithKem
Sample Matrix: Soil

SURROGATE RECOVERY SUMMARY
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
Extraction Method: EPA 3546

Sample Name	Lab Code	Decachlorobiphenyl 10 - 134	Tetrachloro-m-xylene 10 - 121
AOC2-09-2.0	K2314243-001	68	57
AOC2-09-4.0	K2314243-002	67	61
AOC2-09-2.0	KQ2322283-01	65	53
AOC2-09-2.0	KQ2322283-02	79	59
AOC2-09-2.0	KQ2322283-03	82	69
AOC2-09-2.0	KQ2322283-04	70	61
Lab Control Sample	KQ2322283-05	69	63
Lab Control Sample	KQ2322283-06	61	55
Method Blank	KQ2322283-07	74	71

Client: Floyd Snider
Project: SmithKem

Service Request: K2314243
Date Analyzed: 1/5/24 05:25

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC37\DATA\010424\0104F021.D\
Instrument ID: K-GC-37
Analytical Method: 8081B

Lab Code: KQ2400343-02
Analysis Lot: 829159
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}	
		Area	**RT**	**Area**	**RT**
	ICAL Average ==>	52,191,829	6.35	54,473,636	6.39
	Upper Limit ==>	104,383,658	6.85	108,947,272	6.89
	Lower Limit ==>	26,095,915	5.85	27,236,818	5.89
Associated Analyses					
Continuing Calibration Verification	KQ2400343-02	59,749,337	6.32	59,749,337	6.32
Continuing Calibration Verification	KQ2400343-02	58,115,933	6.32	58,115,933	6.32
Method Blank	KQ2322283-07	55,322,558	6.32	55,322,558	6.32
Lab Control Sample	KQ2322283-05	61,607,405	6.32	61,607,405	6.32
Lab Control Sample	KQ2322283-06	63,311,107	6.32	63,311,107	6.32
AOC2-09-2.0MS	KQ2322283-01	66,366,202	6.32	66,366,202	6.32

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2314243
Date Analyzed: 1/5/24 05:25

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC37\DATA\010424\0104F021.D\
Instrument ID: K-GC-37
Analytical Method: 8081B

Lab Code: KQ2400343-02
Analysis Lot: 829159
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}	
		Area	**RT**	**Area**	**RT**
	ICAL Average ==>	191,427,530	5.35	164,718,608	5.40
	Upper Limit ==>	382,855,060	5.85	329,437,216	5.90
	Lower Limit ==>	95,713,765	4.85	82,359,304	4.90
Associated Analyses					
Continuing Calibration Verification	KQ2400343-02	220,935,940	5.34	220,935,940	5.34
Continuing Calibration Verification	KQ2400343-02	212,846,687	5.34	212,846,687	5.34
Method Blank	KQ2322283-07	205,272,692	5.34	205,272,692	5.34
Lab Control Sample	KQ2322283-05	226,103,781	5.33	226,103,781	5.33
Lab Control Sample	KQ2322283-06	232,902,998	5.33	232,902,998	5.33
AOC2-09-2.0MS	KQ2322283-01	243,469,080	5.33	243,469,080	5.33

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2314243
Date Analyzed: 1/5/24 16:00

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC37\DATA\010424\0104F037.D\
Instrument ID: K-GC-37
Analytical Method: 8081B

Lab Code: KQ2400343-05
Analysis Lot: 829159
Signal ID: DB XLB

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}	
		Area	**RT**	**Area**	**RT**
	ICAL Average ==>	52,191,829	6.35	54,473,636	6.39
	Upper Limit ==>	104,383,658	6.85	108,947,272	6.89
	Lower Limit ==>	26,095,915	5.85	27,236,818	5.89
Associated Analyses					
Continuing Calibration Verification	KQ2400343-05	63,471,761	6.32	63,471,761	6.32
Continuing Calibration Verification	KQ2400343-05	60,400,702	6.32	60,400,702	6.32
AOC2-09-2.0DMS	KQ2322283-02	69,580,568	6.32	69,580,568	6.32
AOC2-09-2.0MS	KQ2322283-03	66,101,034	6.32	66,101,034	6.32
AOC2-09-2.0DMS	KQ2322283-04	68,530,200	6.32	68,530,200	6.32
AOC2-09-2.0	K2314243-001	71,274,946	6.32	71,274,946	6.32
AOC2-09-4.0	K2314243-002	66,883,907	6.32	66,883,907	6.32

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Floyd Snider
Project: SmithKem

Service Request: K2314243
Date Analyzed: 1/5/24 16:00

Internal Standard Area and RT Summary
Low Level Organochlorine Pesticides by GC

File ID: J:\GC37\DATA\010424\0104F037.D\
Instrument ID: K-GC-37
Analytical Method: 8081B

Lab Code: KQ2400343-05
Analysis Lot: 829159
Signal ID: DB-35MS

		1-Bromo-2-nitrobenzene		1-Bromo-2-nitrobenzene {2}	
		Area	**RT**	**Area**	**RT**
	ICAL Average ==>	191,427,530	5.35	164,718,608	5.40
	Upper Limit ==>	382,855,060	5.85	329,437,216	5.90
	Lower Limit ==>	95,713,765	4.85	82,359,304	4.90
Associated Analyses					
Continuing Calibration Verification	KQ2400343-05	231,722,745	5.34	231,722,745	5.34
Continuing Calibration Verification	KQ2400343-05	222,308,787	5.34	222,308,787	5.34
AOC2-09-2.0DMS	KQ2322283-02	258,298,735	5.33	258,298,735	5.33
AOC2-09-2.0MS	KQ2322283-03	239,756,928	5.33	239,756,928	5.33
AOC2-09-2.0DMS	KQ2322283-04	252,879,214	5.33	252,879,214	5.33
AOC2-09-2.0	K2314243-001	261,916,643	5.33	261,916,643	5.33
AOC2-09-4.0	K2314243-002	244,493,134	5.33	244,493,134	5.33

Results flagged with an asterisk (*) indicate values outside control criteria.

Client:	Floyd Snider	**Service Request:**	K2314243
Project:	SmithKem	**Date Collected:**	12/14/23
Sample Matrix:	Soil	**Date Received:**	12/19/23
		Date Analyzed:	01/5/24
		Date Extracted:	12/26/23

Duplicate Matrix Spike Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	AOC2-09-2.0	**Units:**	ug/Kg
Lab Code:	K2314243-001	**Basis:**	Dry
Analysis Method:	8081B		
Prep Method:	EPA 3546		

		Matrix Spike KQ2322283-01			**Duplicate Matrix Spike** KQ2322283-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Dieldrin	25	45.4	25.0	81	48.0	26.5	86	19-88	6	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Floyd Snider	**Service Request:**	K2314243
Project:	SmithKem	**Date Collected:**	12/14/23
Sample Matrix:	Soil	**Date Received:**	12/19/23
		Date Analyzed:	01/5/24
		Date Extracted:	12/26/23

Duplicate Matrix Spike Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	AOC2-09-2.0	**Units:**	ug/Kg
Lab Code:	K2314243-001	**Basis:**	Dry
Analysis Method:	8081B		
Prep Method:	EPA 3546		

		Matrix Spike KQ2322283-03			Duplicate Matrix Spike KQ2322283-04					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Toxaphene	790	1750	950	101	1580	930	85	16-114	10	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Floyd Snider	**Service Request:**	K2314243
Project:	SmithKem	**Date Analyzed:**	01/05/24
Sample Matrix:	Soil	**Date Extracted:**	12/26/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Analysis Method:	8081B	**Units:**	ug/Kg
Prep Method:	EPA 3546	**Basis:**	Dry
		Analysis Lot:	829159

Lab Control Sample
KQ2322283-05

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Dieldrin	17.9	25.0	72	19-88

Client:	Floyd Snider	**Service Request:**	K2314243
Project:	SmithKem	**Date Analyzed:**	01/05/24
Sample Matrix:	Soil	**Date Extracted:**	12/26/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Analysis Method:	8081B	**Units:**	ug/Kg
Prep Method:	EPA 3546	**Basis:**	Dry
		Analysis Lot:	829159

Lab Control Sample
KQ2322283-06

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Toxaphene	641	1000	64	16-114

Client:	Floyd Snider	**Service Request:**	K2314243
Project:	SmithKem	**Date Analyzed:**	NA
Sample Matrix:	Soil	**Date Extracted:**	

Method Blank Summary
Low Level Organochlorine Pesticides by GC

Sample Name:		**Instrument ID:**	
Lab Code:		**File ID:**	
Analysis Method:	8081B	**Analysis Lot:**	829159
Prep Method:	None		

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Performance Evaluation	KQ2400343-01	J:\GC37\DATA\010424\0104F020.D\	01/05/24 04:46
Performance Evaluation	KQ2400343-04	J:\GC37\DATA\010424\0104F036.D\	01/05/24 15:19

Client:	Floyd Snider	**Service Request:**	K2314243
Project:	SmithKem	**Date Analyzed:**	01/05/24 12:02
Sample Matrix:	Soil	**Date Extracted:**	12/26/23

Method Blank Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	Method Blank	**Instrument ID:**	K-GC-37
Lab Code:	KQ2322283-07	**File ID:**	J:\GC37\DATA\010424\0104F031.D\
Analysis Method:	8081B	**Analysis Lot:**	829159
Prep Method:	EPA 3546	**Extraction Lot:**	431756

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ2322283-05	J:\GC37\DATA\010424\0104F032.D\	01/05/24 12:41
Lab Control Sample	KQ2322283-06	J:\GC37\DATA\010424\0104F033.D\	01/05/24 13:21
AOC2-09-2.0MS	KQ2322283-01	J:\GC37\DATA\010424\0104F034.D\	01/05/24 14:00
AOC2-09-2.0DMS	KQ2322283-02	J:\GC37\DATA\010424\0104F041.D\	01/05/24 18:40
AOC2-09-2.0MS	KQ2322283-03	J:\GC37\DATA\010424\0104F042.D\	01/05/24 19:20
AOC2-09-2.0DMS	KQ2322283-04	J:\GC37\DATA\010424\0104F043.D\	01/05/24 20:01
AOC2-09-2.0	K2314243-001	J:\GC37\DATA\010424\0104F044.D\	01/05/24 20:42
AOC2-09-4.0	K2314243-002	J:\GC37\DATA\010424\0104F045.D\	01/05/24 21:22

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Floyd Snider	**Service Request:**	K2314243
Project:	SmithKem	**Date Analyzed:**	NA
Sample Matrix:	Soil	**Date Extracted:**	

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Sample Name:		**Instrument ID:**	
Lab Code:		**File ID:**	
Analysis Method:	8081B	**Analysis Lot:**	829159
Prep Method:	None		

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Performance Evaluation	KQ2400343-01	J:\GC37\DATA\010424\0104F020.D\	01/05/24 04:46
Performance Evaluation	KQ2400343-04	J:\GC37\DATA\010424\0104F036.D\	01/05/24 15:19

Client:	Floyd Snider	**Service Request:**	K2314243
Project:	SmithKem	**Date Analyzed:**	01/05/24 13:21
Sample Matrix:	Soil	**Date Extracted:**	12/26/23

Lab Control Sample Summary
Low Level Organochlorine Pesticides by GC

Sample Name:	Lab Control Sample	**Instrument ID:**	K-GC-37
Lab Code:	KQ2322283-06	**File ID:**	J:\GC37\DATA\010424\0104F033.D\
Analysis Method:	8081B	**Analysis Lot:**	829159
Prep Method:	EPA 3546	**Extraction Lot:**	431756

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ2322283-07	J:\GC37\DATA\010424\0104F031.D\	01/05/24 12:02
AOC2-09-2.0MS	KQ2322283-01	J:\GC37\DATA\010424\0104F034.D\	01/05/24 14:00
AOC2-09-2.0DMS	KQ2322283-02	J:\GC37\DATA\010424\0104F041.D\	01/05/24 18:40
AOC2-09-2.0MS	KQ2322283-03	J:\GC37\DATA\010424\0104F042.D\	01/05/24 19:20
AOC2-09-2.0DMS	KQ2322283-04	J:\GC37\DATA\010424\0104F043.D\	01/05/24 20:01
AOC2-09-2.0	K2314243-001	J:\GC37\DATA\010424\0104F044.D\	01/05/24 20:42
AOC2-09-4.0	K2314243-002	J:\GC37\DATA\010424\0104F045.D\	01/05/24 21:22

Client: Floyd Snider
Project: SmithKem

Service Request: K2314243
Calibration Date: 10/11/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300705
Instrument ID: K-GC-37

Signal ID: DB XLB

#	Lab Code	Sample Name	File Location	Acquisition Date
23	KC2300705-23	M/P .2/1 PPB GCPS9-40L @50X	J:\GC37\DATA\101023ICAL\1010F019.D	10/11/2023 05:08
24	KC2300705-24	M/P .5/2.5 PPB GCPS9-40L@20X	J:\GC37\DATA\101023ICAL\1010F020.D	10/11/2023 05:48
25	KC2300705-25	M/P 1/5 PPB GCPS9-40L@10X	J:\GC37\DATA\101023ICAL\1010F021.D	10/11/2023 06:27
26	KC2300705-26	M/P 2/10 PPB GCPS9-40L@5X	J:\GC37\DATA\101023ICAL\1010F022.D	10/11/2023 07:07
27	KC2300705-27	M/P 5/25 PPB GCPS9-40L @2X	J:\GC37\DATA\101023ICAL\1010F023.D	10/11/2023 07:47
28	KC2300705-28	M/P 10/50 PPB GCPS9-40L	J:\GC37\DATA\101023ICAL\1010F024.D	10/11/2023 08:26
29	KC2300705-29	PERTH 100 PPB GSP9-40E	J:\GC37\DATA\101023ICAL\1010F025.D	10/11/2023 09:06
32	KC2300705-32	TOX 10 PPB GCPS9-40A @50X	J:\GC37\DATA\101023ICAL\1010F028.D	10/11/2023 11:06
33	KC2300705-33	TOX 25 PPB GCPS9-40A @20X	J:\GC37\DATA\101023ICAL\1010F029.D	10/11/2023 11:45
34	KC2300705-34	TOX 50 PPB GCPS9-40A@10X	J:\GC37\DATA\101023ICAL\1010F030.D	10/11/2023 12:25
35	KC2300705-35	TOX 100 PPB GCPS9-40A @5X	J:\GC37\DATA\101023ICAL\1010F031.D	10/11/2023 13:05
36	KC2300705-36	TOX 250 PPB GCPS9-40A@2X	J:\GC37\DATA\101023ICAL\1010F032.D	10/11/2023 13:45
37	KC2300705-37	TOX 500 PPB GCPS9-40A	J:\GC37\DATA\101023ICAL\1010F033.D	10/11/2023 14:25
15	KC2300705-15	CHLOR 2 PPB GCPS9-34D @100X	J:\GC37\DATA\110223\1102F005.D	11/02/2023 14:38
16	KC2300705-16	CHLOR 5 PPB GCPS9-34D @40X	J:\GC37\DATA\110223\1102F006.D	11/02/2023 15:18
17	KC2300705-17	CHLOR 10 PPB GCPS9-34D @20X	J:\GC37\DATA\110223\1102F007.D	11/02/2023 15:58
18	KC2300705-18	CHLOR 20 PPB GCPS9-34D @10X	J:\GC37\DATA\110223\1102F008.D	11/02/2023 16:37
19	KC2300705-19	CHLOR 50 PPB GCPS9-34D @4X	J:\GC37\DATA\110223\1102F009.D	11/02/2023 17:16
20	KC2300705-20	CHLOR 100 PPB GCPS9-34D @2X	J:\GC37\DATA\110223\1102F010.D	11/02/2023 17:56
21	KC2300705-21	CHLOR 200 PPB GCPS9-34D	J:\GC37\DATA\110223\1102F011.D	11/02/2023 18:35
01	KC2300705-01	8081 1 PPB GCPS9-42B-@10X	J:\GC37\DATA\120123ICAL\1201F008.D	12/01/2023 20:49
02	KC2300705-02	8081 2 PPB GCPS9-42B @5X	J:\GC37\DATA\120123ICAL\1201F009.D	12/01/2023 21:29
03	KC2300705-03	8081 5 PPB GCPS9-42B @2X	J:\GC37\DATA\120123ICAL\1201F010.D	12/01/2023 22:10
04	KC2300705-04	8081 10 PPB GCPS9-42B	J:\GC37\DATA\120123ICAL\1201F011.D	12/01/2023 22:50
06	KC2300705-06	24 .2 PPB GCPS9-42C @50X	J:\GC37\DATA\120123ICAL\1201F013.D	12/02/2023 00:11
07	KC2300705-07	24 .5 PPB GCPS9-42C @20X	J:\GC37\DATA\120123ICAL\1201F014.D	12/02/2023 00:51
08	KC2300705-08	24 1 PPB GCPS9-42C @10X	J:\GC37\DATA\120123ICAL\1201F015.D	12/02/2023 01:32
09	KC2300705-09	24 2 PPB GCPS9-42C @5X	J:\GC37\DATA\120123ICAL\1201F016.D	12/02/2023 02:12
10	KC2300705-10	24 5 PPB GCPS9-42C @2X	J:\GC37\DATA\120123ICAL\1201F017.D	12/02/2023 02:53
11	KC2300705-11	24 10 PPB GCPS9-42C	J:\GC37\DATA\120123ICAL\1201F018.D	12/02/2023 03:33
13	KC2300705-13	8081 .2 PPB GCPS9-42B @50X	J:\GC37\DATA\120423\1204F007.D	12/04/2023 15:33
14	KC2300705-14	8081 .5 PPB GCPS9-42B @20X	J:\GC37\DATA\120423\1204F008.D	12/04/2023 16:13

Analyte

Decachlorobiphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
13	0.200	1.329	14	0.500	1.453	01	1.000	1.225	02	2.000	1.221
03	5.000	1.295	04	10.000	1.173						

Client: Floyd Snider
Project: SmithKem

Service Request: K2314243
Calibration Date: 10/11/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300705
Instrument ID: K-GC-37

Signal ID: DB XLB

Analyte

Dieldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
13	0.200	1.573	14	0.500	1.637	01	1.000	1.281	02	2.000	1.438
03	5.000	1.334	04	10.000	1.291						

Tetrachloro-m-xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
13	0.200	1.536	14	0.500	1.645	01	1.000	1.47	02	2.000	1.43
03	5.000	1.459	04	10.000	1.348						

Toxaphene {1}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	10.000	0.00658	33	25.000	0.008302	34	50.000	0.007774	35	100.000	0.006283
36	250.000	0.006617	37	500.000	0.006228						

Toxaphene {2}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	10.000	0.01827	33	25.000	0.01023	34	50.000	0.00966	35	100.000	0.009149
36	250.000	0.009005	37	500.000	0.008221						

Toxaphene {3}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	10.000	0.009079	33	25.000	0.01458	34	50.000	0.0129	35	100.000	0.01086
36	250.000	0.01215	37	500.000	0.01063						

Toxaphene {4}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	10.000	0.01232	33	25.000	0.02038	34	50.000	0.01681	35	100.000	0.01591
36	250.000	0.01687	37	500.000	0.015						

Toxaphene {5}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	10.000	0.02657	33	25.000	0.02494	34	50.000	0.02633	35	100.000	0.02876
36	250.000	0.02921	37	500.000	0.03175						

Toxaphene {6}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	10.000	0.02497	33	25.000	0.02481	34	50.000	0.02323	35	100.000	0.02083
36	250.000	0.02224	37	500.000	0.02283						

Client: Floyd Snider
Project: SmithKem

Service Request: K2314243
Calibration Date: 10/11/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300705
Instrument ID: K-GC-37

Signal ID: DB XLB

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Decachlorobiphenyl	SURR	Average RF	% RSD	7.8	≤20	1.283	
Dieldrin	TRG	Average RF	% RSD	10.6	≤20	1.426	
Tetrachloro-m-xylene	SURR	Average RF	% RSD	6.8	≤20	1.481	
Toxaphene {1}	MULTI	Average RF	% RSD	12.4	≤20	0.006964	
Toxaphene {2}	MULTI	Linear	R2	0.9983	≥0.990	0.01076	
Toxaphene {3}	MULTI	Average RF	% RSD	16.5	≤20	0.0117	
Toxaphene {4}	MULTI	Average RF	% RSD	16.3	≤20	0.01621	
Toxaphene {5}	MULTI	Average RF	% RSD	8.8	≤20	0.02793	
Toxaphene {6}	MULTI	Average RF	% RSD	6.8	≤20	0.02315	

Client: Floyd Snider
Project: SmithKem

Service Request: K2314243
Calibration Date: 10/11/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300705
Instrument ID: K-GC-37

Signal ID: DB-35MS

#	Lab Code	Sample Name	File Location	Acquisition Date
23	KC2300705-23	M/P .2/1 PPB GCPS9-40L @50X	J:\GC37\DATA\101023ICAL\1010F019.D	10/11/2023 05:08
24	KC2300705-24	M/P .5/2.5 PPB GCPS9-40L@20X	J:\GC37\DATA\101023ICAL\1010F020.D	10/11/2023 05:48
25	KC2300705-25	M/P 1/5 PPB GCPS9-40L@10X	J:\GC37\DATA\101023ICAL\1010F021.D	10/11/2023 06:27
26	KC2300705-26	M/P 2/10 PPB GCPS9-40L@5X	J:\GC37\DATA\101023ICAL\1010F022.D	10/11/2023 07:07
27	KC2300705-27	M/P 5/25 PPB GCPS9-40L @2X	J:\GC37\DATA\101023ICAL\1010F023.D	10/11/2023 07:47
28	KC2300705-28	M/P 10/50 PPB GCPS9-40L	J:\GC37\DATA\101023ICAL\1010F024.D	10/11/2023 08:26
29	KC2300705-29	PERTH 100 PPB GSP9-40E	J:\GC37\DATA\101023ICAL\1010F025.D	10/11/2023 09:06
32	KC2300705-32	TOX 10 PPB GCPS9-40A @50X	J:\GC37\DATA\101023ICAL\1010F028.D	10/11/2023 11:06
33	KC2300705-33	TOX 25 PPB GCPS9-40A @20X	J:\GC37\DATA\101023ICAL\1010F029.D	10/11/2023 11:45
34	KC2300705-34	TOX 50 PPB GCPS9-40A@10X	J:\GC37\DATA\101023ICAL\1010F030.D	10/11/2023 12:25
35	KC2300705-35	TOX 100 PPB GCPS9-40A @5X	J:\GC37\DATA\101023ICAL\1010F031.D	10/11/2023 13:05
36	KC2300705-36	TOX 250 PPB GCPS9-40A@2X	J:\GC37\DATA\101023ICAL\1010F032.D	10/11/2023 13:45
37	KC2300705-37	TOX 500 PPB GCPS9-40A	J:\GC37\DATA\101023ICAL\1010F033.D	10/11/2023 14:25
15	KC2300705-15	CHLOR 2 PPB GCPS9-34D @100X	J:\GC37\DATA\110223\1102F005.D	11/02/2023 14:38
16	KC2300705-16	CHLOR 5 PPB GCPS9-34D @40X	J:\GC37\DATA\110223\1102F006.D	11/02/2023 15:18
17	KC2300705-17	CHLOR 10 PPB GCPS9-34D @20X	J:\GC37\DATA\110223\1102F007.D	11/02/2023 15:58
18	KC2300705-18	CHLOR 20 PPB GCPS9-34D @10X	J:\GC37\DATA\110223\1102F008.D	11/02/2023 16:37
19	KC2300705-19	CHLOR 50 PPB GCPS9-34D @4X	J:\GC37\DATA\110223\1102F009.D	11/02/2023 17:16
20	KC2300705-20	CHLOR 100 PPB GCPS9-34D @2X	J:\GC37\DATA\110223\1102F010.D	11/02/2023 17:56
21	KC2300705-21	CHLOR 200 PPB GCPS9-34D	J:\GC37\DATA\110223\1102F011.D	11/02/2023 18:35
01	KC2300705-01	8081 1 PPB GCPS9-42B-@10X	J:\GC37\DATA\120123ICAL\1201F008.D	12/01/2023 20:49
02	KC2300705-02	8081 2 PPB GCPS9-42B @5X	J:\GC37\DATA\120123ICAL\1201F009.D	12/01/2023 21:29
03	KC2300705-03	8081 5 PPB GCPS9-42B @2X	J:\GC37\DATA\120123ICAL\1201F010.D	12/01/2023 22:10
04	KC2300705-04	8081 10 PPB GCPS9-42B	J:\GC37\DATA\120123ICAL\1201F011.D	12/01/2023 22:50
06	KC2300705-06	24 .2 PPB GCPS9-42C @50X	J:\GC37\DATA\120123ICAL\1201F013.D	12/02/2023 00:11
07	KC2300705-07	24 .5 PPB GCPS9-42C @20X	J:\GC37\DATA\120123ICAL\1201F014.D	12/02/2023 00:51
08	KC2300705-08	24 1 PPB GCPS9-42C @10X	J:\GC37\DATA\120123ICAL\1201F015.D	12/02/2023 01:32
09	KC2300705-09	24 2 PPB GCPS9-42C @5X	J:\GC37\DATA\120123ICAL\1201F016.D	12/02/2023 02:12
10	KC2300705-10	24 5 PPB GCPS9-42C @2X	J:\GC37\DATA\120123ICAL\1201F017.D	12/02/2023 02:53
11	KC2300705-11	24 10 PPB GCPS9-42C	J:\GC37\DATA\120123ICAL\1201F018.D	12/02/2023 03:33
13	KC2300705-13	8081 .2 PPB GCPS9-42B @50X	J:\GC37\DATA\120423\1204F007.D	12/04/2023 15:33
14	KC2300705-14	8081 .5 PPB GCPS9-42B @20X	J:\GC37\DATA\120423\1204F008.D	12/04/2023 16:13

Analyte

Decachlorobiphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
13	0.200	1.573	14	0.500	1.683	01	1.000	1.406	02	2.000	1.302
03	5.000	1.311	04	10.000	1.185						

Client: Floyd Snider **Service Request:** K2314243
Project: SmithKem **Calibration Date:** 10/11/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300705 **Signal ID:** DB-35MS
Instrument ID: K-GC-37

Analyte

Dieldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
13	0.200	1.485	14	0.500	1.488	01	1.000	1.309	02	2.000	1.253
03	5.000	1.336	04	10.000	1.263						

Tetrachloro-m-xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
13	0.200	1.785	14	0.500	1.734	01	1.000	1.433	02	2.000	1.369
03	5.000	1.422	04	10.000	1.335						

Toxaphene {1}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	10.000	0.02399	33	25.000	0.02359	34	50.000	0.02337	35	100.000	0.0212
36	250.000	0.02434	37	500.000	0.02084						

Toxaphene {2}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	10.000	0.02313	33	25.000	0.02091	34	50.000	0.01907	35	100.000	0.01673
36	250.000	0.02171	37	500.000	0.01732						

Toxaphene {3}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	10.000	0.0293	33	25.000	0.02572	34	50.000	0.02493	35	100.000	0.02235
36	250.000	0.0256	37	500.000	0.02267						

Toxaphene {4}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	10.000	0.01919	33	25.000	0.01548	34	50.000	0.01903	35	100.000	0.01796
36	250.000	0.01486	37	500.000	0.01919						

Toxaphene {5}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	10.000	0.01914	33	25.000	0.02488	34	50.000	0.02435	35	100.000	0.02239
36	250.000	0.02434	37	500.000	0.02298						

Toxaphene {6}

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
32	10.000	0.03215	33	25.000	0.03093	34	50.000	0.03164	35	100.000	0.02959
36	250.000	0.02972	37	500.000	0.03079						

Client: Floyd Snider
Project: SmithKem

Service Request: K2314243
Calibration Date: 10/11/2023

Initial Calibration Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300705
Instrument ID: K-GC-37

Signal ID: DB-35MS

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Decachlorobiphenyl	SURR	Average RF	% RSD	13.2	≤20	1.41	
Dieldrin	TRG	Average RF	% RSD	7.8	≤20	1.356	
Tetrachloro-m-xylene	SURR	Average RF	% RSD	12.9	≤20	1.513	
Toxaphene {1}	MULTI	Average RF	% RSD	6.5	≤20	0.02289	
Toxaphene {2}	MULTI	Average RF	% RSD	12.8	≤20	0.01981	
Toxaphene {3}	MULTI	Average RF	% RSD	10.1	≤20	0.02509	
Toxaphene {4}	MULTI	Average RF	% RSD	11.1	≤20	0.01762	
Toxaphene {5}	MULTI	Average RF	% RSD	9.2	≤20	0.02301	
Toxaphene {6}	MULTI	Average RF	% RSD	3.3	≤20	0.0308	

Client: Floyd Snider
Project: SmithKem

Service Request: K2314243
Calibration Date: 10/11/2023

Initial Calibration Verification Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300705
Instrument ID: K-GC-37

Signal ID: DB XLB

#	Lab Code	Sample Name	File Location	Acquisition Date
30	KC2300705-30	PERTH ICV 25 PPB GSP9-40J	J:\GC37\DATA\101023ICAL\1010F026.D	10/11/2023 09:46
31	KC2300705-31	MISC ICV 2 PPB GCPS9-40H	J:\GC37\DATA\101023ICAL\1010F027.D	10/11/2023 10:26
38	KC2300705-38	TOX ICV 100 PPB GCPS9-22I @5X	J:\GC37\DATA\101023ICAL\1010F034.D	10/11/2023 15:04
22	KC2300705-22	CHLOR ICV 50 PPB GCPS9-24H	J:\GC37\DATA\110223\1102F012.D	11/02/2023 19:15
05	KC2300705-05	8081 ICV 2 PPB GCPS9-32H	J:\GC37\DATA\120123ICAL\1201F012.D	12/01/2023 23:30
12	KC2300705-12	24 ICV 2 PPB GCPS9-27I	J:\GC37\DATA\120123ICAL\1201F019.D	12/02/2023 04:14
39	KC2300705-39	8081 ICV 2 PPB GCPS9-32H	J:\GC37\DATA\120423\1204F009.D	12/04/2023 17:29

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Dieldrin	2.00	2.15	1.426E0	1.53E0	7.30	±20	Average RF
Toxaphene	100	94.1			-5.923	±20	NA

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Toxaphene {1}	100	97.7	6.964E-3	6.803E-3	-2.311	±100	Average RF
Toxaphene {2}	100	85.4	1.076E-2	7.931E-3	-14.635	±100	Linear
Toxaphene {3}	100	100	1.17E-2	1.173E-2	0.273	±100	Average RF
Toxaphene {4}	100	98.2	1.621E-2	1.592E-2	-1.799	±100	Average RF
Toxaphene {5}	100	92.0	2.793E-2	2.569E-2	-8.029	±100	Average RF
Toxaphene {6}	100	91.0	2.315E-2	2.106E-2	-9.037	±100	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2314243
Calibration Date: 10/11/2023

Initial Calibration Verification Summary
Low Level Organochlorine Pesticides by GC

Calibration ID: KC2300705
Instrument ID: K-GC-37

Signal ID: DB-35MS

#	Lab Code	Sample Name	File Location	Acquisition Date
30	KC2300705-30	PERTH ICV 25 PPB GSP9-40J	J:\GC37\DATA\101023ICAL\1010F026.D	10/11/2023 09:46
31	KC2300705-31	MISC ICV 2 PPB GCPS9-40H	J:\GC37\DATA\101023ICAL\1010F027.D	10/11/2023 10:26
38	KC2300705-38	TOX ICV 100 PPB GCPS9-22I @5X	J:\GC37\DATA\101023ICAL\1010F034.D	10/11/2023 15:04
22	KC2300705-22	CHLOR ICV 50 PPB GCPS9-24H	J:\GC37\DATA\110223\1102F012.D	11/02/2023 19:15
05	KC2300705-05	8081 ICV 2 PPB GCPS9-32H	J:\GC37\DATA\120123ICAL\1201F012.D	12/01/2023 23:30
12	KC2300705-12	24 ICV 2 PPB GCPS9-27I	J:\GC37\DATA\120123ICAL\1201F019.D	12/02/2023 04:14
39	KC2300705-39	8081 ICV 2 PPB GCPS9-32H	J:\GC37\DATA\120423\1204F009.D	12/04/2023 17:29

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Dieldrin	2.00	2.07	1.356E0	1.404E0	3.55	±20	Average RF
Toxaphene	100	93.3			-6.706	±20	NA

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Toxaphene {1}	100	92.3	2.289E-2	2.113E-2	-7.672	±100	Average RF
Toxaphene {2}	100	85.1	1.981E-2	1.687E-2	-14.853	±100	Average RF
Toxaphene {3}	100	88.9	2.509E-2	2.231E-2	-11.110	±100	Average RF
Toxaphene {4}	100	106	1.762E-2	1.864E-2	5.83	±100	Average RF
Toxaphene {5}	100	97.5	2.301E-2	2.243E-2	-2.521	±100	Average RF
Toxaphene {6}	100	90.1	3.08E-2	2.775E-2	-9.904	±100	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2314243
Date Analyzed: 01/05/24 05:25

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC37\DATA\010424\0104F021.D\
Signal ID: DB-35MS

Calibration Date: 10/11/2023
Calibration ID: KC2300705
Analysis Lot: 829159
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Dieldrin	2.00	1.90	1.3558	1.2889	-4.9	NA	±20	Average RF
Toxaphene	100	92.9	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	94.0	0.0229	0.0215	-6.0	NA	±100	Average RF
Toxaphene {2}	100	82.6	0.0198	0.0164	-17.4	NA	±100	Average RF
Toxaphene {3}	100	89.9	0.0251	0.0226	-10.1	NA	±100	Average RF
Toxaphene {4}	100	100	0.0176	0.0177	0.4	NA	±100	Average RF
Toxaphene {5}	100	97.9	0.023	0.0225	-2.1	NA	±100	Average RF
Toxaphene {6}	100	92.5	0.0308	0.0285	-7.5	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.85	1.41	1.3058	-7.4	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.87	1.5129	1.4153	-6.5	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2314243
Date Analyzed: 01/05/24 05:25

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC37\DATA\010424\0104F021.D\
Signal ID: DB XLB

Calibration Date: 10/11/2023
Calibration ID: KC2300705
Analysis Lot: 829159
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Dieldrin	2.00	1.99	1.4257	1.4162	-0.7	NA	±20	Average RF
Toxaphene	100	86.4	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	88.6	0.007	0.0062	-11.4	NA	±100	Average RF
Toxaphene {2}	100	90.2	0.0108	0.0083	NA	-9.8	±100	Linear
Toxaphene {3}	100	87.8	0.0117	0.0103	-12.2	NA	±100	Average RF
Toxaphene {4}	100	87.2	0.0162	0.0141	-12.8	NA	±100	Average RF
Toxaphene {5}	100	80.6	0.0279	0.0225	-19.4	NA	±100	Average RF
Toxaphene {6}	100	84.2	0.0232	0.0195	-15.8	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.82	1.2825	1.1674	-9.0	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.87	1.4813	1.3867	-6.4	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2314243
Date Analyzed: 01/05/24 16:00

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC37\DATA\010424\0104F037.D\
Signal ID: DB XLB

Calibration Date: 10/11/2023
Calibration ID: KC2300705
Analysis Lot: 829159
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Dieldrin	2.00	1.94	1.4257	1.3852	-2.8	NA	±20	Average RF
Toxaphene	100	85.8	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	79.9	0.007	0.0056	-20.1	NA	±100	Average RF
Toxaphene {2}	100	77.3	0.0108	0.0073	NA	-22.7	±100	Linear
Toxaphene {3}	100	116	0.0117	0.0136	16.3	NA	±100	Average RF
Toxaphene {4}	100	80.2	0.0162	0.013	-19.8	NA	±100	Average RF
Toxaphene {5}	100	79.0	0.0279	0.0221	-21.0	NA	±100	Average RF
Toxaphene {6}	100	82.3	0.0232	0.019	-17.7	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.82	1.2825	1.1685	-8.9	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.84	1.4813	1.3605	-8.2	NA	±20	Average RF

Client: Floyd Snider
Project: SmithKem

Service Request: K2314243
Date Analyzed: 01/05/24 16:00

Continuing Calibration Verification (CCV) Summary
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B
File ID: J:\GC37\DATA\010424\0104F037.D\
Signal ID: DB-35MS

Calibration Date: 10/11/2023
Calibration ID: KC2300705
Analysis Lot: 829159
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Dieldrin	2.00	1.96	1.3558	1.3252	-2.3	NA	±20	Average RF
Toxaphene	100	92.7	NA	NA	NA	NA	±20	

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Toxaphene {1}	100	92.3	0.0229	0.0211	-7.7	NA	±100	Average RF
Toxaphene {2}	100	89.4	0.0198	0.0177	-10.6	NA	±100	Average RF
Toxaphene {3}	100	87.6	0.0251	0.022	-12.4	NA	±100	Average RF
Toxaphene {4}	100	103	0.0176	0.0181	2.8	NA	±100	Average RF
Toxaphene {5}	100	96.2	0.023	0.0221	-3.8	NA	±100	Average RF
Toxaphene {6}	100	88.1	0.0308	0.0271	-11.9	NA	±100	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Decachlorobiphenyl	2.00	1.83	1.41	1.2872	-8.7	NA	±20	Average RF
Tetrachloro-m-xylene	2.00	1.87	1.5129	1.4171	-6.3	NA	±20	Average RF

Client: Floyd Snider **Service Request:**K2314243
Project: SmithKem

Analysis Run Log
Low Level Organochlorine Pesticides by GC

Analysis Method: 8081B **Analysis Lot:**829159
Instrument ID:K-GC-37

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC37\DATA\010424\0104F020.D\	Performance Evaluation	KQ2400343-01	1/5/2024	04:46:00	
J:\GC37\DATA\010424\0104F021.D\	Continuing Calibration Verification	KQ2400343-02	1/5/2024	05:25:00	
J:\GC37\DATA\010424\0104F023.D\	Continuing Calibration Verification	KQ2400343-02	1/5/2024	06:44:00	
J:\GC37\DATA\010424\0104F024.D\	Continuing Calibration Blank	KQ2400343-03	1/5/2024	07:24:00	
J:\GC37\DATA\010424\0104F031.D\	Method Blank	KQ2322283-07	1/5/2024	12:02:00	
J:\GC37\DATA\010424\0104F032.D\	Lab Control Sample	KQ2322283-05	1/5/2024	12:41:00	
J:\GC37\DATA\010424\0104F033.D\	Lab Control Sample	KQ2322283-06	1/5/2024	13:21:00	
J:\GC37\DATA\010424\0104F034.D\	AOC2-09-2.0 MS	KQ2322283-01	1/5/2024	14:00:00	
J:\GC37\DATA\010424\0104F036.D\	Performance Evaluation	KQ2400343-04	1/5/2024	15:19:00	
J:\GC37\DATA\010424\0104F037.D\	Continuing Calibration Verification	KQ2400343-05	1/5/2024	16:00:00	
J:\GC37\DATA\010424\0104F039.D\	Continuing Calibration Verification	KQ2400343-05	1/5/2024	17:19:00	
J:\GC37\DATA\010424\0104F040.D\	Continuing Calibration Blank	KQ2400343-06	1/5/2024	17:59:00	
J:\GC37\DATA\010424\0104F041.D\	AOC2-09-2.0 DMS	KQ2322283-02	1/5/2024	18:40:00	
J:\GC37\DATA\010424\0104F042.D\	AOC2-09-2.0 MS	KQ2322283-03	1/5/2024	19:20:00	
J:\GC37\DATA\010424\0104F043.D\	AOC2-09-2.0 DMS	KQ2322283-04	1/5/2024	20:01:00	
J:\GC37\DATA\010424\0104F044.D\	AOC2-09-2.0	K2314243-001	1/5/2024	20:42:00	
J:\GC37\DATA\010424\0104F045.D\	AOC2-09-4.0	K2314243-002	1/5/2024	21:22:00	

Prep Summary Report

Client: Floyd Snider **Service Request:**K2314243
Project: SmithKem
Sample Matrix: Soil

Low Level Organochlorine Pesticides by GC

Prep Method: EPA 3546 **Extraction Lot:** 431756
Analytical Method: 8081B **Extraction Date:** 12/26/23 10:35

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
AOC2-09-2.0	K2314243-001	12/14/23	12/19/23	2.162 g	10 mL	91.7
AOC2-09-4.0	K2314243-002	12/14/23	12/19/23	2.308 g	10 mL	92.0
Matrix Spike	KQ2322283-01MS	12/14/23	12/19/23	2.178 g	10 mL	91.7
Duplicate Matrix Spike	KQ2322283-02DMS	12/14/23	12/19/23	2.056 g	10 mL	91.7
Matrix Spike	KQ2322283-03MS	12/14/23	12/19/23	2.296 g	10 mL	91.7
Duplicate Matrix Spike	KQ2322283-04DMS	12/14/23	12/19/23	2.344 g	10 mL	91.7
Lab Control Sample	KQ2322283-05LCS	NA	NA	2 g	10 mL	
Lab Control Sample	KQ2322283-06LCS	NA	NA	2 g	10 mL	
Method Blank	KQ2322283-07MB	NA	NA	2.3440 g	10 mL	

Matrix SCIENCES | PAL PACIFIC AGRICULTURAL LABORATORY

PACAGLAB.COM
503.626.7943
21830 S.W. Alexander Ln
Sherwood, OR 97140

Floyd Snider
601 Union Street, Suite 600
Seattle, WA 98101

Report Number: P232142
Report Date: October 18, 2023
Client Project ID: Smith Kem

Analytical Report

Client Sample ID: AOC2-04-3.0
Matrix: soil

PAL Sample ID: P232142-01
Sample Date: 9/6/23
Received Date: 9/12/23

Extraction Date	Analysis Date	Analyte	Amount Detected	Limit of Quantitation	Notes
Method: Modified EPA 8321B (LC-MS/MS)					
9/19/23	9/22/23	Simazine	ND	0.0067 mg/kg	

Surrogate Recovery: 44 %
Surrogate Recovery Range: 36-117
(TPP-d15 used as Surrogate)

Client Sample ID: AOC2-05-3.0
Matrix: soil

PAL Sample ID: P232142-03
Sample Date: 9/6/23
Received Date: 9/12/23

Extraction Date	Analysis Date	Analyte	Amount Detected	Limit of Quantitation	Notes
Method: Modified EPA 8321B (LC-MS/MS)					
9/19/23	9/22/23	Simazine	ND	0.0067 mg/kg	

Surrogate Recovery: 53 %
Surrogate Recovery Range: 36-117
(TPP-d15 used as Surrogate)

Client Sample ID: AOC2-05-6.0
Matrix: soil

PAL Sample ID: P232142-04
Sample Date: 9/6/23
Received Date: 9/12/23

Extraction Date	Analysis Date	Analyte	Amount Detected	Limit of Quantitation	Notes
Method: Modified EPA 8321B (LC-MS/MS)					
9/19/23	9/22/23	Simazine	ND	0.0067 mg/kg	

Surrogate Recovery: 63 %
Surrogate Recovery Range: 36-117
(TPP-d15 used as Surrogate)

This analytical report complies with the ISO/IEC 17025:2017 Quality Standard.

Kara Greer, Project Manager

Matrix SCIENCES | PAL PACIFIC AGRICULTURAL LABORATORY

PACAGLAB.COM
503.626.7943
21830 S.W. Alexander Ln
Sherwood, OR 97140

Floyd Snider
601 Union Street, Suite 600
Seattle, WA 98101

Report Number: P232142
Report Date: October 18, 2023
Client Project ID: Smith Kem

Analytical Report

Client Sample ID: AOC2-06-2.0
Matrix: soil

PAL Sample ID: P232142-06
Sample Date: 9/6/23
Received Date: 9/12/23

Extraction Date	Analysis Date	Analyte	Amount Detected	Limit of Quantitation	Notes
Method: Modified EPA 8321B (LC-MS/MS)					
9/19/23	9/22/23	Simazine	0.058 mg/kg	0.0067 mg/kg	

Surrogate Recovery: 61 %
Surrogate Recovery Range: 36-117
(TPP-d15 used as Surrogate)

Client Sample ID: AOC2-105-3.0
Matrix: soil

PAL Sample ID: P232142-08
Sample Date: 9/6/23
Received Date: 9/12/23

Extraction Date	Analysis Date	Analyte	Amount Detected	Limit of Quantitation	Notes
Method: Modified EPA 8321B (LC-MS/MS)					
9/19/23	9/22/23	Simazine	ND	0.0067 mg/kg	

Surrogate Recovery: 56 %
Surrogate Recovery Range: 36-117
(TPP-d15 used as Surrogate)

This analytical report complies with the ISO/IEC 17025:2017 Quality Standard.

Kara Greer, Project Manager

PACAGLAB.COM
503.626.7943
21830 S.W. Alexander Ln
Sherwood, OR 97140

Floyd Snider
601 Union Street, Suite 600
Seattle, WA 98101

Report Number: P232142
Report Date: October 18, 2023
Client Project ID: Smith Kem

Quality Assurance

Method Blank Data **Matrix:** soil

Extraction Date	Analysis Date	Batch QC Sample #	Analyte	% Recovery	Expected % Recovery	Notes
9/19/23	9/22/23	23I1906-BLK1	Simazine	Not Detected	< 0.0067 mg/kg	

Matrix Spike Data **Matrix:** soil

Extraction Date	Analysis Date	Batch QC Sample #	Analyte	% Recovery	Expected % Recovery	Notes
9/19/23	9/22/23	23I1906-MS1	Simazine	91	48-137	
9/19/23	9/22/23	23I1906-MSD1	Simazine	92	48-137	

This analytical report complies with the ISO/IEC 17025:2017 Quality Standard.

Kara Greer, Project Manager

Data Review Report

Printed: 09/22/2023 3:19 pm

Batch #: 23I1906
Matrix: soil
Analyst: ECD **Instument:** 6470QQQ
Test code: LC/MS QQQ Multires

Lab ID: P232142-01
Initial Weight = 15.03 g
Final Volume = 5.00 mL

Analyte	Inst Result	Dil	Final Result	LOQ	Analysis Date
Simazine	0.12	20	ND	0.0067 mg/kg	9/22/23
			Surr, TPP-d15 = 44 %		

Lab ID: P232142-03
Initial Weight = 15.12 g
Final Volume = 5.00 mL

Analyte	Inst Result	Dil	Final Result	LOQ	Analysis Date
Simazine	0.04	20	ND	0.0067 mg/kg	9/22/23
			Surr, TPP-d15 = 53 %		

Lab ID: P232142-04
Initial Weight = 15.28 g
Final Volume = 5.00 mL

Analyte	Inst Result	Dil	Final Result	LOQ	Analysis Date
Simazine	0.08	20	ND	0.0067 mg/kg	9/22/23
			Surr, TPP-d15 = 63 %		

Lab ID: P232142-06
Initial Weight = 15.19 g
Final Volume = 5.00 mL

Analyte	Inst Result	Dil	Final Result	LOQ	Analysis Date
Simazine	8.75	20	0.058	0.0067 mg/kg	9/22/23
			Surr, TPP-d15 = 61 %		

Lab ID: P232142-08
Initial Weight = 15.17 g
Final Volume = 5.00 mL

Analyte	Inst Result	Dil	Final Result	LOQ	Analysis Date
Simazine	0.07	20	ND	0.0067 mg/kg	9/22/23
			Surr, TPP-d15 = 56 %		

Lab ID: P232180-01 - Batch QC

Completed by / Date: [signature] 9/22/23

Reviewed by / Date: [signature] 9-22-23

Quantitative Analysis Sample Report

Batch Info

Batch Data Path	D:\MassHunter\Data\23I21_FNC\QuantResults\23I21_FNC.batch.bin		
Analysis Time	9/22/2023 2:24 PM	**Analyst Name**	6470QQQ\lcgroup
Report Time	9/22/2023 2:43 PM	**Reporter Name**	6470QQQ\lcgroup
Last Calib Update	9/22/2023 2:24 PM	**Batch State**	Processed
Instrument	6470QQQ	**Sample Name**	P232142-01@20
Position	P4-E2	**Data File**	23I21_FNC_059.d
Dilution	1	**Sample Type**	Sample
Acq Time	2023-09-22 11:38	**Acq Method**	23H17_FNC.m
Inj Vol	2	**Operator**	ECD

MD

Quantitation Results

Compound	RT	Resp	Final Conc	
Simazine	4.070	1018	0.1239	ng/ml
TPP d15	6.773	124565	8.775744	ng/ml

Quantitative Analysis Sample Report

Batch Info

Batch Data Path	D:\MassHunter\Data\23I21_FNC\QuantResults\23I21_FNC.batch.bin		
Analysis Time	9/22/2023 2:24 PM	**Analyst Name**	6470QQQ\lcgroup
Report Time	9/22/2023 2:43 PM	**Reporter Name**	6470QQQ\lcgroup
Last Calib Update	9/22/2023 2:24 PM	**Batch State**	Processed
Instrument	6470QQQ	**Sample Name**	P232142-03@20
Position	P4-E3	**Data File**	23I21_FNC_060.d
Dilution	1	**Sample Type**	Sample
Acq Time	2023-09-22 11:56	**Acq Method**	23H17_FNC.m
Inj Vol	2	**Operator**	ECD

Quantitation Results

Compound	RT	Resp	Final Conc	
Simazine	4.134	217	0.0439	ng/ml
TPP d15	6.764	150817	10.575653	ng/ml

Quantitative Analysis Sample Report

Batch Info

Batch Data Path	D:\MassHunter\Data\23I21_FNC\QuantResults\23I21_FNC.batch.bin		
Analysis Time	9/22/2023 2:24 PM	**Analyst Name**	6470QQQ\lcgroup
Report Time	9/22/2023 2:43 PM	**Reporter Name**	6470QQQ\lcgroup
Last Calib Update	9/22/2023 2:24 PM	**Batch State**	Processed
Instrument	6470QQQ	**Sample Name**	P232142-04@20
Position	P4-E4	**Data File**	23I21_FNC_061.d
Dilution	1	**Sample Type**	Sample
Acq Time	2023-09-22 12:15	**Acq Method**	23H17_FNC.m
Inj Vol	2	**Operator**	ECD

ND

Quantitation Results

Compound	RT	Resp	Final Conc	
Simazine	4.097	614	0.0836	ng/ml
TPP d15	6.773	181721	12.692263	ng/ml

Quantitative Analysis Sample Report

Batch Info

Batch Data Path	D:\MassHunter\Data\23I21_FNC\QuantResults\23I21_FNC.batch.bin		
Analysis Time	9/22/2023 2:24 PM	**Analyst Name**	6470QQQ\lcgroup
Report Time	9/22/2023 2:43 PM	**Reporter Name**	6470QQQ\lcgroup
Last Calib Update	9/22/2023 2:24 PM	**Batch State**	Processed
Instrument	6470QQQ	**Sample Name**	P232142-06@20
Position	P4-E5	**Data File**	23I21_FNC_062.d
Dilution	1	**Sample Type**	Sample
Acq Time	2023-09-22 12:33	**Acq Method**	23H17_FNC.m
Inj Vol	2	**Operator**	ECD

FER NA

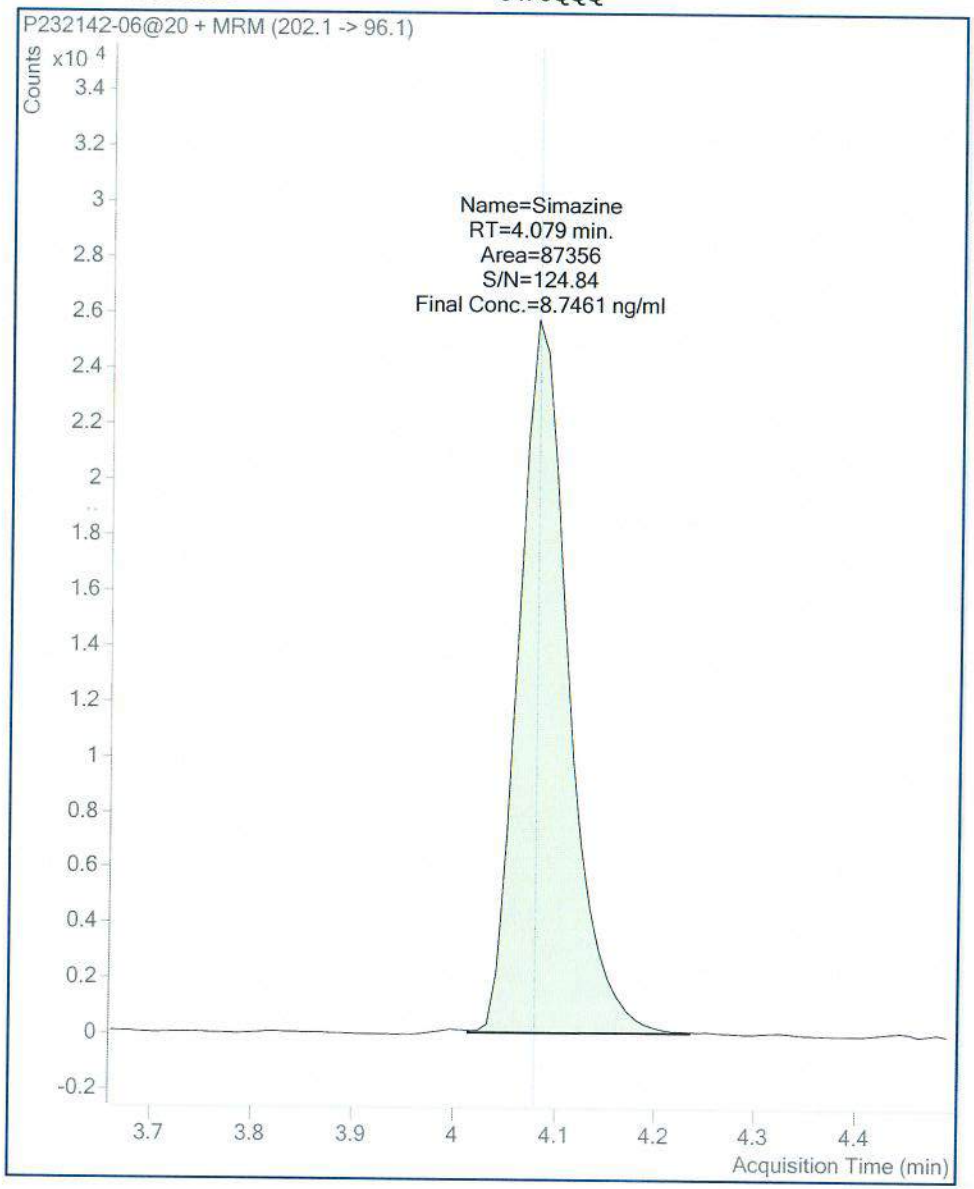
Quantitation Results

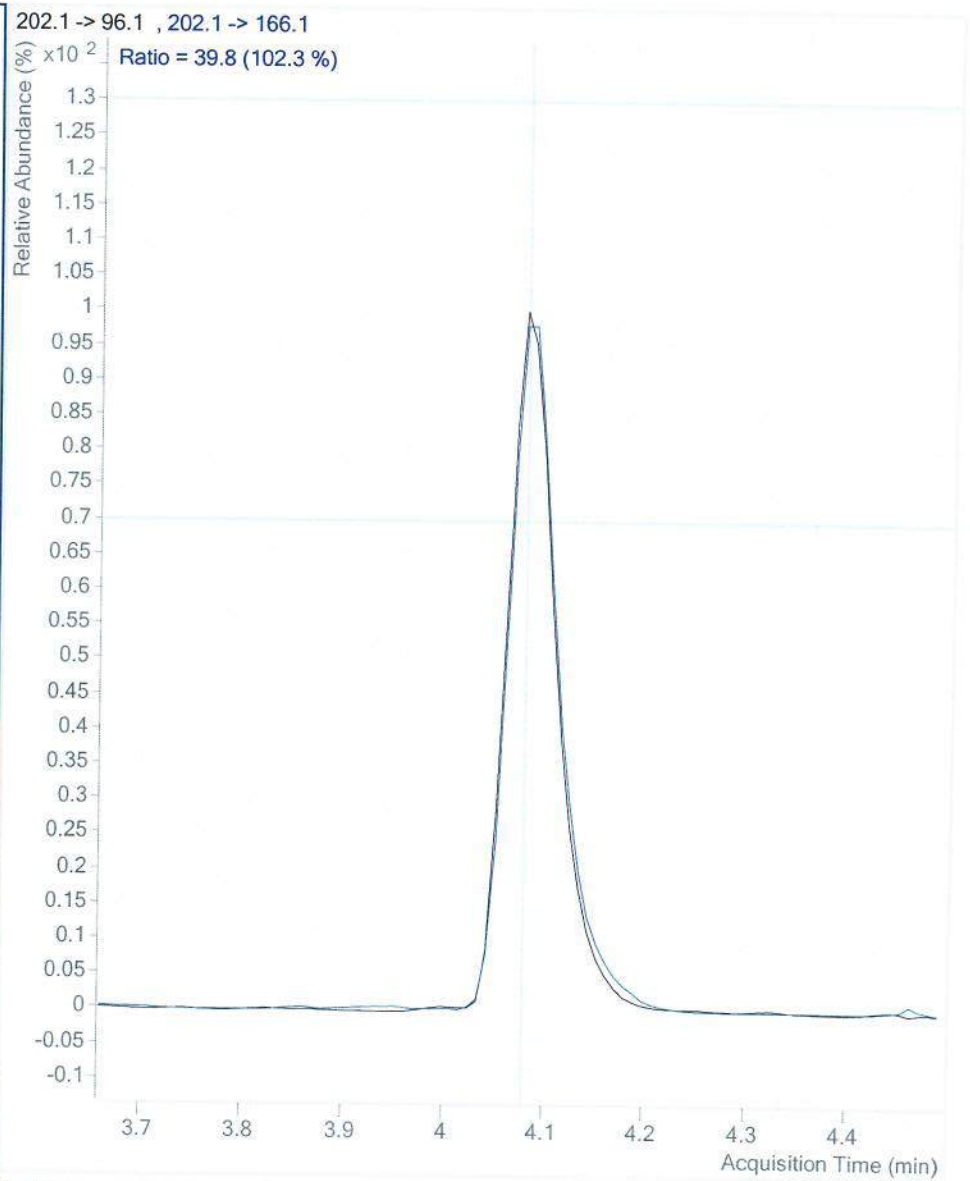
Compound	RT	Resp	Final Conc	
Simazine	4.079	87356	8.7461 0.058	ng/ml
TPP d15	6.764	175402	12.2596 61	ng/ml

Compound Information Window

Agilent Technologies

Data Path	D:\MassHunter\Data\23I21_FNC
Data File	23I21_FNC_062.d
Acq Operator	ECD
Acq. Date-Time	9/22/2023 12:33 PM
Instrument Name	6470QQQ





Generated at 3:37 PM on 9/22/2023

Quantitative Analysis Sample Report

Batch Info

Batch Data Path	D:\MassHunter\Data\23I21_FNC\QuantResults\23I21_FNC.batch.bin		
Analysis Time	9/22/2023 2:24 PM	**Analyst Name**	6470QQQ\lcgroup
Report Time	9/22/2023 2:43 PM	**Reporter Name**	6470QQQ\lcgroup
Last Calib Update	9/22/2023 2:24 PM	**Batch State**	Processed
Instrument	6470QQQ	**Sample Name**	P232142-08@20
Position	P4-E6	**Data File**	23I21_FNC_063.d
Dilution	1	**Sample Type**	Sample
Acq Time	2023-09-22 12:52	**Acq Method**	23H17_FNC.m
Inj Vol	2	**Operator**	ECD

ND

Quantitation Results

Compound	RT	Resp	Final Conc	
Simazine	3.979	431	0.0653	ng/ml
TPP d15	6.773	160926	11.26825 6	ng/ml

Quantitative Analysis Sample Report

Batch Info

Batch Data Path	D:\MassHunter\Data\23I21_FNC\QuantResults\23I21_FNC.batch.bin		
Analysis Time	9/22/2023 2:24 PM	**Analyst Name**	6470QQQ\lcgroup
Report Time	9/22/2023 2:29 PM	**Reporter Name**	6470QQQ\lcgroup
Last Calib Update	9/22/2023 2:24 PM	**Batch State**	Processed
Instrument	6470QQQ	**Sample Name**	23I2104-BLK1@20
Position	P4-F4	**Data File**	23I21_FNC_056b.d
Dilution	1	**Sample Type**	Sample
Acq Time	2023-09-22 10:42	**Acq Method**	23H17_FNC.m
Inj Vol	2	**Operator**	ECD

Quantitation Results

Compound	RT	Resp	Final Conc	
Cyromazine	1.250	79	0.1844	ng/ml
Methamidophos	1.254	14	0.1113	ng/ml
Acephate	1.715	3	0.1248	ng/ml
Formentanate metabolite	2.204	7	0.1290	ng/ml
Omethoate	2.388	56	0.1077	ng/ml
Pymetrozine	2.629	381	0.0942	ng/ml
Propamocarb	2.606	11	0.1652	ng/ml
Formetanate HCl	2.628	31	0.1061	ng/ml
Aldicarb-sulfoxide	2.371	225	0.1022	ng/ml
Dinotefuran	2.767	49	0.0835	ng/ml
Aldicarb-sulfone (Aldoxycarb)	2.997	74	0.1092	ng/ml
Oxamyl	2.798	60	0.0727	ng/ml
Methomyl	3.075	6	0.1209	ng/ml
Carbendazim	3.082	2351	0.0642	ng/ml
Oxydemeton-methyl	3.149	102	0.1339	ng/ml
Flonicamid	3.161	22	0.1179	ng/ml
Thiabendazole	3.335	3247	0.0774	ng/ml
Thiamethoxam	3.402	91	0.0930	ng/ml
Fenuron (N,N-Dimethyl-N-phenylurea)	3.417	1123	0.0638	ng/ml
Clothianidin	3.467	45	0.0900	ng/ml
3-Hydroxy Carbofuran	3.513	33	0.1056	ng/ml
Dimethoate	3.695	381	0.0965	ng/ml
Imidacloprid	3.639	723	0.1009	ng/ml
Flumetsulam	3.671	50	0.1036	ng/ml
Mevinphos (Phosdrin)	3.650	68	0.0765	ng/ml
Acetamiprid	3.732	195	0.0671	ng/ml
Flupyradifurone	3.856	401	0.1153	ng/ml
Sulfoxaflor	3.774	59	0.0887	ng/ml
Cymoxanil (Curzate)	3.742	47	0.0525	ng/ml
Aldicarb	3.906	899	0.1006	ng/ml
Pyrasulfotole	3.999	129	0.2829	ng/ml
Thiacloprid	4.003	39	0.0720	ng/ml
Phosphamidon	4.020	48	0.0771	ng/ml
Cyanazine (Fortrol)	4.012	19	0.1097	ng/ml
Monuron	3.924	156	0.0846	ng/ml
Simazine	4.006	1357	0.1578	ng/ml
Pirimicarb	4.013	8	0.0200	ng/ml
Propoxur	3.915	57	0.1099	ng/ml
Tebuthiuron	4.232	40	0.0585	ng/ml
Fenamiphos - sulfoxide	4.184	92	0.0886	ng/ml
Oxadixyl	4.194	270	0.1145	ng/ml
Bendiocarb	4.324	29	0.0964	ng/ml
Carbofuran	4.151	135	0.0665	ng/ml
Bromacil	4.276	24	0.0039	ng/ml
Metribuzin	4.060	259	0.2110	ng/ml
Terbacil	4.400	44	0.2959	ng/ml

Compound	RT	Resp	Final Conc	
Simetryn	4.334	594	0.0700	ng/ml
Malaxon	4.357	25	0.1074	ng/ml
Prometon	4.333	163	0.0479	ng/ml
Fenamiphos - sulfone	4.348	28	0.0887	ng/ml
Fluometuron	4.460	950	0.0477	ng/ml
Cyprosulfamide	4.475	34	0.0965	ng/ml
Carbaryl	4.353	1278	0.0400	ng/ml
Thiophanate-methyl	4.202	312	0.1096	ng/ml
Hexazinone	4.349	20	0.0585	ng/ml
Carboxin	4.360	56	0.0643	ng/ml
Nicosulfuron 1	4.245	46	0.1850	ng/ml
Atrazine	4.480	95	0.1464	ng/ml
Thiencarbazone-methyl	4.328	34	0.2164	ng/ml
Sulfentrazone			ND	ng/ml
Thifensulfuron-methyl (DPX-M6316)	4.547	47	0.0970	ng/ml
Sulfometuron-methyl	4.576	22	0.0460	ng/ml
Metsulfuron-methyl	4.484	42	0.0864	ng/ml
Imazalil	4.504	51	0.1244	ng/ml
DCPMU	4.626	179	0.1178	ng/ml
Phorate Sulfoxide	4.824	88	0.0885	ng/ml
Diuron	5.071	72	0.0677	ng/ml
Flutriafol	4.805	43	0.1293	ng/ml
Thiodicarb	5.057	5	0.1184	ng/ml
Diazoxon	4.915	51	0.0704	ng/ml
Cyantraniliprole	4.846	1	0.1785	ng/ml
Pyrimethanil	4.927	2775	0.0067	ng/ml
Phorate Sulfone	4.924	123	0.0868	ng/ml
Propazine	4.826	77	0.0649	ng/ml
Fenobucarb (Baycarb)	4.964	52	0.0824	ng/ml
Siduron	4.989	37	0.1063	ng/ml
Trifloxysulfuron-sodium	4.837	267	0.4739	ng/ml
Pyroxasulfone	5.002	127	0.0933	ng/ml
Penoxsulam (Penoxalim)	5.055	173	0.1432	ng/ml
Disulfoton-sulfone	4.985	18	0.0657	ng/ml
Disulfoton-Sulfone	4.940	75	0.1603	ng/ml
Cloransulam-Methyl	5.092	42	0.0432	ng/ml
Terbuthylazine	5.053	47	0.0937	ng/ml
Norflurazon	5.104	44	0.1014	ng/ml
Famphur (Famophos)	4.994	65	0.0992	ng/ml
Clomazone	5.125	503	0.0751	ng/ml
Propanil	4.836	210	0.1250	ng/ml
Trinexapac-ethyl	5.189	175	0.1279	ng/ml
Prometryn	4.970	17	0.0772	ng/ml
Bicyclopyrone	5.222	378	0.0564	ng/ml
Linuron	5.336	17	0.0216	ng/ml
Spiroxamine	5.326	46	0.1129	ng/ml
Terbutryn	5.281	111	0.0534	ng/ml
Flurtamone	5.250	1	0.2039	ng/ml
Methiocarb (Mercaptodimethur)	5.126	103	0.1077	ng/ml
Chlorantraniliprole	5.321	174	0.2454	ng/ml
Methidathion	5.325	554	0.0782	ng/ml
Fluridone	5.488	0	0.0712	ng/ml
Acibenzolar-s-methyl	5.556	28	0.5681	ng/ml
Bensulfuron-methyl	5.513	156	0.0872	ng/ml
Saflufenacil	5.594	1	0.1519	ng/ml
Fenamidone	5.480	38	0.1146	ng/ml
Triadimenol	5.728	157	0.3444	ng/ml
Methoxyfenozide	5.578	65	0.0916	ng/ml
Bispyribac	5.604	41	0.1324	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Fomesafen	5.648	1	ND	ng/ml
Triadimefon	5.491	30	ND	ng/ml
Iodosulfuron-Methyl	5.403	1	ND	ng/ml
Fenhexamid	5.691	42	0.2034	ng/ml
Boscalid	5.688	42	0.0852	ng/ml
Fluxapyroxad	5.642	1	0.0932	ng/ml
Azinphos-methyl	5.817	1	0.1465	ng/ml
Fluopyram	5.751	1990	0.0958	ng/ml
Isoxaben	5.826	94	0.0979	ng/ml
Phosmet	5.799	309	0.0988	ng/ml
Fluopicolide	5.715	41	0.0782	ng/ml
Malathion	5.789	14	0.1005	ng/ml
Indaziflam	5.746	1014	0.0495	ng/ml
Azoxystrobin	5.641	32	0.0628	ng/ml
Cyprodinil	5.903	715	0.1858	ng/ml
Bifenazate	5.975	245	0.1298	ng/ml
Triticonazole	5.900	4591	0.2380	ng/ml
Dimethomorph 1	6.043	2	0.1188	ng/ml
Isofetamid	5.981	392	0.0656	ng/ml
Neburon (Phosphoramidothioic acid)	6.166	51	0.1321	ng/ml
Chlorimuron-ethyl	5.732	39	0.0046	ng/ml
Tebufenozide	5.945	2	0.1241	ng/ml
Spirotetramat	6.044	1	0.1107	ng/ml
Mandipropamid	6.006	2	0.0967	ng/ml
Penthiopyrad	6.327	28	0.1322	ng/ml
Flufenacet (Fluthiamide)	6.235	91	0.0440	ng/ml
Dodine	6.322	152	0.1260	ng/ml
Afidopyropen	6.306	2	0.1119	ng/ml
Flumioxazin	6.600	34	0.7492	ng/ml
Oryzalin	6.195	1	ND	ng/ml
Diflubenzuron	6.512	19	ND	ng/ml
Dimethomorph 2	6.389	1	0.0613	ng/ml
Tebuconazole	6.475	10	0.0841	ng/ml
Fenoxycarb	6.521	195	0.1189	ng/ml
Ametoctradin	6.576	380	0.0832	ng/ml
Hexaconazole	6.593	17	0.1075	ng/ml
Flubendiamide	6.714	0	0.2805	ng/ml
Fonofos	6.713	45	ND	ng/ml
Bensulide	6.853	38	0.1753	ng/ml
Cycloate	6.895	40	0.4992	ng/ml
Picoxystrobin	6.736	22	0.0361	ng/ml
Cyclaniliprole	6.843	0	0.3225	ng/ml
Azinphos-ethyl (Guthion ethyl)	6.655	48	0.0382	ng/ml
Cyazofamid	6.493	131	0.0977	ng/ml
TPP d15	6.773	264423	18.345192	ng/ml
Fenbuconazole	7.037	62	0.0897	ng/ml
Carfentrazone-ethyl	6.826	2	0.0994	ng/ml
Bitertanol	6.846	21	0.1443	ng/ml
Metconazole	6.974	36	0.0752	ng/ml
Prothioconazole	7.051	1	ND	ng/ml
Fluoxastrobin	6.789	47	0.1326	ng/ml
Pirimiphos-methyl	6.994	39	0.0818	ng/ml
Benzovindiflupyr	6.908	0	0.1714	ng/ml
Isoxadifen-ethyl (AE F122006)	6.957	39	0.1103	ng/ml
Mefenitrifluconazole	6.971	45	0.1036	ng/ml
Propiconazole	6.964	203	0.0880	ng/ml
Iprodione	7.047	13	ND	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Thiobencarb	7.049	305	0.0941	ng/ml
Cyflufenamid	7.216	210	0.1565	ng/ml
Clofentezine	7.221	88	0.0258	ng/ml
Triflumizol	7.290	30	0.0862	ng/ml
Pyraflufen-ethyl	7.323	46	0.0931	ng/ml
Prallethrin	7.393	43	0.1817	ng/ml
Flutianil	7.394	626	0.1295	ng/ml
Pydiflumetofen	7.386	351	0.1174	ng/ml
Ipconazole	7.427	421	0.0645	ng/ml
Famoxadone	7.470	50	0.1326	ng/ml
Pyraclostrobin	7.515	856	0.0851	ng/ml
Metrafenone	7.513	387	0.1126	ng/ml
Rotenone	7.596	23	0.1761	ng/ml
Diflufenican	7.541	20	0.1298	ng/ml
Sethoxydim	7.743	100	0.1909	ng/ml
Novaluron	7.738	98	0.0691	ng/ml
Trifloxystrobin	7.784	306	0.0657	ng/ml
Phosalone	7.769	30	0.1501	ng/ml
Coumaphos	7.806	659	0.0849	ng/ml
Pyrethrin II	7.868	222	0.4232	ng/ml
Allethrin	7.916	65	0.1577	ng/ml
Clethodim	7.968	67	0.2555	ng/ml
Spinosyn A	7.927	29438	0.0069	ng/ml
Difenconazole	7.983	254	0.1487	ng/ml
Piperonyl butoxide	7.996	725	0.0684	ng/ml
Triallate	8.124	193	0.1684	ng/ml
Cyhalofop butyl	8.130	77	ND	ng/ml
Quizalofop-ethyl	8.239	137	0.0963	ng/ml
Tolfenpyrade	8.093	28	0.0713	ng/ml
Indoxacarb	8.409	40	0.1518	ng/ml
Cyflumetofen	8.382	30	0.0758	ng/ml
Emamectin Benzoate	8.470	115	0.0760	ng/ml
Spinosyn D	8.489	4390	0.1217	ng/ml
Spiromesifen	8.455	49	0.1043	ng/ml
Spinetoram J	8.497	622	0.0915	ng/ml
Ethion	8.671	1561	0.1562	ng/ml
Fluazinam (Shirlan (VAN)	8.811	12	0.0889	ng/ml
Propargite	8.843	98	0.1048	ng/ml
Pyrethrin I	8.800	2205	0.5358	ng/ml
Lactofen	8.850	97	0.1197	ng/ml
Dioxathion	8.837	1132	0.1475	ng/ml
Fenazaquin	8.863	13519	0.0458	ng/ml
Hexythiazox	8.996	405	0.1620	ng/ml
Spinetoram L	9.037	23	0.1067	ng/ml
Fenpyroximate	9.117	674	0.1312	ng/ml
Fenpropathrin	9.220	659	0.1245	ng/ml
Pyridaben	9.782	118	0.0905	ng/ml
Abamectin	9.742	16	ND	ng/ml
d-Phenothrin	10.008	119	0.0843	ng/ml
Etofenprox	10.371	4099	0.1264	ng/ml
Fluvalinate	10.511	238	0.1451	ng/ml
Pyridalyl	10.857	10	0.0025	ng/ml
Fenbutatin oxide	10.994	1065	0.2244	ng/ml

Quantitative Analysis Sample Report

Batch Info

Batch Data Path	D:\MassHunter\Data\23I21_FNC\QuantResults\23I21_FNC.batch.bin		
Analysis Time	9/22/2023 2:24 PM	**Analyst Name**	6470QQQ\lcgroup
Report Time	9/22/2023 2:29 PM	**Reporter Name**	6470QQQ\lcgroup
Last Calib Update	9/22/2023 2:24 PM	**Batch State**	Processed
Instrument	6470QQQ	**Sample Name**	23I2104-BS1@20
Position	P4-F3	**Data File**	23I21_FNC_056a.d
Dilution	1	**Sample Type**	Sample
Acq Time	2023-09-22 10:24	**Acq Method**	23H17_FNC.m
Inj Vol	2	**Operator**	ECD

Quantitation Results

Compound	RT	Resp	Final Conc	
Cyromazine	0.821	1125	0.2361	ng/ml
Methamidophos	1.263	428564	9.6422	ng/ml
Acephate	1.723	42	0.1258	ng/ml
Formentanate metabolite	2.366	22	0.1302	ng/ml
Omethoate	2.451	499644	9.6776	ng/ml
Pymetrozine	2.629	461290	5.6559	ng/ml
Propamocarb	2.642	180	0.1668	ng/ml
Formetanate HCl	2.655	118	0.1074	ng/ml
Aldicarb-sulfoxide	2.667	289111	9.1245	ng/ml
Dinotefuran	2.658	406	0.0988	ng/ml
Aldicarb-sulfone (Aldoxycarb)	2.872	8715	8.8654	ng/ml
Oxamyl	3.005	1294803	9.7651	ng/ml
Methomyl	3.021	347750	9.9665	ng/ml
Carbendazim	3.082	2875464	9.1330	ng/ml
Oxydemeton-methyl	3.104	291651	9.6006	ng/ml
Flonicamid	3.107	40150	9.6903	ng/ml
Thiabendazole	3.344	1079995	9.4576	ng/ml
Thiamethoxam	3.384	411572	9.9155	ng/ml
Fenuron (N,N-Dimethyl-N-phenylurea)	3.417	1135	0.0639	ng/ml
Clothianidin	3.467	84703	10.2774	ng/ml
3-Hydroxy Carbofuran	3.504	558177	9.9604	ng/ml
Dimethoate	3.605	638926	10.1015	ng/ml
Imidacloprid	3.630	123051	9.6949	ng/ml
Flumetsulam	3.662	153152	9.0279	ng/ml
Mevinphos (Phosdrin)	3.695	540331	10.1393	ng/ml
Acetamiprid	3.741	1011936	9.7299	ng/ml
Flupyradifurone	3.746	206530	9.8504	ng/ml
Sulfoxaflor	3.810	34	0.0883	ng/ml
Cymoxanil (Curzate)	3.778	50	0.0526	ng/ml
Aldicarb	3.814	259736	9.7906	ng/ml
Pyrasulfotole	3.917	1562	0.3572	ng/ml
Thiacloprid	4.003	1117638	9.8823	ng/ml
Phosphamidon	4.011	375782	10.4742	ng/ml
Cyanazine (Fortrol)	4.049	177706	9.4632	ng/ml
Monuron	4.061	279	0.0860	ng/ml
Simazine	4.079	98611	9.8707	ng/ml
Pirimicarb	4.113	176	0.0206	ng/ml
Propoxur	4.133	414363	9.7803	ng/ml
Tebuthiuron	4.169	136	0.0590	ng/ml
Fenamiphos - sulfoxide	4.384	1	0.0864	ng/ml
Oxadixyl	4.185	871778	9.7800	ng/ml
Bendiocarb	4.187	69	0.0973	ng/ml
Carbofuran	4.224	1461105	9.6118	ng/ml
Bromacil	4.286	91	0.0066	ng/ml
Metribuzin	4.252	94789	10.0007	ng/ml
Terbacil	4.272	12504	9.4687	ng/ml

Compound	RT	Resp	Final Conc	
Simetryn	4.280	993695	9.7716	ng/ml
Malaxon	4.321	267316	9.5606	ng/ml
Prometon	4.324	2245582	10.0622	ng/ml
Fenamiphos - sulfone	4.421	2	0.0879	ng/ml
Fluometuron	4.332	69	0.0337	ng/ml
Cyprosulfamide	4.438	1	0.0949	ng/ml
Carbaryl	4.362	915470	10.0806	ng/ml
Thiophanate-methyl	4.229	38	0.1055	ng/ml
Hexazinone	4.432	3801814	9.7589	ng/ml
Carboxin	4.460	997627	9.2023	ng/ml
Nicosulfuron 1	4.437	11	0.1802	ng/ml
Atrazine	4.498	294607	9.8248	ng/ml
Thiencarbazone-methyl	4.784	279	0.2764	ng/ml
Sulfentrazone	4.511	16992	9.5174	ng/ml
Thifensulfuron-methyl (DPX-M6316)	4.456	158	0.1059	ng/ml
Sulfometuron-methyl	4.521	274	0.0479	ng/ml
Metsulfuron-methyl	4.475	39	0.0862	ng/ml
Imazalil	4.358	552	0.1407	ng/ml
DCPMU	4.361	17288	0.7205	ng/ml
Phorate Sulfoxide	4.761	780612	9.8481	ng/ml
Diuron	4.780	286	0.0707	ng/ml
Flutriafol	4.805	192478	9.7025	ng/ml
Thiodicarb	4.822	187394	9.9634	ng/ml
Diazoxon	4.951	55	0.0704	ng/ml
Cyantraniliprole	4.864	18	0.1878	ng/ml
Pyrimethanil	4.918	143386	9.7724	ng/ml
Phorate Sulfone	4.942	259014	9.6875	ng/ml
Propazine	4.944	755250	9.8425	ng/ml
Fenobucarb (Baycarb)	4.936	43	0.0823	ng/ml
Siduron	4.935	30	0.1062	ng/ml
Trifloxysulfuron-sodium	4.983	4478	6.8273	ng/ml
Pyroxasulfone	4.984	193	0.0945	ng/ml
Penoxsulam (Penoxalim)	5.000	72236	9.1143	ng/ml
Disulfoton-sulfone	5.058	5383	0.1544	ng/ml
Disulfoton-Sulfone	5.049	271	0.1779	ng/ml
Cloransulam-Methyl	4.856	20	0.0375	ng/ml
Terbuthylazine	5.044	1467685	9.8556	ng/ml
Norflurazon	5.077	452591	9.8487	ng/ml
Famphur (Famophos)	5.094	228500	10.1210	ng/ml
Clomazone	5.134	151	0.0717	ng/ml
Propanil	5.154	97234	10.0942	ng/ml
Trinexapac-ethyl	5.207	187766	6.8814	ng/ml
Prometryn	5.217	2711193	9.9266	ng/ml
Bicyclopyrone	5.222	518869	2.4070	ng/ml
Linuron	5.253	216971	10.2795	ng/ml
Spiroxamine	5.261	1612267	9.9529	ng/ml
Terbutryn	5.281	3281180	9.9348	ng/ml
Flurtamone	5.286	1	0.2039	ng/ml
Methiocarb (Mercaptodimethur)	5.328	1100920	9.8616	ng/ml
Chlorantraniliprole	5.321	69554	9.8739	ng/ml
Methidathion	5.371	214	0.0671	ng/ml
Fluridone	5.451	886435	9.7142	ng/ml
Acibenzolar-s-methyl	5.492	85	0.6165	ng/ml
Bensulfuron-methyl	5.522	194	0.0884	ng/ml
Saflufenacil	5.558	15119	7.8653	ng/ml
Fenamidone	5.498	29	0.1145	ng/ml
Triadimenol	5.582	169560	19.1547	ng/ml
Methoxyfenozide	5.578	1305959	9.6420	ng/ml
Bispyribac	5.595	157003	6.4558	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Fomesafen	5.603	1203	7.6045	ng/ml
Triadimefon	5.628	43184	10.3144	ng/ml
Iodosulfuron-Methyl	5.731	42	ND	ng/ml
Fenhexamid	5.819	60	0.2065	ng/ml
Boscalid	5.697	107286	9.8011	ng/ml
Fluxapyroxad	5.724	137985	10.1967	ng/ml
Azinphos-methyl	5.726	230508	10.1465	ng/ml
Fluopyram	5.751	795064	9.7022	ng/ml
Isoxaben	5.789	748	0.1014	ng/ml
Phosmet	5.790	840918	10.5860	ng/ml
Fluopicolide	5.806	400905	9.8040	ng/ml
Malathion	5.844	320021	10.2300	ng/ml
Indaziflam	5.746	1218	0.0505	ng/ml
Azoxystrobin	5.888	1712669	9.6327	ng/ml
Cyprodinil	5.958	248260	9.8291	ng/ml
Bifenazate	6.066	0	0.1267	ng/ml
Triticonazole	5.983	180649	10.0430	ng/ml
Dimethomorph 1	5.897	1	0.1188	ng/ml
Isofetamid	5.981	1907645	9.5103	ng/ml
Neburon (Phosphoramidothioic acid)	6.194	399	0.1461	ng/ml
Chlorimuron-ethyl	6.069	547	0.0669	ng/ml
Tebufenozide	6.081	812257	9.7632	ng/ml
Spirotetramat	6.107	213879	9.2267	ng/ml
Mandipropamid	6.124	436616	9.3908	ng/ml
Penthiopyrad	6.154	242295	10.2688	ng/ml
Flufenacet (Fluthiamide)	6.126	2	0.0432	ng/ml
Dodine	6.222	42712	1.3086	ng/ml
Afidopyropen	6.197	11933	9.1524	ng/ml
Flumioxazin	6.418	7	0.7332	ng/ml
Oryzalin	6.259	2384	8.2364	ng/ml
Diflubenzuron	6.347	170225	9.9030	ng/ml
Dimethomorph 2	6.371	2	0.0613	ng/ml
Tebuconazole	6.475	148	0.0903	ng/ml
Fenoxycarb	6.567	567891	9.9471	ng/ml
Ametoctradin	6.586	1167206	9.5467	ng/ml
Hexaconazole	6.584	136631	9.8546	ng/ml
Flubendiamide	6.633	35833	19.1068	ng/ml
Fonofos	6.622	16008	10.2684	ng/ml
Bensulide	6.772	3	0.1717	ng/ml
Cycloate	6.677	16	0.4834	ng/ml
Picoxystrobin	6.845	15	0.0361	ng/ml
Cyclaniliprole	6.670	13381	8.3958	ng/ml
Azinphos-ethyl (Guthion ethyl)	6.655	50453	9.8018	ng/ml
Cyazofamid	6.675	84	0.0968	ng/ml
TPP d15	6.773	258658	17.9516 90	ng/ml
Fenbuconazole	6.874	37	0.0877	ng/ml
Carfentrazone-ethyl	6.844	1	0.0993	ng/ml
Bitertanol	6.828	98	0.1652	ng/ml
Metconazole	6.838	257680	9.7485	ng/ml
Prothioconazole	6.905	1	ND	ng/ml
Fluoxastrobin	6.843	182568	9.3405	ng/ml
Pirimiphos-methyl	6.839	561309	9.9684	ng/ml
Benzovindiflupyr	6.953	30	0.1733	ng/ml
Isoxadifen-ethyl (AE F122006)	7.355	25	0.1093	ng/ml
Mefenitrifluconazole	6.935	45	0.1037	ng/ml
Propiconazole	6.973	72135	9.5609	ng/ml
Iprodione	6.992	28	ND	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Thiobencarb	7.022	132	0.0907	ng/ml
Cyflufenamid	7.216	180375	9.4275	ng/ml
Clofentezine	7.230	86474	4.9494	ng/ml
Triflumizol	7.353	22	0.0861	ng/ml
Pyraflufen-ethyl	7.314	13	0.0914	ng/ml
Prallethrin	7.348	82733	9.6168	ng/ml
Flutianil	7.376	555559	9.4731	ng/ml
Pydiflumetofen	7.395	304	0.1151	ng/ml
Ipconazole	7.400	252367	9.9096	ng/ml
Famoxadone	7.470	47504	9.8402	ng/ml
Pyraclostrobin	7.497	829042	9.5669	ng/ml
Metrafenone	7.504	419439	9.7154	ng/ml
Rotenone	7.541	28954	8.5107	ng/ml
Diflufenican	7.559	34	0.1303	ng/ml
Sethoxydim	7.663	41	0.1894	ng/ml
Novaluron	7.729	30718	9.4990	ng/ml
Trifloxystrobin	7.775	386	0.0662	ng/ml
Phosalone	7.778	145868	9.6398	ng/ml
Coumaphos	7.806	457519	9.8699	ng/ml
Pyrethrin II	7.859	207458	44.2848	ng/ml
Allethrin	7.835	251	0.1721	ng/ml
Clethodim	7.761	75	0.2563	ng/ml
Spinosyn A	7.918	935348	9.3558	ng/ml
Difenconazole	7.965	156829	9.2968	ng/ml
Piperonyl butoxide	7.987	2498316	9.6226	ng/ml
Triallate	8.087	8321	9.7939	ng/ml
Cyhalofop butyl	8.148	36368	9.3194	ng/ml
Quizalofop-ethyl	8.230	98449	9.4194	ng/ml
Tolfenpyrade	8.265	66384	9.2589	ng/ml
Indoxacarb	8.372	35511	9.2771	ng/ml
Cyflumetofen	8.373	46	0.0760	ng/ml
Emamectin Benzoate	8.443	148062	8.0565	ng/ml
Spinosyn D	8.480	344551	9.3273	ng/ml
Spiromesifen	8.491	41	0.1042	ng/ml
Spinetoram J	8.506	733141	9.5874	ng/ml
Ethion	8.653	678588	9.8059	ng/ml
Fluazinam (Shirlan (VAN)	8.703	17	0.0919	ng/ml
Propargite	8.808	16	0.1018	ng/ml
Pyrethrin I	8.800	845577	44.4529	ng/ml
Lactofen	8.841	27	0.1170	ng/ml
Dioxathion	8.828	332829	9.9526	ng/ml
Fenazaquin	8.863	9320	0.0295	ng/ml
Hexythiazox	8.996	196451	9.4256	ng/ml
Spinetoram L	9.010	225417	9.6665	ng/ml
Fenpyroximate	9.099	401399	9.3336	ng/ml
Fenpropathrin	9.211	62086	9.2601	ng/ml
Pyridaben	9.639	214	0.0915	ng/ml
Abamectin	9.805	4712	10.3604	ng/ml
d-Phenothrin	9.713	129	0.0856	ng/ml
Etofenprox	10.371	934059	9.5301	ng/ml
Fluvalinate	10.511	29643	10.1315	ng/ml
Pyridalyl	10.928	72	0.0476	ng/ml
Fenbutatin oxide	10.994	53821	8.7447	ng/ml

Quantitative Analysis Sample Report

Batch Info

Batch Data Path	D:\MassHunter\Data\23I21_FNC\QuantResults\23I21_FNC.batch.bin		
Analysis Time	9/22/2023 2:24 PM	**Analyst Name**	6470QQQ\lcgroup
Report Time	9/22/2023 2:29 PM	**Reporter Name**	6470QQQ\lcgroup
Last Calib Update	9/22/2023 2:24 PM	**Batch State**	Processed
Instrument	6470QQQ	**Sample Name**	23I2104-MS1@20
Position	P4-C5	**Data File**	23I21_FNC_040.d
Dilution	1	**Sample Type**	Sample
Acq Time	2023-09-22 05:10	**Acq Method**	23H17_FNC.m
Inj Vol	2	**Operator**	ECD

Quantitation Results

Compound	RT	Resp	Final Conc	
Cyromazine	0.812	1130	0.2364	ng/ml
Methamidophos	1.245	66	0.1124	ng/ml
Acephate	1.634	1	0.1248	ng/ml
Formentanate metabolite	2.223	7	0.1290	ng/ml
Omethoate	2.406	20	0.1070	ng/ml
Pymetrozine	2.620	265	0.0928	ng/ml
Propamocarb	2.633	168	0.1667	ng/ml
Formetanate HCl	2.655	112	0.1073	ng/ml
Aldicarb-sulfoxide	2.667	247137	7.8129	ng/ml
Dinotefuran	2.685	25	0.0825	ng/ml
Aldicarb-sulfone (Aldoxycarb)	2.872	8571	8.7196	ng/ml
Oxamyl	3.014	1160191	8.7679	ng/ml
Methomyl	3.030	299055	8.5808	ng/ml
Carbendazim	3.100	1273	0.0608	ng/ml
Oxydemeton-methyl	3.004	127	0.1347	ng/ml
Flonicamid	3.015	2	0.1132	ng/ml
Thiabendazole	3.353	709788	6.2542	ng/ml
Thiamethoxam	3.402	494	0.1026	ng/ml
Fenuron (N,N-Dimethyl-N-phenylurea)	3.426	1187	0.0644	ng/ml
Clothianidin	3.476	1251	0.2369	ng/ml
3-Hydroxy Carbofuran	3.513	530481	9.4731	ng/ml
Dimethoate	3.632	152	0.0929	ng/ml
Imidacloprid	3.639	114781	9.0493	ng/ml
Flumetsulam	3.707	54	0.1039	ng/ml
Mevinphos (Phosdrin)	3.713	403	0.0827	ng/ml
Acetamiprid	3.777	63	0.0659	ng/ml
Flupyradifurone	3.566	55	0.0991	ng/ml
Sulfoxaflor	3.783	73	0.0890	ng/ml
Cymoxanil (Curzate)	3.806	34	0.0521	ng/ml
Aldicarb	3.823	244048	9.2080	ng/ml
Pyrasulfotole	3.908	128	0.2828	ng/ml
Thiacloprid	4.003	207	0.0735	ng/ml
Phosphamidon	4.038	19	0.0763	ng/ml
Cyanazine (Fortrol)	4.049	164404	8.7685	ng/ml
Monuron	4.107	435	0.0879	ng/ml
Simazine	4.088	90773	9.0875	ng/ml
Pirimicarb	4.113	93	0.0203	ng/ml
Propoxur	4.143	407596	9.6227	ng/ml
Tebuthiuron	4.369	31	0.0584	ng/ml
Fenamiphos - sulfoxide	4.147	15	0.0867	ng/ml
Oxadixyl	4.176	209	0.1139	ng/ml
Bendiocarb	4.132	56	0.0970	ng/ml
Carbofuran	4.233	1383391	9.1075	ng/ml
Bromacil	4.231	220608	9.1066	ng/ml
Metribuzin	4.252	87375	9.2384	ng/ml
Terbacil	4.099	96	0.3336	ng/ml

Compound	RT	Resp	Final Conc	
Simetryn	4.289	938962	9.2410	ng/ml
Malaxon	4.293	185	0.1130	ng/ml
Prometon	4.333	2034828	9.1351	ng/ml
Fenamiphos - sulfone	4.018	52	0.0894	ng/ml
Fluometuron	4.342	107	0.0343	ng/ml
Cyprosulfamide	4.356	37	0.0967	ng/ml
Carbaryl	4.362	884167	9.7364	ng/ml
Thiophanate-methyl	4.402	29	0.1054	ng/ml
Hexazinone	4.441	3593399	9.2358	ng/ml
Carboxin	4.460	63	0.0643	ng/ml
Nicosulfuron 1	4.474	1	0.1787	ng/ml
Atrazine	4.507	273014	9.1108	ng/ml
Thiencarbazone-methyl	4.775	314	0.2847	ng/ml
Sulfentrazone	4.611	1	ND	ng/ml
Thifensulfuron-methyl (DPX-M6316)	4.337	60	0.0980	ng/ml
Sulfometuron-methyl	4.457	3	0.0458	ng/ml
Metsulfuron-methyl	4.502	121	0.0907	ng/ml
Imazalil	4.321	850	0.1504	ng/ml
DCPMU	4.361	17829	0.7396	ng/ml
Phorate Sulfoxide	4.815	44	0.0880	ng/ml
Diuron	4.798	633022	9.0139	ng/ml
Flutriafol	4.796	70	0.1307	ng/ml
Thiodicarb	4.849	48	0.1207	ng/ml
Diazoxon	4.788	151	0.0713	ng/ml
Cyantraniliprole	4.946	1	0.1785	ng/ml
Pyrimethanil	4.927	135108	9.2050	ng/ml
Phorate Sulfone	4.742	309	0.0937	ng/ml
Propazine	4.953	705526	9.1945	ng/ml
Fenobucarb (Baycarb)	4.963	48	0.0824	ng/ml
Siduron	5.016	81	0.1070	ng/ml
Trifloxysulfuron-sodium	4.846	239	0.4302	ng/ml
Pyroxasulfone	5.002	46	0.0920	ng/ml
Penoxsulam (Penoxalim)	5.055	120	0.1365	ng/ml
Disulfoton-sulfone	5.049	51	0.0663	ng/ml
Disulfoton-Sulfone	5.013	13	0.1547	ng/ml
Cloransulam-Methyl	5.110	22	0.0380	ng/ml
Terbuthylazine	5.044	1370974	9.2091	ng/ml
Norflurazon	5.086	33	0.1011	ng/ml
Famphur (Famophos)	5.148	62	0.0990	ng/ml
Clomazone	5.143	150	0.0717	ng/ml
Propanil	5.154	12	0.1047	ng/ml
Trinexapac-ethyl	5.253	78	0.1244	ng/ml
Prometryn	5.226	2475887	9.0847	ng/ml
Bicyclopyrone	5.240	392	0.0565	ng/ml
Linuron	5.262	94	0.0253	ng/ml
Spiroxamine	5.160	123	0.1134	ng/ml
Terbutryn	5.290	3026298	9.1804	ng/ml
Flurtamone	5.268	0	0.2038	ng/ml
Methiocarb (Mercaptodimethur)	5.328	1061688	9.5135	ng/ml
Chlorantraniliprole	5.330	65420	9.2998	ng/ml
Methidathion			ND	ng/ml
Fluridone	5.488	21	0.0714	ng/ml
Acibenzolar-s-methyl	5.529	32	0.5721	ng/ml
Bensulfuron-methyl	5.513	31	0.0834	ng/ml
Saflufenacil	5.613	4	0.1532	ng/ml
Fenamidone	5.443	9	0.1144	ng/ml
Triadimenol	5.646	42	0.3317	ng/ml
Methoxyfenozide	5.578	694	0.0962	ng/ml
Bispyribac	5.403	20	0.1315	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Fomesafen	5.557	1	ND	ng/ml
Triadimefon	5.637	37476	8.9838	ng/ml
Iodosulfuron-Methyl	5.403	0	ND	ng/ml
Fenhexamid	5.664	274	0.2418	ng/ml
Boscalid	5.707	107457	9.8164	ng/ml
Fluxapyroxad	5.779	1	0.0932	ng/ml
Azinphos-methyl	5.845	1	0.1465	ng/ml
Fluopyram	5.751	1276	0.0872	ng/ml
Isoxaben	5.808	1612326	8.5464	ng/ml
Phosmet	5.799	382	0.0997	ng/ml
Fluopicolide	5.797	59	0.0786	ng/ml
Malathion	5.552	33	0.1011	ng/ml
Indaziflam	5.874	1823246	8.5543	ng/ml
Azoxystrobin	5.897	1456175	8.2118	ng/ml
Cyprodinil	5.958	862	0.1915	ng/ml
Bifenazate	6.048	1	0.1267	ng/ml
Triticonazole	6.055	227	ND	ng/ml
Dimethomorph 1	5.787	9	0.1194	ng/ml
Isofetamid	5.981	195	0.0646	ng/ml
Neburon (Phosphoramidothioic acid)	6.293	162	0.1366	ng/ml
Chlorimuron-ethyl	6.151	1	ND	ng/ml
Tebufenozide	6.072	197	0.1265	ng/ml
Spirotetramat	6.126	52	0.1129	ng/ml
Mandipropamid	6.151	31	0.0973	ng/ml
Penthiopyrad	6.217	37	0.1326	ng/ml
Flufenacet (Fluthiamide)	6.171	44	0.0436	ng/ml
Dodine			ND	ng/ml
Afidopyropen	6.343	2	0.1116	ng/ml
Flumioxazin	6.263	13461	8.6342	ng/ml
Oryzalin	6.269	2953	10.2922	ng/ml
Diflubenzuron	6.365	39	ND	ng/ml
Dimethomorph 2	6.362	25	0.0620	ng/ml
Tebuconazole	6.457	265	0.0956	ng/ml
Fenoxycarb	6.558	225	0.1194	ng/ml
Ametoctradin	6.576	26	0.0803	ng/ml
Hexaconazole	6.639	108	0.1140	ng/ml
Flubendiamide	6.669	1	0.2807	ng/ml
Fonofos	6.732	42	ND	ng/ml
Bensulide	6.772	25	0.1740	ng/ml
Cycloate	6.759	31	0.4934	ng/ml
Picoxystrobin	6.673	198	0.0369	ng/ml
Cyclaniliprole	6.771	50	0.3535	ng/ml
Azinphos-ethyl (Guthion ethyl)	6.764	0	0.0288	ng/ml
Cyazofamid	6.819	17	0.0955	ng/ml
TPP d15	6.773	262075	18.1848 91	ng/ml
Fenbuconazole	6.928	38	0.0878	ng/ml
Carfentrazone-ethyl	6.871	1	0.0992	ng/ml
Bitertanol	6.674	10	0.1413	ng/ml
Metconazole	6.856	291	0.0847	ng/ml
Prothioconazole	6.942	1	ND	ng/ml
Fluoxastrobin	6.852	187	0.1396	ng/ml
Pirimiphos-methyl	6.839	345	0.0872	ng/ml
Benzovindiflupyr	6.881	1	0.1714	ng/ml
Isoxadifen-ethyl (AE F122006)	6.930	13	0.1085	ng/ml
Mefenitrifluconazole	6.935	6	0.1011	ng/ml
Propiconazole	6.955	537	0.1332	ng/ml
Iprodione	6.983	8049	41.9907	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Thiobencarb	7.131	237	0.0928	ng/ml
Cyflufenamid	7.197	217	0.1568	ng/ml
Clofentezine	7.248	88	0.0257	ng/ml
Triflumizol	7.290	187	0.0875	ng/ml
Pyraflufen-ethyl	7.459	21	0.0918	ng/ml
Prallethrin	7.330	184	0.1981	ng/ml
Flutianil	7.358	37	0.1195	ng/ml
Pydiflumetofen	7.395	129	0.1068	ng/ml
Ipconazole	7.418	239	0.0574	ng/ml
Famoxadone	7.605	1	0.1223	ng/ml
Pyraclostrobin	7.506	750467	8.6695	ng/ml
Metrafenone	7.513	329	0.1113	ng/ml
Rotenone	7.578	30	0.1783	ng/ml
Diflufenican	7.677	20	0.1297	ng/ml
Sethoxydim	7.681	111	0.1911	ng/ml
Novaluron	7.729	4	0.0393	ng/ml
Trifloxystrobin	7.793	452	0.0666	ng/ml
Phosalone	7.796	53	0.1516	ng/ml
Coumaphos	7.842	471	0.0808	ng/ml
Pyrethrin II	7.895	219	0.4226	ng/ml
Allethrin	7.889	149	0.1642	ng/ml
Clethodim	7.824	76	0.2564	ng/ml
Spinosyn A	7.936	31814	0.0315	ng/ml
Difenconazole	7.974	319	0.1525	ng/ml
Piperonyl butoxide	8.014	826	0.0688	ng/ml
Triallate	8.069	28	ND	ng/ml
Cyhalofop butyl	8.302	52	ND	ng/ml
Quizalofop-ethyl	8.239	34	0.0864	ng/ml
Tolfenpyrade	8.074	40	0.0730	ng/ml
Indoxacarb	8.363	11	0.1443	ng/ml
Cyflumetofen	8.391	126	0.0770	ng/ml
Emamectin Benzoate	8.461	24	0.0710	ng/ml
Spinosyn D	8.489	4582	0.1269	ng/ml
Spiromesifen	8.500	58	0.1044	ng/ml
Spinetoram J	8.515	495	0.0899	ng/ml
Ethion	8.671	652	0.1432	ng/ml
Fluazinam (Shirlan (VAN)	8.802	6	0.0856	ng/ml
Propargite	8.825	50	0.1031	ng/ml
Pyrethrin I	8.800	433	0.4421	ng/ml
Lactofen	8.823	43	0.1176	ng/ml
Dioxathion	8.837	215	0.1201	ng/ml
Fenazaquin	8.872	14164	0.0483	ng/ml
Hexythiazox	9.013	129	0.1488	ng/ml
Spinetoram L	9.019	14	0.1062	ng/ml
Fenpyroximate	9.117	273	0.1219	ng/ml
Fenpropathrin	9.229	1232	0.2115	ng/ml
Pyridaben	9.782	979	0.0996	ng/ml
Abamectin	9.832	4	ND	ng/ml
d-Phenothrin	10.008	209	0.0961	ng/ml
Etofenprox	10.389	1495	0.0998	ng/ml
Fluvalinate	10.547	61	0.0831	ng/ml
Pyridalyl	10.937	13225	9.4288	ng/ml
Fenbutatin oxide	11.011	446	0.1224	ng/ml

Quantitative Analysis Sample Report

Batch Info

Batch Data Path	D:\MassHunter\Data\23I21_FNC\QuantResults\23I21_FNC.batch.bin		
Analysis Time	9/22/2023 2:24 PM	**Analyst Name**	6470QQQ\lcgroup
Report Time	9/22/2023 2:29 PM	**Reporter Name**	6470QQQ\lcgroup
Last Calib Update	9/22/2023 2:24 PM	**Batch State**	Processed
Instrument	6470QQQ	**Sample Name**	23I2104-MSD1@20
Position	P4-C6	**Data File**	23I21_FNC_041.d
Dilution	1	**Sample Type**	Sample
Acq Time	2023-09-22 05:29	**Acq Method**	23H17_FNC.m
Inj Vol	2	**Operator**	ECD

Quantitation Results

Compound	RT	Resp	Final Conc	
Cyromazine	1.241	49	0.1829	ng/ml
Methamidophos	1.219	81	0.1128	ng/ml
Acephate	1.723	9	0.1250	ng/ml
Formentanate metabolite	2.357	11	0.1294	ng/ml
Omethoate	2.280	97	0.1085	ng/ml
Pymetrozine	2.620	338	0.0936	ng/ml
Propamocarb	2.615	303	0.1680	ng/ml
Formetanate HCl	2.646	282	0.1099	ng/ml
Aldicarb-sulfoxide	2.667	269130	8.5001	ng/ml
Dinotefuran	2.658	135	0.0872	ng/ml
Aldicarb-sulfone (Aldoxycarb)	2.872	8929	9.0819	ng/ml
Oxamyl	3.014	1204906	9.0994	ng/ml
Methomyl	3.021	314277	9.0137	ng/ml
Carbendazim	3.091	1291	0.0609	ng/ml
Oxydemeton-methyl	3.095	233	0.1381	ng/ml
Flonicamid	3.125	5	0.1140	ng/ml
Thiabendazole	3.344	756401	6.6588	ng/ml
Thiamethoxam	3.384	769	0.1092	ng/ml
Fenuron (N,N-Dimethyl-N-phenylurea)	3.417	1238	0.0648	ng/ml
Clothianidin	3.467	1265	0.2386	ng/ml
3-Hydroxy Carbofuran	3.513	527655	9.4234	ng/ml
Dimethoate	3.577	85	0.0919	ng/ml
Imidacloprid	3.639	118817	9.3644	ng/ml
Flumetsulam	3.662	21	0.1019	ng/ml
Mevinphos (Phosdrin)	3.695	150	0.0780	ng/ml
Acetamiprid	3.741	275	0.0679	ng/ml
Flupyradifurone	3.710	32	0.0980	ng/ml
Sulfoxaflor	3.738	36	0.0884	ng/ml
Cymoxanil (Curzate)	3.806	58	0.0528	ng/ml
Aldicarb	3.823	243805	9.1989	ng/ml
Pyrasulfotole	3.972	39	0.2782	ng/ml
Thiacloprid	4.003	351	0.0747	ng/ml
Phosphamidon	3.855	50	0.0771	ng/ml
Cyanazine (Fortrol)	4.049	176055	9.3770	ng/ml
Monuron	4.098	51	0.0834	ng/ml
Simazine	4.088	91787	9.1889	ng/ml
Pirimicarb	4.131	293	0.0211	ng/ml
Propoxur	4.143	413375	9.7573	ng/ml
Tebuthiuron	4.205	38	0.0585	ng/ml
Fenamiphos - sulfoxide	4.165	14	0.0867	ng/ml
Oxadixyl	4.185	110	0.1128	ng/ml
Bendiocarb	4.306	101	0.0979	ng/ml
Carbofuran	4.233	1377019	9.0661	ng/ml
Bromacil	4.231	220357	9.0961	ng/ml
Metribuzin	4.252	82853	8.7728	ng/ml
Terbacil	4.363	1	0.2641	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Simetryn	4.289	1001115	9.8435	ng/ml
Malaxon	4.266	27	0.1075	ng/ml
Prometon	4.342	2152042	9.6510	ng/ml
Fenamiphos - sulfone	4.329	18	0.0884	ng/ml
Fluometuron	4.351	322	0.0377	ng/ml
Cyprosulfamide	4.392	98	0.0997	ng/ml
Carbaryl	4.371	910198	10.0226	ng/ml
Thiophanate-methyl	4.448	164	0.1074	ng/ml
Hexazinone	4.441	3727225	9.5718	ng/ml
Carboxin	4.487	130	0.0649	ng/ml
Nicosulfuron 1	4.410	1	0.1788	ng/ml
Atrazine	4.507	296907	9.9009	ng/ml
Thiencarbazone-methyl	4.821	150	0.2447	ng/ml
Sulfentrazone	4.255	41	ND	ng/ml
Thifensulfuron-methyl (DPX-M6316)	4.484	47	0.0970	ng/ml
Sulfometuron-methyl	4.493	137	0.0468	ng/ml
Metsulfuron-methyl	4.721	46	0.0866	ng/ml
Imazalil	4.787	44	0.1241	ng/ml
DCPMU	4.370	16197	0.6820	ng/ml
Phorate Sulfoxide	4.706	57	0.0882	ng/ml
Diuron	4.808	648541	9.2335	ng/ml
Flutriafol	4.832	67	0.1305	ng/ml
Thiodicarb	4.993	22	0.1193	ng/ml
Diazoxon	4.861	116	0.0710	ng/ml
Cyantraniliprole	4.855	1	0.1787	ng/ml
Pyrimethanil	4.927	138668	9.4492	ng/ml
Phorate Sulfone	4.896	93	0.0857	ng/ml
Propazine	4.953	721387	9.4011	ng/ml
Fenobucarb (Baycarb)	4.954	50	0.0824	ng/ml
Siduron	4.989	8	0.1059	ng/ml
Trifloxysulfuron-sodium	5.001	83	0.1883	ng/ml
Pyroxasulfone	5.002	145	0.0936	ng/ml
Penoxsulam (Penoxalim)	4.937	106	0.1347	ng/ml
Disulfoton-sulfone	5.031	78	0.0667	ng/ml
Disulfoton-Sulfone	4.976	5	0.1540	ng/ml
Cloransulam-Methyl	5.029	63	0.0489	ng/ml
Terbuthylazine	5.053	1414687	9.5013	ng/ml
Norflurazon	5.077	155	0.1038	ng/ml
Famphur (Famophos)	4.976	420	0.1148	ng/ml
Clomazone	5.152	524	0.0753	ng/ml
Propanil	5.346	66	0.1102	ng/ml
Trinexapac-ethyl	5.088	268	0.1313	ng/ml
Prometryn	5.226	2599352	9.5267	ng/ml
Bicyclopyrone	5.231	402	0.0565	ng/ml
Linuron	5.290	74	0.0243	ng/ml
Spiroxamine	5.289	37	0.1128	ng/ml
Terbutryn	5.290	3165162	9.5917	ng/ml
Flurtamone	5.478	3	0.2040	ng/ml
Methiocarb (Mercaptodimethur)	5.328	1082315	9.6965	ng/ml
Chlorantraniliprole	5.339	68311	9.7013	ng/ml
Methidathion	5.371	466	0.0753	ng/ml
Fluridone	5.469	102	0.0723	ng/ml
Acibenzolar-s-methyl	5.538	47	0.5847	ng/ml
Bensulfuron-methyl	5.440	122	0.0862	ng/ml
Saflufenacil	5.576	23	0.1630	ng/ml
Fenamidone	5.562	67	0.1149	ng/ml
Triadimenol	5.454	1	0.3271	ng/ml
Methoxyfenozide	5.606	356	0.0937	ng/ml
Bispyribac	5.604	33	0.1321	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Fomesafen	5.557	0	ND	ng/ml
Triadimefon	5.637	40477	9.6848	ng/ml
Iodosulfuron-Methyl	5.777	2	ND	ng/ml
Fenhexamid	5.773	157	0.2225	ng/ml
Boscalid	5.707	106862	9.7631	ng/ml
Fluxapyroxad	5.642	20	0.0946	ng/ml
Azinphos-methyl	5.799	2	0.1465	ng/ml
Fluopyram	5.769	1935	0.0951	ng/ml
Isoxaben	5.808	1697013	8.9843	ng/ml
Phosmet	5.818	364	0.0995	ng/ml
Fluopicolide	5.962	104	0.0797	ng/ml
Malathion	5.881	25	0.1009	ng/ml
Indaziflam	5.874	1866130	8.7528	ng/ml
Azoxystrobin	5.897	1592671	8.9685	ng/ml
Cyprodinil	5.949	576	0.1803	ng/ml
Bifenazate	6.066	1	0.1267	ng/ml
Triticonazole	6.001	851	0.0280	ng/ml
Dimethomorph 1	5.915	1	0.1188	ng/ml
Isofetamid	5.999	563	0.0664	ng/ml
Neburon (Phosphoramidothioic acid)	6.094	322	0.1430	ng/ml
Chlorimuron-ethyl	6.006	1	ND	ng/ml
Tebufenozide	6.127	36	0.1246	ng/ml
Spirotetramat	6.307	11	0.1111	ng/ml
Mandipropamid	6.115	40	0.0975	ng/ml
Penthiopyrad	6.144	98	0.1352	ng/ml
Flufenacet (Fluthiamide)	6.253	1	0.0432	ng/ml
Dodine	6.604	140	0.1257	ng/ml
Afidopyropen	6.498	20	0.1263	ng/ml
Flumioxazin	6.263	16452	10.3320	ng/ml
Oryzalin	6.268	2345	8.0950	ng/ml
Diflubenzuron	6.411	39	ND	ng/ml
Dimethomorph 2	6.161	10	0.0615	ng/ml
Tebuconazole	6.503	113	0.0888	ng/ml
Fenoxycarb	6.640	37	0.1161	ng/ml
Ametoctradin	6.631	99	0.0809	ng/ml
Hexaconazole	6.511	58	0.1104	ng/ml
Flubendiamide	6.742	1	0.2809	ng/ml
Fonofos	6.813	17	ND	ng/ml
Bensulide	6.562	41	0.1757	ng/ml
Cycloate	6.714	35	0.4957	ng/ml
Picoxystrobin	6.718	57	0.0363	ng/ml
Cyclaniliprole	6.807	1	0.3228	ng/ml
Azinphos-ethyl (Guthion ethyl)	6.664	34	0.0354	ng/ml
Cyazofamid	6.520	46	0.0960	ng/ml
TPP d15	6.773	275776	19.1198 96	ng/ml
Fenbuconazole	6.647	43	0.0882	ng/ml
Carfentrazone-ethyl	6.880	2	0.0994	ng/ml
Bitertanol	7.010	45	0.1508	ng/ml
Metconazole	6.756	36	0.0751	ng/ml
Prothioconazole	6.606	3	ND	ng/ml
Fluoxastrobin	7.169	54	0.1329	ng/ml
Pirimiphos-methyl	6.876	88	0.0827	ng/ml
Benzovindiflupyr	7.099	36	0.1737	ng/ml
Isoxadifen-ethyl (AE F122006)	7.211	13	0.1085	ng/ml
Mefenitrifluconazole	6.971	29	0.1026	ng/ml
Propiconazole	6.946	1104	0.2098	ng/ml
Iprodione	6.974	10646	55.0706	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Thiobencarb	6.877	223	0.0925	ng/ml
Cyflufenamid	7.377	18	0.1464	ng/ml
Clofentezine	7.492	36	0.0228	ng/ml
Triflumizol	7.317	90	0.0867	ng/ml
Pyraflufen-ethyl	7.305	18	0.0917	ng/ml
Prallethrin	7.357	81	0.1862	ng/ml
Flutianil	7.394	113	0.1208	ng/ml
Pydiflumetofen	7.377	172	0.1088	ng/ml
Ipconazole	7.400	248	0.0577	ng/ml
Famoxadone	7.505	32	0.1288	ng/ml
Pyraclostrobin	7.506	777121	8.9740	ng/ml
Metrafenone	7.513	85	0.1056	ng/ml
Rotenone	7.514	16	0.1742	ng/ml
Diflufenican	7.505	63	0.1315	ng/ml
Sethoxydim	7.861	31	0.1891	ng/ml
Novaluron	7.729	40	0.0506	ng/ml
Trifloxystrobin	7.784	336	0.0659	ng/ml
Phosalone	7.787	23	0.1497	ng/ml
Coumaphos	7.860	21	0.0710	ng/ml
Pyrethrin II	7.877	142	0.4060	ng/ml
Allethrin	7.835	268	0.1734	ng/ml
Clethodim	7.869	39	0.2529	ng/ml
Spinosyn A	7.936	32215	0.0357	ng/ml
Difenconazole	8.019	289	0.1507	ng/ml
Piperonyl butoxide	7.996	393	0.0671	ng/ml
Triallate	8.124	21	ND	ng/ml
Cyhalofop butyl	8.121	33	ND	ng/ml
Quizalofop-ethyl	8.312	23	0.0854	ng/ml
Tolfenpyrade	8.265	48	0.0741	ng/ml
Indoxacarb	8.381	69	0.1595	ng/ml
Cyflumetofen	8.400	34	0.0759	ng/ml
Emamectin Benzoate	8.470	2	0.0698	ng/ml
Spinosyn D	8.498	3976	0.1104	ng/ml
Spiromesifen	8.527	34	0.1041	ng/ml
Spinetoram J	8.488	425	0.0889	ng/ml
Ethion	8.662	94	0.1352	ng/ml
Fluazinam (Shirlan (VAN)	8.469	0	0.0823	ng/ml
Propargite	8.637	19	0.1019	ng/ml
Pyrethrin I	8.818	677	0.4550	ng/ml
Lactofen	8.823	19	0.1167	ng/ml
Dioxathion	8.837	87	0.1162	ng/ml
Fenazaquin	9.051	6725	0.0195	ng/ml
Hexythiazox	9.040	38	0.1444	ng/ml
Spinetoram L	9.001	87	0.1094	ng/ml
Fenpyroximate	9.117	66	0.1170	ng/ml
Fenpropathrin	9.220	1016	0.1787	ng/ml
Pyridaben	9.648	139	0.0907	ng/ml
Abamectin	9.823	6	ND	ng/ml
d-Phenothrin	10.008	317	0.1102	ng/ml
Etofenprox	10.371	467	0.0893	ng/ml
Fluvalinate	10.603	35	0.0739	ng/ml
Pyridalyl	10.937	13023	9.2886	ng/ml
Fenbutatin oxide	11.011	151	0.0737	ng/ml

Quantitative Analysis Sample Report

Batch Info

Batch Data Path	D:\MassHunter\Data\23I21_FNC\QuantResults\23I21_FNC.batch.bin		
Analysis Time	9/22/2023 2:24 PM	**Analyst Name**	6470QQQ\lcgroup
Report Time	9/22/2023 2:29 PM	**Reporter Name**	6470QQQ\lcgroup
Last Calib Update	9/22/2023 2:24 PM	**Batch State**	Processed
Instrument	6470QQQ	**Sample Name**	23I21_FNC_CAL_5 10µg/L
Position	P1-A7	**Data File**	23I21_FNC_007.d
Dilution	1	**Sample Type**	Calibration
Acq Time	2023-09-21 19:02	**Acq Method**	23H17_FNC.m
Inj Vol	2	**Operator**	ECD

Quantitation Results

Compound	RT	Resp	Final Conc	
Cyromazine	1.241	188697	9.8110	ng/ml
Methamidophos	1.263	429904	9.6717	ng/ml
Acephate	1.715	372631	9.6514	ng/ml
Formentanate metabolite	2.348	118338	9.4318	ng/ml
Omethoate	2.451	501422	9.7113	ng/ml
Pymetrozine	2.629	804954	9.7989	ng/ml
Propamocarb	2.642	983867	9.7992	ng/ml
Formetanate HCl	2.646	638924	9.7554	ng/ml
Aldicarb-sulfoxide	2.667	309077	9.7485	ng/ml
Dinotefuran	2.667	224128	9.7769	ng/ml
Aldicarb-sulfone (Aldoxycarb)	2.872	9203	9.3594	ng/ml
Oxamyl	3.014	1285555	9.6966	ng/ml
Methomyl	3.021	343569	9.8475	ng/ml
Carbendazim	3.082	3088862	9.7976	ng/ml
Oxydemeton-methyl	3.104	294506	9.6935	ng/ml
Flonicamid	3.107	41465	10.0092	ng/ml
Thiabendazole	3.344	1119126	9.7949	ng/ml
Thiamethoxam	3.384	409244	9.8599	ng/ml
Fenuron (N,N-Dimethyl-N-phenylurea)	3.417	1192329	9.8165	ng/ml
Clothianidin	3.467	78232	9.5071	ng/ml
3-Hydroxy Carbofuran	3.513	551850	9.8491	ng/ml
Dimethoate	3.605	616122	9.7460	ng/ml
Imidacloprid	3.630	122664	9.6646	ng/ml
Flumetsulam	3.662	164004	9.6519	ng/ml
Mevinphos (Phosdrin)	3.695	521594	9.7922	ng/ml
Acetamiprid	3.750	1012513	9.7354	ng/ml
Flupyradifurone	3.746	202674	9.6670	ng/ml
Sulfoxaflor	3.738	591014	9.7720	ng/ml
Cymoxanil (Curzate)	3.787	343928	9.6755	ng/ml
Aldicarb	3.823	252609	9.5260	ng/ml
Pyrasulfotole	3.917	189576	10.0461	ng/ml
Thiacloprid	4.003	1100170	9.7294	ng/ml
Phosphamidon	4.011	354239	9.8884	ng/ml
Cyanazine (Fortrol)	4.049	189267	10.0663	ng/ml
Monuron	4.070	809597	9.6317	ng/ml
Simazine	4.079	99293	9.9388	ng/ml
Pirimicarb	4.113	2636888	9.8409	ng/ml
Propoxur	4.133	413247	9.7543	ng/ml
Tebuthiuron	4.169	1807194	9.7874	ng/ml
Fenamiphos - sulfoxide	4.174	388432	9.7697	ng/ml
Oxadixyl	4.185	880776	9.8796	ng/ml
Bendiocarb	4.206	471286	9.8733	ng/ml
Carbofuran	4.224	1505867	9.9021	ng/ml
Bromacil	4.231	245194	10.1336	ng/ml
Metribuzin	4.252	86188	9.1162	ng/ml
Terbacil	4.272	11693	8.8670	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Simetryn	4.280	980139	9.6402	ng/ml
Malaxon	4.321	277560	9.9277	ng/ml
Prometon	4.324	2189073	9.8138	ng/ml
Fenamiphos - sulfone	4.329	306409	9.6490	ng/ml
Fluometuron	4.342	609516	9.8748	ng/ml
Cyprosulfamide	4.356	198358	9.8323	ng/ml
Carbaryl	4.362	884684	9.7420	ng/ml
Thiophanate-methyl	4.430	648213	9.8401	ng/ml
Hexazinone	4.432	3775589	9.6932	ng/ml
Carboxin	4.460	1051990	9.7016	ng/ml
Nicosulfuron 1	4.474	71382	10.0521	ng/ml
Atrazine	4.498	289805	9.6660	ng/ml
Thiencarbazone-methyl	4.502	38478	9.6434	ng/ml
Sulfentrazone	4.502	17416	9.7524	ng/ml
Thifensulfuron-methyl (DPX-M6316)	4.520	125834	9.7759	ng/ml
Sulfometuron-methyl	4.521	1339723	9.8357	ng/ml
Metsulfuron-methyl	4.557	175632	9.4722	ng/ml
Imazalil	4.669	293373	9.6450	ng/ml
DCPMU	4.672	280426	10.0766	ng/ml
Phorate Sulfoxide	4.761	775310	9.7822	ng/ml
Diuron	4.789	685222	9.7525	ng/ml
Flutriafol	4.805	192267	9.6920	ng/ml
Thiodicarb	4.831	180862	9.6190	ng/ml
Diazoxon	4.842	1012438	9.7292	ng/ml
Cyantraniliprole	4.846	17538	9.3929	ng/ml
Pyrimethanil	4.918	145100	9.8898	ng/ml
Phorate Sulfone	4.951	260937	9.7588	ng/ml
Propazine	4.944	741395	9.6619	ng/ml
Fenobucarb (Baycarb)	4.954	507656	9.6604	ng/ml
Siduron	4.980	616708	9.8881	ng/ml
Trifloxysulfuron-sodium	4.983	7317	10.9311	ng/ml
Pyroxasulfone	4.984	559806	9.6442	ng/ml
Penoxsulam (Penoxalim)	5.009	79671	10.0171	ng/ml
Disulfoton-sulfone	5.013	583356	9.7107	ng/ml
Disulfoton-Sulfone	5.013	110356	10.0086	ng/ml
Cloransulam-Methyl	5.020	36593	9.3880	ng/ml
Terbuthylazine	5.044	1446176	9.7118	ng/ml
Norflurazon	5.086	439210	9.5619	ng/ml
Famphur (Famophos)	5.103	220727	9.7812	ng/ml
Clomazone	5.134	998608	9.6779	ng/ml
Propanil	5.154	91734	9.5307	ng/ml
Trinexapac-ethyl	5.207	266114	9.6866	ng/ml
Prometryn	5.217	2682447	9.8238	ng/ml
Bicyclopyrone	5.231	2189733	9.8594	ng/ml
Linuron	5.253	208394	9.8762	ng/ml
Spiroxamine	5.261	1598422	9.8694	ng/ml
Terbutryn	5.281	3215491	9.7406	ng/ml
Flurtamone	5.286	123266	9.9106	ng/ml
Methiocarb (Mercaptodimethur)	5.328	1093106	9.7923	ng/ml
Chlorantraniliprole	5.330	71620	10.1608	ng/ml
Methidathion	5.399	300949	9.8495	ng/ml
Fluridone	5.451	884579	9.6940	ng/ml
Acibenzolar-s-methyl	5.529	25119	20.8853	ng/ml
Bensulfuron-methyl	5.541	327725	9.8850	ng/ml
Saflufenacil	5.567	20312	10.4714	ng/ml
Fenamidone	5.580	1113834	9.8171	ng/ml
Triadimenol	5.582	174410	19.6935	ng/ml
Methoxyfenozide	5.587	1309033	9.6644	ng/ml
Bispyribac	5.595	234640	9.5086	ng/ml

Compound	RT	Resp	Final Conc	
Fomesafen	5.612	1560	9.9438	ng/ml
Triadimefon	5.628	40410	9.6690	ng/ml
Iodosulfuron-Methyl	5.649	45783	9.9712	ng/ml
Fenhexamid	5.655	53802	9.1058	ng/ml
Boscalid	5.707	103795	9.4881	ng/ml
Fluxapyroxad	5.724	130812	9.6746	ng/ml
Azinphos-methyl	5.735	224510	9.8866	ng/ml
Fluopyram	5.760	803628	9.8059	ng/ml
Isoxaben	5.808	1840495	9.7249	ng/ml
Phosmet	5.799	769369	9.6958	ng/ml
Fluopicolide	5.815	402022	9.8311	ng/ml
Malathion	5.853	306221	9.7953	ng/ml
Indaziflam	5.865	2123133	9.9407	ng/ml
Azoxystrobin	5.906	1764748	9.9207	ng/ml
Cyprodinil	5.949	250982	9.9352	ng/ml
Bifenazate	5.975	722583	9.2866	ng/ml
Triticonazole	5.992	175115	9.7373	ng/ml
Dimethomorph 1	5.998	142574	9.8190	ng/ml
Isofetamid	5.999	1954873	9.7410	ng/ml
Neburon (Phosphoramidothioic acid)	6.084	239296	9.8135	ng/ml
Chlorimuron-ethyl	6.097	78404	9.4059	ng/ml
Tebufenozide	6.109	795682	9.5672	ng/ml
Spirotetramat	6.135	229581	9.8862	ng/ml
Mandipropamid	6.170	447781	9.6272	ng/ml
Penthiopyrad	6.190	228815	9.7076	ng/ml
Flufenacet (Fluthiamide)	6.198	1118378	9.6675	ng/ml
Dodine	6.222	346606	9.8212	ng/ml
Afidopyropen	6.297	11766	9.0328	ng/ml
Flumioxazin	6.300	14395	9.1664	ng/ml
Oryzalin	6.314	2763	9.6076	ng/ml
Diflubenzuron	6.420	166672	9.7004	ng/ml
Dimethomorph 2	6.426	342582	9.7447	ng/ml
Tebuconazole	6.466	218892	9.8356	ng/ml
Fenoxycarb	6.576	560186	9.8139	ng/ml
Ametoctradin	6.586	1197797	9.7935	ng/ml
Hexaconazole	6.593	133506	9.6333	ng/ml
Flubendiamide	6.633	35096	18.7033	ng/ml
Fonofos	6.641	15073	9.6704	ng/ml
Bensulide	6.663	89657	9.4131	ng/ml
Cycloate	6.668	28204	19.0076	ng/ml
Picoxystrobin	6.673	2234812	9.8610	ng/ml
Cyclaniliprole	6.689	16370	10.1079	ng/ml
Azinphos-ethyl (Guthion ethyl)	6.691	50850	9.8771	ng/ml
Cyazofamid	6.692	495488	9.8878	ng/ml
TPP d15	6.773	279708	19.3881	ng/ml
Fenbuconazole	6.801	124619	9.7028	ng/ml
Carfentrazone-ethyl	6.808	104709	9.8673	ng/ml
Bitertanol	6.828	38268	10.0132	ng/ml
Metconazole	6.838	260423	9.8512	ng/ml
Prothioconazole	6.833	10448	18.4082	ng/ml
Fluoxastrobin	6.852	193289	9.8828	ng/ml
Pirimiphos-methyl	6.858	550586	9.7804	ng/ml
Benzovindiflupyr	6.872	149436	9.8791	ng/ml
Isoxadifen-ethyl (AE F122006)	6.930	141481	9.5896	ng/ml
Mefenitrifluconazole	6.953	146073	9.3506	ng/ml
Propiconazole	6.973	75314	9.9681	ng/ml
Iprodione	6.983	9598	49.8232	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Thiobencarb	7.086	493850	9.8912	ng/ml
Cyflufenamid	7.225	191578	9.9943	ng/ml
Clofentezine	7.239	177079	10.1170	ng/ml
Triflumizol	7.290	1211707	9.7988	ng/ml
Pyraflufen-ethyl	7.296	202648	9.9359	ng/ml
Prallethrin	7.348	83971	9.7555	ng/ml
Flutianil	7.385	576163	9.8178	ng/ml
Pydiflumetofen	7.395	203868	9.8560	ng/ml
Ipconazole	7.409	242699	9.5345	ng/ml
Famoxadone	7.478	46463	9.6326	ng/ml
Pyraclostrobin	7.497	848779	9.7923	ng/ml
Metrafenone	7.513	421484	9.7618	ng/ml
Rotenone	7.542	32602	9.5430	ng/ml
Diflufenican	7.559	240403	9.8633	ng/ml
Sethoxydim	7.690	780327	19.3333	ng/ml
Novaluron	7.729	31025	9.5912	ng/ml
Trifloxystrobin	7.784	1510604	9.7574	ng/ml
Phosalone	7.787	147586	9.7501	ng/ml
Coumaphos	7.815	453623	9.7876	ng/ml
Pyrethrin II	7.868	230184	49.0136	ng/ml
Allethrin	7.880	125081	9.6394	ng/ml
Clethodim	7.914	208229	19.2603	ng/ml
Spinosyn A	7.927	982025	9.8354	ng/ml
Difenconazole	7.974	164294	9.7280	ng/ml
Piperonyl butoxide	7.987	2544447	9.7959	ng/ml
Triallate	8.087	7419	8.7497	ng/ml
Cyhalofop butyl	8.157	36963	9.4688	ng/ml
Quizalofop-ethyl	8.230	103639	9.9031	ng/ml
Tolfenpyrade	8.265	70985	9.8824	ng/ml
Indoxacarb	8.372	38213	9.9547	ng/ml
Cyflumetofen	8.373	797174	9.8812	ng/ml
Emamectin Benzoate	8.443	180750	9.8118	ng/ml
Spinosyn D	8.480	361329	9.7793	ng/ml
Spiromesifen	8.473	1512747	19.6130	ng/ml
Spinetoram J	8.506	747775	9.7754	ng/ml
Ethion	8.653	674412	9.7467	ng/ml
Fluazinam (Shirlan (VAN)	8.658	16643	9.6877	ng/ml
Propargite	8.808	272370	9.9215	ng/ml
Pyrethrin I	8.800	929015	48.7247	ng/ml
Lactofen	8.832	247900	9.6448	ng/ml
Dioxathion	8.828	321216	9.6139	ng/ml
Fenazaquin	8.944	2551955	9.7287	ng/ml
Hexythiazox	8.996	203672	9.7640	ng/ml
Spinetoram L	9.010	227586	9.7577	ng/ml
Fenpyroximate	9.108	417607	9.6992	ng/ml
Fenpropathrin	9.220	64513	9.6137	ng/ml
Pyridaben	9.603	930399	9.7742	ng/ml
Abamectin	9.814	4402	9.6720	ng/ml
d-Phenothrin	9.945	75250	9.6910	ng/ml
Etofenprox	10.371	957291	9.7625	ng/ml
Fluvalinate	10.511	28304	9.6894	ng/ml
Pyridalyl	10.928	13717	9.7695	ng/ml
Fenbutatin oxide	10.994	59812	9.6914	ng/ml

Quantitative Analysis Sample Report

Batch Info

Batch Data Path	D:\MassHunter\Data\23I21_FNC\QuantResults\23I21_FNC.batch.bin		
Analysis Time	9/22/2023 2:24 PM	**Analyst Name**	6470QQQ\lcgroup
Report Time	9/22/2023 2:29 PM	**Reporter Name**	6470QQQ\lcgroup
Last Calib Update	9/22/2023 2:24 PM	**Batch State**	Processed
Instrument	6470QQQ	**Sample Name**	23I21_FNC_CCV_2 10µg/L
Position	P1-A7	**Data File**	23I21_FNC_036.d
Dilution	1	**Sample Type**	CC
Acq Time	2023-09-22 03:56	**Acq Method**	23H17_FNC.m
Inj Vol	2	**Operator**	ECD

Quantitation Results

Compound	RT	Resp	Final Conc	
Cyromazine	1.241	199994	10.4082	ng/ml
Methamidophos	1.263	455260	10.2304	ng/ml
Acephate	1.715	395021	10.2158	ng/ml
Formentanate metabolite	2.357	140164	11.1145	ng/ml
Omethoate	2.451	528140	10.2183	ng/ml
Pymetrozine	2.629	825248	10.0435	ng/ml
Propamocarb	2.642	1026305	10.2156	ng/ml
Formetanate HCl	2.646	653241	9.9700	ng/ml
Aldicarb-sulfoxide	2.667	325516	10.2623	ng/ml
Dinotefuran	2.667	231232	10.0864	ng/ml
Aldicarb-sulfone (Aldoxycarb)	2.872	9663	9.8261	ng/ml
Oxamyl	3.014	1340254	10.1012	ng/ml
Methomyl	3.030	351764	10.0809	ng/ml
Carbendazim	3.091	3185948	10.0995	ng/ml
Oxydemeton-methyl	3.113	309225	10.1729	ng/ml
Flonicamid	3.116	41267	9.9611	ng/ml
Thiabendazole	3.353	1153051	10.0871	ng/ml
Thiamethoxam	3.393	429130	10.3343	ng/ml
Fenuron (N,N-Dimethyl-N-phenylurea)	3.426	1220834	10.0479	ng/ml
Clothianidin	3.476	79696	9.6815	ng/ml
3-Hydroxy Carbofuran	3.513	576787	10.2878	ng/ml
Dimethoate	3.614	642308	10.1542	ng/ml
Imidacloprid	3.639	131070	10.3204	ng/ml
Flumetsulam	3.671	171945	10.1078	ng/ml
Mevinphos (Phosdrin)	3.704	551038	10.3376	ng/ml
Acetamiprid	3.750	1055147	10.1427	ng/ml
Flupyradifurone	3.755	212272	10.1236	ng/ml
Sulfoxaflor	3.747	621563	10.2728	ng/ml
Cymoxanil (Curzate)	3.787	358896	10.0936	ng/ml
Aldicarb	3.823	271966	10.2443	ng/ml
Pyrasulfotole	3.926	177550	9.4300	ng/ml
Thiacloprid	4.012	1113616	9.8471	ng/ml
Phosphamidon	4.011	379582	10.5774	ng/ml
Cyanazine (Fortrol)	4.058	190592	10.1354	ng/ml
Monuron	4.079	882139	10.4898	ng/ml
Simazine	4.088	102505	10.2597	ng/ml
Pirimicarb	4.122	2756096	10.2708	ng/ml
Propoxur	4.143	444786	10.4886	ng/ml
Tebuthiuron	4.178	1862850	10.0891	ng/ml
Fenamiphos - sulfoxide	4.184	387837	9.7548	ng/ml
Oxadixyl	4.194	925731	10.3771	ng/ml
Bendiocarb	4.215	487206	10.2028	ng/ml
Carbofuran	4.233	1482811	9.7526	ng/ml
Bromacil	4.231	242194	10.0081	ng/ml
Metribuzin	4.261	103261	10.8707	ng/ml
Terbacil	4.290	12240	9.2729	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Simetryn	4.289	1005190	9.8829	ng/ml
Malaxon	4.330	276118	9.8760	ng/ml
Prometon	4.333	2259754	10.1244	ng/ml
Fenamiphos - sulfone	4.338	326353	10.2813	ng/ml
Fluometuron	4.351	611148	9.9015	ng/ml
Cyprosulfamide	4.365	200064	9.9163	ng/ml
Carbaryl	4.362	938773	10.3369	ng/ml
Thiophanate-methyl	4.439	639252	9.7044	ng/ml
Hexazinone	4.441	3832909	9.8369	ng/ml
Carboxin	4.469	1081607	9.9738	ng/ml
Nicosulfuron 1	4.483	69080	9.7356	ng/ml
Atrazine	4.507	305302	10.1788	ng/ml
Thiencarbazone-methyl	4.511	33274	8.3641	ng/ml
Sulfentrazone	4.520	18109	10.1363	ng/ml
Thifensulfuron-methyl (DPX-M6316)	4.529	131102	10.1647	ng/ml
Sulfometuron-methyl	4.530	1382675	10.1411	ng/ml
Metsulfuron-methyl	4.566	191698	10.3127	ng/ml
Imazalil	4.678	316194	10.3816	ng/ml
DCPMU	4.681	289204	10.3916	ng/ml
Phorate Sulfoxide	4.770	796721	10.0485	ng/ml
Diuron	4.798	712373	10.1367	ng/ml
Flutriafol	4.814	192716	9.7143	ng/ml
Thiodicarb	4.831	184680	9.8203	ng/ml
Diazoxon	4.861	1095731	10.5176	ng/ml
Cyantraniliprole	4.855	18760	10.0217	ng/ml
Pyrimethanil	4.927	149463	10.1884	ng/ml
Phorate Sulfone	4.960	275942	10.3156	ng/ml
Propazine	4.953	779596	10.1599	ng/ml
Fenobucarb (Baycarb)	4.964	539601	10.2651	ng/ml
Siduron	4.989	632170	10.1345	ng/ml
Trifloxysulfuron-sodium	4.992	6498	9.7614	ng/ml
Pyroxasulfone	4.993	587752	10.1221	ng/ml
Penoxsulam (Penoxalim)	5.018	78501	9.8753	ng/ml
Disulfoton-sulfone	5.022	603999	10.0520	ng/ml
Disulfoton-Sulfone	5.022	116211	10.5283	ng/ml
Cloransulam-Methyl	5.029	38978	9.9818	ng/ml
Terbuthylazine	5.053	1494254	10.0333	ng/ml
Norflurazon	5.095	467694	10.1722	ng/ml
Famphur (Famophos)	5.112	231969	10.2725	ng/ml
Clomazone	5.143	1042147	10.0945	ng/ml
Propanil	5.163	98626	10.2368	ng/ml
Trinexapac-ethyl	5.216	288370	10.4819	ng/ml
Prometryn	5.235	2751638	10.0710	ng/ml
Bicyclopyrone	5.240	2258600	10.1627	ng/ml
Linuron	5.262	219178	10.3832	ng/ml
Spiroxamine	5.271	1629711	10.0580	ng/ml
Terbutryn	5.290	3350541	10.1397	ng/ml
Flurtamone	5.296	120144	9.6587	ng/ml
Methiocarb (Mercaptodimethur)	5.337	1116496	9.9999	ng/ml
Chlorantraniliprole	5.339	73395	10.4074	ng/ml
Methidathion	5.408	304719	9.9713	ng/ml
Fluridone	5.469	919150	10.0693	ng/ml
Acibenzolar-s-methyl	5.538	23630	19.7190	ng/ml
Bensulfuron-methyl	5.550	335542	10.1138	ng/ml
Saflufenacil	5.576	16785	8.7038	ng/ml
Fenamidone	5.589	1145872	10.0961	ng/ml
Triadimenol	5.600	167943	18.9751	ng/ml
Methoxyfenozide	5.606	1331743	9.8302	ng/ml
Bispyribac	5.613	246034	9.9527	ng/ml

Compound	RT	Resp	Final Conc	
Fomesafen	5.630	1206	7.6227	ng/ml
Triadimefon	5.646	46044	10.9772	ng/ml
Iodosulfuron-Methyl	5.658	50031	10.8523	ng/ml
Fenhexamid	5.664	58704	9.9175	ng/ml
Boscalid	5.716	115554	10.5415	ng/ml
Fluxapyroxad	5.742	136557	10.0927	ng/ml
Azinphos-methyl	5.744	232118	10.2163	ng/ml
Fluopyram	5.769	827497	10.0951	ng/ml
Isoxaben	5.817	1931003	10.1913	ng/ml
Phosmet	5.809	825981	10.4002	ng/ml
Fluopicolide	5.824	388877	9.5120	ng/ml
Malathion	5.863	318955	10.1964	ng/ml
Indaziflam	5.883	2160478	10.1131	ng/ml
Azoxystrobin	5.915	1793455	10.0793	ng/ml
Cyprodinil	5.967	243497	9.6434	ng/ml
Bifenazate	5.993	812233	10.4095	ng/ml
Triticonazole	6.010	181129	10.0695	ng/ml
Dimethomorph 1	6.007	150848	10.3687	ng/ml
Isofetamid	6.017	2049729	10.2039	ng/ml
Neburon (Phosphoramidothioic acid)	6.094	244782	10.0368	ng/ml
Chlorimuron-ethyl	6.106	84731	10.1477	ng/ml
Tebufenozide	6.118	852291	10.2366	ng/ml
Spirotetramat	6.144	238658	10.2667	ng/ml
Mandipropamid	6.179	481071	10.3316	ng/ml
Penthiopyrad	6.199	237032	10.0498	ng/ml
Flufenacet (Fluthiamide)	6.207	1183185	10.2229	ng/ml
Dodine	6.231	352761	9.9949	ng/ml
Afidopyropen	6.306	12952	9.8795	ng/ml
Flumioxazin	6.309	15744	9.9316	ng/ml
Oryzalin	6.323	3041	10.6118	ng/ml
Diflubenzuron	6.429	182858	10.6219	ng/ml
Dimethomorph 2	6.435	361727	10.2751	ng/ml
Tebuconazole	6.475	234179	10.5049	ng/ml
Fenoxycarb	6.585	568543	9.9584	ng/ml
Ametoctradin	6.595	1230479	10.0571	ng/ml
Hexaconazole	6.602	137106	9.8882	ng/ml
Flubendiamide	6.642	37007	19.7515	ng/ml
Fonofos	6.650	16011	10.2708	ng/ml
Bensulide	6.663	102029	10.6760	ng/ml
Cycloate	6.677	29033	19.5482	ng/ml
Picoxystrobin	6.682	2239256	9.8803	ng/ml
Cyclaniliprole	6.698	15103	9.3857	ng/ml
Azinphos-ethyl (Guthion ethyl)	6.700	55562	10.7684	ng/ml
Cyazofamid	6.701	508168	10.1378	ng/ml
TPP d15	6.773	296326	20.5214	ng/ml
Fenbuconazole	6.810	131910	10.2602	ng/ml
Carfentrazone-ethyl	6.826	110516	10.3986	ng/ml
Bitertanol	6.837	38371	10.0385	ng/ml
Metconazole	6.847	263308	9.9593	ng/ml
Prothioconazole	6.842	10303	18.1227	ng/ml
Fluoxastrobin	6.861	193762	9.9068	ng/ml
Pirimiphos-methyl	6.867	579913	10.2945	ng/ml
Benzovindiflupyr	6.872	148878	9.8429	ng/ml
Isoxadifen-ethyl (AE F122006)	6.939	144216	9.7704	ng/ml
Mefenitrifluconazole	6.962	156722	10.0153	ng/ml
Propiconazole	6.991	76387	10.1052	ng/ml
Iprodione	6.992	9890	51.2895	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Thiobencarb	7.095	517630	10.3561	ng/ml
Cyflufenamid	7.234	195300	10.1823	ng/ml
Clofentezine	7.248	164481	9.3982	ng/ml
Triflumizol	7.299	1247169	10.0804	ng/ml
Pyraflufen-ethyl	7.305	198670	9.7442	ng/ml
Prallethrin	7.357	87675	10.1701	ng/ml
Flutianil	7.394	591418	10.0730	ng/ml
Pydiflumetofen	7.413	201153	9.7262	ng/ml
Ipconazole	7.418	250335	9.8308	ng/ml
Famoxadone	7.487	49402	10.2180	ng/ml
Pyraclostrobin	7.506	869231	10.0258	ng/ml
Metrafenone	7.522	444738	10.2886	ng/ml
Rotenone	7.551	31871	9.3366	ng/ml
Diflufenican	7.568	247256	10.1380	ng/ml
Sethoxydim	7.698	820983	20.3233	ng/ml
Novaluron	7.738	31912	9.8575	ng/ml
Trifloxystrobin	7.793	1565038	10.1029	ng/ml
Phosalone	7.796	151284	9.9872	ng/ml
Coumaphos	7.824	472066	10.1769	ng/ml
Pyrethrin II	7.877	249046	52.9267	ng/ml
Allethrin	7.898	129624	9.9767	ng/ml
Clethodim	7.923	224335	20.6944	ng/ml
Spinosyn A	7.936	986214	9.8784	ng/ml
Difenconazole	7.983	168918	9.9948	ng/ml
Piperonyl butoxide	7.996	2641004	10.1581	ng/ml
Triallate	8.096	9142	10.7408	ng/ml
Cyhalofop butyl	8.157	38973	9.9726	ng/ml
Quizalofop-ethyl	8.239	108746	10.3782	ng/ml
Tolfenpyrade	8.275	70751	9.8507	ng/ml
Indoxacarb	8.381	37363	9.7417	ng/ml
Cyflumetofen	8.382	810250	10.0410	ng/ml
Emamectin Benzoate	8.452	182393	9.9000	ng/ml
Spinosyn D	8.489	364717	9.8706	ng/ml
Spiromesifen	8.481	1496836	19.4078	ng/ml
Spinetoram J	8.515	772448	10.0922	ng/ml
Ethion	8.662	691142	9.9838	ng/ml
Fluazinam (Shirlan (VAN)	8.667	17936	10.4210	ng/ml
Propargite	8.808	281405	10.2419	ng/ml
Pyrethrin I	8.809	972330	50.9373	ng/ml
Lactofen	8.841	255087	9.9183	ng/ml
Dioxathion	8.837	340468	10.1752	ng/ml
Fenazaquin	8.953	2633911	10.0360	ng/ml
Hexythiazox	9.005	208707	9.9999	ng/ml
Spinetoram L	9.019	231430	9.9192	ng/ml
Fenpyroximate	9.117	435923	10.1118	ng/ml
Fenpropathrin	9.229	69067	10.2758	ng/ml
Pyridaben	9.612	965905	10.1391	ng/ml
Abamectin	9.814	4507	9.9044	ng/ml
d-Phenothrin	9.954	79423	10.2138	ng/ml
Etofenprox	10.380	984488	10.0345	ng/ml
Fluvalinate	10.520	30194	10.3129	ng/ml
Pyridalyl	10.937	13807	9.8319	ng/ml
Fenbutatin oxide	10.994	62395	10.0983	ng/ml

Quantitative Analysis Sample Report

Batch Info

Batch Data Path	D:\MassHunter\Data\23I21_FNC\QuantResults\23I21_FNC.batch.bin		
Analysis Time	9/22/2023 2:24 PM	**Analyst Name**	6470QQQ\lcgroup
Report Time	9/22/2023 2:29 PM	**Reporter Name**	6470QQQ\lcgroup
Last Calib Update	9/22/2023 2:24 PM	**Batch State**	Processed
Instrument	6470QQQ	**Sample Name**	23I21_FNC_CCV_3 10µg/L
Position	P1-A7	**Data File**	23I21_FNC_048.d
Dilution	1	**Sample Type**	CC
Acq Time	2023-09-22 07:38	**Acq Method**	23H17_FNC.m
Inj Vol	2	**Operator**	ECD

Quantitation Results

Compound	RT	Resp	Final Conc	
Cyromazine	1.241	189564	9.8567	ng/ml
Methamidophos	1.263	456738	10.2630	ng/ml
Acephate	1.723	397231	10.2715	ng/ml
Formentanate metabolite	2.357	146113	11.5715	ng/ml
Omethoate	2.451	523016	10.1211	ng/ml
Pymetrozine	2.629	834085	10.1499	ng/ml
Propamocarb	2.642	1028964	10.2417	ng/ml
Formetanate HCl	2.646	643101	9.8180	ng/ml
Aldicarb-sulfoxide	2.667	324371	10.2265	ng/ml
Dinotefuran	2.667	236756	10.3271	ng/ml
Aldicarb-sulfone (Aldoxycarb)	2.872	9604	9.7664	ng/ml
Oxamyl	3.014	1345863	10.1427	ng/ml
Methomyl	3.021	358270	10.2662	ng/ml
Carbendazim	3.091	3217526	10.1977	ng/ml
Oxydemeton-methyl	3.104	308615	10.1530	ng/ml
Flonicamid	3.107	40898	9.8715	ng/ml
Thiabendazole	3.344	1160440	10.1508	ng/ml
Thiamethoxam	3.384	421676	10.1565	ng/ml
Fenuron (N,N-Dimethyl-N-phenylurea)	3.417	1229354	10.1170	ng/ml
Clothianidin	3.467	84820	10.2913	ng/ml
3-Hydroxy Carbofuran	3.513	564021	10.0632	ng/ml
Dimethoate	3.605	646749	10.2235	ng/ml
Imidacloprid	3.630	132336	10.4191	ng/ml
Flumetsulam	3.662	169940	9.9927	ng/ml
Mevinphos (Phosdrin)	3.695	544167	10.2104	ng/ml
Acetamiprid	3.750	1046720	10.0622	ng/ml
Flupyradifurone	3.746	203820	9.7215	ng/ml
Sulfoxaflor	3.738	610474	10.0910	ng/ml
Cymoxanil (Curzate)	3.787	370317	10.4125	ng/ml
Aldicarb	3.823	268198	10.1045	ng/ml
Pyrasulfotole	3.917	179428	9.5262	ng/ml
Thiacloprid	4.012	1158191	10.2370	ng/ml
Phosphamidon	4.011	376191	10.4853	ng/ml
Cyanazine (Fortrol)	4.049	190200	10.1150	ng/ml
Monuron	4.070	851999	10.1332	ng/ml
Simazine	4.088	100090	10.0185	ng/ml
Pirimicarb	4.113	2724635	10.1575	ng/ml
Propoxur	4.133	420822	9.9307	ng/ml
Tebuthiuron	4.178	1869318	10.1241	ng/ml
Fenamiphos - sulfoxide	4.174	396867	9.9815	ng/ml
Oxadixyl	4.185	887673	9.9559	ng/ml
Bendiocarb	4.206	478799	10.0288	ng/ml
Carbofuran	4.233	1510710	9.9335	ng/ml
Bromacil	4.231	255636	10.5705	ng/ml
Metribuzin	4.252	102211	10.7630	ng/ml
Terbacil	4.281	13984	10.5680	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Simetryn	4.289	1017046	9.9978	ng/ml
Malaxon	4.330	275294	9.8465	ng/ml
Prometon	4.333	2269450	10.1670	ng/ml
Fenamiphos - sulfone	4.329	317284	9.9937	ng/ml
Fluometuron	4.351	618725	10.0258	ng/ml
Cyprosulfamide	4.365	200744	9.9498	ng/ml
Carbaryl	4.362	927121	10.2087	ng/ml
Thiophanate-methyl	4.439	654366	9.9332	ng/ml
Hexazinone	4.441	3872704	9.9367	ng/ml
Carboxin	4.460	1081443	9.9722	ng/ml
Nicosulfuron 1	4.483	65856	9.2923	ng/ml
Atrazine	4.498	295186	9.8440	ng/ml
Thiencarbazone-methyl	4.511	36094	9.0573	ng/ml
Sulfentrazone	4.511	17496	9.7969	ng/ml
Thifensulfuron-methyl (DPX-M6316)	4.529	135325	10.4756	ng/ml
Sulfometuron-methyl	4.530	1405955	10.3065	ng/ml
Metsulfuron-methyl	4.557	192745	10.3674	ng/ml
Imazalil	4.678	296779	9.7550	ng/ml
DCPMU	4.681	290345	10.4326	ng/ml
Phorate Sulfoxide	4.770	798230	10.0672	ng/ml
Diuron	4.798	704390	10.0237	ng/ml
Flutriafol	4.814	196298	9.8918	ng/ml
Thiodicarb	4.831	192449	10.2299	ng/ml
Diazoxon	4.851	1061838	10.1969	ng/ml
Cyantraniliprole	4.855	18239	9.7539	ng/ml
Pyrimethanil	4.927	151222	10.3087	ng/ml
Phorate Sulfone	4.951	265894	9.9427	ng/ml
Propazine	4.953	783643	10.2127	ng/ml
Fenobucarb (Baycarb)	4.954	533035	10.1408	ng/ml
Siduron	4.989	629739	10.0958	ng/ml
Trifloxysulfuron-sodium	4.992	8117	12.0645	ng/ml
Pyroxasulfone	4.993	570657	9.8297	ng/ml
Penoxsulam (Penoxalim)	5.018	76164	9.5918	ng/ml
Disulfoton-sulfone	5.013	619510	10.3086	ng/ml
Disulfoton-Sulfone	5.013	114632	10.3882	ng/ml
Cloransulam-Methyl	5.029	37486	9.6106	ng/ml
Terbuthylazine	5.044	1458732	9.7957	ng/ml
Norflurazon	5.086	465359	10.1222	ng/ml
Famphur (Famophos)	5.103	225115	9.9730	ng/ml
Clomazone	5.143	1034630	10.0226	ng/ml
Propanil	5.163	93425	9.7040	ng/ml
Trinexapac-ethyl	5.216	286559	10.4172	ng/ml
Prometryn	5.226	2747980	10.0580	ng/ml
Bicyclopyrone	5.231	2277154	10.2443	ng/ml
Linuron	5.262	239049	11.3166	ng/ml
Spiroxamine	5.271	1641120	10.1268	ng/ml
Terbutryn	5.290	3293455	9.9711	ng/ml
Flurtamone	5.296	115790	9.3082	ng/ml
Methiocarb (Mercaptodimethur)	5.328	1133749	10.1530	ng/ml
Chlorantraniliprole	5.339	69372	9.8485	ng/ml
Methidathion	5.399	297575	9.7405	ng/ml
Fluridone	5.460	924596	10.1284	ng/ml
Acibenzolar-s-methyl	5.538	24124	20.1065	ng/ml
Bensulfuron-methyl	5.550	340328	10.2538	ng/ml
Saflufenacil	5.576	15295	7.9538	ng/ml
Fenamidone	5.580	1137848	10.0262	ng/ml
Triadimenol	5.591	172151	19.4426	ng/ml
Methoxyfenozide	5.596	1333241	9.8412	ng/ml
Bispyribac	5.604	253472	10.2420	ng/ml

Compound	RT	Resp	Final Conc	
Fomesafen	5.621	1300	8.2449	ng/ml
Triadimefon	5.637	38925	9.3225	ng/ml
Iodosulfuron-Methyl	5.658	44479	9.6990	ng/ml
Fenhexamid	5.655	57195	9.6677	ng/ml
Boscalid	5.707	114011	10.4034	ng/ml
Fluxapyroxad	5.733	137441	10.1570	ng/ml
Azinphos-methyl	5.744	228666	10.0667	ng/ml
Fluopyram	5.769	846103	10.3206	ng/ml
Isoxaben	5.817	1880513	9.9312	ng/ml
Phosmet	5.809	808935	10.1881	ng/ml
Fluopicolide	5.824	402022	9.8311	ng/ml
Malathion	5.863	319951	10.2278	ng/ml
Indaziflam	5.874	2189443	10.2468	ng/ml
Azoxystrobin	5.906	1756051	9.8726	ng/ml
Cyprodinil	5.958	255078	10.0949	ng/ml
Bifenazate	5.984	784253	10.0594	ng/ml
Triticonazole	6.001	182853	10.1648	ng/ml
Dimethomorph 1	6.007	141517	9.7487	ng/ml
Isofetamid	6.008	2009609	10.0082	ng/ml
Neburon (Phosphoramidothioic acid)	6.094	245702	10.0742	ng/ml
Chlorimuron-ethyl	6.106	80709	9.6764	ng/ml
Tebufenozide	6.118	853059	10.2457	ng/ml
Spirotetramat	6.135	229464	9.8812	ng/ml
Mandipropamid	6.170	470640	10.1110	ng/ml
Penthiopyrad	6.199	247084	10.4681	ng/ml
Flufenacet (Fluthiamide)	6.207	1169357	10.1044	ng/ml
Dodine	6.231	360892	10.2244	ng/ml
Afidopyropen	6.306	13494	10.2640	ng/ml
Flumioxazin	6.309	14751	9.3685	ng/ml
Oryzalin	6.323	2759	9.5909	ng/ml
Diflubenzuron	6.429	192109	11.1469	ng/ml
Dimethomorph 2	6.435	353911	10.0587	ng/ml
Tebuconazole	6.475	221253	9.9391	ng/ml
Fenoxycarb	6.585	588594	10.3050	ng/ml
Ametoctradin	6.586	1229215	10.0469	ng/ml
Hexaconazole	6.602	141133	10.1731	ng/ml
Flubendiamide	6.633	38772	20.7246	ng/ml
Fonofos	6.650	16272	10.4375	ng/ml
Bensulide	6.663	98747	10.3412	ng/ml
Cycloate	6.677	31558	21.1924	ng/ml
Picoxystrobin	6.673	2285970	10.0829	ng/ml
Cyclaniliprole	6.689	14708	9.1595	ng/ml
Azinphos-ethyl (Guthion ethyl)	6.700	49008	9.5277	ng/ml
Cyazofamid	6.701	493743	9.8534	ng/ml
TPP d15	6.773	288491	19.9871	ng/ml
Fenbuconazole	6.801	133679	10.3953	ng/ml
Carfentrazone-ethyl	6.817	103606	9.7663	ng/ml
Bitertanol	6.837	38906	10.1708	ng/ml
Metconazole	6.838	262250	9.9196	ng/ml
Prothioconazole	6.842	9983	17.4919	ng/ml
Fluoxastrobin	6.861	189809	9.7068	ng/ml
Pirimiphos-methyl	6.857	565686	10.0451	ng/ml
Benzovindiflupyr	6.872	148521	9.8198	ng/ml
Isoxadifen-ethyl (AE F122006)	6.939	145253	9.8389	ng/ml
Mefenitrifluconazole	6.962	152492	9.7514	ng/ml
Propiconazole	6.991	73660	9.7563	ng/ml
Iprodione	6.983	9372	48.6869	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Thiobencarb	7.095	514857	10.3019	ng/ml
Cyflufenamid	7.225	193628	10.0979	ng/ml
Clofentezine	7.248	162220	9.2692	ng/ml
Triflumizol	7.299	1256491	10.1544	ng/ml
Pyraflufen-ethyl	7.305	198955	9.7579	ng/ml
Prallethrin	7.357	87492	10.1497	ng/ml
Flutianil	7.394	582348	9.9213	ng/ml
Pydiflumetofen	7.404	205978	9.9569	ng/ml
Ipconazole	7.418	255316	10.0240	ng/ml
Famoxadone	7.487	49691	10.2754	ng/ml
Pyraclostrobin	7.506	894285	10.3117	ng/ml
Metrafenone	7.513	431096	9.9796	ng/ml
Rotenone	7.550	31333	9.1843	ng/ml
Diflufenican	7.568	243189	9.9750	ng/ml
Sethoxydim	7.690	813150	20.1326	ng/ml
Novaluron	7.738	33310	10.2759	ng/ml
Trifloxystrobin	7.793	1564761	10.1011	ng/ml
Phosalone	7.796	155262	10.2420	ng/ml
Coumaphos	7.824	471191	10.1584	ng/ml
Pyrethrin II	7.877	234693	49.9500	ng/ml
Allethrin	7.898	127554	9.8231	ng/ml
Clethodim	7.923	212821	19.6697	ng/ml
Spinosyn A	7.936	974854	9.7617	ng/ml
Difenconazole	7.983	167709	9.9251	ng/ml
Piperonyl butoxide	7.996	2606954	10.0304	ng/ml
Triallate	8.096	9147	10.7466	ng/ml
Cyhalofop butyl	8.166	40138	10.2640	ng/ml
Quizalofop-ethyl	8.239	106374	10.1577	ng/ml
Tolfenpyrade	8.284	72319	10.0629	ng/ml
Indoxacarb	8.381	38415	10.0051	ng/ml
Cyflumetofen	8.391	808032	10.0139	ng/ml
Emamectin Benzoate	8.461	177647	9.6453	ng/ml
Spinosyn D	8.498	358793	9.7110	ng/ml
Spiromesifen	8.491	1551547	20.1135	ng/ml
Spinetoram J	8.524	757916	9.9056	ng/ml
Ethion	8.671	682555	9.8621	ng/ml
Fluazinam (Shirlan (VAN)	8.676	17077	9.9339	ng/ml
Propargite	8.817	268217	9.7741	ng/ml
Pyrethrin I	8.809	964766	50.5512	ng/ml
Lactofen	8.841	248656	9.6736	ng/ml
Dioxathion	8.846	336967	10.0732	ng/ml
Fenazaquin	8.962	2650721	10.0990	ng/ml
Hexythiazox	9.005	210336	10.0762	ng/ml
Spinetoram L	9.019	228598	9.8002	ng/ml
Fenpyroximate	9.117	434365	10.0767	ng/ml
Fenpropathrin	9.229	67087	9.9882	ng/ml
Pyridaben	9.612	946484	9.9395	ng/ml
Abamectin	9.823	4583	10.0746	ng/ml
d-Phenothrin	9.954	79767	10.2569	ng/ml
Etofenprox	10.380	998883	10.1784	ng/ml
Fluvalinate	10.520	31670	10.7982	ng/ml
Pyridalyl	10.937	16569	11.7318	ng/ml
Fenbutatin oxide	11.003	65452	10.5790	ng/ml

Quantitative Analysis Sample Report

Batch Info

Batch Data Path	D:\MassHunter\Data\23I21_FNC\QuantResults\23I21_FNC.batch.bin		
Analysis Time	9/22/2023 2:24 PM	**Analyst Name**	6470QQQ\lcgroup
Report Time	9/22/2023 2:29 PM	**Reporter Name**	6470QQQ\lcgroup
Last Calib Update	9/22/2023 2:24 PM	**Batch State**	Processed
Instrument	6470QQQ	**Sample Name**	23I21_FNC_CCV_4 10µg/L
Position	P1-A7	**Data File**	23I21_FNC_057.d
Dilution	1	**Sample Type**	CC
Acq Time	2023-09-22 11:01	**Acq Method**	23H17_FNC.m
Inj Vol	2	**Operator**	ECD

Quantitation Results

Compound	RT	Resp	Final Conc	
Cyromazine	1.241	188809	9.8169	ng/ml
Methamidophos	1.263	458989	10.3126	ng/ml
Acephate	1.723	393814	10.1854	ng/ml
Formentanate metabolite	2.357	150319	11.8941	ng/ml
Omethoate	2.442	528905	10.2328	ng/ml
Pymetrozine	2.629	832288	10.1283	ng/ml
Propamocarb	2.642	1036659	10.3172	ng/ml
Formetanate HCl	2.646	639460	9.7635	ng/ml
Aldicarb-sulfoxide	2.667	323431	10.1971	ng/ml
Dinotefuran	2.667	239071	10.4280	ng/ml
Aldicarb-sulfone (Aldoxycarb)	2.872	9138	9.2937	ng/ml
Oxamyl	3.005	1345269	10.1383	ng/ml
Methomyl	3.021	348220	9.9799	ng/ml
Carbendazim	3.082	3185391	10.0978	ng/ml
Oxydemeton-methyl	3.104	309689	10.1880	ng/ml
Flonicamid	3.107	40780	9.8431	ng/ml
Thiabendazole	3.344	1150834	10.0680	ng/ml
Thiamethoxam	3.384	427174	10.2876	ng/ml
Fenuron (N,N-Dimethyl-N-phenylurea)	3.417	1233160	10.1479	ng/ml
Clothianidin	3.467	84094	10.2049	ng/ml
3-Hydroxy Carbofuran	3.504	568051	10.1341	ng/ml
Dimethoate	3.605	640853	10.1315	ng/ml
Imidacloprid	3.630	130665	10.2889	ng/ml
Flumetsulam	3.662	166735	9.8087	ng/ml
Mevinphos (Phosdrin)	3.695	530319	9.9539	ng/ml
Acetamiprid	3.741	1045771	10.0532	ng/ml
Flupyradifurone	3.746	214345	10.2222	ng/ml
Sulfoxaflor	3.738	613317	10.1376	ng/ml
Cymoxanil (Curzate)	3.778	354815	9.9796	ng/ml
Aldicarb	3.814	269789	10.1635	ng/ml
Pyrasulfotole	3.917	182483	9.6827	ng/ml
Thiacloprid	4.003	1141307	10.0893	ng/ml
Phosphamidon	4.002	361404	10.0834	ng/ml
Cyanazine (Fortrol)	4.049	188598	10.0314	ng/ml
Monuron	4.070	866220	10.3015	ng/ml
Simazine	4.079	96986	9.7083	ng/ml
Pirimicarb	4.113	2705889	10.0899	ng/ml
Propoxur	4.133	442053	10.4250	ng/ml
Tebuthiuron	4.169	1844198	9.9879	ng/ml
Fenamiphos - sulfoxide	4.174	392713	9.8772	ng/ml
Oxadixyl	4.185	895942	10.0474	ng/ml
Bendiocarb	4.206	479605	10.0455	ng/ml
Carbofuran	4.224	1514583	9.9587	ng/ml
Bromacil	4.231	238659	9.8603	ng/ml
Metribuzin	4.252	100035	10.5395	ng/ml
Terbacil	4.281	13889	10.4973	ng/ml

Compound	RT	Resp	Final Conc	
Simetryn	4.280	1014534	9.9734	ng/ml
Malaxon	4.321	274811	9.8292	ng/ml
Prometon	4.333	2252575	10.0929	ng/ml
Fenamiphos - sulfone	4.329	322907	10.1720	ng/ml
Fluometuron	4.342	616910	9.9960	ng/ml
Cyprosulfamide	4.365	195198	9.6768	ng/ml
Carbaryl	4.362	922489	10.1578	ng/ml
Thiophanate-methyl	4.439	657806	9.9853	ng/ml
Hexazinone	4.441	3975400	10.1939	ng/ml
Carboxin	4.460	1101983	10.1610	ng/ml
Nicosulfuron 1	4.483	71442	10.0604	ng/ml
Atrazine	4.498	300600	10.0231	ng/ml
Thiencarbazone-methyl	4.502	36066	9.0505	ng/ml
Sulfentrazone	4.511	17982	10.0662	ng/ml
Thifensulfuron-methyl (DPX-M6316)	4.520	132387	10.2594	ng/ml
Sulfometuron-methyl	4.530	1378919	10.1145	ng/ml
Metsulfuron-methyl	4.557	185059	9.9657	ng/ml
Imazalil	4.678	306488	10.0684	ng/ml
DCPMU	4.681	279692	10.0503	ng/ml
Phorate Sulfoxide	4.770	800000	10.0892	ng/ml
Diuron	4.798	704864	10.0304	ng/ml
Flutriafol	4.814	194332	9.7944	ng/ml
Thiodicarb	4.831	187183	9.9522	ng/ml
Diazoxon	4.851	1050094	10.0858	ng/ml
Cyantraniliprole	4.855	18031	9.6467	ng/ml
Pyrimethanil	4.918	148810	10.1438	ng/ml
Phorate Sulfone	4.951	281243	10.5123	ng/ml
Propazine	4.944	782998	10.2043	ng/ml
Fenobucarb (Baycarb)	4.954	549188	10.4467	ng/ml
Siduron	4.989	639016	10.2436	ng/ml
Trifloxysulfuron-sodium	4.992	6945	10.4013	ng/ml
Pyroxasulfone	4.993	571196	9.8390	ng/ml
Penoxsulam (Penoxalim)	5.009	80715	10.1436	ng/ml
Disulfoton-sulfone	5.013	609842	10.1487	ng/ml
Disulfoton-Sulfone	5.013	117471	10.6401	ng/ml
Cloransulam-Methyl	5.020	37375	9.5829	ng/ml
Terbuthylazine	5.044	1486090	9.9787	ng/ml
Norflurazon	5.086	468815	10.1962	ng/ml
Famphur (Famophos)	5.103	233194	10.3261	ng/ml
Clomazone	5.134	1068958	10.3510	ng/ml
Propanil	5.154	97949	10.1674	ng/ml
Trinexapac-ethyl	5.207	284577	10.3464	ng/ml
Prometryn	5.217	2736262	10.0161	ng/ml
Bicyclopyrone	5.231	2229503	10.0346	ng/ml
Linuron	5.253	218767	10.3639	ng/ml
Spiroxamine	5.261	1640004	10.1201	ng/ml
Terbutryn	5.281	3338400	10.1038	ng/ml
Flurtamone	5.286	119161	9.5796	ng/ml
Methiocarb (Mercaptodimethur)	5.328	1141400	10.2209	ng/ml
Chlorantraniliprole	5.330	65660	9.3330	ng/ml
Methidathion	5.399	304342	9.9591	ng/ml
Fluridone	5.451	921864	10.0987	ng/ml
Acibenzolar-s-methyl	5.529	26322	21.8242	ng/ml
Bensulfuron-methyl	5.541	330590	9.9689	ng/ml
Saflufenacil	5.567	17685	9.1555	ng/ml
Fenamidone	5.580	1148893	10.1224	ng/ml
Triadimenol	5.582	175701	19.8370	ng/ml
Methoxyfenozide	5.587	1339674	9.8881	ng/ml
Bispyribac	5.595	246684	9.9779	ng/ml

Compound	RT	Resp	Final Conc	
Fomesafen	5.612	1878	11.9920	ng/ml
Triadimefon	5.628	40984	9.8028	ng/ml
Iodosulfuron-Methyl	5.640	46700	10.1621	ng/ml
Fenhexamid	5.655	66382	11.1889	ng/ml
Boscalid	5.707	109249	9.9770	ng/ml
Fluxapyroxad	5.724	135453	10.0124	ng/ml
Azinphos-methyl	5.735	226670	9.9802	ng/ml
Fluopyram	5.760	804666	9.8185	ng/ml
Isoxaben	5.808	1888766	9.9737	ng/ml
Phosmet	5.799	811936	10.2255	ng/ml
Fluopicolide	5.815	402149	9.8342	ng/ml
Malathion	5.853	316030	10.1043	ng/ml
Indaziflam	5.864	2157679	10.1002	ng/ml
Azoxystrobin	5.906	1792363	10.0733	ng/ml
Cyprodinil	5.958	249158	9.8641	ng/ml
Bifenazate	5.975	782610	10.0388	ng/ml
Triticonazole	5.992	182166	10.1268	ng/ml
Dimethomorph 1	5.998	143814	9.9015	ng/ml
Isofetamid	5.999	1985562	9.8908	ng/ml
Neburon				
(Phosphoramidothioic acid)	6.084	248823	10.2013	ng/ml
Chlorimuron-ethyl	6.088	83424	9.9947	ng/ml
Tebufenozide	6.109	828084	9.9504	ng/ml
Spirotetramat	6.126	230661	9.9315	ng/ml
Mandipropamid	6.161	473925	10.1804	ng/ml
Penthiopyrad	6.181	240730	10.2037	ng/ml
Flufenacet (Fluthiamide)	6.198	1183405	10.2248	ng/ml
Dodine	6.222	351464	9.9583	ng/ml
Afidopyropen	6.297	15532	11.6938	ng/ml
Flumioxazin	6.300	16193	10.1859	ng/ml
Oryzalin	6.314	2260	7.7881	ng/ml
Diflubenzuron	6.420	173691	10.1004	ng/ml
Dimethomorph 2	6.426	360524	10.2418	ng/ml
Tebuconazole	6.466	219712	9.8715	ng/ml
Fenoxycarb	6.567	579028	10.1397	ng/ml
Ametoctradin	6.576	1208693	9.8814	ng/ml
Hexaconazole	6.593	140333	10.1165	ng/ml
Flubendiamide	6.623	34660	18.4648	ng/ml
Fonofos	6.641	16276	10.4398	ng/ml
Bensulide	6.654	93155	9.7704	ng/ml
Cycloate	6.668	26295	17.7625	ng/ml
Picoxystrobin	6.663	2279640	10.0555	ng/ml
Cyclaniliprole	6.680	14778	9.2001	ng/ml
Azinphos-ethyl (Guthion ethyl)	6.691	54753	10.6155	ng/ml
Cyazofamid	6.692	508286	10.1401	ng/ml
TPP d15	6.764	293425	20.3236	ng/ml
Fenbuconazole	6.792	130100	10.1218	ng/ml
Carfentrazone-ethyl	6.808	102519	9.6667	ng/ml
Bitertanol	6.828	38738	10.1292	ng/ml
Metconazole	6.838	266906	10.0940	ng/ml
Prothioconazole	6.833	10196	17.9117	ng/ml
Fluoxastrobin	6.852	187704	9.6003	ng/ml
Pirimiphos-methyl	6.848	567248	10.0725	ng/ml
Benzovindiflupyr	6.863	148479	9.8170	ng/ml
Isoxadifen-ethyl (AE F122006)	6.930	145476	9.8537	ng/ml
Mefenitrifluconazole	6.953	156716	10.0150	ng/ml
Propiconazole	6.982	73949	9.7933	ng/ml
Iprodione	6.983	10340	53.5413	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Thiobencarb	7.086	499647	10.0046	ng/ml
Cyflufenamid	7.216	191567	9.9937	ng/ml
Clofentezine	7.239	165708	9.4682	ng/ml
Triflumizol	7.290	1264332	10.2166	ng/ml
Pyraflufen-ethyl	7.287	199202	9.7698	ng/ml
Prallethrin	7.339	87333	10.1319	ng/ml
Flutianil	7.376	586801	9.9958	ng/ml
Pydiflumetofen	7.395	202462	9.7888	ng/ml
Ipconazole	7.400	251357	9.8705	ng/ml
Famoxadone	7.478	48855	10.1091	ng/ml
Pyraclostrobin	7.497	863120	9.9560	ng/ml
Metrafenone	7.504	436388	10.0995	ng/ml
Rotenone	7.541	31753	9.3030	ng/ml
Diflufenican	7.559	237992	9.7666	ng/ml
Sethoxydim	7.681	819187	20.2795	ng/ml
Novaluron	7.729	30214	9.3479	ng/ml
Trifloxystrobin	7.775	1570891	10.1400	ng/ml
Phosalone	7.787	156033	10.2914	ng/ml
Coumaphos	7.806	460596	9.9348	ng/ml
Pyrethrin II	7.859	230388	49.0561	ng/ml
Allethrin	7.880	135191	10.3894	ng/ml
Clethodim	7.914	222139	20.4992	ng/ml
Spinosyn A	7.927	982781	9.8431	ng/ml
Difenconazole	7.965	167020	9.8853	ng/ml
Piperonyl butoxide	7.987	2590929	9.9703	ng/ml
Triallate	8.087	8350	9.8281	ng/ml
Cyhalofop butyl	8.148	38376	9.8233	ng/ml
Quizalofop-ethyl	8.230	106836	10.2007	ng/ml
Tolfenpyrade	8.265	71547	9.9585	ng/ml
Indoxacarb	8.372	38415	10.0053	ng/ml
Cyflumetofen	8.373	800884	9.9265	ng/ml
Emamectin Benzoate	8.443	177279	9.6255	ng/ml
Spinosyn D	8.480	352578	9.5436	ng/ml
Spiromesifen	8.472	1494655	19.3796	ng/ml
Spinetoram J	8.506	755501	9.8746	ng/ml
Ethion	8.653	682607	9.8629	ng/ml
Fluazinam (Shirlan (VAN)	8.658	16374	9.5349	ng/ml
Propargite	8.799	276052	10.0521	ng/ml
Pyrethrin I	8.800	957687	50.1897	ng/ml
Lactofen	8.832	254339	9.8899	ng/ml
Dioxathion	8.828	332309	9.9374	ng/ml
Fenazaquin	8.944	2649257	10.0935	ng/ml
Hexythiazox	8.996	211076	10.1108	ng/ml
Spinetoram L	9.010	226766	9.7232	ng/ml
Fenpyroximate	9.099	431389	10.0097	ng/ml
Fenpropathrin	9.211	65876	9.8120	ng/ml
Pyridaben	9.603	944224	9.9163	ng/ml
Abamectin	9.805	4532	9.9614	ng/ml
d-Phenothrin	9.945	78361	10.0808	ng/ml
Etofenprox	10.371	986999	10.0596	ng/ml
Fluvalinate	10.511	31085	10.6061	ng/ml
Pyridalyl	10.928	16038	11.3685	ng/ml
Fenbutatin oxide	10.994	64949	10.5000	ng/ml

Quantitative Analysis Sample Report

Batch Info

Batch Data Path	D:\MassHunter\Data\23I21_FNC\QuantResults\23I21_FNC.batch.bin		
Analysis Time	9/22/2023 2:24 PM	**Analyst Name**	6470QQQ\lcgroup
Report Time	9/22/2023 2:29 PM	**Reporter Name**	6470QQQ\lcgroup
Last Calib Update	9/22/2023 2:24 PM	**Batch State**	Processed
Instrument	6470QQQ	**Sample Name**	23I21_FNC_CCV_5 10µg/L
Position	P1-A7	**Data File**	23I21_FNC_066.d
Dilution	1	**Sample Type**	CC
Acq Time	2023-09-22 14:05	**Acq Method**	23H17_FNC.m
Inj Vol	2	**Operator**	ECD

Quantitation Results

Compound	RT	Resp	Final Conc	
Cyromazine	1.241	193943	10.0880	ng/ml
Methamidophos	1.263	460691	10.3501	ng/ml
Acephate	1.715	398728	10.3091	ng/ml
Formentanate metabolite	2.357	155717	12.3075	ng/ml
Omethoate	2.451	523588	10.1319	ng/ml
Pymetrozine	2.629	829605	10.0960	ng/ml
Propamocarb	2.642	1026385	10.2164	ng/ml
Formetanate HCl	2.646	623122	9.5185	ng/ml
Aldicarb-sulfoxide	2.676	321083	10.1237	ng/ml
Dinotefuran	2.667	236836	10.3306	ng/ml
Aldicarb-sulfone (Aldoxycarb)	2.872	9398	9.5576	ng/ml
Oxamyl	3.014	1346581	10.1480	ng/ml
Methomyl	3.030	350850	10.0548	ng/ml
Carbendazim	3.091	3183706	10.0926	ng/ml
Oxydemeton-methyl	3.113	306622	10.0881	ng/ml
Flonicamid	3.116	43108	10.4077	ng/ml
Thiabendazole	3.344	1164385	10.1847	ng/ml
Thiamethoxam	3.384	429041	10.3321	ng/ml
Fenuron (N,N-Dimethyl-N-phenylurea)	3.417	1215454	10.0042	ng/ml
Clothianidin	3.476	82232	9.9834	ng/ml
3-Hydroxy Carbofuran	3.513	566955	10.1148	ng/ml
Dimethoate	3.605	642725	10.1607	ng/ml
Imidacloprid	3.630	128223	10.0984	ng/ml
Flumetsulam	3.662	171594	10.0876	ng/ml
Mevinphos (Phosdrin)	3.695	542308	10.1759	ng/ml
Acetamiprid	3.750	1046151	10.0568	ng/ml
Flupyradifurone	3.746	214536	10.2313	ng/ml
Sulfoxaflor	3.738	612168	10.1188	ng/ml
Cymoxanil (Curzate)	3.787	367299	10.3283	ng/ml
Aldicarb	3.823	269642	10.1581	ng/ml
Pyrasulfotole	3.917	189448	10.0395	ng/ml
Thiacloprid	4.003	1144803	10.1199	ng/ml
Phosphamidon	4.011	361378	10.0826	ng/ml
Cyanazine (Fortrol)	4.049	194074	10.3169	ng/ml
Monuron	4.070	845218	10.0530	ng/ml
Simazine	4.079	97453	9.7550	ng/ml
Pirimicarb	4.113	2709225	10.1019	ng/ml
Propoxur	4.133	435994	10.2839	ng/ml
Tebuthiuron	4.169	1895163	10.2643	ng/ml
Fenamiphos - sulfoxide	4.174	391333	9.8425	ng/ml
Oxadixyl	4.185	908828	10.1900	ng/ml
Bendiocarb	4.197	477587	10.0038	ng/ml
Carbofuran	4.224	1517667	9.9787	ng/ml
Bromacil	4.231	247232	10.2188	ng/ml
Metribuzin	4.252	104492	10.9971	ng/ml
Terbacil	4.272	13119	9.9256	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Simetryn	4.279	1036130	10.1826	ng/ml
Malaxon	4.321	277087	9.9108	ng/ml
Prometon	4.324	2217721	9.9397	ng/ml
Fenamiphos - sulfone	4.320	315481	9.9365	ng/ml
Fluometuron	4.342	621368	10.0691	ng/ml
Cyprosulfamide	4.356	200117	9.9189	ng/ml
Carbaryl	4.353	939117	10.3407	ng/ml
Thiophanate-methyl	4.430	650946	9.8814	ng/ml
Hexazinone	4.432	3935431	10.0938	ng/ml
Carboxin	4.460	1089536	10.0466	ng/ml
Nicosulfuron 1	4.474	66738	9.4136	ng/ml
Atrazine	4.489	305898	10.1985	ng/ml
Thiencarbazone-methyl	4.502	36067	9.0506	ng/ml
Sulfentrazone	4.501	18664	10.4434	ng/ml
Thifensulfuron-methyl (DPX-M6316)	4.520	129909	10.0768	ng/ml
Sulfometuron-methyl	4.521	1373788	10.0780	ng/ml
Metsulfuron-methyl	4.557	189812	10.2142	ng/ml
Imazalil	4.669	312337	10.2572	ng/ml
DCPMU	4.672	276890	9.9498	ng/ml
Phorate Sulfoxide	4.761	802484	10.1201	ng/ml
Diuron	4.789	700898	9.9743	ng/ml
Flutriafol	4.805	205010	10.3234	ng/ml
Thiodicarb	4.831	189150	10.0560	ng/ml
Diazoxon	4.842	1049250	10.0778	ng/ml
Cyantraniliprole	4.846	20603	10.9678	ng/ml
Pyrimethanil	4.918	152660	10.4070	ng/ml
Phorate Sulfone	4.951	266004	9.9468	ng/ml
Propazine	4.944	771510	10.0545	ng/ml
Fenobucarb (Baycarb)	4.954	528945	10.0634	ng/ml
Siduron	4.980	636113	10.1973	ng/ml
Trifloxysulfuron-sodium	4.983	7582	11.3080	ng/ml
Pyroxasulfone	4.984	572678	9.8643	ng/ml
Penoxsulam (Penoxalim)	5.009	76237	9.6007	ng/ml
Disulfoton-sulfone	5.003	608008	10.1184	ng/ml
Disulfoton-Sulfone	5.004	112791	10.2248	ng/ml
Cloransulam-Methyl	5.020	38628	9.8948	ng/ml
Terbuthylazine	5.044	1498358	10.0607	ng/ml
Norflurazon	5.077	486119	10.5668	ng/ml
Famphur (Famophos)	5.103	230082	10.1901	ng/ml
Clomazone	5.134	1064901	10.3122	ng/ml
Propanil	5.154	97468	10.1182	ng/ml
Trinexapac-ethyl	5.207	284504	10.3438	ng/ml
Prometryn	5.217	2779825	10.1717	ng/ml
Bicyclopyrone	5.222	2294652	10.3213	ng/ml
Linuron	5.253	218272	10.3406	ng/ml
Spiroxamine	5.261	1634866	10.0891	ng/ml
Terbutryn	5.281	3279641	9.9302	ng/ml
Flurtamone	5.286	121922	9.8021	ng/ml
Methiocarb (Mercaptodimethur)	5.318	1136914	10.1811	ng/ml
Chlorantraniliprole	5.321	67378	9.5716	ng/ml
Methidathion	5.390	321678	10.5187	ng/ml
Fluridone	5.451	924535	10.1277	ng/ml
Acibenzolar-s-methyl	5.529	25303	21.0288	ng/ml
Bensulfuron-methyl	5.541	320016	9.6591	ng/ml
Saflufenacil	5.558	19632	10.1313	ng/ml
Fenamidone	5.571	1135596	10.0066	ng/ml
Triadimenol	5.582	179258	20.2321	ng/ml
Methoxyfenozide	5.587	1335033	9.8543	ng/ml
Bispyribac	5.595	250417	10.1232	ng/ml

Compound	RT	Resp	Final Conc	
Fomesafen	5.612	1983	12.6634	ng/ml
Triadimefon	5.628	41849	10.0043	ng/ml
Iodosulfuron-Methyl	5.649	45844	9.9838	ng/ml
Fenhexamid	5.655	56362	9.5296	ng/ml
Boscalid	5.697	109897	10.0351	ng/ml
Fluxapyroxad	5.724	132555	9.8014	ng/ml
Azinphos-methyl	5.735	221642	9.7623	ng/ml
Fluopyram	5.751	828560	10.1080	ng/ml
Isoxaben	5.808	1895215	10.0070	ng/ml
Phosmet	5.799	796608	10.0348	ng/ml
Fluopicolide	5.815	412738	10.0913	ng/ml
Malathion	5.853	300117	9.6030	ng/ml
Indaziflam	5.864	2139342	10.0156	ng/ml
Azoxystrobin	5.906	1759289	9.8905	ng/ml
Cyprodinil	5.958	250791	9.9278	ng/ml
Bifenazate	5.975	806052	10.3322	ng/ml
Triticonazole	5.992	189083	10.5088	ng/ml
Dimethomorph 1	5.998	141044	9.7172	ng/ml
Isofetamid	5.999	2014890	10.0340	ng/ml
Neburon (Phosphoramidothioic acid)	6.084	245884	10.0817	ng/ml
Chlorimuron-ethyl	6.088	81723	9.7954	ng/ml
Tebufenozide	6.109	836835	10.0539	ng/ml
Spirotetramat	6.135	231359	9.9607	ng/ml
Mandipropamid	6.161	450222	9.6788	ng/ml
Penthiopyrad	6.190	249560	10.5712	ng/ml
Flufenacet (Fluthiamide)	6.198	1175684	10.1586	ng/ml
Dodine	6.222	351806	9.9679	ng/ml
Afidopyropen	6.297	13174	10.0372	ng/ml
Flumioxazin	6.290	16453	10.3321	ng/ml
Oryzalin	6.314	3018	10.5259	ng/ml
Diflubenzuron	6.420	174137	10.1258	ng/ml
Dimethomorph 2	6.426	347637	9.8849	ng/ml
Tebuconazole	6.466	229123	10.2837	ng/ml
Fenoxycarb	6.576	574746	10.0656	ng/ml
Ametoctradin	6.586	1215688	9.9378	ng/ml
Hexaconazole	6.593	139327	10.0454	ng/ml
Flubendiamide	6.633	37306	19.9162	ng/ml
Fonofos	6.641	14923	9.5739	ng/ml
Bensulide	6.654	97386	10.2024	ng/ml
Cycloate	6.668	30721	20.6481	ng/ml
Picoxystrobin	6.673	2260403	9.9721	ng/ml
Cyclaniliprole	6.680	16585	10.2300	ng/ml
Azinphos-ethyl (Guthion ethyl)	6.700	51187	9.9409	ng/ml
Cyazofamid	6.692	503759	10.0509	ng/ml
TPP d15	6.773	289735	20.0720	ng/ml
Fenbuconazole	6.801	122870	9.5690	ng/ml
Carfentrazone-ethyl	6.808	101675	9.5892	ng/ml
Bitertanol	6.828	37720	9.8776	ng/ml
Metconazole	6.838	271204	10.2549	ng/ml
Prothioconazole	6.833	9448	16.4474	ng/ml
Fluoxastrobin	6.852	187263	9.5780	ng/ml
Pirimiphos-methyl	6.857	576755	10.2391	ng/ml
Benzovindiflupyr	6.872	151073	9.9853	ng/ml
Isoxadifen-ethyl (AE F122006)	6.930	147114	9.9618	ng/ml
Mefenitrifluconazole	6.953	151747	9.7050	ng/ml
Propiconazole	6.982	77280	10.2193	ng/ml
Iprodione	6.983	10997	56.8173	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Thiobencarb	7.086	513857	10.2824	ng/ml
Cyflufenamid	7.225	196434	10.2396	ng/ml
Clofentezine	7.239	169792	9.7012	ng/ml
Triflumizol	7.290	1242177	10.0408	ng/ml
Pyraflufen-ethyl	7.296	203704	9.9868	ng/ml
Prallethrin	7.348	85820	9.9626	ng/ml
Flutianil	7.385	571079	9.7328	ng/ml
Pydiflumetofen	7.404	198749	9.6112	ng/ml
Ipconazole	7.409	265267	10.4099	ng/ml
Famoxadone	7.478	50997	10.5347	ng/ml
Pyraclostrobin	7.497	869960	10.0341	ng/ml
Metrafenone	7.513	428992	9.9319	ng/ml
Rotenone	7.550	32624	9.5493	ng/ml
Diflufenican	7.559	242126	9.9324	ng/ml
Sethoxydim	7.681	826457	20.4565	ng/ml
Novaluron	7.729	33208	10.2453	ng/ml
Trifloxystrobin	7.784	1521660	9.8276	ng/ml
Phosalone	7.787	155838	10.2789	ng/ml
Coumaphos	7.815	469424	10.1211	ng/ml
Pyrethrin II	7.868	229492	48.8699	ng/ml
Allethrin	7.889	130529	10.0438	ng/ml
Clethodim	7.914	217712	20.1053	ng/ml
Spinosyn A	7.927	978169	9.7957	ng/ml
Difenconazole	7.974	165887	9.8199	ng/ml
Piperonyl butoxide	7.987	2611880	10.0489	ng/ml
Triallate	8.087	9471	11.1185	ng/ml
Cyhalofop butyl	8.157	40246	10.2911	ng/ml
Quizalofop-ethyl	8.230	103064	9.8496	ng/ml
Tolfenpyrade	8.265	68611	9.5608	ng/ml
Indoxacarb	8.372	36666	9.5671	ng/ml
Cyflumetofen	8.373	797854	9.8895	ng/ml
Emamectin Benzoate	8.452	177666	9.6463	ng/ml
Spinosyn D	8.480	352947	9.5535	ng/ml
Spiromesifen	8.472	1517075	19.6688	ng/ml
Spinetoram J	8.515	746850	9.7635	ng/ml
Ethion	8.662	680859	9.8381	ng/ml
Fluazinam (Shirlan (VAN)	8.667	16358	9.5258	ng/ml
Propargite	8.808	276496	10.0679	ng/ml
Pyrethrin I	8.800	963531	50.4881	ng/ml
Lactofen	8.832	251510	9.7822	ng/ml
Dioxathion	8.837	337178	10.0793	ng/ml
Fenazaquin	8.944	2662252	10.1422	ng/ml
Hexythiazox	8.996	215199	10.3038	ng/ml
Spinetoram L	9.010	232826	9.9778	ng/ml
Fenpyroximate	9.108	424304	9.8501	ng/ml
Fenpropathrin	9.220	67038	9.9811	ng/ml
Pyridaben	9.603	943434	9.9082	ng/ml
Abamectin	9.814	4743	10.4289	ng/ml
d-Phenothrin	9.945	79181	10.1836	ng/ml
Etofenprox	10.371	996019	10.1498	ng/ml
Fluvalinate	10.511	30401	10.3809	ng/ml
Pyridalyl	10.928	15751	11.1718	ng/ml
Fenbutatin oxide	10.994	64309	10.3994	ng/ml

Quantitative Analysis Sample Report

Batch Info

Batch Data Path	D:\MassHunter\Data\23I21_FNC\QuantResults\23I21_FNC.batch.bin		
Analysis Time	9/22/2023 2:24 PM	**Analyst Name**	6470QQQ\lcgroup
Report Time	12/26/2023 8:19 AM	**Reporter Name**	6470QQQ\lcgroup
Last Calib Update	9/22/2023 2:24 PM	**Batch State**	Processed
Instrument	6470QQQ	**Sample Name**	23I21_FNC_CAL_1 0.5µg/L
Position	P1-A3	**Data File**	23I21_FNC_003.d
Dilution	1	**Sample Type**	Calibration
Acq Time	2023-09-21 17:48	**Acq Method**	23H17_FNC.m
Inj Vol	2	**Operator**	ECD

Quantitation Results

Compound	RT	Resp	Final Conc	
Cyromazine	1.241	7390	0.5462	ng/ml
Methamidophos	1.263	18173	0.5185	ng/ml
Acephate	1.715	15002	0.5133	ng/ml
Formentanate metabolite	2.348	4890	0.5191	ng/ml
Omethoate	2.442	20734	0.5073	ng/ml
Pymetrozine	2.620	34380	0.5046	ng/ml
Propamocarb	2.633	38240	0.5388	ng/ml
Formetanate HCl	2.637	26266	0.5052	ng/ml
Aldicarb-sulfoxide	2.658	13405	0.5136	ng/ml
Dinotefuran	2.658	10324	0.5251	ng/ml
Aldicarb-sulfone (Aldoxycarb)	2.881	287	0.3253	ng/ml
Oxamyl	3.005	55674	0.4938	ng/ml
Methomyl	3.021	13970	0.5141	ng/ml
Carbendazim	3.082	137779	0.4969	ng/ml
Oxydemeton-methyl	3.104	12226	0.5265	ng/ml
Flonicamid	3.107	1783	0.5319	ng/ml
Thiabendazole	3.344	51308	0.5003	ng/ml
Thiamethoxam	3.384	17136	0.5002	ng/ml
Fenuron (N,N-Dimethyl-N-phenylurea)	3.417	53376	0.4952	ng/ml
Clothianidin	3.467	3635	0.5269	ng/ml
3-Hydroxy Carbofuran	3.504	22327	0.5006	ng/ml
Dimethoate	3.605	26714	0.5112	ng/ml
Imidacloprid	3.630	5957	0.5133	ng/ml
Flumetsulam	3.662	7218	0.5266	ng/ml
Mevinphos (Phosdrin)	3.695	22530	0.4971	ng/ml
Acetamiprid	3.741	45965	0.5041	ng/ml
Flupyradifurone	3.746	8038	0.4736	ng/ml
Sulfoxaflor	3.738	25988	0.5135	ng/ml
Cymoxanil (Curzate)	3.778	16659	0.5182	ng/ml
Aldicarb	3.814	11786	0.5116	ng/ml
Pyrasulfotole	3.917	8520	0.7179	ng/ml
Thiacloprid	4.003	50188	0.5136	ng/ml
Phosphamidon	4.002	14882	0.4951	ng/ml
Cyanazine (Fortrol)	4.040	8359	0.5523	ng/ml
Monuron	4.070	35276	0.4978	ng/ml
Simazine	4.070	5793	0.6006	ng/ml
Pirimicarb	4.113	120359	0.4820	ng/ml
Propoxur	4.124	15523	0.4717	ng/ml
Tebuthiuron	4.169	85199	0.5141	ng/ml
Fenamiphos - sulfoxide	4.165	17785	0.5267	ng/ml
Oxadixyl	4.185	36323	0.5152	ng/ml
Bendiocarb	4.197	19380	0.4988	ng/ml
Carbofuran	4.224	69267	0.5212	ng/ml
Bromacil	4.222	11893	0.4887	ng/ml
Metribuzin	4.252	3965	0.5977	ng/ml
Terbacil	4.272	684	0.7631	ng/ml

Compound	RT	Resp	Final Conc	
Simetryn	4.280	44784	0.5052	ng/ml
Malaxon	4.321	10613	0.4774	ng/ml
Prometon	4.324	98694	0.4938	ng/ml
Fenamiphos - sulfone	4.320	13124	0.4916	ng/ml
Fluometuron	4.332	29717	0.5057	ng/ml
Cyprosulfamide	4.356	8136	0.4932	ng/ml
Carbaryl	4.353	43536	0.5036	ng/ml
Thiophanate-methyl	4.421	29389	0.5428	ng/ml
Hexazinone	4.432	167069	0.4920	ng/ml
Carboxin	4.451	47581	0.4985	ng/ml
Nicosulfuron 1	4.474	2656	0.5483	ng/ml
Atrazine	4.489	11764	0.5275	ng/ml
Thiencarbazone-methyl	4.502	1593	0.5975	ng/ml
Sulfentrazone	4.502	903	0.4201	ng/ml
Thifensulfuron-methyl (DPX-M6316)	4.520	4902	0.4858	ng/ml
Sulfometuron-methyl	4.511	58738	0.4863	ng/ml
Metsulfuron-methyl	4.557	7490	0.4923	ng/ml
Imazalil	4.660	11540	0.4991	ng/ml
DCPMU	4.663	11848	0.5288	ng/ml
Phorate Sulfoxide	4.761	33652	0.5103	ng/ml
Diuron	4.789	30334	0.4950	ng/ml
Flutriafol	4.805	7952	0.5242	ng/ml
Thiodicarb	4.822	7520	0.5119	ng/ml
Diazoxon	4.842	45053	0.5028	ng/ml
Cyantraniliprole	4.846	746	0.5774	ng/ml
Pyrimethanil	4.909	9796	0.5010	ng/ml
Phorate Sulfone	4.942	12306	0.5384	ng/ml
Propazine	4.935	34594	0.5089	ng/ml
Fenobucarb (Baycarb)	4.945	21565	0.4872	ng/ml
Siduron	4.980	26681	0.5272	ng/ml
Trifloxysulfuron-sodium	5.001	619	1.0179	ng/ml
Pyroxasulfone	4.984	24603	0.5102	ng/ml
Penoxsulam (Penoxalim)	5.000	3249	0.5347	ng/ml
Disulfoton-sulfone	5.003	26909	0.5102	ng/ml
Disulfoton-Sulfone	5.004	4819	0.5863	ng/ml
Cloransulam-Methyl	5.011	1685	0.4738	ng/ml
Terbuthylazine	5.035	61262	0.4988	ng/ml
Norflurazon	5.077	18128	0.4928	ng/ml
Famphur (Famophos)	5.094	9550	0.5169	ng/ml
Clomazone	5.125	43904	0.4947	ng/ml
Propanil	5.154	3722	0.4870	ng/ml
Trinexapac-ethyl	5.198	11073	0.5217	ng/ml
Prometryn	5.208	115892	0.5050	ng/ml
Bicyclopyrone	5.222	96006	0.4914	ng/ml
Linuron	5.244	10420	0.5163	ng/ml
Spiroxamine	5.252	66720	0.5246	ng/ml
Terbutryn	5.272	142037	0.4888	ng/ml
Flurtamone	5.296	3355	0.4619	ng/ml
Methiocarb (Mercaptodimethur)	5.318	45536	0.5096	ng/ml
Chlorantraniliprole	5.321	2651	0.5890	ng/ml
Methidathion	5.390	12829	0.4802	ng/ml
Fluridone	5.451	43492	0.5453	ng/ml
Acibenzolar-s-methyl	5.538	1313	1.6459	ng/ml
Bensulfuron-methyl	5.531	14160	0.5148	ng/ml
Saflufenacil	5.594	413	0.3646	ng/ml
Fenamidone	5.571	44722	0.5041	ng/ml
Triadimenol	5.573	6097	1.0037	ng/ml
Methoxyfenozide	5.587	56212	0.5029	ng/ml
Bispyribac	5.595	9767	0.5304	ng/ml

Compound	RT	Resp	Final Conc	
Fomesafen	5.666	0	ND	ng/ml
Triadimefon	5.628	2019	0.4557	ng/ml
Iodosulfuron-Methyl	5.640	1939	0.3469	ng/ml
Fenhexamid	5.646	2091	0.5427	ng/ml
Boscalid	5.697	4535	0.4965	ng/ml
Fluxapyroxad	5.724	6613	0.5803	ng/ml
Azinphos-methyl	5.735	7889	0.4890	ng/ml
Fluopyram	5.751	35078	0.4965	ng/ml
Isoxaben	5.808	73118	0.4853	ng/ml
Phosmet	5.799	32252	0.4985	ng/ml
Fluopicolide	5.815	17607	0.5042	ng/ml
Malathion	5.853	13306	0.5234	ng/ml
Indaziflam	5.864	100608	0.5180	ng/ml
Azoxystrobin	5.897	77709	0.5012	ng/ml
Cyprodinil	5.949	7491	0.4496	ng/ml
Bifenazate	5.975	29133	0.4998	ng/ml
Triticonazole	5.983	9208	0.4972	ng/ml
Dimethomorph 1	5.998	5013	0.4674	ng/ml
Isofetamid	5.999	88921	0.5096	ng/ml
Neburon (Phosphoramidothioic acid)	6.084	9727	0.5216	ng/ml
Chlorimuron-ethyl	6.088	3294	0.4032	ng/ml
Tebufenozide	6.109	30620	0.4887	ng/ml
Spirotetramat	6.126	9676	0.5286	ng/ml
Mandipropamid	6.161	18865	0.5002	ng/ml
Penthiopyrad	6.190	8973	0.5084	ng/ml
Flufenacet (Fluthiamide)	6.198	50328	0.4780	ng/ml
Dodine	6.213	15890	0.5630	ng/ml
Afidopyropen	6.297	536	0.5398	ng/ml
Flumioxazin	6.300	736	1.1732	ng/ml
Oryzalin	6.314	144	0.0932	ng/ml
Diflubenzuron	6.429	7573	0.4438	ng/ml
Dimethomorph 2	6.426	16460	0.5352	ng/ml
Tebuconazole	6.466	9452	0.5115	ng/ml
Fenoxycarb	6.567	23902	0.5298	ng/ml
Ametoctradin	6.576	52600	0.5088	ng/ml
Hexaconazole	6.593	5637	0.5116	ng/ml
Flubendiamide	6.642	1967	1.2741	ng/ml
Fonofos	6.622	592	0.3128	ng/ml
Bensulide	6.654	3167	0.5006	ng/ml
Cycloate	6.686	1229	1.2862	ng/ml
Picoxystrobin	6.663	104310	0.5004	ng/ml
Cyclaniliprole	6.680	1239	1.1005	ng/ml
Azinphos-ethyl (Guthion ethyl)	6.700	2544	0.5319	ng/ml
Cyazofamid	6.692	20954	0.5102	ng/ml
TPP d15	6.764	11060	0.9741	ng/ml
Fenbuconazole	6.792	5993	0.5514	ng/ml
Carfentrazone-ethyl	6.798	4837	0.5585	ng/ml
Bitertanol	6.819	1397	0.5151	ng/ml
Metconazole	6.829	11999	0.5254	ng/ml
Prothioconazole	6.833	803	0.8600	ng/ml
Fluoxastrobin	6.843	7840	0.5247	ng/ml
Pirimiphos-methyl	6.848	23396	0.4952	ng/ml
Benzovindiflupyr	6.872	5118	0.5043	ng/ml
Isoxadifen-ethyl (AE F122006)	6.930	6185	0.5276	ng/ml
Mefenitrifluconazole	6.944	6718	0.5317	ng/ml
Propiconazole	6.964	3852	0.5812	ng/ml
Iprodione	6.983	545	2.5058	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Thiobencarb	7.086	19826	0.4872	ng/ml
Cyflufenamid	7.207	6622	0.4917	ng/ml
Clofentezine	7.230	9084	0.5383	ng/ml
Triflumizol	7.290	52487	0.5105	ng/ml
Pyraflufen-ethyl	7.296	9176	0.5400	ng/ml
Prallethrin	7.348	2910	0.5147	ng/ml
Flutianil	7.385	24546	0.5345	ng/ml
Pydiflumetofen	7.404	8811	0.5224	ng/ml
Ipconazole	7.400	11389	0.4962	ng/ml
Famoxadone	7.478	2025	0.5473	ng/ml
Pyraclostrobin	7.497	36473	0.4939	ng/ml
Metrafenone	7.504	17752	0.5147	ng/ml
Rotenone	7.551	1341	0.5617	ng/ml
Diflufenican	7.550	9663	0.5239	ng/ml
Sethoxydim	7.681	32557	0.9927	ng/ml
Novaluron	7.729	1532	0.5216	ng/ml
Trifloxystrobin	7.775	68129	0.5054	ng/ml
Phosalone	7.796	5885	0.5364	ng/ml
Coumaphos	7.806	19434	0.4926	ng/ml
Pyrethrin II	7.859	10391	2.6075	ng/ml
Allethrin	7.889	4574	0.5066	ng/ml
Clethodim	7.923	8436	1.0373	ng/ml
Spinosyn A	7.927	78470	0.5149	ng/ml
Difenconazole	7.974	6691	0.5287	ng/ml
Piperonyl butoxide	7.987	109480	0.4919	ng/ml
Triallate	8.096	388	0.4058	ng/ml
Cyhalofop butyl	8.148	1431	0.2989	ng/ml
Quizalofop-ethyl	8.230	4790	0.5447	ng/ml
Tolfenpyrade	8.265	3234	0.5239	ng/ml
Indoxacarb	8.372	1340	0.4943	ng/ml
Cyflumetofen	8.373	34629	0.5040	ng/ml
Emamectin Benzoate	8.434	8413	0.5251	ng/ml
Spinosyn D	8.480	18931	0.5167	ng/ml
Spiromesifen	8.473	71093	1.0203	ng/ml
Spinetoram J	8.506	33552	0.5222	ng/ml
Ethion	8.662	26120	0.5081	ng/ml
Fluazinam (Shirlan (VAN)	8.658	597	0.4322	ng/ml
Propargite	8.799	12143	0.5459	ng/ml
Pyrethrin I	8.800	38060	2.4312	ng/ml
Lactofen	8.832	11008	0.5431	ng/ml
Dioxathion	8.828	13691	0.5239	ng/ml
Fenazaquin	8.944	129500	0.4955	ng/ml
Hexythiazox	8.996	7872	0.5175	ng/ml
Spinetoram L	9.010	10414	0.5513	ng/ml
Fenpyroximate	9.108	17550	0.5253	ng/ml
Fenpropathrin	9.220	3181	0.5069	ng/ml
Pyridaben	9.603	39561	0.5060	ng/ml
Abamectin	9.814	259	0.4634	ng/ml
d-Phenothrin	9.945	3349	0.5051	ng/ml
Etofenprox	10.371	41499	0.5084	ng/ml
Fluvalinate	10.511	1341	0.5308	ng/ml
Pyridalyl	10.928	694	0.5040	ng/ml
Fenbutatin oxide	10.994	2826	0.5144	ng/ml

Quantitative Analysis Sample Report

Batch Info

Batch Data Path	D:\MassHunter\Data\23I21_FNC\QuantResults\23I21_FNC.batch.bin		
Analysis Time	9/22/2023 2:24 PM	**Analyst Name**	6470QQQ\lcgroup
Report Time	12/26/2023 8:19 AM	**Reporter Name**	6470QQQ\lcgroup
Last Calib Update	9/22/2023 2:24 PM	**Batch State**	Processed
Instrument	6470QQQ	**Sample Name**	23I21_FNC_CAL_2 1µg/L
Position	P1-A4	**Data File**	23I21_FNC_004.d
Dilution	1	**Sample Type**	Calibration
Acq Time	2023-09-21 18:06	**Acq Method**	23H17_FNC.m
Inj Vol	2	**Operator**	ECD

Quantitation Results

Compound	RT	Resp	Final Conc	
Cyromazine	1.232	16620	1.0042	ng/ml
Methamidophos	1.254	40333	1.0151	ng/ml
Acephate	1.706	34923	1.0286	ng/ml
Formentanate metabolite	2.348	10885	0.9974	ng/ml
Omethoate	2.442	47841	1.0307	ng/ml
Pymetrozine	2.620	76650	1.0149	ng/ml
Propamocarb	2.633	85327	0.9991	ng/ml
Formetanate HCl	2.637	61074	1.0344	ng/ml
Aldicarb-sulfoxide	2.667	29718	1.0228	ng/ml
Dinotefuran	2.658	21262	0.9956	ng/ml
Aldicarb-sulfone (Aldoxycarb)	2.863	960	1.0077	ng/ml
Oxamyl	3.005	125756	1.0238	ng/ml
Methomyl	3.021	31990	1.0216	ng/ml
Carbendazim	3.082	304976	1.0304	ng/ml
Oxydemeton-methyl	3.104	25865	0.9683	ng/ml
Flonicamid	3.107	3739	0.9926	ng/ml
Thiabendazole	3.344	112108	1.0346	ng/ml
Thiamethoxam	3.384	39021	1.0229	ng/ml
Fenuron (N,N-Dimethyl-N-phenylurea)	3.417	118373	1.0313	ng/ml
Clothianidin	3.467	7760	1.0284	ng/ml
3-Hydroxy Carbofuran	3.504	50375	0.9975	ng/ml
Dimethoate	3.605	57429	0.9946	ng/ml
Imidacloprid	3.630	12341	1.0162	ng/ml
Flumetsulam	3.662	14709	0.9681	ng/ml
Mevinphos (Phosdrin)	3.686	50748	1.0253	ng/ml
Acetamiprid	3.741	96993	0.9914	ng/ml
Flupyradifurone	3.746	19582	1.0154	ng/ml
Sulfoxaflor	3.728	56829	1.0187	ng/ml
Cymoxanil (Curzate)	3.778	34985	1.0318	ng/ml
Aldicarb	3.814	25740	1.0379	ng/ml
Pyrasulfotole	3.917	14072	1.0057	ng/ml
Thiacloprid	4.003	103935	0.9867	ng/ml
Phosphamidon	4.002	34213	1.0388	ng/ml
Cyanazine (Fortrol)	4.040	16783	0.9990	ng/ml
Monuron	4.070	80058	1.0247	ng/ml
Simazine	4.079	9039	0.9246	ng/ml
Pirimicarb	4.113	272298	1.0633	ng/ml
Propoxur	4.133	42174	1.0951	ng/ml
Tebuthiuron	4.169	175524	0.9976	ng/ml
Fenamiphos - sulfoxide	4.165	37274	1.0096	ng/ml
Oxadixyl	4.185	80821	1.0096	ng/ml
Bendiocarb	4.197	44881	1.0289	ng/ml
Carbofuran	4.224	141501	0.9961	ng/ml
Bromacil	4.222	27203	1.1149	ng/ml
Metribuzin	4.252	7813	0.9989	ng/ml
Terbacil	4.272	949	0.9571	ng/ml

Compound	RT	Resp	Final Conc	
Simetryn	4.280	95389	1.0031	ng/ml
Malaxon	4.311	27423	1.0655	ng/ml
Prometon	4.324	222340	1.0526	ng/ml
Fenamiphos - sulfone	4.320	31497	1.0578	ng/ml
Fluometuron	4.342	61104	1.0061	ng/ml
Cyprosulfamide	4.356	19294	1.0396	ng/ml
Carbaryl	4.353	90327	1.0169	ng/ml
Thiophanate-methyl	4.430	57719	0.9653	ng/ml
Hexazinone	4.432	383553	1.0527	ng/ml
Carboxin	4.451	104645	1.0201	ng/ml
Nicosulfuron 1	4.474	4875	0.8569	ng/ml
Atrazine	4.489	26219	0.9997	ng/ml
Thiencarbazone-methyl	4.502	3460	1.0543	ng/ml
Sulfentrazone	4.502	2281	1.2131	ng/ml
Thifensulfuron-methyl (DPX-M6316)	4.520	12246	1.0714	ng/ml
Sulfometuron-methyl	4.521	132282	1.0364	ng/ml
Metsulfuron-methyl	4.548	18042	1.0660	ng/ml
Imazalil	4.669	27514	1.0199	ng/ml
DCPMU	4.672	25016	0.9929	ng/ml
Phorate Sulfoxide	4.761	73915	1.0161	ng/ml
Diuron	4.789	66821	1.0103	ng/ml
Flutriafol	4.805	18479	1.0496	ng/ml
Thiodicarb	4.822	17706	1.0454	ng/ml
Diazoxon	4.842	96437	0.9962	ng/ml
Cyantraniliprole	4.846	1638	1.0542	ng/ml
Pyrimethanil	4.918	19079	1.1533	ng/ml
Phorate Sulfone	4.942	24401	0.9867	ng/ml
Propazine	4.944	75069	1.0299	ng/ml
Fenobucarb (Baycarb)	4.945	51686	1.0541	ng/ml
Siduron	4.980	56980	1.0061	ng/ml
Trifloxysulfuron-sodium	4.992	763	1.2398	ng/ml
Pyroxasulfone	4.984	55092	1.0295	ng/ml
Penoxsulam (Penoxalim)	5.009	7205	1.0370	ng/ml
Disulfoton-sulfone	5.003	56010	0.9913	ng/ml
Disulfoton-Sulfone	5.004	8656	0.9307	ng/ml
Cloransulam-Methyl	5.020	4282	1.1522	ng/ml
Terbuthylazine	5.035	143530	1.0435	ng/ml
Norflurazon	5.077	43775	1.0477	ng/ml
Famphur (Famophos)	5.094	21095	1.0251	ng/ml
Clomazone	5.134	102297	1.0590	ng/ml
Propanil	5.154	9715	1.1044	ng/ml
Trinexapac-ethyl	5.198	23647	0.9758	ng/ml
Prometryn	5.208	255093	1.0181	ng/ml
Bicyclopyrone	5.222	213212	1.0236	ng/ml
Linuron	5.253	21074	1.0225	ng/ml
Spiroxamine	5.252	151548	1.0479	ng/ml
Terbutryn	5.272	313042	1.0123	ng/ml
Flurtamone	5.286	9510	0.9363	ng/ml
Methiocarb (Mercaptodimethur)	5.318	98087	0.9746	ng/ml
Chlorantraniliprole	5.330	6710	1.1520	ng/ml
Methidathion	5.390	30765	1.0671	ng/ml
Fluridone	5.451	80349	0.9469	ng/ml
Acibenzolar-s-methyl	5.529	2047	2.2586	ng/ml
Bensulfuron-methyl	5.541	29394	0.9790	ng/ml
Saflufenacil	5.567	1567	0.9600	ng/ml
Fenamidone	5.571	103896	1.0198	ng/ml
Triadimenol	5.582	16839	2.1958	ng/ml
Methoxyfenozide	5.587	126793	1.0198	ng/ml
Bispyribac	5.595	22387	1.0456	ng/ml

Compound	RT	Resp	Final Conc	
Fomesafen	5.612	364	1.9395	ng/ml
Triadimefon	5.628	4842	1.1523	ng/ml
Iodosulfuron-Methyl	5.640	4856	1.0205	ng/ml
Fenhexamid	5.655	5513	1.1094	ng/ml
Boscalid	5.697	10934	1.0816	ng/ml
Fluxapyroxad	5.724	12373	1.0044	ng/ml
Azinphos-methyl	5.735	19911	1.0111	ng/ml
Fluopyram	5.751	83908	1.0878	ng/ml
Isoxaben	5.808	182049	1.0623	ng/ml
Phosmet	5.790	73703	1.0170	ng/ml
Fluopicolide	5.815	38916	1.0209	ng/ml
Malathion	5.844	26329	0.9375	ng/ml
Indaziflam	5.864	205570	1.0112	ng/ml
Azoxystrobin	5.897	166391	1.0011	ng/ml
Cyprodinil	5.949	23756	1.0828	ng/ml
Bifenazate	5.975	70276	1.0262	ng/ml
Triticonazole	5.992	19392	1.0685	ng/ml
Dimethomorph 1	5.998	13951	1.0878	ng/ml
Isofetamid	5.999	191514	1.0235	ng/ml
Neburon (Phosphoramidothioic acid)	6.084	21466	0.9943	ng/ml
Chlorimuron-ethyl	6.097	9533	1.1653	ng/ml
Tebufenozide	6.100	76627	1.0363	ng/ml
Spirotetramat	6.126	20283	0.9861	ng/ml
Mandipropamid	6.161	43414	1.0252	ng/ml
Penthiopyrad	6.181	21936	1.0533	ng/ml
Flufenacet (Fluthiamide)	6.198	118144	1.0635	ng/ml
Dodine	6.213	32566	1.0265	ng/ml
Afidopyropen	6.297	1226	1.0889	ng/ml
Flumioxazin	6.300	532	1.0499	ng/ml
Oryzalin	6.314	409	1.0579	ng/ml
Diflubenzuron	6.411	17755	1.0475	ng/ml
Dimethomorph 2	6.426	34045	1.0405	ng/ml
Tebuconazole	6.466	20087	0.9920	ng/ml
Fenoxycarb	6.567	51213	1.0032	ng/ml
Ametoctradin	6.576	113284	1.0031	ng/ml
Hexaconazole	6.584	12059	0.9730	ng/ml
Flubendiamide	6.633	3660	2.1333	ng/ml
Fonofos	6.631	1569	0.9500	ng/ml
Bensulide	6.654	8121	1.0151	ng/ml
Cycloate	6.677	2241	1.9563	ng/ml
Picoxystrobin	6.663	219476	1.0125	ng/ml
Cyclaniliprole	6.680	1067	0.9929	ng/ml
Azinphos-ethyl (Guthion ethyl)	6.691	5214	1.0588	ng/ml
Cyazofamid	6.692	46499	1.0162	ng/ml
TPP d15	6.764	26884	2.0637	ng/ml
Fenbuconazole	6.792	11037	0.9436	ng/ml
Carfentrazone-ethyl	6.808	8938	0.9474	ng/ml
Bitertanol	6.828	3167	0.9901	ng/ml
Metconazole	6.838	26980	1.0890	ng/ml
Prothioconazole	6.833	1487	2.0175	ng/ml
Fluoxastrobin	6.852	18567	1.0647	ng/ml
Pirimiphos-methyl	6.848	55529	1.0636	ng/ml
Benzovindiflupyr	6.863	13411	1.0437	ng/ml
Isoxadifen-ethyl (AE F122006)	6.930	13481	1.0224	ng/ml
Mefenitrifluconazole	6.953	13682	0.9778	ng/ml
Propiconazole	6.982	7431	1.0636	ng/ml
Iprodione	6.965	1154	5.8105	ng/ml

Compound	RT	Resp	Final Conc	
Thiobencarb	7.086	47231	1.0383	ng/ml
Cyflufenamid	7.216	16455	1.0049	ng/ml
Clofentezine	7.239	15319	0.8936	ng/ml
Triflumizol	7.290	114493	1.0115	ng/ml
Pyraflufen-ethyl	7.287	18536	0.9978	ng/ml
Prallethrin	7.348	6999	0.9887	ng/ml
Flutianil	7.385	52576	1.0090	ng/ml
Pydiflumetofen	7.395	19552	1.0366	ng/ml
Ipconazole	7.400	25827	1.0639	ng/ml
Famoxadone	7.470	4368	1.0380	ng/ml
Pyraclostrobin	7.497	85820	1.0601	ng/ml
Metrafenone	7.513	40242	1.0348	ng/ml
Rotenone	7.541	3244	1.1175	ng/ml
Diflufenican	7.559	22804	1.0605	ng/ml
Sethoxydim	7.681	77822	2.1101	ng/ml
Novaluron	7.729	2947	0.9672	ng/ml
Trifloxystrobin	7.775	147256	1.0178	ng/ml
Phosalone	7.787	12797	0.9917	ng/ml
Coumaphos	7.805	44342	1.0329	ng/ml
Pyrethrin II	7.859	21202	4.9263	ng/ml
Allethrin	7.889	11356	1.0305	ng/ml
Clethodim	7.914	19160	2.0367	ng/ml
Spinosyn A	7.918	128345	1.0315	ng/ml
Difenconazole	7.965	14677	0.9998	ng/ml
Piperonyl butoxide	7.987	248724	1.0331	ng/ml
Triallate	8.087	813	0.9207	ng/ml
Cyhalofop butyl	8.148	4544	1.1234	ng/ml
Quizalofop-ethyl	8.230	8631	0.9143	ng/ml
Tolfenpyrade	8.275	6463	0.9789	ng/ml
Indoxacarb	8.363	3619	1.0929	ng/ml
Cyflumetofen	8.373	75672	1.0116	ng/ml
Emamectin Benzoate	8.443	16974	0.9884	ng/ml
Spinosyn D	8.480	36589	0.9963	ng/ml
Spiromesifen	8.473	144233	1.9634	ng/ml
Spinetoram J	8.506	70435	1.0040	ng/ml
Ethion	8.653	60997	1.0076	ng/ml
Fluazinam (Shirlan (VAN)	8.667	1803	1.1379	ng/ml
Propargite	8.808	23921	0.9765	ng/ml
Pyrethrin I	8.800	90944	5.2220	ng/ml
Lactofen	8.832	23084	1.0112	ng/ml
Dioxathion	8.837	30696	1.0328	ng/ml
Fenazaquin	8.944	266439	1.0254	ng/ml
Hexythiazox	8.996	18636	1.0297	ng/ml
Spinetoram L	9.010	20473	0.9813	ng/ml
Fenpyroximate	9.108	38115	1.0047	ng/ml
Fenpropathrin	9.220	6907	1.0706	ng/ml
Pyridaben	9.603	88381	1.0196	ng/ml
Abamectin	9.814	564	1.1417	ng/ml
d-Phenothrin	9.936	7622	1.0607	ng/ml
Etofenprox	10.362	90530	1.0087	ng/ml
Fluvalinate	10.511	2584	0.9644	ng/ml
Pyridalyl	10.919	1425	1.0380	ng/ml
Fenbutatin oxide	10.985	5940	1.0261	ng/ml

Quantitative Analysis Sample Report

Batch Info

Batch Data Path	D:\MassHunter\Data\23I21_FNC\QuantResults\23I21_FNC.batch.bin		
Analysis Time	9/22/2023 2:24 PM	**Analyst Name**	6470QQQ\lcgroup
Report Time	12/26/2023 8:19 AM	**Reporter Name**	6470QQQ\lcgroup
Last Calib Update	9/22/2023 2:24 PM	**Batch State**	Processed
Instrument	6470QQQ	**Sample Name**	23I21_FNC_CAL_3 2µg/L
Position	P1-A5	**Data File**	23I21_FNC_005.d
Dilution	1	**Sample Type**	Calibration
Acq Time	2023-09-21 18:25	**Acq Method**	23H17_FNC.m
Inj Vol	2	**Operator**	ECD

Quantitation Results

Compound	RT	Resp	Final Conc	
Cyromazine	1.241	34478	1.8942	ng/ml
Methamidophos	1.254	79615	1.8942	ng/ml
Acephate	1.706	68276	1.8897	ng/ml
Formentanate metabolite	2.339	22874	1.9512	ng/ml
Omethoate	2.442	92501	1.8918	ng/ml
Pymetrozine	2.620	154491	1.9544	ng/ml
Propamocarb	2.633	167032	1.7980	ng/ml
Formetanate HCl	2.637	116890	1.8820	ng/ml
Aldicarb-sulfoxide	2.658	57703	1.8964	ng/ml
Dinotefuran	2.658	42388	1.9051	ng/ml
Aldicarb-sulfone (Aldoxycarb)	2.872	1902	1.9618	ng/ml
Oxamyl	3.005	250767	1.9675	ng/ml
Methomyl	3.021	63509	1.9102	ng/ml
Carbendazim	3.082	594213	1.9513	ng/ml
Oxydemeton-methyl	3.104	55705	1.9353	ng/ml
Flonicamid	3.107	7775	1.9449	ng/ml
Thiabendazole	3.344	214054	1.9292	ng/ml
Thiamethoxam	3.384	77743	1.9477	ng/ml
Fenuron (N,N-Dimethyl-N-phenylurea)	3.417	227233	1.9281	ng/ml
Clothianidin	3.467	14783	1.8809	ng/ml
3-Hydroxy Carbofuran	3.504	105918	1.9808	ng/ml
Dimethoate	3.605	119266	1.9671	ng/ml
Imidacloprid	3.630	23685	1.9090	ng/ml
Flumetsulam	3.662	31655	1.9648	ng/ml
Mevinphos (Phosdrin)	3.695	101132	1.9676	ng/ml
Acetamiprid	3.741	202100	1.9950	ng/ml
Flupyradifurone	3.737	41855	2.0622	ng/ml
Sulfoxaflor	3.738	112306	1.9275	ng/ml
Cymoxanil (Curzate)	3.778	64929	1.8709	ng/ml
Aldicarb	3.814	48109	1.8805	ng/ml
Pyrasulfotole	3.917	34149	2.0452	ng/ml
Thiacloprid	4.003	212183	1.9392	ng/ml
Phosphamidon	4.002	66600	1.9474	ng/ml
Cyanazine (Fortrol)	4.049	30755	1.7391	ng/ml
Monuron	4.070	158287	1.9457	ng/ml
Simazine	4.079	16982	1.7176	ng/ml
Pirimicarb	4.113	498919	1.9263	ng/ml
Propoxur	4.133	77808	1.9283	ng/ml
Tebuthiuron	4.169	349025	1.9272	ng/ml
Fenamiphos - sulfoxide	4.174	72433	1.8816	ng/ml
Oxadixyl	4.185	161961	1.9109	ng/ml
Bendiocarb	4.197	89739	1.9610	ng/ml
Carbofuran	4.224	284645	1.9360	ng/ml
Bromacil	4.222	43712	1.7911	ng/ml
Metribuzin	4.243	17240	1.9808	ng/ml
Terbacil	4.272	2311	1.9538	ng/ml

Compound	RT	Resp	Final Conc	
Simetryn	4.280	192354	1.9559	ng/ml
Malaxon	4.321	52799	1.9551	ng/ml
Prometon	4.324	411894	1.9073	ng/ml
Fenamiphos - sulfone	4.329	60596	1.9564	ng/ml
Fluometuron	4.342	120820	1.9603	ng/ml
Cyprosulfamide	4.356	37340	1.9236	ng/ml
Carbaryl	4.362	174963	1.9455	ng/ml
Thiophanate-methyl	4.430	118263	1.8690	ng/ml
Hexazinone	4.432	723698	1.9315	ng/ml
Carboxin	4.460	207431	1.9599	ng/ml
Nicosulfuron 1	4.474	13278	2.0248	ng/ml
Atrazine	4.498	53459	1.8905	ng/ml
Thiencarbazone-methyl	4.502	6362	1.7642	ng/ml
Sulfentrazone	4.502	2934	1.5882	ng/ml
Thifensulfuron-methyl (DPX-M6316)	4.520	22378	1.8745	ng/ml
Sulfometuron-methyl	4.521	257754	1.9709	ng/ml
Metsulfuron-methyl	4.557	34119	1.9375	ng/ml
Imazalil	4.669	55674	1.9374	ng/ml
DCPMU	4.672	50258	1.8838	ng/ml
Phorate Sulfoxide	4.770	147861	1.9442	ng/ml
Diuron	4.798	134355	1.9643	ng/ml
Flutriafol	4.814	33493	1.7985	ng/ml
Thiodicarb	4.831	33033	1.8485	ng/ml
Diazoxon	4.851	198003	1.9703	ng/ml
Cyantraniliprole	4.846	2820	1.6839	ng/ml
Pyrimethanil	4.918	27449	1.7405	ng/ml
Phorate Sulfone	4.951	48769	1.8900	ng/ml
Propazine	4.944	140642	1.8748	ng/ml
Fenobucarb (Baycarb)	4.954	98991	1.9448	ng/ml
Siduron	4.980	111253	1.8643	ng/ml
Trifloxysulfuron-sodium	4.983	1083	1.7314	ng/ml
Pyroxasulfone	4.993	107408	1.9210	ng/ml
Penoxsulam (Penoxalim)	5.009	13207	1.7967	ng/ml
Disulfoton-sulfone	5.013	116238	1.9869	ng/ml
Disulfoton-Sulfone	5.004	17716	1.7434	ng/ml
Cloransulam-Methyl	5.020	6880	1.8283	ng/ml
Terbuthylazine	5.044	272404	1.8974	ng/ml
Norflurazon	5.086	85583	1.9515	ng/ml
Famphur (Famophos)	5.103	40764	1.8905	ng/ml
Clomazone	5.134	191564	1.9210	ng/ml
Propanil	5.154	17004	1.8550	ng/ml
Trinexapac-ethyl	5.207	51513	1.9813	ng/ml
Prometryn	5.217	497341	1.9089	ng/ml
Bicyclopyrone	5.231	425449	1.9849	ng/ml
Linuron	5.253	40457	1.9429	ng/ml
Spiroxamine	5.261	265379	1.7490	ng/ml
Terbutryn	5.281	636292	1.9990	ng/ml
Flurtamone	5.286	23637	2.0293	ng/ml
Methiocarb (Mercaptodimethur)	5.328	214152	2.0018	ng/ml
Chlorantraniliprole	5.330	10494	1.6768	ng/ml
Methidathion	5.399	58315	1.9677	ng/ml
Fluridone	5.451	171697	1.9422	ng/ml
Acibenzolar-s-methyl	5.529	3535	3.4980	ng/ml
Bensulfuron-methyl	5.541	62978	1.9990	ng/ml
Saflufenacil	5.567	3786	2.1011	ng/ml
Fenamidone	5.580	209466	1.9398	ng/ml
Triadimenol	5.582	30091	3.6666	ng/ml
Methoxyfenozide	5.587	255020	1.9587	ng/ml
Bispyribac	5.595	41192	1.8106	ng/ml

Compound	RT	Resp	Final Conc	
Fomesafen	5.612	149	0.4419	ng/ml
Triadimefon	5.637	7022	1.6880	ng/ml
Iodosulfuron-Methyl	5.649	8919	1.9502	ng/ml
Fenhexamid	5.646	10298	1.9018	ng/ml
Boscalid	5.707	20228	1.9301	ng/ml
Fluxapyroxad	5.733	21397	1.6683	ng/ml
Azinphos-methyl	5.735	42304	1.9834	ng/ml
Fluopyram	5.760	147847	1.8622	ng/ml
Isoxaben	5.808	348184	1.9403	ng/ml
Phosmet	5.799	152152	1.9979	ng/ml
Fluopicolide	5.815	76754	1.9386	ng/ml
Malathion	5.853	60525	2.0240	ng/ml
Indaziflam	5.864	390809	1.8805	ng/ml
Azoxystrobin	5.906	340868	1.9831	ng/ml
Cyprodinil	5.949	48635	2.0514	ng/ml
Bifenazate	5.975	139983	1.9166	ng/ml
Triticonazole	5.992	33567	1.8628	ng/ml
Dimethomorph 1	5.998	27040	1.9929	ng/ml
Isofetamid	5.999	367834	1.9049	ng/ml
Neburon (Phosphoramidothioic acid)	6.084	45097	1.9467	ng/ml
Chlorimuron-ethyl	6.097	14610	1.7835	ng/ml
Tebufenozide	6.109	156566	1.9872	ng/ml
Spirotetramat	6.135	41915	1.9173	ng/ml
Mandipropamid	6.161	88454	1.9875	ng/ml
Penthiopyrad	6.190	41331	1.8680	ng/ml
Flufenacet (Fluthiamide)	6.198	219685	1.9397	ng/ml
Dodine	6.222	66894	1.9815	ng/ml
Afidopyropen	6.288	2233	1.8833	ng/ml
Flumioxazin	6.290	2043	1.9582	ng/ml
Oryzalin	6.323	592	1.7283	ng/ml
Diflubenzuron	6.420	32926	1.9441	ng/ml
Dimethomorph 2	6.426	59658	1.7747	ng/ml
Tebuconazole	6.466	41220	1.9447	ng/ml
Fenoxycarb	6.576	102441	1.8910	ng/ml
Ametoctradin	6.576	230212	1.9549	ng/ml
Hexaconazole	6.593	26536	2.0119	ng/ml
Flubendiamide	6.624	7316	3.9987	ng/ml
Fonofos	6.641	3246	2.0409	ng/ml
Bensulide	6.654	17281	1.9651	ng/ml
Cycloate	6.668	5617	4.1875	ng/ml
Picoxystrobin	6.673	427578	1.9360	ng/ml
Cyclaniliprole	6.698	3143	2.2838	ng/ml
Azinphos-ethyl (Guthion ethyl)	6.691	9279	1.8585	ng/ml
Cyazofamid	6.692	92113	1.9193	ng/ml
TPP d15	6.764	54751	3.9809	ng/ml
Fenbuconazole	6.792	23883	1.9415	ng/ml
Carfentrazone-ethyl	6.817	18621	1.8631	ng/ml
Bitertanol	6.828	6811	1.9615	ng/ml
Metconazole	6.838	44093	1.7327	ng/ml
Prothioconazole	6.824	2824	4.3121	ng/ml
Fluoxastrobin	6.861	33497	1.8165	ng/ml
Pirimiphos-methyl	6.848	100832	1.8644	ng/ml
Benzovindiflupyr	6.863	26872	1.9191	ng/ml
Isoxadifen-ethyl (AE F122006)	6.930	26949	1.9339	ng/ml
Mefenitrifluconazole	6.953	27862	1.8845	ng/ml
Propiconazole	6.982	13001	1.8116	ng/ml
Iprodione	6.974	1766	9.1163	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Thiobencarb	7.086	93017	1.9568	ng/ml
Cyflufenamid	7.225	35527	1.9977	ng/ml
Clofentezine	7.239	35886	2.0657	ng/ml
Triflumizol	7.290	226766	1.9175	ng/ml
Pyraflufen-ethyl	7.287	36133	1.8576	ng/ml
Prallethrin	7.348	15786	2.0045	ng/ml
Flutianil	7.385	101638	1.8387	ng/ml
Pydiflumetofen	7.395	36976	1.8706	ng/ml
Ipconazole	7.400	46307	1.8684	ng/ml
Famoxadone	7.478	8751	1.9522	ng/ml
Pyraclostrobin	7.497	159347	1.9035	ng/ml
Metrafenone	7.504	77623	1.8981	ng/ml
Rotenone	7.541	5736	1.8433	ng/ml
Diflufenican	7.559	39858	1.7561	ng/ml
Sethoxydim	7.681	148046	3.8419	ng/ml
Novaluron	7.729	6029	1.9339	ng/ml
Trifloxystrobin	7.775	284128	1.9028	ng/ml
Phosalone	7.787	26280	1.8782	ng/ml
Coumaphos	7.806	87199	1.9603	ng/ml
Pyrethrin II	7.868	42892	9.5666	ng/ml
Allethrin	7.880	23157	1.9391	ng/ml
Clethodim	7.914	39321	3.9089	ng/ml
Spinosyn A	7.918	209257	1.8689	ng/ml
Difenconazole	7.974	30023	1.9035	ng/ml
Piperonyl butoxide	7.987	484431	1.9466	ng/ml
Triallate	8.087	1915	2.2486	ng/ml
Cyhalofop butyl	8.148	7098	1.7965	ng/ml
Quizalofop-ethyl	8.230	19883	1.9941	ng/ml
Tolfenpyrade	8.265	13697	1.9946	ng/ml
Indoxacarb	8.372	6510	1.8494	ng/ml
Cyflumetofen	8.373	151407	1.9473	ng/ml
Emamectin Benzoate	8.443	33461	1.8799	ng/ml
Spinosyn D	8.471	70666	1.9213	ng/ml
Spiromesifen	8.473	294834	3.9054	ng/ml
Spinetoram J	8.506	137768	1.8826	ng/ml
Ethion	8.653	127830	1.9640	ng/ml
Fluazinam (Shirlan (VAN)	8.658	3301	2.0122	ng/ml
Propargite	8.799	47068	1.8210	ng/ml
Pyrethrin I	8.791	176843	9.7432	ng/ml
Lactofen	8.823	43133	1.7875	ng/ml
Dioxathion	8.828	57969	1.8474	ng/ml
Fenazaquin	8.935	508537	1.9599	ng/ml
Hexythiazox	8.987	36613	1.8841	ng/ml
Spinetoram L	9.001	41420	1.8757	ng/ml
Fenpyroximate	9.099	75716	1.8790	ng/ml
Fenpropathrin	9.211	12013	1.8409	ng/ml
Pyridaben	9.603	175059	1.9298	ng/ml
Abamectin	9.814	875	1.8325	ng/ml
d-Phenothrin	9.936	13978	1.8847	ng/ml
Etofenprox	10.362	181633	1.9368	ng/ml
Fluvalinate	10.511	5561	1.9985	ng/ml
Pyridalyl	10.919	2609	1.8999	ng/ml
Fenbutatin oxide	10.985	11179	1.8844	ng/ml

Quantitative Analysis Sample Report

Batch Info

Batch Data Path	D:\MassHunter\Data\23I21_FNC\QuantResults\23I21_FNC.batch.bin		
Analysis Time	9/22/2023 2:24 PM	**Analyst Name**	6470QQQ\lcgroup
Report Time	12/26/2023 8:19 AM	**Reporter Name**	6470QQQ\lcgroup
Last Calib Update	9/22/2023 2:24 PM	**Batch State**	Processed
Instrument	6470QQQ	**Sample Name**	23I21_FNC_CAL_4 5µg/L
Position	P1-A6	**Data File**	23I21_FNC_006.d
Dilution	1	**Sample Type**	Calibration
Acq Time	2023-09-21 18:43	**Acq Method**	23H17_FNC.m
Inj Vol	2	**Operator**	ECD

Quantitation Results

Compound	RT	Resp	Final Conc	
Cyromazine	1.241	89880	4.6895	ng/ml
Methamidophos	1.263	221966	5.0682	ng/ml
Acephate	1.715	192231	5.0714	ng/ml
Formentanate metabolite	2.348	62424	5.0747	ng/ml
Omethoate	2.451	260424	5.1169	ng/ml
Pymetrozine	2.629	409947	5.0366	ng/ml
Propamocarb	2.642	510264	5.1569	ng/ml
Formetanate HCl	2.646	332011	5.1383	ng/ml
Aldicarb-sulfoxide	2.667	158822	5.0540	ng/ml
Dinotefuran	2.667	114999	5.0398	ng/ml
Aldicarb-sulfone (Aldoxycarb)	2.881	5264	5.3684	ng/ml
Oxamyl	3.014	670404	5.1194	ng/ml
Methomyl	3.021	172182	4.9812	ng/ml
Carbendazim	3.091	1573416	5.0516	ng/ml
Oxydemeton-methyl	3.104	154387	5.1371	ng/ml
Flonicamid	3.107	19652	4.7642	ng/ml
Thiabendazole	3.344	570804	5.0458	ng/ml
Thiamethoxam	3.384	207639	5.0490	ng/ml
Fenuron (N,N-Dimethyl-N-phenylurea)	3.417	618271	5.1376	ng/ml
Clothianidin	3.467	40189	4.9507	ng/ml
3-Hydroxy Carbofuran	3.504	283234	5.1151	ng/ml
Dimethoate	3.605	316263	5.0587	ng/ml
Imidacloprid	3.630	64175	5.0892	ng/ml
Flumetsulam	3.662	84555	5.0577	ng/ml
Mevinphos (Phosdrin)	3.695	265401	5.0328	ng/ml
Acetamiprid	3.741	526691	5.0948	ng/ml
Flupyradifurone	3.746	107817	5.1713	ng/ml
Sulfoxaflor	3.738	298491	4.9779	ng/ml
Cymoxanil (Curzate)	3.778	177775	5.0305	ng/ml
Aldicarb	3.814	133824	5.0977	ng/ml
Pyrasulfotole	3.917	87538	4.8029	ng/ml
Thiacloprid	4.003	580172	5.1724	ng/ml
Phosphamidon	4.002	176391	5.0054	ng/ml
Cyanazine (Fortrol)	4.040	93970	5.0751	ng/ml
Monuron	4.061	429668	5.1442	ng/ml
Simazine	4.079	49887	5.0033	ng/ml
Pirimicarb	4.113	1344470	5.1042	ng/ml
Propoxur	4.124	211515	5.0514	ng/ml
Tebuthiuron	4.169	941569	5.1111	ng/ml
Fenamiphos - sulfoxide	4.165	197711	4.9978	ng/ml
Oxadixyl	4.176	443680	5.0373	ng/ml
Bendiocarb	4.197	235202	4.9810	ng/ml
Carbofuran	4.224	746306	4.9586	ng/ml
Bromacil	4.222	121644	4.9982	ng/ml
Metribuzin	4.243	49527	5.3322	ng/ml
Terbacil	4.272	7517	5.7802	ng/ml

Compound	RT	Resp	Final Conc	
Simetryn	4.279	518912	5.1535	ng/ml
Malaxon	4.311	140235	5.0365	ng/ml
Prometon	4.324	1119604	5.0787	ng/ml
Fenamiphos - sulfone	4.320	157318	4.9614	ng/ml
Fluometuron	4.332	312392	5.0401	ng/ml
Cyprosulfamide	4.356	102473	5.1183	ng/ml
Carbaryl	4.353	460804	5.0836	ng/ml
Thiophanate-methyl	4.430	333420	5.0922	ng/ml
Hexazinone	4.432	1945210	5.0642	ng/ml
Carboxin	4.451	550406	5.0996	ng/ml
Nicosulfuron 1	4.474	36195	5.2008	ng/ml
Atrazine	4.489	150013	5.0570	ng/ml
Thiencarbazone-methyl	4.502	21551	5.4859	ng/ml
Sulfentrazone	4.501	8801	4.9296	ng/ml
Thifensulfuron-methyl (DPX-M6316)	4.511	64812	5.1789	ng/ml
Sulfometuron-methyl	4.511	680787	5.0864	ng/ml
Metsulfuron-methyl	4.548	91424	5.0176	ng/ml
Imazalil	4.660	155467	5.1811	ng/ml
DCPMU	4.672	137813	4.9855	ng/ml
Phorate Sulfoxide	4.761	390647	4.9849	ng/ml
Diuron	4.789	362427	5.1873	ng/ml
Flutriafol	4.805	98772	5.0497	ng/ml
Thiodicarb	4.822	95261	5.1141	ng/ml
Diazoxon	4.842	531840	5.1619	ng/ml
Cyantraniliprole	4.846	10643	5.8123	ng/ml
Pyrimethanil	4.918	71255	4.7972	ng/ml
Phorate Sulfone	4.942	131742	4.9665	ng/ml
Propazine	4.944	395368	5.1662	ng/ml
Fenobucarb (Baycarb)	4.945	265644	5.0868	ng/ml
Siduron	4.980	311446	5.0355	ng/ml
Trifloxysulfuron-sodium	4.992	2539	3.9439	ng/ml
Pyroxasulfone	4.984	288453	5.0086	ng/ml
Penoxsulam (Penoxalim)	5.000	37972	4.9000	ng/ml
Disulfoton-sulfone	5.003	300965	5.0410	ng/ml
Disulfoton-Sulfone	5.004	54823	5.0636	ng/ml
Cloransulam-Methyl	5.020	18019	4.6988	ng/ml
Terbuthylazine	5.035	759176	5.1300	ng/ml
Norflurazon	5.077	229661	5.0596	ng/ml
Famphur (Famophos)	5.094	111584	5.0016	ng/ml
Clomazone	5.134	512992	5.0182	ng/ml
Propanil	5.145	48263	5.0701	ng/ml
Trinexapac-ethyl	5.207	135650	5.0104	ng/ml
Prometryn	5.217	1384322	5.1475	ng/ml
Bicyclopyrone	5.231	1107122	5.0518	ng/ml
Linuron	5.253	101460	4.8330	ng/ml
Spiroxamine	5.261	822200	5.1608	ng/ml
Terbutryn	5.272	1678770	5.1558	ng/ml
Flurtamone	5.286	66464	5.3792	ng/ml
Methiocarb (Mercaptodimethur)	5.318	563245	5.0935	ng/ml
Chlorantraniliprole	5.321	34004	4.9386	ng/ml
Methidathion	5.390	150387	4.9691	ng/ml
Fluridone	5.451	452143	4.9949	ng/ml
Acibenzolar-s-methyl	5.529	10917	9.5650	ng/ml
Bensulfuron-methyl	5.541	161745	4.9726	ng/ml
Saflufenacil	5.567	9086	4.8099	ng/ml
Fenamidone	5.571	566716	5.0524	ng/ml
Triadimenol	5.582	84928	9.7546	ng/ml
Methoxyfenozide	5.587	678091	5.0542	ng/ml
Bispyribac	5.595	120735	5.0132	ng/ml

Compound	RT	Resp	Final Conc	
Fomesafen	5.621	599	3.5473	ng/ml
Triadimefon	5.628	20903	5.0555	ng/ml
Iodosulfuron-Methyl	5.649	22679	5.0278	ng/ml
Fenhexamid	5.655	28730	4.9539	ng/ml
Boscalid	5.697	52534	4.8670	ng/ml
Fluxapyroxad	5.724	66555	4.9824	ng/ml
Azinphos-methyl	5.735	115662	5.1669	ng/ml
Fluopyram	5.760	402174	4.9426	ng/ml
Isoxaben	5.807	941159	5.0554	ng/ml
Phosmet	5.799	392630	5.0013	ng/ml
Fluopicolide	5.815	204703	5.0424	ng/ml
Malathion	5.853	156949	5.0812	ng/ml
Indaziflam	5.864	1072350	5.0665	ng/ml
Azoxystrobin	5.906	888803	5.0536	ng/ml
Cyprodinil	5.949	124477	5.0053	ng/ml
Bifenazate	5.975	406298	5.3013	ng/ml
Triticonazole	5.992	91263	5.0849	ng/ml
Dimethomorph 1	5.998	70032	4.9388	ng/ml
Isofetamid	5.999	1007393	5.0836	ng/ml
Neburon				
(Phosphoramidothioic acid)	6.084	119568	4.9550	ng/ml
Chlorimuron-ethyl	6.097	39115	4.7428	ng/ml
Tebufenozide	6.109	417037	5.0813	ng/ml
Spirotetramat	6.135	113691	4.9878	ng/ml
Mandipropamid	6.170	228602	4.9751	ng/ml
Penthiopyrad	6.190	116571	5.0219	ng/ml
Flufenacet (Fluthiamide)	6.198	594519	5.1688	ng/ml
Dodine	6.222	172463	4.9283	ng/ml
Afidopyropen	6.297	6389	5.0790	ng/ml
Flumioxazin	6.299	7266	5.0519	ng/ml
Oryzalin	6.314	1653	5.5858	ng/ml
Diflubenzuron	6.420	84138	4.9449	ng/ml
Dimethomorph 2	6.426	173773	5.0197	ng/ml
Tebuconazole	6.466	112090	5.1173	ng/ml
Fenoxycarb	6.576	279396	4.9559	ng/ml
Ametoctradin	6.576	612332	5.0585	ng/ml
Hexaconazole	6.593	69606	5.0921	ng/ml
Flubendiamide	6.633	17774	9.4215	ng/ml
Fonofos	6.641	8294	5.3109	ng/ml
Bensulide	6.654	48345	5.1745	ng/ml
Cycloate	6.668	14440	9.9987	ng/ml
Picoxystrobin	6.673	1156744	5.1537	ng/ml
Cyclaniliprole	6.689	6163	4.1288	ng/ml
Azinphos-ethyl (Guthion ethyl)	6.691	23525	4.6385	ng/ml
Cyazofamid	6.692	249593	5.0340	ng/ml
TPP d15	6.764	144953	10.1737	ng/ml
Fenbuconazole	6.801	62527	4.9322	ng/ml
Carfentrazone-ethyl	6.808	52128	5.0075	ng/ml
Bitertanol	6.828	18321	4.9745	ng/ml
Metconazole	6.838	128997	4.9231	ng/ml
Prothioconazole	6.833	6799	11.4279	ng/ml
Fluoxastrobin	6.852	93108	4.8214	ng/ml
Pirimiphos-methyl	6.857	285979	5.1306	ng/ml
Benzovindiflupyr	6.872	73234	4.9323	ng/ml
Isoxadifen-ethyl (AE F122006)	6.939	69395	4.7908	ng/ml
Mefenitrifluconazole	6.953	81063	5.2647	ng/ml
Propiconazole	6.982	38333	5.1734	ng/ml
Iprodione	6.983	4263	22.3988	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Thiobencarb	7.086	250111	5.0891	ng/ml
Cyflufenamid	7.225	95407	5.0926	ng/ml
Clofentezine	7.239	86321	4.9406	ng/ml
Triflumizol	7.290	622127	5.0955	ng/ml
Pyraflufen-ethyl	7.296	99012	4.9203	ng/ml
Prallethrin	7.348	41287	4.9301	ng/ml
Flutianil	7.385	290006	5.0159	ng/ml
Pydiflumetofen	7.404	99950	4.8846	ng/ml
Ipconazole	7.409	130724	5.1744	ng/ml
Famoxadone	7.478	23554	5.0059	ng/ml
Pyraclostrobin	7.497	433393	5.0434	ng/ml
Metrafenone	7.513	210340	4.9495	ng/ml
Rotenone	7.550	16083	4.8355	ng/ml
Diflufenican	7.559	121295	5.0641	ng/ml
Sethoxydim	7.690	400617	10.0517	ng/ml
Novaluron	7.738	16733	5.2519	ng/ml
Trifloxystrobin	7.784	793900	5.1839	ng/ml
Phosalone	7.787	74120	5.0047	ng/ml
Coumaphos	7.815	231744	5.0696	ng/ml
Pyrethrin II	7.868	118662	25.6572	ng/ml
Allethrin	7.889	63291	5.0021	ng/ml
Clethodim	7.914	102751	9.7424	ng/ml
Spinosyn A	7.927	516010	5.0381	ng/ml
Difenconazole	7.974	82581	4.9837	ng/ml
Piperonyl butoxide	7.987	1309795	5.1199	ng/ml
Triallate	8.087	4332	5.1306	ng/ml
Cyhalofop butyl	8.157	19282	4.9698	ng/ml
Quizalofop-ethyl	8.230	51451	5.0014	ng/ml
Tolfenpyrade	8.275	36705	5.1954	ng/ml
Indoxacarb	8.372	18444	4.9409	ng/ml
Cyflumetofen	8.382	404595	5.0675	ng/ml
Emamectin Benzoate	8.443	94257	5.1611	ng/ml
Spinosyn D	8.480	188124	5.1035	ng/ml
Spiromesifen	8.481	796857	10.3794	ng/ml
Spinetoram J	8.506	385227	5.0988	ng/ml
Ethion	8.662	342045	5.0223	ng/ml
Fluazinam (Shirlan (VAN)	8.667	8578	5.0716	ng/ml
Propargite	8.808	137669	5.1042	ng/ml
Pyrethrin I	8.800	481393	25.6563	ng/ml
Lactofen	8.832	128904	5.0941	ng/ml
Dioxathion	8.837	165458	5.0394	ng/ml
Fenazaquin	8.944	1327687	5.0994	ng/ml
Hexythiazox	8.996	102134	4.9874	ng/ml
Spinetoram L	9.010	111792	4.8691	ng/ml
Fenpyroximate	9.108	214684	5.0854	ng/ml
Fenpropathrin	9.220	33430	5.0435	ng/ml
Pyridaben	9.603	475925	5.0730	ng/ml
Abamectin	9.814	2381	5.1799	ng/ml
d-Phenothrin	9.945	38561	5.0462	ng/ml
Etofenprox	10.371	492864	5.0931	ng/ml
Fluvalinate	10.511	14048	4.9104	ng/ml
Pyridalyl	10.928	7024	5.0733	ng/ml
Fenbutatin oxide	10.994	30869	5.0793	ng/ml

Quantitative Analysis Sample Report

Batch Info

Batch Data Path	D:\MassHunter\Data\23I21_FNC\QuantResults\23I21_FNC.batch.bin		
Analysis Time	9/22/2023 2:24 PM	**Analyst Name**	6470QQQ\lcgroup
Report Time	12/26/2023 8:19 AM	**Reporter Name**	6470QQQ\lcgroup
Last Calib Update	9/22/2023 2:24 PM	**Batch State**	Processed
Instrument	6470QQQ	**Sample Name**	23I21_FNC_CAL_5 10µg/L
Position	P1-A7	**Data File**	23I21_FNC_007.d
Dilution	1	**Sample Type**	Calibration
Acq Time	2023-09-21 19:02	**Acq Method**	23H17_FNC.m
Inj Vol	2	**Operator**	ECD

Quantitation Results

Compound	RT	Resp	Final Conc	
Cyromazine	1.241	188697	9.8110	ng/ml
Methamidophos	1.263	429904	9.6717	ng/ml
Acephate	1.715	372631	9.6514	ng/ml
Formentanate metabolite	2.348	118338	9.4318	ng/ml
Omethoate	2.451	501422	9.7113	ng/ml
Pymetrozine	2.629	804954	9.7989	ng/ml
Propamocarb	2.642	983867	9.7992	ng/ml
Formetanate HCl	2.646	638924	9.7554	ng/ml
Aldicarb-sulfoxide	2.667	309077	9.7485	ng/ml
Dinotefuran	2.667	224128	9.7769	ng/ml
Aldicarb-sulfone (Aldoxycarb)	2.872	9203	9.3594	ng/ml
Oxamyl	3.014	1285555	9.6966	ng/ml
Methomyl	3.021	343569	9.8475	ng/ml
Carbendazim	3.082	3088862	9.7976	ng/ml
Oxydemeton-methyl	3.104	294506	9.6935	ng/ml
Flonicamid	3.107	41465	10.0092	ng/ml
Thiabendazole	3.344	1119126	9.7949	ng/ml
Thiamethoxam	3.384	409244	9.8599	ng/ml
Fenuron (N,N-Dimethyl-N-phenylurea)	3.417	1192329	9.8165	ng/ml
Clothianidin	3.467	78232	9.5071	ng/ml
3-Hydroxy Carbofuran	3.513	551850	9.8491	ng/ml
Dimethoate	3.605	616122	9.7460	ng/ml
Imidacloprid	3.630	122664	9.6646	ng/ml
Flumetsulam	3.662	164004	9.6519	ng/ml
Mevinphos (Phosdrin)	3.695	521594	9.7922	ng/ml
Acetamiprid	3.750	1012513	9.7354	ng/ml
Flupyradifurone	3.746	202674	9.6670	ng/ml
Sulfoxaflor	3.738	591014	9.7720	ng/ml
Cymoxanil (Curzate)	3.787	343928	9.6755	ng/ml
Aldicarb	3.823	252609	9.5260	ng/ml
Pyrasulfotole	3.917	189576	10.0461	ng/ml
Thiacloprid	4.003	1100170	9.7294	ng/ml
Phosphamidon	4.011	354239	9.8884	ng/ml
Cyanazine (Fortrol)	4.049	189267	10.0663	ng/ml
Monuron	4.070	809597	9.6317	ng/ml
Simazine	4.079	99293	9.9388	ng/ml
Pirimicarb	4.113	2636888	9.8409	ng/ml
Propoxur	4.133	413247	9.7543	ng/ml
Tebuthiuron	4.169	1807194	9.7874	ng/ml
Fenamiphos - sulfoxide	4.174	388432	9.7697	ng/ml
Oxadixyl	4.185	880776	9.8796	ng/ml
Bendiocarb	4.206	471286	9.8733	ng/ml
Carbofuran	4.224	1505867	9.9021	ng/ml
Bromacil	4.231	245194	10.1336	ng/ml
Metribuzin	4.252	86188	9.1162	ng/ml
Terbacil	4.272	11693	8.8670	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Simetryn	4.280	980139	9.6402	ng/ml
Malaxon	4.321	277560	9.9277	ng/ml
Prometon	4.324	2189073	9.8138	ng/ml
Fenamiphos - sulfone	4.329	306409	9.6490	ng/ml
Fluometuron	4.342	609516	9.8748	ng/ml
Cyprosulfamide	4.356	198358	9.8323	ng/ml
Carbaryl	4.362	884684	9.7420	ng/ml
Thiophanate-methyl	4.430	648213	9.8401	ng/ml
Hexazinone	4.432	3775589	9.6932	ng/ml
Carboxin	4.460	1051990	9.7016	ng/ml
Nicosulfuron 1	4.474	71382	10.0521	ng/ml
Atrazine	4.498	289805	9.6660	ng/ml
Thiencarbazone-methyl	4.502	38478	9.6434	ng/ml
Sulfentrazone	4.502	17416	9.7524	ng/ml
Thifensulfuron-methyl (DPX-M6316)	4.520	125834	9.7759	ng/ml
Sulfometuron-methyl	4.521	1339723	9.8357	ng/ml
Metsulfuron-methyl	4.557	175632	9.4722	ng/ml
Imazalil	4.669	293373	9.6450	ng/ml
DCPMU	4.672	280426	10.0766	ng/ml
Phorate Sulfoxide	4.761	775310	9.7822	ng/ml
Diuron	4.789	685222	9.7525	ng/ml
Flutriafol	4.805	192267	9.6920	ng/ml
Thiodicarb	4.831	180862	9.6190	ng/ml
Diazoxon	4.842	1012438	9.7292	ng/ml
Cyantraniliprole	4.846	17538	9.3929	ng/ml
Pyrimethanil	4.918	145100	9.8898	ng/ml
Phorate Sulfone	4.951	260937	9.7588	ng/ml
Propazine	4.944	741395	9.6619	ng/ml
Fenobucarb (Baycarb)	4.954	507656	9.6604	ng/ml
Siduron	4.980	616708	9.8881	ng/ml
Trifloxysulfuron-sodium	4.983	7317	10.9311	ng/ml
Pyroxasulfone	4.984	559806	9.6442	ng/ml
Penoxsulam (Penoxalim)	5.009	79671	10.0171	ng/ml
Disulfoton-sulfone	5.013	583356	9.7107	ng/ml
Disulfoton-Sulfone	5.013	110356	10.0086	ng/ml
Cloransulam-Methyl	5.020	36593	9.3880	ng/ml
Terbuthylazine	5.044	1446176	9.7118	ng/ml
Norflurazon	5.086	439210	9.5619	ng/ml
Famphur (Famophos)	5.103	220727	9.7812	ng/ml
Clomazone	5.134	998608	9.6779	ng/ml
Propanil	5.154	91734	9.5307	ng/ml
Trinexapac-ethyl	5.207	266114	9.6866	ng/ml
Prometryn	5.217	2682447	9.8238	ng/ml
Bicyclopyrone	5.231	2189733	9.8594	ng/ml
Linuron	5.253	208394	9.8762	ng/ml
Spiroxamine	5.261	1598422	9.8694	ng/ml
Terbutryn	5.281	3215491	9.7406	ng/ml
Flurtamone	5.286	123266	9.9106	ng/ml
Methiocarb (Mercaptodimethur)	5.328	1093106	9.7923	ng/ml
Chlorantraniliprole	5.330	71620	10.1608	ng/ml
Methidathion	5.399	300949	9.8495	ng/ml
Fluridone	5.451	884579	9.6940	ng/ml
Acibenzolar-s-methyl	5.529	25119	20.8853	ng/ml
Bensulfuron-methyl	5.541	327725	9.8850	ng/ml
Saflufenacil	5.567	20312	10.4714	ng/ml
Fenamidone	5.580	1113834	9.8171	ng/ml
Triadimenol	5.582	174410	19.6935	ng/ml
Methoxyfenozide	5.587	1309033	9.6644	ng/ml
Bispyribac	5.595	234640	9.5086	ng/ml

Compound	RT	Resp	Final Conc	
Fomesafen	5.612	1560	9.9438	ng/ml
Triadimefon	5.628	40410	9.6690	ng/ml
Iodosulfuron-Methyl	5.649	45783	9.9712	ng/ml
Fenhexamid	5.655	53802	9.1058	ng/ml
Boscalid	5.707	103795	9.4881	ng/ml
Fluxapyroxad	5.724	130812	9.6746	ng/ml
Azinphos-methyl	5.735	224510	9.8866	ng/ml
Fluopyram	5.760	803628	9.8059	ng/ml
Isoxaben	5.808	1840495	9.7249	ng/ml
Phosmet	5.799	769369	9.6958	ng/ml
Fluopicolide	5.815	402022	9.8311	ng/ml
Malathion	5.853	306221	9.7953	ng/ml
Indaziflam	5.865	2123133	9.9407	ng/ml
Azoxystrobin	5.906	1764748	9.9207	ng/ml
Cyprodinil	5.949	250982	9.9352	ng/ml
Bifenazate	5.975	722583	9.2866	ng/ml
Triticonazole	5.992	175115	9.7373	ng/ml
Dimethomorph 1	5.998	142574	9.8190	ng/ml
Isofetamid	5.999	1954873	9.7410	ng/ml
Neburon (Phosphoramidothioic acid)	6.084	239296	9.8135	ng/ml
Chlorimuron-ethyl	6.097	78404	9.4059	ng/ml
Tebufenozide	6.109	795682	9.5672	ng/ml
Spirotetramat	6.135	229581	9.8862	ng/ml
Mandipropamid	6.170	447781	9.6272	ng/ml
Penthiopyrad	6.190	228815	9.7076	ng/ml
Flufenacet (Fluthiamide)	6.198	1118378	9.6675	ng/ml
Dodine	6.222	346606	9.8212	ng/ml
Afidopyropen	6.297	11766	9.0328	ng/ml
Flumioxazin	6.300	14395	9.1664	ng/ml
Oryzalin	6.314	2763	9.6076	ng/ml
Diflubenzuron	6.420	166672	9.7004	ng/ml
Dimethomorph 2	6.426	342582	9.7447	ng/ml
Tebuconazole	6.466	218892	9.8356	ng/ml
Fenoxycarb	6.576	560186	9.8139	ng/ml
Ametoctradin	6.586	1197797	9.7935	ng/ml
Hexaconazole	6.593	133506	9.6333	ng/ml
Flubendiamide	6.633	35096	18.7033	ng/ml
Fonofos	6.641	15073	9.6704	ng/ml
Bensulide	6.663	89657	9.4131	ng/ml
Cycloate	6.668	28204	19.0076	ng/ml
Picoxystrobin	6.673	2234812	9.8610	ng/ml
Cyclaniliprole	6.689	16370	10.1079	ng/ml
Azinphos-ethyl (Guthion ethyl)	6.691	50850	9.8771	ng/ml
Cyazofamid	6.692	495488	9.8878	ng/ml
TPP d15	6.773	279708	19.3881	ng/ml
Fenbuconazole	6.801	124619	9.7028	ng/ml
Carfentrazone-ethyl	6.808	104709	9.8673	ng/ml
Bitertanol	6.828	38268	10.0132	ng/ml
Metconazole	6.838	260423	9.8512	ng/ml
Prothioconazole	6.833	10448	18.4082	ng/ml
Fluoxastrobin	6.852	193289	9.8828	ng/ml
Pirimiphos-methyl	6.858	550586	9.7804	ng/ml
Benzovindiflupyr	6.872	149436	9.8791	ng/ml
Isoxadifen-ethyl (AE F122006)	6.930	141481	9.5896	ng/ml
Mefenitrifluconazole	6.953	146073	9.3506	ng/ml
Propiconazole	6.973	75314	9.9681	ng/ml
Iprodione	6.983	9598	49.8232	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Thiobencarb	7.086	493850	9.8912	ng/ml
Cyflufenamid	7.225	191578	9.9943	ng/ml
Clofentezine	7.239	177079	10.1170	ng/ml
Triflumizol	7.290	1211707	9.7988	ng/ml
Pyraflufen-ethyl	7.296	202648	9.9359	ng/ml
Prallethrin	7.348	83971	9.7555	ng/ml
Flutianil	7.385	576163	9.8178	ng/ml
Pydiflumetofen	7.395	203868	9.8560	ng/ml
Ipconazole	7.409	242699	9.5345	ng/ml
Famoxadone	7.478	46463	9.6326	ng/ml
Pyraclostrobin	7.497	848779	9.7923	ng/ml
Metrafenone	7.513	421484	9.7618	ng/ml
Rotenone	7.542	32602	9.5430	ng/ml
Diflufenican	7.559	240403	9.8633	ng/ml
Sethoxydim	7.690	780327	19.3333	ng/ml
Novaluron	7.729	31025	9.5912	ng/ml
Trifloxystrobin	7.784	1510604	9.7574	ng/ml
Phosalone	7.787	147586	9.7501	ng/ml
Coumaphos	7.815	453623	9.7876	ng/ml
Pyrethrin II	7.868	230184	49.0136	ng/ml
Allethrin	7.880	125081	9.6394	ng/ml
Clethodim	7.914	208229	19.2603	ng/ml
Spinosyn A	7.927	982025	9.8354	ng/ml
Difenconazole	7.974	164294	9.7280	ng/ml
Piperonyl butoxide	7.987	2544447	9.7959	ng/ml
Triallate	8.087	7419	8.7497	ng/ml
Cyhalofop butyl	8.157	36963	9.4688	ng/ml
Quizalofop-ethyl	8.230	103639	9.9031	ng/ml
Tolfenpyrade	8.265	70985	9.8824	ng/ml
Indoxacarb	8.372	38213	9.9547	ng/ml
Cyflumetofen	8.373	797174	9.8812	ng/ml
Emamectin Benzoate	8.443	180750	9.8118	ng/ml
Spinosyn D	8.480	361329	9.7793	ng/ml
Spiromesifen	8.473	1512747	19.6130	ng/ml
Spinetoram J	8.506	747775	9.7754	ng/ml
Ethion	8.653	674412	9.7467	ng/ml
Fluazinam (Shirlan (VAN)	8.658	16643	9.6877	ng/ml
Propargite	8.808	272370	9.9215	ng/ml
Pyrethrin I	8.800	929015	48.7247	ng/ml
Lactofen	8.832	247900	9.6448	ng/ml
Dioxathion	8.828	321216	9.6139	ng/ml
Fenazaquin	8.944	2551955	9.7287	ng/ml
Hexythiazox	8.996	203672	9.7640	ng/ml
Spinetoram L	9.010	227586	9.7577	ng/ml
Fenpyroximate	9.108	417607	9.6992	ng/ml
Fenpropathrin	9.220	64513	9.6137	ng/ml
Pyridaben	9.603	930399	9.7742	ng/ml
Abamectin	9.814	4402	9.6720	ng/ml
d-Phenothrin	9.945	75250	9.6910	ng/ml
Etofenprox	10.371	957291	9.7625	ng/ml
Fluvalinate	10.511	28304	9.6894	ng/ml
Pyridalyl	10.928	13717	9.7695	ng/ml
Fenbutatin oxide	10.994	59812	9.6914	ng/ml

Quantitative Analysis Sample Report

Batch Info

Batch Data Path	D:\MassHunter\Data\23I21_FNC\QuantResults\23I21_FNC.batch.bin		
Analysis Time	9/22/2023 2:24 PM	**Analyst Name**	6470QQQ\lcgroup
Report Time	12/26/2023 8:19 AM	**Reporter Name**	6470QQQ\lcgroup
Last Calib Update	9/22/2023 2:24 PM	**Batch State**	Processed
Instrument	6470QQQ	**Sample Name**	23I21_FNC_CAL_6 20µg/L
Position	P1-A8	**Data File**	23I21_FNC_008.d
Dilution	1	**Sample Type**	Calibration
Acq Time	2023-09-21 19:20	**Acq Method**	23H17_FNC.m
Inj Vol	2	**Operator**	ECD

Quantitation Results

Compound	RT	Resp	Final Conc	
Cyromazine	1.241	390556	20.8903	ng/ml
Methamidophos	1.263	923134	20.4403	ng/ml
Acephate	1.715	807239	20.4515	ng/ml
Formentanate metabolite	2.348	266583	20.6717	ng/ml
Omethoate	2.451	1065599	20.3144	ng/ml
Pymetrozine	2.629	1673392	20.2536	ng/ml
Propamocarb	2.642	2051270	20.2946	ng/ml
Formetanate HCl	2.646	1344012	20.2389	ng/ml
Aldicarb-sulfoxide	2.667	648394	20.3608	ng/ml
Dinotefuran	2.667	465360	20.3614	ng/ml
Aldicarb-sulfone (Aldoxycarb)	2.872	19563	19.8570	ng/ml
Oxamyl	3.014	2729034	20.2444	ng/ml
Methomyl	3.021	709051	20.3215	ng/ml
Carbendazim	3.082	6486699	20.2201	ng/ml
Oxydemeton-methyl	3.104	619739	20.3163	ng/ml
Flonicamid	3.107	83628	20.4096	ng/ml
Thiabendazole	3.344	2346863	20.2553	ng/ml
Thiamethoxam	3.384	841294	20.1591	ng/ml
Fenuron (N,N-Dimethyl-N-phenylurea)	3.417	2471728	20.1090	ng/ml
Clothianidin	3.467	174314	20.8089	ng/ml
3-Hydroxy Carbofuran	3.513	1134626	20.0625	ng/ml
Dimethoate	3.605	1295955	20.2908	ng/ml
Imidacloprid	3.630	261064	20.4061	ng/ml
Flumetsulam	3.662	354474	20.4291	ng/ml
Mevinphos (Phosdrin)	3.695	1088827	20.2406	ng/ml
Acetamiprid	3.741	2110249	20.2260	ng/ml
Flupyradifurone	3.746	420529	20.1048	ng/ml
Sulfoxaflor	3.738	1239176	20.4007	ng/ml
Cymoxanil (Curzate)	3.787	732610	20.5093	ng/ml
Aldicarb	3.814	553329	20.5845	ng/ml
Pyrasulfotole	3.917	388148	20.1495	ng/ml
Thiacloprid	4.003	2300706	20.1977	ng/ml
Phosphamidon	4.011	738615	20.1632	ng/ml
Cyanazine (Fortrol)	4.049	383945	20.1257	ng/ml
Monuron	4.070	1711190	20.3265	ng/ml
Simazine	4.079	204793	20.4865	ng/ml
Pirimicarb	4.113	5566933	20.0969	ng/ml
Propoxur	4.133	865412	20.2555	ng/ml
Tebuthiuron	4.169	3717844	20.2170	ng/ml
Fenamiphos - sulfoxide	4.174	810342	20.4485	ng/ml
Oxadixyl	4.185	1815911	20.2052	ng/ml
Bendiocarb	4.197	972022	20.2136	ng/ml
Carbofuran	4.224	3115574	20.2612	ng/ml
Bromacil	4.222	478120	19.9926	ng/ml
Metribuzin	4.252	199813	20.7037	ng/ml
Terbacil	4.272	27213	20.4873	ng/ml

Compound	RT	Resp	Final Conc	
Simetryn	4.279	2090284	20.3023	ng/ml
Malaxon	4.321	555870	20.0441	ng/ml
Prometon	4.324	4587928	20.1969	ng/ml
Fenamiphos - sulfone	4.320	644162	20.5330	ng/ml
Fluometuron	4.342	1226717	20.1560	ng/ml
Cyprosulfamide	4.356	406584	20.1154	ng/ml
Carbaryl	4.353	1840943	20.2731	ng/ml
Thiophanate-methyl	4.430	1331190	20.2769	ng/ml
Hexazinone	4.432	8099888	20.3381	ng/ml
Carboxin	4.460	2200259	20.2837	ng/ml
Nicosulfuron 1	4.474	142359	19.7475	ng/ml
Atrazine	4.498	614831	20.4982	ng/ml
Thiencarbazone-methyl	4.502	80593	20.0347	ng/ml
Sulfentrazone	4.501	37623	20.7045	ng/ml
Thifensulfuron-methyl (DPX-M6316)	4.520	271776	20.1312	ng/ml
Sulfometuron-methyl	4.521	2821270	20.0969	ng/ml
Metsulfuron-methyl	4.557	393954	20.6541	ng/ml
Imazalil	4.669	624255	20.2686	ng/ml
DCPMU	4.672	556472	20.0733	ng/ml
Phorate Sulfoxide	4.761	1630088	20.3545	ng/ml
Diuron	4.789	1415564	20.0976	ng/ml
Flutriafol	4.805	411897	20.5325	ng/ml
Thiodicarb	4.831	386271	20.4894	ng/ml
Diazoxon	4.851	2123263	20.1659	ng/ml
Cyantraniliprole	4.846	38594	20.0157	ng/ml
Pyrimethanil	4.918	303757	20.5896	ng/ml
Phorate Sulfone	4.951	550449	20.5070	ng/ml
Propazine	4.944	1554718	20.3432	ng/ml
Fenobucarb (Baycarb)	4.954	1070347	20.3456	ng/ml
Siduron	4.980	1264869	20.2615	ng/ml
Trifloxysulfuron-sodium	4.992	14134	20.2842	ng/ml
Pyroxasulfone	4.984	1194592	20.5256	ng/ml
Penoxsulam (Penoxalim)	5.009	166779	20.3077	ng/ml
Disulfoton-sulfone	5.013	1226055	20.3427	ng/ml
Disulfoton-Sulfone	5.013	226598	20.2684	ng/ml
Cloransulam-Methyl	5.020	85510	21.2121	ng/ml
Terbuthylazine	5.044	3018764	20.2872	ng/ml
Norflurazon	5.086	952510	20.5011	ng/ml
Famphur (Famophos)	5.103	464491	20.3918	ng/ml
Clomazone	5.134	2129083	20.4361	ng/ml
Propanil	5.154	200120	20.5999	ng/ml
Trinexapac-ethyl	5.207	568501	20.4306	ng/ml
Prometryn	5.217	5612496	20.1182	ng/ml
Bicyclopyrone	5.231	4554609	20.1076	ng/ml
Linuron	5.253	434313	20.4366	ng/ml
Spiroxamine	5.261	3334464	20.2081	ng/ml
Terbutryn	5.281	6790746	20.1122	ng/ml
Flurtamone	5.286	240074	19.5753	ng/ml
Methiocarb (Mercaptodimethur)	5.328	2259280	20.1598	ng/ml
Chlorantraniliprole	5.330	143469	20.1473	ng/ml
Methidathion	5.399	624321	20.2187	ng/ml
Fluridone	5.451	1883974	20.5175	ng/ml
Acibenzolar-s-methyl	5.529	50125	39.8217	ng/ml
Bensulfuron-methyl	5.541	687532	20.1961	ng/ml
Saflufenacil	5.567	38778	19.5707	ng/ml
Fenamidone	5.580	2309628	20.2224	ng/ml
Triadimenol	5.582	365924	40.9860	ng/ml
Methoxyfenozide	5.587	2781312	20.3939	ng/ml
Bispyribac	5.595	531426	20.7667	ng/ml

Compound	RT	Resp	Final Conc	
Fomesafen	5.603	3637	22.8115	ng/ml
Triadimefon	5.628	88725	20.5633	ng/ml
Iodosulfuron-Methyl	5.649	96650	20.0374	ng/ml
Fenhexamid	5.655	123573	20.6594	ng/ml
Boscalid	5.707	232003	20.8450	ng/ml
Fluxapyroxad	5.724	285190	20.8364	ng/ml
Azinphos-methyl	5.735	456461	19.9278	ng/ml
Fluopyram	5.760	1680094	20.4279	ng/ml
Isoxaben	5.808	3922347	20.2937	ng/ml
Phosmet	5.799	1630567	20.3795	ng/ml
Fluopicolide	5.815	829684	20.2190	ng/ml
Malathion	5.853	637418	20.1748	ng/ml
Indaziflam	5.874	4348989	20.1190	ng/ml
Azoxystrobin	5.906	3616531	20.0482	ng/ml
Cyprodinil	5.949	507520	19.9440	ng/ml
Bifenazate	5.975	1634709	20.5790	ng/ml
Triticonazole	5.992	368429	20.3291	ng/ml
Dimethomorph 1	5.998	303052	20.2444	ng/ml
Isofetamid	5.999	4150646	20.3088	ng/ml
Neburon (Phosphoramidothioic acid)	6.084	497363	20.3804	ng/ml
Chlorimuron-ethyl	6.097	181343	21.1868	ng/ml
Tebufenozide	6.109	1717749	20.4323	ng/ml
Spirotetramat	6.135	480838	20.2671	ng/ml
Mandipropamid	6.170	964887	20.5072	ng/ml
Penthiopyrad	6.190	488504	20.4614	ng/ml
Flufenacet (Fluthiamide)	6.198	2354502	20.2182	ng/ml
Dodine	6.222	716083	20.3388	ng/ml
Afidopyropen	6.297	29751	21.0757	ng/ml
Flumioxazin	6.299	35961	20.9509	ng/ml
Oryzalin	6.323	5653	19.9865	ng/ml
Diflubenzuron	6.420	359838	20.4712	ng/ml
Dimethomorph 2	6.426	739292	20.5197	ng/ml
Tebuconazole	6.466	457562	20.1225	ng/ml
Fenoxycarb	6.576	1175268	20.4327	ng/ml
Ametoctradin	6.576	2499726	20.2376	ng/ml
Hexaconazole	6.593	286224	20.3517	ng/ml
Flubendiamide	6.633	76455	42.6768	ng/ml
Fonofos	6.641	31356	19.9934	ng/ml
Bensulide	6.663	199676	20.5423	ng/ml
Cycloate	6.668	62370	41.0802	ng/ml
Picoxystrobin	6.673	4611350	20.0364	ng/ml
Cyclaniliprole	6.689	35874	20.6178	ng/ml
Azinphos-ethyl (Guthion ethyl)	6.691	109500	20.7363	ng/ml
Cyazofamid	6.692	1019040	20.1833	ng/ml
TPP d15	6.773	591193	40.5206	ng/ml
Fenbuconazole	6.801	268321	20.5852	ng/ml
Carfentrazone-ethyl	6.808	221461	20.3547	ng/ml
Bitertanol	6.828	80666	20.0631	ng/ml
Metconazole	6.838	546891	20.5499	ng/ml
Prothioconazole	6.833	19898	39.3197	ng/ml
Fluoxastrobin	6.852	403991	20.5761	ng/ml
Pirimiphos-methyl	6.857	1148848	20.2160	ng/ml
Benzovindiflupyr	6.872	310513	20.3126	ng/ml
Isoxadifen-ethyl (AE F122006)	6.939	314591	20.8541	ng/ml
Mefenitrifluconazole	6.953	329355	20.6202	ng/ml
Propiconazole	6.982	155763	19.9798	ng/ml
Iprodione	6.983	20800	103.7466	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Thiobencarb	7.086	1020467	20.0392	ng/ml
Cyflufenamid	7.225	390586	19.8840	ng/ml
Clofentezine	7.239	349108	19.9385	ng/ml
Triflumizol	7.290	2536461	20.2167	ng/ml
Pyraflufen-ethyl	7.296	420713	20.3616	ng/ml
Prallethrin	7.348	180886	20.4009	ng/ml
Flutianil	7.385	1212928	20.3986	ng/ml
Pydiflumetofen	7.404	426004	20.4748	ng/ml
Ipconazole	7.409	526608	20.4650	ng/ml
Famoxadone	7.478	102379	20.4691	ng/ml
Pyraclostrobin	7.497	1769751	20.2764	ng/ml
Metrafenone	7.513	899089	20.4627	ng/ml
Rotenone	7.550	73575	20.8744	ng/ml
Diflufenican	7.559	504091	20.3287	ng/ml
Sethoxydim	7.690	1672084	40.8827	ng/ml
Novaluron	7.738	67644	20.2798	ng/ml
Trifloxystrobin	7.784	3167856	20.1625	ng/ml
Phosalone	7.787	317142	20.4576	ng/ml
Coumaphos	7.815	953984	20.1959	ng/ml
Pyrethrin II	7.868	484608	100.9324	ng/ml
Allethrin	7.889	274529	20.4917	ng/ml
Clethodim	7.923	462161	41.3206	ng/ml
Spinosyn A	7.927	2004886	20.2926	ng/ml
Difenconazole	7.974	352907	20.4806	ng/ml
Piperonyl butoxide	7.996	5352368	20.1341	ng/ml
Triallate	8.087	18433	21.1511	ng/ml
Cyhalofop butyl	8.157	83691	20.8198	ng/ml
Quizalofop-ethyl	8.230	216158	20.1935	ng/ml
Tolfenpyrade	8.275	146713	19.9149	ng/ml
Indoxacarb	8.372	80334	20.2301	ng/ml
Cyflumetofen	8.382	1639726	20.1146	ng/ml
Emamectin Benzoate	8.443	374875	20.1771	ng/ml
Spinosyn D	8.480	751502	20.2410	ng/ml
Spiromesifen	8.481	3102503	40.1246	ng/ml
Spinetoram J	8.506	1574678	20.2895	ng/ml
Ethion	8.662	1425566	20.3321	ng/ml
Fluazinam (Shirlan (VAN)	8.667	35427	20.1755	ng/ml
Propargite	8.808	566446	20.1876	ng/ml
Pyrethrin I	8.800	1967387	100.8598	ng/ml
Lactofen	8.832	538058	20.5684	ng/ml
Dioxathion	8.837	703116	20.5873	ng/ml
Fenazaquin	8.944	5403216	20.2361	ng/ml
Hexythiazox	8.996	433468	20.4325	ng/ml
Spinetoram L	9.010	489415	20.6476	ng/ml
Fenpyroximate	9.108	901691	20.4000	ng/ml
Fenpropathrin	9.220	141387	20.5506	ng/ml
Pyridaben	9.612	1962980	20.2558	ng/ml
Abamectin	9.814	9171	20.2643	ng/ml
d-Phenothrin	9.945	162518	20.4104	ng/ml
Etofenprox	10.371	2017221	20.2447	ng/ml
Fluvalinate	10.520	62128	20.5220	ng/ml
Pyridalyl	10.928	29365	20.2717	ng/ml
Fenbutatin oxide	10.994	129316	20.3913	ng/ml

Quantitative Analysis Sample Report

Batch Info

Batch Data Path	D:\MassHunter\Data\23I21_FNC\QuantResults\23I21_FNC.batch.bin		
Analysis Time	9/22/2023 2:24 PM	**Analyst Name**	6470QQQ\lcgroup
Report Time	12/26/2023 8:19 AM	**Reporter Name**	6470QQQ\lcgroup
Last Calib Update	9/22/2023 2:24 PM	**Batch State**	Processed
Instrument	6470QQQ	**Sample Name**	23I21_FNC_CAL_7 50µg/L
Position	P1-A9	**Data File**	23I21_FNC_009.d
Dilution	1	**Sample Type**	Calibration
Acq Time	2023-09-21 19:38	**Acq Method**	23H17_FNC.m
Inj Vol	2	**Operator**	ECD

Quantitation Results

Compound	RT	Resp	Final Conc	
Cyromazine	1.241	838423	49.6446	ng/ml
Methamidophos	1.263	2320840	49.8911	ng/ml
Acephate	1.715	2057655	49.8925	ng/ml
Formentanate metabolite	2.357	678367	49.8505	ng/ml
Omethoate	2.451	2700369	49.9270	ng/ml
Pymetrozine	2.620	4148638	49.9369	ng/ml
Propamocarb	2.642	5038699	49.9134	ng/ml
Formetanate HCl	2.646	3404036	49.9455	ng/ml
Aldicarb-sulfoxide	2.667	1590424	49.9038	ng/ml
Dinotefuran	2.667	1119458	49.8960	ng/ml
Aldicarb-sulfone (Aldoxycarb)	2.872	49750	50.4457	ng/ml
Oxamyl	3.014	6989185	49.9540	ng/ml
Methomyl	3.021	1716173	49.9038	ng/ml
Carbendazim	3.082	16706717	49.9516	ng/ml
Oxydemeton-methyl	3.104	1515563	49.9229	ng/ml
Flonicamid	3.107	195106	49.8458	ng/ml
Thiabendazole	3.344	5980778	49.9395	ng/ml
Thiamethoxam	3.384	2094938	49.9612	ng/ml
Fenuron (N,N-Dimethyl-N-phenylurea)	3.417	6314547	49.9822	ng/ml
Clothianidin	3.467	431939	49.7947	ng/ml
3-Hydroxy Carbofuran	3.504	2868225	49.9945	ng/ml
Dimethoate	3.605	3245814	49.9315	ng/ml
Imidacloprid	3.630	648957	49.9013	ng/ml
Flumetsulam	3.662	904647	49.9003	ng/ml
Mevinphos (Phosdrin)	3.695	2737567	49.9443	ng/ml
Acetamiprid	3.741	5217133	49.9533	ng/ml
Flupyradifurone	3.746	1026226	50.0058	ng/ml
Sulfoxaflor	3.738	3034850	49.8897	ng/ml
Cymoxanil (Curzate)	3.778	1793956	49.8638	ng/ml
Aldicarb	3.814	1377566	49.8607	ng/ml
Pyrasulfotole	3.917	988820	49.9505	ng/ml
Thiacloprid	4.003	5759716	49.9609	ng/ml
Phosphamidon	4.002	1931185	49.9610	ng/ml
Cyanazine (Fortrol)	4.049	981505	49.9421	ng/ml
Monuron	4.070	4178356	49.9295	ng/ml
Simazine	4.079	497665	49.8286	ng/ml
Pirimicarb	4.113	15133641	49.9858	ng/ml
Propoxur	4.133	2156550	49.9437	ng/ml
Tebuthiuron	4.169	9012443	49.9456	ng/ml
Fenamiphos - sulfoxide	4.174	1937608	49.8660	ng/ml
Oxadixyl	4.185	4532479	49.9421	ng/ml
Bendiocarb	4.206	2425031	49.9434	ng/ml
Carbofuran	4.224	7860344	49.9245	ng/ml
Bromacil	4.222	1152074	49.9808	ng/ml
Metribuzin	4.252	494851	49.8667	ng/ml
Terbacil	4.272	65169	49.9565	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Simetryn	4.279	5280396	49.9394	ng/ml
Malaxon	4.321	1334631	49.9936	ng/ml
Prometon	4.324	11872377	49.9562	ng/ml
Fenamiphos - sulfone	4.329	1495410	49.8496	ng/ml
Fluometuron	4.342	2903098	49.9566	ng/ml
Cyprosulfamide	4.365	1004015	49.9776	ng/ml
Carbaryl	4.362	4519682	49.9354	ng/ml
Thiophanate-methyl	4.439	3203088	49.9135	ng/ml
Hexazinone	4.432	20962758	49.9270	ng/ml
Carboxin	4.460	5380105	49.9366	ng/ml
Nicosulfuron 1	4.483	369986	50.0697	ng/ml
Atrazine	4.498	1471089	49.8611	ng/ml
Thiencarbazone-methyl	4.511	200580	50.0176	ng/ml
Sulfentrazone	4.511	95663	49.8063	ng/ml
Thifensulfuron-methyl (DPX-M6316)	4.529	758204	49.9806	ng/ml
Sulfometuron-methyl	4.530	7587982	49.9869	ng/ml
Metsulfuron-methyl	4.557	1010913	49.8559	ng/ml
Imazalil	4.669	1568680	49.9487	ng/ml
DCPMU	4.681	1350255	49.9588	ng/ml
Phorate Sulfoxide	4.770	4070811	49.9075	ng/ml
Diuron	4.798	3517298	49.9930	ng/ml
Flutriafol	4.814	1015097	49.8532	ng/ml
Thiodicarb	4.831	933345	49.8718	ng/ml
Diazoxon	4.851	5392591	49.9735	ng/ml
Cyantraniliprole	4.855	102956	50.0397	ng/ml
Pyrimethanil	4.927	761522	49.8262	ng/ml
Phorate Sulfone	4.951	1339185	49.8527	ng/ml
Propazine	4.953	3741827	49.9152	ng/ml
Fenobucarb (Baycarb)	4.954	2608092	49.9211	ng/ml
Siduron	4.989	3084921	49.9173	ng/ml
Trifloxysulfuron-sodium	4.992	38853	49.8456	ng/ml
Pyroxasulfone	4.993	2890731	49.8611	ng/ml
Penoxsulam (Penoxalim)	5.009	441510	49.9031	ng/ml
Disulfoton-sulfone	5.013	3011917	49.9172	ng/ml
Disulfoton-Sulfone	5.013	570064	49.8987	ng/ml
Cloransulam-Methyl	5.029	215639	49.7053	ng/ml
Terbuthylazine	5.044	7329274	49.9312	ng/ml
Norflurazon	5.086	2360445	49.8850	ng/ml
Famphur (Famophos)	5.103	1152903	49.8927	ng/ml
Clomazone	5.134	5290825	49.8929	ng/ml
Propanil	5.163	490064	49.8528	ng/ml
Trinexapac-ethyl	5.207	1416582	49.8933	ng/ml
Prometryn	5.217	14674471	49.9779	ng/ml
Bicyclopyrone	5.231	11892204	49.9813	ng/ml
Linuron	5.262	1078337	49.8722	ng/ml
Spiroxamine	5.271	8569321	49.9395	ng/ml
Terbutryn	5.281	17857538	49.9912	ng/ml
Flurtamone	5.296	570923	50.1767	ng/ml
Methiocarb (Mercaptodimethur)	5.328	5589782	49.9684	ng/ml
Chlorantraniliprole	5.330	357046	49.9246	ng/ml
Methidathion	5.399	1577674	49.9476	ng/ml
Fluridone	5.460	4616911	49.8591	ng/ml
Acibenzolar-s-methyl	5.529	139905	99.9646	ng/ml
Bensulfuron-methyl	5.541	1812581	49.9523	ng/ml
Saflufenacil	5.567	104518	50.0872	ng/ml
Fenamidone	5.580	5732920	49.9445	ng/ml
Triadimenol	5.591	892722	99.6999	ng/ml
Methoxyfenozide	5.596	6859085	49.9061	ng/ml
Bispyribac	5.604	1373377	49.8171	ng/ml

Compound	RT	Resp	Final Conc	
Fomesafen	5.612	8498	49.2062	ng/ml
Triadimefon	5.637	234370	49.8638	ng/ml
Iodosulfuron-Methyl	5.649	278311	49.9916	ng/ml
Fenhexamid	5.655	302387	50.2698	ng/ml
Boscalid	5.707	573076	49.7894	ng/ml
Fluxapyroxad	5.733	695081	49.7525	ng/ml
Azinphos-methyl	5.735	1155009	50.0352	ng/ml
Fluopyram	5.760	4107588	49.8770	ng/ml
Isoxaben	5.817	10104464	49.9372	ng/ml
Phosmet	5.809	4038691	49.9099	ng/ml
Fluopicolide	5.815	2050643	49.9438	ng/ml
Malathion	5.853	1607239	49.9637	ng/ml
Indaziflam	5.874	11122004	49.9638	ng/ml
Azoxystrobin	5.906	9321482	49.9922	ng/ml
Cyprodinil	5.958	1276346	50.0318	ng/ml
Bifenazate	5.984	4112007	49.8887	ng/ml
Triticonazole	6.001	926237	49.9196	ng/ml
Dimethomorph 1	5.998	801441	49.9482	ng/ml
Isofetamid	6.008	10644420	49.9278	ng/ml
Neburon (Phosphoramidothioic acid)	6.094	1201096	49.8883	ng/ml
Chlorimuron-ethyl	6.097	452343	49.7043	ng/ml
Tebufenozide	6.118	4254471	49.9068	ng/ml
Spirotetramat	6.135	1241008	49.9260	ng/ml
Mandipropamid	6.170	2392331	49.8773	ng/ml
Penthiopyrad	6.190	1213742	49.8789	ng/ml
Flufenacet (Fluthiamide)	6.207	5896365	49.9642	ng/ml
Dodine	6.231	1719211	49.9035	ng/ml
Afidopyropen	6.297	82395	49.7986	ng/ml
Flumioxazin	6.299	95959	49.8072	ng/ml
Oryzalin	6.323	14208	50.0338	ng/ml
Diflubenzuron	6.420	931500	49.8887	ng/ml
Dimethomorph 2	6.435	1902442	49.8620	ng/ml
Tebuconazole	6.475	1195376	49.9761	ng/ml
Fenoxycarb	6.576	2890061	49.8734	ng/ml
Ametoctradin	6.586	6282179	49.9435	ng/ml
Hexaconazole	6.593	721434	49.9260	ng/ml
Flubendiamide	6.633	154403	98.9723	ng/ml
Fonofos	6.641	80573	50.0345	ng/ml
Bensulide	6.663	500519	49.8883	ng/ml
Cycloate	6.668	156277	99.7680	ng/ml
Picoxystrobin	6.673	11976242	49.9999	ng/ml
Cyclaniliprole	6.689	100573	49.8418	ng/ml
Azinphos-ethyl (Guthion ethyl)	6.700	279735	49.7922	ng/ml
Cyazofamid	6.701	2547838	49.9492	ng/ml
TPP d15	6.773	1484560	99.8986	ng/ml
Fenbuconazole	6.801	668867	49.8422	ng/ml
Carfentrazone-ethyl	6.817	574496	49.8993	ng/ml
Bitertanol	6.828	227487	49.9805	ng/ml
Metconazole	6.838	1338899	49.8284	ng/ml
Prothioconazole	6.833	34929	102.1534	ng/ml
Fluoxastrobin	6.861	973528	49.8138	ng/ml
Pirimiphos-methyl	6.857	2886888	49.9498	ng/ml
Benzovindiflupyr	6.872	770081	49.9089	ng/ml
Isoxadifen-ethyl (AE F122006)	6.939	784114	49.7779	ng/ml
Mefenitrifluconazole	6.962	832258	49.8680	ng/ml
Propiconazole	6.982	423186	50.0033	ng/ml
Iprodione	6.983	55666	249.0016	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Thiobencarb	7.095	2666562	49.9981	ng/ml
Cyflufenamid	7.225	1038338	50.0352	ng/ml
Clofentezine	7.248	874345	50.0063	ng/ml
Triflumizol	7.290	6460200	49.9492	ng/ml
Pyraflufen-ethyl	7.296	1057598	49.8862	ng/ml
Prallethrin	7.348	469249	49.9036	ng/ml
Flutianil	7.385	3032700	49.8851	ng/ml
Pydiflumetofen	7.404	1041849	49.8550	ng/ml
Ipconazole	7.409	1313809	49.8970	ng/ml
Famoxadone	7.478	270219	49.8979	ng/ml
Pyraclostrobin	7.506	4403843	49.9303	ng/ml
Metrafenone	7.513	2269377	49.8773	ng/ml
Rotenone	7.550	185836	49.7807	ng/ml
Diflufenican	7.568	1278530	49.9027	ng/ml
Sethoxydim	7.690	4182189	99.7866	ng/ml
Novaluron	7.738	179861	49.9523	ng/ml
Trifloxystrobin	7.784	8120455	49.9699	ng/ml
Phosalone	7.796	810062	49.8796	ng/ml
Coumaphos	7.815	2467450	49.9605	ng/ml
Pyrethrin II	7.868	1263979	249.7926	ng/ml
Allethrin	7.889	713439	49.8875	ng/ml
Clethodim	7.923	1197698	99.6821	ng/ml
Spinosyn A	7.927	4954898	49.9184	ng/ml
Difenconazole	7.974	892689	49.8745	ng/ml
Piperonyl butoxide	7.996	14062290	49.9782	ng/ml
Triallate	8.096	46436	49.7865	ng/ml
Cyhalofop butyl	8.157	216818	49.8109	ng/ml
Quizalofop-ethyl	8.239	564042	49.9479	ng/ml
Tolfenpyrade	8.275	393317	50.0345	ng/ml
Indoxacarb	8.381	214239	49.9353	ng/ml
Cyflumetofen	8.382	4160095	49.9738	ng/ml
Emamectin Benzoate	8.452	942984	49.9565	ng/ml
Spinosyn D	8.489	1879155	49.9417	ng/ml
Spiromesifen	8.481	7738586	99.9939	ng/ml
Spinetoram J	8.515	3993505	49.9269	ng/ml
Ethion	8.662	3572408	49.9189	ng/ml
Fluazinam (Shirlan (VAN)	8.667	92301	49.9826	ng/ml
Propargite	8.808	1472726	49.9424	ng/ml
Pyrethrin I	8.809	5139380	249.8603	ng/ml
Lactofen	8.832	1347316	49.8495	ng/ml
Dioxathion	8.837	1778638	49.8532	ng/ml
Fenazaquin	8.953	14012171	49.9541	ng/ml
Hexythiazox	9.004	1089461	49.8842	ng/ml
Spinetoram L	9.010	1217114	49.8160	ng/ml
Fenpyroximate	9.108	2333678	49.9042	ng/ml
Fenpropathrin	9.220	364787	49.8699	ng/ml
Pyridaben	9.612	5032041	49.9412	ng/ml
Abamectin	9.814	22552	49.9462	ng/ml
d-Phenothrin	9.945	421328	49.9048	ng/ml
Etofenprox	10.371	5150854	49.9452	ng/ml
Fluvalinate	10.520	164321	49.8784	ng/ml
Pyridalyl	10.937	78673	49.9408	ng/ml
Fenbutatin oxide	10.994	338152	49.9102	ng/ml

Quantitative Analysis Sample Report

Batch Info

Batch Data Path	D:\MassHunter\Data\23I21_FNC\QuantResults\23I21_FNC.batch.bin		
Analysis Time	9/22/2023 2:24 PM	**Analyst Name**	6470QQQ\lcgroup
Report Time	9/22/2023 2:29 PM	**Reporter Name**	6470QQQ\lcgroup
Last Calib Update	9/22/2023 2:24 PM	**Batch State**	Processed
Instrument	6470QQQ	**Sample Name**	23I21_FNC_ICV 10µg/L
Position	P1-B1	**Data File**	23I21_FNC_010.d
Dilution	1	**Sample Type**	QC
Acq Time	2023-09-21 19:57	**Acq Method**	23H17_FNC.m
Inj Vol	2	**Operator**	ECD

Quantitation Results

Compound	RT	Resp	Final Conc	
Cyromazine	1.241	182754	9.4978	ng/ml
Methamidophos	1.263	429411	9.6609	ng/ml
Acephate	1.715	365798	9.4790	ng/ml
Formentanate metabolite	2.348	121075	9.6434	ng/ml
Omethoate	2.442	496038	9.6091	ng/ml
Pymetrozine	2.620	810945	9.8711	ng/ml
Propamocarb	2.642	950455	9.4714	ng/ml
Formetanate HCl	2.646	622588	9.5105	ng/ml
Aldicarb-sulfoxide	2.667	306249	9.6601	ng/ml
Dinotefuran	2.658	215667	9.4085	ng/ml
Aldicarb-sulfone (Aldoxycarb)	2.872	9744	9.9078	ng/ml
Oxamyl	3.005	1293739	9.7572	ng/ml
Methomyl	3.021	340323	9.7550	ng/ml
Carbendazim	3.082	3336763	10.5681	ng/ml
Oxydemeton-methyl	3.104	294008	9.6773	ng/ml
Flonicamid	3.107	40150	9.6904	ng/ml
Thiabendazole	3.344	1135059	9.9322	ng/ml
Thiamethoxam	3.384	409754	9.8721	ng/ml
Fenuron (N,N-Dimethyl-N-phenylurea)	3.417	1093871	9.0168	ng/ml
Clothianidin	3.467	79482	9.6560	ng/ml
3-Hydroxy Carbofuran	3.513	541636	9.6694	ng/ml
Dimethoate	3.605	642113	10.1512	ng/ml
Imidacloprid	3.630	122946	9.6867	ng/ml
Flumetsulam	3.662	167089	9.8291	ng/ml
Mevinphos (Phosdrin)	3.695	560975	10.5216	ng/ml
Acetamiprid	3.741	1033760	9.9384	ng/ml
Flupyradifurone	3.746	204811	9.7687	ng/ml
Sulfoxaflor	3.738	595161	9.8400	ng/ml
Cymoxanil (Curzate)	3.787	347495	9.7752	ng/ml
Aldicarb	3.814	260232	9.8090	ng/ml
Pyrasulfotole	3.917	188902	10.0116	ng/ml
Thiacloprid	4.003	856085	7.5921	ng/ml
Phosphamidon	4.011	369773	10.3109	ng/ml
Cyanazine (Fortrol)	4.049	170646	9.0946	ng/ml
Monuron	4.070	789219	9.3907	ng/ml
Simazine	4.079	94055	9.4155	ng/ml
Pirimicarb	4.113	2585754	9.6561	ng/ml
Propoxur	4.133	422460	9.9688	ng/ml
Tebuthiuron	4.169	1639139	8.8772	ng/ml
Fenamiphos - sulfoxide	4.174	381331	9.5914	ng/ml
Oxadixyl	4.185	852068	9.5619	ng/ml
Bendiocarb	4.206	464831	9.7397	ng/ml
Carbofuran	4.224	1480905	9.7403	ng/ml
Bromacil	4.231	229396	9.4734	ng/ml
Metribuzin	4.252	94119	9.9319	ng/ml
Terbacil	4.272	12107	9.1746	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Simetryn	4.279	926615	9.1213	ng/ml
Malaxon	4.321	250886	8.9726	ng/ml
Prometon	4.324	2043839	9.1748	ng/ml
Fenamiphos - sulfone	4.329	300881	9.4740	ng/ml
Fluometuron	4.342	576520	9.3343	ng/ml
Cyprosulfamide	4.356	186361	9.2418	ng/ml
Carbaryl	4.353	890424	9.8052	ng/ml
Thiophanate-methyl	4.430	652515	9.9052	ng/ml
Hexazinone	4.432	3811877	9.7842	ng/ml
Carboxin	4.460	1055793	9.7366	ng/ml
Nicosulfuron 1	4.474	80273	11.2732	ng/ml
Atrazine	4.498	276538	9.2273	ng/ml
Thiencarbazone-methyl	4.502	32017	8.0552	ng/ml
Sulfentrazone	4.501	16333	9.1516	ng/ml
Thifensulfuron-methyl (DPX-M6316)	4.520	134972	10.4496	ng/ml
Sulfometuron-methyl	4.521	1310654	9.6288	ng/ml
Metsulfuron-methyl	4.557	180445	9.7243	ng/ml
Imazalil	4.669	280199	9.2195	ng/ml
DCPMU	4.672	241816	8.6935	ng/ml
Phorate Sulfoxide	4.770	773910	9.7647	ng/ml
Diuron	4.789	655949	9.3383	ng/ml
Flutriafol	4.805	195135	9.8342	ng/ml
Thiodicarb	4.831	187901	9.9901	ng/ml
Diazoxon	4.851	1022929	9.8286	ng/ml
Cyantraniliprole	4.846	15382	8.2788	ng/ml
Pyrimethanil	4.918	137213	9.3494	ng/ml
Phorate Sulfone	4.951	258487	9.6679	ng/ml
Propazine	4.944	688086	8.9674	ng/ml
Fenobucarb (Baycarb)	4.954	488756	9.3028	ng/ml
Siduron	4.989	553578	8.8829	ng/ml
Trifloxysulfuron-sodium	4.992	6623	9.9403	ng/ml
Pyroxasulfone	4.993	529797	9.1311	ng/ml
Penoxsulam (Penoxalim)	5.009	71618	9.0391	ng/ml
Disulfoton-sulfone	5.013	629961	10.4814	ng/ml
Disulfoton-Sulfone	5.013	117494	10.6421	ng/ml
Cloransulam-Methyl	5.020	34973	8.9837	ng/ml
Terbuthylazine	5.044	1322258	8.8836	ng/ml
Norflurazon	5.086	465651	10.1285	ng/ml
Famphur (Famophos)	5.103	228016	10.0998	ng/ml
Clomazone	5.134	938736	9.1046	ng/ml
Propanil	5.154	89139	9.2647	ng/ml
Trinexapac-ethyl	5.207	277547	10.0952	ng/ml
Prometryn	5.217	2428702	8.9156	ng/ml
Bicyclopyrone	5.231	2205234	9.9277	ng/ml
Linuron	5.253	217777	10.3174	ng/ml
Spiroxamine	5.261	1582396	9.7727	ng/ml
Terbutryn	5.281	2918902	8.8619	ng/ml
Flurtamone	5.286	108687	8.7376	ng/ml
Methiocarb (Mercaptodimethur)	5.328	1092390	9.7859	ng/ml
Chlorantraniliprole	5.330	68799	9.7690	ng/ml
Methidathion	5.399	286942	9.3969	ng/ml
Fluridone	5.460	869774	9.5333	ng/ml
Acibenzolar-s-methyl	5.529	24054	20.0519	ng/ml
Bensulfuron-methyl	5.541	311084	9.3971	ng/ml
Saflufenacil	5.576	17374	8.9996	ng/ml
Fenamidone	5.580	1094156	9.6458	ng/ml
Triadimenol	5.591	166120	18.7725	ng/ml
Methoxyfenozide	5.596	1301740	9.6112	ng/ml
Bispyribac	5.604	242361	9.8096	ng/ml

Compound	RT	Resp	Final Conc	
Fomesafen	5.621	1224	7.7453	ng/ml
Triadimefon	5.628	40365	9.6587	ng/ml
Iodosulfuron-Methyl	5.658	48360	10.5066	ng/ml
Fenhexamid	5.655	53811	9.1072	ng/ml
Boscalid	5.707	109836	10.0295	ng/ml
Fluxapyroxad	5.733	128787	9.5271	ng/ml
Azinphos-methyl	5.735	232915	10.2508	ng/ml
Fluopyram	5.760	817332	9.9720	ng/ml
Isoxaben	5.817	1700207	9.0008	ng/ml
Phosmet	5.809	792958	9.9894	ng/ml
Fluopicolide	5.815	395519	9.6733	ng/ml
Malathion	5.853	308098	9.8544	ng/ml
Indaziflam	5.874	1934982	9.0713	ng/ml
Azoxystrobin	5.906	1734017	9.7507	ng/ml
Cyprodinil	5.958	242814	9.6168	ng/ml
Bifenazate	5.984	795574	10.2011	ng/ml
Triticonazole	6.001	182101	10.1233	ng/ml
Dimethomorph 1	6.007	162760	11.1577	ng/ml
Isofetamid	6.008	1919515	9.5683	ng/ml
Neburon (Phosphoramidothioic acid)	6.094	232919	9.5541	ng/ml
Chlorimuron-ethyl	6.106	81209	9.7351	ng/ml
Tebufenozide	6.118	798391	9.5992	ng/ml
Spirotetramat	6.135	219409	9.4591	ng/ml
Mandipropamid	6.170	449433	9.6621	ng/ml
Penthiopyrad	6.199	233385	9.8979	ng/ml
Flufenacet (Fluthiamide)	6.207	1084945	9.3809	ng/ml
Dodine	6.231	338641	9.5966	ng/ml
Afidopyropen	6.306	13761	10.4524	ng/ml
Flumioxazin	6.309	15972	10.0609	ng/ml
Oryzalin	6.341	2469	8.5431	ng/ml
Diflubenzuron	6.429	178526	10.3756	ng/ml
Dimethomorph 2	6.435	297166	8.4821	ng/ml
Tebuconazole	6.475	193229	8.7086	ng/ml
Fenoxycarb	6.585	561139	9.8304	ng/ml
Ametoctradin	6.586	1185358	9.6931	ng/ml
Hexaconazole	6.602	142528	10.2718	ng/ml
Flubendiamide	6.642	36977	19.7354	ng/ml
Fonofos	6.650	17898	11.4763	ng/ml
Bensulide	6.672	90762	9.5260	ng/ml
Cycloate	6.686	31530	21.1747	ng/ml
Picoxystrobin	6.682	2221713	9.8042	ng/ml
Cyclaniliprole	6.698	16848	10.3791	ng/ml
Azinphos-ethyl (Guthion ethyl)	6.700	53698	10.4162	ng/ml
Cyazofamid	6.701	527652	10.5218	ng/ml
TPP d15	6.773	232	0.2282	ng/ml
Fenbuconazole	6.810	121795	9.4867	ng/ml
Carfentrazone-ethyl	6.817	99443	9.3846	ng/ml
Bitertanol	6.837	38120	9.9767	ng/ml
Metconazole	6.847	263209	9.9556	ng/ml
Prothioconazole	6.842	10002	17.5303	ng/ml
Fluoxastrobin	6.861	178583	9.1389	ng/ml
Pirimiphos-methyl	6.867	535048	9.5080	ng/ml
Benzovindiflupyr	6.881	150949	9.9772	ng/ml
Isoxadifen-ethyl (AE F122006)	6.939	136344	9.2498	ng/ml
Mefenitrifluconazole	6.962	152995	9.7829	ng/ml
Propiconazole	6.982	73635	9.7531	ng/ml
Iprodione	6.983	9378	48.7189	ng/ml

Quantitative Analysis Sample Report

Compound	RT	Resp	Final Conc	
Thiobencarb	7.095	491423	9.8438	ng/ml
Cyflufenamid	7.234	184337	9.6281	ng/ml
Clofentezine	7.248	176325	10.0739	ng/ml
Triflumizol	7.299	1247284	10.0813	ng/ml
Pyraflufen-ethyl	7.305	179361	8.8124	ng/ml
Prallethrin	7.357	82218	9.5590	ng/ml
Flutianil	7.394	567441	9.6719	ng/ml
Pydiflumetofen	7.404	201085	9.7229	ng/ml
Ipconazole	7.418	250265	9.8281	ng/ml
Famoxadone	7.487	46456	9.6313	ng/ml
Pyraclostrobin	7.506	837629	9.6650	ng/ml
Metrafenone	7.513	419118	9.7081	ng/ml
Rotenone	7.550	41360	12.0053	ng/ml
Diflufenican	7.568	222265	9.1354	ng/ml
Sethoxydim	7.690	790988	19.5930	ng/ml
Novaluron	7.738	34688	10.6875	ng/ml
Trifloxystrobin	7.784	1411373	9.1269	ng/ml
Phosalone	7.796	151264	9.9859	ng/ml
Coumaphos	7.815	490910	10.5741	ng/ml
Pyrethrin II	7.877	232838	49.5650	ng/ml
Allethrin	7.889	116631	9.0106	ng/ml
Clethodim	7.923	206321	19.0901	ng/ml
Spinosyn A	7.927	972620	9.7387	ng/ml
Difenconazole	7.983	170935	10.1112	ng/ml
Piperonyl butoxide	7.996	2539806	9.7784	ng/ml
Triallate	8.096	8602	10.1186	ng/ml
Cyhalofop butyl	8.157	39775	10.1733	ng/ml
Quizalofop-ethyl	8.239	105624	10.0879	ng/ml
Tolfenpyrade	8.275	67030	9.3465	ng/ml
Indoxacarb	8.372	34252	8.9605	ng/ml
Cyflumetofen	8.382	795241	9.8576	ng/ml
Emamectin Benzoate	8.452	175387	9.5240	ng/ml
Spinosyn D	8.480	353506	9.5686	ng/ml
Spiromesifen	8.481	1446455	18.7579	ng/ml
Spinetoram J	8.515	754262	9.8587	ng/ml
Ethion	8.662	701218	10.1266	ng/ml
Fluazinam (Shirlan (VAN)	8.667	18070	10.4968	ng/ml
Propargite	8.808	250631	9.1491	ng/ml
Pyrethrin I	8.800	942709	49.4246	ng/ml
Lactofen	8.832	230035	8.9643	ng/ml
Dioxathion	8.837	336684	10.0649	ng/ml
Fenazaquin	8.953	2453325	9.3585	ng/ml
Hexythiazox	8.996	209515	10.0377	ng/ml
Spinetoram L	9.010	224672	9.6352	ng/ml
Fenpyroximate	9.108	423636	9.8351	ng/ml
Fenpropathrin	9.220	64753	9.6486	ng/ml
Pyridaben	9.612	887205	9.3297	ng/ml
Abamectin	9.814	4259	9.3545	ng/ml
d-Phenothrin	9.945	72849	9.3895	ng/ml
Etofenprox	10.371	950993	9.6995	ng/ml
Fluvalinate	10.520	28225	9.6633	ng/ml
Pyridalyl	10.937	13758	9.7978	ng/ml
Fenbutatin oxide	10.994	62031	10.0411	ng/ml

Engineering Design Report

Smith-Kem Site

Appendix A
Pre-Remedial Design Investigation
Laboratory and Data Validation Reports

Attachment A.2
Pre-Remedial Design Investigation
Data Validation Reports

Smith-Kem Ellensburg, Inc.
Pre-Remedial Design Investigation Phase 1 Groundwater
Ellensburg, Washington

Data Validation Report

Prepared for

Smith-Kem Ellensburg, Inc.

Prepared by

Floyd|Snider
601 Union Street
Suite 600
Seattle, Washington 98101

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List of Abbreviations

Abbreviation	Definition
ALS	ALS Environmental
ARL	Analytical Resources, LLC
DNR	Do Not Report
FBI	Friedman and Bruya, Inc
LCS	Laboratory control sample
LCSD	Laboratory control sample duplicate
MS	Matrix spike
MSD	Matrix spike duplicate
RL	Reporting limit
RPD	Relative percent difference
QC	Quality control
SDG	Sample delivery group
SM	Standard Methods
TPH	Total petroleum hydrocarbons
USEPA	U.S. Environmental Protection Agency
VOC	Volatile organic compound

1.0 Project Narrative

1.1 OVERVIEW OF DATA VALIDATION

This report summarizes the results of the Compliance Screening (USEPA Stage 2A and Stage 2B) performed on the sample data for the Pre-Remedial Design Investigation Phase 1 Groundwater sampling event. A complete list of sample IDs provided in the Project Sample Index Table (Attachment 1).

A total of 4 groundwater samples were collected August 15 and 16, 2023. Samples were submitted to Friedman and Bruya, Inc. (FBI) in Seattle, Washington; ALS Environmental (ALS) in Kelso, Washington; and Analytical Resources, LLC (ARL) in Tukwila, Washington. Analytical results were submitted by FBI, ALS, and ARL under three sample delivery groups (SDGs): 308255, K2309259, and 23H0253. The following analytical parameters were reviewed in this validation:

- Metals—U.S. Environmental Protection Agency (USEPA) Method 200.8
- Hardness by USEPA 2340B
- Pesticides—USEPA Method 8081B and 1694 modified
- Volatile organic compounds (VOCs)—USEPA Method 8260D
- Total petroleum hydrocarbons (TPH)—NWTPH-Dx/NWTPH-Gx
- Alkalinity by Standard Methods (SM) 2320B
- Total organic carbon by SM 5310C

The data were reviewed using guidance and quality control (QC) criteria documented in the Remedial Investigation Work Plan (Floyd|Snider 2016), *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* (USEPA 1986), *National Functional Guidelines for Organic Superfund Methods Data Review* (USEPA 2020a), and the *National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA 2020b).

Floyd|Snider's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are estimated (J or UJ), data may be used for site evaluation and risk assessment purposes, but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. When compounds are analyzed at multiple dilutions or by multiple analysis methods, select results will be assigned a Do Not Report (DNR) qualifier because a more appropriate result will be reported from another dilution or analysis method. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the documents previously referenced.

Data qualifiers and data qualifier definitions are included in Attachment 2. The Qualified Data Summary Table is included as Attachment 3.

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2.0 Data Validation Report

This report documents the review of analytical data for the analyses of water samples and the associated field and laboratory QC samples. A USEPA Stage 2B Compliance Screening was performed on pesticide data and a USEPA Stage 2A Compliance Screening was performed on all other analytical data by Cheronne Oreiro as the primary data reviewer, and secondary review was performed by Chell Black.

2.1 DATA PACKAGE COMPLETENESS

The laboratories submitted all required deliverables and followed adequate corrective action processes, and all anomalies were discussed in the laboratory report case narrative.

2.2 TECHNICAL DATA VALIDATION

Field and laboratory QC requirements that were reviewed are listed in the following sections, and unless noted, laboratory results for samples listed in Attachment 1 were within QC criteria.

2.2.1 Cooler Temperatures and Sample Preservation

All samples were appropriately preserved and received within the required temperature range.

2.2.2 Reporting Limits and Reported Results

All laboratory qualified results detected between the method detection limit and the reporting limit (RL) were qualified as “J” to indicate they are estimated.

2.2.3 Extraction and Analysis Holding Times

All samples were extracted and analyzed within recommended holding times.

2.2.4 Initial and Continuing Calibrations (Pesticides)

All initial and continuing calibrations were within control limits.

2.2.5 Internal Standards (Pesticides)

All internal standards were within control limits.

2.2.6 Method Blanks

All method blanks were free of detections.

2.2.7 Surrogates

All surrogates recovered within laboratory control limits.

2.2.8 Laboratory Control Samples and Laboratory Control Sample Duplicates

Laboratory control samples (LCSs) and LCS duplicates (LCSDs) were analyzed at the required project frequencies. All LCS/LCSD recoveries and associated relative percent difference (RPD) values were within control limits with the following exceptions:

SDG 308255

- VOCs: The acetone and 2-butanone LCS and LCSD recovered below the control limit. Associated sample results were non-detect, so no data were qualified.

SDG 23H0523

- Pesticides: The aldrin and trans-chlordane LCS and all LCSD analytes recovered below the control limits. Associated sample results were qualified "J" or "UJ" to indicate they are estimated.

Refer to Attachment 3 for a summary for qualified results.

2.2.9 Matrix Spike and Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were analyzed at the required frequencies, and MS and MSD analyses conducted on non-project samples were not included in this evaluation. No data were qualified if the sample result was greater than 4 times the spike concentration. Most MS and MSD recoveries were within project-required control limits except for the acetone MS analyzed on sample MW-1-081523, which recovered below the control limit. The associated parent sample result was qualified "UJ" to indicate the result is estimated.

Refer to Attachment 3 for a summary for qualified results.

2.2.10 Laboratory Duplicates

Laboratory duplicates were analyzed at the required frequencies or in place of MSDs. Laboratory duplicate analyses conducted on non-project samples were not included in this evaluation. Parent sample and laboratory duplicate results less than 5 times the RL may have exaggerated RPD values. Therefore, if the sample or duplicate results were less than 5 times the RL, the results were evaluated using the absolute value of the difference between the concentrations using the RL as the control limit. All duplicate RPDs and difference values were within control limits.

2.2.11 Dual Column Confirmation (Pesticides)

All dual column confirmation RPD values were within control limits with the following exceptions:

SDG 23H0523

- Pesticides: The laboratory flagged select pesticide results to indicate dual column RPDs were above the method control limit. Sample results were qualified "J" to indicate they are estimated.

Refer to Attachment 3 for a summary of qualified data.

2.2.12 Analyte Quantitation (Pesticides)

The laboratory flagged select pesticide results in sample MW-1-081523 “E” to indicate the analyte concentrations exceed the calibration range of the instrument. The sample was reanalyzed at a dilution and all analytes were reported from the dilution, with the exception of trans-nonachlor, which was reported from the initial analysis. Initial results that were not reported were qualified as “DNR.”

The laboratory flagged select pesticide results in sample MW-6-081523 “E” to indicate the analyte concentrations exceed the calibration range of the instrument. The sample was reanalyzed at a dilution and all analytes were reported from the dilution. Initial results for all analytes were qualified as “DNR.”

Refer to Attachment 3 for a summary of qualified data.

2.3 OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical methods and all requested sample analyses were completed. Accuracy was acceptable, as demonstrated by the MS, MSD, LCS, and LCSD percent recovery values. Precision was acceptable, as demonstrated by the MS/MSD, and laboratory duplicate RPD or difference values.

All data are acceptable for use as reported or qualified; refer to Attachment 3 for a summary of qualified results.

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3.0 References

Floyd|Snider. 2016. *Smith-Kem Site Remedial Investigation Work Plan*. Prepared for Foster Pepper PLLC and Shell Oil Products US. July.

U.S. Environmental Protection Agency (USEPA). 1986. *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.* U.S. Prepared by the Office of Solid Waste and Emergency Response. EPA-530/SW-846.

_____. 2020a. *National Functional Guidelines for Organic Superfund Methods Data Review.* Prepared by the Office of Superfund Remediation and Technology Innovation. EPA-540-R-20-005/OLEM 9240.0-51. November.

_____. 2020b. *National Functional Guidelines for Inorganic Superfund Methods Data Review.* Prepared by the Office of Superfund Remediation and Technology Innovation. EPA-542-R-20-006/OLEM 9240.1-66. November.

Attachment 1
Project Sample Index

Attachment 1
Project Sample Index

				Analyte Class	TPH	TPH	Hardness	VOCs	Metals	TOC	Alkalinity	Pesticides	Pesticides (Atrazine)
				Analysis Method	NWTPH-Dx	NWTPH-Gx	SM 2340B	EPA 8260D	EPA 6020B	SM 5310C	SM 2320B	EPA 8081B	EPA 1694M
Sample Delivery Group	Internal Lab Sample ID	Field Sample ID	Media										
308255	308255-01	MW-1-081523	Water		X	X	X	X					
2308255	2308225-001								X	X	X		
23H0523	23H0523-01											X	
K2309259	K2309259-001												X
308255	308255-02	MW-2-081523	Water				X						
2308255	2308225-002A								X	X	X		
308255	308255-03	MW-6-081623	Water		X	X		X					
23H0523	23H0523-02											X	
K2309259	K2309259-002												X
308255	308255-04	MW-10-081523	Water				X						
2308255	2308225-003								X	X	X		

Attachment 2
Data Qualifier Definitions

Attachment 2
Data Qualifier Definitions

Qualifer	Definition
U	The analyte is not detected at the specified reporting limit.
UJ	The analyte is not detected and the reporting limit is estimated.
J	The result value is estimated.
R	The result was rejected during validation.
DNR	The result was rejected in favor of a more appropriate result/analysis.

Attachment 3
Qualified Data Summary Table

Attachment 3
Qualified Data Summary Table

Sample ID	Internal Lab Sample ID	Analyte Class	Analyte	Result	Unit	Lab Qualifier	Interpreted Qualifier	Reason
MW-1-081523	23H0523-01	Pesticides	Aldrin	0.0031	µg/L	U	UJ	LCS and/or LCSD %R below control limit
			Dieldrin	0.14	µg/L	D	J	
			cis-Chlordane	0.12	µg/L	P1,D	J	LCS and/or LCSD %R below control limit / Dual column RPD value above CL
			trans-Chlordane	0.076	µg/L	P1,D	J	
			Toxaphene	1.2	µg/L	P1,D	J	Dual column RPD value above CL
	308255-01	VOCs	Acetone	50	µg/L	U	UJ	LCS and/or LCSD %R below control limit / MS and/or MSD %R below CL
			Methyl ethyl ketone	20	µg/L	U	UJ	LCS and/or LCSD %R below control limit
MW-6-081623	23H0523-02	Pesticides	Aldrin	0.0031	µg/L	U	UJ	LCS and/or LCSD %R below control limit
			Dieldrin	0.3	µg/L	D	J	
			trans-Chlordane	0.09	µg/L	D	J	
			cis-Chlordane	0.19	µg/L	P1,D	J	LCS and/or LCSD %R below control limit / Dual column RPD value above CL
			Toxaphene	4	µg/L	P1,D	J	Dual column RPD value above CL
	308255-03	VOCs	Acetone	50	µg/L	U	UJ	LCS and/or LCSD %R below control limit
			Methyl ethyl ketone	20	µg/L	U	UJ	

Abbreviations:

CL Control limit
LCS Laboratory control sample
LCSD Laboratory control sample duplicate
µg/L Micrograms per liter
MS Matrix spike
MSD Matrix spike duplicate
RPD Relative percent difference
VOC Volatile organic compound

Smith-Kem Ellensburg, Inc.
Pre-Remedial Design Investigation Phase 1 Drilling
Ellensburg, Washington

Data Validation Report

Prepared for

Smith-Kem Ellensburg, Inc.

Prepared by

Floyd|Snider
601 Union Street
Suite 600
Seattle, Washington 98101

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List of Abbreviations

Abbreviation	Definition
CCV	Continuing calibration verification
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichlorethylene
DDT	Dichlorodiphenyltrichloroethane
DNR	Do Not Report
LCS	Laboratory control sample
LCSD	Laboratory control sample duplicate
MS	Matrix spike
MSD	Matrix spike duplicate
RL	Reporting limit
RPD	Relative percent difference
QC	Quality control
SDG	Sample delivery group
TPH	Total petroleum hydrocarbons
USEPA	U.S. Environmental Protection Agency

1.0 Project Narrative

1.1 OVERVIEW OF DATA VALIDATION

This report summarizes the results of the Compliance Screenings (USEPA Stage 2A and USEPA Stage 2B) performed on the sample data for the Pre-Remedial Design Investigation Phase 1 Drilling sampling event. A complete list of sample IDs is provided in the Project Sample Index Table (Attachment 1).

A total of 59 soil samples and 4 field duplicate samples were collected September 5, 6, and 7, 2023. Samples were submitted to Friedman and Bruya, Inc. (FBI) in Seattle, Washington; ALS Environmental (ALS) in Kelso, Washington; and Pacific Agricultural Laboratory in Sherwood, Oregon. Analytical results were submitted by the laboratories under sample delivery groups (SDGs) 309097, K2310173, K2310181, K2310183, K2310186, K2310188, K2312104, and P232142. The following analytical parameters were reviewed in this validation:

- Metals—U.S. Environmental Protection Agency (USEPA) Method 6020
- Pesticides—USEPA Method 8081B, 1649 modified, and 8321B modified
- Total petroleum hydrocarbons (TPH)—NWTPH-Dx
- Percent solids—USEPA 160.3M

The data were reviewed using guidance and quality control (QC) criteria documented in the Remedial Investigation Work Plan (Floyd|Snider 2016) and Pre-Remedial Design Investigation Work Plan (Floyd|Snider 2023), *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* (USEPA 1986), *National Functional Guidelines for Organic Superfund Methods Data Review* (USEPA 2020a), and the *National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA 2020b).

Floyd|Snider's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are estimated (J or UJ), data may be used for site evaluation and risk assessment purposes, but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. When compounds are analyzed at multiple dilutions or by multiple analysis methods, select results will be assigned a Do Not Report (DNR) qualifier because a more appropriate result will be reported from another dilution or analysis method. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the documents previously referenced.

Data qualifiers and data qualifier definitions are included in Attachment 2. The Qualified Data Summary Table is included as Attachment 3.

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2.0 Data Validation Report

This report documents the review of analytical data for the analyses of soil samples and the associated field and laboratory QC samples. A USEPA Stage 2B Compliance Screening was performed on pesticide results and a USEPA 2A Compliance Screening was performed on all other analytical results by Cheronne Oreiro as the primary data reviewer, and secondary review was performed by Chell Black.

2.1 DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables and followed adequate corrective action processes, and all anomalies were discussed in the laboratory report case narrative.

2.2 TECHNICAL DATA VALIDATION

Field and laboratory QC requirements that were reviewed are listed in the following sections, and unless noted, laboratory results for samples listed in Attachment 1 were within QC criteria.

2.2.1 Cooler Temperatures and Sample Preservation

All samples were appropriately preserved and received within the required temperature range.

2.2.2 Reporting Limits and Reported Results

All laboratory qualified results detected between the method detection limit and the reporting limit (RL) were qualified as “J” to indicate they are estimated.

2.2.3 Extraction and Analysis Holding Times

All samples were extracted and analyzed within recommended holding times for samples stored refrigerated or frozen.

2.2.4 Initial and Continuing Calibrations (Pesticides)

Initial and continuing calibrations associated with reported sample results were within control limits with the following exceptions:

SDG K2310173

- Pesticides:
  - 4,4'-Dichlorodiphenyltrichloroethane (DDT) in continuing calibration verification (CCV) KQ2318448-05 was below the control limit. Associated sample results were qualified “UJ” or “J” to indicate they are estimated.
  - Several analytes in CCVs KQ2318448-05, KQ2319283-02, and KQ2319283-05 were above the control limits. Associated sample results were non-detect, so no data were qualified.

SDG K2310181

- Pesticides: 2,4'-Dichlorodiphenyldichloroethane (DDD) in CCV KQ2318580-02 was below the control limit. 2,4'-DDD, 2,4'-DDT, and 2,4'-dichlorodiphenyldichlorethylene (DDE) in CCV KQ2318580-05 were also below the control limit. Associated sample results were qualified "UJ" to indicate they are estimated.

SDG K2310183

- Pesticides:
  - 2,4'-DDT in CCV K2318519-02 fell below the control limit. *cis*-Nonachlor in the same CCV was above the control limit. Associated 2,4'-DDT results were qualified "UJ" to indicate they are estimated. *cis*-Nonachlor results were non-detect, so no data were qualified.
  - *cis*-Nonachlor in CCVs KQ2318307-02, -05, and -08 were above the control limits. Associated sample results were non-detect, so no data were qualified.

SDG K2310186

- Pesticides: All *cis*-nonachlor CCVs in this SDG were above the control limits. Associated sample results were non-detect, so no data were qualified.

SDG K2310188

- Pesticides:
  - 4,4'-DDE and *cis*-nonachlor in CCV KQ2319084-02, as well as 2,4'-DDE, cis-nonachlor, and 4,4'-DDT in CCV KQ2319283-02 were above control limits. No sample results were associated with these CCVs, so no data were qualified.
  - *cis*-Nonachlor in CCV KQ2319084-05 was above the control limits. Associated sample results were non-detect, so no data were qualified.
  - 2,4'-DDT in CCV KQ2319084-08 was below the control limit. Associated sample results were qualified "UJ" to indicate they are estimated.

Refer to Attachment 3 for a summary for qualified results.

2.2.5 Internal Standards (Pesticides)

All internal standards were within control limits.

2.2.6 Method Blanks

All method blanks were free of detections.

2.2.7 Surrogates

Most surrogates recovered within laboratory control limits. Due to the inability to accurately quantify surrogates when a sample was analyzed at a dilution, no data were qualified when surrogate recoveries were outside of control limits in these instances.

2.2.8 Laboratory Control Samples and Laboratory Control Sample Duplicates

Laboratory control samples (LCSs) and LCS duplicates (LCSDs) were analyzed at the required project frequencies. All LCS/LCSD recoveries and associated relative percent difference (RPD) values were within project-required control limits.

2.2.9 Matrix Spike and Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were analyzed at the required frequencies, and MS and MSD analyses conducted on non-project samples were not included in this evaluation. No data were qualified if the sample result was greater than 4 times the spike concentration. Some MS or MSD recoveries could not be accurately quantified due to sample dilutions, so no data were qualified in these instances. All MS and MSD recoveries were within project-required control limits.

2.2.10 Laboratory Duplicates

Laboratory duplicates were analyzed at the required frequencies or in place of MSDs. Laboratory duplicate analyses conducted on non-project samples were not included in this evaluation. Parent sample and laboratory duplicate results less than 5 times the RL may have exaggerated RPD values. Therefore, if the sample or duplicate results were less than 5 times the RL, the results were evaluated using the absolute value of the difference between the concentrations with a control limit of 2 times the RL. All duplicate RPDs and difference values were within control limits.

2.2.11 Dual Column Confirmation

Select pesticide results were flagged “P” by the laboratory to indicate the dual column RPD value was above the control limit. These results were qualified “J” to indicate they are estimated.

Refer to Attachment 3 for a summary of qualified data.

2.2.12 Analyte Quantitation

The dieldrin result for sample AOC1-03-4.0 exceeded the instrument calibration range in the initial analysis. The sample was re-analyzed and the diluted result was reported. The initial result was qualified as “DNR.”

Refer to Attachment 3 for a summary of qualified data.

2.2.13 Field Quality Control Samples

2.2.13.1 Field Duplicates

Four field duplicate samples were collected in association with these sample sets. Field duplicate RPD values were evaluated using a default control limit of 75%. Parent and field duplicate results less than 5 times the RL may have exaggerated RPD values. Therefore, if the sample or duplicate results were less than 5 times the RL, the results are evaluated using the absolute difference between them with a control limit of 2 times the RL. Field duplicate RPDs and difference values were within control limits, with the exception of the lead duplicate RPD value for samples AOC4-03-2.0 and AOC4-103-2.0, which was above the control limit. Both sample results were qualified "J" to indicate they are estimated.

Refer to Attachment 3 for a summary of qualified data.

2.3 OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical methods and all requested sample analyses were completed. Accuracy was acceptable, as demonstrated by the MS, MSD, LCS, and LCSD percent recovery values. Precision was acceptable, as demonstrated by the MS/MSD, laboratory duplicate, and field duplicate RPD or difference values.

All data are acceptable for use as reported or qualified; refer to Attachment 3 for a summary of qualified results.

3.0 References

Floyd|Snider. 2016. *Smith-Kem Site Remedial Investigation Work Plan*. Prepared for Foster Pepper PLLC and Shell Oil Products US. July.

_____. 2023. *Smith-Kem Site Pre-Remedial Design Investigation Work Plan*. Prepared for Smith-Kem and Shell Oil Products US. June.

U.S. Environmental Protection Agency (USEPA). 1986. *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.* U.S. Prepared by the Office of Solid Waste and Emergency Response. EPA-530/SW-846.

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_____. 2020b. *National Functional Guidelines for Inorganic Superfund Methods Data Review.* Prepared by the Office of Superfund Remediation and Technology Innovation. EPA-542-R-20-006/OLEM 9240.1-66. November.

Attachment 1
Project Sample Index

Attachment 1
Project Sample Index

			Analyte Class	Metals	TPH	Chlorinated Pesticides	Pesticides	Pesticides	Percent Solids
			Analysis Method	EPA 6020B	NWTPH-Dx	EPA 8081B	EPA 1694M	EPA 8321BM	EPA 160.3M
Sample Delivery Group	Internal Lab Sample ID	Field Sample ID	Media						
309097	309097-01	AOC5-01-6.0-6.5	Soil		X				
309097	309097-07	AOC4-03-2.0	Soil	X					
309097	309097-08	AOC4-103-2.0	Soil	X					
309097	309097-09	AOC4-03-6.5	Soil		X				
309097	309097-10	AOC4-03-7.0	Soil		X				
309097	309097-11	AOC4-04-2.5	Soil	X					
309097	309097-12	AOC4-02-2.5	Soil	X					
309097	309097-13	AOC4-02-8.5	Soil		X				
309097	309097-14	AOC4-02-9.5	Soil		X				
309097	309097-15	AOC2-04-6.0	Soil		X				
309097	309097-16	AOC2-04-8.5	Soil		X				
309097	309097-18	AOC2-03-6.5	Soil		X				
309097	309097-19	AOC2-03-8.5	Soil		X				
K2310173	K2310173-001	AOC1-01-2.0	Soil			X			X
K2310173	K2310173-002	AOC1-01-5.0	Soil			X			X
K2310173	K2310173-004	AOC1-02-2.5	Soil			X			X
K2310173	K2310173-005	AOC1-02-5.0	Soil			X			X
K2310173	K2310173-007	AOC1-05-2.0	Soil			X			X
K2310173	K2310173-009	AOC1-06-4.0	Soil			X			X
K2310173	K2310173-011	AOC1-07-2.5	Soil			X			X
K2310173	K2310173-012	AOC1-07-5.0	Soil			X			X
K2310173	K2310173-014	AOC1-08-2.5	Soil			X			X
K2310173	K2310173-016	AOC1-09-5.0	Soil			X			X
K2310173	K2310173-017	AOC1-09-8.0	Soil			X			X
K2310173	K2310173-019	AOC5-01-2.5	Soil			X			X
K2310173	K2310173-020	AOC5-01-5.0	Soil			X			X
K2310181	K2310181-001	AOC5-101-5.0	Soil			X			X
K2310181	K2310181-003	AOC5-02-2.5	Soil			X			X
K2310181	K2310181-004	AOC5-02-5.0	Soil			X			X
K2310181	K2310181-006	AOC5-03-2.5	Soil			X			X
K2310181	K2310181-008	AOC5-04-2.5	Soil			X			X
K2310181	K2310181-009	AOC5-04-5.0	Soil			X			X
K2310181	K2310181-011	AOC4-01-2.5	Soil			X			X
K2310181	K2310181-013	AOC4-03-2.0	Soil			X			X
K2310181	K2310181-014	AOC4-103-2.0	Soil			X			X
K2310181	K2310181-016	AOC4-04-2.5	Soil			X			X
K2310181	K2310181-018	AOC4-05-2.5	Soil			X			X
K2310181	K2310181-020	AOC4-06-2.5	Soil			X			X
K2310183	K2310183-001	AOC4-06-5.0	Soil			X			X
K2310183	K2310183-003	AOC4-07-2.5	Soil			X			X
K2310183	K2310183-004	AOC4-107-2.5	Soil			X			X
K2310183	K2310183-005	AOC4-07-5.0	Soil			X			X
K2310183	K2310183-007	AOC4-08-2.5	Soil			X			X
K2310183	K2310183-009	AOC4-02-2.5	Soil			X			X
K2310183	K2310183-010	AOC4-02-4.5	Soil			X			X
K2310183	K2310183-012	AOC1-03-2.0	Soil			X			X
K2310183	K2310183-014	AOC1-04-2.0	Soil			X			X
K2310183	K2310183-015	AOC1-04-4.0	Soil			X			X
K2310183	K2310183-016	AOC2-01-2.0	Soil			X			X
K2310183	K2310183-017	AOC2-01-4.0	Soil			X			X
K2310183	K2310183-019	AOC2-02-2.0	Soil			X			X
K2310186	K2310186-001	AOC3-02-2.0	Soil			X			X
K2310186	K2310186-004	AOC3-03-2.0	Soil			X			X
K2310186	K2310186-006	AOC3-04-2.0	Soil			X			X
K2310186	K2310186-008	AOC3-05-2.0	Soil			X			X
K2310188	K2310188-001	AOC2-03-2.0	Soil			X			X
K2310188	K2310188-002	AOC2-03-4.0	Soil			X			X
K2310188	K2310188-004	AOC2-04-3.0	Soil			X	X		X
K2310188	K2310188-006	AOC2-05-3.0	Soil			X	X		X
K2310188	K2310188-007	AOC2-05-6.0	Soil			X	X		X
K2310188	K2310188-009	AOC2-105-3.0	Soil			X	X		X
K2310188	K2310188-010	AOC2-06-2.0	Soil			X	X		X
K2310188	K2310188-012	AOC2-07-2.0	Soil			X			X
K2310188	K2310188-014	AOC2-08-2.0	Soil			X			X
K2310188	K2310188-015	AOC2-08-4.0	Soil			X			X
K2310188	K2310188-018	AOC3-01-2.0	Soil			X			X
K2312104	K2312104-001	AOC1-03-4.0	Soil			X			X
P232142	P232142-01	AOC2-04-3.0	Soil					X	
P232142	P232142-03	AOC2-05-3.0	Soil					X	
P232142	P232142-04	AOC2-05-6.0	Soil					X	
P232142	P232142-06	AOC2-06-2.0	Soil					X	
P232142	P232142-08	AOC2-105-3.0	Soil					X	

Attachment 2
Data Qualifier Definitions

Attachment 2
Data Qualifier Definitions

Qualifer	Definition
U	The analyte is not detected at the specified reporting limit.
UJ	The analyte is not detected and the reporting limit is estimated.
J	The result value is estimated.
R	The result was rejected during validation.
DNR	The result was rejected in favor of a more appropriate result/analysis.

Attachment 3
Qualified Data Summary Table

Attachment 3
Qualified Data Summary Table

Sample ID	Internal Lab Sample ID	Analyte Class	Analyte	Result	Unit	Lab Qualifier	Interpreted Qualifier	Reason
AOC4-03-2.0	309097-07	Metals	Lead	154	mg/kg		J	Field duplicate difference or RPD value above CL
AOC4-103-2.0	309097-08	Metals	Lead	63.1	mg/kg		J	Field duplicate difference or RPD value above CL
AOC1-01-2.0	K2310173-001	Pesticides	4,4'-DDT	12	µg/kg	UI	UJ	CCV %D below CL
AOC1-01-5.0	K2310173-002	Pesticides	4,4'-DDT	2	µg/kg	U	UJ	CCV %D below CL
AOC1-02-5.0	K2310173-004	Pesticides	4,4'-DDT	2	µg/kg	U	UJ	CCV %D below CL
AOC1-02-2.5	K2310173-005	Pesticides	4,4'-DDT	5.8	µg/kg		J	CCV %D below CL
AOC1-06-4.0	K2310173-009	Pesticides	4,4'-DDT	2.3	µg/kg		J	CCV %D below CL
AOC1-07-2.5	K2310173-011	Pesticides	4,4'-DDT	0.74	µg/kg	JP	J	CCV %D below CL / Dual column RPD above CL
AOC1-07-5.0	K2310173-012	Pesticides	4,4'-DDT	2	µg/kg	U	UJ	CCV %D below CL
AOC1-08-2.5	K2310173-014	Pesticides	4,4'-DDT	0.66	µg/kg	J	J	CCV %D below CL
AOC1-09-5.0	K2310173-016	Pesticides	4,4'-DDT	1.2	µg/kg	J	J	CCV %D below CL
AOC1-09-8.0	K2310173-017	Pesticides	cis-Chlordane	0.63	µg/kg	JP,*	J	Dual column RPD value above CL
AOC5-101-5.0	K2310181-001	Pesticides	2,4'-DDD	1	µg/kg	U	UJ	CCV %D below CL
			2,4'-DDE	1	µg/kg	U	UJ	
			2,4'-DDT	1	µg/kg	U	UJ	
AOC5-02-2.5	K2310181-003	Pesticides	2,4'-DDD	1	µg/kg	U	UJ	CCV %D below CL
			2,4'-DDE	1	µg/kg	U	UJ	
			2,4'-DDT	1	µg/kg	U	UJ	
AOC4-05-2.5	K2310181-018	Pesticides	2,4'-DDD	1	µg/kg	U	UJ	CCV %D below CL
			2,4'-DDE	1	µg/kg	U	UJ	
			2,4'-DDT	1	µg/kg	U	UJ	
AOC4-06-2.5	K2310181-020	Pesticides	2,4'-DDD	1	µg/kg	U	UJ	CCV %D below CL
			2,4'-DDE	1	µg/kg	U	UJ	
			2,4'-DDT	1	µg/kg	U	UJ	
AOC4-02-2.5	K2310183-009	Pesticides	4,4'-DDE	0.41	µg/kg	JP	J	Dual column RPD value above CL
AOC1-03-2.0	K2310183-012	Pesticides	2,4'-DDT	130	µg/kg	UI,Ui	UJ	CCV %D below CL
AOC1-04-2.0	K2310183-014	Pesticides	2,4'-DDT	42	µg/kg	UI,Ui	UJ	CCV %D below CL
AOC1-04-4.0	K2310183-015	Pesticides	4,4'-DDT	1.3	µg/kg	JP	J	Dual column RPD value above CL
			trans-Chlordane	19	µg/kg	P	J	
AOC2-02-2.0	K2310183-019	Pesticides	4,4'-DDT	1.3	µg/kg	JP	J	Dual column RPD value above CL
AOC2-03-2.0	K2310188-001	Pesticides	2,4'-DDT	1.1	µg/kg	U	UJ	CCV below CL
AOC2-03-4.0	K2310188-002	Pesticides	2,4'-DDT	1.1	µg/kg	U	UJ	CCV below CL
AOC2-04-3.0	K2310188-004	Pesticides	2,4'-DDT	1.2	µg/kg	U	UJ	CCV below CL
AOC2-05-3.0	K2310188-006	Pesticides	2,4'-DDT	1	µg/kg	U	UJ	CCV below CL
AOC2-05-6.0	K2310188-007	Pesticides	2,4'-DDT	1	µg/kg	U	UJ	CCV below CL
AOC2-105-3.0	K2310188-009	Pesticides	2,4'-DDT	1	µg/kg	U	UJ	CCV below CL
AOC2-06-2.0	K2310188-010	Pesticides	2,4'-DDT	1	µg/kg	U	UJ	CCV below CL
AOC2-07-2.0	K2310188-012	Pesticides	2,4'-DDT	1	µg/kg	U	UJ	CCV below CL
AOC2-08-2.0	K2310188-014	Pesticides	2,4'-DDD	1.1	µg/kg	U	UJ	Surrogate %R below CL
			2,4'-DDE	1.1	µg/kg	U	UJ	
			4,4'-DDD	2.1	µg/kg	U	UJ	
			Aldrin	2.1	µg/kg	U	UJ	
			cis-Nonachlor	1.1	µg/kg	U	UJ	
			Oxychlordane	1.1	µg/kg	U	UJ	
AOC2-08-4.0	K2310188-015	Pesticides	2,4'-DDT	1	µg/kg	U	UJ	CCV below CL
AOC3-01-2.0	K2310188-018	Pesticides	2,4'-DDT	1.1	µg/kg	U	UJ	CCV below CL
			Dieldrin	18	µg/kg	P	J	Dual column RPD value above CL
			trans-Nonachlor	1.2	µg/kg	JP	J	
AOC1-03-4.0	K2312104-001	Pesticides	Dieldrin	120	µg/kg	E,*	DNR	More appropriate result available from another dilution
			Toxaphene	3,000	µg/kg	*	DNR	

Abbreviations:

CCV	Continuing calibration verification	DNR	Do not report
CL	Control limit	µg/kg	Micrograms per kilogram
DDD	Dichlorodiphenyldichloroethane	mg/kg	Milligrams per kilogram
DDE	Dichlorodiphenyldichlorethylene	RPD	Relative percent difference
DDT	Dichlorodiphenyltrichloroethane		

DATA VALIDATION REPORT

SMITH-KEM PRE-REMEDIAL DESIGN INVESTIGATION
DIOXIN SOIL SAMPLING

Prepared for:

Floyd | Snider
601 Union Street, Suite 600
Seattle, WA 98101

Prepared by:

EcoChem, Inc.
500 Union Street, Suite 1010
Seattle, WA 98101

EcoChem Project: C15223-8

January 23, 2024

Approved for Release:

Christine Ransom
Senior Project Chemist
EcoChem, Inc.

PROJECT NARRATIVE

Basis for the Data Validation

This report summarizes the results of data validation performed on soil and quality control (QC) sample data for the Smith-Kem Pre-RDI Dioxin Soil Sampling. The data received full validation (EPA Stage 4). A complete list of samples is provided in the Sample Index.

Samples were analyzed by analytical Resources, Inc., Tukwila Washington. The analytical method and EcoChem project chemists are listed in the table below.

ANALYSIS	METHOD	PRIMARY REVIEW	SECONDARY REVIEW
Dioxins	EPA 1613B	A. Bodkin	C. Ransom

The data were reviewed using guidance and quality control criteria documented in the analytical methods; *Pre-Remedial Design Investigation Work Plan* (Floyd Snider, June 2023); *National Functional Guidelines for High Resolution Superfund Methods Data Review* (USEPA 2016); and *National Functional Guidelines for High Resolution Superfund Methods Data Review* (USEPA 2020).

EcoChem's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are estimated (J or UJ), data may be used for site evaluation and risk assessment purposes but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R or DNR, the data should not be used for any site evaluation purposes. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the documents and methods referenced above.

Data qualifier definitions, reason codes, and validation criteria are included as Appendix A. A Qualified Data Summary Table is included in Appendix B. Data Validation Worksheets will be kept on file at EcoChem, Inc. A qualified laboratory electronic data deliverable (EDD) is also submitted with this report.

Sample Index
Smith-Kem Pre-RDI Dioxin Soil Sampling

SDG	SAMPLE ID	LAB ID	1613B Dioxins
23I0156	AOC3-03-0.5-1.0	23I0156-05	✓
23I0156	AOC3-103-0.5-1.0	23I0156-06	✓
23I0156	AOC3-04-0.5-1.0	23I0156-08	✓
23I0156	AOC3-05-0.5-1.0	23I0156-10	✓

DATA VALIDATION REPORT
Smith Kem – Pre-RDI Dioxin Soil Sampling
Dioxin/Furan Compounds by Method 1613B

This report documents the review of analytical data from the analysis of soil samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Analytical Resources, LLC, Tukwila, Washington. Refer to the SAMPLE INDEX for a complete list of samples.

SDG	NUMBER OF SAMPLES	VALIDATION LEVEL
23I0156	4 Soil	EPA Stage 4

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

EDD TO HARDCOPY VERIFICATION

Sample results and related quality control data were received as an electronic data deliverable (EDD) and laboratory report. The EDD was verified against the laboratory report (10%). No errors were noted.

TECHNICAL DATA VALIDATION

The quality control (QC) requirements reviewed are summarized in the following table:

✓	Sample Receipt, Preservation, and Holding Times	1	Matrix Spike/Matrix Spike Duplicates (MS/MSD)
✓	System Performance and Resolution Checks	2	Field Duplicates
✓	Initial Calibration (ICAL)	✓	Target Analyte List
1	Calibration Verification	✓	Reported Results
1	Blanks (Laboratory and Field)	2	Compound Identification
✓	Labeled Compounds	2	Compound Quantification
✓	Ongoing Precision and Recovery (OPR)	1	Calculation Verification

✓ ***Stated method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed.***
1 ***Quality control results are discussed below, but no data were qualified.***
2 ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

Calibration Verification

The percent difference (%D) value for one or more labeled compound was outside the control limit in each calibration verification standard. All %D values for the native compounds were within control limits. No action was taken.

Blanks

In order to assess the impact of blank contamination on the reported sample results, action levels were established at 2x and 5x the concentration in the method blank. The following table lists the decision process for qualification of results:

SAMPLE RESULT	QUALIFIER
< Reporting Limit	U-7 < 5x Action Level
> Reporting Limit	U-7 < 2x Action Level
	J-7H between 2x and 5x Action Level

The laboratory assigned an "EMPC" flag to an analyte result when a peak was detected but did not meet identification criteria; these are "estimated maximum potential concentrations". These values are considered positive results for blank evaluation. Blank qualifiers are not assigned to homolog groups.

There were positive results for 1,2,3,4,6,7,8-HpCDD, 1,2,3,4,6,7,8-HpCDF, OCDD, and OCDF in the method blank. All positive results for these compounds in the associated samples were greater than the 5x action level. No qualifiers were assigned.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate analyses were not performed; they are not required by the method. Accuracy was evaluated using the labeled compound and ongoing precision and recovery (OPR) standard results. Precision was evaluated using the field duplicate analyses.

Field Duplicates

The Work Plan specified relative percent difference (RPD) control limit is 75% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the difference between the sample and duplicate must be less than 2x the RL. For RPD or difference outliers, the results in the parent sample and field duplicate were estimated (J-9).

Samples AOC3-03-05-1.0 and AOC3-103-0.5-1.0 were submitted as field duplicates. The following outliers were noted:

COMPOUND	RPD OUTLIER (%)	QUALIFIER
2,3,7,8-TCDD	75.7	J-9
1,2,3,4,6,7,8-HpCDF	85.6	J-9
OCDF	109.6	J-9
Total PeCDD	88.4	J-9
Total HxCDD	90.2	J-9
Total HpCDF	99.3	J-9

Compound Identification

The method requires the confirmation of 2,3,7,8-TCDF using an alternate GC column if the primary column does not fully separate 2,3,7,8-TCDF from closely eluting non-target TCDF isomers. The laboratory uses an RTX-Dioxin2 column, which adequately resolved the TCDF isomers; no confirmation was necessary.

The laboratory assigned an "EMPC" flag when the ion ratio did not meet the compound identification criterion. This indicates a potential matrix interference and that the result is an "estimated maximum potential concentration". These "EMPC" flagged results were estimated (J-25) at the reported concentration.

Compound Quantification

Chlorinated diphenyl ether (CDPE) interferences were noted for 2,3,7,8-TCDF. The lab flagged these results with an "X". The results exhibited interference were estimated (J-23H) to indicate a potential high bias.

Calculation Verification

Several results were verified by recalculation from the raw data. No calculation or transcription errors were found.

OVERALL ASSESSMENT

As determined by this evaluation, the laboratory followed the specified analytical method. With the noted exceptions, accuracy was acceptable as demonstrated by the labeled compound and OPR recoveries and precision was acceptable as demonstrated by the field duplicate RPD values.

Results were estimated based on ion ratio outliers, CDPE interference, and field duplicate precision outliers.

All data, as qualified, are acceptable for use.

ECOCHEM
Data Quality

APPENDIX A

DATA QUALIFIER DEFINITIONS
REASON CODES
AND CRITERIA TABLES

DATA VALIDATION QUALIFIER CODES
Based on National Functional Guidelines

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents the approximate concentration.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

The following is an EcoChem qualifier that may also be assigned during the data review process:

DNR	Do not report; a more appropriate result is reported from another analysis or dilution.

DATA QUALIFIER REASON CODES

Group	Code	Reason for Qualification
Sample Handling	1	Improper Sample Handling or Sample Preservation (i.e., headspace, cooler temperature, pH, summa canister pressure); Exceeded Holding Times
Instrument Performance	24	Instrument Performance (i.e., tune, resolution, retention time window, endrin breakdown, lock-mass)
	5A	Initial Calibration (RF, %RSD, r^2)
	5B	Calibration Verification (CCV, CCAL; RF, %D, %R) Use bias flags (H,L)[1] where appropriate
	5C	Initial Calibration Verification (ICV %D, %R) Use bias flags (H,L)[1] where appropriate
Blank Contamination	6	Field Blank Contamination (Equipment Rinsate, Trip Blank, etc.)
	7	Lab Blank Contamination (i.e., method blank, instrument blank, etc.) Use low bias flag (L)[1] for negative instrument blanks
Precision and Accuracy	8	Matrix Spike (MS and/or MSD) Recoveries Use bias flags (H,L)[1] where appropriate
	9	Precision (all replicates: LCS/LCSD, MS/MSD, Lab Replicate, Field Replicate)
	10	Laboratory Control Sample Recoveries (a.k.a. Blank Spikes) Use bias flags (H,L)[1] where appropriate
	12	Reference Material Use bias flags (H,L)[1] where appropriate
	13	Surrogate Spike Recoveries (a.k.a. labeled compounds, recovery standards) Use bias flags (H,L)[1] where appropriate
Interferences	16	ICP/ICP-MS Serial Dilution Percent Difference
	17	ICP/ICP-MS Interference Check Standard Recovery Use bias flags (H,L)[1] where appropriate
	19	Internal Standard Performance (i.e., area, retention time, recovery)
	22	Elevated Detection Limit due to Interference (i.e., chemical and/or matrix)
	23	Bias from Matrix Interference (i.e. diphenyl ether, PCB/pesticides)
Identification and Quantitation	2	Chromatographic pattern in sample does not match pattern of calibration standard
	3	2nd column confirmation (RPD or %D)
	4	Tentatively Identified Compound (TIC) (associated with NJ only)
	20	Calibration Range or Linear Range Exceeded
	25	Compound Identification (i.e., ion ratio, retention time, relative abundance, etc.)
Miscellaneous	11	A more appropriate result is reported (multiple reported analyses i.e., dilutions, re-extractions, etc. Associated with "R" and "DNR" only)
	14	Other (See DV report for details)
	26	Method QC information not provided

[1] H = high bias indicated
L = low bias indicated

Draft Dioxin/Furan Analysis by HRMS
(Based on Dioxin NFG 2016, 2020 and Methods EPA 1613B and SW-846 8290)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling					
Cooler/Storage Temperature Preservation	Waters/Solids ≤ 6°C & in the dark Tissues <-10°C & in the dark **Preservation Aqueous:** If Cl_2 is present Thiosulfate must be added and if pH > 9 it must be adjusted to 7 - 9	NFG [1] Method[2,3]	J(pos)/R(ND) if thiosulfate not added if Cl_2 present; J(pos)/UJ(ND) if pH not adjusted J(pos)/UJ(ND) if temp > 20°C	1	**EcoChem PJ, see TM-05**
Holding Time	**If properly stored, 1 year or:** **Extraction (all matrices):** 30 days from collection **Analysis (all matrices)**: 45 days from extraction	NFG [1] Method[2,3]	If not properly stored or HT exceedance: J(pos)/UJ(ND)	1	**EcoChem PJ, see TM-05** Gross exceedance = > 1 year 2011 NFG **Note:** Under CWA, SDWA, and RCRA the HT for H2O is 7 days.
Instrument Performance					
Mass Resolution (PFK)(Tuning)	PFK (Perfluorokerosene) Analyzed prior to ICAL and at the beginning and end of each 12 hr. shift. ≥10,000 resolving power at m/z low and high mass (e.g. 304.9824 and 380.9760) Lock-mass for each descriptot w/in 5 ppm of theoretical value	NFG [1] Method [2,3]	R(pos/ND) all analytes in all samples associated with the tune	24	Notify PM
Windows Defining Mix (WDM)	Peaks for first and last eluters must be within established retention time windows for each selector group (chlorination level)	NFG [1] Method [2,3]	If peaks are not completely within windows (clipped): If natives are ok, J(pos)/UJ(ND) homologs (Totals) If natives are affected, R all results for that selector group	24	Notify PM

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Draft Dioxin/Furan Analysis by HRMS
(Based on Dioxin NFG 2016, 2020 and Methods EPA 1613B and SW-846 8290)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
AND Isomer Specificity Check (ISC)	Both mixes must be analyzed before ICAL and CCAL Valley < 25% (valley = (x/y)*100%) where x = ht. of TCDD (or TCDF) & y = baseline to bottom of valley For all isomers eluting near the 2378-TCDD (TCDF) peak (TCDD only for 8290)	NFG [1] Method [2,3]	J(pos) if valley > 25%	24	**EcoChem PJ, see TM-05, Rev. 2**; Note: TCDF is evaluated only if second column confirmation is performed
OR Column Performance Solution (CPS) (combined WDM and ISC)	Peaks for first and last eluters must be within established retention time windows for each selector group (chlorination level) Both mixes must be analyzed before ICAL and CCAL Valley < 25% (valley = (x/y)*100%) where x = ht. of TCDD (or TCDF) & y = baseline to bottom of valley For all isomers eluting near the 2378-TCDD (TCDF) peak (TCDD only for 8290)	NFG [1] Method [2,3]	If peaks are not completely within windows (clipped): If natives are ok, J(pos)/UJ(ND) homologs (Totals) If natives are affected, R all results for that selector group J(pos) if valley > 25%	24	**Notify PM** **EcoChem PJ, see TM-05, Rev. 2**; Note: TCDF is evaluated only if second column confirmation is performed
Initial Calibration **Sensitivity**	S/N ratio > 10 for all native and labeled compounds in CS1 std.	NFG [1] Method [2,3]	If <10, elevate Det. Limit or R(ND)	5A	
Initial Calibration **Selectivity**	Ion Abundance ratios within QC limits (Table 8 of method 8290) (Table 9 of method 1613B)	NFG [1] Method [2,3]	If 2 or more ion ratios are out for one compound in ICAL, J(pos)	5A	**EcoChem PJ, see TM-05, Rev. 2**
Initial Calibration (Minimum 5 stds.) **Stability**	%RSD < 20% for native compounds %RSD <30% for labeled compounds (%RSD < 35% for labeled compounds under 1613b)	NFG [1] Method [2,3]	J(pos) natives if %RSD > 20%	5A	
	Absolute RT of $^{13}C_{12}$-1234-TCDD >25 min on DB5 & >15 min on DB-225	NFG [1] Method [2,3]	Narrate, no action		**EcoChem PJ, see TM-05, Rev. 2**

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QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Continuing Calibration (Prior to each 12 hr. shift) **Sensitivity**	S/N ratio for CS3 standard > 10	NFG [1] Method [2,3]	If <10, elevate Det. Limit or R(ND)	5B	
Continuing Calibration (Prior to each 12 hr. shift) **Selectivity**	Ion Abundance ratios within QC limits (Table 8 of method 8290) (Tables 8 and 9 of method 1613B)	NFG [1] Method [2,3]	For congener with ion ratio outlier, J(pos) natives in all samples associated with CCAL. No action for labeled congener ion ratio outliers.	25	**EcoChem PJ, see TM-05**
Continuing Calibration (Prior to each 12 hr. shift) **Stability**	%D+/-20% for native compounds %D +/-30% for labeled compounds **(Must meet limits in Table 6, Method 1613B)** If %D in the closing CCAL are within 25%/35%, the mean RF from the two CCAL may be used to calculate samples **(Section 8.3.2.4 of 8290**).	NFG [1] Method [2,3]	**Labeled compounds:** Narrate, no action. **Native compounds:** 1613: J(pos)/UJ(ND)if %D is outside Table 6 limits J(pos)/R(ND) if %D is +/-75% of Table 6 limits 8290: J(pos)/UJ(ND) if %D = 20% - 75% J(pos)/R(ND) if %D > 75%	5B (H,L)[4]	
	Absolute RT of $^{13}C_{12}$-1234-TCDD and $^{13}C_{12}$-123789-HxCDD should be +/- 15 seconds of ICAL RRT for all other compounds must meet criteria listed in Table 2 Method 1316.	NFG [1] Method [2,3]	Narrate, no action	5B	**EcoChem PJ, see TM-05**
Blank Contamination					
Method Blank (MB)	MB: One per matrix per batch of (of ≤ 20 samples) No detected compounds > RL	NFG [1] Method [2,3]	U(pos) if result is < 5X action level.	7	**Hierarchy of blank review:** **#1 - Review MB, qualify as needed** **#2 - Review FB , qualify as needed**
Field Blank (FB)	FB: frequency as per QAPP No detected compounds > RL		U(pos) if result is < 5X action level.	6	

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QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Precision and Accuracy					
MS/MSD (recovery)	**MS/MSD not typically required for HRMS analyses.** If lab analyzes MS/MSD then one set per matrix per batch (of ≤ 20 samples) Use most current laboratory control limits	EcoChem standard policy	J(pos) if both %R > UCL - high bias J(pos)/UJ(ND) if both %R < LCL - low bias J(pos)/R(ND) if both %R < 10% - very low bias J(pos)/UJ(ND) if one > UCL & one < LCL, with no bias **PJ if only one %R outlier**	8 (H,L)[4]	No action if only one spike %R is outside criteria. No action if parent concentration is >4x the amount spiked. Qualify parent sample only unless other QC indicates systematic problems.
MS/MSD (RPD)	**MS/MSD not typically required for HRMS analyses.** If lab analyzes MS/MSD then one set per matrix per batch (of ≤ 20 samples) Use most current laboratory control limits	EcoChem standard policy	J(pos) in parent sample if RPD > CL	9	Qualify parent sample only.
LCS (or OPR)	One per lab batch (of ≤ 20 samples) Use most current laboratory control limits **or** Limits from Table 6 of 1613B	NFG (1) Method (2,3)	J(pos) if %R > UCL - high bias J(pos)/UJ(ND) if %R < LCL - low bias J(pos)/R(ND) if %R < 10% - very low bias	10 (H,L)[4]	No action if only one spike %R is outside criteria, when LCSD is analyzed. Qualify all associated samples.
LCS/LCSD (RPD)	**LCSD not typically required for HRMS analyses.** One set per matrix and batch of 20 samples RPD < 35%	Method (2,3) Ecochem standard policy	J(pos) assoc. compound in all samples if RPD > CL	9	Qualify all associated samples.
Lab Duplicate (RPD)	**Lab Dup not typically required for HRMS analyses.** One per lab batch (of ≤ 20 samples) Use most current laboratory control limits	EcoChem standard policy	J(pos)/UJ(ND) if RPD > CL	9	
Precision and Accuracy (continued)					
Labeled Compounds (Internal Standards and cleanup standards)	Added to all samples %R = 40% - 135% in all samples 8290 %R must meet limits in Table 7 Method 1613B	NFG (1) Method (2,3)	J(pos) if %R > UCL - high bias J(pos)/UJ(ND) if %R < LCL - low bias J(pos)/R(ND) if %R < 10% - very low bias	13 (H,L)[4]	
	Ion Abundance Ratio Method 1613B: Table 8 (required m/z to monitor) Table 9 (QC limits) Method 8290A: Table 8				

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QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Field Duplicates	Solids: RPD <50% OR difference < 2X RL (for results < 5X RL) Aqueous: RPD <35% OR difference < 1X RL (for results < 5X RL)	EcoChem standard policy and default criteria	Narrate and qualify (J/UJ) if required by project	9	**QAPP may have other specified control limits Control limit for this project is 75%**
Compound ID and Calculation					
Quantitation/ Identification	All ions for each isomer must maximize within +/- 2 seconds. S/N ratio >2.5 Ion ratios must meet criteria listed in Table 8 Method 8290, or Table 9 of 1613B; RRTs w/in limits in Table 2 of 1613B	NFG (1) Method (2,3)	Narrate in report; qualify if necessary U(pos) for retention time outliers. J(pos) for ion ratio outliers.	25	**EcoChem PJ, see TM-05**
EMPC (estimated maximum possible concentration)	If quantitation identification criteria are not met, laboratory should report an EMPC value.	NFG (1) Method (2,3)	If laboratory correctly reported an EMPC value, qualify the native compound J(pos) to indicate that the value is a detection limit and qualify total homolog groups J (pos)	25	**Projec SAP/QAPP may require EMPCS to be considered ND; in that csae U-25 natives, J-25 Totals professional judgment See TM-18**
Interferences	Interferences from chlorodiphenyl ether compounds	NFG (1) Method (2,3)	J(pos)/UJ(ND) if present	23	**See TM-16**
	Lock masses must not deviate +/- 20% from values in Table 8 of 1613B	Method (2,3)	J(pos)/UJ(ND) if present	24	**See TM-17**
Second Column Confirmation	All 2,3,7,8-TCDF hits must be confirmed on a DB-225 (or equiv) column. All QC criteria must also be met for the confirmation analysis.	NFG (1) Method (2,3)	Report the DB-225 value. If not performed use PJ.		DNR-11 DB5 result if both results from both columns are reported. **EcoChem PJ, see TM-05**

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Draft Dioxin/Furan Analysis by HRMS
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QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Calculation Check	Check 10% of field & QC sample results	EcoChem standard policy	Contact laboratory for resolution and/or corrective action	na	Full data validation only.
Electronic Data Deliverable (EDD)					
Verification of EDD to hardcopy data	EcoChem verify @ 10% unless problems noted; then increase level up to 100% for next several packages.		Depending on scope of problem, correct at EcoChem (minor issues) to resubmittal by laboratory (major issues).	na	EcoChem Project Manager and/or Database Administrator will work with lab to provide long-term corrective action.
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte	Standard reporting policy	Use "DNR" to flag results that will not be reported.	11	

(pos) - positive (detected) results; (ND) - not detected results

[1] National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins (CDDs) & Chlorinated Dibenzofurans (CDFs) Data Review, September 2011
National Functional Guidelines for High Resolution Superfunds Methods Data Review, April 2016
National Functional Guidelines for High Resolution Superfunds Methods Data Review, November 2020

[2] Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), USEPA SW-846, Method 8290

[2] EPA Method 1613, Rev.B, Tetra-through Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGS/HRMS, October 1994

[3] NFG suggests using "+ / -" to indicate bias; EcoChem has chosen "H" = high bias indicated; "L" = low bias indicated.

[4] SICPs = Selected Ion Current Profiles

[5] x = height from valley of least resolved adjacent isomer to baseline; y = peak height of the shorter fo the adjacent peaks

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Data Quality

APPENDIX B

QUALIFIED DATA SUMMARY TABLE

Qualified Data Summary Table
Smith-Kem Pre-RDI Dioxin Soil Sampling

SAMPLE ID	LAB ID	METHOD	ANALYTE	RESULT	UNITS	LAB QUAL	DV QUAL	DV CODE
AOC3-03-0.5-1.0	23I0156-05	EPA 1613B	2,3,7,8-TCDF	19.9	ng/kg dry	EMPC, X	J	23H,25
AOC3-03-0.5-1.0	23I0156-05	EPA 1613B	2,3,7,8-TCDD	57	ng/kg dry		J	9
AOC3-03-0.5-1.0	23I0156-05	EPA 1613B	1,2,3,7,8-PeCDD	2.12	ng/kg dry	EMPC	J	25
AOC3-03-0.5-1.0	23I0156-05	EPA 1613B	1,2,3,7,8,9-HxCDF	3.49	ng/kg dry	EMPC	J	25
AOC3-03-0.5-1.0	23I0156-05	EPA 1613B	1,2,3,4,6,7,8-HpCDF	53.4	ng/kg dry	B	J	9
AOC3-03-0.5-1.0	23I0156-05	EPA 1613B	OCDF	162	ng/kg dry	B	J	9
AOC3-03-0.5-1.0	23I0156-05	EPA 1613B	Total PeCDD	17.3	ng/kg dry		J	9
AOC3-03-0.5-1.0	23I0156-05	EPA 1613B	Total HxCDD	40.5	ng/kg dry		J	9
AOC3-03-0.5-1.0	23I0156-05	EPA 1613B	Total HpCDF	172	ng/kg dry		J	9
AOC3-04-0.5-1.0	23I0156-08	EPA 1613B	2,3,7,8-TCDF	77.1	ng/kg dry	EMPC, X	J	23H,25
AOC3-04-0.5-1.0	23I0156-08	EPA 1613B	1,2,3,7,8,9-HxCDD	2.82	ng/kg dry	EMPC	J	25
AOC3-04-0.5-1.0	23I0156-08	EPA 1613B	1,2,3,4,6,7,8-HpCDF	41.2	ng/kg dry	EMPC, B	J	25
AOC3-05-0.5-1.0	23I0156-10	EPA 1613B	2,3,7,8-TCDF	64.6	ng/kg dry	EMPC, X	J	23H,25
AOC3-103-0.5-1.0	23I0156-06	EPA 1613B	2,3,7,8-TCDD	25.7	ng/kg dry		J	9
AOC3-103-0.5-1.0	23I0156-06	EPA 1613B	2,3,7,8-TCDF	29.4	ng/kg dry	X	J	23H,25
AOC3-103-0.5-1.0	23I0156-06	EPA 1613B	1,2,3,4,7,8-HxCDD	0.816	ng/kg dry	EMPC, J	J	25
AOC3-103-0.5-1.0	23I0156-06	EPA 1613B	1,2,3,4,6,7,8-HpCDF	21.4	ng/kg dry	B	J	9
AOC3-103-0.5-1.0	23I0156-06	EPA 1613B	OCDF	47.3	ng/kg dry	B	J	9
AOC3-103-0.5-1.0	23I0156-06	EPA 1613B	Total PeCDD	44.7	ng/kg dry		J	9
AOC3-103-0.5-1.0	23I0156-06	EPA 1613B	Total HxCDD	107	ng/kg dry		J	9
AOC3-103-0.5-1.0	23I0156-06	EPA 1613B	Total HpCDF	57.9	ng/kg dry		J	9

DATA VALIDATION REPORT

SMITH-KEM PRE-REMEDIAL DESIGN INVESTIGATION
DIOXIN SOIL SAMPLING

Prepared for:

Floyd | Snider
601 Union Street, Suite 600
Seattle, WA 98101

Prepared by:

EcoChem, Inc.
500 Union Street, Suite 1010
Seattle, WA 98101

EcoChem Project: C15223-8

April 1, 2024

Approved for Release:

Christine Ransom
Senior Project Chemist
EcoChem, Inc.

PROJECT NARRATIVE

Basis for the Data Validation

This report summarizes the results of data validation performed on one archive soil sample and quality control (QC) sample data for the Smith-Kem Pre-RDI Dioxin Soil Sampling. The data received full validation (EPA Stage 4). A complete list of samples is provided in the Sample Index.

Samples were analyzed by analytical Resources, Inc., Tukwila Washington. The analytical method and EcoChem project chemists are listed in the table below.

ANALYSIS	METHOD	PRIMARY REVIEW	SECONDARY REVIEW
Dioxins	EPA 1613B	A. Bodkin	C. Ransom

The data were reviewed using guidance and quality control criteria documented in the analytical methods; *Pre-Remedial Design Investigation Work Plan* (Floyd Snider, June 2023); *National Functional Guidelines for High Resolution Superfund Methods Data Review* (USEPA 2016); and *National Functional Guidelines for High Resolution Superfund Methods Data Review* (USEPA 2020).

EcoChem's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are estimated (J or UJ), data may be used for site evaluation and risk assessment purposes but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R or DNR, the data should not be used for any site evaluation purposes. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the documents and methods referenced above.

Data qualifier definitions, reason codes, and validation criteria are included as Appendix A. A Qualified Data Summary Table is included in Appendix B. Data Validation Worksheets will be kept on file at EcoChem, Inc. A qualified laboratory electronic data deliverable (EDD) is also submitted with this report.

Sample Index
Smith-Kem Dioxin Soil Sampling

SDG	SAMPLE ID	LAB ID	1613B Dioxins
23I0156 rev2	H4H-05-0.5-1.0	23I0156-20	✓

DATA VALIDATION REPORT
Smith Kem – Soil Sampling
Dioxin/Furan Compounds by Method 1613B

This report documents the review of analytical data from the analysis of soil samples and the associated laboratory quality control (QC) samples. Samples were analyzed by Analytical Resources, LLC, Tukwila, Washington. Refer to the SAMPLE INDEX for a complete list of samples.

SDG	NUMBER OF SAMPLES	VALIDATION LEVEL
23I0156 rev2	1 Soil	EPA Stage 4

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

EDD TO HARDCOPY VERIFICATION

Sample results and related quality control data were received as an electronic data deliverable (EDD) and laboratory report. The EDD was verified against the laboratory report (10%). No errors were noted.

TECHNICAL DATA VALIDATION

The quality control (QC) requirements reviewed are summarized in the following table:

✓	Sample Receipt, Preservation, and Holding Times	2	Laboratory Duplicate
✓	System Performance and Resolution Checks	1	Field Duplicates
✓	Initial Calibration (ICAL)	✓	Target Analyte List
✓	Calibration Verification	✓	Reported Results
1	Blanks (Laboratory and Field)	2	Compound Identification
✓	Labeled Compounds	2	Compound Quantification
✓	Ongoing Precision and Recovery (OPR)	1	Calculation Verification
1	Matrix Spike/Matrix Spike Duplicates (MS/MSD)		

✓ ***Stated method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed.***
1 ***Quality control results are discussed below, but no data were qualified.***
2 ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

Blanks

In order to assess the impact of blank contamination on the reported sample results, action levels were established at 2x and 5x the concentration in the method blank. The following table lists the decision process for qualification of results:

SAMPLE RESULT	QUALIFIER
< Reporting Limit	U-7 < 5x Action Level
> Reporting Limit	U-7 < 2x Action Level
	J-7H between 2x and 5x Action Level

The laboratory assigned an "EMPC" flag to an analyte result when a peak was detected but did not meet identification criteria; these are "estimated maximum potential concentrations". These values are considered positive results for blank evaluation. Blank qualifiers are not assigned to homolog groups.

There was a positive result for OCDD in the method blank. The OCDD result in the field sample was greater than the 5x action level. No action was taken.

No field blanks were submitted.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate analyses were not performed; they are not required by the method. Accuracy was evaluated using the labeled compound and ongoing precision and recovery (OPR) standard results. Precision was evaluated using the laboratory duplicate analyses.

Laboratory Duplicates

A laboratory duplicate was performed using Sample H4H-05-0.5-1.0. The relative percent difference (RPD) values for 2,3,4,6,7,8-HxCDF and Total PeCDD were greater than the control limit; results in the parent sample were estimated (J-9A).

Field Duplicates

No field duplicates were included in this SDG.

Compound Identification

The method requires the confirmation of 2,3,7,8-TCDF using an alternate GC column if the primary column does not fully separate 2,3,7,8-TCDF from closely eluting non-target TCDF isomers. The laboratory uses an RTX-Dioxin2 column, which adequately resolved the TCDF isomers; no confirmation was necessary.

The laboratory assigned an "EMPC" flag when the ion ratio did not meet the compound identification criterion. This indicates a potential matrix interference and that the result is an "estimated maximum potential concentration". These "EMPC" flagged results were estimated (J-25) at the reported concentration.

Compound Quantification

A diphenyl ether (CDPE) interference was noted for 2,3,7,8-TCDF in Sample H4H-05-0.5-1.0. The lab flagged these results with an "X". The 2,3,7,8-TCDF result was estimated (J-23H) to indicate a potential high bias.

Calculation Verification

Several results were verified by recalculation from the raw data. No calculation or transcription errors were found.

OVERALL ASSESSMENT

As determined by this evaluation, the laboratory followed the specified analytical method. With the noted exceptions, accuracy was acceptable as demonstrated by the labeled compound and OPR recoveries, and precision was acceptable as demonstrated by the laboratory duplicate RPD values.

Results were estimated based on ion ratio outliers, CDPE interference, and laboratory duplicate precision outliers.

All data, as qualified, are acceptable for use.

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Data Quality

APPENDIX A

DATA QUALIFIER DEFINITIONS
REASON CODES
AND CRITERIA TABLES

DATA VALIDATION QUALIFIER CODES
Based on National Functional Guidelines

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents the approximate concentration.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

The following is an EcoChem qualifier that may also be assigned during the data review process:

DNR	Do not report; a more appropriate result is reported from another analysis or dilution.

DATA QUALIFIER REASON CODES

Group	Code	Reason for Qualification
Sample Handling	1	Improper Sample Handling or Sample Preservation (i.e., headspace, cooler temperature, pH, summa canister pressure); Exceeded Holding Times
Instrument Performance	24	Instrument Performance (i.e., tune, resolution, retention time window, endrin breakdown, lock-mass)
	5A	Initial Calibration (RF, %RSD, r^2)
	5B	Calibration Verification (CCV, CCAL; RF, %D, %R) Use bias flags (H,L)[1] where appropriate
	5C	Initial Calibration Verification (ICV %D, %R) Use bias flags (H,L)[1] where appropriate
Blank Contamination	6	Field Blank Contamination (Equipment Rinsate, Trip Blank, etc.)
	7	Lab Blank Contamination (i.e., method blank, instrument blank, etc.) Use low bias flag (L)[1] for negative instrument blanks
Precision and Accuracy	8	Matrix Spike (MS and/or MSD) Recoveries Use bias flags (H,L)[1] where appropriate
	9	Precision (all replicates: LCS/LCSD, MS/MSD, Lab Replicate, Field Replicate)
	10	Laboratory Control Sample Recoveries (a.k.a. Blank Spikes) Use bias flags (H,L)[1] where appropriate
	12	Reference Material Use bias flags (H,L)[1] where appropriate
	13	Surrogate Spike Recoveries (a.k.a. labeled compounds, recovery standards) Use bias flags (H,L)[1] where appropriate
Interferences	16	ICP/ICP-MS Serial Dilution Percent Difference
	17	ICP/ICP-MS Interference Check Standard Recovery Use bias flags (H,L)[1] where appropriate
	19	Internal Standard Performance (i.e., area, retention time, recovery)
	22	Elevated Detection Limit due to Interference (i.e., chemical and/or matrix)
	23	Bias from Matrix Interference (i.e. diphenyl ether, PCB/pesticides)
Identification and Quantitation	2	Chromatographic pattern in sample does not match pattern of calibration standard
	3	2nd column confirmation (RPD or %D)
	4	Tentatively Identified Compound (TIC) (associated with NJ only)
	20	Calibration Range or Linear Range Exceeded
	25	Compound Identification (i.e., ion ratio, retention time, relative abundance, etc.)
Miscellaneous	11	A more appropriate result is reported (multiple reported analyses i.e., dilutions, re-extractions, etc. Associated with "R" and "DNR" only)
	14	Other (See DV report for details)
	26	Method QC information not provided

[1] H = high bias indicated
L = low bias indicated

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QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling					
Cooler/Storage Temperature Preservation	Waters/Solids ≤ 6°C & in the dark Tissues <-10°C & in the dark **Preservation Aqueous:** If Cl_2 is present Thiosulfate must be added and if pH > 9 it must be adjusted to 7 - 9	NFG [1] Method[2,3]	J(pos)/R(ND) if thiosulfate not added if Cl_2 present; J(pos)/UJ(ND) if pH not adjusted J(pos)/UJ(ND) if temp > 20°C	1	**EcoChem PJ, see TM-05**
Holding Time	**If properly stored, 1 year or:** **Extraction (all matrices):** 30 days from collection **Analysis (all matrices)**: 45 days from extraction	NFG [1] Method[2,3]	If not properly stored or HT exceedance: J(pos)/UJ(ND)	1	**EcoChem PJ, see TM-05** Gross exceedance = > 1 year 2011 NFG **Note:** Under CWA, SDWA, and RCRA the HT for H2O is 7 days.
Instrument Performance					
Mass Resolution (PFK)(Tuning)	PFK (Perfluorokerosene) Analyzed prior to ICAL and at the beginning and end of each 12 hr. shift. ≥10,000 resolving power at m/z low and high mass (e.g. 304.9824 and 380.9760) Lock-mass for each descriptot w/in 5 ppm of theoretical value	NFG [1] Method [2,3]	R(pos/ND) all analytes in all samples associated with the tune	24	Notify PM
Windows Defining Mix (WDM)	Peaks for first and last eluters must be within established retention time windows for each selector group (chlorination level)	NFG [1] Method [2,3]	If peaks are not completely within windows (clipped): If natives are ok, J(pos)/UJ(ND) homologs (Totals) If natives are affected, R all results for that selector group	24	Notify PM

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(Based on Dioxin NFG 2016, 2020 and Methods EPA 1613B and SW-846 8290)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
AND Isomer Specificity Check (ISC)	Both mixes must be analyzed before ICAL and CCAL Valley < 25% (valley = (x/y)*100%) where x = ht. of TCDD (or TCDF) & y = baseline to bottom of valley For all isomers eluting near the 2378-TCDD (TCDF) peak (TCDD only for 8290)	NFG [1] Method [2,3]	J(pos) if valley > 25%	24	**EcoChem PJ, see TM-05, Rev. 2**; Note: TCDF is evaluated only if second column confirmation is performed
OR Column Performance Solution (CPS) (combined WDM and ISC)	Peaks for first and last eluters must be within established retention time windows for each selector group (chlorination level) Both mixes must be analyzed before ICAL and CCAL Valley < 25% (valley = (x/y)*100%) where x = ht. of TCDD (or TCDF) & y = baseline to bottom of valley For all isomers eluting near the 2378-TCDD (TCDF) peak (TCDD only for 8290)	NFG [1] Method [2,3]	If peaks are not completely within windows (clipped): If natives are ok, J(pos)/UJ(ND) homologs (Totals) If natives are affected, R all results for that selector group J(pos) if valley > 25%	24	**Notify PM** **EcoChem PJ, see TM-05, Rev. 2**; Note: TCDF is evaluated only if second column confirmation is performed
Initial Calibration **Sensitivity**	S/N ratio > 10 for all native and labeled compounds in CS1 std.	NFG [1] Method [2,3]	If <10, elevate Det. Limit or R(ND)	5A	
Initial Calibration **Selectivity**	Ion Abundance ratios within QC limits (Table 8 of method 8290) (Table 9 of method 1613B)	NFG [1] Method [2,3]	If 2 or more ion ratios are out for one compound in ICAL, J(pos)	5A	**EcoChem PJ, see TM-05, Rev. 2**
Initial Calibration (Minimum 5 stds.) **Stability**	%RSD < 20% for native compounds %RSD <30% for labeled compounds (%RSD < 35% for labeled compounds under 1613b)	NFG [1] Method [2,3]	J(pos) natives if %RSD > 20%	5A	
	Absolute RT of $^{13}C_{12}$-1234-TCDD >25 min on DB5 & >15 min on DB-225	NFG [1] Method [2,3]	Narrate, no action		**EcoChem PJ, see TM-05, Rev. 2**

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Draft Dioxin/Furan Analysis by HRMS
(Based on Dioxin NFG 2016, 2020 and Methods EPA 1613B and SW-846 8290)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Continuing Calibration (Prior to each 12 hr. shift) **Sensitivity**	S/N ratio for CS3 standard > 10	NFG [1] Method [2,3]	If <10, elevate Det. Limit or R(ND)	5B	
Continuing Calibration (Prior to each 12 hr. shift) **Selectivity**	Ion Abundance ratios within QC limits (Table 8 of method 8290) (Tables 8 and 9 of method 1613B)	NFG [1] Method [2,3]	For congener with ion ratio outlier, J(pos) natives in all samples associated with CCAL. No action for labeled congener ion ratio outliers.	25	**EcoChem PJ, see TM-05**
Continuing Calibration (Prior to each 12 hr. shift) **Stability**	%D+/-20% for native compounds %D +/-30% for labeled compounds **(Must meet limits in Table 6, Method 1613B)** If %D in the closing CCAL are within 25%/35%, the mean RF from the two CCAL may be used to calculate samples **(Section 8.3.2.4 of 8290**).	NFG [1] Method [2,3]	**Labeled compounds:** Narrate, no action. **Native compounds:** 1613: J(pos)/UJ(ND)if %D is outside Table 6 limits J(pos)/R(ND) if %D is +/-75% of Table 6 limits 8290: J(pos)/UJ(ND) if %D = 20% - 75% J(pos)/R(ND) if %D > 75%	5B (H,L)[4]	
	Absolute RT of $^{13}C_{12}$-1234-TCDD and $^{13}C_{12}$-123789-HxCDD should be +/- 15 seconds of ICAL RRT for all other compounds must meet criteria listed in Table 2 Method 1316.	NFG [1] Method [2,3]	Narrate, no action	5B	**EcoChem PJ, see TM-05**
Blank Contamination					
Method Blank (MB)	MB: One per matrix per batch of (of ≤ 20 samples) No detected compounds > RL	NFG [1] Method [2,3]	U(pos) if result is < 5X action level.	7	**Hierarchy of blank review:** **#1 - Review MB, qualify as needed** **#2 - Review FB , qualify as needed**
Field Blank (FB)	FB: frequency as per QAPP No detected compounds > RL		U(pos) if result is < 5X action level.	6	

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Draft Dioxin/Furan Analysis by HRMS
(Based on Dioxin NFG 2016, 2020 and Methods EPA 1613B and SW-846 8290)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Precision and Accuracy					
MS/MSD (recovery)	**MS/MSD not typically required for HRMS analyses.** If lab analyzes MS/MSD then one set per matrix per batch (of ≤ 20 samples) Use most current laboratory control limits	EcoChem standard policy	J(pos) if both %R > UCL - high bias J(pos)/UJ(ND) if both %R < LCL - low bias J(pos)/R(ND) if both %R < 10% - very low bias J(pos)/UJ(ND) if one > UCL & one < LCL, with no bias **PJ if only one %R outlier**	8 (H,L)[4]	No action if only one spike %R is outside criteria. No action if parent concentration is >4x the amount spiked. Qualify parent sample only unless other QC indicates systematic problems.
MS/MSD (RPD)	**MS/MSD not typically required for HRMS analyses.** If lab analyzes MS/MSD then one set per matrix per batch (of ≤ 20 samples) Use most current laboratory control limits	EcoChem standard policy	J(pos) in parent sample if RPD > CL	9	Qualify parent sample only.
LCS (or OPR)	One per lab batch (of ≤ 20 samples) Use most current laboratory control limits **or** Limits from Table 6 of 1613B	NFG (1) Method (2,3)	J(pos) if %R > UCL - high bias J(pos)/UJ(ND) if %R < LCL - low bias J(pos)/R(ND) if %R < 10% - very low bias	10 (H,L)[4]	No action if only one spike %R is outside criteria, when LCSD is analyzed. Qualify all associated samples.
LCS/LCSD (RPD)	**LCSD not typically required for HRMS analyses.** One set per matrix and batch of 20 samples RPD < 35%	Method (2,3) Ecochem standard policy	J(pos) assoc. compound in all samples if RPD > CL	9	Qualify all associated samples.
Lab Duplicate (RPD)	**Lab Dup not typically required for HRMS analyses.** One per lab batch (of ≤ 20 samples) Use most current laboratory control limits	EcoChem standard policy	J(pos)/UJ(ND) if RPD > CL	9	
Precision and Accuracy (continued)					
Labeled Compounds (Internal Standards and cleanup standards)	Added to all samples %R = 40% - 135% in all samples 8290 %R must meet limits in Table 7 Method 1613B	NFG (1) Method (2,3)	J(pos) if %R > UCL - high bias J(pos)/UJ(ND) if %R < LCL - low bias J(pos)/R(ND) if %R < 10% - very low bias	13 (H,L)[4]	
	Ion Abundance Ratio Method 1613B: Table 8 (required m/z to monitor) Table 9 (QC limits) Method 8290A: Table 8				

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Draft Dioxin/Furan Analysis by HRMS
(Based on Dioxin NFG 2016, 2020 and Methods EPA 1613B and SW-846 8290)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Field Duplicates	Solids: RPD <50% OR difference < 2X RL (for results < 5X RL) Aqueous: RPD <35% OR difference < 1X RL (for results < 5X RL)	EcoChem standard policy and default criteria	Narrate and qualify (J/UJ) if required by project	9	**QAPP may have other specified control limits Control limit for this project is 75%**
Compound ID and Calculation					
Quantitation/ Identification	All ions for each isomer must maximize within +/- 2 seconds. S/N ratio >2.5 Ion ratios must meet criteria listed in Table 8 Method 8290, or Table 9 of 1613B; RRTs w/in limits in Table 2 of 1613B	NFG (1) Method (2,3)	Narrate in report; qualify if necessary U(pos) for retention time outliers. J(pos) for ion ratio outliers.	25	**EcoChem PJ, see TM-05**
EMPC (estimated maximum possible concentration)	If quantitation identification criteria are not met, laboratory should report an EMPC value.	NFG (1) Method (2,3)	If laboratory correctly reported an EMPC value, qualify the native compound J(pos) to indicate that the value is a detection limit and qualify total homolog groups J (pos)	25	**Projec SAP/QAPP may require EMPCS to be considered ND; in that csae U-25 natives, J-25 Totals professional judgment See TM-18**
Interferences	Interferences from chlorodiphenyl ether compounds	NFG (1) Method (2,3)	J(pos)/UJ(ND) if present	23	**See TM-16**
	Lock masses must not deviate +/- 20% from values in Table 8 of 1613B	Method (2,3)	J(pos)/UJ(ND) if present	24	**See TM-17**
Second Column Confirmation	All 2,3,7,8-TCDF hits must be confirmed on a DB-225 (or equiv) column. All QC criteria must also be met for the confirmation analysis.	NFG (1) Method (2,3)	Report the DB-225 value. If not performed use PJ.		DNR-11 DB5 result if both results from both columns are reported. **EcoChem PJ, see TM-05**

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Draft Dioxin/Furan Analysis by HRMS
(Based on Dioxin NFG 2016, 2020 and Methods EPA 1613B and SW-846 8290)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Calculation Check	Check 10% of field & QC sample results	EcoChem standard policy	Contact laboratory for resolution and/or corrective action	na	Full data validation only.
Electronic Data Deliverable (EDD)					
Verification of EDD to hardcopy data	EcoChem verify @ 10% unless problems noted; then increase level up to 100% for next several packages.		Depending on scope of problem, correct at EcoChem (minor issues) to resubmittal by laboratory (major issues).	na	EcoChem Project Manager and/or Database Administrator will work with lab to provide long-term corrective action.
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte	Standard reporting policy	Use "DNR" to flag results that will not be reported.	11	

(pos) - positive (detected) results; (ND) - not detected results

[1] National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins (CDDs) & Chlorinated Dibenzofurans (CDFs) Data Review, September 2011
National Functional Guidelines for High Resolution Superfunds Methods Data Review, April 2016
National Functional Guidelines for High Resolution Superfunds Methods Data Review, November 2020

[2] Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), USEPA SW-846, Method 8290

[2] EPA Method 1613, Rev.B, Tetra-through Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGS/HRMS, October 1994

[3] NFG suggests using "+ / -" to indicate bias; EcoChem has chosen "H" = high bias indicated; "L" = low bias indicated.

[4] SICPs = Selected Ion Current Profiles

[5] x = height from valley of least resolved adjacent isomer to baseline; y = peak height of the shorter fo the adjacent peaks

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ECOCHEM
Data Quality

APPENDIX B

QUALIFIED DATA SUMMARY TABLE

Qualified Data Summary Table
Smith-Kem Dioxin Soil Sampling

SAMPLE ID	LAB ID	METHOD	ANALYTE	RESULT	UNITS	LAB QUAL	DV QUAL	DV CODE
H4H-05-0.5-1.0	23I0156-20	EPA 1613	2,3,7,8-TCDF	6.43		X	J	23H
H4H-05-0.5-1.0	23I0156-20	EPA 1613	2,3,7,8-TCDD	0.386		EMPC, J	J	25
H4H-05-0.5-1.0	23I0156-20	EPA 1613	1,2,3,7,8-PeCDF	1.54		EMPC	J	25
H4H-05-0.5-1.0	23I0156-20	EPA 1613	2,3,4,6,7,8-HxCDF	30.3			J	9A
H4H-05-0.5-1.0	23I0156-20	EPA 1613	1,2,3,4,7,8-HxCDD	0.776		EMPC, J	J	25
H4H-05-0.5-1.0	23I0156-20	EPA 1613	Total PeCDD	16.1			J	9A

DATA VALIDATION REPORT

SMITH-KEM PRE-REMEDIAL DESIGN INVESTIGATION
DIOXIN SOIL SAMPLING – SDG 23L0564

Prepared for:

Floyd | Snider
601 Union Street, Suite 600
Seattle, WA 98101

Prepared by:

EcoChem, Inc.
500 Union Street, Suite 1010
Seattle, WA 98101

EcoChem Project: C15223-8

Revised March 22, 2024

Approved for Release:



Christine Ransom
Senior Project Chemist
EcoChem, Inc.

PROJECT NARRATIVE

Basis for the Data Validation

This report has been revised to address adjustments to the laboratory report. It summarizes the results of data validation performed on soil and quality control (QC) sample data for the Smith-Kem Pre-RDI Dioxin Soil Sampling. The data received full validation (EPA Stage 4). A complete list of samples is provided in the Sample Index.

Samples were analyzed by analytical Resources, Inc., Tukwila Washington. The analytical method and EcoChem project chemists are listed in the table below.

ANALYSIS	METHOD	PRIMARY REVIEW	SECONDARY REVIEW
Dioxins	EPA 1613B	A. Bodkin	C. Ransom

The data were reviewed using guidance and quality control criteria documented in the analytical methods; *Pre-Remedial Design Investigation Work Plan* (Floyd Snider, June 2023); *National Functional Guidelines for High Resolution Superfund Methods Data Review* (USEPA 2016); and *National Functional Guidelines for High Resolution Superfund Methods Data Review* (USEPA 2020).

EcoChem's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are estimated (J or UJ), data may be used for site evaluation and risk assessment purposes but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R or DNR, the data should not be used for any site evaluation purposes. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the documents and methods referenced above.

Data qualifier definitions, reason codes, and validation criteria are included as Appendix A. A Qualified Data Summary Table is included in Appendix B. Data Validation Worksheets will be kept on file at EcoChem, Inc. A qualified laboratory electronic data deliverable (EDD) is also submitted with this report.

Sample Index
Smith-Kem Dioxin Soil Sampling

SDG	SAMPLE ID	LAB ID	1613B Dioxins
23L0564	H4H-01-0.5-1.0	23L0564-01	✓
23L0564	H4H-02-0.5-1.0	23L0564-02	✓
23L0564	H4H-03-0.5-1.0	23L0564-03	✓
23L0564	H4H-04-0.5-1.0	23L0564-04	✓

DATA VALIDATION REPORT
Smith Kem – Soil Sampling
Dioxin/Furan Compounds by Method 1613B

This report documents the review of analytical data from the analysis of soil samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Analytical Resources, LLC, Tukwila, Washington. Refer to the SAMPLE INDEX for a complete list of samples.

SDG	NUMBER OF SAMPLES	VALIDATION LEVEL
23I0564	4 Soil	EPA Stage 4

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

Due to an entry error, the original laboratory report was based on the wrong sample weights. The lab identified the issue and submitted a revised report and EDD.

EDD TO HARDCOPY VERIFICATION

Sample results and related quality control data were received as an electronic data deliverable (EDD) and laboratory report. The EDD was verified against the laboratory report (10%). No errors were noted.

TECHNICAL DATA VALIDATION

The quality control (QC) requirements reviewed are summarized in the following table:

✓	Sample Receipt, Preservation, and Holding Times	1	Matrix Spike/Matrix Spike Duplicates (MS/MSD)
✓	System Performance and Resolution Checks	1	Field Duplicates
✓	Initial Calibration (ICAL)	✓	Target Analyte List
✓	Calibration Verification	✓	Reported Results
2	Blanks (Laboratory and Field)	2	Compound Identification
✓	Labeled Compounds	2	Compound Quantification
✓	Ongoing Precision and Recovery (OPR)	1	Calculation Verification
2	Laboratory Duplicate		

✓ ***Stated method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed.***
1 ***Quality control results are discussed below, but no data were qualified.***
2 ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

Blanks

In order to assess the impact of blank contamination on the reported sample results, action levels were established at 2x and 5x the concentration in the method blank. The following table lists the decision process for qualification of results:

SAMPLE RESULT	QUALIFIER
< Reporting Limit	U-7 < 5x Action Level
> Reporting Limit	U-7 < 2x Action Level
	J-7H between 2x and 5x Action Level

The laboratory assigned an "EMPC" flag to an analyte result when a peak was detected but did not meet identification criteria; these are "estimated maximum potential concentrations". These values are considered positive results for blank evaluation. Blank qualifiers are not assigned to homolog groups.

There were positive results for 1,2,3,4,6,7,8-HpCDD, 1,2,3,4,6,7,8-HpCDF, OCDD, and OCDF in the method blank. The results for 1,2,3,4,6,7,8-HpCDD and OCDD were estimated (J-7H) in Samples H4H-01-0.5-1.0, H4H-02-0.5-1.0, and H4H-03-0.5-1.0.

Laboratory Duplicates

The Work Plan specified relative percent difference (RPD) control limit is 25%. For results less than 5x the RL, the difference between the sample and duplicate was evaluated; a control limit of 2X the RL was used to evaluate the difference values. For RPD or difference outliers, the results in the parent sample were estimated (J-9).

Sample H4H-01-0.5-1.0 was used for the laboratory duplicate analysis. The following outliers were noted:

COMPOUND	RPD OUTLIER (%)	QUALIFIER
2,3,7,8-TCDD	43.5	J-9
2,3,4,7,8-PeCDF	48.5	J-9
1,2,3,6,7,8-HxCDF	31.1	J-9
2,3,4,6,7,8-HxCDF	28.6	J-9
1,2,3,4,6,7,8-HpCDD	25.9	J-9
OCDD	30.5	J-9
Total TCDF	38.8	J-9
Total TCDD	58.9	J-9
Total PeCDF	52.0	J-9
Total PeCDD	46.5	J-9
Total HxCDF	37.4	J-9
Total HxCDD	40.8	J-9
Total HpCDD	29.4	J-9

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate analyses were not performed; they are not required by the method. Accuracy was evaluated using the labeled compound and ongoing precision and recovery (OPR) standard results. Precision was evaluated using the laboratory duplicate RPD values.

Field Duplicate

Field duplicates were not submitted.

Compound Identification

The method requires the confirmation of 2,3,7,8-TCDF using an alternate GC column if the primary column does not fully separate 2,3,7,8-TCDF from closely eluting non-target TCDF isomers. The laboratory uses an RTX-Dioxin2 column, which adequately resolved the TCDF isomers; no confirmation was necessary.

The laboratory assigned an "EMPC" flag when the ion ratio did not meet the compound identification criterion. This indicates a potential matrix interference and that the result is an "estimated maximum potential concentration". These "EMPC" flagged results were estimated (J-25) at the reported concentration.

Compound Quantification

Chlorinated diphenyl ether (CDPE) interferences were noted for 2,3,7,8-TCDF in some samples. The lab flagged these results with an "X". The results exhibited interference were estimated (J-23H) to indicate a potential high bias.

Calculation Verification

Several results were verified by recalculation from the raw data. No calculation or transcription errors were found.

OVERALL ASSESSMENT

As determined by this evaluation, the laboratory followed the specified analytical method. With the noted exceptions, accuracy was acceptable as demonstrated by the labeled compound and OPR recoveries and precision was acceptable as demonstrated by the laboratory duplicate RPD values.

Results were estimated based on method blank contamination, ion ratio outliers, CDPE interference, and laboratory duplicate precision outliers.

All data, as qualified, are acceptable for use.

ECOCHEM
Data Quality

APPENDIX A

DATA QUALIFIER DEFINITIONS
REASON CODES
AND CRITERIA TABLES

DATA VALIDATION QUALIFIER CODES
Based on National Functional Guidelines

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents the approximate concentration.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

The following is an EcoChem qualifier that may also be assigned during the data review process:

DNR	Do not report; a more appropriate result is reported from another analysis or dilution.

DATA QUALIFIER REASON CODES

Group	Code	Reason for Qualification
Sample Handling	1	Improper Sample Handling or Sample Preservation (i.e., headspace, cooler temperature, pH, summa canister pressure); Exceeded Holding Times
Instrument Performance	24	Instrument Performance (i.e., tune, resolution, retention time window, endrin breakdown, lock-mass)
	5A	Initial Calibration (RF, %RSD, r^2)
	5B	Calibration Verification (CCV, CCAL; RF, %D, %R) Use bias flags (H,L)[1] where appropriate
	5C	Initial Calibration Verification (ICV %D, %R) Use bias flags (H,L)[1] where appropriate
Blank Contamination	6	Field Blank Contamination (Equipment Rinsate, Trip Blank, etc.)
	7	Lab Blank Contamination (i.e., method blank, instrument blank, etc.) Use low bias flag (L)[1] for negative instrument blanks
Precision and Accuracy	8	Matrix Spike (MS and/or MSD) Recoveries Use bias flags (H,L)[1] where appropriate
	9	Precision (all replicates: LCS/LCSD, MS/MSD, Lab Replicate, Field Replicate)
	10	Laboratory Control Sample Recoveries (a.k.a. Blank Spikes) Use bias flags (H,L)[1] where appropriate
	12	Reference Material Use bias flags (H,L)[1] where appropriate
	13	Surrogate Spike Recoveries (a.k.a. labeled compounds, recovery standards) Use bias flags (H,L)[1] where appropriate
Interferences	16	ICP/ICP-MS Serial Dilution Percent Difference
	17	ICP/ICP-MS Interference Check Standard Recovery Use bias flags (H,L)[1] where appropriate
	19	Internal Standard Performance (i.e., area, retention time, recovery)
	22	Elevated Detection Limit due to Interference (i.e., chemical and/or matrix)
	23	Bias from Matrix Interference (i.e. diphenyl ether, PCB/pesticides)
Identification and Quantitation	2	Chromatographic pattern in sample does not match pattern of calibration standard
	3	2nd column confirmation (RPD or %D)
	4	Tentatively Identified Compound (TIC) (associated with NJ only)
	20	Calibration Range or Linear Range Exceeded
	25	Compound Identification (i.e., ion ratio, retention time, relative abundance, etc.)
Miscellaneous	11	A more appropriate result is reported (multiple reported analyses i.e., dilutions, re-extractions, etc. Associated with "R" and "DNR" only)
	14	Other (See DV report for details)
	26	Method QC information not provided

[1] H = high bias indicated
L = low bias indicated

Draft Dioxin/Furan Analysis by HRMS
(Based on Dioxin NFG 2016, 2020 and Methods EPA 1613B and SW-846 8290)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling					
Cooler/Storage Temperature Preservation	Waters/Solids ≤ 6°C & in the dark Tissues <-10°C & in the dark **Preservation Aqueous:** If Cl_2 is present Thiosulfate must be added and if pH > 9 it must be adjusted to 7 - 9	NFG [1] Method[2,3]	J(pos)/R(ND) if thiosulfate not added if Cl_2 present; J(pos)/UJ(ND) if pH not adjusted J(pos)/UJ(ND) if temp > 20°C	1	**EcoChem PJ, see TM-05**
Holding Time	**If properly stored, 1 year or:** **Extraction (all matrices):** 30 days from collection **Analysis (all matrices)**: 45 days from extraction	NFG [1] Method[2,3]	If not properly stored or HT exceedance: J(pos)/UJ(ND)	1	**EcoChem PJ, see TM-05** Gross exceedance = > 1 year 2011 NFG **Note:** Under CWA, SDWA, and RCRA the HT for H2O is 7 days.
Instrument Performance					
Mass Resolution (PFK)(Tuning)	PFK (Perfluorokerosene) Analyzed prior to ICAL and at the beginning and end of each 12 hr. shift. ≥10,000 resolving power at m/z low and high mass (e.g. 304.9824 and 380.9760) Lock-mass for each descriptot w/in 5 ppm of theoretical value	NFG [1] Method [2,3]	R(pos/ND) all analytes in all samples associated with the tune	24	Notify PM
Windows Defining Mix (WDM)	Peaks for first and last eluters must be within established retention time windows for each selector group (chlorination level)	NFG [1] Method [2,3]	If peaks are not completely within windows (clipped): If natives are ok, J(pos)/UJ(ND) homologs (Totals) If natives are affected, R all results for that selector group	24	Notify PM

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Draft Dioxin/Furan Analysis by HRMS
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QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
AND Isomer Specificity Check (ISC)	Both mixes must be analyzed before ICAL and CCAL Valley < 25% (valley = (x/y)*100%) where x = ht. of TCDD (or TCDF) & y = baseline to bottom of valley For all isomers eluting near the 2378-TCDD (TCDF) peak (TCDD only for 8290)	NFG [1] Method [2,3]	J(pos) if valley > 25%	24	**EcoChem PJ, see TM-05, Rev. 2**; Note: TCDF is evaluated only if second column confirmation is performed
OR Column Performance Solution (CPS) (combined WDM and ISC)	Peaks for first and last eluters must be within established retention time windows for each selector group (chlorination level) Both mixes must be analyzed before ICAL and CCAL Valley < 25% (valley = (x/y)*100%) where x = ht. of TCDD (or TCDF) & y = baseline to bottom of valley For all isomers eluting near the 2378-TCDD (TCDF) peak (TCDD only for 8290)	NFG [1] Method [2,3]	If peaks are not completely within windows (clipped): If natives are ok, J(pos)/UJ(ND) homologs (Totals) If natives are affected, R all results for that selector group J(pos) if valley > 25%	24	**Notify PM** **EcoChem PJ, see TM-05, Rev. 2**; Note: TCDF is evaluated only if second column confirmation is performed
Initial Calibration **Sensitivity**	S/N ratio > 10 for all native and labeled compounds in CS1 std.	NFG [1] Method [2,3]	If <10, elevate Det. Limit or R(ND)	5A	
Initial Calibration **Selectivity**	Ion Abundance ratios within QC limits (Table 8 of method 8290) (Table 9 of method 1613B)	NFG [1] Method [2,3]	If 2 or more ion ratios are out for one compound in ICAL, J(pos)	5A	**EcoChem PJ, see TM-05, Rev. 2**
Initial Calibration (Minimum 5 stds.) **Stability**	%RSD < 20% for native compounds %RSD <30% for labeled compounds (%RSD < 35% for labeled compounds under 1613b)	NFG [1] Method [2,3]	J(pos) natives if %RSD > 20%	5A	
	Absolute RT of $^{13}C_{12}$-1234-TCDD >25 min on DB5 & >15 min on DB-225	NFG [1] Method [2,3]	Narrate, no action		**EcoChem PJ, see TM-05, Rev. 2**

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Draft Dioxin/Furan Analysis by HRMS
(Based on Dioxin NFG 2016, 2020 and Methods EPA 1613B and SW-846 8290)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Continuing Calibration (Prior to each 12 hr. shift) **Sensitivity**	S/N ratio for CS3 standard > 10	NFG [1] Method [2,3]	If <10, elevate Det. Limit or R(ND)	5B	
Continuing Calibration (Prior to each 12 hr. shift) **Selectivity**	Ion Abundance ratios within QC limits (Table 8 of method 8290) (Tables 8 and 9 of method 1613B)	NFG [1] Method [2,3]	For congener with ion ratio outlier, J(pos) natives in all samples associated with CCAL. No action for labeled congener ion ratio outliers.	25	**EcoChem PJ, see TM-05**
Continuing Calibration (Prior to each 12 hr. shift) **Stability**	%D+/-20% for native compounds %D +/-30% for labeled compounds **(Must meet limits in Table 6, Method 1613B)** If %D in the closing CCAL are within 25%/35%, the mean RF from the two CCAL may be used to calculate samples **(Section 8.3.2.4 of 8290**).	NFG [1] Method [2,3]	**Labeled compounds:** Narrate, no action. **Native compounds:** 1613: J(pos)/UJ(ND)if %D is outside Table 6 limits J(pos)/R(ND) if %D is +/-75% of Table 6 limits 8290: J(pos)/UJ(ND) if %D = 20% - 75% J(pos)/R(ND) if %D > 75%	5B (H,L)[4]	
	Absolute RT of $^{13}C_{12}$-1234-TCDD and $^{13}C_{12}$-123789-HxCDD should be +/- 15 seconds of ICAL RRT for all other compounds must meet criteria listed in Table 2 Method 1316.	NFG [1] Method [2,3]	Narrate, no action	5B	**EcoChem PJ, see TM-05**
Blank Contamination					
Method Blank (MB)	MB: One per matrix per batch of (of ≤ 20 samples) No detected compounds > RL	NFG [1] Method [2,3]	U(pos) if result is < 5X action level.	7	**Hierarchy of blank review:** **#1 - Review MB, qualify as needed** **#2 - Review FB , qualify as needed**
Field Blank (FB)	FB: frequency as per QAPP No detected compounds > RL		U(pos) if result is < 5X action level.	6	

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Draft Dioxin/Furan Analysis by HRMS
(Based on Dioxin NFG 2016, 2020 and Methods EPA 1613B and SW-846 8290)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Precision and Accuracy					
MS/MSD (recovery)	**MS/MSD not typically required for HRMS analyses.** If lab analyzes MS/MSD then one set per matrix per batch (of ≤ 20 samples) Use most current laboratory control limits	EcoChem standard policy	J(pos) if both %R > UCL - high bias J(pos)/UJ(ND) if both %R < LCL - low bias J(pos)/R(ND) if both %R < 10% - very low bias J(pos)/UJ(ND) if one > UCL & one < LCL, with no bias **PJ if only one %R outlier**	8 (H,L)[4]	No action if only one spike %R is outside criteria. No action if parent concentration is >4x the amount spiked. Qualify parent sample only unless other QC indicates systematic problems.
MS/MSD (RPD)	**MS/MSD not typically required for HRMS analyses.** If lab analyzes MS/MSD then one set per matrix per batch (of ≤ 20 samples) Use most current laboratory control limits	EcoChem standard policy	J(pos) in parent sample if RPD > CL	9	Qualify parent sample only.
LCS (or OPR)	One per lab batch (of ≤ 20 samples) Use most current laboratory control limits **or** Limits from Table 6 of 1613B	NFG (1) Method (2,3)	J(pos) if %R > UCL - high bias J(pos)/UJ(ND) if %R < LCL - low bias J(pos)/R(ND) if %R < 10% - very low bias	10 (H,L)[4]	No action if only one spike %R is outside criteria, when LCSD is analyzed. Qualify all associated samples.
LCS/LCSD (RPD)	**LCSD not typically required for HRMS analyses.** One set per matrix and batch of 20 samples RPD < 35%	Method (2,3) Ecochem standard policy	J(pos) assoc. compound in all samples if RPD > CL	9	Qualify all associated samples.
Lab Duplicate (RPD)	**Lab Dup not typically required for HRMS analyses.** One per lab batch (of ≤ 20 samples) Use most current laboratory control limits	EcoChem standard policy	J(pos)/UJ(ND) if RPD > CL	9	
Precision and Accuracy (continued)					
Labeled Compounds (Internal Standards and cleanup standards)	Added to all samples %R = 40% - 135% in all samples 8290 %R must meet limits in Table 7 Method 1613B	NFG (1) Method (2,3)	J(pos) if %R > UCL - high bias J(pos)/UJ(ND) if %R < LCL - low bias J(pos)/R(ND) if %R < 10% - very low bias	13 (H,L)[4]	
	Ion Abundance Ratio Method 1613B: Table 8 (required m/z to monitor) Table 9 (QC limits) Method 8290A: Table 8				

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Draft Dioxin/Furan Analysis by HRMS
(Based on Dioxin NFG 2016, 2020 and Methods EPA 1613B and SW-846 8290)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Field Duplicates	Solids: RPD <50% OR difference < 2X RL (for results < 5X RL) Aqueous: RPD <35% OR difference < 1X RL (for results < 5X RL)	EcoChem standard policy and default criteria	Narrate and qualify (J/UJ) if required by project	9	**QAPP may have other specified control limits Control limit for this project is 75%**
Compound ID and Calculation					
Quantitation/ Identification	All ions for each isomer must maximize within +/- 2 seconds. S/N ratio >2.5 Ion ratios must meet criteria listed in Table 8 Method 8290, or Table 9 of 1613B; RRTs w/in limits in Table 2 of 1613B	NFG (1) Method (2,3)	Narrate in report; qualify if necessary U(pos) for retention time outliers. J(pos) for ion ratio outliers.	25	**EcoChem PJ, see TM-05**
EMPC (estimated maximum possible concentration)	If quantitation identification criteria are not met, laboratory should report an EMPC value.	NFG (1) Method (2,3)	If laboratory correctly reported an EMPC value, qualify the native compound J(pos) to indicate that the value is a detection limit and qualify total homolog groups J (pos)	25	**Projec SAP/QAPP may require EMPCS to be considered ND; in that csae U-25 natives, J-25 Totals professional judgment See TM-18**
Interferences	Interferences from chlorodiphenyl ether compounds	NFG (1) Method (2,3)	J(pos)/UJ(ND) if present	23	**See TM-16**
	Lock masses must not deviate +/- 20% from values in Table 8 of 1613B	Method (2,3)	J(pos)/UJ(ND) if present	24	**See TM-17**
Second Column Confirmation	All 2,3,7,8-TCDF hits must be confirmed on a DB-225 (or equiv) column. All QC criteria must also be met for the confirmation analysis.	NFG (1) Method (2,3)	Report the DB-225 value. If not performed use PJ.		DNR-11 DB5 result if both results from both columns are reported. **EcoChem PJ, see TM-05**

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Draft Dioxin/Furan Analysis by HRMS
(Based on Dioxin NFG 2016, 2020 and Methods EPA 1613B and SW-846 8290)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Calculation Check	Check 10% of field & QC sample results	EcoChem standard policy	Contact laboratory for resolution and/or corrective action	na	Full data validation only.
Electronic Data Deliverable (EDD)					
Verification of EDD to hardcopy data	EcoChem verify @ 10% unless problems noted; then increase level up to 100% for next several packages.		Depending on scope of problem, correct at EcoChem (minor issues) to resubmittal by laboratory (major issues).	na	EcoChem Project Manager and/or Database Administrator will work with lab to provide long-term corrective action.
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte	Standard reporting policy	Use "DNR" to flag results that will not be reported.	11	

(pos) - positive (detected) results; (ND) - not detected results

[1] National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins (CDDs) & Chlorinated Dibenzofurans (CDFs) Data Review, September 2011
National Functional Guidelines for High Resolution Superfunds Methods Data Review, April 2016
National Functional Guidelines for High Resolution Superfunds Methods Data Review, November 2020

[2] Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), USEPA SW-846, Method 8290

[2] EPA Method 1613, Rev.B, Tetra-through Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGS/HRMS, October 1994

[3] NFG suggests using "+ / -" to indicate bias; EcoChem has chosen "H" = high bias indicated; "L" = low bias indicated.

[4] SICPs = Selected Ion Current Profiles

[5] x = height from valley of least resolved adjacent isomer to baseline; y = peak height of the shorter fo the adjacent peaks

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ECOCHEM
Data Quality

APPENDIX B

QUALIFIED DATA SUMMARY TABLE

Qualified Data Summary Table
Smith-Kem Dioxin Soil Sampling

SAMPLE ID	LAB ID	METHOD	ANALYTE	RESULT	UNITS	LAB QUAL	DV QUAL	DV CODE
H4H-01-0.5-1.0	23L0564-01	EPA 1613B	2,3,7,8-TCDF	10.4	ng/kg dry	X	J	23H
H4H-01-0.5-1.0	23L0564-01	EPA 1613B	2,3,7,8-TCDD	28.2	ng/kg dry		J	9
H4H-01-0.5-1.0	23L0564-01	EPA 1613B	1,2,3,7,8-PeCDF	1.5	ng/kg dry	EMPC	J	25
H4H-01-0.5-1.0	23L0564-01	EPA 1613B	2,3,4,7,8-PeCDF	6.15	ng/kg dry		J	9
H4H-01-0.5-1.0	23L0564-01	EPA 1613B	1,2,3,6,7,8-HxCDF	6.59	ng/kg dry		J	9
H4H-01-0.5-1.0	23L0564-01	EPA 1613B	2,3,4,6,7,8-HxCDF	18.5	ng/kg dry		J	9
H4H-01-0.5-1.0	23L0564-01	EPA 1613B	1,2,3,4,6,7,8-HpCDD	26.3	ng/kg dry	B	J	7H,9
H4H-01-0.5-1.0	23L0564-01	EPA 1613B	OCDD	227	ng/kg dry	B	J	7H,9
H4H-01-0.5-1.0	23L0564-01	EPA 1613B	Total TCDF	217	ng/kg dry		J	9
H4H-01-0.5-1.0	23L0564-01	EPA 1613B	Total TCDD	28.5	ng/kg dry		J	9
H4H-01-0.5-1.0	23L0564-01	EPA 1613B	Total PeCDF	488	ng/kg dry		J	9
H4H-01-0.5-1.0	23L0564-01	EPA 1613B	Total PeCDD	16	ng/kg dry		J	9
H4H-01-0.5-1.0	23L0564-01	EPA 1613B	Total HxCDF	237	ng/kg dry		J	9
H4H-01-0.5-1.0	23L0564-01	EPA 1613B	Total HxCDD	37.3	ng/kg dry		J	9
H4H-01-0.5-1.0	23L0564-01	EPA 1613B	Total HpCDD	49.9	ng/kg dry		J	9
H4H-02-0.5-1.0	23L0564-02	EPA 1613B	2,3,7,8-TCDF	2.87	ng/kg dry	EMPC, X	J	23H,25
H4H-02-0.5-1.0	23L0564-02	EPA 1613B	1,2,3,6,7,8-HxCDD	1.47	ng/kg dry	EMPC	J	25
H4H-02-0.5-1.0	23L0564-02	EPA 1613B	1,2,3,4,7,8,9-HpCDF	0.76	ng/kg dry	EMPC, J	J	25
H4H-02-0.5-1.0	23L0564-02	EPA 1613B	1,2,3,4,6,7,8-HpCDD	19.8	ng/kg dry	B	J	7H
H4H-02-0.5-1.0	23L0564-02	EPA 1613B	OCDD	177	ng/kg dry	B	J	7H
H4H-03-0.5-1.0	23L0564-03	EPA 1613B	2,3,7,8-TCDF	13.4	ng/kg dry	EMPC	J	25
H4H-03-0.5-1.0	23L0564-03	EPA 1613B	1,2,3,7,8-PeCDD	2.03	ng/kg dry	EMPC	J	25
H4H-03-0.5-1.0	23L0564-03	EPA 1613B	1,2,3,4,7,8-HxCDF	3.87	ng/kg dry	EMPC	J	25
H4H-03-0.5-1.0	23L0564-03	EPA 1613B	1,2,3,4,6,7,8-HpCDD	34.3	ng/kg dry	B	J	7H
H4H-03-0.5-1.0	23L0564-03	EPA 1613B	OCDD	332	ng/kg dry	B	J	7H
H4H-04-0.5-1.0	23L0564-04	EPA 1613B	2,3,7,8-TCDF	4.89	ng/kg dry	EMPC, X	J	23H,25

Smith-Kem Ellensburg, Inc.
Pre-Remedial Design Investigation Phase 2 Drilling
Ellensburg, Washington

Data Validation Report

Prepared for

Smith-Kem Ellensburg, Inc.

Prepared by

Floyd|Snider
601 Union Street
Suite 600
Seattle, Washington 98101

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Attachment 2 Data Qualifier Definitions
Attachment 3 Qualified Data Summary Table

List of Abbreviations

Abbreviation	Definition
ALS	ALS Environmental
FBI	Friedman and Bruya, Inc.
LCS	Laboratory control sample
MS	Matrix spike
MSD	Matrix spike duplicate
RL	Reporting limit
RPD	Relative percent difference
QC	Quality control
TPH	Total petroleum hydrocarbons
USEPA	U.S. Environmental Protection Agency

1.0 Project Narrative

1.1 OVERVIEW OF DATA VALIDATION

This report summarizes the results of the Compliance Screening (USEPA Stage 2A and USEPA Stage 2B) performed on the sample data for the Pre-Remedial Design Investigation Phase 2 Drilling sampling event. A complete list of sample IDs provided in the Project Sample Index Table (Attachment 1).

A total of 24 soil samples and 1 field duplicate sample were collected December 14 and 15, 2023. Samples were submitted to Friedman and Bruya, Inc. (FBI) in Seattle, Washington and ALS Environmental (ALS) in Kelso, Washington. Analytical results were submitted by FBI and ALS under two sample delivery groups: 312274 and K2314243. The following analytical parameters were reviewed in this validation:

- Pesticides— U.S. Environmental Protection Agency (USEPA) Method 8081B
- Total petroleum hydrocarbons (TPH)—NWTPH-Dx with and without silica gel cleanups
- Percent solids—USEPA 8000D

The data were reviewed using guidance and quality control (QC) criteria documented in the Pre-Remedial Design Investigation Work Plan (Floyd|Snider 2023), *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* (USEPA 1986), *National Functional Guidelines for Organic Superfund Methods Data Review* (USEPA 2020a), and the *National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA 2020b).

Floyd|Snider's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are estimated (J or UJ), data may be used for site evaluation and risk assessment purposes, but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. When compounds are analyzed at multiple dilutions or by multiple analysis methods, select results will be assigned a Do Not Report qualifier because a more appropriate result will be reported from another dilution or analysis method. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the documents previously referenced.

Data qualifiers and data qualifier definitions are included in Attachment 2. The Qualified Data Summary Table is included as Attachment 3.

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2.0 Data Validation Report

This report documents the review of analytical data for the analyses of sediment samples and the associated field and laboratory QC samples. A USEPA Stage 2B Compliance Screening was performed on pesticide results and a USEPA Stage 2A Compliance Screening was performed on all other analytical results by Chell Black as the primary data reviewer, and secondary review was performed by Cheronne Oreiro.

2.1 DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables and followed adequate corrective action processes, and all anomalies were discussed in the laboratory report case narrative.

2.2 TECHNICAL DATA VALIDATION

Field and laboratory QC requirements that were reviewed are listed in the following sections, and unless noted, laboratory results for samples listed in Attachment 1 were within QC criteria.

2.2.1 Cooler Temperatures and Sample Preservation

All samples were appropriately preserved and received within the required temperature range.

2.2.2 Reporting Limits and Reported Results

All laboratory qualified results detected between the method detection limit and the reporting limit (RL) were qualified as “J” to indicate they are estimated.

2.2.3 Extraction and Analysis Holding Times

Samples were extracted and analyzed within recommended holding times with the following exceptions:

- Sample AOC2-17-6.5 was extracted 6 days outside the recommended hold time for NWTPH-Dx. The results for this sample were qualified “UJ” to indicate they are estimated.
- Sample AOC2-16-6.5 was extracted more than 80 days outside the recommended hold time for NWTPH-Dx. The results for this sample were rejected.

Refer to Attachment 3 for a summary for qualified results.

2.2.4 Initial and Continuing Calibrations (Pesticides)

All initial and continuing calibrations were within control limits.

2.2.5 Internal Standards (Pesticides)

All internal standards were within control limits.

2.2.6 Method Blanks

All method blanks were free of detections.

2.2.7 Surrogates

All surrogates recovered within laboratory control limits.

2.2.8 Laboratory Control Samples and Laboratory Control Sample Duplicates

Laboratory control samples (LCSs) were analyzed at the required project frequencies. All LCS recoveries were within project-required control limits.

2.2.9 Matrix Spike and Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were analyzed at the required frequencies, and MS and MSD analyses conducted on non-project samples were not included in this evaluation. No data were qualified if the sample result was greater than 4 times the spike concentration. All MS and MSD recoveries were within project-required control limits.

2.2.10 Laboratory Duplicates

Laboratory duplicates were analyzed at the required frequencies or in place of MSDs. Laboratory duplicate analyses conducted on non-project samples were not included in this evaluation. Parent sample and laboratory duplicate results less than 5 times the RL may have exaggerated relative percent difference (RPD) values. Therefore, if the sample or duplicate results were less than 5 times the RL, the results were evaluated using the absolute value of the difference between the concentrations with a control limit of 2 times the RL. All duplicate RPDs and difference values were within control limits.

2.2.11 Dual Column Confirmation (Pesticides)

All dual column confirmation RPD values were within control limits.

2.2.12 Field Quality Control Samples

2.2.12.1 Field Duplicates

One field duplicate sample was collected in association with these sample sets. Field duplicate RPD values were evaluated using a default control limit of 75%. Parent and field duplicate results less than 5 times the RL may have exaggerated RPD values. Therefore, if the sample or duplicate results were less than 5 times the RL, the results are evaluated using the absolute value of the

difference between them with a control limit of 2 times the RL. All field duplicate RPDs and difference values were within control limits.

2.3 OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical methods and all requested sample analyses were completed. Accuracy was acceptable, as demonstrated by the MS, MSD, and LCS percent recovery values. Precision was acceptable, as demonstrated by the MS/MSD, laboratory duplicate, and field duplicate RPD or difference values.

Most data are acceptable for use as reported or qualified. The diesel and motor oil results for sample AOC2-16-16.5 were rejected due to hold time exceedances.

Refer to Attachment 3 for a summary of qualified results.

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3.0 References

Floyd|Snider. 2023. *Smith-Kem Site Pre-Remedial Design Investigation Work Plan*. Prepared for Smith-Kem and Shell Oil Products US. June.

U.S. Environmental Protection Agency (USEPA). 1986. *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.* U.S. Prepared by the Office of Solid Waste and Emergency Response. EPA-530/SW-846.

_____. 2020a. *National Functional Guidelines for Organic Superfund Methods Data Review.* Prepared by the Office of Superfund Remediation and Technology Innovation. EPA-540-R-20-005/OLEM 9240.0-51. November.

_____. 2020b. *National Functional Guidelines for Inorganic Superfund Methods Data Review.* Prepared by the Office of Superfund Remediation and Technology Innovation. EPA-542-R-20-006/OLEM 9240.1-66. November.

Attachment 1
Project Sample Index

Attachment 1
Project Sample Index

			Analyte Class	TPH	TPH	Total Solids	Chlorinated Pesticides
			Analysis Method	NWTPH-Dx	NWTPH-Dx SG	EPA 160.3M	EPA 8081B
Sample Delivery Group	Internal Lab Sample ID	Field Sample ID	Media				
FBI312274	312274-01	AOC4-09-5.5-6.0	Soil	X			
FBI312274	312274-02	AOC4-09-7.0	Soil	X			
FBI312274	312274-03	AOC4-09-8.5	Soil				
FBI312274	312274-04	AOC2-11-6.0-6.5	Soil	X			
FBI312274	312274-05	AOC2-11-7.5	Soil	X			
FBI312274	312274-06	AOC2-12-6.5	Soil	X			
FBI312274	312274-07	AOC2-12-8.5-9.5	Soil	X			
FBI312274	312274-08	AOC2-12-10.0	Soil	X			
FBI312274	312274-09	AOC2-13-6.5	Soil	X	X		
FBI312274	312274-10	AOC2-13-7.5	Soil	X			
FBI312274	312274-11	AOC2-13-10.0	Soil				
FBI312274	312274-12	AOC2-14-6.0-6.5	Soil	X			
FBI312274	312274-13	AOC2-14-8.5	Soil	X			
FBI312274	312274-14	AOC2-14-9.0	Soil	X			
FBI312274	312274-15	AOC2-15-6.0-6.5	Soil	X			
FBI312274	312274-16	AOC2-16-6.5	Soil				
FBI312274	312274-17	AOC2-16-8.5	Soil				
FBI312274	312274-18	AOC2-17-6.5	Soil	X			
FBI312274	312274-19	AOC2-17-8.5	Soil				
FBI312274	312274-20	AOC2-15-7.5	Soil	X			
K2314243	K2314243-001	AOC2-09-2.0	Soil			X	X
K2314243	K2314243-002	AOC2-09-4.0	Soil			X	X
K2314243	K2314243-003	AOC2-10-2.0	Soil				
K2314243	K2314243-004	AOC2-10-4.0	Soil				
K2314243	K2314243-005	AOC2-110-2.0	Soil				

Attachment 2
Data Qualifier Definitions

Attachment 2
Data Qualifier Definitions

Qualifer	Definition
U	The analyte is not detected at the specified reporting limit.
UJ	The analyte is not detected and the reporting limit is estimated.
J	The result value is estimated.
R	The result was rejected during validation.
DNR	The result was rejected in favor of a more appropriate result/analysis.

Attachment 3
Qualified Data Summary Table

Attachment 3
Qualified Data Summary Table

Sample ID	Internal Lab Sample ID	Analyte Class	Analyte	Result	Unit	Lab Qualifier	Interpreted Qualifier	Reason
AOC2-17-6.5	312274-18	NWTPH-Dx	Diesel-range organics	50	mg/kg	U ht	UJ	Hold time exceedance
			Oil-range organics	250	mg/kg	U ht	UJ	

Abbreviations:

mg/kg Milligrams per kilogram

Engineering Design Report

Smith-Kem Site

Appendix B
Pre-Remedial Design Investigation
Boring Logs

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PROJECT: Smith Kem	LOCATION:	BORING ID: AOC1-01	
LOGGED BY: P. Osterhout	BORING LOCATION: N.W side of AOC1 (in front of garage door)		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: TerraSonic LAB	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 8'	DEPTH TO WATER (ft bgs): 5'	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/5/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	GW					
	SW	Black, Sand w/ silt, gravel, coal, brick frag, musty odor, loose			1.2	
1						
	ML-SW	becomes silty + more gravelly, musty odor			3.5	AOC1-01-02 @ 12:10 (L. Pest)
2		Brown GRAVEL w/ F-C Sand + cobbles				
	GW				2.2	
3						
		Becomes dark brown, moist, no odor			0.2	
4						
	▽	Wet at 5'				AOC1-01-05 @ 12:15 (L. Pest)
5		Coarsens (C. gravel)			0.3	
		Increased fine-med. sand, no silt, slight orange-brown coloration			0.1	
6						
						AOC1-01-07 @ 12:20 (archive)
7						
		Bottom of boring at 8' bgs			0.2	
8						
9						
10						
11						
12						

ABBREVIATIONS:
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ppm = parts per million
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NOTES:

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PROJECT: Smith Kem	LOCATION:	BORING ID: ADC1-02	
LOGGED BY: P. Osterhout	BORING LOCATION: North of ADC1 (South of Bathroom)		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terra Sonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 10'	DEPTH TO WATER (ft bgs): 5'	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/5/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	Gravel	Air knife to 3.4' bgs (FILL)				
1					0.2	
2	GM	Brick fragment, Black, silty GRAVEL and Cobbles w/ sand, musky odor (FILL)				ADC1-02-2.5 @ 11:15 (L. Pest)
3	GW	Brown/gray sandy GRAVEL w/ Cobbles, no odor			0.3	
					0.2	
5	▽	Becomes moist SAA				ADC1-02-05 @ 11:20 (L. Pest)
6					0.2	
7		Becomes reddish-orange brown, no odor SAA				
8		Becomes brown again, SAA			0.2	ADC1-02-08 @ 11:25 (archive)
9						
10					0.9	
12						

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PROJECT: Smith Kem	LOCATION: ADC1	BORING ID: ADC1-03	
LOGGED BY: P. Osterhout	BORING LOCATION: NE Side of ADC (next to stop sign)		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 7'	DEPTH TO WATER (ft bgs): 5.5	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/6/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture; odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill	Gravel g.s. (~1-2' higher than surrounding area), loose, dry			0.6	
1		At 1' bgs, moist, musty odor			0.1	
2		Large cobble at 2', then black silty/sandy fill w/charcoal			0.1	ADC1-03-2.0 @ 16:00 (L. Post)
3					0.2	
4	ML/GW	Bottom of 5' interval has Sandy GRAVEL no odor, moist				ADC1-03-4.0 @ 16:05 (archive)
5	?	no recovery 4-5. Driller noted soft drilling to ~4.5' bgs. (Slough)				
6	▽ GM-GW	Becomes wet at 5.5' bgs Brown silty/sandy, w-g GRAVEL w/cobbles, wet, no odor			0.1	
7		Bottom				
8						
9						
10						
11						
12						

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PROJECT: Smith Kem	LOCATION: AOC1	BORING ID: AOC1-04	
LOGGED BY: P. Osterhout	BORING LOCATION: Low spot. Moved ~4 ft west		
DRILLED BY: AEC-Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 5'	DEPTH TO WATER (ft bgs): 2.25'	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/6/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill	Gravel ground surface				
					1.7	
1	GM	moist dark brown/gray silty GRAVEL w/ sand mild musty odor				
2	GW	wet/saturated V. Coarse Gravel and cobbles, wet, w/ coarse sand,			0.1	AOC1-04-2.0 @16:40 (L-pest)
3	GW- GM	no odor Becomes increasingly sandy at 3' bgs			0.0	
4		No recovery 4-5			0.1	AOC1-04-4.0 @16:45 (L-pest)
5		-Bottom of drive.				
6		No archive deeper sample b/c poor recovery 4-5' and bees nest next to boring location.				
7						
8						
9						
10						
11						
12						

ABBREVIATIONS:
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PROJECT: Smith Kem	**LOCATION:**	**BORING ID:** ADC1-05	
LOGGED BY: P.Osterhout	**BORING LOCATION:** South of low spot		
DRILLED BY: AEC - Cole	**NORTHING:**	**EASTING:**	
DRILLING EQUIPMENT: Terrasonic	**SURFACE ELEVATION:**	**COORDINATE SYSTEM:**	
DRILLING METHOD: Sonic	**TOTAL DEPTH (ft bgs):** ~~6~~ 7'	**DEPTH TO WATER (ft bgs):** 4.5'	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	**BORING DIAMETER:** 4"	**DRILL DATE:** 9/5/23 @ 11:55	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	GW	Gravel g.s. (FILL			0.1	
1					0.1	
2	FILL	Black, coal chunks w/ sand + gravel, loose, no odor (FILL)			0.2	ADC1-05-02 @ 11:50 (Lpest)
3	ML	SILT (dark brown, moist, soft, musky odor)			0.2	
4	P.O.	Becomes moist to wet Sandy GRAVEL w/ cobbles, moist, then wet at 4.5', no odor, loose.			0.2	ADC1-05-04 @ 11:55 (archive)
5	GW	Coarsens 4.5 - 7' (large gravel, well sorted)			0.1	
6		SAA			0.2	
7						
8						
9						
10						
11						
12						

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PROJECT: Smith Kem	LOCATION:	BORING ID: ADCI-06	
LOGGED BY:	BORING LOCATION: ~~Moved 9' east away from Power~~		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 7'	DEPTH TO WATER (ft bgs): 4.5'	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/5/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	—	Gravel g.s. w/ Sand			0.9	
1	GM	Becomes black w/ silt, loose, no odor			0.4	
2	—	Gray/brown GRAVEL (sub-rounded)			0.2	
	GW	w/ cobbles + f. - co Sand				
3						
4		Increased ~fine-med. Sand, moist, no odor			0.3	ADCI-06-04 @ 11:40 (L.pest)
	▽	Becomes wet, no odor (sub angular)				
5		Coarsens to 6.5' (coarse gravel + cobbles)			0.2	
		then increased fine-med sand to 7'				
6					0.1	ADCI-06-06.5 @ 11:45 (archive)
7		— Bottom			0.5	
8						
9						
10						
11						
12						

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PROJECT: Smith Kem	**LOCATION:** Moved 9' east of proposed location	**BORING ID:** AOC1-07
LOGGED BY: P. Osterhout	**BORING LOCATION:** SE AOC1 / Near NE corner of office	
DRILLED BY: AEC-Cole	**NORTHING:** Long 120.55466 °W	**EASTING:** Lat 46.99913 °N
DRILLING EQUIPMENT: Terra Sonic	**SURFACE ELEVATION:**	**COORDINATE SYSTEM:**
DRILLING METHOD: Sonic	**TOTAL DEPTH (ft bgs):** 7'	**DEPTH TO WATER (ft bgs):** 4.5
SAMPLING METHOD/SAMPLER LENGTH: Continuous	**BORING DIAMETER:** 4"	**DRILL DATE:** 9/5/23

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	FILL/ GM	Air knife, cleared to 3.8', Stepped over 9' to east			0.3	
1	GW-GM	0-1' Black, loose silty GRAVEL w/ sand + cobbles, no odor (FILL)			6.2	
2		Then brown/gray Sandy/cobbly GRAVEL, loose, no odor, moist			2.9	AOC1-07-2.5 @ 11:25 (1 pest)
3		Driller noted 3.5'-5' more dense than AOC1-02 and AOC1-09 (lots of cobbles)			0.3	
4	▽	Dry at 4' Becomes moist to wet @ 4.5'				
5		Becomes wet @ 5' SAA			0.4	AOC1-07-05 @ 11:30 (1 pest)
6	GW-GM	Increased fine sand			0.2	
7		Bottom @ 7' (lost 0.25' in hole)			0.9	AOC1-07 6.5 @ 11:35 (archive)
8						
9						
10						
11						
12						

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PROJECT: Smith Kem	**LOCATION:**	**BORING ID:** ADCI-08	
LOGGED BY: P. Osterhout	**BORING LOCATION:** West side of ADCI (east of gas line)		
DRILLED BY: AEC - Cole	**NORTHING:**	**EASTING:**	
DRILLING EQUIPMENT: Terrasonic	**SURFACE ELEVATION:**	**COORDINATE SYSTEM:**	
DRILLING METHOD: Sonic	**TOTAL DEPTH (ft bgs):** 7'	**DEPTH TO WATER (ft bgs):** 5'	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	**BORING DIAMETER:** 4"	**DRILL DATE:** 9/5/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	GW	Gravel g.s. (FILL)			2.4	
1	FILL	Black silty SAND + GRAVEL, coal fragments, mild musty odor, loose			0.6	
2	GW	Brown GRAVEL w/ sand + cobbles, trace silt, loose, no odor, moist				ADCI-08-2.5 @ 12:00 (L. Pest)
3					0.2	
4					0.2	
5	▽	Wet at 5', SAA			0.2	ADCI-08-05 @ 12:05 (archive)
6		Increased sand (f-c), no silt			0.1	
7		Bottom of boring				
8						
9						
10						
11						
12						

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PROJECT: Smith Kem	LOCATION:	BORING ID: AOC1-09	
LOGGED BY: P. Osterhout	BORING LOCATION: Middle of AOC4, west of MW-4		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 10'	DEPTH TO WATER (ft bgs): 4.5'	
SAMPLING METHOD/SAMPLER LENGTH: Continuous, bagged	BORING DIAMETER:	DRILL DATE: 9/5/23 (10:44)	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	GRAVEL	Air knife to 3.0' (stepover to drill)			0.2	
1	GM	BLACK Silty GRAVEL w/ sand + cobbles dry, mild musky odor			0.6	
					0.9	
2	GW	Brown Cobbly GRAVEL w/ sand,				
3		subrounded, loose, fine to coarse			0.2	
4	▽	Becomes moist to wet				
5		SAA			0.2	AOC1-09-05 @ 11:00 (L. pest)
6					0.7	
7		SAA			0.2	
8		Increased fine sand			0.1	AOC1-09-08 @ 11:05 (L. pest)
9		Increased coarse sand				
10	GM	Increase in silt w/ coarse sand in Cobbles + gravel → Bottom at 10'			1.9	AOC1-09-10 @ 11:10 (Archive)
11						
12						

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PROJECT: Smith Kem	**LOCATION:** ADC2	**BORING ID:** ADC2-01	
LOGGED BY: P. Osterhout	**BORING LOCATION:** North side of ADC2		
DRILLED BY: AEC - Cole	**NORTHING:**	**EASTING:**	
DRILLING EQUIPMENT: Terrasonic	**SURFACE ELEVATION:**	**COORDINATE SYSTEM:**	
DRILLING METHOD: Sonic	**TOTAL DEPTH (ft bgs):** 7'	**DEPTH TO WATER (ft bgs):** 4'	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	**BORING DIAMETER:** 4"	**DRILL DATE:** 9/6/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	FILL	Gray Gravel g.s			1.6	
	FILL	Black sandy/silty fill w/ charcoal, loose, dry, mild musty odor				
1	ML	Dark brown SILT w/ gravel, moist, moderately dense. V. slight musty odor			0.3	ADC2-01-2.0 @15:10 (L. pest)
2	GM	Gray/brown silty, sandy GRAVEL w/ cobbles; loose,			0.3	
3	SP	Med. p-g SAND), brown, moist, no odor			0.2	ADC2-01-4.0 @15:15 (L. pest)
4	GM/GW	wet at 4' Silty, sandy GRAVEL w/ cobbles. w-g, wet, no odor to bottom of core			0.2	
5					0.7	ADC2-01-6.0 @15:20 (archive)
6					0.2	
7		Bottom				
8						
9						
10						
11						
12						

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NOTES:

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PROJECT: Smith Kem	LOCATION: AOC2	BORING ID: AOC2-02	
LOGGED BY: P. Osterhout	BORING LOCATION:		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 5'	DEPTH TO WATER (ft bgs): 4.5'	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/6/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill	Gravel g.s. loose, dry			0.4	
1	Fill	Black sandy/silty fill w/ charcoal, loose, dry, no odor			0.3	
2	ML	Dark brown SILT w/ gravel, moderately dense, moist, no odor			0.2	AOC2-02-20 @15:30 (L. pest)
3					0.2	
4	GM	Brown silty/ sandy GRAVEL w/ cobbles			0.1	AOC2-02-4.0 @15:35 (archive)
5						
6						
7						
8						
9						
10						
11						
12						

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PROJECT: Smith Farm	LOCATION: ADC2	BORING ID: ADC2-03	
LOGGED BY:	BORING LOCATION: Adjacent to Rail spur		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 10'	DEPTH TO WATER (ft bgs): 5?	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/6/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	FILL	GRAVEL g.s., loose				
1	FILL	Black sandy/gravel FILL w/ charcoal, loose, no odor, dry			5.6	
2	ML	Dark brown SILT w/ fine sand and gravel, Mast, soft, no odor			3.2	
					1.4	ADC2-03-2.0 @10:45 (L. pest)
3					1.4	
4	SM	Becomes lighter brown, grades to silty fine SAND, no odor, moist			5.9	ADC2-03-4.0 @10:50 (L. pest)
5	GM-GW	Gray stained silty GRAVEL w/ strong TPH odor	Slight?		98.2	
		odor increases (strongest @ 6.5')			131	
6					202	ADC2-03-6.5 @10:52 (TPH archive)
7		V. Slight silvery sheen at 7.5', mild TPH odor No staining by 7.5', wet			16	ADC2-03-7.5 @10:55 (P. Archive)
8	GW	No sheen or odor at 8.5', fewer fines, increased coarse sand and gravel.			7.0	ADC2-03-8.5 @11:00 (TPH archive) clean?
9	GM	Becomes silty GRAVEL w-g				
10						
11						
12						

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PROJECT: Smith Kem	LOCATION: ADC2	BORING ID: ADC2-04	
LOGGED BY: P. Osterhout	BORING LOCATION:		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): ~~P.OT~~ 10'	DEPTH TO WATER (ft bgs): 5.5'	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/6/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill	Gray/brown dry/loose Silty Gravel (Fill) musty/ammonia odor				
1					8.9	
2	Fill	Black/dark brown Sandy/silty Fill w/ charcoal no odor			2.0	
3	ML	Dark brown SiH w/ gravel, moist, soft, no odor			1.3	ADC2-04-3.0 @ 09:50 (L+A pest)
4	GM	Brown Silty GRAVEL				
5	▽	TPH odor mild, becomes wet			1.8 33.2	
6	GW	Coarsens/less SiH, more coarse sand/gravel Gray Staining w/ strong TPH odor and brown droplets			59.6	ADC2-04-6.0 @ 09:52 (Archive ~~pest~~ TPH)
7	GW	Becomes brown, odor mild to moderate w/ Silver Sheen			42	ADC2-04-7.0 @ 09:55 (Archive pest)
8		Becomes more gray, rainbow Sheen at 8.5 ~~odor moderate, Saturated~~			39	ADC2-04-8.5 @ 10:02 (TPH archive)
9		Odor dissipates, becomes more brown			15.7	ADC2-04-9.5 @ 10:00 (Archive TPH)
10						
11						
12						

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PROJECT: Smith Kem	LOCATION: AOC2	BORING ID: AOC2-05	
LOGGED BY: P. Osterhout	BORING LOCATION: South		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 10'	DEPTH TO WATER (ft bgs): 4.5'	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/6/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill	Gray/brown Gravel g.s. (GM/Fill)			0.2	
1		Dark brown/black silty/sandy gravel w/ charcoal, loose, mild musty odor			0.9	
2						
3	ML	Dark brown, silt w/ fine sand, moist, w/ gravel, moderately dense, mild musty odor			1.3	AOC2-05-3.0 @ 09:30 (L+A Pest)
	GM	Brown silty/sandy GRAVEL, well graded, loose, moist, no odor			0.1	
4	▽	wet at 4.5'			0.2	AOC2-105-3.0 @ 09:32 (Field dup) both
5		Slightly coarsens w/ depth (coarser sand and more cobbles)			1.1	
6						AOC2-05-6.0 @ 09:35 (L+A Pest)
7					0.7	AOC2-05-7.0 @ 09:40 (archive both)
8					0.3	
9		SAA			0.3	
10						
11						
12						

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PROJECT: Smith Kem	LOCATION:	BORING ID: AOC2-06	
LOGGED BY: P. Osterhout	BORING LOCATION:		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 5'	DEPTH TO WATER (ft bgs): 5'?	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/6/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill	Gray Gravel g.s.				
	GM	Brown silty GRAVEL w/ sand + cobbles, loose v. slight musty odor, moist			0.1	
1						
					0.2	
2						AOC2-06-2.0 @ 09:15 (L. + A. Rest)
	GM	Gray/brown, SAA, dry				
	GM	Dark brown, moist, slightly increased silt, SAA			0.2	
3	GM	then becomes light brown, loose, dry				
	GM	no odor, otherwise SAA			0.2	AOC2-06-4.0 @ 09:20 (archive L+A Rest)
4						
					0.4	
5						
6						
7						
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10						
11						
12						

ABBREVIATIONS:
ft bgs = feet below ground surface
ppm = parts per million
USCS = Unified Soil Classification System
▼ = denotes groundwater table

NOTES:

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PROJECT: Smith Kem	**LOCATION:** ADC2	**BORING ID:** ADC2-07	
LOGGED BY: P. Osterhout	**BORING LOCATION:** West side of ADC2 (In line w/ middle of concrete drainage)		
DRILLED BY: AEC - Cole	**NORTHING:**	**EASTING:**	
DRILLING EQUIPMENT: TerraSonic	**SURFACE ELEVATION:**	**COORDINATE SYSTEM:**	
DRILLING METHOD: Sonic	**TOTAL DEPTH (ft bgs):** 5'	**DEPTH TO WATER (ft bgs):** 5'	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	**BORING DIAMETER:** 4"	**DRILL DATE:** 9/6/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill	Gravel ground surface				
	Fill	Black, sandy/gravelly Silt w/ charcoal, mild musty odor, dry; loose; then dark brown SILT w/ sand + gravel, moist, musty odor (mild)			2.0	
1	ML					
	GM	Cobble @ 1.5'			1.6	
2		Brown Silty GRAVEL w/ sand + cobbles (w-g) dry to moist, loose; no odor			1.1	ADC2-07-2.0 @ 11:00 (L. pest)
3					1.1	
4		SAA			1.1	ADC2-07-4.0 @ 11:05 (Archive)
		-Bottom of boring @ 5' bgs				
5						
6						
7						
8						
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12						

ABBREVIATIONS:
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PROJECT: Smith Kem	LOCATION: AOC2	BORING ID: AOC2-08	
LOGGED BY: P. Osterhout	BORING LOCATION: NW edge of AOC2		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 7'	DEPTH TO WATER (ft bgs): ~4.5	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/6/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill/ GM	Gravel ground surface, then dark brown, Silty GRAVEL w/ sand, moist, musty odor (mild)			1.1	
1					0.5	
2					0.4	AOC2-08-2.0 @15:00 (L. pest)
3	GW-GM	Large cobble at 2.75', then fines decrease Brown Sandy GRAVEL w/ silt, loose, dry, no odor			0.3	
4	▽	wet to moist at 4.5'			0.3	
5		Wet/saturated at 5'			0.6	AOC2-08-4.0 @15:05 (L pest)
6		Sand/gravel coarsens down, no odor			0.2	AOC2-08-6.0 @15:10 (archive)
7					0.3	
8						
9						
10						
11						
12						

ABBREVIATIONS:
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PROJECT: Smith Kem	LOCATION:	BORING ID: ADC3-01	
LOGGED BY: P. Osterhout	BORING LOCATION:		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 3'	DEPTH TO WATER (ft bgs): NA	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/7/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	FILL	Gravel ground surface, dry, loose, no odor			0.3	ADC3-01-0.5-1.0 @09:05 (Li Pest) Arch. DIF
1	GM	Dark brown Silty GRAVEL w/ sand + cobbles, moist, loose, no indication of burning.			0.2	ADC3-01-2.0 @09:10 (Archive P+DIF)
2						
3		musty odor at bottom of boring (mild) Some rootlets.			0.7	
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9						
10						
12						

ABBREVIATIONS:
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NOTES:

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PROJECT: Smith Kem	LOCATION:	BORING ID: ADC3-02	
LOGGED BY: P. Osterhout	BORING LOCATION: Alley		
DRILLED BY: AEC-Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 3'	DEPTH TO WATER (ft bgs): NA	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/7/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill	Gravel g.s., gray silty gravel, loose, dry			0.1	
1	GM	Brown silty gravel w/ sand + cobbles, loose, dry to moist, mild musty/organic odor. No indication of burning				ADC3-02-0.5-1.0 @ 08:25 (L.P/Archive D/F)
2					0.1	ADC3-02-2.0 @ 08:30 (Archive P+D/F)
3	GM	Gray/brown, SAA w/ less organic/lighter color no odor, dry, loose			0.1	
4						
5						
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ABBREVIATIONS:
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PROJECT: Smith Kem	LOCATION: AOC3	BORING ID: AOC3-03	
LOGGED BY: P. Osterhout	BORING LOCATION:		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 3'	DEPTH TO WATER (ft bgs): NA	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/7/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill	Gravel g.s. (silty, loose, dry)			0.1	
1	ML-GM	Dark brown gravelly SILT w/ sand, moist, moderately dense/cohesive, trace wood chunks no odor, no indication of burning			0.0	AOC3-03-0.5-1.0 @ 08:45 (L. pest, Arc. D/F)
2	GW	Gray sandy GRAVEL w/ cobbles + fines, w.g., loose, dry, no odor			0.0	AOC3-03-2.0 @ 08:50 (Arch. P + D/F)
3						
5						Field duplicate collected @ 0.5-1.0 (AOC3-103-0.5-1.0 @ 08:47)
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ABBREVIATIONS:
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NOTES:

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PROJECT: Smithkem	LOCATION: AOC3	BORING ID: AOC3-04	
LOGGED BY: P. Osterhout	BORING LOCATION: South side of AOC3		
DRILLED BY: AEC · Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 3'	DEPTH TO WATER (ft bgs): NA	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/7/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill	Gravel GS			0.1	
	ML	Dark brown gravelly SILT w/ sand, moist, cohesive, moderately dense, no odor, no indication of burning				AOC3-04-0.5-1.0 @09:00 (LPH/Arch.DIF)
1					0.2	
2						AOC3-04-2.0 @09:05 (Arch.LP+DIF)
		Bottom of boring				
3						
4						
5						
6						
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ABBREVIATIONS:
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PROJECT: Smith Kem	LOCATION: AOC3	BORING ID: AOC3-05	
LOGGED BY: P. Osterhout	BORING LOCATION: SE side of AOC3		
DRILLED BY: AEC-Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 3'	DEPTH TO WATER (ft bgs): NA	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/7/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	FILL	Gravel g.s				
1	ML	Dark brown SILT w/ trace sand + gravel, trace wood, moist, no odor or signs of burning			0.1	AOC3-05-0.5-1.0 @09:15 (L.Pest/Arch.D/F)
2		Becomes more cohesive at 1.5' w/ gravel and coarsens down to Sandy SILT or Silty v. fine SAND at 2.5-3', no odor			0.2	AOC3-05-2.0 @09:20 (Arch. LP+D/F)
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ABBREVIATIONS:
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PROJECT: Smith Kum	LOCATION: Habitat for Humanity	BORING ID: HHH-01	
LOGGED BY: P. Osterhout	BORING LOCATION:		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 3'	DEPTH TO WATER (ft bgs): NA	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/7/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	FILL	Gravel g.s.				
	GM	Dark brown Silty GRAVEL, moist, no odor			0.3	HHH-01-0.5-1.0 @09:40 (Arch LP/DIF)
1		Brick fragments at 1'				
	GW	Grades to w-g Sandy GRAVEL, moist, loose				
2		Some black staining at 2.5', potential indication of burning?			0.1	HHH-01-2.5 @09:45 (Arch LP/DIF)
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PROJECT: Smith Kem	LOCATION: H4H	BORING ID: H4H-02	
LOGGED BY: P.Osterhout	BORING LOCATION:		
DRILLED BY: AEC-Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terra Sonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 3'	DEPTH TO WATER (ft bgs): N/A	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/7/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	FILL	Gravel G.S.				
	ML	Dark brown to black gravelly/cobbly SILT			0.4	H4H-02-0.5-1.0 @ 10:00 (Archive)
1		no odor, moist				
	GW	Grades to Sandy GRAVEL, well graded,			0.2	H4H-02-2.0 @ 10:05 (Archive)
2		loose, moist, no odor				
		Bottom of boring				
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NOTES:

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PROJECT: Smith Farm	LOCATION: H4H	BORING ID: H4H-03	
LOGGED BY: P. Osterhout	BORING LOCATION:		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terra sonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 31	DEPTH TO WATER (ft bgs): NA	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/7/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill	Gravel ground surface				
1	ML	Dark brown gravelly SILT, moist, no odor			0.3	H4H-03-0.5-10 @ 10:10 (Archive)
2		Grades to Brown sandy (fine) SILT w/ gravel, moist, no odor			0.2	H4H-03-2.0 @ 10:15 (Archive)
3		No obvious indication of burning				
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ABBREVIATIONS:
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NOTES:

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PROJECT: Smith Kem	LOCATION: H4H	BORING ID: H4H-04	
LOGGED BY: P. Ostermout	BORING LOCATION:		
DRILLED BY: AEC-Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 31	DEPTH TO WATER (ft bgs): NA	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/7/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill	Gravel g.s.			0.4	
1	ML	Black gravelly SILT, moist, trace wood chunks, no odor, ~~no indication of burning~~ one 2mm chunk of charcoal observed at 1'			0.3	H4H-04-0.5-1.0 @ 10:20 (archive)
2	GM GW	Becomes brown, grades to silty GRAVEL and then sandy w-g GRAVEL, moist, loose, no odor			0.2	H4H-04-2.0 @ 10:25 (archive)
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ABBREVIATIONS:
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PROJECT: Smith Kem	LOCATION: H4H	BORING ID: H4H-05	
LOGGED BY: P. Osterhout	BORING LOCATION:		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 3'	DEPTH TO WATER (ft bgs): NA	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/7/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill	Gravel g.s.				
	ML	Dark brown gravelly SILT, moist, no odor no indication of burning, trace wood			1.5	H4H-0.5-0.5-1.0 @ 10:35 (archive)
1					0.2	
2	GW	Brown sandy GRAVEL, loose, dry, no odor			0.1	H4H-05-2.0 @ 10:40 (archive)
3		Bottom of core at 3'				
4						
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ABBREVIATIONS:
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PROJECT: Smithkem	LOCATION: H4H	BORING ID: H4H-06	
LOGGED BY: P. Osterhout	BORING LOCATION:		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 3'	DEPTH TO WATER (ft bgs): NA	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/7/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill	Gravel ground surface			6.5	
	ML	Dark brown gravelly SILT, moist, no odor				H4H-06-0.5-1.0 @ 10:50 (archive)
1	GM-GW	Brown silty/sandy GRAVEL; well-graded increasing sand w/ depth, dry to moist, no odor, loose			0.4	
2					0.2	H4H-06-2.0 @ 10:55 (archive)
		Bottom of boring				
3		No indication of burning				
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PROJECT: Smith Kem	**LOCATION:** H4H	**BORING ID:** H4H-07	
LOGGED BY: P. Osterhout	**BORING LOCATION:**		
DRILLED BY: AEC - Cole	**NORTHING:**	**EASTING:**	
DRILLING EQUIPMENT: Terrasonic	**SURFACE ELEVATION:**	**COORDINATE SYSTEM:**	
DRILLING METHOD: Sonic	**TOTAL DEPTH (ft bgs):** 3'	**DEPTH TO WATER (ft bgs):** NA	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	**BORING DIAMETER:** 4"	**DRILL DATE:** 9/7/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill	Gravel g.s			1.1	H4H-07-0.5-1.0 @ 11:05 (archive)
1	ML	Black gravelly SILT, moist, no odor				
	GM	Brown, silty GRAVEL, moist, no odor			0.2	
2	GW	Brown sandy GRAVEL, w.g. moist to dry, loose, no odor			0.1	H4H-07-2.0 @ 11:10 (archive)
3						
4						
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ABBREVIATIONS:
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PROJECT: Smith Kem	LOCATION: AOC4	BORING ID: AOC4-09	
LOGGED BY: P. Osterhout	BORING LOCATION: North side		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 9'	DEPTH TO WATER (ft bgs): 6'	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/5/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill	Gravel g.s., loose, dry, brown, then			0.4	
1	ML	Dark brown, silt w/ sand + gravel, moist			0.3	
		Musty odor 1-2' bgs				
2	GM	Brown/gray silty GRAVEL, w-g w/ cobbles + sand dry to moist, loose			0.6	AOC4-01-2.5 @ 17:20 (L. Pest)
3					0.4	
4						
5		SAA			0.3	AOC4-01-5.0 @ 17:25 (archive)
6	GW	Wet at 6' bgs ▽ Silt decreases, coarse sand and gravel increases, coarsens w/ depth, no odor			1.2	
7					0.2	
8		Bottom of boring			0.2	
9						
10						
11						
12						

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PROJECT: Smith Kem	LOCATION: AOC4	BORING ID: AOC4-02	
LOGGED BY: P. Osterhout	BORING LOCATION: Inside fence @ SW corner of contained area		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terra Sonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 10'	DEPTH TO WATER (ft bgs): ? 78'	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/6/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill	Brown gravel g.s.			7.1	
1	ML	Dark brown gravelly, sandy SILT, dry, loose, no odor				
2	GM	Brown/gray silty GRAVEL w/ sand + cobbles, well-graded, dry, loose, no odor			2.5	
					1.6	AOC4-02-2.5 @ 08:15 (L.pest / Lead)
3					1.4	
4		SAA			3.8	
5		Drilling v. hot. Melted sample bag (lost bottom ~0.5') also likely vaporized any gw to ~8' bgs				AOC4-02 ~~5.0~~ 4.5 @ 08:20 (L.pest)
6		SAA			24	
7						AOC4-02-7.0 @ 08:25 (Archive pest)
8		Moist to wet at 8' (drilling temp lower) Dark gray staining and greasy appearance w/ strong TPH odor (brown droplets in sheen test)			38	AOC4-02-8.5 @ 8:30 (TPH archive) dirty
					67.0	
9		odor dissipates quickly, no staining @ 9'				AOC4-02-9.5 @ 8:35 (TPH archive) clean?
10		Bottom of boring = 10' bgs			3.7	
11						
12						

ABBREVIATIONS:
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NOTES:

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PROJECT: Smith Farm	LOCATION: ADC4	BORING ID: ADC4-03	
LOGGED BY: P. Osterhout	BORING LOCATION: ADC4 South of MW-12		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: TerraSonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 10'	DEPTH TO WATER (ft bgs): 5	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/5/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill	Air knife to 55", clear, but stepover 1' to get 0-5' core				
1		Gravel g.s. (Fill), loose, dry			0.6	
2	GM	Brown Silty gravel, moist, soft, no odor Brick fragments			4.6	ADC4-03-02 @ 15:25 (Lipast/lead)
3	GW-GM	Gray/brown w-g GRAVEL w/ sand + cobbles, loose, dry, no odor, variable silt (trace - 10%) to bottom of core.			1.3	ADC4-03-102 @ 15:27 (Field dup)
TPH odor 5	▽	Recovered moist to wet at bottom of sleeve w/ TPH/greasy odor Slough? 5-6' (dry, loose)			0.7	
6		Gray, shiny (SPH) w/ brown droplets (sheen test) and strong TPH/greasy odor ~6-6.75' odor dissipates quickly w/depth No staining @ 7' bgs (mild odor)			3.8	ADC4-03-05 @ 15:30 (archive)
7					24.0	ADC4-03-06.5 @ (TPH archive) dirty
8		Drove to 10', recovered v. soupy material Same as 7'			1.2	ADC4-03-07 @ (TPH archive) clean?
9					1.1	
10						

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NOTES: If 5-6' Slough, 6-7' description/sample likely more representative of 5.5-6'

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PROJECT: Smith Kem	LOCATION: AOC4	BORING ID: AOC4-04	
LOGGED BY: P. Osterhout	BORING LOCATION: Due North of H41 building (NW corner)		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 8'	DEPTH TO WATER (ft bgs): 5'	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/5/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	FILL	Gravel g.s. dry, loose, musty odor				
1					9.2	
2	ML	Gravelly SILT, dark brown, moist, soft			0.3	
	GM	no odor				
3		Gray/brown Silty GRAVEL, dry loose w/ Sand + Cobbles w.g. no odor			1.8	AOC4-04-2.5 @ 15:55 (Lpest/Lead)
4		Becomes moist			0.2	
5	▽	Becomes wet			2.4	AOC4-04-05 @16:00 (archive)
		SAA w/ mild musty odor			2.1	
6		Fines lessen, more gravel + coarse sand,			0.4	
7	GW	wet, no odor				
8		Bottom of boring			0.6	
9						
10						
11						
12						

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NOTES:
No TPH odor

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PROJECT: Smith Kem	LOCATION: AOC4	BORING ID: AOC4-05
LOGGED BY: P. Osterhout	BORING LOCATION:	
DRILLED BY: AEC - Cole	NORTHING:	EASTING:
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 8'	DEPTH TO WATER (ft bgs): 4.5'
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/5/23

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	FILL	Gravel g.s., loose, dry, mild musty odor				
1	ML	Becomes brown gravelly SILT, moist, no odor			0.3	
2					0.2	
3	GM	Gray brown silty GRAVEL w/ Sand + Cobbles			0.2	AOC4-05-2.5 @ 16:20 (L Pest)
4	GW	Becomes Moist			0.2	
	▽	Then wet, no odor				
5	GW	Silt decreases 4.5-5 and 6-8 and f-m sand and gravel increases to bottom of core.			0.2	AOC4-05-05 @ 16:05 (archive LP)
6	GM				0.5	
7	GW	SAA, wet, no odor			0.2	
8					0.2	
9						
10						
11						
12						

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NOTES:

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PROJECT: Smith Kem	LOCATION: AOC4	BORING ID: AOC4-06	
LOGGED BY: P. Osterhout	BORING LOCATION: SW Side of AOC4		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 8'	DEPTH TO WATER (ft bgs): ~4.75'	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/5/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill	Gravel g.s., loose, dry silty/sandy GRAVEL				
1					0.5	
2	GW	Brown Coarse Sand and GRAVEL, loose, dry, no odor			0.2	
	GM	SAA w/ Silt				AOC4-06-2.5 @ 16:15 (L. Pest)
3					0.5	
4					0.2	
5	~~7~~	Wet, no odor			0.2	AOC4-06-05 @ 16:20 (L. Pest)
	?	5-6' loose/dry - slough?			0.6	
6	GW	then SAA w/ decreasing fines, wet, no odor increasing fine-med GRAVEL/coarse sand + fine sand.				AOC6-06-6.5 @ 16:25 (archive)
7					0.2	
		Bottom of boring at 8' bgs			0.2	
8						
9						
10						
11						
12						

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NOTES:

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PROJECT: Smith Kem	LOCATION: AOC4	BORING ID: AOC4-07	
LOGGED BY: P. Osterhout	BORING LOCATION: Moved 3' N of gas line		
DRILLED BY: AEC - Cole	~~NORTHING:~~ long 120.5549° W	~~EASTING:~~ lat 46.9908° N	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 8'	DEPTH TO WATER (ft bgs): 6'	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/5/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	FILL/ GM	Gravel g.s. Light brown, silty GRAVEL (w-g) w/ sand, loose, dry, no odor			1.0	
1					0.3	
2		and cobbles 2-8' bgs			0.2	AOC4-07-2.5 @ 16:45 (L. peat)
3					0.2	AOC4-107-2.5 @ 16:47 (Field dup)
4					0.2	AOC4-07-05 @ 11:50 (L. peat)
5		5-6 dry/SAT			0.2	
6	▽	wet at 6'			0.2	AOC4-07-6.5 @ 16:55 (archive)
7	GW	Clean GRAVEL/COBBLES w/ fine-coarse sand, wet, no odor				
8		Bottom of boring @ 8' bgs			0.1	
9						
10						
11						
12						

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NOTES:

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PROJECT: Smith Kem	LOCATION: AOC4	BORING ID: AOC4-08	
LOGGED BY: P. Osterhout	BORING LOCATION:		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 8'	DEPTH TO WATER (ft bgs): 25'?	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/5/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	FILL/ GM	Gravel Becomes dark brown silty GRAVEL w/ sand, dry, loose, mild musty odor to 2' then no odor / Med. brown / gray silty GRAVEL, w-g w/ sand (F-c) and cobbles to bottom of boring (loose)			0.5	
1						
2					0.2	
3					0.4	AOC4-08-2.5 @ 17:05 (L. Pest)
4					0.2	
5	▽?	Moist at 5'			0.2	AOC4-08-05 @ 17:10 (archive)
6		Poor recovery 5-8' bgs Saturated, coarse sand + gravel, no odor			0.2	
7						
8						
9						
10						
11						
12						

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NOTES:

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PROJECT: Smith Kem	LOCATION: ADCS	BORING ID: ADCS-01	
LOGGED BY: P. Osterhout	BORING LOCATION: North		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 8'	DEPTH TO WATER (ft bgs): 4.5'	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/5/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	GW	Gravel gs:				
1	ML-SW	Black-brown Silt w/ sand + gravel, loose, dry, no odor Driller noted v. soft drilling 0-4' bgs			3.1	
2	ML	Dark brown, soft SILT w/ fine sand + trace gravel, moist, no odor			2.2	ADCS-01-2.5 @ 14:20 (L. pest)
3					0.4	
4	GW	Gray/brown Cobbly, Sandy, well-gr. GRAVEL loose, dry, no odor Becomes moist to wet				
5					0.4	ADCS-01-05 @ 14:25 (L. pest)
6		Gray, GRAVEL w/ sand (well graded), shiny luster but no sheen or droplets. Strong petroleum odor			5.1 50.2	ADCS-01-06-6.5 @ 14:29 (TPH archive)
7		No odor directly above or below 6-6.5' SAND (3.5-6)				ADCS-01-07 @ 14:30 (Archive - LAB TPH)
8		Bottom at 8' bgs			0.8	ADCS-101-05 (Field Dup) collected @ 14:27 (L. pest)
9						
10						
12						

ABBREVIATIONS:
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NOTES:

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PROJECT: Smith Kem	LOCATION: AOCS	BORING ID: AOCS-02	
LOGGED BY: P. Osterhout	BORING LOCATION: East		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 8'	DEPTH TO WATER (ft bgs): 5'	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/5/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	GW	Gravel g.s, Silty sandy Fill; loose, dry				
	GM	some coal, no odor		1.6		
1		Gravel at 1.5' rounded				
	ML	Brown, soft SILT w/ v. fine sand, trace gravel, moist, no odor		4.1		
2						AOCS-02-2.5 @ 14:30 (L. Pest)
3				0.8		
4	GW	Brown/gray GRAVEL w-g w/ f-c sand				
	▽	and Cobbles, loose, no odor, wet @ 5'		1.5		AOCS-02-05 @ 14:35 (L. pest)
5	GW-GM	increased fines/silt + sand				
				1.1		
6		then less silt, more gravel, no odor - wet.				AOCS-02-06 @ 14:40 (archive L.P)
7				2.0		
8						
9						
10						
11						
12						

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NOTES:

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PROJECT: Smith Kem	LOCATION: AOCS	BORING ID: AOCS-03	
LOGGED BY: P. Osterhout	BORING LOCATION: South		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 8'	DEPTH TO WATER (ft bgs): 5'	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/5/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0	FILL	Gravel g.s., then dark brown sandy, silty Fill w/ coal, loose, dry, no odor				
1		(Driller noted v. soft drilling 0-2' bgs			0.3	
	ML	Dark brown SILT, soft, moist, no odor			0.3	
2	GW GM	Gray/brown silty, sandy w-g GRAVEL w/ cobbles, loose, dry, no odor				AOCS-03-2.5 @ 14:45 (L-pest)
3					0.2	
4					0.3	
	▽	becomes moist to wet				AOCS-03-05 @ 14:56 (archive L-pest)
5	GW	Fines/silt lessen, fine gravel increases			0.9	
6						
7					0.3	
		Bottom of boring			0.3	
8						
9						
10						
11						
12						

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NOTES:

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PROJECT: Smith Kem	LOCATION: ADCS	BORING ID: ADCS-04	
LOGGED BY: P. Osterhout	BORING LOCATION: West		
DRILLED BY: AEC - Cole	NORTHING:	EASTING:	
DRILLING EQUIPMENT: & Terrasonic	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 15'	DEPTH TO WATER (ft bgs): 8?	
SAMPLING METHOD/SAMPLER LENGTH: Continuous	BORING DIAMETER: 4"	DRILL DATE: 9/5/23	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
0		Gravel q.s. poor recovery (~2') on initial drive. Re-drive ~1.5' NW to re-sample 0-5'				
					0.2	
1	ML	Dark brown ~~silty~~ GRAVELY SILT, moist, no odor w/ sand				
2		(Driller noted easy/soft drilling 2'-4' bgs)			0.2	ADCS-04-2.5 @ 13:45 (L. pest)
	GW	Large cobbles, light brown cobbly GRAVEL w/ Sand, loose, dry, no odor				
3						
4						
5					1.5	ADCS-04-05 @ 13:50 (L. pest)
		SAA				ADCS-04-05-06 @ 13:55 (grain size)
6					0.3	
7						ADCS-04-07 @ 14:00 (archive)
	▽?	wet at 8' but sonic heat may have vaporized water higher.			0.4	
8						ADCS-04-08-09 @ 14:05 (grain size)
		Increase Sand (med-coarse) at 8'			0.5	
9	~~SAA~~ GW	Becomes siltier at 9.5', but still well graded sandy/cobbly GRAVEL, loose, no odor to bottom of boring			1.2	
10						
11					0.2	ADCS-04-11-12 @ 14:10 (grain size)
12						

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NOTES:

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PROJECT: Smith Kem	LOCATION:	BORING ID: AOCS-04	
LOGGED BY:	BORING LOCATION:		
DRILLED BY:	NORTHING:	EASTING:	
DRILLING EQUIPMENT:	SURFACE ELEVATION:	COORDINATE SYSTEM:	
DRILLING METHOD:	TOTAL DEPTH (ft bgs):	DEPTH TO WATER (ft bgs):	
SAMPLING METHOD/SAMPLER LENGTH:	BORING DIAMETER:	DRILL DATE:	

Depth (feet)	USCS Symbol	Soil Description and Observations (color, density/consistency, minor constituent, size, **MAJOR CONSTITUENT**, modifier, moisture, odor, staining, sheen, debris, etc.)	Drive/ Recovery	# of Blows	PID (ppm)	Sample ID
12		SAA			0.2	
13		5"+ cobbles present 2.5' to 15'				
14					0.2	AOCS-04-14-15 @ 14:15 (grain size)
15						

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NOTES:

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PROJECT: Smith Kem	LOCATION: AOC2	BORING ID: AOC2-09	
LOGGED BY: P.O	COORDINATE SYSTEM: Step out from AOC2-08 (2.8')		
DRILLED BY: Cascade-Joe	NORTHING:	EASTING:	
DRILLING EQUIPMENT: TSI	GROUND SURFACE ELEVATION:		
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 5'	DEPTH TO WATER (ft bgs):	
SAMPLING METHOD: 5' bagged	BORING DIAMETER: 4"	DRILL DATE: 12/14/23	

Depth (feet)	USCS	Description	Drive	Recovery	# of Blows	PID (ppm)	Sample ID
0		Gravel ground surface				0.3	
1		Brown, well-graded GRAVEL Fill? to ~1.0'				0.4	
2		then wet sandy GRAVEL w/ cobbles, trace silt, loose, dry to moist, no odor				0.1	AOC2-09-2.0 @ 09:05
3						0.0	
4	GM	Becomes silty gravel, moist (not from drilling) no odor.				1.6	AOC2-09-4.0 @ 09:10
5							

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NOTES:

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PROJECT: Smith Kem	LOCATION:	BORING ID: ADC2-10
LOGGED BY: P. Osterhout	COORDINATE SYSTEM:	
DRILLED BY: Cascade ~~Chris~~ Joe	NORTHING:	EASTING:
DRILLING EQUIPMENT: TSI	GROUND SURFACE ELEVATION:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): ~~10'~~ 5'	DEPTH TO WATER (ft bgs):
SAMPLING METHOD: 5' ~~liner~~ bagged liner	BORING DIAMETER: 4"	DRILL DATE: 12/14/23

Depth (feet)	USCS	Description	Drive	Recovery	# of Blows	PID (ppm)	Sample ID
0		Gravel g.s.				0.7	
1		Brown w-g GRAVEL w/ sand and cobbles, moist, no odor.				0.3	
2		Increased sand (coarse), decreased cobbles ~1.5'-3'				0.2	ADC2-10-2.0 @ 08:50
							ADC2-110-2.0 @ 08:53 (Field duplicate)
3		Cobbles increase and fine sand present				0.2	
4							ADC2-10-4.0 @ 08:55
5		Bottom of core (not decompressed for logging/sampling					

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NOTES:

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PROJECT: Smith Kem	LOCATION:	BORING ID: ADC2-11	
LOGGED BY: P. Osterhout	COORDINATE SYSTEM:		
DRILLED BY: Cascade - Joe	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	GROUND SURFACE ELEVATION:		
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 10'	DEPTH TO WATER (ft bgs): 5'	
SAMPLING METHOD: 5' bagged	BORING DIAMETER: 4"	DRILL DATE: 12/14/23	

Depth (feet)	USCS	Description	Drive	Recovery	# of Blows	PID (ppm)	Sample ID
0	GW	Gravel/rail Fill ground surface				0.0	
1	ML	Dark brown fine sandy SILT, moist, soft, consolidated, no odor, glass shard at 1.0' trace gravel				0.0	
2							Grain Size Sample for PBS 1.5-3.0'
						0.0	
4						0.0	
5 ▽		Becomes cobbly/gravelly SILT to					
	GM	Silty well-g GRAVEL w/ SILT				0.0	
		Saturated, no odor				15.9	
6	GW	Becomes w-g GRAVEL w/ coarse sand and trace SILT, loose, moderate TPH odor, moderate rainbow sheen				103	ADC2-11-6.0-6.5 @ 09:55
7		Cobbles				50	
		no odor					ADC2-11-7.5 @ 10:00
9						185	
		SAA but no cobbles					
10							

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NOTES:

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PROJECT: Smith Kem	LOCATION:	BORING ID: AOC2-12	
LOGGED BY: P. Osterhout	COORDINATE SYSTEM:		
DRILLED BY: Cascade	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	GROUND SURFACE ELEVATION:		
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 10'	DEPTH TO WATER (ft bgs):	
SAMPLING METHOD: 5' baggie	BORING DIAMETER: 4"	DRILL DATE: 12/14/23	

Depth (feet)	USCS	Description	Drive	Recovery	# of Blows	PID (ppm)	Sample ID
0		Poor recovery 0-5 due to drain rock in rail spur. Brown, gravelly silt recovered w/ increasing gravel at bottom of core similar to 4-5' interval at adjacent borings. moist to wet, no odor					
1							
2							
3							
4	ML						
5		5-6.5, no odor					
	GW	Alternating layers of coarse w-g				2.5	
6	SP-SW	GRAVEL and coarse SAND w/gravel,				20.8	AOC2-12-6.5 @ 14:25
7	GW	each have luster/rainbow sheen,					
	SW	moderate to strong odor, and SAND				79.6	
8	GW	intervals have no sheen or odor					
	SW					75.3	AOC2-12-8.5-9.5 @ 14:30
9	GW	Thin interval of sandy material w/ no					
	SW	sheen between 8.5 and 9.5, but composited				90	
		all 8.5-9.5 for sample. sheen lessens at 9.5'					
10		Odor dissipates by 10' bgs				30	AOC2-12-10.0 @ 14:35

ABBREVIATIONS:
ft bgs = feet below ground surface
ppm = parts per million
USCS = Unified Soil Classification System
▼ = denotes groundwater table

NOTES:

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PROJECT: Smith Kem	LOCATION:	BORING ID: ADC2-13
LOGGED BY: P. Osterhout	COORDINATE SYSTEM:	
DRILLED BY: Cascade - Joe	NORTHING:	EASTING:
DRILLING EQUIPMENT: TSI	GROUND SURFACE ELEVATION:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): ~~10'~~ 11'	DEPTH TO WATER (ft bgs): 5'
SAMPLING METHOD: 5' bagged	BORING DIAMETER: 4"	DRILL DATE: 12/14/23

Depth (feet)	USCS	Description	Drive	Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill	wood (railtie) and Fill w/ mild chemical odor				35.2	
1		Black and tan sandy/ gravel w/ charcoal and scoria					
2	—					5.7	
	ML	Brown fine sandy SILT, moist, consolidated, but Sift v. mild odor				2.5	
3							
4		Becomes gravelly SILT w/ mild TPH odor					
		Cobble and moderate odor					
5	▽	Odor increases,				42.9	
	GM	Gray Stained Silty w-g GRAVEL, strong					
		odor w/ luster/staining (moderate silver sheen)				127.5	
6							
	GW	(poor recovery/disturbed core, Below 6.5' bottom				649	ADC2-13-6.5 @ 10:30
7		of core becomes brown and odor is				477	
		moderate, mild silver sheen)				113	ADC2-13-7.5 @ 10:35
8		Sample at ~7.5' collected at bottom		3'			
		of recovered core (assumed core separation/					
		lost material or pushed cobble between					
9		~7.5' and 10' bgs)					
		Re-drilled 10'-11' (pushed cobble) to					
		confirm clean bottom (Brown w/g. sandy					
10		Gravel w/ mild to no odor, wet) No sheen				7.5	ADC2-13-10.0 @ 10:40 (Archive)

ABBREVIATIONS:
ft bgs = feet below ground surface
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NOTES:
(See Back)

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PROJECT: Smith Kem	LOCATION:	BORING ID: ADC 2-14
LOGGED BY: P. Osterhout	COORDINATE SYSTEM:	
DRILLED BY: Cascade - Chris	NORTHING:	EASTING:
DRILLING EQUIPMENT: Terrasonic	GROUND SURFACE ELEVATION:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 10'	DEPTH TO WATER (ft bgs): 5'
SAMPLING METHOD: 5' baggie	BORING DIAMETER: 4"	DRILL DATE: 12/14/23

Depth (feet)	USCS	Description	Drive	Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill	Black gravel / Fill loose, no odor					
						0.9	
1							
2						0.5	
3	ML	Brown v fine sandy SILT, moist, soft, no odor, trace gravel				0.4	
						0.3	
4							
5	GW	wet, increased gravel				0.3	
		Brown, silty, sandy w-g GRAVEL					
		Mild odor, mild rainbow sheen, some luster				47.4	ADC2-14-6.0-6.5 @ 11:50
6		(silt lessens w/ depth), wet, loose				53.7	(archive?)
	GW	w-g gravel (SAA but trace silt), no					
7		luster, none to v mild odor between ~6.5'				15.4	
		and 8.5' bgs					
8		Moderate rainbow sheen, some luster					
		Mild odor, dissipates quickly				74	ADC2-14-8.5 @ 11:55
9		SAA, no odor					ADC2-14-9.0 @ 12:00
10							

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NOTES:

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PROJECT: Smith Kem	LOCATION: West of rail spur	BORING ID: ADC2-15	
LOGGED BY: P. Osterhout	COORDINATE SYSTEM:		
DRILLED BY: Cascade - Joe	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic	GROUND SURFACE ELEVATION:		
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 10'	DEPTH TO WATER (ft bgs):	
SAMPLING METHOD: 5' bagge	BORING DIAMETER: 4"	DRILL DATE: 12/14/23	

Depth (feet)	USCS	Description	Drive	Recovery	# of Blows	PID (ppm)	Sample ID
0		Gravel / rail road base Fill - silt/gravel					
1	Fill	Sand / cobbles				3.5	
2	GM-ML	(Driller cooked core) Light gray silty gravel to gravelly silt (powdery from drill heat), loose, mild Ammonia-like odor				2.3	
3						16.9	
4		No recovery					
5	GM	Brown, silty GRAVEL w/ sand, wet				36.8	
6	GW	Becomes gray-brown Sandy GRAVEL w/ mild to moderate TPH odor, wet, loose moderate rainbow sheen				7.1	ADC2-15-6.0-6.5 @ 11:15
7		Odor dissipates quickly				12.2	ADC2-15-7.5 @ 11:20
8	SP GW	Brown p-g fine SAND, wet, no odor, (then SM) w-g Sandy GRAVEL, wet, loose, no odor				22.3	
9						21.2	
10							

ABBREVIATIONS:
ft bgs = feet below ground surface
ppm = parts per million
USCS = Unified Soil Classification System
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NOTES:

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PROJECT: Smithfield	LOCATION:	BORING ID: AOC2-16
LOGGED BY: P. Osterhout	COORDINATE SYSTEM:	
DRILLED BY: Cascade – Chris	NORTHING:	EASTING:
DRILLING EQUIPMENT: Terrasonic - LAR	GROUND SURFACE ELEVATION:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 10'	DEPTH TO WATER (ft bgs): 5'
SAMPLING METHOD: 5' bagged	BORING DIAMETER: 4"	DRILL DATE: 12/14/23

Depth (feet)	USCS	Description	Drive	Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill	Gravel / Fill ground surface to ~2' bgs				0.3	
1		Black, silty / gravelly fill, moist, no odor				0.3	
2	—	Cobble at 2'					
	ML	Brown v. fine sandy SILT, moist, soft				0.3	
3		trace gravel, no odor					
4						0.2	
5		Becomes gravelly and wet at 5' w/ decreasing silt w/ depth, no odor					
	(GM) / (GW)	Well-graded GRAVEL w/ sand, and cobbles, trace silt				0.3	
6		loose, wet, no odor to bottom of core				0.3	AOC2-16-6.5 @ 13:45 (archive)
7						0.4	
8						0.3	
							AOC2-16-8.5 @ 13:50 (archive)
9						0.3	
10							

ABBREVIATIONS:
ft bgs = feet below ground surface
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NOTES:

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PROJECT: Smith Kem	LOCATION:	BORING ID: ACC2-17
LOGGED BY: P. Osterhout	COORDINATE SYSTEM:	
DRILLED BY: Cascade	NORTHING:	EASTING:
DRILLING EQUIPMENT: Terrasonic	GROUND SURFACE ELEVATION:	
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 10'	DEPTH TO WATER (ft bgs): 5'
SAMPLING METHOD: 5' bagged	BORING DIAMETER: 4"	DRILL DATE: 12/14/23

Depth (feet)	USCS	Description	Drive	Recovery	# of Blows	PID (ppm)	Sample ID
0	Fill					0.0	
1							
2						0.0	
3	ML	Brown SILT w/ gravel, sticky/moist, ~~no odor~~				0.0	
4	GM	Grades to silty GRAVEL, brown w/ sand					
5		wet				0.0	
						0.2	
6	SP GW	Fine to medium SAND w/ trace gravel, wet, loose, no odor				1.1	ACC2-17-6.5 @ 14:40 (archive)
7		Brown, w-g GRAVEL w/ sand and trace silt, wet, loose, no oder to bottom of core.				0.0	
		increased sand ~ 7.5 - 8.5'					
8						0.1	ACC2-17-8.5 @ 14.45 (archive)
9							
10							

ABBREVIATIONS:
ft bgs = feet below ground surface
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NOTES:

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PROJECT: Smith Kem	LOCATION:	BORING ID: ADC4-09	
LOGGED BY: P. Osterhaut	COORDINATE SYSTEM:		
DRILLED BY: Cascade - Chris	NORTHING:	EASTING:	
DRILLING EQUIPMENT: Terrasonic (TSI) tracked	GROUND SURFACE ELEVATION:		
DRILLING METHOD: Sonic	TOTAL DEPTH (ft bgs): 10'	DEPTH TO WATER (ft bgs):	
SAMPLING METHOD: 5' liner	BORING DIAMETER: 4" ID	DRILL DATE: 12/14/23	

Depth (feet)	USCS	Description	Drive	Recovery	# of Blows	PID (ppm)	Sample ID
0	GM	Brown, Silty GRAVEL. (Fill					
1		G				0.5	
	GW	Brown well graded GRAVEL w/ SAND					
2		dry to moist, loose, mild musty odor				0.3	
3		Cobble in shoe					
4		Becomes gray-ish brown,				7.6	
5	▽	Gray, wet, strong TPH odor, v. slight sheen. rainbow				541	
		Still w-g GRAVEL, slightly coarser					ADC4-09-5.5-6.0 @ 09:30
6		No odor, back to brown					
7		Few sand, mostly gravel/cobbles w/ trace silt				0.7	ADC4-09-7.0 @ 08:35
8						0.2	
							ADC4-09-8.5 @ 08:40 (archive)
9							
10		Bottom @ 10'				0.2	

ABBREVIATIONS:
ft bgs = feet below ground surface
ppm = parts per million
USCS = Unified Soil Classification System
▼ = denotes groundwater table

NOTES:

Engineering Design Report

Smith-Kem Site

Appendix C
Pre-Remedial Design Waste Manifest

Please print or type
(Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
WAVSQG	1	888-785-7225	480705/D590148

GENERATOR

5. Generator's Name and Mailing Address

Floyd I Snider
601 Union Street, Suite 600
Seattle, WA 98101
Generator's Phone: 206-805-2188

Generator's Site Address (if different than mailing address)

AdGro, LLC
200 S Railroad Ave
Ellensburg, WA 98926

6. Transporter 1 Company Name — U.S. EPA ID Number

Advanced Chemical Transport Inc./DBA ACTenviro — CAR000070540

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address — U.S. EPA ID Number

Patriot Environmental Services, Inc.
4927 NW Front Avenue
Portland, OR 97210
Facility's Phone: 503.261.9800

ORD027704816

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
	1. Non-RCRA/Non-DOT Regulated Material Solid (SOIL)	8	DM	3,625	P	
	2. Non-RCRA/Non-DOT Regulated Material Liquid (GROUNDWATER)	1	DM	345	P	
	3.					
	4.					

13. Special Handling Instructions and Additional Information

Project Number 480705 Document #: D590148

1) 562838 FLP- 7x55DM 1x85DM
2) 562838 FLP- 1x55DM

41.45

#152597

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name: On behalf of AdGro LLC Brian S — Signature — Month 12 Day 15 Year 23

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Brian Sanchez — Signature — Month 12 Day 15 Year 23

Transporter 2 Printed/Typed Name — Signature — Month Day Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Jacob Gunderson — Signature — Month 12 Day 29 Year 23

Printed in USA by GC Labels
1-800-997-6966

DESIGNATED FACILITY TO GENERATOR

Reorder Part# MANIFEST-C6NHW
913-897-6966

Engineering Design Report

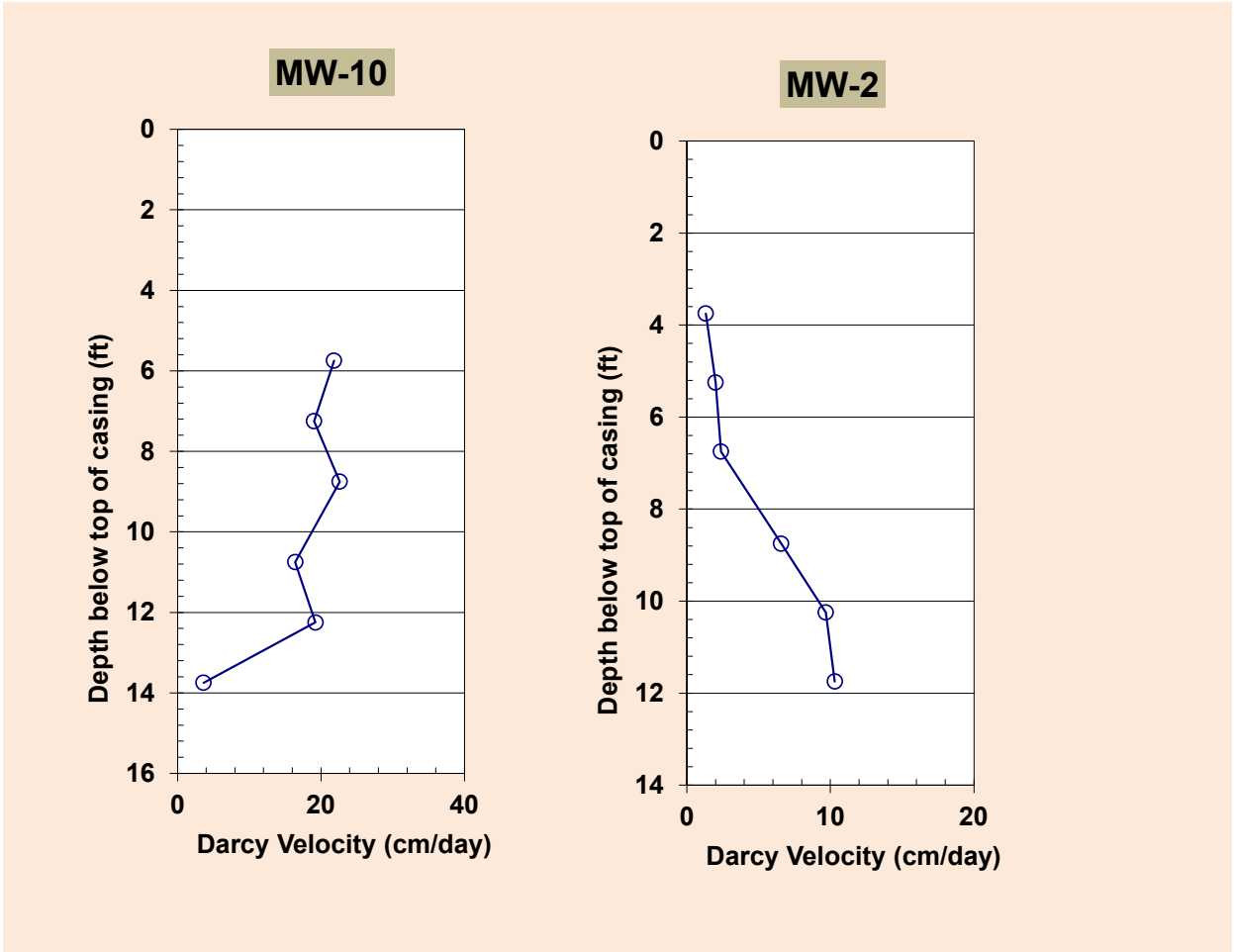
Smith-Kem Site

Appendix D
Passive Flux Meter
Darcy Velocity Results

Floyd Snider Inc.	
Project name:	SmithKem
Project Location	Ellensburg, WA
Project Manager	Pamela Osterhout
Installation Date	8/16/2023
Sampling Date	8/29/2023
Reporting Date	9/12/2023

Table 1. Darcy velocity for each well

Well_ID	Depth below top of well (ft)	Darcy Velocity (cm/day)
MW-10	5.8	21.8
	7.3	19.0
	8.8	22.6
	10.8	16.4
	12.3	19.2
	13.8	3.6
MW-2	3.8	1.3
	5.3	2.0
	6.8	2.4
	8.8	6.6
	10.3	9.7
	11.8	10.3



Engineering Design Report

Smith-Kem Site

Appendix E
Geotechnical Engineering Letter Report

August 23, 2024

Lynn Grochala
Floyd|Snider
601 Union Street, Suite 600
Seattle, Washington 98101

Via email: lynn.grochala@floydsnider.com

Regarding: Geotechnical Engineering Letter Report
Smith-KEM Project
S Railroad Avenue
Ellensburg, Washington
PBS Project 66290.000

Dear Ms. Grochala:

PBS Engineering and Environmental Inc. (PBS) has prepared this letter report summarizing geotechnical engineering services completed for the Smith-KEM project located east of S Railroad Avenue in Ellensburg, Washington. The purpose of PBS' services was to provide geotechnical recommendations related to earthwork and grading, cut, fill, and subgrade preparation. The general site location is shown on the Vicinity Map, Figure 1. The locations of areas explored in relation to existing site features are shown on the Site Plan, Figure 2.

PROJECT UNDERSTANDING

PBS understands soils impacted by fertilizer production and petroleum storage/handling have been identified in several locations at this site. As part of the environmental cleanup plan, impacted soil will be removed from select areas and transferred to a suitable disposal facility. The resulting excavations will be backfilled with structural fill and a geosynthetic clay liner (GCL) will be installed over the fill at subgrade elevation within the areas shown on Figure 2 to reduce surface water infiltration into any potentially impacted soils present below the surface. This water will be directed to a collection point and piped to the stormwater system. A 12-inch-thick gravel layer will be placed over the GCL and will be expected to support daily truck traffic. A layer of geogrid will be incorporated into the 12-inch-thick gravel layer to help extend the life of the GCL. PBS understands the GCL is designed to accommodate truck traffic. A gravel surface will require periodic maintenance, including regrading, to maintain relatively flat driving surfaces.

Environmental professionals have organized the site into several areas of concern (AOC) and are recommending varying depths of mass excavation based on available data. Floyd|Snider (F|S) design depths of mass excavation range from 1 to 8.5 feet below the existing ground surface (bgs) within AOCs. Some AOCs encroach upon existing structures. Depending on the proximity of excavations to existing structures, it could be necessary to shore or underpin existing foundations to limit structurally damaging settlement or foundation failure. PBS was not engaged to evaluate the need for shoring/underpinning or provide shoring recommendations and does not currently have sufficient information to do so.

SCOPE OF WORK

PBS completed the following scope of work.

Review of Subsurface Exploration Logs
PBS reviewed boring logs provided by F|S. Subsurface conditions were explored by drilling 41 borings to depths of 3 to 15 feet bgs. The borings were logged, observed groundwater levels noted, and representative soil samples collected by a member of F|S. The drilling was performed using sonic drilling techniques and continuous sampling.

Soils Testing
F|S provided soil samples to our laboratory. The selected sample was classified in general accordance with the Unified Soil Classification System (ASTM D2487) and/or the Visual-Manual Procedure (ASTM D2488). Laboratory tests included natural moisture contents and grain-size analyses. Laboratory test results are shown on Figure 3.

Geotechnical Engineering Analyses
The boring logs provided to PBS were reviewed to develop geotechnical recommendations related to earthwork and grading, cut, fill, and subgrade preparation.

SUBSURFACE CONDITIONS

Site Soils

Based on PBS' review of boring logs provided by F|S, PBS has summarized the subsurface units as follows:

FILL:	Undocumented fill was reported at the surface of all borings and extended to depths of approximately 0.5 to 4 feet bgs. The average thickness of fill was approximately 1.4 feet. The ground surface across the site is generally covered with gravel fill and used for heavy vehicle parking and access. Additional fill materials below the gravel consisted of silt, sand, and gravel with occasional debris such as brick fragments and charcoal.
GRAVEL to Silty GRAVEL (GW, GM-GW, GM):	Gravel intermixed with varying amounts of fine- to coarse-grained sand and silt was reported in nearly all borings and was the dominant native soil type at the site. Gravel was generally brown to gray or black, with cobbles frequently noted.
SILT to SAND (ML, SP, SW):	Lenses of brown to dark brown silt and sand were reported at variable depths and ranged between 0.3 to 3 feet thick. These lenses were most common near the surface at depths of approximately 1 to 3 feet bgs. Silt was reported below undocumented fill in borings AOC3-04 and AOC3-05 and extended to the termination depth of 3 feet bgs.

Groundwater

The F|S boring logs indicate static groundwater was encountered, or inferred based on saturated soil, in all borings advanced to depths greater than 3 feet bgs. The reported depth to static groundwater ranged from 2.3 to 8 feet bgs with an average of approximately 5 feet bgs. Please note that groundwater levels can fluctuate during the year depending on climate, irrigation season, extended periods of precipitation, drought, and other factors.

RECOMMENDATIONS

Geotechnical Considerations

The subsurface conditions at the site consist primarily of gravel with cobbles and interbedded sand and silt lenses. Based on our review of the logs provided by F|S, we believe excavation with a 70,000-pound excavator will be

feasible at this site. A toothed bucket will likely be necessary. Boring logs report frequent observation of gravel and cobbles with relatively low amounts of silt and sand. Based on our experience with similar materials, caving should be anticipated; however, PBS does not have enough information to say at what depths. A contingency should be included in earthwork budgets and schedules to accommodate increased excavation and backfill volumes.

The average depth to static groundwater was approximately 5 feet bgs, with many reported observations of static groundwater at shallower depths. The earthwork contractor should expect to encounter groundwater during mass excavation of contaminated areas. Dewatering may be required. If dewatering is used, we recommend that the type and design of the dewatering system be the responsibility of the contractor, who is in the best position to choose systems that fit the overall plan of operation.

Subgrade Preparation
Subgrades for structural fill, GCL, and geogrid should be carefully prepared to a neat and undisturbed state. A representative from PBS should confirm suitable bearing conditions and evaluate all exposed subgrades. Observations should also confirm that loose or soft materials have been removed. Localized deepening of exposed subgrades may be required to penetrate loose, wet, or deleterious materials.

Proofrolling/Subgrade Verification
Following mass excavation of contaminated soils, the exposed subgrade should be evaluated either by proofrolling or another method of subgrade verification. If possible, the subgrade should be proofrolled with a fully loaded dump truck or similar heavy, rubber-tire construction equipment to identify unsuitable areas. If proofrolling is not feasible, they should be evaluated by PBS using a steel foundation probe. We recommend that PBS be retained to observe the proofrolling and perform the subgrade verifications. Unsuitable areas identified during the field evaluation should be compacted to a firm condition or be excavated and replaced with structural fill.

Wet/Freezing Weather and Wet Soil Conditions
Due to the presence of fine-grained silt and sands reported in boring logs, construction equipment may have difficulty operating on the near-surface soils when the moisture content of the surface soil is more than a few percentage points above the optimum moisture required for compaction. Soils disturbed during site preparation activities, or unsuitable areas identified during proofrolling or probing, should be removed and replaced with compacted structural fill.

Site earthwork and subgrade preparation should not be completed during freezing conditions, except for mass excavation to the subgrade design elevations. We recommend the earthwork construction at the site be performed during the dry season.

Structural Fill
PBS understands that mass excavation of impacted soils will extend to depths of up to 8.5 feet bgs within AOCs. These excavations will be replaced with structural fill to restore the ground surface elevation to near present-day elevations. Structural fill should be placed over subgrade that has been prepared in conformance with the Subgrade Preparation and Wet/Freezing Weather and Wet Soil Conditions sections of this report. Structural fill material should consist of relatively well-graded soil, or an approved rock product that is free of organic material and debris, and contains particles not greater than 3 inches nominal dimension.

The suitability of soil for use as compacted structural fill will depend on the gradation and moisture content of the soil when it is placed. As the amount of fines (material finer than the US Standard No. 200 Sieve) increases, soil becomes increasingly sensitive to small changes in moisture content and compaction becomes more difficult to achieve. Soils containing more than about 5% fines cannot consistently be compacted to a dense, non-yielding condition when the water content is significantly greater (or significantly less) than optimum.

On-Site Soil

On-site soils consistent with soils reported in the boring logs may be suitable for placement as structural fill for mass grading to backfill excavations at the site during dry weather when moisture contents can be maintained by air drying and/or addition of water. If reuse of on-site soil is considered, F|S should be consulted to evaluate potential impacts due to fertilizer production. Screening may be required to remove particles greater than 3 inches nominal dimension.

The fine-grained fraction of the site soils are moisture sensitive, and during wet weather, may become unworkable because of excess moisture content. In order to reduce moisture content, some aerating and drying of fine-grained soils may be required. The material should be placed in lifts with a maximum uncompacted thickness of approximately 8 inches and compacted to at least 92% of the maximum dry density, as determined by ASTM D1557 (modified proctor).

Imported Granular Materials

Imported granular material used to backfill mass excavated areas should be pit or quarry run rock, crushed rock, or crushed gravel and sand, and should meet the specifications provided in WSDOT SS 9-03.14(2) – Select Borrow.[1] In addition, the imported granular material should be fairly well graded between coarse and fine, and of the fraction passing the US Standard No. 4 Sieve, less than 5% by dry weight should pass the US Standard No. 200 Sieve.

Imported granular material should be placed in lifts with a maximum uncompacted thickness of 8 inches and be compacted to not less than 95% of the maximum dry density, as determined by ASTM D1557.

Base Aggregate

Base aggregate should be placed above the GCL and should be clean crushed rock or crushed gravel. The base aggregate should contain no deleterious materials, meet specifications provided in WSDOT SS 9-03.9(3) – Crushed Surfacing Base Course, and have less than 5% (by dry weight) passing the US Standard No. 200 Sieve. The imported granular material should be placed in one lift and compacted to at least 95% of the maximum dry density, as determined by ASTM D1557.

Temporary Slopes

All temporary cut slopes should be excavated with a smooth-bucket excavator, with the slope surface repaired if disturbed. In addition, upslope surface runoff should be rerouted to not run down the face of the slopes. Equipment should not be allowed to induce vibration or infiltrate water above the slopes. Temporary slopes up to 8 feet high should be inclined no steeper than 1.5H:1V (horizontal to vertical).

[1] Washington State Department of Transportation (WSDOT SS). (2023). Standard Specifications for Road, Bridge, and Municipal Construction, M 41-10, Olympia, Washington.

Excavation Near Existing Buildings
Mass excavation of impacted soils is expected near existing building foundations. Undermining foundation bearing soils could result in structurally damaging settlement or foundation failure. Unprotected excavation shall not extend beyond a 1H:1V line projected from the outside, bottom edge of the footing. Excavation within this zone shall require shoring or other appropriate method of protecting the foundation. We recommend that the type and design of foundation protection measures be the responsibility of the contractor, who is in the best position to select systems that fit the overall plan of operation.

Geogrid Selection and Installation
Geogrid should be incorporated into the 1-foot-thick gravel section and placed 4 inches above the GCL to help increase the life of the GCL. The selected geogrid should consist of a polymer that is punched and stretched to form sheets. The geogrid should have a minimum tensile strength of 280 pounds per foot at 2% strain and a maximum aperture of 3 inches or less. Biaxial geogrid is commonly available, though other grid patterns may be suitable, provided the minimum tensile and maximum aperture recommendations are satisfied.

Geogrid should be installed 4 inches above the GCL on compacted gravel and pulled taut with no creases or wrinkles. Edges may be staked, if necessary. Crushed rock should be placed over the geogrid and pushed outward to maintain tension. Seams should overlap by at least 12 inches.

Recommendations include placing orange grid material 4 inches below the finished gravel surface to serve as an indicator of surface wear. Gravel drive and parking surfaces are expected to migrate with use and will require periodic maintenance, such as grading, to maintain flat surfaces and maintain a minimum thickness of crushed rock over the GCL. This grid layer is not expected to provide reinforcement. The selected material should be composed of high-density polyethylene (HDPE) with a maximum aperture of 3 inches or less.

LIMITATIONS
This report has been prepared for the exclusive use of the addressee, and their architects and engineers, for aiding in the design and construction of the proposed development and is not to be relied upon by other parties. It is not to be photographed, photocopied, or similarly reproduced, in total or in part, without express written consent of the client and PBS. It is the addressee's responsibility to provide this report to the appropriate design professionals, building officials, and contractors to ensure correct implementation of the recommendations.

The opinions, comments, and conclusions presented in this report are based upon information derived from our literature review, review of field explorations provided by others, laboratory testing, and engineering analyses. It is possible that soil, rock, or groundwater conditions could vary between or beyond the points explored. If soil, rock, or groundwater conditions are encountered during construction that differ from those described herein, the client is responsible for ensuring that PBS is notified immediately so that we may reevaluate the recommendations of this report.

Unanticipated fill, soil and rock conditions, and seasonal soil moisture and groundwater variations are commonly encountered and cannot be fully determined by merely taking soil samples or completing explorations such as borings. Such variations may result in changes to our recommendations and may require additional funds for expenses to attain a properly constructed project; therefore, we recommend a contingency fund to accommodate such potential extra costs.

The scope of work for this subsurface exploration and geotechnical report did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous substances in the soil, surface water, or groundwater at this site.

If there is a substantial lapse of time between the submission of this report and the start of work at the site, if conditions have changed due to natural causes or construction operations at or adjacent to the site, or if the basic project scheme is significantly modified from that assumed, this report should be reviewed to determine the applicability of the conclusions and recommendations presented herein. Land use, site conditions (both on and off site), or other factors may change over time and could materially affect our findings; therefore, this report should not be relied upon after three years from its issue, or in the event that the site conditions change (for example, regrading or fill placement).

CLOSING

Please feel free to contact me at 509.375.7844 or clint.nealey@pbsusa.com with any questions or comments.

Sincerely,

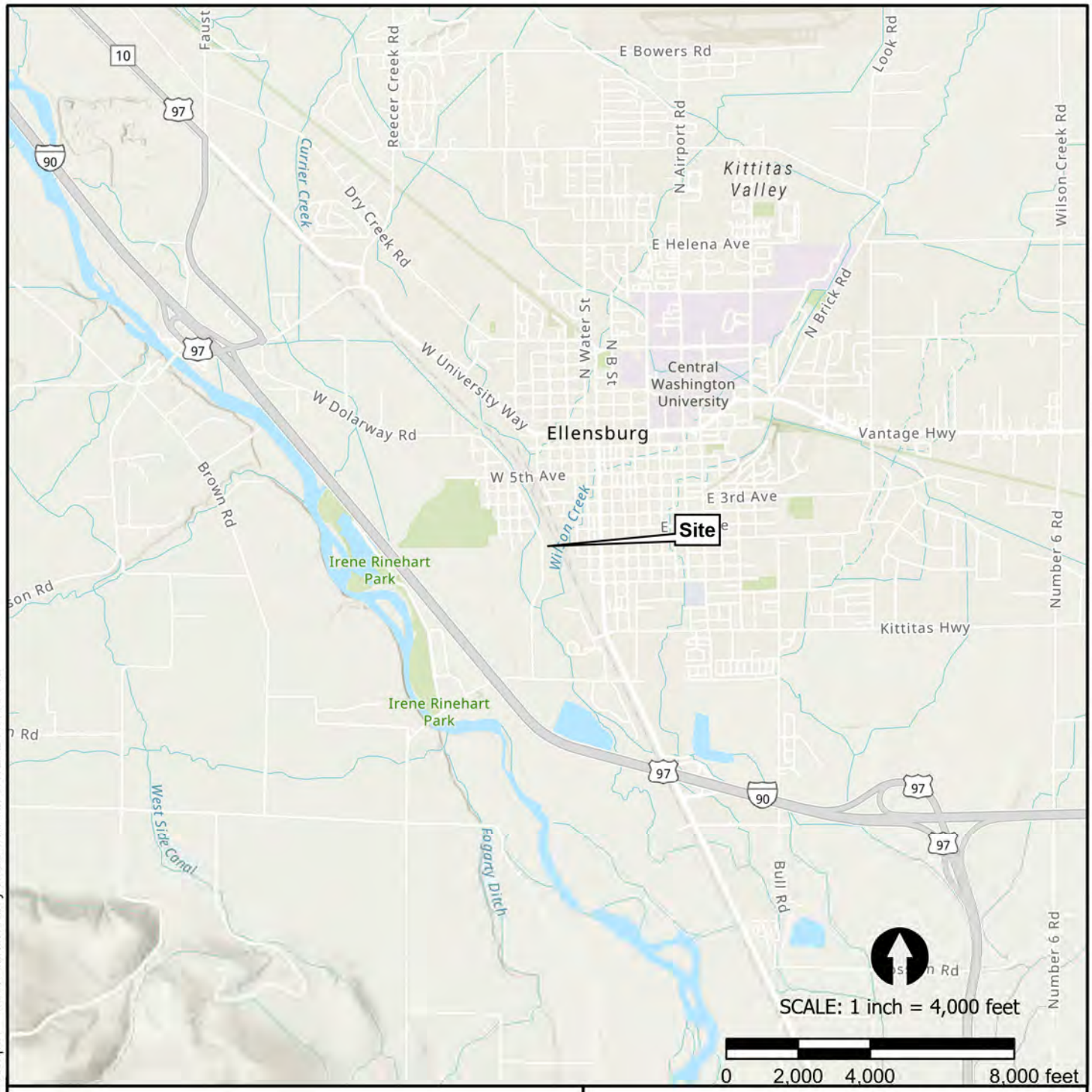


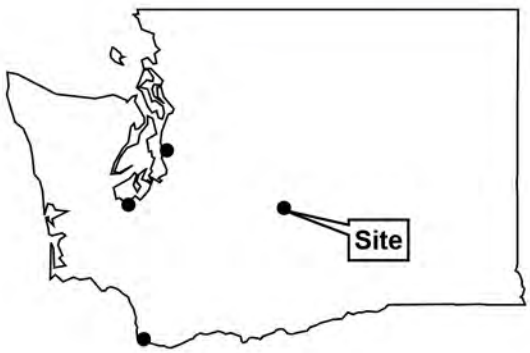
August 23, 2024

Clint Nealey, PE
Project Geotechnical Engineer

Attachments:
Figure 1. Vicinity Map
Figure 2. Site Plan
Figure 3. Particle-Size Analysis Test Results

CN:RW:rg





VICINITY MAP

SMITH-KEM PROJECT
ELLENSBURG, WASHINGTON

DATE: AUG 2024 · PROJECT: 66290.000

PBS

FIGURE

1

Path: L:\Gis\GEOTECH\project\66290.000\66290.000.aprx User: clint.nealey Date Saved: 3/7/2024 5:50 PM



EXPLANATION

- Approximate site boundary
- AOC1
- AOC2
- AOC3
- AOC4
- AOC5
- AOC6
- Approximate GCL boundary

Notes: Nearmap 2023 imagery

Coordinate System: NAD 1983 2011 StatePlane Washington South FIPS 4602 Ft US

SCALE: 1 inch = 100 feet

0 50 100 200 feet

SITE PLAN

SMITH-KEM PROJECT
ELLENSBURG, WASHINGTON

DATE: AUG 2024 · PROJECT: 66290.000

PBS

FIGURE
2

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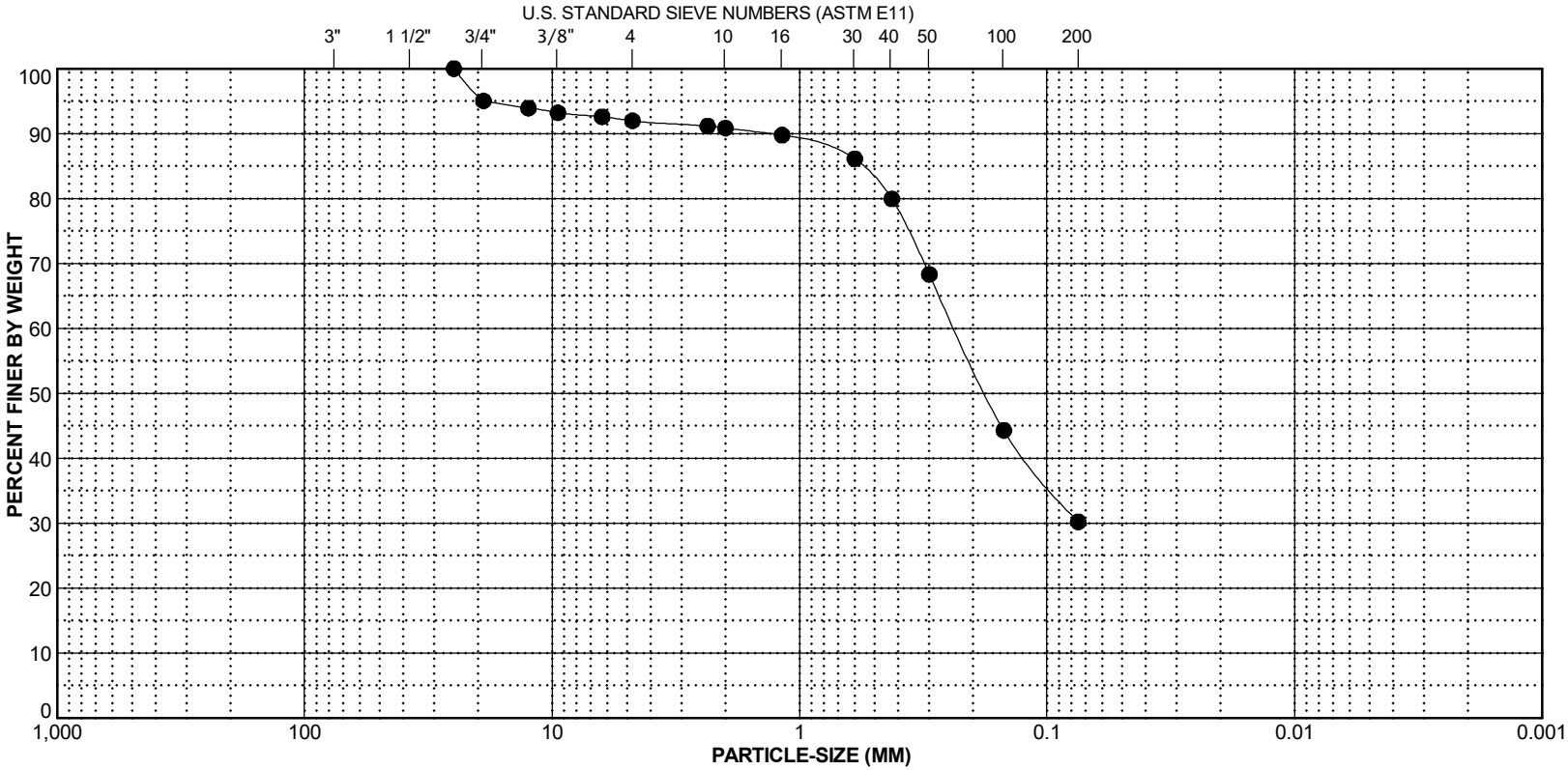
PARTICLE-SIZE ANALYSIS TEST RESULTS

SMITH-KEM PROJECT
ELLENSBURG, WASHINGTON

PBS PROJECT NUMBER:
66290.000

TEST METHOD: ASTM C136/D422

BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY



KEY	EXPLORATION NUMBER	SAMPLE NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	D90 (MM)	D60 (MM)	D30 (MM)	D10 (MM)	D5 (MM)	GRAVEL (PERCENT)	SAND (PERCENT)	FINES (PERCENT)
●	AOC 2-11	1.5-3.0	1.5	21	1.3	0.2				8	62	30

FIGURE 3

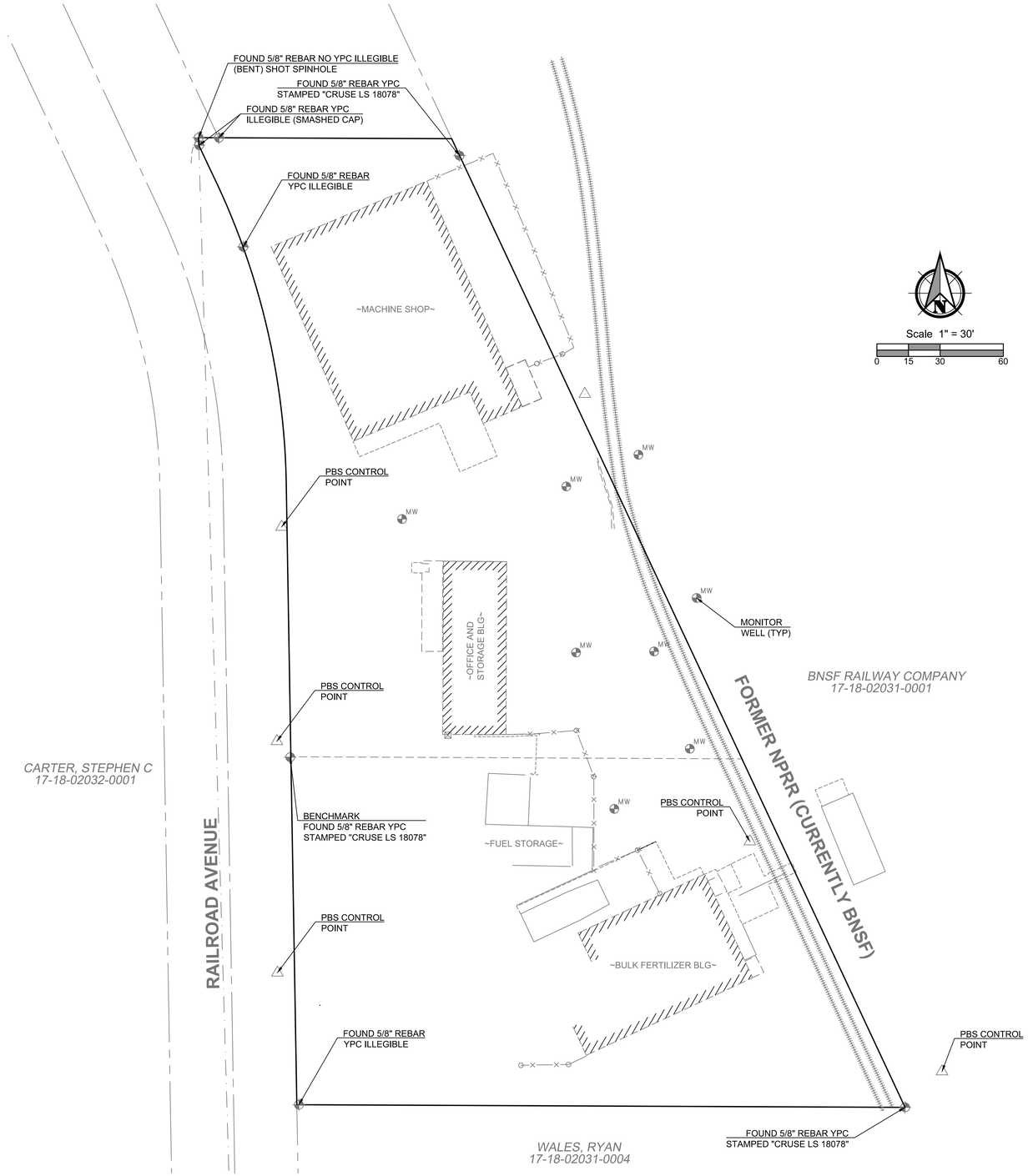
Engineering Design Report

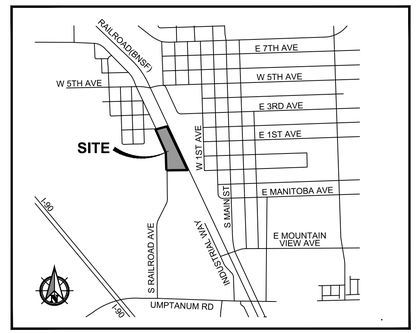
Smith-Kem Site

Appendix F
Geosynthetic Clay Liner and Stormwater Features Plan Set Drawings

SMITH-KEM ELLENSBURG

LOCATED IN SECTION 2 TOWNSHIP 17 NORTH, RANGE 18 EAST, W.M.
CITY OF ELLENSBURG, KITTITAS COUNTY, WASHINGTON





VICINITY MAP
NOT TO SCALE

SHEET INDEX	
C-001	COVER SHEET
C-002	GENERAL NOTES
C-101	EXISTING CONDITION AND DEMOLITION PLAN
C-401	GRADING AND EROSION CONTROL PLAN (1)
C-402	STORM DRAINAGE PLAN
C-901	GCL PANEL LAYOUT AND CROSS-SECTIONS
C-902	DETAILS

OWNER:
AD GRO LLC
401 COLFAX AIRPORT RD,
COLFAX, WASHINGTON 99111

CIVIL ENGINEER:
PBS ENGINEERING AND ENVIRONMENTAL
CONTACT: SEAN HANRAHAN, PE
400 BRADLEY BLVD, STE 106
RICHLAND, WA 99352
(509) 942 1600

PROJECT ENGINEER/ ENVIRONMENTAL CONSULTANT:
FLOYD SNIDER
601 UNION STREET
SEATTLE, WASHINGTON 98101

SURVEYOR:
PBS ENGINEERING AND ENVIRONMENTAL
CONTACT: ALEX MATARAZZO, PLS
400 BRADLEY BLVD, SUITE 106
RICHLAND, WA 99352
(509) 942-1600

SURVEY BENCHMARK:

NAVD88 ESTABLISHED PER THE WASHINGTON STATE REFERENCE NETWORK (WSRN) THE PROJECT BENCHMARK BEING A 5/8" REBAR LOCATED IN SECTION 2, T17N, R18E, W.M. THE ELEVATION FOR SAID MONUMENT IS 1506.69.

BASIS OF BEARINGS:

NAD83 WASHINGTON STATE SOUTH ZONE GRID ESTABLISHED PER THE WASHINGTON STATE REFERENCE NETWORK (WSRN). TO REPRODUCE HOLD A GRID BEARING OF N 01°50'05" W BETWEEN TWO MONUMENTS DISTANCES SHOWN ARE TRUE GROUND LENGTHS EXPRESSED IN U.S. SURVEY FEET USING A GRID TO GROUND SCALE FACTOR OF 1.00013243289222.

No.	Revision	Date	By	App'd
1	ADDRESS ECOLOGY COMMENTS	09/06/2024	JMR	SRH

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Richland, WA 99352
509.942.1600
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PBS

COVER SHEET FOR:
SMITH-KEM ELLENSBURG
A SITE LOCATED IN THE CITY OF ELLENSBURG, WA

811 Know what's **below.** **Call** before you dig.

SEAN R. HANRAHAN — STATE OF WASHINGTON — 19726 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED:	DCC
CHECKED:	SH
SEPTEMBER 2024	66290.000
SHEET ID	C-001
SHEET	1 OF 7

Filename: L:\Projects\66000\66290\66290-000\Civil\CAD\WorkingSheets\66290-000_C-001.dwg Layout Tab: C-001 User: James Rausch CAD Plot Date/Time: 9/23/2024 1:19:11 PM

Full Size Sheet Format Is 22x34; If Printed Size Is Not 22x34, Then This Sheet Format Has Been Modified & Indicated Drawing Scale Is Not Accurate.

GENERAL CONSTRUCTION NOTES

1. A MINIMUM OF TWO FULL BUSINESS DAYS PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL CALL 1-800-424-5555 (NORTHWEST UTILITY NOTIFICATION CENTER) FOR LOCATION MARK-UP OF EXISTING UTILITIES.
2. CONSTRUCTION HOURS TO BE BETWEEN THE HOURS OF 6am TO 10pm.
3. CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
4. SITE GRADING AND FILL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE "STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION" (LATEST EDITION) PREPARED BY WSDOT/APWA, AND THE STANDARD AND PRACTICES OF THE CITY OF ELLENSBURG DEPARTMENT OF PUBLIC WORKS, WHERE THE CITY OF ELLENSBURG GENERAL REQUIREMENTS SHALL TAKE PRECEDENCE.
5. ANY SIGNIFICANT DEVIATIONS FROM THE PLANS WILL REQUIRE A REQUEST FROM THE APPLICANT'S ENGINEER AND APPROVAL FOR THE CITY'S LAND DIVISION ENGINEER(S) AND CITY INSPECTOR.
6. EROSION CONTROL METHODS SHALL COMPLY WITH THE CITY OF ELLENSBURG LATEST VERSION OF GENERAL REQUIREMENTS AND STANDARD DETAILS AND WASHINGTON STATE DEPARTMENT OF ECOLOGY STORMWATER MANAGEMENT MANUAL FOR EASTERN WASHINGTON, WHERE THE CITY OF ELLENSBURG GENERAL REQUIREMENTS SHALL TAKE PRECEDENCE.
7. ALL CONSTRUCTION WITHIN THE CITY OF ELLENSBURG OR KITTITAS COUNTY RIGHT-OF-WAY SHALL HAVE AN APPROVED TRAFFIC CONTROL PLAN AND RIGHT-OF-WAY PERMIT PRIOR TO ANY OFF-SITE CONSTRUCTION ACTIVITY.
8. THE APPLICANT MAY BE REQUIRED TO PROVIDE FLAGGING, SIGNS, AND OTHER TRAFFIC CONTROL DEVICES FOR SAFE TRUCK ACCESS ONTO PUBLIC STREETS. ALL SUCH DEVICES SHALL CONFORM TO THE STANDARD ESTABLISHED IN THE LATEST ADOPTED EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) PUBLISHED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND THE MODIFICATION OF THE MUTCD FOR STREET AND HIGHWAYS FOR THE STATE OF WASHINGTON.
9. IN ORDER TO ENHANCE TRAFFIC AND SAFETY ELEMENTS, THE APPLICANT SHALL MAINTAIN ADEQUATE SIGHT DISTANCE AT THE SITE ACCESS POINTS AND INTERSECTION. DRIVEWAY EXITS SHALL MEET THE SIGHT DISTANCE REQUIREMENTS PER EMC 15.420.060, CITY STANDARD PLAN T04-03 AND T04-04. ANY OBSTRUCTION BY LANDSCAPING, SIGNING, PARKING, BUILDING, OR OTHER OBJECTS ARE UNSAFE. THE APPLICANT SHALL INSURE THE NONE OF THESE INTERFERE WITH VISION CLEARANCE REQUIREMENTS.
10. TWO-WAY TRAFFIC MUST BE MAINTAINED AT ALL TIMES ON THE ADJACENT PUBLIC STREETS.
11. SHOULD ANY ITEM OF ARCHAEOLOGICAL INTEREST BE FOUND DURING DEVELOPMENT, YOU ARE REQUIRED TO STOP WORK AND NOTIFY THE PLANNING CASE MANAGER IN DEVELOPMENT REVIEW SERVICES, AND THE WASHINGTON STATE DEPARTMENT OF ARCHAEOLOGY AND HISTORIC PRESERVATION AT 360-753-4011 IMMEDIATELY. FAILURE TO DO SO COULD RESULT IN A FELONY CONVICTION. SEE PROVIDED INADVERTENT DISCOVERY PLAN (IDP). (1)
12. AT THE END OF EACH WORKDAY THE CONTRACTOR SHALL CLEAN THE PROJECT AREA AND LEAVE IT IN A NEAT AND SECURE MANNER. UPON COMPLETION THE CONTRACTOR SHALL LEAVE THE PROJECT AREA FREE OF DEBRIS AND UNUSED MATERIAL.

GENERAL EROSION CONTROL NOTES:

1. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY EROSION AND SEDIMENTATION CONTROLS (TESC) AS RECOMMENDED IN DIVISION 8 OF THE WSDOT CONSTRUCTION MANUAL AND CHAPTER 710 OF THE WSDOT ROADSIDE MANUAL. SPECIFIC TESC MEANS AND METHODS WILL BE SELECTED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER PRIOR TO THE WORK.
2. IN ADDITION TO THE TEMPORARY EROSION AND SEDIMENT CONTROL METHODS OUTLINED ON THIS PLAN, THE CONTRACTOR IS ENCOURAGED TO EVALUATE THE PROJECT EARTHWORK REQUIREMENTS AND NATURAL DRAINAGE, AND STAGE CONSTRUCTION ACTIVITIES TO LIMIT THE EXTENT OF DISTURBED AREAS. THE CONTRACTOR SHALL EVALUATE THE EROSION AND SEDIMENT CONTROLS DURING THE COURSE OF THE PROJECT TO IDENTIFY POTENTIAL PROBLEM AREAS AND PROVIDE ADDITIONAL MEASURES TO INCREASE THEIR EFFECTIVENESS IN MINIMIZING EROSION AND SEDIMENT RUNOFF.
3. TESC MEASURES SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION WORK THAT INVOLVES EARTHWORK, AND WHERE POSSIBLE, SHALL FOLLOW THE EXISTING GROUND CONTOUR.
4. UPON COMPLETION OF ROUGH SITE GRADING, THE CONTRACTOR SHALL OBSERVE DRAINAGE RUNOFF FLOW ACROSS THE SITE AND ENSURE THAT SURFACE WATER IS NOT PERMITTED TO LEAVE THE SITE.
5. THE CONTRACTOR SHALL DESIGNATE CONSTRUCTION ENTRANCES AT INGRESS/EGRESS POINTS FOR THE WORK. AT LEAST ONE CONSTRUCTION ENTRANCE SHALL BE REQUIRED AT ANY GIVEN TIME DURING THE WORK. DESIGNATED CONSTRUCTION ENTRANCE(S) MAY CHANGE AS WORK PROGRESSES.

TESC NOTES

1. CONTAMINATED SOIL WILL BE EXCAVATED AND DIRECTLY LOADED INTO TRUCKS OR PLACED ON PLASTIC AND COVERED WITH PLASTIC SHEETING PER EASTERN WASHINGTON STORMWATER MANAGEMENT MANUAL BMP C123E, AND ENCIRCLED WITH A STRAW WATTLE PER BMP C235E.
2. THE CONTRACTOR WILL MAINTAIN A SPILL RESPONSE SPILL KIT ON THE PROPERTY TO RESPOND TO THE ANTICIPATED SPILL PER EASTERN WASHINGTON STORMWATER MANAGEMENT MANUAL BMP S104E.
3. CONTRACTOR TO IMPLEMENT DUST CONTROL MEASURES IN ACCORDANCE WITH EASTERN WASHINGTON STORMWATER MANAGEMENT MANUAL BMP C140.

(1)

COMPACTION NOTES

1. THE PLACEMENT OF FILL MATERIAL ON LOTS SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH THE 2021 VERSION OF THE INTERNATIONAL BUILDING CODE (2021 IBC) APPENDIX J AND THE GEOTECHNICAL ENGINEERING LETTER REPORT DATE AUGUST 23, 2024 PREPARED BY PBS. PBS GEOTECHNICAL ENGINEERING GROUP SHOULD BE ENGAGED TO PERIODICALLY OBSERVE GEOTECHNICAL ASPECTS OF CONSTRUCTION. THE DEVELOPER SHALL BE RESPONSIBLE FOR HIRING AN INDEPENDENT MATERIALS TESTING COMPANY TO COMPLETE AND DOCUMENT COMPACTION TESTS TO BE TAKEN AT INTERVALS CONSISTENT WITH CITY STANDARDS, AND A LICENSED PROFESSIONAL ENGINEER TO VERIFY THAT GEOTECHNICAL ASPECTS OF CONSTRUCTION ARE COMPLETED IN GENERAL ACCORDANCE WITH IBC REQUIREMENTS, PBS' RECOMMENDATIONS, AND PROJECT OBJECTIVES. A GEOTECHNICAL OPINION LETTER OF COMPLIANCE SHALL BE PROVIDED TO THE PUBLIC WORKS ENGINEERING DEPARTMENT FOLLOWING CONSTRUCTION IF REQUIRED BY THE AGENCY. (1)
2. EMBANKMENT AND BACKFILL MATERIAL PLACED ON SLOPES OR BENEATH OPERATION OR PARKING AREAS SHALL BE PLACED IN 8-INCH LOOSE LIFTS AND COMPACTED TO AT LEAST 95% OF MAXIMUM DRY DENSITY PER ASTM D1557 FOR IMPORT MATERIALS, AND 95% OF MAXIMUM DRY DENSITY PER ASTM D1557 FOR QUALIFYING ON-SITE SOILS. LANDSCAPED AREAS OUTSIDE FUTURE BUILDING AND PARKING AREAS SHALL BE PLACED IN 8-INCH LOOSE LIFTS AND COMPACTED TO AT LEAST 95% OF MAXIMUM DRY DENSITY PER ASTM D-1557. IN-PLACE DENSITY TESTS SHALL BE MADE BY AN INDEPENDENT LABORATORY TO DETERMINE THE SPECIFIED DENSITY HAS BEEN ACHIEVED. (1)

BIAXIAL GEOGRID

1. BIAXIAL GEOGRID SHALL HAVE A MINIMUM TENSILE STRENGTH AT 2% STRAIN OF 280 LB/FT OR GREATER. MAXIMUM APERTURE SHOULD BE 3 INCHES OR LESS. GEOGRID SHALL BE INSTALLED OVER THE PREPARED SUBGRADED AND PULLED TAUT WITH NO CREASES OR WRINKLES. EDGES MAY BE STAKED, IF NECESSARY. CRUSHED ROCK SHOULD BE PLACED OVER THE GEOGRID AND PUSHED OUTWARD TO MAINTAIN TENSION. SEAMS SHOULD OVERLAP BY AT LEAST 12 INCHES.

ORANGE VISIBLE GRID NOTES

1. ORANGE VISIBLE GRID SHALL BE HDPE. ORANGE VISIBLE GRID SHALL HAVE A MAXIMUM APERTURE OF 3 INCHES OR LESS.

GCL SUBGRADE

1. THE SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH GEOTECHNICAL ENGINEERING LETTER REPORT DATED AUGUST 24, 2024.
2. THE SUBGRADE SURFACE MUST BE SMOOTH AND FREE OF VEGETATION, SHARP ROCKS, STONES, STICKS, CONSTRUCTION DEBRIS AND FOREIGN MATTER.
3. THE SUBGRADE SHOULD BE ROLLED WITH A SMOOTH-DRUM COMPACTOR TO REMOVE ANY WHEEL RUTS GREATER THAN 1-INCH IN DEPTH, FOOTPRINTS, OR OTHER ABRUPT GRADE CHANGES.
4. ALL PROTRUSIONS EXTENDING MORE THAN ½-INCH FROM THE SUBGRADE SURFACE SHALL BE REMOVED.
5. THE FINISHED SURFACE SHOULD BE FIRM AND UNYIELDING, WITHOUT ABRUPT ELEVATION CHANGES, VOIDS, CRACKS, ICE OR STANDING WATER.

NON-WOVEN GEOTEXTILE FABRIC

1. A LAYER OF 10-OUNCE NON-WOVEN NEEDLE PUNCH GEOTEXTILE FABRIC SHALL BE PLACED ABOVE AND BELOW THE LAMINATED GCL.
2. A LAYER OF 10-OUNCE NON-WOVEN NEEDLE POINT GEOTEXTILE FABRIC SHALL WE WRAPPED AROUND THE PROPOSED 12" DIAMETER STORMWATER PERFORATED PIPE AND THE ASSOCIATED FRENCH DRAIN.
3. USE LAYFIELD LP10 NON-WOVEN NEEDLE PUNCH GEOTEXTILE FABRIC OR ENGINEER APPROVED ALTERNATIVE.
4. THE NON-WOVEN GEOTEXTILE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 200 POUNDS, MINIMUM TEAR STRENGTH OF 100 POUNDS AND A MINIMUM WATER FLOW OF 75 GALLONS PER MINUTE PER SQUARE FOOT.
5. NON-WOVEN GEOTEXTILE FABRIC SHALL BE OVERLAPPED BY A MINIMUM OF 12 INCHES AT SEAMS FOR USE BELOW AND ABOVE THE GCL.
6. NON-WOVEN GEOTEXTILE FABRIC ROLLS COME IN VARYING SIZES INCLUDING 15 FEET WIDE BY 350 FEET LONG.

LAMINATED GCL NOTES

1. THE GCL SHOULD NOT BE INSTALLED IN STANDING WATER OR DURING RAINY WEATHER. ONLY AS MUCH GCL SHALL BE DEPLOYED AS CAN BE COVERED AT THE END OF THE WORKDAY WITH COVER SOIL.
2. THE GCL SHALL NOT BE LEFT UNCOVERED OVERNIGHT TO PROTECT GCL INTEGRITY AND PREVENT DRYING, OR PREMATURE SWELLING DUE TO MOISTURE.
3. THE GCL SHOULD BE PLACED SO THAT THE SEAMS ARE PARALLEL TO THE DIRECTION OF THE SLOPE. END OF PANEL SEAMS SHOULD ALSO BE LOCATED AT LEAST 3 FEET FROM THE TOE AND CREST OF SLOPES STEEPER THAN 4H:1V.
4. ALL GCL PANELS SHOULD LIE FLAT, WITH NO WRINKLES OR FOLDS, ESPECIALLY AT THE EXPOSED EDGES OF THE PANELS.
5. THE CONTRACTOR SHALL USE BENTOMAT 600 CL GEOSYNTHETIC CLAY LINER OR ENGINEER APPROVED ALTERNATIVE. THE BENTOMAT 600 CL CONSISTS OF A LAYER OF SODIUM BENTONITE BETWEEN A POLYPROPYLENE WOVEN GEOTEXTILE AND A POLYPROPYLENE NONWOVEN GEOTEXTILE, WHICH ARE NEEDLE-PUNCHED TOGETHER AND LAMINATED TO A POLYETHYLENE GEOFILM. THE GCL SHALL BE INSTALLED WITH THE GEOFILM FACING UP TO RETAIN MOISTURE IN THE DRY SEASON. (1)
6. EACH GCL ROLL IS 15 FEET WIDE BY 150 FEET LONG. THE GCL SHALL BE OVERLAPPED 12 INCHES FROM EDGE OF PANEL AND 24 INCHES FROM END OF PANEL. SEE DETAIL 3 ON SHEET 902.
7. THE GCL SHOULD NOT BE HYDRATED IN THE FIELD. IN-SITU MOISTURE VAPOR WILL HYDRATE THE GCL.

CSBC NOTES

1. 12" CRUSHED SURFACING BASE COURSE (CSBC) WITH 95% COMPACTION PER ASTM D1557.
2. MEET SPECIFICATIONS PROVIDED IN WSDOT SS 9-03.9(3) - CRUSHED SURFACING BASE COURSE.
3. MATERIAL FOR CSBC SHALL MEET THE FOLLOWING REQUIREMENTS FOR GRADING AND QUALITY:

SIEVE SIZE	***PERCENT PASSING***
1-1/4"	99-100%
1"	80%-100%
5/8"	50%-80%
NO. 4	25%-45%
NO.40	3%-18%
NO.200	5% MAX
% FRACTURE	75% MIN
SAND EQUIVALENT	40% MIN

SELECT BORROW STRUCTURAL FILL NOTES

1. SELECT BORROW STRUCTURAL FILL SHALL MEET WA DOT SPEC 9-03.14(2).
2. MATERIAL FOR SELECT BORROW FILL SHALL CONSIST OF GRANULAR MATERIAL THAT SHALL MEET THE FOLLOWING REQUIREMENTS FOR GRADING AND QUALITY:

SIEVE SIZE	***PERCENT PASSING***
6"	100%
3"	75%-100%
NO. 40	50% MAX
NO. 200	5% MAX

No.	Revision	Date	By	App'd
1	ADDRESS ECOLOGY COMMENTS	09/06/2024	JMR	SRH

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PBS Engineering and Environmental Inc.
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Richland, WA 99352
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PBS

GENERAL NOTES FOR:
SMITH-KEM ELLENSBURG
A SITE LOCATED IN THE CITY OF ELLENSBURG, WA

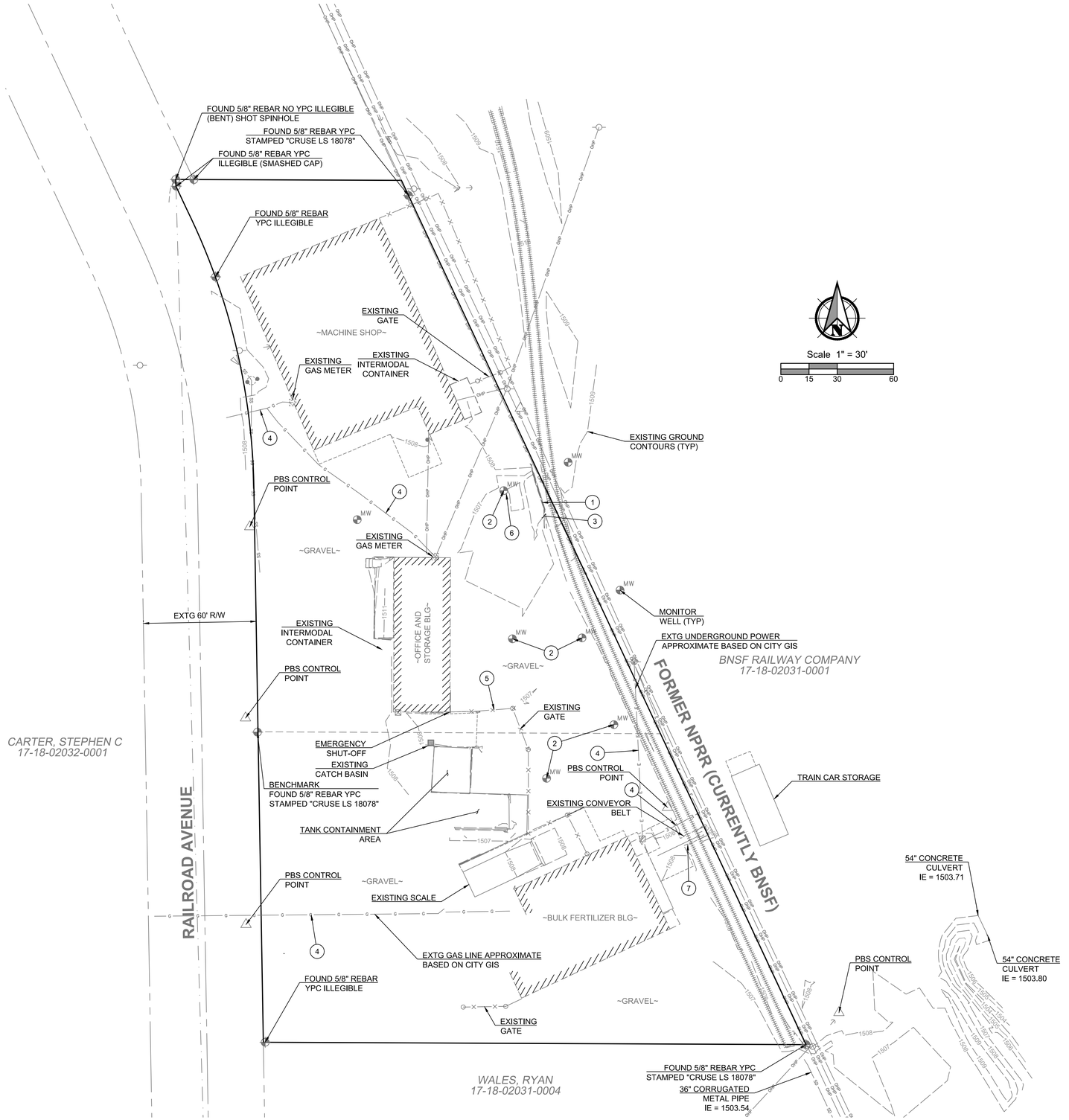
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SEAN R. HANRAHAN — STATE OF WASHINGTON — 30726 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED: DCC
CHECKED: SH
SEPTEMBER 2024
66290.000
SHEET ID
C-002
SHEET 2 OF 7

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SYMBOL LEGEND	
	EXISTING POWER POLE (PP) / PP WITH UNDERGROUND DROP
	EXISTING POWER RISER / TELEPHONE RISER
	EXISTING STORM CATCH BASIN (CB)
	EXISTING SEWER MANHOLE (SSMH)
	EXISTING GAS METER
MW	EXISTING MONITOR WELL / BOLLARD
	PBS CONTROL POINT

LINETYPE LEGEND	
XXX	EXISTING INDEX CONTOUR
XXX	EXISTING MINOR CONTOUR
	OVERALL PLAT BOUNDARY
	EXISTING RIGHT-OF-WAY LINE
	EXISTING LOT LINE
	QUARTER SECTION LINE
X X X	EXISTING FENCE LINE
SS	EXISTING SANITARY SEWER MAIN LINE
SD	EXISTING STORM DRAIN MAIN LINE
WL	EXISTING WATER MAIN LINE
E	EXISTING ELECTRICAL
OHP	EXISTING OVERHEAD POWER LINE
G	EXISTING GAS LINE
	BUILDING OUTLINE
	RAIL ROAD

GENERAL CONSTRUCTION NOTE

1. CONTRACTOR TO FIELD LOCATE ALL BURIED UTILITIES INCLUDING , BUT NOT LIMITED TO, WATER, NATURAL GAS, TELECOMMUNICATION AND ELECTRICAL WITH A PRIVATE UTILITY LOCATE AND FIELD VERIFY LOCATION AND DEPTH PRIOR TO INITIATING INTRUSIVE WORK. CONTRACTOR TO PROTECT ALL UTILITIES AND UNDERGROUND STRUCTURES UNLESS OTHERWISE INDICATED IN THE CONTRACT DOCUMENTS.

DEMOLITION NOTES

1. REMOVE EXISTING WOOD RETAINING WALL.
2. MONITORING WELL TO BE DECOMMISSIONED IN ACCORDANCE WITH WAC 173-160-460 BY LICENSED WELL DRILLER PRIOR TO SITE GRADING.
3. CONTRACTOR TO CAP TWO CONCRETE 8-INCH DIAMETER PIPES AND ABANDON IN PLACE.
4. CONTRACTOR TO PROTECT BURIED UNDERGROUND UTILITY. CONTRACTOR TO FIELD VERIFY DEPTH AND LOCATION OF BURIED UNDERGROUND UTILITIES PRIOR TO DIGGING.
5. FENCING TO BE REMOVED PRIOR TO EXCAVATION. CONTRACTOR TO REINSTALL FENCING AND GATE SUBSEQUENT TO COMPLETION OF SOIL EXCAVATION, PLACEMENT OF FILL AND GCL. CONTRACTOR TO TAKE MEASURES TO ENSURE FENCE POSTS DO NOT PENETRATE THE GCL OR INSTALL FENCE POSTS USING PENETRATION IN ACCORDANCE WITH GCL PENETRATION DETAIL ON SHEET C-902.
6. MONITORING WELL TO BE REINSTALLED BY LICENSED WELL DRILLER (MW-4).
7. CONTRACTOR TO PROTECT CONVEYOR BELT SUMP.

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Richland, WA 99352
509.942.1600
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PBS

EXISTING CONDITION AND DEMOLITION PLAN FOR:

SMITH-KEM ELLENSBURG

A SITE LOCATED IN THE CITY OF ELLENSBURG, WA

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DESIGNED: DCC
CHECKED: SH
SEPTEMBER 2024
66290.000

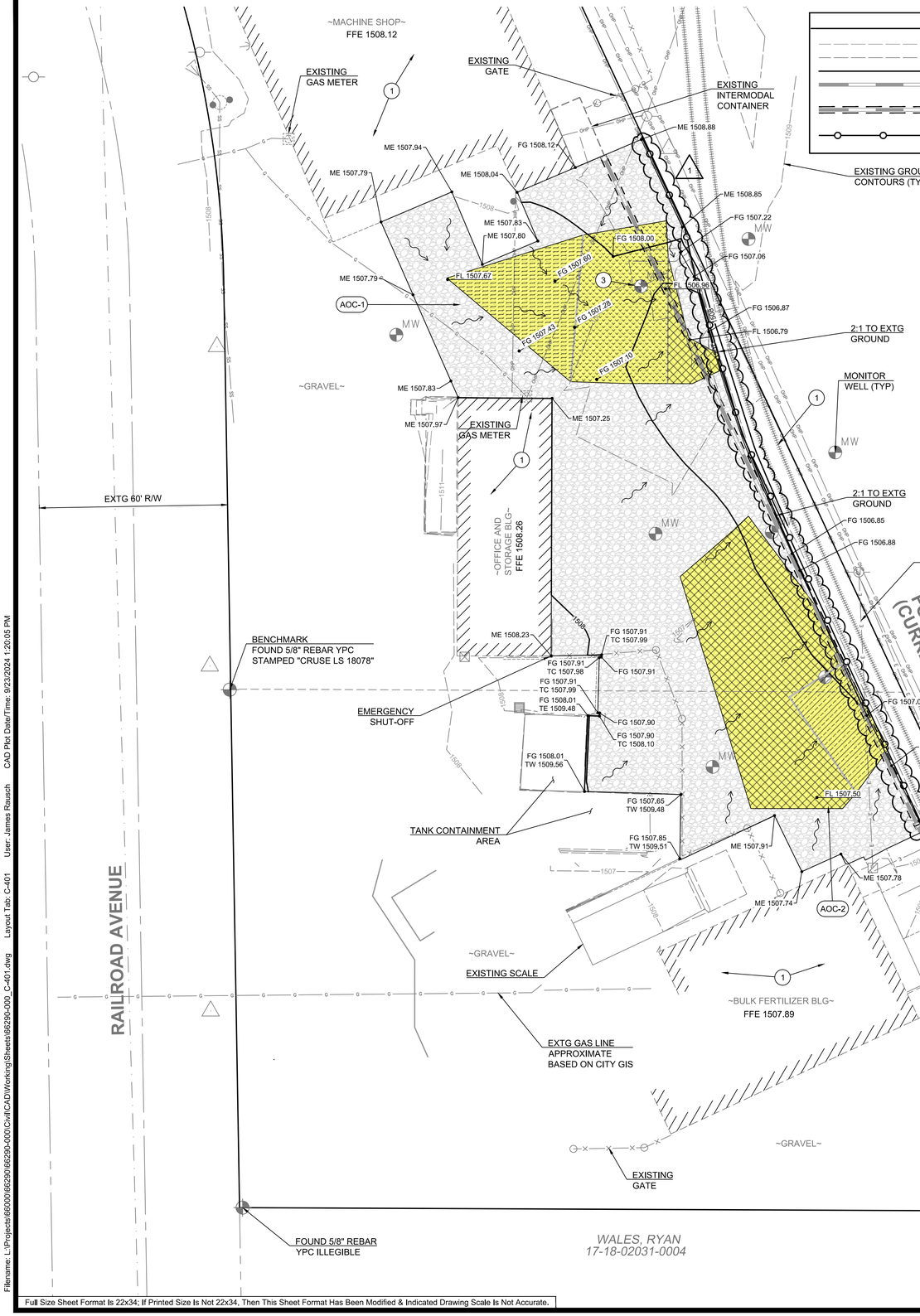
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C-101

SHEET 3 OF 7

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LINETYPE LEGEND

- EXISTING INDEX CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED STORM LINE (SEE SHEET C-402 FOR INFORMATION)
- PROPOSED TRENCH AND PERFORATED PIPE
- PROPOSED TESC (CONTRACTOR TO DECIDE MEANS AND METHODS)

HATCHING LEGEND

- GRAVEL (SEE DETAIL ON SHEET C-902)
- APPROXIMATE EXTENTS OF EXCAVATION TO LEACHING REMEDIATION LEVEL
- EXCAVATE TO 4 FEET BELOW GROUND SURFACE
- EXCAVATE TO 5 FEET BELOW GROUND SURFACE
- EXCAVATE TO 8 FEET BELOW GROUND SURFACE
- EXCAVATE TO 8.5 FEET BELOW GROUND SURFACE

GRADING ABBREVIATIONS LEGEND

ME	MATCH EXISTING GROUND/SURFACE
LP	LOW POINT
FL	FLOW LINE
FG	FINISH GRADE ELEVATION SURFACE
TW	TOP OF WALL
TC	TOP OF CURB
BGS	BELOW GROUND SURFACE
FFE	FINISHED FLOOR ELEVATION
SDCO	STORM DRAIN CLEAN OUT
NTS	NOT TO SCALE

GENERAL CONSTRUCTION NOTES

1. SEE SHEET C-002 FOR PROJECT SPECIFIC NOTES.
2. APPROXIMATE LIMITS OF DISTURBANCE ARE SHOWN ON THESE PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND RESTORATION WITHIN LIMITS AS NECESSARY TO COMPLETE THE WORK. COORDINATE WITH OWNER FOR ANY ONSITE STAGING NEEDS.
3. ALL MATERIALS REMOVED AS PART OF CONSTRUCTION SHALL BE DISPOSED OF PROPERLY. ANY SITE FIXTURES, FENCING, ETC., SHALL BE THE PROPERTY OF THE OWNER UNLESS OTHERWISE DIRECTED TO DISPOSE OF THESE MATERIALS, BY THE OWNER.
4. SEE PROJECT GEOTECHNICAL ENGINEER LETTER REPORT, DATED AUGUST 23, 2024 BY PBS FOR SITE PREPARATION REQUIREMENTS. (1)
5. AREA OF CONCERN EXCAVATIONS WITHIN GCL CAP FOOTPRINT PROVIDED IN ENGINEERING DESIGN REPORT (EDR)(TBD)
6. AOC EXCAVATIONS ARE APPROXIMATE AND MAY CHANGE. CONTRACTOR TO COORDINATE WITH FLOYD SNIDER FOR EXACT DEPTH AND EXTENT OF EXCAVATION. AOC EXCAVATIONS OUTSIDE FOOTPRINT OF GCL CAP ARE NOT SHOWN.
7. CONTRACTOR TO COORDINATE SOIL AND DEWATERING FLUID WASTE CLASSIFICATION, MANAGEMENT AND DISPOSAL IN ACCORDANCE WITH APPLICABLE REGULATIONS. CONTRACTOR TO COORDINATE WITH OWNER AND FLOYD SNIDER.
8. CONTRACTOR TO FIELD LOCATE ALL BURIED UTILITIES INCLUDING , BUT NOT LIMITED TO, WATER, NATURAL GAS, TELECOMMUNICATION AND ELECTRICAL WITH A PRIVATE UTILITY LOCATE AND FIELD VERIFY LOCATION AND DEPTH PRIOR TO INITIATING INTRUSIVE WORK. CONTRACTOR TO PROTECT ALL UTILITIES AND UNDERGROUND STRUCTURES AND MONITORING WELLS, UNLESS OTHERWISE STATED IN THE EDR.
9. TEMPORARY EROSION AND SEDIMENT CONTROL DETAILS ARE INCLUDED IN THE EDR. CONTRACTOR RESPONSIBLE FOR TESC AND WILL PROVIDE PLAN FOR ENGINEER APPROVAL PRIOR TO THE WORK. (1)

KEYED GRADING NOTES

(1) CONTRACTOR TO PROTECT EXISTING BUILDING FOOTING, CONCRETE CONTAINMENT AREA, CONCRETE PADS AND RAILROAD SPUR FROM UNDERMINING DURING EXCAVATION. CONTRACTOR TO PROPOSE ENGINEERING CONTROLS TO PROJECT ENGINEER TO PROTECT FOOTING AND RAILROAD SPUR. EXCAVATION WITHIN A 2H:1V (HORIZONTAL TO VERTICAL) ZONE BELOW FOOTING OR RAILROAD SPUR REQUIRES ENGINEERING DESIGN.

(2) PROJECT ENGINEER TO COORDINATE ACCESS WITH ADJOINING PROPERTY OWNER.

(3) MONITORING WELL MW-4 TO BE REINSTALLED BY LICENSED WELL DRILLER. SEE GCL PENETRATION DETAIL 5 ON C-902.

ENCROACHMENT ON BNSF RIGHT OF WAY

1. THE CONTRACTOR MUST COORDINATE WITH THE PROJECT ENGINEER REGARDING WORK ADJACENT TO THE BNSF RIGHT-OF-WAY.

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1	ADDRESS ECOLOGY COMMENTS	09/06/2024	JMR	SRH

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GRADING AND EROSION CONTROL PLAN FOR:

SMITH-KEM ELLENSBURG

A SITE LOCATED IN THE CITY OF ELLENSBURG, WA

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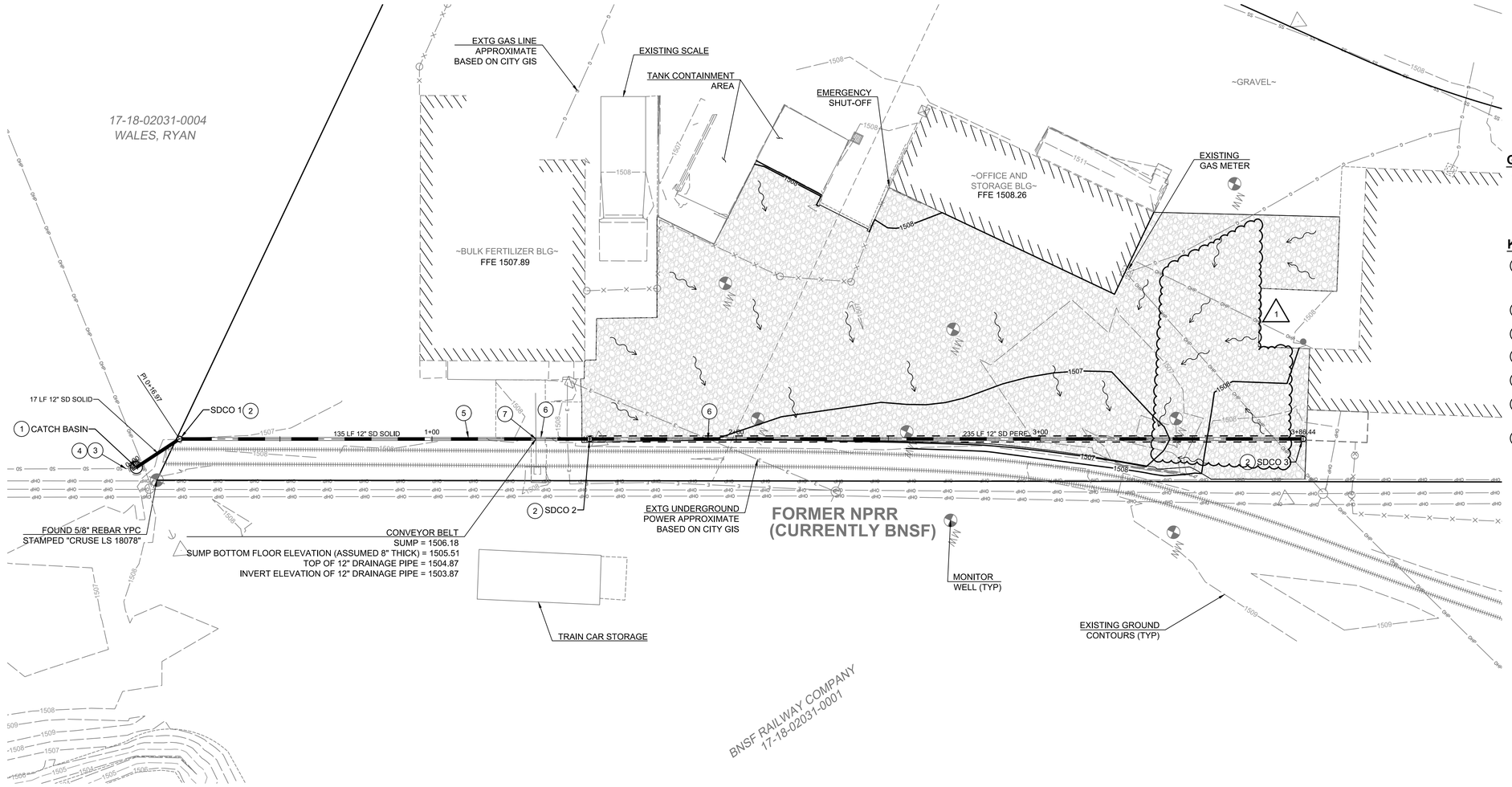


DESIGNED: DCC
CHECKED: SH
SEPTEMBER 2024
66290.000

SHEET ID
C-401
SHEET 4 OF 7

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GENERAL CONSTRUCTION NOTE

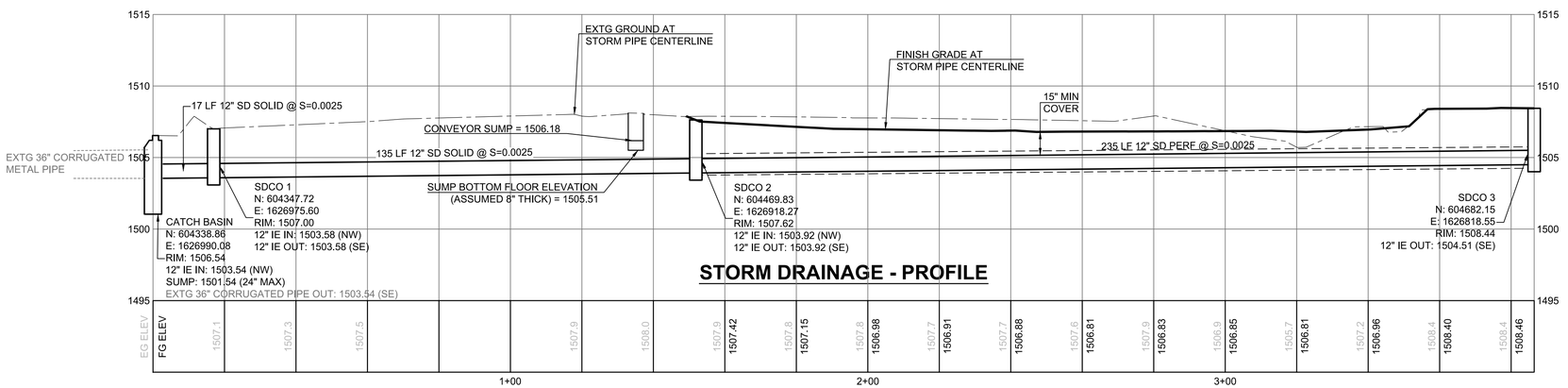
1. CONTRACTOR TO FIELD LOCATE ALL BURIED UTILITIES INCLUDING , BUT NOT LIMITED TO, WATER, NATURAL GAS, TELECOMMUNICATION AND ELECTRICAL WITH A PRIVATE UTILITY LOCATE AND FIELD VERIFY LOCATION AND DEPTH PRIOR TO INITIATING INTRUSIVE WORK. CONTRACTOR TO PROTECT ALL UTILITIES AND UNDERGROUND STRUCTURES.

KEYED STORM DRAINAGE NOTES

1. 48" CATCH BASIN TYPE 2 WITH VANE GRATED LID PER WSDOT STANDARD PLAN B-10.20-03 AND B-30.30-03. CONNECT TO EXISTING 36" CORRUGATED METAL PIPE. SLOPE AROUND TO ALLOW FOR DRAINAGE. ROCK FOR EROSION PROTECTION.
2. CLEAN OUT WITH 2' x 2' CONCRETE APRON PER DETAIL ON SHEET C-902.
3. CONTRACTOR TO JET CLEAN CORRUGATED METAL PIPE.
4. PROJECT ENGINEER TO COORDINATE ACCESS WITH ADJOINING PROPERTY OWNER.
5. 12-INCH DIAMETER SCHEDULE 40 PVC PIPE OR APPROVED ALTERNATIVE. SEE DETAIL ON SHEET C-902.
6. CONTRACTOR TO VERIFY DEPTH OF CONVEYOR BELT SUMP AND BURIED ELECTRICAL UTILITY PRIOR TO BEGINNING WORK AND NOTIFY THE ENGINEER OF RECORD OF ANY CONFLICTS.
7. CONTRACTOR TO DETERMINE MEANS AND METHODS TO GO BELOW THE CONVEYOR BELT SUMP AND PROVIDE TO PROJECT ENGINEER FOR APPROVAL. CONTRACTOR TO PROTECT CONVEYOR BELT SUMP.

LINETYPE LEGEND

XXX	EXISTING INDEX CONTOUR
XXX	EXISTING MINOR CONTOUR
XXX	PROPOSED MINOR CONTOUR
	PROPOSED STORM LINE
	PROPOSED TRENCH AND PERFORATED PIPE



STORM DRAINAGE - PROFILE

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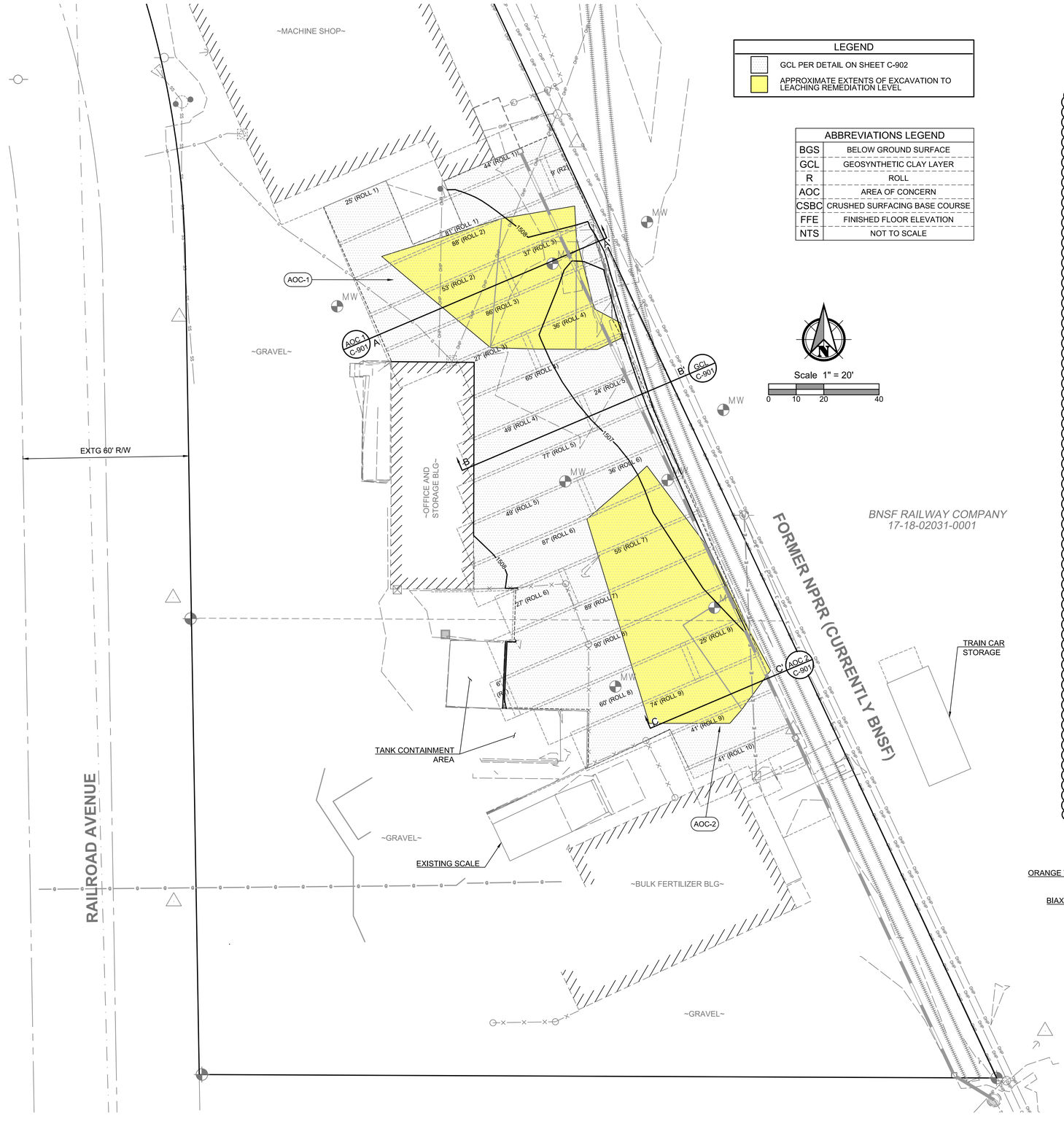
STORM DRAINAGE PLAN FOR:
SMITH-KEM ELLENSBURG
A SITE LOCATED IN THE CITY OF ELLENSBURG, WA

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SEAN R. HANNAMAN
STATE OF WASHINGTON
20726
REGISTERED
PROFESSIONAL ENGINEER

DESIGNED: DCC
CHECKED: SH
SEPTEMBER 2024
66290.000
SHEET ID
C-402
SHEET 5 OF 7

Filename: L:\Projects\66000\66290\66290-000\Civil\CAD\Working\Sheets\66290-000_C-402.dwg Layout Tab: C-402 User: James Rausch CAD Plot Date/Time: 9/23/2024 1:20:29 PM

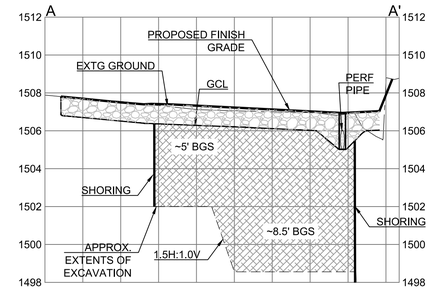


LEGEND	
	GCL PER DETAIL ON SHEET C-902
	APPROXIMATE EXTENTS OF EXCAVATION TO LEACHING REMEDIATION LEVEL

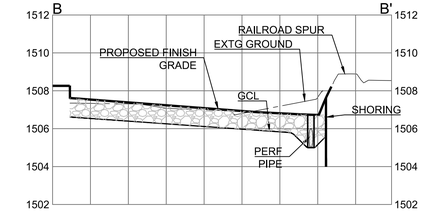
ABBREVIATIONS LEGEND	
BGS	BELOW GROUND SURFACE
GCL	GEOSYNTHETIC CLAY LAYER
R	ROLL
AOC	AREA OF CONCERN
CSBC	CRUSHED SURFACING BASE COURSE
FFE	FINISHED FLOOR ELEVATION
NTS	NOT TO SCALE

GENERAL CONSTRUCTION NOTES

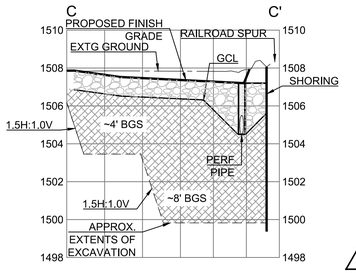
1. SEE SHEET C-002 FOR PROJECT SPECIFIC NOTES.
2. ALL MATERIALS REMOVED AS PART OF CONSTRUCTION SHALL BE DISPOSED OF PROPERLY. ANY SITE FIXTURES, FENCING, ETC., SHALL BE THE PROPERTY OF THE OWNER UNLESS OTHERWISE DIRECTED TO DISPOSE OF THESE MATERIALS, BY THE OWNER.
3. CONTRACTOR TO FIELD LOCATE ALL BURIED UTILITIES INCLUDING , BUT NOT LIMITED TO, WATER, NATURAL GAS, TELECOMMUNICATION AND ELECTRICAL WITH A PRIVATE UTILITY LOCATE AND FIELD VERIFY LOCATION AND DEPTH PRIOR TO INITIATING INTRUSIVE WORK. CONTRACTOR TO PROTECT ALL UTILITIES AND UNDERGROUND STRUCTURES.
4. SHORING DETAIL AND DEPTH TO BE PROVIDED BY CONTRACTOR FOR OWNER APPROVAL PRIOR TO CONSTRUCTION.



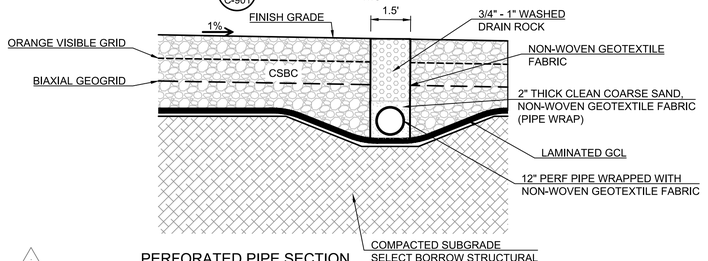
AOC 1 C-901 CROSS-SECTION NTS



GCL C-901 CROSS-SECTION NTS



AOC 2 C-901 CROSS-SECTION NTS



PERFORATED PIPE SECTION NTS

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GCL PANEL LAYOUT AND CROSS-SECTIONS FOR: SMITH-KEM ELLENSBURG

A SITE LOCATED IN THE CITY OF ELLENSBURG, WA

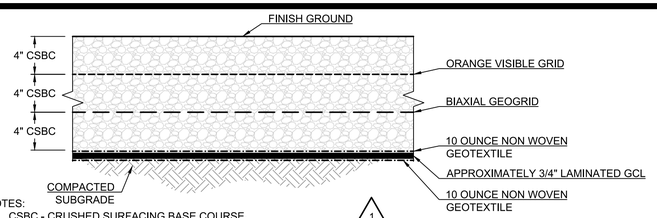
811 Know what's below. Call before you dig.



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SHEET	6 OF 7

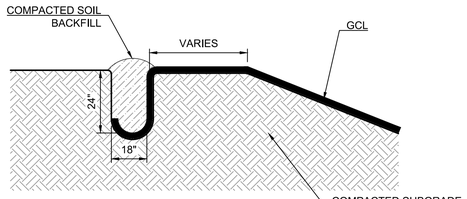
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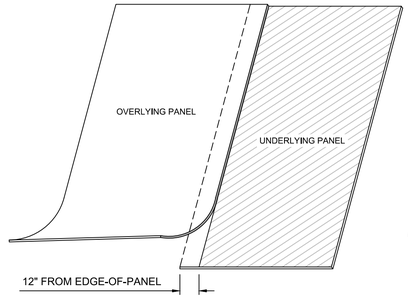
NOTES:
1. CSBC - CRUSHED SURFACING BASE COURSE.
2. GCL - GEOSYNTHETIC CLAY LINER.
3. SEE GEOTECHNICAL ENGINEER LETTER REPORT DATED AUGUST 23, 2024 ON COMPACTION INCLUDING COMPACTION TESTING OF AOC EXCAVATION BACKFILL (SELECT BORROW STRUCTURAL FILL), NATIVE SOIL SUBGRADE AND CSBC.
4. INSTALL GCL WITH LAMINATED FILM FACE UP. THE GCL CONSISTS OF CETCO BENTOMAT 600CL OR CIVIL ENGINEER APPROVED ALTERNATIVE. THE LAMINATED GCL CONSISTING OF A LAYER OF SODIUM BENTONITE BETWEEN A POLYPROPYLENE WOVEN GEOTEXTILE AND A POLYPROPYLENE NONWOVEN GEOTEXTILE, WHICH ARE NEEDLE-PUNCHED TOGETHER AND LAMINATED TO A POLYETHYLENE GEOFILM.
5. INSTALL 10-OUNCE NON-WOVEN GEOTEXTILE FABRIC ABOVE AND BELOW GCL FOR PROTECTION.

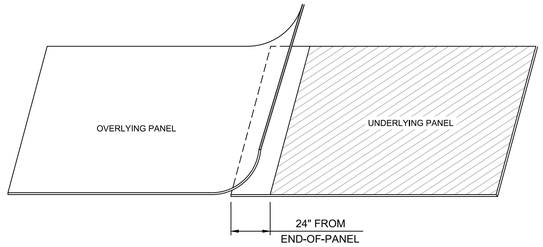
1 (902) LAMINATED GCL SECTION
NTS



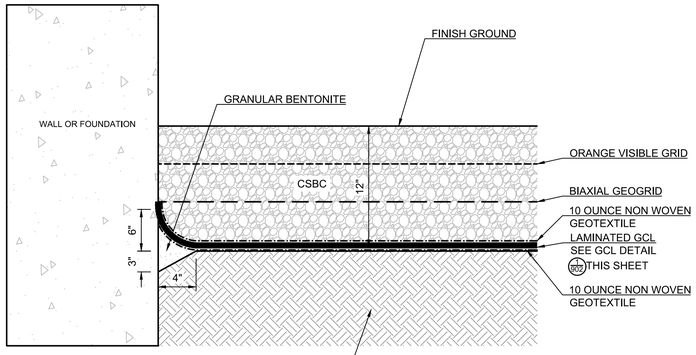
NOTES:
1. GCL ANCHOR TRENCH REQUIRED IF GCL INSTALLED ON A SLOPE STEEPER THAN 4H:1V.
2. CURRENT GRADES DO NOT EXCEED 4H:1V AND ANCHOR TRENCH IS NOT ANTICIPATED UNLESS CHANGES TO THE GRADING PLAN ARE MADE DURING CONSTRUCTION.
3. SEE GEOTECHNICAL ENGINEERING LETTER REPORT DATED AUGUST 23, 2024 ON COMPACTION SPECIFICATION FOR SUBGRADE, SELECT BORROW STRUCTURAL FILL AND CSBC.

2 (902) GCL ANCHOR TRENCH
NTS



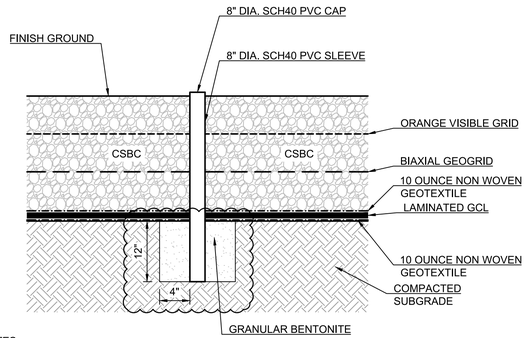


3 (902) GCL SEAMS
NTS



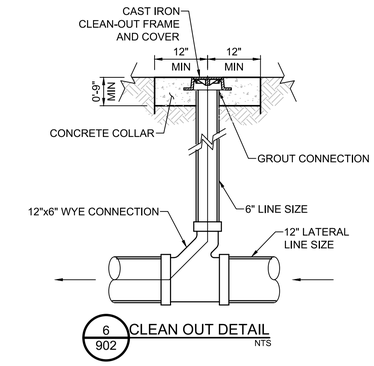
NOTES:
1. SEE GEOTECHNICAL ENGINEERING LETTER REPORT DATED AUGUST 23, 2024 ON COMPACTION SPECIFICATION FOR SUBGRADE, SELECT BORROW STRUCTURAL FILL AND CSBC.

4 (902) LAMINATED GCL TERMINATION AT STRUCTURE OR WALL
NTS



NOTES:
1. VERTICAL PENETRATION FOR SLEEVE TO ALLOW LICENSED WELL DRILLER TO INSTALL REPLACEMENT MONITORING WELL. (MW-4 ONLY PROPOSED FOR REINSTALLATION OR FENCE POST REINSTALLATION).
2. PVC SLEEVE TO CONSIST OF 8" DIAMETER SCHEDULE 40 PVC (MIN). CONTRACTOR TO CONFIRM WITH LICENSED WELL DRILLER MINIMUM SLEEVE DIAMETER AND LENGTH. PVC SLEEVE TO EXTEND A MINIMUM OF 12" BELOW GCL MEMBRANE.
3. SEE GEOTECHNICAL ENGINEERING LETTER REPORT DATED AUGUST 23, 2024 ON COMPACTION SPECIFICATION FOR SUBGRADE, SELECT BORROW STRUCTURAL FILL AND CSBC.
4. GRANULAR BENTONITE SEAL TO BE HYDRATED.

5 (902) GCL VERTICAL PENETRATION
NTS



6 (902) CLEAN OUT DETAIL
NTS

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DETAILS FOR:
SMITH-KEM ELLENSBURG
A SITE LOCATED IN THE CITY OF ELLENSBURG, WA

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SEAN R. HANCOCK — STATE OF WASHINGTON — 50726 — REGISTERED PROFESSIONAL ENGINEER

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CHECKED:	SH
SEPTEMBER 2024	66290.000
SHEET ID	C-902
SHEET	7 OF 7

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Engineering Design Report

Smith-Kem Site

Appendix G
Regenesis In Situ Groundwater Treatment Design Proposal

REGENESIS

Technology-Based Solutions for the Environment

PROJECT NAME

Smith-Kem

Design Proposal - Revision III

PREPARED FOR

Floyd Snider
Layni Wachter
layni.wachter@floydsnider.com

PREPARED BY

REGENESIS

Keith Munsey
kmunsey@regenesis.com

Chris Lee
clee@regenesis.com

March 6, 2024

Project Summary

REGENESIS appreciates the opportunity to provide Floyd Snider our revised preliminary remedial design and cost estimate for the Smith-Kem project. This proposal is a second revision following additional discussion regarding the remedial plan and objectives for the site. This proposal includes an overview of our proposed solution, the project goals, technologies proposed, application design summary table and a treatment area map. The proposed costs in this proposal are a budgetary range and are not intended for final budgetary approval. Please update Regenesis in the future and your plans for implementation near for the site and Regenesis will provide accurate and firm costs to complete the proposed scope of work.

Proposed Solution

We propose two permeable reactive barriers. The northern barrier will utilize PlumeStop Liquid Activated Carbon applied through direct push injection points, a second southern barrier will utilize PetroFix applied in an excavation. Approximately 9 feet of the southern barrier's western end is outside the excavation extent and will be injected with PlumeStop through a series of direct push injection points. PlumeStop and PetroFix are both activated carbon technologies that will be used to capture the dissolved phase contaminant mass and remove it as groundwater migrates through the barriers. The location of the proposed barriers are shown on Figure 1.

A double barrier approach is recommended based on the performance well locations, groundwater flow, location of the source and contaminant types. The barriers are positioned perpendicular to groundwater flow, just down gradient of the residual source. With the combination of these two-barrier locations, we can actively treat contaminant mass migrating towards the barriers.

It should be noted that this site contains a wide array of contaminant types present in groundwater. Some contaminants will clean up rather quickly while others require more time; hence, we have positioned the two barrier locations considering the contaminant properties and timeline for optimal performance.

Groundwater flow velocity and direction were also considered for the barrier locations, orientation and length. Passive flux meters installed at the site documented that groundwater flow is up to 800 ft per year in the target treatment interval. In fast-moving aquifers we typically recommend two separate barriers for optimal performance. Note that the barrier positioning and length will affect the time frame and degree of performance observed at down gradient wells.

PlumeStop will be applied via direct push injection. Regenesis Remediation Services (RRS) will complete the product application. The PetroFix product will be applied into the excavation via soil mixing. We have provided costs for the PetroFix product in this proposal. Floyd Snider can work with a local excavation contractor to apply the PetroFix.

Technologies Proposed

- PlumeStop®
- PetroFix®

Click above to access product specification sheets

Technical Resources

- PlumeStop® Case Study: PlumeStop Application Paves The Way For Redevelopment
- PetroFix - An Animated Overview

Project Goals

- Provide treatment barriers downgradient of building footprint
- Long term performance
- Control contaminant mass leaving the building footprint.

Design Summary - PlumeStop Barrier + PlumeStop Extension-Excavation

Project Info		
Smith Kem Site		
Ellensburg, WA		
Dissolved Phase Plume		
Prepared For:		
Floyd Snider		
Target Treatment Zone (TTZ) Info	**Unit**	**Value**
Barrier Length	ft	46
Top Treat Depth	ft	4.0
Bot Treat Depth	ft	15.0
Vertical Treatment Interval	ft	11.0
Treatment Zone Volume	cy	244
Soil Type	---	sand
Porosity	cm^3/cm^3	0.33
Effective Porosity	cm^3/cm^3	0.25
Treatment Zone Pore Volume	gals	16,238
Treatment Zone Effective Pore Volume	gals	12,302
Soil Density	g/cm^3	1.7
Hydraulic Conductivity	ft/day	109.5
Hydraulic Conductivity	cm/sec	3.86E-02
Hydraulic Gradient	ft/ft	0.005
GW Velocity	ft/yr	800
Application Design Summary		
Treatment Type		**Barrier**
Distance Perpendicular to Flow (ft)		46
Spacing Within Rows (ft)		5
Number of Rows		1
DPT Injection Points		**9**
PlumeStop to be Applied (lbs)		**6,000**
PlumeStop to be Applied (gals)		666
Volume Water (gals)		**6,708**
Total Application Volume (gals)		**7,374**
Technical Notes		
PlumeStop Application		**75.0 gallons/vertical foot**
Application Dosing	**Unit**	**Value**
PlumeStop to be Applied	lbs	6,000

Please note: Design table pertains to both northern and southern barrier segments totaling 46 linear feet.

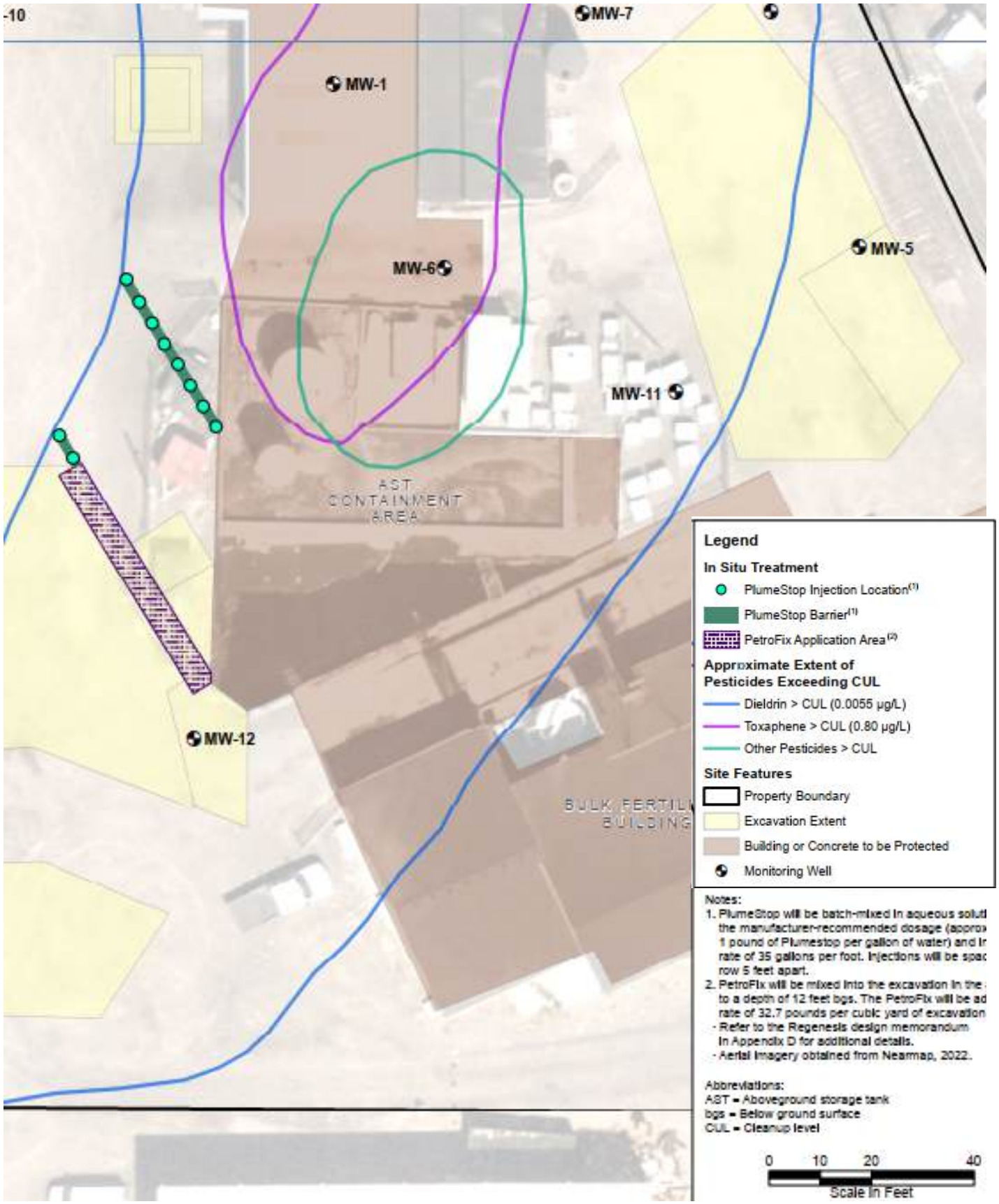
PetroFix™ Application Summary
Excavation Estimate
Smith-Kem
Ellensburg, WA

REGENESIS
PetroFIX Remediation Fluid

PetroFix Amount	4,000 lb
Treatment Surface Area	275 ft^2
Assumed Placement Interval At Base	12 ft
Treatment Volume	122 yd^3
PetroFix Dose	32.7 lb/yd^3
Shipped PetroFix Volume	409 gal
Shipped Electron Acceptor (EA)	0 lb

Specific Area Notes:
Native soil type: Mix of Coarse and Fine

General Application Approach: PetroFix should be distributed horizontally and vertically as best possible throughout the placement interval starting at the base of the treatment zone (12 feet) and within the width of the emplaced barrier (approximately 5 feet). See excavation application instructions (link below) to learn more about direct spray and soil mixing application approaches. PetroFix application rates can be adjusted to apply higher or lower amounts across the excavation based on field observations or sampling of contaminant presence.



Smith-Kem

Floyd Snider

February 26, 2024

Figure 1-Treatment Area Map

REGENESIS

Technology-Based Solutions for the Environment

Technical Approach

We are proposing the application of PlumeStop® Liquid Activated Carbon™ (PlumeStop) to treat residual contaminants in groundwater. PlumeStop,a form of colloidal activated carbon, is an innovative groundwater remediation technology designed to readily distribute in the subsurface and to rapidly remove contaminants from groundwater to meet remedial targets. PlumeStop is composed of very fine particles of activated carbon (1-2µm) suspended in a proprietary organic polymer dispersion chemistry and is applied under low injection pressures. The colloidal activated carbon particles are dispersed from the injection point before binding to the soil matrix to create a permeable zone with an extensive sorption capacity. Contaminants then passively flow through the PlumeStop zone where they are rapidly adsorbed out of the groundwater, preventing furthermigration. Additional information regarding the technology can be found via the links below.

PetroFix can be applied in an excavation by applying exclusively on the floor and sidewalls of the excavation or mixed throughout the backfill used in the excavation. For this site, REGENESIS recommends the spray application PetroFix into the open excavation. See the above PetroFix Excavation Application Table for more details. The volumes described above in are rough estimations and should be changed in the field as needed. TECHNICAL NOTE: The PetroFix solution applied should be mixed so that when sprayed into the excavation the viscosity is thick enough to not run or drain while still having enough volume to cover the treatment area.

TECHNICAL BULLETINS

- PlumeStop® Technical Bulletin 2.1: Sorption of Contaminants from Solution
- PlumeStop® Technical Bulletin 2.2: Sorption of Contaminants from Solution-Column Study
- PlumeStop® Technical Bulletin 3.1 Post-Sorption Contaminant Biodegradation
- PlumeStop® Technical Bulletin 4.1: Regeneration of Sorptive Capacity
- PlumeStop® Technical Bulletin 6.1: Treatment Solution of Back Diffusion-Tank Study
- PetroFix Landing Page - Permeable Reactive Barriers
- PetroFix® Checklist - Excavation Application (Please Review)
- PetroFix Application Guidance - Excavations
- Colloidal Activated Carbon (CAC) Sampling Guidance Document

CASE STUDIES

- PetroFix Case Study - All
- PlumeStop® Case Study: Site Goals Achieved Within 2 Months at Manufacturing Facility

Design Verification Testing (DVT)

Design Verification Testing (DVT) describes a suite of field sampling/testing activities carried out before an *in-situ* injection program is implemented. All DVT information has been collected from the site and evaluated by Regenesis. The current design reflects the understanding of the contaminant plume and site conditions following the DVT.

RRS Statement of Qualifications

RRS provides turn-key remediation planning, design, and application services. RRS field scientists are college degreed professionals that understand the details of each remediation design, the site conceptual site model, the remediation chemistry being applied, the significance of the designed amendment dosing and achieving subsurface distribution, and how a breakdown of any one of these and other factors can result in poor remediation performance. They have the unique background and experience to understand the significance of modifications made in the field.

RRS' direct management of the injection program optimizes the design and ultimately, the overall remedy performance. No one has more professional experience handling and applying *in situ* remediation products than RRS personnel.

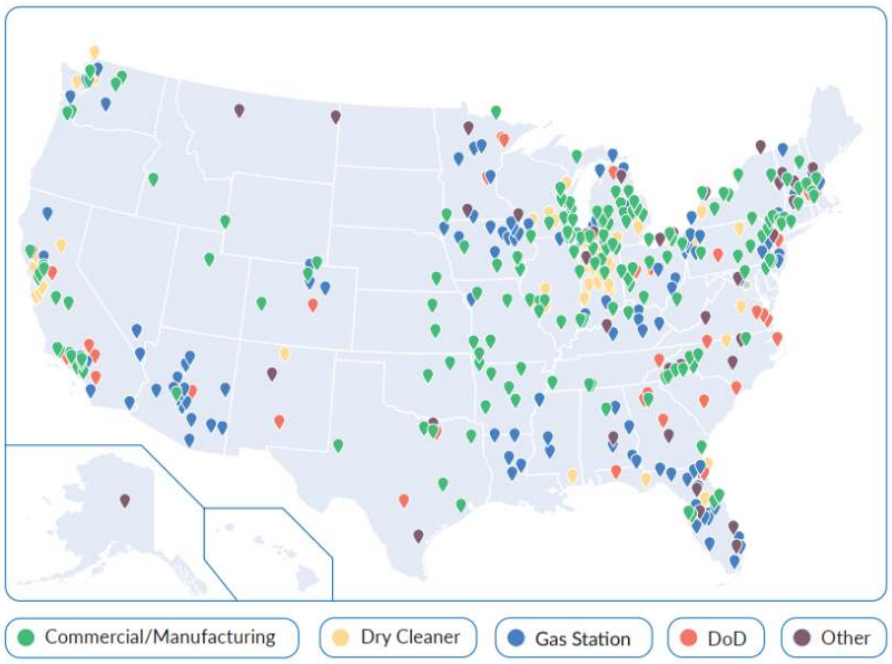
RRS has been offering industry-leading application services combined with excellence in field activity management for over a decade. We succeed by meeting the cleanup objectives established by the environmental engineering firms who contract our services. To produce this outcome, we employ field-experienced, disciplined, and dedicated project teams who work with our clients to address the unique requirements of each project site. Astute technical insight and timely, direct, and honest communication are hallmarks of RRS. Our reputation for meeting or exceeding clients' objectives has been proven in project successes throughout North America.

Further information on what sets RRS apart is provided in the following technical resources:

- RRS: Performance Driven, Results Based
- The RRS Difference
- RRS Project Experience

With decades of application experience, RRS is strategically located across the country to mobilize and assist on a wide range of sites throughout the US.

Over 100 Projects Completed Annually Across the US



RRS Scope of Services

RRS, as part of its role, will operate under the guidance of Floyd Snider to execute the remedial actions in the field, employing the chosen remediation methodologies. The collaboration between RRS and Floyd Snider will entail joint responsibilities in carrying out this scope of work.

Additionally, prior to and during the injection, **Placement Validation (PV) testing** will be conducted. PV serves as a standard in-field methodology involving the extraction of soil cores and the observation of water samples to assess the dispersion of amendments during the remedial application. RRS will execute PV at the outset of the application and periodically thereafter. In-field adaptations may be implemented during the application if PV testing suggests adjustments are required to ensure the distribution of remedial amendments aligns with the design.

The distribution of responsibilities is elaborated upon in this section as well as under the Assumptions/Qualification segment. At the outset of each day, RRS will convene a safety tailgate meeting to discuss the day's objectives, procedures, assigned roles, and review health and safety concerns.

RRS will be outfitted with various injection tool alternatives compatible with 1.5-inch diameter Direct Push Technology (DPT) rods. The injection tool configuration will be advanced either to the upper or lower extent of the target treatment zone, and injections will be conducted utilizing either a bottom-up or top-down technique based on the subsurface lithology.

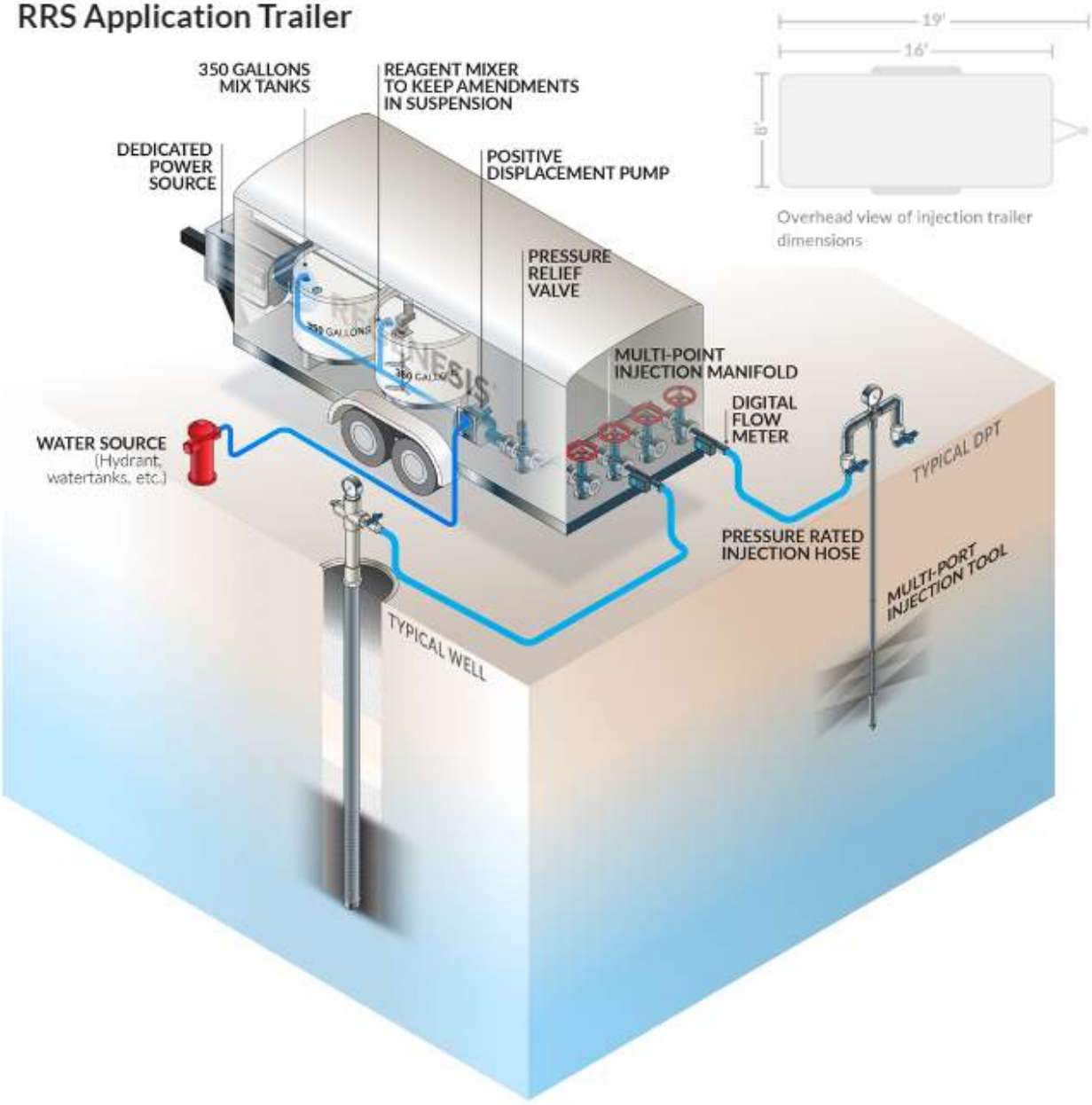
Remediation technologies will be mixed with water water utilizing a custom built injection system (see below), adhering to the specified solution concentration. This mixture will be consistently agitated during the injection process. Parameters such as pressures, flow rates, and overall volume will be closely monitored and digitally recorded for each injection interval. To enhance efficiency on-site, simultaneous injections at multiple locations may be performed. RRS will vigilantly monitor the injection points and their surroundings for any indications of surfacing, and a spill response kit will remain on standby.

Throughout the application, real-time data will be collected and analyzed to corroborate design assumptions and the dispersion of reagents in the subsurface. Depending on the remedial agent applied, the gathered and analyzed data may encompass groundwater quality parameters (e.g., pH, conductivity, Dissolved Oxygen (DO), Oxidation-Reduction Potential (ORP), etc.), measurements of water table depth, visual indicators observed via groundwater or soil samples, and in-field concentration tests of injected substances. This data collection is typically conducted during the application process when operating within 10 feet of appropriately screened monitoring wells.

Guided by the collected information, the project team may introduce adjustments to the remediation design to enhance the injection application's efficacy. These adjustments might involve alterations in injection concentrations and volume per location.

Upon the conclusion of the injection operation, RRS will demobilize all equipment and personnel from the site. A comprehensive injection summary report, encompassing details of injection points (interval depths, injection pressure/flow rates, reagent volume, time elapsed, and surfacing occurrences), on-site observations, and any notable information, will be prepared and submitted to Floyd Snider.

RRS Application Trailer



Health and Safety Plan

RRS is committed to providing a safe and healthy working environment for all on-site employees, including Floyd Sniders and contractors on-site. Before mobilization, RRS will develop a site-specific Health and Safety Plan (HASP) and designate an on-site safety officer. All personnel on-site are required to participate in daily safety tailgate meetings to proactively identify potential hazards and mitigate risks to the full extent possible.

In addition to the hours of rigorous safety training courses all personnel are required to complete, RRS also incorporates a behavior-based safety program by utilizing our DoneSafe mobile application (app) interface on every site. This app encourages our personnel to actively search for potential on-site risks and document mitigation actions. The effectiveness of our safety program can be seen in our industry-leading Experience Modification Rating (EMR) listed in table below.

	Total Hours	EMR
2022	189,458	0.73
2021	125,592	0.71
2020	162,037	0.64
2019	169,964	0.66

RRS safety tailgate meetings and HASP will include the following:

- Site map
- List of personnel and contact information for employees on-site and supporting the project.
- Route to the nearest occupational treatment facility and hospital along with contact information.
- Job Hazard Analysis (JHA) detailing each job task on-site with its potential hazards and best practices to avoid those hazards.
- Description and hazards of the contaminants of concern (COC) with appropriate Personal Protection Equipment (PPE) requirements.
- List and description of REGENESIS chemicals on-site including a Safety Data Sheet (SDS) for each chemical.
- Checklist of site safety equipment including fire extinguishers, eyewash station, first aid kit, spill prevention kit and any site-specific equipment needed.
- Daily tailgate safety meeting sheet with identified hazards and risks associated with the site and job tasks for that day, along with shared learning observations from the previous day.



PetroFIX™
Remediation Fluid

Excavation Application Guidance For PetroFix™



PetroFIX™
Remediation Fluid

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Excavation Application Guidance for PetroFix

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5 Pre-Mixing of PetroFix

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7 Direct Application

8 *In Situ* Soil Mixing



Questions?
Get in touch with us.

Phone: 949-366-8000
Email: info@petrofix.com

Or visit https://petrofix.com/apply today to learn more.

Introduction

Excavation Application Guidance for PetroFix

PetroFix™ Remediation Fluid (PetroFix) is an environmentally-compatible formulation of micron-scale activated carbon (1-2 microns) that is combined with both slow and quick-release inorganic electron acceptors (Electron Acceptor Blend or EA Blend). PetroFix can be applied to the floor and sidewalls of an excavation through *in situ* soil mixing or direct spraying. PetroFix should generally be applied to the vertical interval of the excavation that is naturally saturated with groundwater or expected to become naturally saturated.

REGENESIS has prepared this guidance document for remediation practitioners who are planning to use PetroFix as an amendment for remedial excavations. Two methods of application are described: Direct and *in situ* soil mixing.

For guidance on application methods that are not described in either document, please contact REGENESIS directly at 949-366-8000 or send an inquiry to info@petrofix.com.

H&S Note: Prior to use all personnel should review the specific SDSs to assure compliance and preparedness for any type of emergency that arises. OSHA (29 CFR 1910.1200)

PetroFix Health & Safety Information

Storage and Handling Guidelines

- Store away from incompatible materials and in original closed container
- Store at temperatures between 40°F and 95°F
- Do not allow material to freeze or store in direct sunlight
- Freezing and hot weather technical memo can be accessed here
- Dispose of waste and residues in accordance with local authority requirements

LEVEL D

Level D Protection is primarily a work uniform and is used for nuisance contamination only. It requires only coveralls and safety shoes/boots. Other PPE is based upon the situation (types of gloves, etc.). It should not be worn on any site where respiratory or skin hazards exist.

Source: https://chemm.nlm.nih.gov/ppe.htm

Note: *This recommendation is only for PetroFix and does not supersede additional precautions due to site conditions and potential exposures.*

Personal Protective Equipment (PPE) Requirements for Safe Installation

PetroFix is considered nonhazardous although it is recommended that personnel working with or in areas where there is a potential for contact with PetroFix should be required at a minimum to be fitted with Level D personal protective equipment. However, this recommendation is only for PetroFix and does not supersede additional precautions due to site conditions and potential exposures.

PPE should be upgraded from modified Level D based on site-specific hazards and requirements.

Typical Requirements

Features, Installation Equipment and Supplies Needed for PetroFix Application

- Secure storage area for PetroFix
- PetroFix SDS
- Appropriate Personal Protective Equipment (PPE)
- Qualified heavy equipment operators if mechanically mixing PetroFix
- Water source for mixing and spraying
- Access to electricity if spray pumps are used
- Mixing tanks – size based on the desired amounts of water to use and site logistics
- Drum mixer for homogenizing PetroFix in its 55-gallon drums (examples given later in this document)
- Hosing between mixing tank/drum and spray pump
- Spray pump if doing a direct spray application

More specifics are provided in the following sections.

Application Process

Pre-Mixing of PetroFix

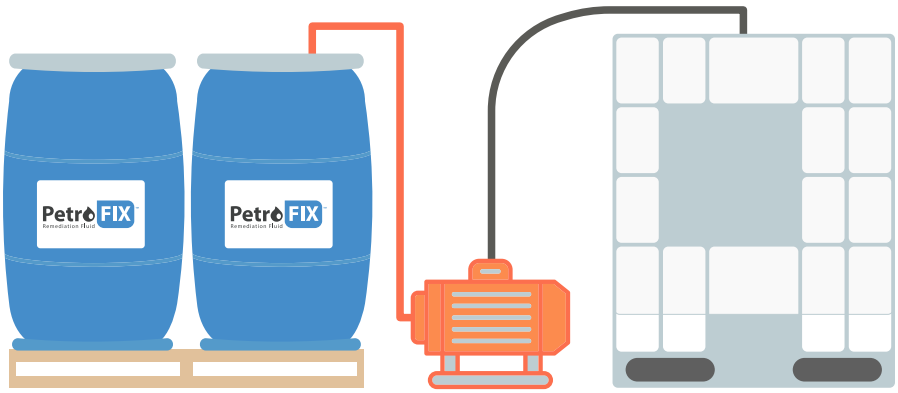
Shipping Information: PetroFix fluid is shipped in 55-gal. polyethylene drums and the EA version is shipped in 20-lb plastic pails.

PetroFix fluid is shipped in 55-gallon polyethylene drums and the EA Blend is shipped in 20-lb plastic pails. There are 41 gallons of fluid in each drum. PetroFix fills to roughly 12 to 14 inches below the top of the drum. PetroFix fluid can be transferred from its drum into a mix tank using either a diaphragm pump, trash pump, or a drum pump.

Note: *Always add water to mixing tank prior to adding PetroFix Remediation Fluid*

In most instances PetroFix will need to be diluted in a larger mixing tank and then pumped from that mixing tank to spray or pour into the excavation. Both PetroFix and the supplied electron acceptor should be diluted in the mixing tank and not in the drum the material was shipped in. **Mix tank volumes of 200 to 500 gallons should be enough for most sites and one should expect repeated re-fills of the tank until PetroFix is distributed.** Always add water to mixing tank prior to adding PetroFix Remediation Fluid.

- Assemble product transfer system to move the PetroFix from the drums to the mix tank. A diaphragm pump such as a Yamada diaphragm pump can be used to pump PetroFix form a drum to a mix tank.



The image shows an example PetroFix transfer and mixing setup where a tote was chosen as the mix tank



The image shows the homogenization of PetroFix using a high torque/high rpm mixer with appropriate mixing paddle.

- Always pre-mix PetroFix in its container prior to pumping material out of the container

- PetroFix is easy to mix with a proper power drill/mixer and a mixing blade combination. In cold weather or prolonged storage times PetroFix may settle a few inches at the bottom of the 55-gallon poly drum. Any such settling can be resuspended in the field with little time and the right equipment. A recommended mixing combination for all circumstances would be a high torque, double handle mixer such as a QEP or Rigid thinset grout and mortar power mixer with QEP 30" pro spiral mixing paddle, or equivalent (available at Home Depot). Other high torque mixers and paddle combinations can be used if they can create a vortex in the drum.

- If the PetroFix is difficult to pump after mixing with our recommended mixer you may need to thin the material. We recommend you add 3 to 5 gallons of water to the drum and blend that into the material. This will reduce the viscosity to allow for proper homogenization and transfer to dilution tanks.

- Transfer appropriate volume of PetroFix remediation fluid to the water in the mix tank.

- Thoroughly mix PetroFix solution in the mixing tank using an impeller type drum mixer or by recirculating the product inside the tank.

- Add recommended ratio of PetroFix Electron Acceptor Blend to the mixed solution in the tank. One tip is to use a scale to measure mass of electron acceptor blend needed for partial mix batches. Standard dosing is one bucket of electron acceptor blend per one drum of PetroFix.

  CAUTION: DO NOT mix PetroFix Electron Acceptor (EA) blend from the 20 lb buckets into undiluted PetroFix Remediation Fluid in the drums or totes. Only add the PetroFix EA blend into the diluted PetroFix solution in the mix tank. Adding the EA blend directly into the PetroFix Remediation Fluid will prevent the EA blend from properly dissolving in the mix water.

- As the drum is emptied into the mixing tank, flush out the drum with water to fully use all material. Flush water can be used as mix water.

Excavation Applications

The following text provides general guidance for how to apply PetroFix by direct application through spraying or in-excavation soil mixing. This document should not be considered an exhaustive review of all potential PetroFix application techniques and only provides a brief discussion on procedures recommended by REGENESIS.

PetroFix should never be applied by personnel within the excavation, unless proper shoring or sidewall cutback is in place.



Aerial view of PetroFix application an excavation site via direct-spraying

Direct Application

PetroFix can be sprayed onto the floor and sidewalls of an excavation by mixing PetroFix with water in above-ground mixing tanks and spraying using a high-volume water pump to fully cover the treatment area. PetroFix application should be focused in areas where complete excavation was not possible or where there is a concern for potential contaminant rebound. To facilitate focused application for sidewalls or areas of concern, application of the PetroFix solution can be sequenced to coincide with the incremental lifts during the soil backfilling.

PetroFix should be applied on a mass basis per treatment area using the design recommendations provided by REGENESIS. The minimum recommended mixing ratio for PetroFix for spraying is 1:1 by volume with water (i.e. 41 gallons of PetroFix fluid + 20 lb of supplied EA Blend to 41

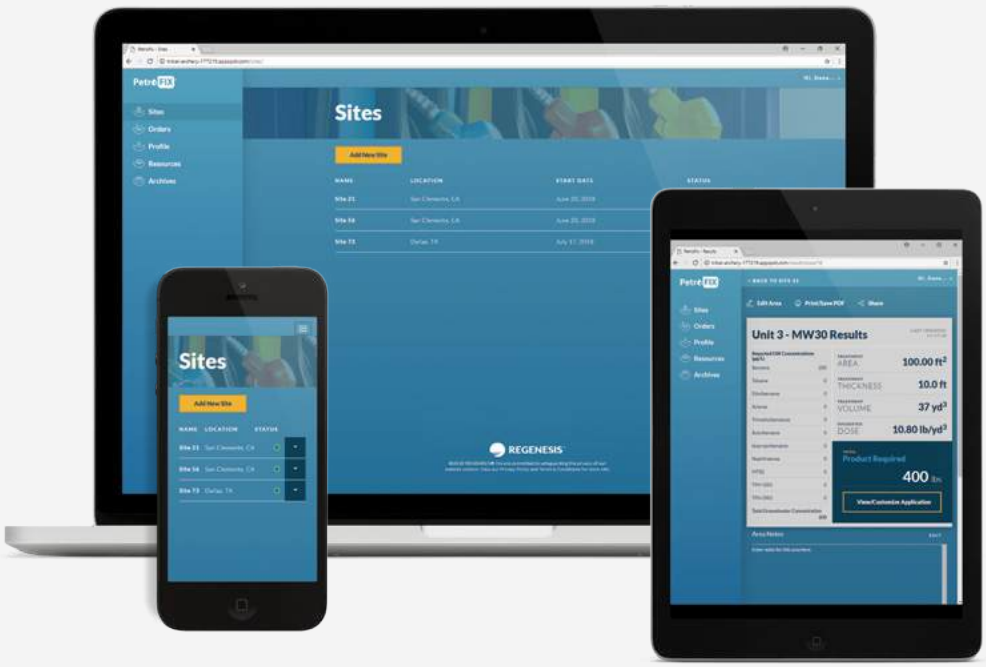
H&S Note: All excavations should be assessed by an "excavation competent person" as defined in OSHA (29 CFR 1926.50) to assure that personnel and equipment applying the product are a safe distance away from sheer walls to prevent engulfment and injury.

gallons of mix water) and this is usually used for relatively small excavations where a large area of distribution is not needed. Higher dilution volumes would be recommended where PetroFix is sprayed into the middle of a large excavation that is harder to reach. The volume of mix water can be increased or decreased as needed to fully cover the treatment area and is usually determined in field. As a rule-of-thumb, plan on using at least 5x as much volume of mix water as PetroFix remedial fluid used and vary as needed so that you feel you have enough water to achieve the coverage that you need. Enough water should be used to spread PetroFix through the entire excavation treatment area. If the excavation is not saturated, enough water should be used to attain coverage and saturate the first few inches of the excavation and cause some downward percolation.

PetroFix can be applied directly to the soil using a towable water trailer (such as Wastecorp 500 to 1,600 gallon water trailers) equipped with an onboard centrifugal water pump and sprayed using a 1.5" lay flat hose fitted with a 1.5" fire nozzle. This equipment can be rented at most construction rental supply stores. PetroFix and the associated Electron Acceptor Blend can be mixed by recirculating the solution within the water tank using either the onboard water pump or an external pump. PetroFix and the EA Blend should be mixed with water for approximately five minutes before it is ready to be sprayed into the excavation. It is recommended to flush the pump, hose, and nozzle with clean water after spraying each PetroFix drum and at the end of the day to prevent potential clogging. Follow OSHA-required health and safety practices while spraying and follow regulations on appropriate distances to stand away from the edges of the excavation. Use caution when spraying PetroFix upwind and it is advised to wear a face shield to prevent liquid splashing on the face.

In Situ Soil Mixing

In situ soil mixing can be performed to improve PetroFix distribution within the soil targeted for remediation. PetroFix can be added undiluted into the excavated area and mixed *in situ* with standing groundwater. If the excavated area is dry, it is recommended to add water to the floor of the excavation to aid in soil mixing and saturate at a minimum the first few inches of soil. Add water as needed to aid in mixing and plan for enough water based on the volume of excavation to be treated. Another option is that PetroFix can be diluted (per instructions in the prior section) with higher volumes of water and then sprayed into the excavation at the mixing head. Mechanical mixing can be performed using a variety of excavator attachments, including bucket, auger, or rotary tool.



Simple
Easy to Use

Flexible
Designs Tailored to Your Site

Fast
No Waiting for a Design

Phone: (949) 366-8000

www.PetroFix.com

www.REGENESIS.com

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REGENESIS®

Engineering Design Report

Smith-Kem Site

Appendix H
Stormwater Hydrologic and Hydraulics Calculations Memorandum

TRANSMITTAL

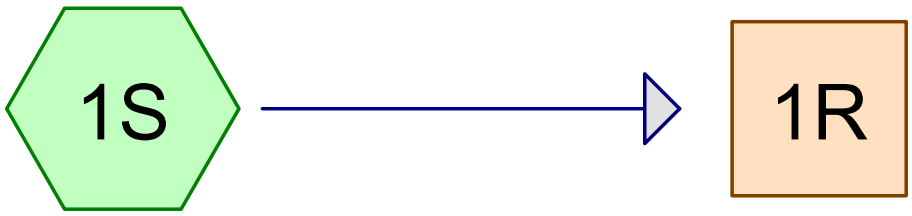
DATE:	March 14, 2024
TO:	Lynn Grochala Floyd|Snider 601 Union Street, Suite 600 Seattle, Washington 98101
FROM:	Sean Hanrahan, PE Craig Peterson, PE
PBS PROJECT:	66290.000
RE:	Stormwater Hydrologic and Hydraulics Calculations Smith-Kem Property 200 S. Railroad Avenue Ellensburg, Washington

---

Enclosed are the stormwater calculations for the Smith-Kem GCL cap stormwater drainage system. The system consists of a perforated underdrain to collect water from the impermeable cap and convey it downstream. The detailed design plans have been provided separately and the stormwater design narrative has been provided for inclusion in the Engineering Design Report by Floyd|Snider.

Attachment(s): Smith-Kem HydroCAD Report Output
Smith-Kem Drainage Basin Map
Smith-Kem Conveyance Pipe Calculations

cc: Layni Wachter, PE, Floyd Snider



Subcat Reach Pond Link

Routing Diagram for 66290-000_Conveyance-Pipe-Model
Prepared by PBS Engineering & Environmental, Printed 3/14/2024
HydroCAD® 10.20-4b s/n 00668 © 2023 HydroCAD Software Solutions LLC

Summary for Subcatchment 1S: Storm Runoff Area

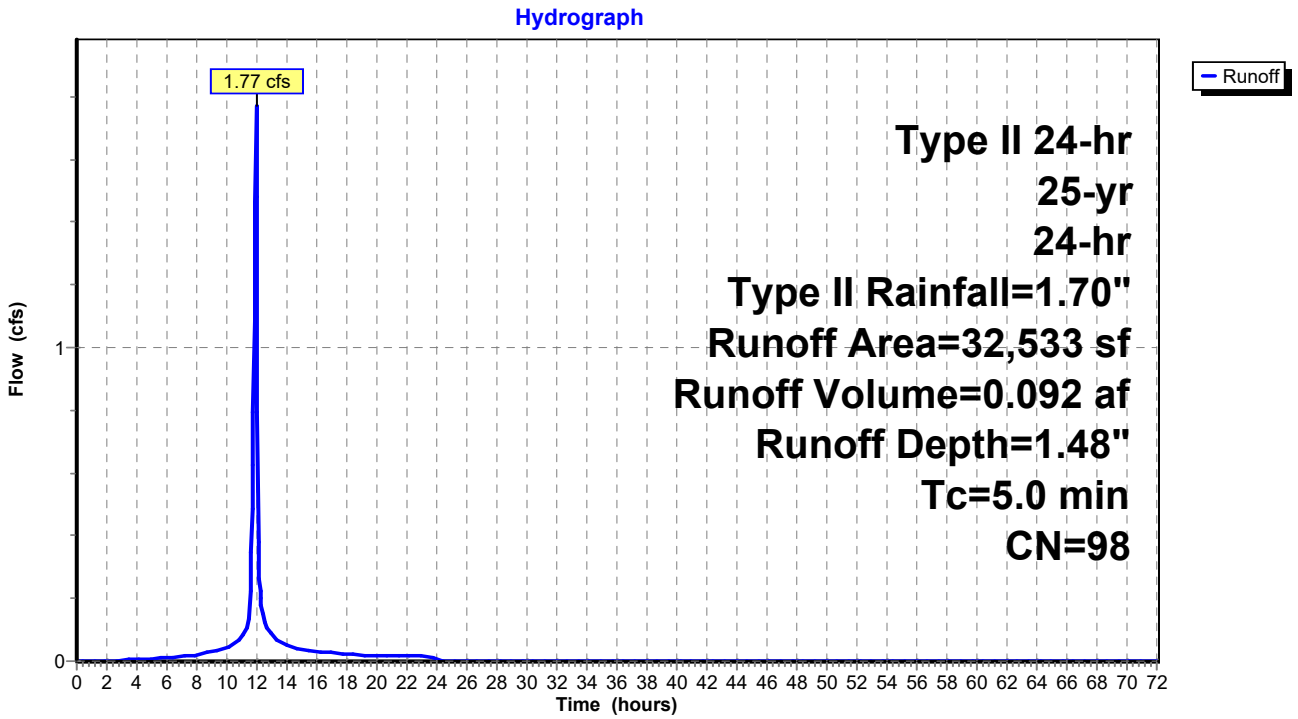
Runoff = 1.77 cfs @ 11.95 hrs, Volume= 0.092 af, Depth= 1.48"
Routed to Reach 1R : 12" Pipe

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr, 24-hr, Type II Rainfall=1.70"

	Area (sf)	CN	Description
*	32,533	98	
	32,533		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: Storm Runoff Area



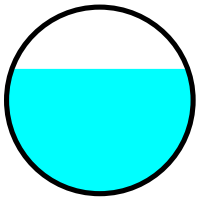
Summary for Reach 1R: 12" Pipe

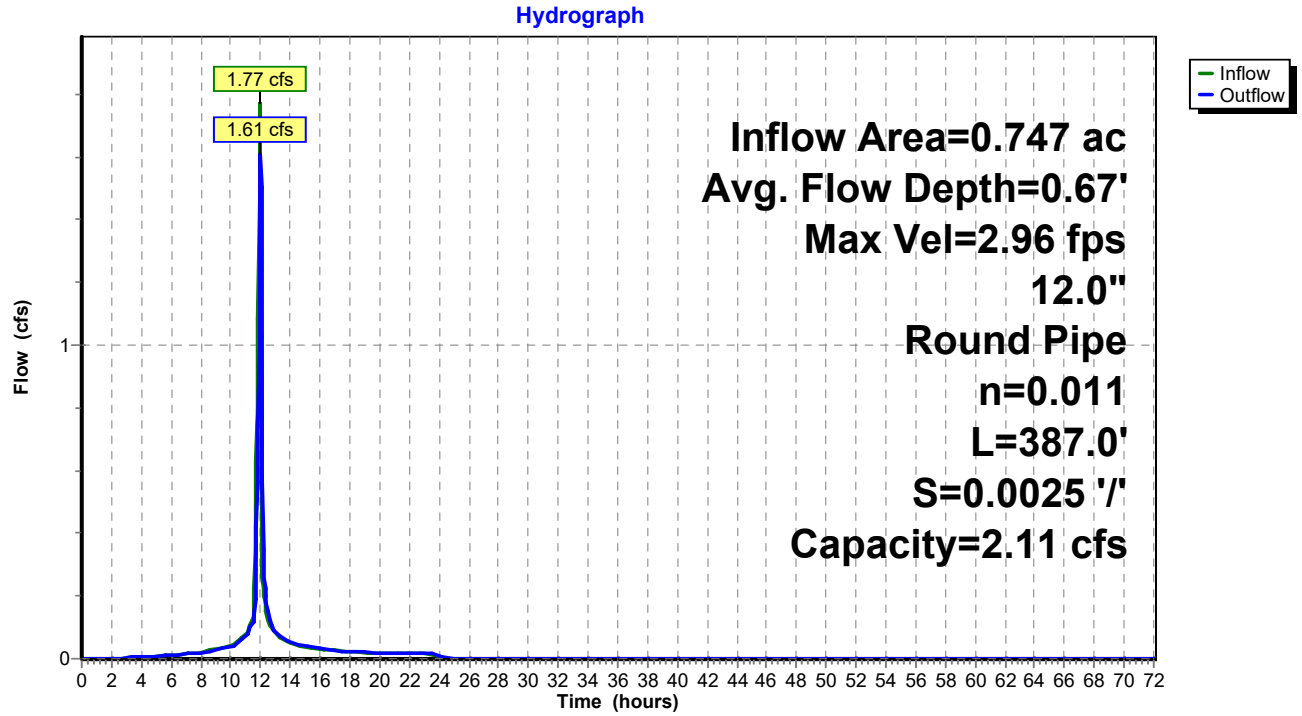
Inflow Area = 0.747 ac,100.00% Impervious, Inflow Depth = 1.48" for 25-yr, 24-hr, Type II event
Inflow = 1.77 cfs @ 11.95 hrs, Volume= 0.092 af
Outflow = 1.61 cfs @ 12.01 hrs, Volume= 0.092 af, Atten= 9%, Lag= 3.6 min

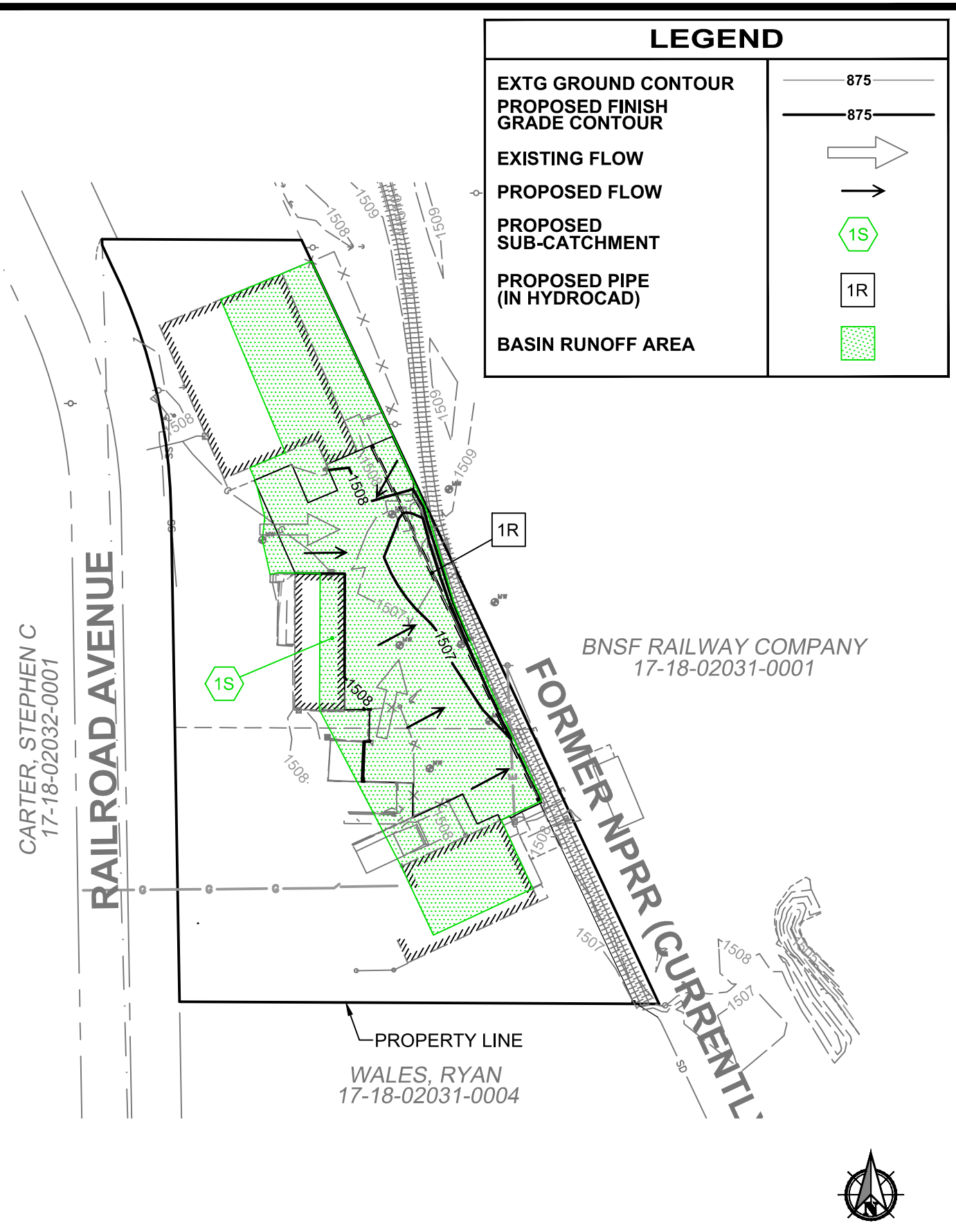
Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.96 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 0.87 fps, Avg. Travel Time= 7.4 min

Peak Storage= 217 cf @ 11.98 hrs
Average Depth at Peak Storage= 0.67' , Surface Width= 0.94'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.11 cfs

12.0" Round Pipe
n= 0.011 PVC, smooth interior
Length= 387.0' Slope= 0.0025 '/'
Inlet Invert= 1,504.51', Outlet Invert= 1,503.54'







L:\Projects\66000\66290\66290-000\Civil\CAD\Working\Exhibits_Drainage-Basin-Map\66290-000_Drainage-Basin-Map.dwg Doroteo Chavez Castillo 3/14/2024 4:51:03 PM

PBS Engineering and Environmental Inc.
pbsusa.com

DRAINAGE BASIN MAP

SMITH-KEM ELLENSBURG

MARCH 2024	66290.000
SCALE 1" = 80'	SHEET ID
DESIGNED: DCC	FIGURE 1
CHECKED: SH	SHEET 1 OF 1

25-Year, 24-Hour Type II Storm Event

Job Name: Smith-KEM
Job Number: 66290-000
Date: 3/14/24 10:24 AM
Reach: Conveyance Pipe

Design Values
Calculated Values
Results

Based on 1992 PSM (example)
See Page III-2-14 (Fig. III-2.7)
TW = 1504.21
Type II 25-Year, 24-Hour Storm Event Modeled

Hydraulic Grade Line Calculations -- Design storm runoff

Pipe Segment Structure to structure		1 Q from HydroCAD cfs	Q_3 from HydroCAD cfs	2 Length ft	3 Pipe Size in.	4 Manning's n	5 Outlet Elevation	6 Inlet Elevation	7 Barrel Area s.f.	Barrel Slope ft./ft.	8 Barrel Velocity fps	9 Barrel Vel. head ft.	Critical depth ft.	10 Tailwater Elevation ft.
CB	SDCO 1	1.77	0.00	17	12	**0.011**	1503.54	1503.58	0.79	0.0024	2.25	0.08	0.56	**1504.21**
SDCO 1	SDCO 2	1.77	0.00	135	12	**0.011**	1503.58	1503.92	0.79	0.0025	2.25	0.08	0.56	1504.39
SCCO 2	SDCO 3	1.77	0.00	235	12	**0.011**	1503.92	1504.51	0.79	0.0025	2.25	0.08	0.56	1504.71

Pipe Segment Upstream Structure	11 Friction Head loss ft.	12 Entrance HGL Elev. ft.	13 Entrance Head loss ft.	14 Exit Head loss ft.	15 Outlet control elevation ft.	16 Inlet control elevation ft.	17 Approach Velocity Head ft.	18 Bend Head Loss ft.	19 Junction Head Loss ft.	20 Headwater Elevation ft.	21 Rim/Surface Elevation ft.	Freeboard ft.	Headwater ft.	Pipe Run Label (see HydroCAD Map)	Air Gap in Pipe at Inlet ft.	Manning's Pipe Full Flow Capacity cfs	Excess Barrel Capacity (cap-flow) cfs
SDCO 1	0.03	1504.24	0.04	0.08	1504.36	1504.45	0.08	0.02	0.00	1504.39	1507.00	2.61	0.81	1R	0.19	2.04	0.27
SDCO 2	0.24	1504.62	0.04	0.08	1504.74	1504.79	0.08	0.00	0.00	1504.71	1507.62	2.91	0.79	1R	0.21	2.11	0.34
SDCO 3	0.41	1505.12	0.04	0.08	1505.24	1505.38	0.00	0.00	0.00	1505.38	1508.44	3.06	0.87	1R	0.13	2.11	0.34

Col. 10+11 | 0.5xCol.9 | 1.0xCol. 9 | 12+13+14 | Form 1 Eq. Pg 4-37 (98) | Col 9 (upstream) | $K_b \times V^2/2g$ | Kj x Col.17 | Col (15 or 16) +18+19-17 > of 15 or 16 | Col. 21-20 | Col. 20-6

K_e=0.5 | K=1.0 | c = 0.0398 | Y = 0.67 | $V^2/2g$ | K_b90=1.32 | K_b60=0.64 | K_b45=0.38 | K_b30=0.2

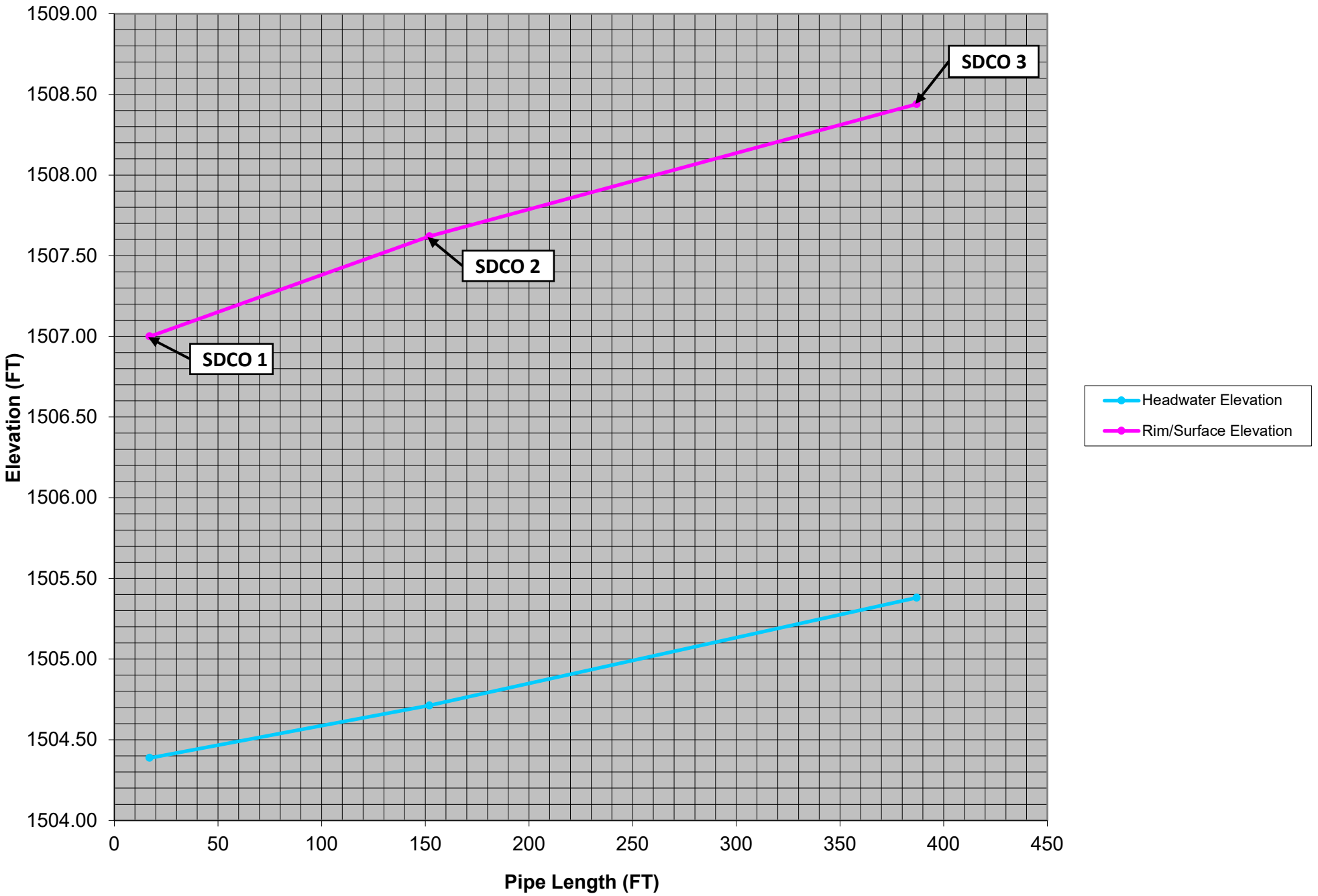
Pipe Friction Head Loss
Head Loss per LF of pipe upstream
S = (nV)^2/(2.22R^1.33) or (Q^2/K^2) x pipe length

Where,
Kj = (Q_3/Q_1) / (1.18+0.63(Q_3/Q_1))
(Q_3/Q_1) (smaller/larger)

Ratio of Critical Depth to Diameter = y = $0.103+0.3252x-0.042x^2+0.002x^3$

Comments:

25-Year, 24-Hour Type II Storm Event
Hydraulic Grade Line



Engineering Design Report

Smith-Kem Site

Appendix I
Sampling and Analysis Plan/ Quality Assurance Project Plan

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1.2 SOIL SAMPLE COLLECTION AND ANALYSIS I-1
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List of Abbreviations

Abbreviation	Definition
CUL	Cleanup level
EDD	Electronic data deliverable
EDR	Engineering Design Report

Abbreviation	Definition
Engineer	Engineer of Record
FBI	Friedman and Bruya, Inc.
ID	Identifier
IDW	Investigation-derived waste
LCS	Laboratory control sample
LCSD	Laboratory control sample duplicate
MDL	Method detection limit
MS	Matrix spike
MSD	Matrix spike duplicate
PID	Photoionization detector
PM	Project Manager
PPE	Personal protective equipment
ppm	Parts per million
PQL	Practical quantitation limit
QA	Quality assurance
QC	Quality control
REL	Remediation level
RIWP	Remedial Investigation Work Plan
RL	Reporting limit
RPD	Relative percent difference
SAP/QAPP	Sampling and Analysis Plan/Quality Assurance Project Plan
SDG	Sample delivery group
SOP	Standard Operating Procedure
TPH	Total petroleum hydrocarbons
USEPA	U.S. Environmental Protection Agency

1.0 Sampling and Analysis Plan

Implementation of the Engineering Design Report (EDR) will involve collecting performance and confirmation groundwater and soil samples to confirm achievement of applicable cleanup levels (CULs) and remediation levels (RELs) within the Smith-Kem Site (Site). Sampling procedures are described in the following sections, including field methodology, sample nomenclature, and sample handling and custody documentation. Additionally, Table I.1 presents the analytical methods, preservation requirements, bottle types, and holding times for the sampling program. Table I.2 presents the detection limits and reporting limits (RLs) for the analyses.

1.1 GROUNDWATER SAMPLE COLLECTION AND ANALYSIS

Groundwater sample collection will be performed in accordance with the Sampling and Analysis Plan/Quality Assurance Project Plan (SAP/QAPP) presented in the Remedial Investigation Work Plan (RIWP; Floyd|Snider 2016), with updated information such as analytical methods described below.

1.1.1 Groundwater Sampling

Groundwater samples will be collected prior to construction per Section 7.1.2 of the EDR. Samples will be collected with standard low-flow pumping methods for Site groundwater COCs in accordance with the RIWP SAP/QAPP with supplemental updates per the PDI Work Plan SAP/QAPP. Additional updates to analytical methods are included in Table I.2.

1.2 SOIL SAMPLE COLLECTION AND ANALYSIS

Soil sample collection will be performed in accordance with the standard guidelines in the RIWP and RIWP Addendum (Floyd|Snider 2016, 2017), with updated information such as analytical methods described below. As described in Section 7.0 of the EDR, confirmation soil samples will be collected in AOC 2, AOC 4, and the FS-01 excavation area to confirm the lateral extents of excavation in these areas. The following sections provide field methods and sampling procedures that will be used to complete soil sampling.

1.2.1 Soil Sampling

Samples will be collected at the confirmation sample locations shown on EDR Figures 7.2, 7.4, and 7.6, or as determined by the Engineer of Record (Engineer) based on field observations of petroleum impacts. Sidewall soil samples will be collected from the depth where previous impacts were observed or at the midpoint of the selected excavation extent based on direction from the Engineer. The sample will be collected directly from the excavated sidewall using a trowel, or, if the excavation is unsafe to enter, an excavator bucket.

Soil samples will be collected into a decontaminated stainless steel bowl and will be homogenized using the trowel or a decontaminated stainless steel spoon. Soil type, lithology, and any other observations or indications of petroleum contamination for each sample will be recorded on a

soil collection form. Volatile organic compound field measurements will be taken for each soil sample with a photoionization detector (PID). Measurements will be taken by collecting a small spoonful of soil into a Ziploc bag. The PID will be inserted into the headspace of each sample bag after soil has been agitated and the soil vapor has equilibrated in a sealed bag. PID readings will be recorded on the soil collection form.

The objective of the soil excavation in FS-01 is to remove total petroleum hydrocarbons (TPH) contamination above CULs. If visual/olfactory observations of petroleum contamination or a PID reading indicate possible contamination in the sidewalls of the FS-01 excavation area, the excavation footprint will be expanded to remove petroleum contaminated soil (i.e., visually contaminated soil or soil with a PID reading above background). A sidewall sample will be collected as described above, and additional samples may be collected at the discretion of the Engineer based on field screening. Additional samples, if collected, will be archived for potential future analysis based on initial sample results.

The objective of the soil excavation in AOCs 2 and 4 is to remove TPH contamination above RELs. TPH above RELs is not present in AOCs 1, 3, or 5 or in the FS-01 excavation area. Visual observation of TPH between the CUL and RELs is anticipated in AOCs 2 and 4, so excavation to below RELs will be estimated through field screening and confirmed with laboratory analysis of confirmation samples. If visual observations of petroleum contamination or PID readings are present in AOCs 2 or 4 during excavation, the Engineer will use the field observations made during the RI and PDI (generally REL exceedances correspond to PID readings greater than 100 parts per million [ppm]) to guide excavation and sample collection decisions. The Engineer may extend the footprint of the excavation in AOCs 2 and 4 based on professional judgment or if PID readings are greater than 100 ppm, in combination with visual and olfactory observations. If PID readings are less than 100 ppm, the Engineer may stop the excavation and collect a confirmation sample to verify the remediation objective has been achieved (TPH below RELs). Excavations will not be backfilled until confirmation samples confirm that remediation objectives have been achieved. Samples will be analyzed on an expedited turnaround time to minimize the time an excavation remains open.

1.3 FIELD RECORDS

Documents and records generated in the field should be considered controlled documents that become part of the project file. Floyd|Snider field staff will keep a daily record of significant events, observations, and measurements on forms specific to the field activity. All field documents will be maintained by the field coordinator. All sampling forms will contain information on the sample collected and will include at a minimum the following information:

- Project name
- Field staff on-site
- Field observations
- Sample collection date and time

- Sampling method and/or description of field activities
- Instruments or equipment used
- Location identifier (ID) and sample ID
- Sample analysis
- Deviations from this SAP/QAPP

1.4 FIELD EQUIPMENT AND MAINTENANCE

Field equipment for water sampling that requires maintenance or calibration includes the following: pH probes, specific conductivity probes, turbidity meters, reduction–oxidation potential probes and dissolved oxygen probes, and navigation equipment.

Field equipment will be maintained and calibrated in accordance with the procedures described in the operations manuals supplied by the manufacturer at the intervals recommended in the manual. The manufacturers' manuals will accompany each instrument for use during equipment calibration and to support troubleshooting. Equipment maintenance information will be documented in the instrument's maintenance log. Equipment calibration performed by field staff will be documented in a calibration log. The calibration log will include at minimum the equipment type and model number, date and time, project name, the calibration results, and the initials of the calibrator. Any discrepancies or calibration failures will be noted in the calibration log and corrected prior to sampling. During the sampling event, any discrepancies or calibration failures will be noted in the field notes and corrected prior to continuing sampling. Maintenance and calibration records will be verified prior to each sampling event by the field coordinator.

1.5 FIELD DECONTAMINATION PROCEDURES

The decontamination procedure is designed to prevent cross-contamination between sampling locations. Before each use and between sampling locations, the sampling equipment (i.e., stainless steel bowl and spoon) will be decontaminated as follows:

1. Remove excess soil with a brush and potable water.
2. Scrub surfaces of equipment contacting sample material with brushes using an Alconox solution.
3. Rinse equipment with distilled or deionized water.

1.6 SAMPLE NOMENCLATURE

Each sample container will be labeled with a unique alphanumeric code (also known as sample name) that will facilitate tracking and cross referencing of sample information.

Each groundwater sample name will include the information and follow the formats outlined below:

- Well ID, *dash*, six-digit date of sample collection (MMDDYR). For example, a groundwater sample collected at MW-4 on July 1, 2025, will be labelled as "MW-4-070125."

Each soil sample name will include the information and follow the formats outlined below:

- AOC number, *dash*, unique number ID, *dash*, depth interval (in decimal feet). The unique number ID will continue the numbering scheme from the PDI events. For example, a soil sample collected in AOC 4 from 4 feet bgs would be labeled as "AOC4-10-4.0."
- If a sample is a duplicate, a "1" will be added to the sample location identification number (e.g., a duplicate sample collected at location "AOC4-10" will be termed "AOC4-110").

A label must be affixed to all sample containers to prevent misidentification, and at a minimum must include the following:

- Client name and project
- Unique sample name
- Date and time of collection
- Preservatives used in the sample, if applicable

The information on each sample label will be recorded on the boring log and/or in the field logbook and on the laboratory chain-of-custody.

1.7 SAMPLE PRESERVATION

Samples requiring field preservation will be placed into pre-preserved sample jars supplied by the laboratory. Immediately after the sample jars are filled with media, they will be placed in the appropriate cooler with a sufficient number of ice packs or crushed ice to keep them cool through the completion of the day's sampling and transport to the laboratory.

1.8 SAMPLE HANDLING AND CUSTODY DOCUMENTATION

Sample possession and handling must be traceable from the time of sample collection, through laboratory and data analysis, to the time sample results are reported. A sample soil collection form and field logbook entries will be completed for each location occupied and each sample collected.

1.8.1 Sample Chain-of-Custody

Technical field staff will be responsible for all sample tracking and custody procedures in the field, and the chain-of-custody procedures will be strictly followed.

At the end of each day and before sample transfer, each sample will be recorded on the chain-of-custody form in indelible ink. All sample information (e.g., sample names, sampling date/time, sample matrix, number of containers), including all required analyses, will be recorded on the chain-of-custody form before formal transfer of the sample containers to the analytical

laboratory. The sampler will place the chain-of-custody form in a Ziploc bag inside the sample cooler with the samples.

The samples are considered to be in custody if one of the following is maintained:

- The samples are in someone's physical possession.
- The samples are in someone's view.
- The samples are locked up or secured in a locked container or vehicle, or otherwise sealed so that any tampering would be evident.
- The samples are kept in a secured area that is restricted to authorized personnel only.

Any time possession of the samples is transferred, the individuals relinquishing and receiving the samples will sign, date, and note the time of transfer on the chain-of-custody form. This form also documents the transfer of custody of samples from the sampler to the laboratory. Each shipment of sample coolers will be accompanied by the chain-of-custody forms.

Copies of all forms will be retained as appropriate and included as appendices to quality assurance (QA) and quality control (QC) reports to management.

1.8.2 Sample Transport

Before transport, the field staff will take measures to preserve the integrity of the samples. This includes wrapping the sample containers and securely packing them inside the cooler with ice packs or crushed ice to maintain the required temperature range. Additionally, the original signed chain-of-custody forms will be transferred in the cooler alongside the samples. The coolers containing the samples will be delivered to the laboratory under chain-of-custody protocol after completion of sampling activities on the day of sample collection or the following day, depending on the duration of the field sampling. Alternatively, if appropriate, the samples may be shipped directly to the laboratory to maintain the required temperature range and ensure timely delivery.

1.8.3 Sample Receipt

Upon receipt of the samples, the designated sample receiver at the laboratory will accept custody of the samples and verify that the chain-of-custody forms match the samples received. The Friedman and Bruya, Inc. (FBI) Project Manager and/or sample receiver will ensure that the chain-of-custody forms are properly signed, indicating receipt of the samples. Any questions or observations regarding the integrity of the samples will be noted on the chain-of-custody forms to ensure transparency and accountability throughout the sample handling process.

1.9 INVESTIGATION-DERIVED WASTE MANAGEMENT

Generated waste will be managed and disposed of in accordance with applicable waste management regulations. Investigation-derived waste (IDW) includes contaminated purge water, decontamination wash water, soil drill cuttings (including non-soil debris that may be removed from the subsurface during drilling), and disposable materials used during field work

that may be impacted by contaminated media or decontamination wash water (e.g., disposable personal protective equipment [PPE], used filters, plastic sheeting, paper towels, tubing).

The approach to handling and disposal of these materials is as follows: For IDW that is containerized (e.g., soil cuttings and groundwater purge water), 55-gallon drums will be used for temporary storage pending profiling and disposal. Each container holding IDW will be sealed and labeled as to its contents (e.g., “soil cuttings”), the dates on which the wastes were placed in the container, the owner’s name and contact information of the field person generating the waste, the site name, and the boring(s) or well(s) from which they were obtained or extracted. At the end of each day, the drums will be transferred to a designated temporary storage area on-site.

This waste will be managed in accordance with applicable regulations and standards. Material that is designated for off-site disposal will be transported to an off-site facility permitted to accept the waste. Manifests will be used as appropriate for disposal and will be included in the Remedial Action Completion Report along with any other applicable documentation (e.g., weigh tickets).

All disposable sampling material and PPE (e.g., paper towels, disposable coveralls, and gloves) used in sample processing will be placed in heavyweight garbage bags or other appropriate containers. Disposable supplies will be removed from the Site by sampling personnel and placed in a municipal solid waste refuse container for disposal at a solid waste landfill.

1.10 INSPECTION OF SUPPLIES AND CONSUMABLES

Inspection and acceptance of field supplies, including laboratory sampling containers, will be the responsibility of Floyd|Snider field staff. Any chemical standards and solutions used in this project will be provided by a reliable, commercial source and will be traceable. Any discrepancies will be documented by Floyd|Snider field staff.

1.11 HEALTH AND SAFETY

All field investigation activities described in this SAP/QAPP will be conducted in accordance with the Site Health and Safety Plan.

2.0 Quality Assurance Project Plan

This section describes the analytical program that will be carried out for each sample selected for chemical analysis. It also discusses the laboratory QA objectives and QC procedures required to produce technically sound and reliable data. To ensure accurate and reliable results, the sampling program will adhere to specific analytical methods, preservation requirements, bottle types, and holding times, which are presented in Table I.1. This table provides a comprehensive list of parameters for each analysis method. Table I.2 presents the detection limits and RLs for each analysis.

2.1 LABORATORY ANALYSES

Laboratory analyses were selected to ensure that sample results can be compared to the applicable CULs and RELs presented in the EDR. The laboratory RLs and method detection limits (MDLs) for the selected analytical methods are presented in Table I.2.

2.1.1 Groundwater Analyses

The groundwater samples collected for chemical analysis will be transported to the following laboratories for various chemicals as summarized in Table I.1 using the specific methods applicable for water, as follows:

FBI in Seattle, Washington:

- Diesel- and oil-range TPH by NWTPH-Dx

Analytical Resources, LLC (ARL) in Tukwila, Washington:

- Pesticides (aldrin, beta hexachlorocyclohexane [beta-BHC], cis-chlordane, trans-chlordane, cis-nonachlor, trans-nonachlor, oxychlordane, and toxaphene) by U.S. Environmental Protection Agency (USEPA) Method 8081
- Nitrate and nitrite by USEPA Method 300.0

Pacific Agricultural Laboratory in Sherwood, Oregon:

- Herbicides (2,4-dichlorophenoxyacetic acid [2,4-D] and 2-methyl-4-chlorophenoxyacetic acid [MCPA]) by USEPA Method 8151A (Mod)
- Atrazine by USEPA Method 8321B (Mod)

2.1.2 Soil Analyses

The soil samples collected for chemical analysis will be transported to FBI, an accredited laboratory located in Seattle, Washington. The laboratory will analyze the samples for various chemicals, as summarized in Table I.2, using the specific methods applicable for soil, as follows:

- Diesel- and oil-range TPH by NWTPH-Dx

2.2 LABORATORY RECORDS

The analytical laboratories will retain all analytical records. Additionally, Floyd|Snider will retain a copy of analytical data in the internal project files. Laboratory data packages will include those items necessary to complete data validation.

All instrument data will be fully restorable at the laboratory from electronic backup. The laboratory will be required to maintain records relevant to project sample analyses for a minimum of 7 years. The project manager (PM) is responsible for determining and communicating specific requirements for record maintenance if they are different than the default. Data validation reports will be maintained within the Floyd|Snider internal project files with the laboratory data packages.

Each laboratory employs an internal QA manager who is responsible for ensuring that laboratory *Standard Operating Procedures (*SOPs*)* are followed, and laboratory staff perform routine audits for SOP compliance; routine audits are required for state accreditation. The Floyd|Snider PM or Ecology may request to review records of SOP compliance.

2.3 REPORTING LIMITS

The analytical methods outlined in this SAP/QAPP have achievable MDLs and RLs (or practical quantitation limits [PQLs]) that use standard methodology. Table I.2 provides the target MDLs and RLs for each analytical method. However, it should be noted that these RLs are goals only, and there may be instances where high sample concentrations, non-homogeneity of samples, or matrix interferences may prevent the laboratory from achieving the desired RL and associated QA/QC criteria. In such cases, the laboratory will report the reason for any deviation from these RLs.

2.4 LABORATORY QUALITY ASSURANCE/QUALITY CONTROL OBJECTIVES

The laboratory's QA/QC objectives are to obtain technically sound and well-documented data, which have been evaluated against established criteria for the principle data quality indicators. These indicators include precision, accuracy, representativeness, completeness, and comparability, as defined in Ecology and USEPA guidance (Ecology 2004; USEPA 2002). The laboratory will follow the QA/QC criteria presented in Table I.3, which are described in detail in the following sections.

2.4.1 Precision

Precision measures the reproducibility of measurements under a given set of conditions. Specifically, precision is a quantitative measure of the variability of a group of measurements compared to their average values. Analytical precision is measured through matrix spike (MS)/matrix spike duplicate (MSD) samples for organic analysis, through laboratory duplicate samples for inorganic analyses, and on project-specific samples.

To ensure analytical precision, project-specific samples will be analyzed at a minimum frequency of one sample per laboratory analysis group. The laboratory will evaluate precision against quantitative relative percent difference (RPD) performance criteria.

Field precision will be evaluated through the collection of field duplicates. Currently, no performance criteria have been established for field duplicates. Therefore, field duplicate precision will be screened against an RPD of 75% for all samples. However, it is important to note that no data will be qualified based solely on field duplicate precision.

Precision measurements can be affected by the proximity of a chemical concentration to the MDL, which can result in an increase in the percent error (expressed as RPD). The equation used to express precision is as follows:

$$RPD = \frac{(C_1 - C_2) \times 100\%}{(C_1 + C_2)/2}$$

Where:

RPD = relative percent difference
C_1 = larger of the two observed values
C_2 = smaller of the two observed values

2.4.2 Accuracy

Accuracy is an expression of the degree to which a measured or computed value represents the true value. To assess analytical accuracy, spiked samples with known concentrations (surrogates, laboratory control samples [LCSs], and/or MS) will be analyzed, and the percent recovery will be measured.

Accuracy measurements on MS samples will be carried out at a minimum frequency of one per laboratory analysis group per matrix analyzed. The laboratory will perform MS/MSDs only on samples from this investigation and not from other projects because MS/MSDs measure the effects of potential matrix interferences of a specific matrix. Surrogate recoveries will be determined for every sample analyzed for organics.

The laboratory accuracy will be evaluated against quantitative LCS, MS, and surrogate spike recoveries using limits for each applicable analyte. Accuracy can be expressed as a percentage of the true or reference value, or as a percent recovery in those analyses where reference materials are not available and spiked samples are analyzed. The equation used to express accuracy is as follows:

$$\%R = 100\% \times (S - U)/C_{sa}$$

Where:

%R = percent recovery
S = measured concentration in the spiked aliquot
U = measured concentration in the unspiked aliquot
C_{sa} = actual concentration of spike added

2.4.3 Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, or an environmental condition. To ensure representativeness, the sampling program has been carefully designed with proper selection of sample locations, sufficient numbers of samples collected, and representative samples obtained. A sufficient volume of samples will be collected at each sampling location to minimize bias or errors associated with sample particle size and heterogeneity.

2.4.4 Comparability

Comparability is a qualitative parameter that indicates the confidence with which one dataset can be compared to another. To ensure the comparability of results, all samples will be analyzed using standard USEPA methods and protocols. Calibration and reference standards will be traceable to certified standards, and standard data reporting formats will be employed. The data will be reviewed to verify that precision and accuracy criteria were achieved. Any deviations from established QA/QC criteria will be documented and explained in the final report.

2.4.5 Completeness

Completeness is a measure of the amount of data that is determined to be valid in proportion to the amount of data collected. Completeness will be calculated as follows:

$$C = \frac{\text{(Number of acceptable data points)} \times 100}{\text{(Total number of data points)}}$$

The QA/QC objectives for completeness for all components of this project are set at 95%. Any data that were qualified as estimated due to not meeting the QA/QC criteria will still be considered valid for the purpose of assessing completeness. However, any data that were qualified as rejected will not be considered valid for assessing completeness.

2.5 LABORATORY AND FIELD QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

The quality of analytical data generated will be assessed both by the implementation of field QC procedures and by the frequency and type of internal laboratory QA/QC checks developed for analysis type and method.

2.5.1 Field Quality Control Sampling

Field QC will be evaluated through the analysis of field duplicates. Field duplicates will be collected to evaluate the efficiency of field decontamination procedures, variability from sample handling, and sample heterogeneity. Field duplicate samples will be collected at a rate of 1 per 20 investigation samples.

2.5.2 Laboratory Sample Handling

Samples will be stored in accordance with the conditions specified in the methods or laboratory SOPs. All samples will be handled to prevent contamination or sample loss. Any remaining sample material will be disposed of upon receipt of written notification by the Floyd|Snider PM. Holding times will vary by analysis and are summarized in Table I.1.

Archive samples will be stored frozen as allowed by the analytical method (refer to Table I.1). Samples will be disposed of after hold times expire, following written authorization from the Floyd|Snider PM. The Floyd|Snider PM may elect to hold archived samples past the specified hold time as needed to gather the additional project data.

2.5.3 Laboratory Instruments Calibration and Frequency

Laboratory equipment will be maintained and calibrated according to the manufacturers' recommendations, the laboratory QA plan, SOPs, and standard methodologies. Calibrations will be performed on each analytical instrument prior to analysis. Calibrations are performed at a frequency determined by the analytical method and/or the laboratory SOP. The analysis must stop if the calibration does not meet the specified criteria. The analysis may resume after corrective actions have been taken to meet the method specifications. All project samples analyzed by an instrument found to be out of compliance must be reanalyzed. Laboratories will be responsible for their own preventative maintenance and calibration of laboratory equipment.

2.5.4 Laboratory Quality Assurance/Quality Control

Laboratory results will be evaluated by reviewing analytical results of method blanks, MS/MSD, field duplicate samples, LCS, calibrations, performance evaluation samples, and interference checks as specified by the analytical methods used.

The QA/QC samples from each laboratory analysis group will be reviewed by the laboratory analyst immediately after completion of the analysis. The QA/QC samples from each laboratory analysis group will be evaluated to determine whether control limits were exceeded. If control limits are exceeded, corrective action such as method modifications followed by reprocessing of the affected samples will be initiated before processing a subsequent group of samples.

All primary chemical standards and standard solutions used will be obtained from documented and reliable commercial sources and will be traceable. Standards will be validated for accuracy by comparing them with an independent standard, and any impurities identified in the standard will be documented.

The procedures that will be used to assess data quality throughout sample analysis are summarized in the following sections.

2.5.5 Sample Delivery Groups

A sample delivery group (SDG) is defined by the laboratory and is generally considered 20 samples, or a group of samples from the same sampling period received at the laboratory on the same day. Although an SDG may span 2 weeks, all holding times specific to each analytical method will be met for each sample in the SDG.

2.5.6 Laboratory Duplicates

Laboratory duplicates are subsamples of the original sample that are prepared and analyzed as a separate sample to assess the precision of the analysis and potential sample heterogeneity and matrix effects. A minimum of one laboratory duplicate will be analyzed per laboratory analysis group, even when there are fewer than 20 samples.

2.5.7 Matrix Spikes and Matrix Spike Duplicates

Analysis of MS samples provides information on the extraction efficiency of the method on the sample matrix. By performing MSD analyses, information on the precision of the method is also provided for organic analyses. A minimum of one MS/MSD will be analyzed for every laboratory analysis group for which MS/MSD sample analysis is applicable per the approved method. When feasible, MS/MSD analyses will be performed on project-specific samples. A laboratory duplicate sample may be analyzed in place of MSD samples, as allowed by the analytical method.

2.5.8 Laboratory Control Samples and Laboratory Control Sample Duplicate

An LCS is a method blank sample carried throughout the same process as the samples to be analyzed, with a known amount of standard added. The blank spike compound recovery assesses analytical accuracy in the absence of any sample heterogeneity or matrix effects. All LCS and LCS duplicate (LCSD) data for metals and organic compounds will be reported. The LCS/LCSD will be performed once per laboratory analysis group.

2.5.9 Surrogate Spikes

All project samples analyzed for organic compounds will be spiked with appropriate surrogate compounds as defined in the analytical methods. Surrogate recoveries will be reported by the laboratories. However, no sample result will be corrected for recovery using these values.

2.5.10 Method Blanks

Method blanks are analyzed to assess possible laboratory contamination at all stages of sample preparation and analysis. A minimum of one method blank will be analyzed for every extraction batch.

2.5.11 Internal Standards

Internal standards may be used for calibrating and quantifying organic compounds and metals. If internal standards are required by the method, all calibration, QC, and project samples will be spiked with the same concentration of the selected internal standards. Internal standard recoveries and retention times must be within method criteria, laboratory criteria, or both.

2.6 DATA VALIDATION

Data validation programs have been established in accordance with USEPA guidance (USEPA 2002a). Data validation will be based on the QA/QC criteria as recommended in the methods identified in this SAP/QAPP and in the USEPA's National Functional Guidelines (USEPA 2020a and b) and environmental data verification and validation guidance (USEPA 2002b).

Once data are received from the laboratory, Floyd|Snider will review the laboratory reports for internal consistency, transmittal errors, laboratory protocols, and adherence to the objectives specific in this SAP/QAPP. Data validation will be conducted at the specified levels for each analyte class listed below, with specific procedures to assess data precision, accuracy, and completeness. A USEPA Stage 2B Data Quality Review will be performed on soil and groundwater data resulting from pesticides, herbicides, TPH, and conventional analyses. The results of the Data Quality Review will be summarized in the Remedial Action Completion Report and subsequent compliance monitoring reports.

For additional information on data validation/reduction, refer to the Work Plan (Floyd|Snider 2016).

2.7 DATA MANAGEMENT AND DATA REPORTING

Analytical chemistry results will be provided in data packages by the laboratories in PDFs and electronically in the Floyd|Snider standard electronic data deliverable (EDD) format. Guidelines for EDDs will be communicated to the analytical laboratories by Floyd|Snider prior to sample submittal. Data packages will be returned within the time frame specified in the work order between Floyd|Snider and the laboratories, with a duration not to exceed 15 business days, unless delays are otherwise communicated to and approved by the Floyd|Snider PM.

After completion of data validation, the Floyd|Snider database manager will load all records to Floyd|Snider's electronic database accessed using Microsoft Access software. The database is maintained on the Floyd|Snider server and is backed up with a hard disk.

Validated chemical data will be compiled and presented in tables that include the location of soil sampling points, concentrations with appropriate qualifiers, and comparison to relevant criteria. These data will be incorporated into the Remedial Action Completion Report.

2.8 CORRECTIVE ACTIONS

Corrective action procedures are described in this section.

2.8.1 Corrective Action for Field Sampling

The Field Lead will be responsible for correcting field errors in sampling or documenting equipment malfunctions during the field sampling effort and will be responsible for resolving situations in the field that may result in non-compliance with this SAP/QAPP. All corrective measures will be immediately documented in the field logbook.

2.8.2 Corrective Action for Laboratory Analyses

The laboratories are required to comply with their SOPs. The laboratory PMs will be responsible for ensuring that appropriate corrective actions are initiated as required for conformance with this SAP/QAPP. All laboratory personnel will be responsible for reporting problems that may compromise the quality of the data.

Test sample and QC sample data will be reviewed to determine whether there is an exceedance of QC limits. If any QC sample exceeds the project-specified control limits, the analyst will identify and correct the anomaly before continuing with the sample analysis. The analyst will document the corrective action taken in a memorandum submitted to the QA Manager. A narrative describing the anomaly, the steps taken to identify and correct the anomaly, and the treatment of the relevant sample batch (i.e., recalculation, reanalysis, and/or re-extraction) will be submitted with the data package.

3.0 References

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_____. 2020b. *National Functional Guidelines for Organic Superfund Methods Data Review.* Prepared by the Office of Superfund Remediation and Technology Innovation. EPA-540-R-20-005/OLEM 9240.0-51. November.

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Engineering Design Report

Smith-Kem Site

Appendix I

Tables

Table I.1
Analytical Methods, Bottle Type, Preservation, and Holding Times

Laboratory	Chemical	Analytical Method	Bottle Type	Preservative	Holding Time
Soil					
FBI	Total petroleum hydrocarbons: diesel- and oil-range	NWTPH-Dx	One 4-oz WMG	None, cool to <6 °C	14 days to extract, then 40 days to analyze
				Freeze -18 °C	1 year to extract, then 40 days to analyze
Groundwater					
FBI	Total petroleum hydrocarbons: diesel- and oil-range	NWTPH-Dx	One 500-mL amber glass	Cool to <4 °C, HCl to pH<2	14 days to extract (7 days without HCl), then 40 days to analyze
ARL	Pesticides (Aldrin, beta-BHC, Chlordanes, Toxaphene)	USEPA 8081B LL	Two 500-mL glass amber	None, Cool <6 °C	7 days; 40 days if extracted
	Nitrate and nitrite	USEPA 300.0	One 500-mL HDPE	None, Cool <6 °C	48 hours
PAL	Herbicides (MCPA, 2,4-D)	USEPA 8151A Mod	Two 500-mL glass amber	None, Cool <6 °C	7 days; 40 days if extracted
	Atrazine	USEPA 8321B Mod	Two 500-mL glass amber		

Abbreviations:

2,4-D 2,4-Dichlorophenoxyacetic acid
°C Degrees Celsius
ARL Analytical Resources, LLC
beta-BHC beta-Hexachlorocyclohexane
FBI Friedman & Bruya, Inc.
HCl Hydrogen chloride
HDPE High-density polyethylene
MCPA 2-Methyl-4-chlorophenoxyacetic acid
mL Milliliters
oz Ounces
PAL Pacific Agricultural Laboratory
USEPA U.S. Environmental Protection Agency
WMG Wide-mouth glass jar

Table I.2
Analytical Methods, Detection Limits, and Reporting Limits

Chemical	Units	Analytical Method	Method Detection Limit	Practical Quantitation (Reporting) Limit
Soil				
Total Petroleum Hydrocarbons (TPH)				
Diesel-range TPH	mg/kg	NWTPH-Dx	8.8	50
Oil-range TPH	mg/kg	NWTPH-Dx	10	250
Groundwater				
Conventionals				
Nitrate	mg/L	USEPA 300.0	0.1	0.1
Nitrite	mg/L	USEPA 300.0	0.100	0.10
Pesticides				
Aldrin	µg/L	USEPA 8081B LL	0.000153	0.000625
beta-BHC	µg/L	USEPA 8081B LL	0.000144	0.000625
cis-Chlordane	µg/L	USEPA 8081B LL	0.00013	0.000625
trans-Chlordane	µg/L	USEPA 8081B LL	0.000233	0.000625
cis-Nonachlor	µg/L	USEPA 8081B LL	0.00125	0.00125
trans-Nonachlor	µg/L	USEPA 8081B LL	0.00125	0.00125
Oxychlordane	µg/L	USEPA 8081B LL	0.00125	0.00125
Toxaphene	µg/L	USEPA 8081B LL	0.0625	0.0625
Atrazine	µg/L	USEPA 8321B Mod	0.06	0.06
Herbicides				
2,4-D	µg/L	USEPA 8151A Mod	0.08	0.08
MCPA	µg/L	USEPA 8151A Mod	0.08	0.08
Total Petroleum Hydrocarbons				
Diesel-range hydrocarbons	µg/L	NWTPH-Dx	10.9	50
Oil-range hydrocarbons	µg/L	NWTPH-Dx	38	250

Abbreviations:

2,4-D 2,4-Dichlorophenoxyacetic acid
beta-BHC beta-Hexachlorocyclohexane
DDT Dichlorodiphenyltrichloroethane
MCPA 2-Methyl-4-chlorophenoxyacetic acid
µg/L Micrograms per liter
mg/kg Milligrams per kilogram
mg/L Milligrams per liter

Table I.3
Data Quality Assurance Criteria

Chemical	Precision [1]	Accuracy	Completeness	Reference
Soil				
Total petroleum hydrocarbons: diesel- and oil-range	±35% RPD	50–150%	95%	NWTPH-Dx
Groundwater				
Anions (nitrate and nitrite)	±30% RPD	80–120%	95%	USEPA 300.0
Herbicides	±30% RPD	60–140%	95%	USEPA 8151A Mod
Atrazine	±30% RPD	60–140%	95%	USEPA 8321B Mod
Pesticides	±30% RPD	60–140%	95%	USEPA 8081B LL
Total petroleum hydrocarbons: diesel- and oil-range	±20% RPD	65–135%	95%	NWTPH-Dx

Note:

1 Precision criteria apply to analytical precision only. Field duplicate precision will be screened against an RPD of 75%.

Abbreviations:

RPD Relative percent difference

USEPA U.S. Environmental Protection Agency

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Appendix J
Inadvertent Discovery Plan

INADVERTENT DISCOVERY PLAN

PLAN AND PROCEDURES FOR THE DISCOVERY OF CULTURAL RESOURCES AND HUMAN SKELETAL REMAINS

To request ADA accommodation, including materials in a format for the visually impaired, call Ecology at 360-407-6000 or visit https://ecology.wa.gov/accessibility. People with impaired hearing may call Washington Relay Service at 711. People with a speech disability may call TTY at 877-833-6341.

Site Name(s): Smith-Kem Site Location: Ellensburg, WA

Project Lead/Organization: Pamela Osterhout/Floyd|Snider County: Kittitas

If this Inadvertent Discovery Plan (IDP) is for multiple (batched) projects, ensure the location information covers all project areas.

1. INTRODUCTION

The IDP outlines procedures to perform in the event of a discovery of archaeological materials or human remains, in accordance with applicable state and federal laws. An IDP is required, as part of Agency Terms and Conditions for all grants and loans, for any project that creates disturbance above or below the ground. An IDP is not a substitute for a formal cultural resource review (Executive 21-02 or Section 106).

Once completed, **the IDP should always be kept at the project site** during all project activities. All staff, contractors, and volunteers should be familiar with its contents and know where to find it.

2. CULTURAL RESOURCE DISCOVERIES

A cultural resource discovery could be prehistoric or historic. Examples include (see images for further examples):

- An accumulation of shell, burned rocks, or other food related materials.
- Bones, intact or in small pieces.
- An area of charcoal or very dark stained soil with artifacts.
- Stone tools or waste flakes (for example, an arrowhead or stone chips).
- Modified or stripped trees, often cedar or aspen, or other modified natural features, such as rock drawings.
- Agricultural or logging materials that appear older than 50 years. These could include equipment, fencing, canals, spillways, chutes, derelict sawmills, tools, and many other items.
- Clusters of tin cans or bottles, or other debris that appear older than 50 years.
- Old munitions casings. ***Always assume these are live and never touch or move.***
- Buried railroad tracks, decking, foundations, or other industrial materials.
- Remnants of homesteading. These could include bricks, nails, household items, toys, food containers, and other items associated with homes or farming sites.

The above list does not cover every possible cultural resource. When in doubt, assume the material is a cultural resource.

3. ON-SITE RESPONSIBILITIES

If any employee, contractor, or subcontractor believes that they have uncovered cultural resources or human remains at any point in the project, take the following steps to ***Stop-Protect-Notify***. **If you suspect that the discovery includes human remains, also follow Sections 5 and 6.**

STEP A: Stop Work.

All work must stop immediately in the vicinity of the discovery.

STEP B: Protect the Discovery.

Leave the discovery and the surrounding area untouched and create a clear, identifiable, and wide boundary (30 feet or larger) with temporary fencing, flagging, stakes, or other clear markings. Provide protection and ensure integrity of the discovery until cleared by the Department of Archaeological and Historical Preservation (DAHP) or a licensed, professional archaeologist.

Do not permit vehicles, equipment, or unauthorized personnel to traverse the discovery site. Do not allow work to resume within the boundary until the requirements of this IDP are met.

STEP C: Notify Project Archaeologist (if applicable).

If the project has an archaeologist, notify that person. If there is a monitoring plan in place, the archaeologist will follow the outlined procedure.

STEP D: Notify Project and Washington Department of Ecology (Ecology) contacts.

Project Lead Contacts

Primary Contact		Alternate Contact	
Name:	Pamela Osterhout	Name:	Emily Jones
Organization:	Floyd|Snider	Organization:	Floyd|Snider
Phone:	(206) 387-9440	Phone:	(206) 719-6993
Email:	pamela.osterhout@floydsnider.com	Email:	emily.jones@floydsnider.com

Ecology Contacts (completed by Ecology Project Manager)

Ecology Project Manager		Alternate or Cultural Resource Contact	
Name:	John Mefford	Name:	Tavi Wise
Program:	Toxics Cleanup	Program:	Toxics Cleanup
Phone:	(509) 731-9613	Phone:	(509) 406-6959
Email:	JMEF461@ecy.wa.gov	Email:	TWIS461@ecy.wa.gov

STEP E: Ecology will notify DAHP.

Once notified, the Ecology Cultural Resource Contact or the Ecology Project Manager will contact DAHP to report and confirm the discovery. To avoid delay, the Project Lead/Organization will contact DAHP if they are not able to reach Ecology.

DAHP will provide the steps to assist with identification. DAHP, Ecology, and Tribal representatives may coordinate a site visit following any necessary safety protocols. DAHP may also inform the Project Lead/Organization and Ecology of additional steps to further protect the site.

Do not continue work until DAHP has issued an approval for work to proceed in the area of, or near, the discovery.

DAHP Contacts:

Name: Rob Whitlam, PhD
Title: State Archaeologist
Cell: 360-890-2615
Email: Rob.Whitlam@dahp.wa.gov
Main Office: 360-586-3065

Human Remains/Bones:

Name: Guy Tasa, PhD
Title: State Anthropologist
Cell: 360-790-1633 (24/7)
Email: Guy.Tasa@dahp.wa.gov

4. TRIBAL CONTACTS

In the event cultural resources are discovered, the following tribes will be contacted. See Section 10 for Additional Resources.

Tribe:	Confederated Tribes and Bands of the Yakama Nation	Tribe:	
Name:	Kate Valdez	Name:	
Title:	Tribal Historic Preservation Officer	Title:	
Phone:	(509) 985-7596	Phone:	
Email:	kate@yakama.com	Email:	
Tribe:	Confederated Tribes and Bands of the Yakama Nation	Tribe:	
Name:	Johnson Meninick	Name:	
Title:	Cultural Resources	Title:	
Phone:	(509) 865-5121 (Ext 4737)	Phone:	
Email:	johnson@yakama.com	Email:	

Please provide contact information for additional tribes within your project area, if needed, in Section 11.

5. FURTHER CONTACTS (if applicable)

If the discovery is confirmed by DAHP as a cultural or archaeological resource, or as human remains, and there is a partnering federal or state agency, Ecology or the Project Lead/Organization will ensure the partnering agency is immediately notified.

Federal Agency:		State Agency:	
Agency:	N/A	Agency:	DAHP
Name:	N/A	Name:	Stephanie Jolivette
Title:	N/A	Title:	Local Government Archaeologist
Phone:	N/A	Phone:	(360) 628-2755
Email:	N/A	Email:	Stephanie.Jolivette@dahp.wa.gov

6. SPECIAL PROCEDURES FOR THE DISCOVERY OF HUMAN SKELETAL MATERIAL

Any human skeletal remains, regardless of antiquity or ethnic origin, will at all times be treated with dignity and respect. Follow the steps under ***Stop-Protect-Notify.*** For specific instructions on how to handle a human remains discovery, see: *RCW 68.50.645: Skeletal human remains—Duty to notify—Ground disturbing activities—Coroner determination—Definitions*.

Suggestion: If you are unsure whether the discovery is human bone or not, contact Guy Tasa with DAHP, for identification and next steps. Do not pick up the discovery.

Guy Tasa, PhD State Physical Anthropologist
Guy.Tasa@dahp.wa.gov
(360) 790-1633 (Cell/Office)

For discoveries that are confirmed or suspected human remains, follow these steps:

1. Notify law enforcement and the Medical Examiner/Coroner using the contacts below. **Do not call 911** unless it is the only number available to you.

   Enter contact information below (required):
   - Local Medical Examiner or Coroner name and phone: Nick Henderson, Coroner (509) 856-4970
   - Local Law Enforcement main name and phone: Ken Wade, Police Chief (509) 962-7280
   - Local Non-Emergency phone number (911 if without a non-emergency number): Ellensburg Police Department (509) 962-7280
2. The Medical Examiner/Coroner (with assistance of law enforcement personnel) will determine if the remains are human or if the discovery site constitutes a crime scene and will notify DAHP.
3. **DO NOT speak with the media, allow photography or disturbance of the remains, or release any information about the discovery on social media.**
4. If the remains are determined to be non-forensic, Cover the remains with a tarp or other materials (not soil or rocks) for temporary protection and to shield them from being photographed by others or disturbed.

Further activities:

- Per RCW 27.44.055, RCW 68.50, and RCW 68.60, DAHP will have jurisdiction over non-forensic human remains. Ecology staff will participate in consultation. Organizations may also participate in consultation.
- Documentation of human skeletal remains and funerary objects will be agreed upon through the consultation process described in RCW 27.44.055, RCW 68.50, and RCW 68.60.
- When consultation and documentation activities are complete, work in the discovery area may resume as described in Section 8.

If the project occurs on federal lands (such as a national forest or park or a military reservation) the provisions of the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) apply and the responsible federal agency will follow its provisions. Note that state highways that cross federal lands are on an easement and are not owned by the state.

If the project occurs on non-federal lands, the Project Lead/Organization will comply with applicable state and federal laws, and the above protocol.

7. DOCUMENTATION OF ARCHAEOLOGICAL MATERIALS

Archaeological resources discovered during construction are protected by state law RCW 27.53 and assumed eligible for inclusion in the National Register of Historic Places under Criterion D until a formal Determination of Eligibility is made.

The Project Lead/Organization must ensure that proper documentation and field assessment are made of all discovered cultural resources in cooperation with all parties: the federal agencies (if any), DAHP, Ecology, affected tribes, and the archaeologist.

The archaeologist will record all prehistoric and historic cultural material discovered during project construction on a standard DAHP archaeological site or isolate inventory form. They will photograph site overviews, features, and artifacts and prepare stratigraphic profiles and soil/sediment descriptions for minimal subsurface exposures. They will document discovery locations on scaled site plans and site location maps.

Cultural features, horizons, and artifacts detected in buried sediments may require the archaeologist to conduct further evaluation using hand-dug test units. They will excavate units in a controlled fashion to expose features, collect samples from undisturbed contexts, or to interpret complex stratigraphy. They may also use a test unit or trench excavation to determine if an intact occupation surface is present. They will only use test units when necessary to gather information on the nature, extent, and integrity of subsurface cultural deposits to evaluate the site's significance. They will conduct excavations using standard archaeological techniques to precisely document the location of cultural deposits, artifacts, and features.

The archaeologist will record spatial information, depth of excavation levels, natural and cultural stratigraphy, presence or absence of cultural material, and depth to sterile soil, regolith, or bedrock for each unit on a standard form. They will complete test excavation unit level forms, which will include plan maps for each excavation level and artifact counts and material types, number, and vertical provenience (depth below

surface and stratum association where applicable) for all recovered artifacts. They will draw a stratigraphic profile for at least one wall of each test excavation unit.

The archaeologist will screen sediments excavated for purposes of cultural resources investigation through 1/8-inch mesh, unless soil conditions warrant 1/4-inch mesh.

The archaeologist will analyze, catalogue, and temporarily curate all prehistoric and historic artifacts collected from the surface and from probes and excavation units. The ultimate disposition of cultural materials will be determined in consultation with the federal agencies (if any), DAHP, Ecology, and the affected tribe(s).

Within 90 days of concluding fieldwork, the archaeologist will provide a technical report describing any and all monitoring and resultant archaeological excavations to the Project Lead/Organization, who will forward the report to Ecology, the federal agencies (if any), DAHP, and the affected tribe(s) for review and comment.

If assessment activities expose human remains (burials, isolated teeth, or bones), the archaeologist and Project Lead/Organization will follow the process described in **Section 6**.

8. PROCEEDING WITH WORK

The Project Lead/Organization shall work with the archaeologist, DAHP, and affected tribe(s) to determine the appropriate discovery boundary and where work can continue.

Work may continue at the discovery location only after the process outlined in this plan is followed and the Project Lead/Organization, DAHP, any affected tribe(s), Ecology, and the federal agencies (if any) determine that compliance with state and federal laws is complete.

9. ORGANIZATION RESPONSIBILITY

The Project Lead/Organization is responsible for ensuring:

- This IDP has complete and accurate information.
- This IDP is immediately available to all field staff at the sites and available by request to any party.
- This IDP is implemented to address any discovery at the site.
- That all field staff, contractors, and volunteers are instructed on how to implement this IDP.

10. ADDITIONAL RESOURCES

Informative Video

Ecology recommends that all project staff, contractors, and volunteers view this informative video explaining the value of IDP protocol and what to do in the event of a discovery. The target audience is anyone working on the project who could unexpectedly find cultural resources or human remains while excavating or digging. The video is also posted on DAHP's inadvertent discovery language website.

Ecology's IDP Video (https://www.youtube.com/watch?v=ioX-4cXfbDY)

Informational Resources

DAHP (https://dahp.wa.gov)

Washington State Archeology (DAHP 2003)
(https://dahp.wa.gov/sites/default/files/Field%20Guide%20to%20WA%20Arch_0.pdf)

Association of Washington Archaeologists (https://www.archaeologyinwashington.com)

Potentially Interested Tribes

Interactive Map of Tribes by Area
(https://dahp.wa.gov/archaeology/tribal-consultation-information)

WSDOT Tribal Contact Website
(https://wsdot.wa.gov/tribal/TribalContacts.htm)

11. ADDITIONAL INFORMATION

Please add any additional contact information or other information needed within this IDP.

The Washington Department of Archaeology and Historic Preservation (DAHP) has classified the site as being within an area of "Very High Risk" for encountering cultural resources. Despite this classification, there are no archaeological sites recorded either on or in the vicinity of the Smith-Kem Site, and previous surveys have not identified any cultural resources in the area. Additionally, site investigation work completed by Floyd| Snider at Smith-Kem, including test pits, did not reveal the presence of cultural resources.

Based on a reivew of DAHP's Washington Information System for Architectural and Archaeological Records Data (WISAARD), in 2022, Plateau Archaeological Investigations completed a Cultural Resource Survey for the Ellensburg Bypass Sewer Project, which included a portion of S. Railroad Avenue adjacent to the Smith-Kem site. The project involved a pedestrian survey and the excavation of eight subsurface geotechnical test pits. No cultural resources were identified during the survey or subsurface investigations. Further, the survey documented heavy disturbance in the project area, resulting from human activities, development, and construction. This disturbance has likely altered the natural state of the area, impacting the preservation of cultural and archaeological resources.

Implement the IDP if you see…

Chipped stone artifacts.

Examples are:

- Glass-like material.
- Angular material.
- “Unusual” material or shape for the area.
- Regularity of flaking.
- Variability of size.



Stone artifacts from Oregon.



Stone artifacts from Washington.



Biface-knife, scraper, or pre-form found in NE Washington. Thought to be a well knapped object of great antiquity. Courtesy of Methow Salmon Rec. Foundation.

Implement the IDP if you see…

Ground stone artifacts.

Examples are:

- Unusual or unnatural shapes or unusual stone.
- Striations or scratching.
- Etching, perforations, or pecking.
- Regularity in modifications.
- Variability of size, function, or complexity.



Above: Fishing Weight - credit CRITFC Treaty Fishing Rights website.



Artifacts from unknown locations (left and right images).



Implement the IDP if you see…

Bone or shell artifacts, tools, or beads.

Examples are:

- Smooth or carved materials.
- Unusual shape.
- Pointed as if used as a tool.
- Wedge shaped like a “shoehorn”.
- Variability of size.
- Beads from shell (dentalium) or tusk.









Upper Left:*Bone Awls from Oregon.*

Upper Center: *Bone Wedge from California.*

Upper Right: *Plateau dentalium choker and bracelet, from Nez Perce National Historical Park, 19th century, made using Antalis pretiosa shells Credit: Nez Perce - Nez Perce National Historical Park, NEPE 8762, Public Domain.*

Above: *Tooth Pendants. Right: Bone Pendants. Both from Oregon and Washington.*



Implement the IDP if you see…

Culturally modified trees, fiber, or wood artifacts.

Examples are:

- Trees with bark stripped or peeled, carvings, axe cuts, de-limbing, wood removal, and other human modifications.
- Fiber or wood artifacts in a wet environment.
- Variability of size, function, and complexity.





Left and Below: *Culturally modified tree and an old carving on an aspen (Courtesy of DAHP).*

Right, Top to Bottom: *Artifacts from Mud Bay, Olympia: Toy war club, two strand cedar rope, wet basketry*.







Implement the IDP if you see…

Strange, different, or interesting looking dirt, rocks, or shells.

Human activities leave traces in the ground that may or may not have artifacts associated with them. Examples are:

- "Unusual" accumulations of rock (especially fire-cracked rock).
- "Unusual" shaped accumulations of rock (such as a shape similar to a fire ring).
- Charcoal or charcoal-stained soils, burnt-looking soils, or soil that has a "layer cake" appearance.
- Accumulations of shell, bones, or artifacts. Shells may be crushed.
- Look for the "unusual" or out of place (for example, rock piles in areas with otherwise few rocks).



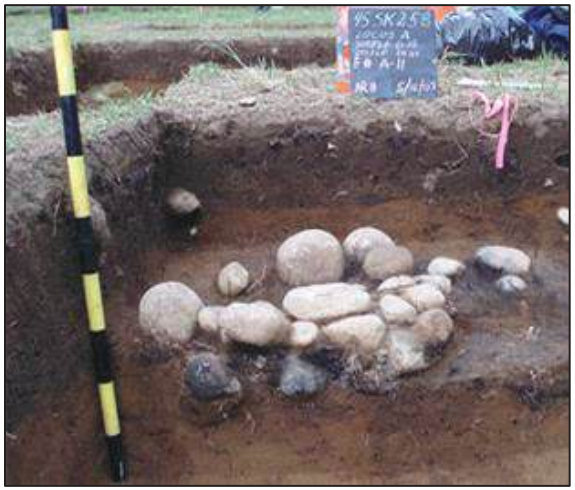
Shell Midden pocket in modern fill discovered in sewer trench.



Underground oven. Courtesy of DAHP.

Shell midden with fire cracked rock.





Hearth excavated near Hamilton, WA.

Implement the IDP if you see…

Historic period artifacts (historic archaeology considered older than 50 years).

Examples are:

- Agricultural or logging equipment. May include equipment, fencing, canals, spillways, chutes, derelict sawmills, tools, etc.
- Domestic items including square or wire nails, amethyst colored glass, or painted stoneware.





Left: Top to Bottom: *Willow pattern serving bowl and slip joint pocket knife discovered during Seattle Smith Cove shantytown (45-KI-1200) excavation.*

Right: *Collections of historic artifacts discovered during excavations in eastern Washington cities.*





Implement the IDP if you see…

Historic period artifacts (historic archaeology considered older than 50 years).

Examples are:

- Railway tokens, coins, and buttons.
- Spectacles, toys, clothing, and personal items.
- Items helping to understand a culture or identity.
- Food containers and dishware.



Main Image: *Dishes, bottles, workboot found at the North Shore Japanese bath house (ofuro) site, Courtesy Bob Muckle, Archaeologist, Capilano University, B.C. This is an example of an above ground resource.*





Right, from Top to Bottom: *Coins, token, spectacles and Montgomery Ward pitchfork toy discovered during Seattle Smith Cove shantytown (45-KI-1200) excavation.*





Implement the IDP if you see…

- Old munition casings – if you see ammunition of any type – ***always assume they are live and never touch or move!***
- Tin cans or glass bottles with an older manufacturer's technique – maker's mark, distinct colors such as turquoise, or an older method of opening the container.



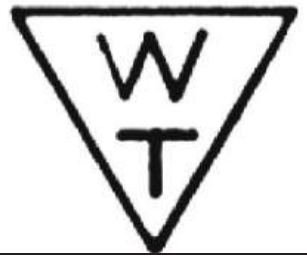


Far Left: .303 British cartridge found by a WCC planting crew on Skagit River. Don't ever touch something like this!
Left: Maker's mark on bottom of old bottle.



Right: *Old beer can found in Oregon. ACME was owned by Olympia Brewery. Courtesy of Heather Simmons.*





Logo employed by Whithall Tatum & Co. between 1924 to 1938 (Lockhart et al. 2016).



Can opening dates, courtesy of W.M. Schroeder.

Implement the IDP if you see…

You see historic foundations or buried structures.

Examples are:

- Foundations.
- Railroad and trolley tracks.
- Remnants of structures.









Counter Clockwise, Left to Right: *Historic structure 45KI924, in WSDOT right of way for SR99 tunnel. Remnants of Smith Cove shantytown (45-KI-1200) discovered during Ecology CSO excavation, City of Spokane historic trolley tracks uncovered during stormwater project, intact foundation of historic home that survived the Great Ellensburg Fire of July 4, 1889, uncovered beneath parking lot in Ellensburg.*

Implement the IDP if you see...

Potential human remains.

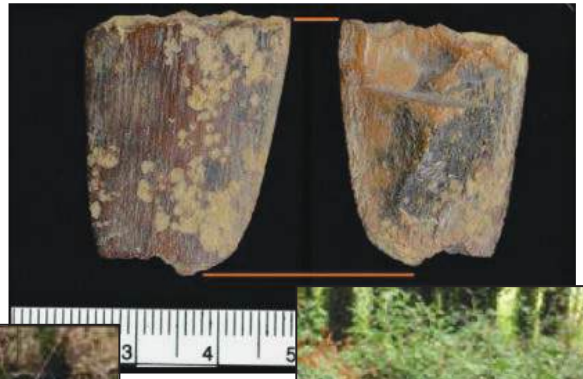
Examples are:

- Grave headstones that appear to be older than 50 years.
- Bones or bone tools--intact or in small pieces. It can be difficult to differentiate animal from human so they must be identified by an expert.
- These are all examples of animal bones and are not human.



Center: *Bone wedge tool, courtesy of Smith Cove Shantytown excavation (45KI1200).*

Other images (Top Right, Bottom Left, and Bottom) Center: Courtesy of DAHP.









Directly Above: This is a real discovery at an Ecology sewer project site.

What would you do if you found these items at a site? Who would be the first person you would call?

Hint: *Read the plan!*